

Shaw Environmental, Inc.

312 Directors Drive
Knoxville, TN 37923
865.690.3211
Fax 865.690.3626



Shaw Shaw Environmental, Inc.

**National Guard Armory
Charlottesville Readiness Center
Charlottesville, Virginia**

Industrial Hygiene Evaluation

Prepared for:

**National Guard Region North Industrial Hygiene Office
Havre De Grace, Maryland 21078**

Prepared by:

**Shaw Environmental, Inc.
312 Directors Drive
Knoxville, Tennessee 37923**

13 December 2004

**National Guard Armory
Charlottesville Readiness Center
Charlottesville, Virginia**

Industrial Hygiene Evaluation

Prepared for:

**National Guard Region North Industrial Hygiene Office
Havre De Grace, Maryland 21078**

Prepared by:

**Shaw Environmental, Inc.
312 Directors Drive
Knoxville, Tennessee 37923**

13 December 2004

Prepared by:

Non-Responsive

Environmental Scientist

Reviewed by:

Non-Responsive

Business Line Manager

Table of Contents

<i>Table of Contents</i>	<i>i</i>
<i>List of Tables</i>	<i>ii</i>
<i>List of Appendices</i>	<i>ii</i>
<i>Executive Summary</i>	<i>E-1</i>
<i>1.0 Introduction</i>	<i>1-1</i>
<i>2.0 Findings, Discussion, and Interpretation of Results</i>	<i>2-1</i>
<i>2.1 Sampling for Lead</i>	<i>2-1</i>
2.1.1 Wipe Sampling	2-1
2.1.2 Air Sampling for Lead.....	2-2
<i>2.2 Physical Condition of Facility</i>	<i>2-2</i>
2.2.1 Peeling Paint - Lead	2-2
2.2.2 Visual Inspection - Asbestos	2-2
2.2.3 Visual Inspection - Water Damage and Mold.....	2-3
2.2.4 Visual Inspection - Housekeeping.....	2-3
<i>2.3 Building Concerns</i>	<i>2-3</i>
2.3.1 Ergonomic Concerns	2-3
2.3.2 Indoor Air Quality.....	2-3
<i>2.4 Safety and Industrial Hygiene Programs</i>	<i>2-4</i>
<i>2.5 Ventilation</i>	<i>2-4</i>
2.5.1 Ventilation System Evaluation	2-4
2.5.2 Contamination of Clean Air Sources	2-4
<i>2.6 Noise Exposure</i>	<i>2-4</i>
<i>2.7 Lighting</i>	<i>2-5</i>
<i>2.8 Converted Indoor Firing Ranges</i>	<i>2-5</i>
<i>2.9 HVAC Systems</i>	<i>2-6</i>
<i>2.10 IHIM</i>	<i>2-6</i>
<i>3.0 Conclusions</i>	<i>3-1</i>
<i>Tables</i>	<i>Follows Section 3.0</i>
<i>Appendices</i>	<i>Follows Tables</i>

List of Tables

Table 1	Wipe Sampling for Lead
Table 2	Air Sampling for Lead
Table 3	Indoor Air Quality Measurements
Table 4	Illumination Readings
Table 5	Indoor Firing Ranges – Wipe Sampling

List of Appendices

Appendix A	HHJM Data Form
Appendix B	Building Layout
Appendix C	Sampling Sheets and Laboratory Analyses
Appendix D	References
Appendix E	Recommendations for Surface Lead Dust in Armories

Executive Summary

Shaw Environmental, Inc. (Shaw) was contracted to perform an industrial hygiene evaluation for the Charlottesville Readiness Center in Charlottesville, Virginia. Non-Responsiv performed the evaluation on 8 January 2004. The point of contact at the readiness center was SFC Non-Responsive

The following industrial hygiene concerns were evaluated.

- Wipe Sampling for Lead
- Air Sampling for Lead
- Peeling Paint – Lead
- Suspected Asbestos Containing Material
- Water Damage
- Presence of Mold
- Housekeeping
- Ergonomic Concerns
- Indoor Air Quality
- Safety and Industrial Hygiene Programs
- Ventilation System Evaluation
- Contamination of Clean Air Sources
- Noise Exposure
- Lighting
- Converted Indoor Firing Range
- HVAC Systems

The following items were either not applicable to the armory or the evaluation resulted in a conclusion that there were no industrial hygiene concerns.

- Air Sampling for Lead
- Peeling Paint – Lead
- Presence of Mold
- Housekeeping
- Ergonomic Concerns
- Safety and Industrial Hygiene Programs

- Ventilation System Evaluation
- Contamination of Clean Air Sources
- Noise Exposure
- HVAC Systems

Areas where there were industrial hygiene concerns are as follows:

- Wipe sampling for lead revealed a concentration above the recommended level of 200 micrograms per square foot ($\mu\text{g}/\text{ft}^2$) on the top surface of the soda machine and intercom control box in the drill floor/assembly hall area. It is recommended that these areas and the stored items in these areas must be decontaminated by a thorough cleaning until surface lead concentrations are reduced to below recommended levels. In addition, any other dusty/dirty areas in the assembly area/drill floor, basement storage room, and basement hallway should be thoroughly cleaned.
- Wipe sampling for lead revealed concentrations above a level of 40 micrograms per square foot ($\mu\text{g}/\text{ft}^2$) in the drill floor/assembly hall area, basement storage room, basement hallway, female locker room, Med Co supply room, and converted firing range. Areas with lead concentrations above 40 $\mu\text{g}/\text{ft}^2$ that will be accessible to children should be cleaned. If a special function is held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function.
- Materials (floor tiles) suspected of containing asbestos were observed. An operation and maintenance plan should be followed when performing any activities that may disturb the suspected asbestos-containing materials.
- Water damage was observed at several locations at the armory. The source of the water damage was likely from a combination of roof and pipe leaks. The source of the water damage should be confirmed and actions taken to eliminate the source in order to prevent the possibility of mold growth that may lead to indoor air quality problems.
- Measurements for humidity revealed that levels did not meet the recommended level of 30% humidity in the facility. It is recommended that a humidification system be installed at the facility.
- Lighting measurements were conducted at the armory. The lighting did not meet minimum requirements in some areas; therefore, consideration should be given to providing more lighting in these areas. This may be accomplished by replacing burnt out luminaries, cleaning fixtures, cleaning windows, painting walls with a lighter

color, repositioning detailed work to higher illuminated areas, and using supplemental lighting.

- Wipe sampling for lead in the converted firing range revealed concentrations above the recommended level. These areas and the stored items in these areas must be decontaminated by a thorough cleaning until surface lead concentrations are reduced to below recommended levels. In addition, employees should not be allowed to work in these areas without protective clothing until the areas and the stored items in these areas have been cleaned and re-sampled.

1.0 Introduction

Shaw Environmental, Inc. (Shaw) was contracted to perform an industrial hygiene evaluation for the Charlottesville Readiness Center in Charlottesville, Virginia. Non-Responsiv performed the evaluation on 8 January 2004. The point of contact at the readiness center was SFC Non-Responsive.

The findings, discussion, and interpretation of results are provided in Section 2.0. The conclusions are provided in Section 3.0. The HHIM data form for the facility is provided in Appendix A. The building layout is provided in Appendix B. Sampling sheets and laboratory analyses are provided in Appendix C. References are provided in Appendix D. The *Recommendations for Surface Lead Dust in Armories* document is provided in Appendix E.

The statements, opinions, and conclusions contained in this report are based solely upon the services performed by Shaw as described in the report. In performing these services and preparing the report, Shaw Environmental, Inc. relied upon the work and information provided by others, including public agencies, whose information is not guaranteed by Shaw Environmental, Inc.

2.0 Findings, Discussion, and Interpretation of Results

The results, discussion, and interpretation of results are provided in the following sections.

2.1. Sampling for Lead

2.1.1 Wipe Sampling

Wipe samples were collected for lead from the drill floor/assembly area. Also, wipe samples were collected for lead in rooms, hallways, foyers, etc. The sampling in rooms, hallways, foyers, etc. represented approximately 25% of the building.

Approximately half of the samples were collected from surfaces in common areas, such as surfaces of a desk. The remaining samples were collected from uncommon surface areas, such as a supply vent or the top of a file cabinet. The samples were collected and analyzed in accordance with the Instructions for *Completing the Sampling of ARMY National Guard Armories* procedure.

The only samples initially submitted for analysis were those from the drill floor/assembly hall. Since there were results above acceptable levels from the drill floor/assembly hall area, the remaining samples were submitted for analysis.

Results of the wipe sampling are provided in Table 1. The results revealed lead at all locations sampled at concentrations below recommended level of 200 micrograms lead per square foot ($\mu\text{g}/\text{ft}^2$) (See Appendix F) except at four locations. The two samples collected from the top surface of the soda machine and the intercom control box top surface in the drill floor/assembly hall area had lead concentrations of 2700 and 620 $\mu\text{g}/\text{ft}^2$, respectively. The two samples collected from the basement storage room shelf top and basement hallway shelf top had lead concentrations of 490 and 470 $\mu\text{g}/\text{ft}^2$, respectively. It is recommended that these surfaces and the immediate areas around these surfaces be thoroughly cleaned to reduce the lead level to below 200 $\mu\text{g}/\text{ft}^2$. For guidance on the proper method of cleaning, please refer to NG PAM 385-15 (*Guidelines and Procedures for Indoor Firing Range (IFR) Rehabilitation, Conversion, and Cleaning*). In addition, any other dusty/dirty areas in the assembly

area/drill floor, basement storage room, and basement hallway should be thoroughly cleaned.

In addition, wipe sampling for lead revealed concentrations above a level of $40 \mu\text{g}/\text{ft}^2$ in the drill floor/assembly hall area, basement storage room, basement hallway, female locker room, Med Co supply room, and converted firing range. Please note that the *Recommendations for Surface Lead Dust in Armories* (Appendix E) states that all areas with lead concentrations above $40 \mu\text{g}/\text{ft}^2$ that will be accessible to children should be cleaned. If a special function is held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function.

2.1.2 Air Sampling for Lead

Breathing zone air sampling was conducted on one (1) full-time building occupant, and a general air sample was conducted because no other employees were available for sampling. (Please note that no state employees were monitored.) The samples were collected and analyzed in accordance with Method 7082 of the National Institute of Occupational Safety and Health (NIOSH) Manual of Analytical Methods.

The results of the sampling are provided in Table 2. The results revealed non-detectable concentrations of lead in the breathing zone of the employee and the area sample; therefore, no actions are necessary.

2.2 Physical Condition of Facility

2.2.1 Peeling Paint - Lead

Peeling paint was observed in the armory. Peeling paint was observed in the kitchen, female latrine, female locker room, and boiler room. Bulk sampling was not conducted in the facility due to the fact the building was built in the early 1980's, and lead was not used in paint when the building was built.

2.2.2 Visual Inspection - Asbestos

A visual inspection was made to determine if there was any suspected asbestos-containing material at the armory. Materials (floor tiles) suspected of containing asbestos were observed. The suspected asbestos-containing materials, with condition and estimated quantity, were at the following locations:

- Offices – Good Condition, Approximately 1163.25 Square Feet
- Hallway – Good Condition, Approximately 472.5 Square Feet
- NCO Office – Good Condition, Approximately 337.5 Square Feet
- Classroom – Good Condition, Approximately 337.5 Square Feet
- State Guard Room – Good Condition, Approximately 126.56 Square Feet
- Female Locker Room – Good Condition, Approximately 140.62 Square Feet

An operation and maintenance plan should be followed when performing any activities that may disturb the suspected asbestos-containing materials.

2.2.3 Visual Inspection – Water Damage and Mold

A visual inspection was made to determine if there was any water damage or visible mold at the armory. Visible mold was not observed, however, water damage was observed at the armory. The water damage was observed in the “A” orderly office, state guard room, boiler room, female locker room, “A” supply, “D” supply, “D” maintenance, female latrine, kitchen, “D” PAC office, Med Co PAC office, library, INF Co TRN NCO office, Med Co TRN NCO office, Bio Med room, basement storage, and basement hallway.

The source of the water damage was likely from a combination of roof and pipe leaks. The source of the water damage should be confirmed and actions taken to eliminate the source in order to prevent the possibility of mold growth that may lead to indoor air quality problems.

2.2.4 Visual Inspection - Housekeeping

The housekeeping was determined to be good.

2.3. Building Concerns

2.3.1 Ergonomic Concerns

Interviews with employees and observation of work activities revealed no ergonomic concerns at the armory.

2.3.2 Indoor Air Quality

Interviews with employees and measurements for temperature and carbon dioxide revealed no indoor air quality concerns at the armory. However, measurements for

humidity revealed that levels did not meet the recommended level of 30% humidity in the facility. It is recommended that a humidification system be installed at the facility.

The results of the measurements for carbon dioxide, humidity, and temperature are provided in Table 4.

2.4. Safety and Industrial Hygiene Programs

An evaluation was performed to determine the applicability of the following programs.

- Confined Spaces
- Hearing Conservation
- Respiratory Protection
- Hazard Communication (HAZCOM)
- Personal Protective Equipment (PPE)

It was determined that the HAZCOM program was the only program listed above that was applicable at the facility. The HAZCOM program was evaluated and it was determined that the program met minimum requirements.

2.5. Ventilation

2.5.1 Ventilation System Evaluation

There were no local exhaust ventilation systems at this armory; therefore, no ventilation studies were performed.

2.5.2 Contamination of Clean Air Sources

Since there were no local exhaust ventilation systems at the armory, there was no possibility that clean air sources could be contaminated by exhaust air.

2.6. Noise Exposure

An evaluation was performed to determine if there were any hazardous noise areas at the armory. It was determined that there were no areas at the armory that would exceed the permissible exposure limit for noise.

2.7. Lighting

Lighting measurements were conducted at the armory. Results of the lighting evaluation are provided in Table 4. As can be seen from the results, the lighting did not meet the minimum requirements in some areas, including the Bio Med room.

Consideration should be given to providing more lighting to these areas. This may be accomplished by replacing burnt out luminaries, cleaning fixtures, cleaning windows, painting walls with a lighter color, repositioning detailed work to higher illuminated areas, and using supplemental lighting.

2.8. Converted Indoor Firing Ranges

There was a converted indoor firing range at the facility; therefore, wipe samples were taken for lead at various locations in or near the converted range. The space is used as a storage room. The results are provided in Table 5. The results revealed lead, with associated concentrations, at the following locations:

- bullet trap (floor near former bullet trap location) at 250 $\mu\text{g}/\text{ft}^2$;
- light fixtures at 97 $\mu\text{g}/\text{ft}^2$;
- overhead heaters at 630 $\mu\text{g}/\text{ft}^2$;
- stored items at 580 $\mu\text{g}/\text{ft}^2$;
- floor (outside the converted firing range) the range at 280 $\mu\text{g}/\text{ft}^2$; and
- floor (inside the converted firing range) at 55 $\mu\text{g}/\text{ft}^2$

The lead levels at four of these locations were above the recommended level of 200 $\mu\text{g}/\text{ft}^2$, a level recommended in the *Guidelines for Converting Indoor Firing Ranges to Other Uses* document (Department of Army). These areas and the stored items in the converted firing range must be decontaminated by a thorough cleaning until surface lead concentrations are reduced to below recommended levels. For guidance on the proper method of cleaning, please refer to NG PAM 385-15 (*Guidelines and Procedures for Indoor Firing Range (IFR) Rehabilitation, Conversion, and Cleaning*). In addition, employees should not be allowed to work in these areas without protective clothing until the areas and items have been cleaned and re-sampled.

2.9. HVAC System

The maintenance schedule for the HVAC system was evaluated to verify that maintenance occurs on a regular basis. Also, the condition of the HVAC system was evaluated to determine if the maintenance performed is effective. It was deemed that maintenance occurs on a regular basis, and the maintenance performed is effective.

2.10. HHIM

A Health Hazard Information Module (HHIM) form was completed for the armory. The completed form is provided in Appendix A.

3.0 Conclusions

It is concluded that there were no industrial hygiene concerns at the armory with regards to atmospheric exposure to lead, peeling lead-based paint, visible mold, housekeeping, ergonomic conditions, safety and industrial hygiene programs, ventilation systems or contamination of clean air sources, noise exposure, and HVAC systems.

There were industrial hygiene concerns at the armory with regards to lead surface contamination, suspected asbestos-containing material, water damage, indoor air quality, lighting, and surface lead contamination in the converted firing range. These concerns are discussed in detail in Section 2.0 of this report.

TABLES

Table 1
Wipe Sampling for Lead
National Guard Armory
Charlottesville, Virginia
Date of Sampling: 8 January 2004

Sample Number	Location	Results, $\mu\text{g}/\text{ft}^2$
VACHA008-1	Drill Floor (kitchen service window) See Building Layout – Appendix B	32
VACHA008-2	Drill Floor (soda machine top surface) See Building Layout – Appendix B	2700
VACHA008-3	Drill Floor (base of flag stand) See Building Layout – Appendix B	100
VACHA008-4	Drill Floor (intercom control box top surface) See Building Layout – Appendix B	620
VACHA008-5	Drill Floor (top surface of table) See Building Layout – Appendix B	21
VACHA008-6	Field Blank	0.37
VACHA008-7	25% Building (classroom #1 window sill) See Building Layout – Appendix B	31
VACHA008-8	25% Building (female locker room top surface of locker) See Building Layout – Appendix B	83
VACHA008-9	25% Building (Med Co supply room top surface of desk) See Building Layout – Appendix B	130
VACHA008-10	25% Building (kitchen top surface of ice machine) See Building Layout – Appendix B	15
VACHA008-11	25% Building ("A" orderly room top surface of filing cabinet) See Building Layout – Appendix B	16
VACHA008-12	Field Blank	0.37
VACHA008-13	25% Building (Med Co PAC top surface of filing cabinet) See Building Layout – Appendix B	13
VACHA008-14	25% Building (classroom B1 window sill) See Building Layout – Appendix B	9.6
VACHA008-15	25% Building (Med Co Training NCO top of refrigerator) See Building Layout – Appendix B	38

Table 1 (Continued)
Wipe Sampling for Lead
National Guard Armory
Charlottesville, Virginia
Date of Sampling: 8 January 2004


VACHA008-16	25% Building (basement storage room top of shelf) See Building Layout – Appendix B	490
VACHA008-17	25% Building (basement hallway top of shelf) See Building Layout – Appendix B	470
VACHA008-18	Field Blank	0.34

^a Micrograms lead per square foot

The samples were taken and analyzed in accordance with the *Instructions for Completing the Sampling of ARMY National Guard Armories* procedure.

In armories that do not contain childcare facilities, the NGB Region North Industrial Hygiene Office recommends cleaning the areas with sample results greater than 200 $\mu\text{g}/\text{ft}^2$

Table 2
Breathing Zone Air Samples for Lead
National Guard Armory
Charlottesville, Virginia
Date of Sampling: 8 January 2004

Sample Number	Employee	Sampling Information			Results (mg/m ³) ^a
		Time Sampled / Minutes	Flow Rate (lpm) ^b	Volume (liters)	
VACHA008-A1	Non-Responsive 	0950-1150/120	1.708	205.05	< 0.005
VACHA008-A2	General Air Sample	1000-1230/120	1.657	248.68	< 0.004
VACHA008-A3	Field Blank	-	-	-	None Detected

^a Milligrams lead per cubic meter of air.

^b Liters of air per minute.

Method 7082 of the National Institute of Occupational Safety and Health (NIOSH) Manual of Analytical Methods was followed for sampling for lead.

Table 3
Indoor Air Quality Measurements for Carbon Dioxide, Humidity, and Temperature
National Guard Armory
Charlottesville, Virginia
Date of Sampling: 8 January 2004

Location	Occupants In Area	Carbon Dioxide, parts per million parts of air (ppm)	Percent (%) Humidity	Temperature (°F)
Basement	1	370	23.9	69.8
1 st Floor	1	422	27.5	73.2
Outdoors	-	354	23.2	40.1

Carbon dioxide, humidity, and temperature measurements were taken with a TSI Q Trak Plus, Model 8554, Indoor Air Quality Meter, calibrated in April 2003.

American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE) recommends that indoor carbon dioxide levels be less than 700 ppm above outdoor levels.

ASHRAE recommends that the relative humidity levels be maintained between 30 to 60 percent.

ASHRAE recommends that the acceptable temperature range be 68 degrees Fahrenheit to 74 degrees Fahrenheit in the winter and 73 degrees Fahrenheit to 79 degrees Fahrenheit in the summer.

Table 4
Illumination Readings
National Guard Armory
Charlottesville, Virginia
Date of Sampling: 8 January 2004

Location	Luminance (fc) ^a	Standard (fc) ^a	Standard Met
1Sg Office	100-111.1	70	Yes
Co Office	105.5-111.1	70	Yes
Orderly "A" Office	94.4-111.1	70	Yes
Orderly "D" Office	55.5-83.3	70	Some Areas
Hallway Near Drill Hall	22.2-44.4	7.5	Yes
NCO Office	55.5-111.1	70	Some Areas
Classroom	44.4-77.7	70	Some Areas
Female Locker Room	22.2-122.2	40	Some Areas
Supply "A"	55.5-66.6	30	Yes
Supply "D"	55.5-66.6	30	Yes
Bio Med Room	22.2-55.5	70	No
Basement Storage	11.1-50	30	Some Areas
Converted Firing Range	22.2-44.4	30	Some Areas
Basement Supply Room	77.7-100	30	Yes
Med Co Training NCO Office	66.6-133.3	70	Some Areas
Med Co PAC	88.8-144.4	70	Yes
Classroom B3	122.2-155.5	70	Yes
Classroom B1	55.5-83.3	70	Some Areas
Classroom B2	55.5-83.3	70	Some Areas

^a fc - Footcandles

The readings were taken with a Weston model 614-60 Lightmeter.

The standards listed above are from ANSI/IES RP-1 and RP-7.

Table 5
Wipe Sampling for Lead – Converted Firing Range
National Guard Armory
Charlottesville, Virginia
Date of Sampling: 8 January 2004

Sample Number	Location	Results, $\mu\text{g}/\text{ft}^2$ ^a
VACHA008-19	Bullet Trap (floor near former bullet trap location)	250
VACHA008-20	Light Fixtures	97
VACHA008-21	Overhead Heaters	630
VACHA008-22	Stored Item	580
VACHA008-23	Floor (inside the converted firing range area)	280
VACHA008-24	Field Blank	0.45
VACHA008-25	Floor (outside the converted firing range area)	55

^a Micrograms lead per square foot

The samples were taken and analyzed in accordance with the Instructions for *Completing the Sampling of ARMY National Guard Armories* procedure.

Appendix A

HHIM Data Form(s)

HEALTH HAZARD INFORMATION MODULE: INDUSTRIAL HYGIENE SURVEY

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

SECTION 1. DEMOGRAPHIC DATA

ARLOC 24255		INSTALLATION APG-EA		BLDG/RM NO. CHARLOTTESVILLE	
LOCATION/CODE ADMINISTRATIVE AREAS /AA			OPERATION/CODE ADMINISTRATIVE OPERATIONS /ADO		
SURVEY DATE 8 JANUARY 2004			EVALUATOR (Initials) Non-Responsive		
MACOM/CODE		SUBMACOM/CODE XX		SUPERVISOR SF Non-Responsive	
TELEPHONE/DSN NO. (43A) 293 2316		UNIT/ORGANIZATION CHARLOTTESVILLE ARMORY		RAC 4	
FREQUENCY (hrs/day) 8		NO. CIV(S) 0		NO. MIL 6	
NO. CONTRACTOR(S) 0		NO. LOC(S) 1		NO. OTHER 1	

SECTION 2. FACILITY DATA

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

SECTION 3. SURVEY DATA

CONTROLS PRESENT	EVALUATION	UNIT CODE	CONTROLS REQUIRED	STATUS

PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized)

GLOVES	R	U	RESPIRATOR	NOSH TC NO.	MANUFACTURER	R	U
ACID			AIRLINE				
COLD SURFACES			ABRASIVE BLASTING HOOD				
HOT SURFACES			DISPOSABLE				
NBC AGENTS			FULL FACE AIR PURIFYING				
OIL			1/2 FACE AIR PURIFYING				
SOLVENTS			POWERED AIR PURIFYING				
SURGICAL GLOVES			1/4 FACE AIR PURIFYING				
			SELF CONTAINED				

EYES/FACE	R	U	HEARING	R	U	BODY	R	U	HEAD/FIT	R	U
CHEMICAL SPLASH			CANAL CAPS			APRONS			COLD WEATHER BOOTS/MATS		
FULL FACE SHIELD			EAR PLUGS			COLD WEATHER CLOTHING			HARD HATS		
CHEMICAL/SAFETY			HELMETS			COVERALLS			IMPERMEABLE BOOTS		
SAFETY/IMPACT			MUFFS			FULL BODY SUIT			SAFETY/CONDUCTIVE SHOES		
WELDING HELMET			MUFF/EARPLUG COMBO			HEAT REFLECTIVE VEST/SUIT			SAFETY/NON-CONDUCTIVE SHOES		
			MUFF/EARPLUG W/TIME LIMIT			SAFETY BELT/HARNES					

SECTION 4. HAZARD INVENTORY DATA

CAS CODE	HAZARD DESCRIPTION	PAC	EPC
POVDTXXX	VIDEO DISPLAY TERMINALS	3-LOW	D UNCONTROLLED PHYSICAL
7439-92-1	LEAD, INORGANIC DUSTS, FUMES	2-MODERATE	C UNCONTROLLED RESPIRATORY
1332-21-4	ASBESTOS	3-LOW	C UNCONTROLLED RESPIRATORY
124-38-9	CARBON DIOXIDE	2-MODERATE	C UNCONTROLLED RESPIRATORY
PO LIFTING	HEAVY LIFTING	2-MODERATE	D UNCONTROLLED PHYSICAL
PO HEATSTR	HEAT STRESS	3-LOW	D UNCONTROLLED PHYSICAL

SECTION 5. PERSONNEL DATA

LAST NAME	FIRST NAME	MI	SEX	SSN	CATEGORY
Non-Responsive		T.	M		MIL
		K.	M		MIL
		S.	F		MIL
		G.	M		MIL
		W.	M		MIL
		A.	M		MIL

SECTION 6. COMMENTS

☒ No comments

☐ See attached sheet

PRIVACY ACT STATEMENT

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

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

The following is a list of all full time employees at the Charlottesville Army National Guard Armory as of 09 January 2004:

Non-Responsive



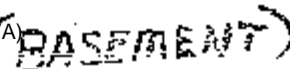
The following Units use this facility:

A Company 2-116th Infantry

B Company 429 FSB

Appendix B

Building Layout



Appendix C

Sampling Sheets and Laboratory Analyses

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: VA CHA 008
 Job Location: Charlottesville, Virginia
 Job Number: 845702 01000000
 P.O. Number: 1103

Chain Of Custody: 122179
 Date Analyzed: 2/3/2004
 Person Submitting: **SP0**
 Report Date: 03-Feb-04

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
0422049	VA CHA 008 1	Furnace	Wipe	****	0.111	5.40 ug/ft ²	32 ug/ft ²	
0422050	VA CHA 008 2	Flame	Wipe	****	0.111	108.01 ug/ft ²	2700 ug/ft ²	
0422051	VA CHA 008 3	Furnace	Wipe	****	0.111	13.50 ug/ft ²	100 ug/ft ²	
0422052	VA CHA 008 4	Furnace	Wipe	****	0.111	67.51 ug/ft ²	620 ug/ft ²	
0422053	VA CHA 008 5	Furnace	Wipe	****	0.111	2.70 ug/ft ²	21 ug/ft ²	
0422054	VA CHA 008 6	Furnace	Wipe Blank	****	N/A	0.30 ug	0.37 ug	
0422055	VA CHA 008 19	Furnace	Wipe	****	0.111	67.51 ug/ft ²	250 ug/ft ²	
0422056	VA CHA 008 20	Furnace	Wipe	****	0.111	13.50 ug/ft ²	97 ug/ft ²	
0422057	VA CHA 008 21	Flame	Wipe	****	0.111	108.01 ug/ft ²	630 ug/ft ²	
0422058	VA CHA 008 22	Furnace	Wipe	****	0.111	67.51 ug/ft ²	580 ug/ft ²	
0422059	VA CHA 008 23	Furnace	Wipe	****	0.111	67.51 ug/ft ²	280 ug/ft ²	
0422060	VA CHA 008 24	Furnace	Wipe Blank	****	N/A	0.30 ug	0.45 ug	
0422061	VA CHA 008 25	Furnace	Wipe	****	0.111	6.75 ug/ft ²	55 ug/ft ²	

BEST AVAILABLE COPY

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.

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



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: VA CHA 008
Job Location: Charlottesville, Virginia

Chain Of Custody: 122179
Date Analyzed: 2/3/2004

Job Number: 845702 01000000
P.O. Number: 1103

Person Submitting:
Report Date:

Attention: [Redacted]

Non-Responsive
 05-78804

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-311B
 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 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

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 AHERA air samples.

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

Client: National Guard Bureau
Address: 301-JH Old Bay Lane, Attn: NGB-AVN-SI,
State Military Reservation
Havre de Grace, Maryland 21078
Job Name: VACHA008
Job Location: Charlottesville, VA
Job Number: 845702 01000000
P.O. Number: 1103
Chain Of Custody: 122737
Date Analyzed: 2/20/2004
Person Submitting: **SP 00**
Report Date: 20-Feb-04

Attention: **SP 00**

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 (ft ²)	Reporting Limit	Final Result	Comments
0424083	VACHA008 7	Furnace	Wipe	****	0.111	5.40 ug/ft ²	31 ug/ft ²	
0424084	VACHA008 8	Furnace	Wipe	****	0.111	33.75 ug/ft ²	83 ug/ft ²	
0424085	VACHA008 9	Furnace	Wipe	****	0.111	33.75 ug/ft ²	130 ug/ft ²	
0424086	VACHA008 10	Furnace	Wipe	****	0.111	2.70 ug/ft ²	15 ug/ft ²	
0424087	VACHA008 11	Furnace	Wipe	****	0.111	2.70 ug/ft ²	16 ug/ft ²	
0424088	VACHA008 12	Furnace	Wipe Blank	****	N/A	0.30 ug	0.37 ug	
0424089	VACHA008 13	Furnace	Wipe	****	0.111	2.70 ug/ft ²	13 ug/ft ²	
0424090	VACHA008 14	Furnace	Wipe	****	0.111	2.70 ug/ft ²	9.6 ug/ft ²	
0424091	VACHA008 15	Furnace	Wipe	****	0.111	6.75 ug/ft ²	38 ug/ft ²	
0424092	VACHA008 16	Furnace	Wipe	****	0.111	67.51 ug/ft ²	490 ug/ft ²	
0424093	VACHA008 17	Flame	Wipe	****	0.111	108.01 ug/ft ²	470 ug/ft ²	
0424094	VACHA008 18	Furnace	Wipe Blank	****	N/A	0.30 ug	0.34 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.

Technical Manager: **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.

All rights reserved. AIHA Analytical Services, Inc.

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

1/30/04



Submitted To:

Non-Responsive

Shaw Environmental, Inc.
5700 Thurston Ave., Suite 116
Virginia Beach, VA 23455

Reference Data:

Lead

Client Sample No.:	VAFAP007A1 through VACHA008A3
P.O. No.:	1103
Sample Location:	Virginia
Sample Type:	Filter
Method Reference:	NIOSH 7300
DCL Set ID No.:	04-S-0350
DCL Sample ID No.:	04-01886 through 04-01895
Sample Receipt Date:	1/27/2004
Preparation Date:	01/29/04
Analysis Date:	01/29/04

The samples were prepared and analyzed in accordance with NIOSH method 7300 using a Perkin Elmer 3000XL ICP.

The sample condition upon receipt was acceptable except where noted.

The results are in the enclosed data table. Results relate only to the items tested and are not blank corrected unless indicated in the data table.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Non-Responsive

Analyst

Non-Responsive

Reviewer

CINCINNATI OFFICE
4388 GLENDALE-MILFORD ROAD
CINCINNATI, OHIO 45242-3706
513 733-5336, FAX 513 733-5347

WEST COAST OFFICE
11 SANTA YORMA COURT
NOVATO, CALIFORNIA 94945
800 280-8071, FAX 415 893-9469

Results

Lead

Client #	DCL #	Sample Volume (L)	µg/sample	mg/m ³
VAFAP007A1	04-01886	187.00	ND	<0.005
VAFAP007A2	04-01887	187.42	ND	<0.005
VAFAP007A3	04-01888	0	ND	-
VAFAPSF007A1	04-01890	118.87	ND	<0.008
VAFAPSF007A2	04-01891	114.40	ND	<0.009
VAFAPSF007A3	04-01892	0	ND	-
VACHA008A1	04-01893	205.05	ND	<0.005
VACHA008A2	04-01894	248.68	ND	<0.004
VACHA008A3	04-01895	0	ND	-
	Prep Blank		ND	
% Recovery	LCS		110.	
RPL			1.	

ND = not detected at or above the reporting limit (RPL).

LCS = laboratory control sample.

Non-Responsive

Analyst

Non-Responsive

Reviewer

National Guard Armory

Location: Charlottesville
Date: 1/8/2004

Sample 1

Sample Number: VACHA008A1

Pump: 647605

Pre Flow Rate	Post Flow Rate
----------------------	-----------------------

1.711 1.698

1.709 1,703

1.724 1.700

1.729 1.696

Average	1.718	1.699
---------	-------	-------

Average Pre and Post	1.7088
----------------------	--------

Time 1 9:50

Time 2 11:50

Total Time Sampled 2:00

Minutes Sampled	120.00
-----------------	--------

Volume 205.05 Liters

Sample 2

Sample Number: VACHA008A2

Pump: 647633

Pre Flow Rate	Post Flow Rate
----------------------	-----------------------

1.685 1.642

1.670 1.648

1.664 1.648

1.661 1.645

Average	1.670	1.646
---------	-------	-------

Average Pre and Post	1.6579
----------------------	--------

Time 1 10:00

Time 2 12:30

Total Time Sampled 2:30

Minutes Sampled	150.00
-----------------	--------

Volume 248.68 Liters

Appendix D

References

References

Title 29, Code of Federal Regulations (CFR), Part 1910, Occupational Safety and Health Administration (current edition)

American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc (ASHRAE) 62-2002, Ventilation for Acceptable Indoor Air Quality

Instructions for Completing the Sampling of Army National Guard Armories, Lead Wipe Sampling Procedure included with the Request for Proposal

Air Sampling for Lead - Method 7082 of the National Institute of Occupational Safety and Health (NIOSH) Manual of Analytical Methods

Design Guide DG-415-2, Logistics Facilities, National Guard Bureau Installation Division, 14 December 1999

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

Army Regulation (AR) 40-5, Medical Service, Preventive Medicine, 15 October 1990

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

Department of the Army Pamphlet (DA PAM) 40-501, Medical Services, Hearing Conservation Program, 10 December 1998

DA PAM 40-503, Medical Services, Industrial Hygiene Program, 30 October 2000

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

Guidelines for Converting Indoor Firing Ranges to Other Uses, Headquarters, Department of the Army and the Air Force, NG PAM (AR) 385-16/ANGPAM 91-101, 31 January 1994

24 CFR, Part 35, Subpart B, Section 35-110, Definition of Lead-Based Paint, Housing and Urban Development, U. S. Department of Housing

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 $0.05 \text{ mg}/\text{m}^3$ averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead dust in this building.

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

NGB-AVS-SI (40-5f)

17 December 2004

MEMORANDUM FOR VAARNG, Charlottesville Readiness Center, ATTN: SFC [Non-Respon
[Non-Responsiv] 165 Peregory Lane, Charlottesville, VA 22902

SUBJECT: Baseline Survey

1. I have enclosed the industrial hygiene survey report completed by Shaw Environmental, Incorporated.
2. In addition to the attached discussion and recommendations regarding wipe samples for lead, if a special function is held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function.
3. Please contact me at (410) 942-0273 or 1-800-550-6967 if you have any questions regarding the enclosed report.

Encl

[Non-Responsive]

Regional Industrial Hygienist

CF: Organizational Maintenance Officer
Occupational Health Manager

**National Guard Armory
Charlottesville Readiness Center
Charlottesville, Virginia
Industrial Hygiene Evaluation**

Recommendations

- Wipe sampling for lead revealed a concentration above the recommended level of 200 micrograms per square foot ($\mu\text{g}/\text{ft}^2$) on the top surface of the soda machine and intercom control box in the drill floor/assembly hall area. It is recommended that these areas and the stored items in these areas must be decontaminated by a thorough cleaning until surface lead concentrations are reduced to below recommended levels. In addition, any other dusty/dirty areas in the assembly area/drill floor, basement storage room, and basement hallway should be thoroughly cleaned. **RAC - 4**
- Wipe sampling for lead revealed concentrations above a level of 40 micrograms per square foot ($\mu\text{g}/\text{ft}^2$) in the drill floor/assembly hall area, basement storage room, basement hallway, female locker room, Med Co supply room, and converted firing range. Areas with lead concentrations above $40 \mu\text{g}/\text{ft}^2$ that will be accessible to children should be cleaned. If a special function is held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function. **RAC - 4**
- Materials (floor tiles) suspected of containing asbestos were observed. An operation and maintenance plan should be followed when performing any activities that may disturb the suspected asbestos-containing materials. **RAC - 5**
- Water damage was observed at several locations at the armory. The source of the water damage was likely from a combination of roof and pipe leaks. The source of the water damage should be confirmed and actions taken to eliminate the source in order to prevent the possibility of mold growth that may lead to indoor air quality problems. **RAC - 5**
- Measurements for humidity revealed that levels did not meet the recommended level of 30% humidity in the facility. It is recommended that a humidification system be installed at the facility. **RAC - 5**
- Lighting measurements were conducted at the armory. The lighting did not meet minimum requirements in some areas; therefore, consideration should be given to providing more lighting in these areas. This may be accomplished by replacing burnt out luminaries, cleaning fixtures, cleaning windows, painting walls with a lighter

color, repositioning detailed work to higher illuminated areas, and using supplemental lighting. **RAC - 5**

- Wipe sampling for lead in the converted firing range revealed concentrations above the recommended level. These areas and the stored items in these areas must be decontaminated by a thorough cleaning until surface lead concentrations are reduced to below recommended levels. In addition, employees should not be allowed to work in these areas without protective clothing until the areas and the stored items in these areas have been cleaned and re-sampled. **RAC - 4**

MEDICAL RECORD – SUPPLEMENTAL MEDICAL DATA

For use of this form, see AR 40-66; the proponent agency is the Office of The Surgeon General.

REPORT TITLE	OTSG APPROVED (Date)
WORKERS' OCCUPATIONAL WORKSITE SAMPLING DATA RECORD	

DIRECTORATE Charlottesville Armory

BLDG/ROOM Charlottesville

SPECIAL STUDY/REPORT NUMBER Virginia National Guard Study

JOB DESCRIPTION/SERIES Military/Administrative Operations

SAMPLING DATE January 8, 2004

EXPOSURE MONITORED	TYPE SAMPLE*	PERMISSIBLE EXPOSURE LIMIT	SAMPLING RESULT	CALCULATED TWA	EXPOSURE CATEGORY**
1. Lead	P	0.05 mg/m ³	< 0.008	< 0.005	1
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					

*TYPE OF SAMPLE: G=General Area Sample

P=Personal Sample Collected in the Breathing Zone of the Worker.

R=Personal Sample Collected on another worker, but representative of expected exposure for this worker.

**EXPOSURE CATEGORY

1. Measured Exposure levels are below permissible exposure limit.
2. Measured Exposure levels are close to permissible exposure limits: See Comments.
3. Measured Exposure levels are above permissible exposure limits: See Comments.

COMMENTS:

NOTE: REFER TO THE SPECIAL STUDY OR REPORT REFERENCED FOR DETAILS OF SAMPLING AND RESULTS.

PREPARED BY (Signature & Title)		DEPARTMENT/SERVICE/CLINIC		DATE
Non-Responsive Environmental Scientist		INDUSTRIAL HYGIENE SECTION		1/8/2004
PATIENT'S IDENTIFICATION (For typed or written entries give: Name --last, first, Middle; grade; date; hospital or medical facility)		HISTORY/PHYSICAL		FLOW CHART
NAME: Non-Responsive SFC: 1/8/2004		OTHER EXAMINATION OR EVALUATION		OTHER (SPECIFY)
SSN: Non-Responsive (last four)		DIAGNOSTIC STUDIES		TREATMENT
UNIT PHONE NO: 434-293-2316				

DA FORM 4700
1 MAY 78

HSXR-APG-Z OP 32 1 Jan 90

Shaw Environmental, Inc.

312 Directors Drive
Knoxville, TN 37923
865.690.3211
Fax 865.690.3626



Shaw Environmental, Inc.

*Survey 8 Jan 04
Rec'd 9 Apr 04
rev'd 12/1/04*

31 March 2004

Ms. **Non-Responsive**
Regional Industrial Hygienist
Region North Industrial Hygiene Office
Attn: NGB-AVS-SI
301-IH Old Bay Lane
Havre De Grace, Maryland 21078

RE: Draft Report for the Industrial Hygiene Evaluation at the Charlottesville
Readiness Center – Charlottesville, Virginia

Dear Ms. **Non-Responsive**

Attached is a copy of the referenced report. Also attached is a copy of the field notes, photographs and photograph log, and the completed contaminant exposure forms (three copies of each employee sampled). Please call me if you have questions.

Sincerely,

Non-Responsive

Project Manager

Field Notes and Checklist

State: VIRGINIA Location: CHARLOTTESVILLE ARMORY Date: JANUARY 8, 2004
Contact: SFC Non-Responsive

1.0 Sampling for Lead

1.1 Wipe Sampling

Sample #:	<u>1</u>	Picture #:	<u>/</u>	Location:	<u>KITCHEN DISH RETURN WINDOW SILL</u>
Sample #:	<u>2</u>	Picture #:	<u>/</u>	Location:	<u>SODA MACHINE TOP</u>
Sample #:	<u>3</u>	Picture #:	<u>/</u>	Location:	<u>BASE OF FLAG STAND</u>
Sample #:	<u>4</u>	Picture #:	<u>/</u>	Location:	<u>INTERCOM CONTROL BOX TOP (PASSISTEN)</u>
Sample #:	<u>5</u>	Picture #:	<u>/</u>	Location:	<u>TABLE TOP</u>
Sample #:	<u>6, 12</u>	Picture #:	<u>H/A</u>	Location:	<u>FIELD BLANK</u>
Sample #:	<u>7</u>	Picture #:	<u>/</u>	Location:	<u>WINDOW SILL (CLASSROOM #1)</u>
Sample #:	<u>8</u>	Picture #:	<u>/</u>	Location:	<u>LOCKER TOP (FEMALE LOCKER ROOM)</u>
Sample #:	<u>9</u>	Picture #:	<u>/</u>	Location:	<u>DESK TOP (MED CO SUPPLY ROOM)</u>
Sample #:	<u>10</u>	Picture #:	<u>/</u>	Location:	<u>ICE MACHINE TOP (KITCHEN)</u>
Sample #:	<u>11</u>	Picture #:	<u>/</u>	Location:	<u>"A" ORDERLY TOP OF FILING CABINET</u>
Sample #:	<u>12</u>	Picture #:	<u>/</u>	Location:	<u>MED CO PAC TOP OF FILING CABINET</u>
Sample #:	<u>14</u>	Picture #:	<u>/</u>	Location:	<u>CLASSROOM B1 WINDOW SILL</u>
Sample #:	<u>15</u>	Picture #:	<u>/</u>	Location:	<u>MED CO TRAINING HCO ROOM B9 TOP OF REFRIGERAT</u>
Sample #:	<u>16</u>	Picture #:	<u>/</u>	Location:	<u>BASEMENT STORAGE ROOM SHELF TOP</u>
Sample #:	<u>17</u>	Picture #:	<u>/</u>	Location:	<u>BASEMENT HALLWAY SHELF TOP</u>
Sample #:	<u> </u>	Picture #:	<u> </u>	Location:	<u> </u>
Sample #:	<u> </u>	Picture #:	<u> </u>	Location:	<u> </u>
Sample #:	<u> </u>	Picture #:	<u> </u>	Location:	<u> </u>
Sample #:	<u> </u>	Picture #:	<u> </u>	Location:	<u> </u>

(Also, please see the sketch of sampling locations.)

1.2 Breathing Zone Air Sampling

Sample #: A1 Employee Sampled: SFC Non-Responsive Non-Responsive
Sample #: A2 Employee Sampled: GENERAL AIR SAMPLE (RECRUITER'S OFFICE)
A3 FIELD BLANK

2.0 Physical Condition of Facility

2.1 Peeling Paint - Lead

Peeling paint observed (Yes or No): YES

DID NOT SAMPLE BECAUSE BUILDING WAS TO BE DEMOLISHED.
 If peeling paint observed, samples were taken as follows:

Sample #: --- Picture #: / Location: KITCHEN
 Condition (Good, Average, Poor): AVERAGE Quantity: 3 ft²
 Sample #: --- Picture #: / Location: FEMALE LATRINE
 Condition (Good, Average, Poor): POOR Quantity: 2 ft²
 Sample #: --- Picture #: / Location: FEMALE LOCKER ROOM
 Condition (Good, Average, Poor): POOR Quantity: 2 ft²
 Sample #: --- Picture #: / Location: BOILER ROOM
 Condition (Good, Average, Poor): AVERAGE Quantity: 3 ft²
 Sample #: --- Picture #: --- Location: ---
 Condition (Good, Average, Poor): --- Quantity: --- ft²

2.2 Visual Inspection - Asbestos

Suspected asbestos-containing material observed (Yes or No): YES

IN OFFICE'S SURROUNDING TILE DRAIN DRAIN.

If suspected asbestos-containing material observed, samples were taken as follows:

Location 1: OFFICES (94 x 22) Picture #: ---
 Condition: GOOD Approximate (Square or Linear Feet): 1103.25 SQUARE FT
 Location 2: HALLWAY (14 x 60) Picture #: ---
 Condition: GOOD Approximate (Square or Linear Feet): 472.5 SQUARE FT
 Location 3: HALL (24 x 25) Picture #: ---
 Condition: GOOD Approximate (Square or Linear Feet): 337.5 SQUARE FT
 Location 4: CLASSROOM (24 x 25) Picture #: ---
 Condition: GOOD Approximate (Square or Linear Feet): 337.5 SQUARE FT
 Location 5: TIME CHANGE ROOM (9 x 25) Picture #: ---
 Condition: GOOD Approximate (Square or Linear Feet): 126.50 SQUARE FT

FEMALE LOCKER ROOM (10 x 25) 140.62 SQUARE FT
LOCKER

2.3 Visual Inspection – Water Damage and Mold

Water damage observed (Yes or No): Yes

If yes, water damage was observed at the following locations:

Location 1: "A" ORDERLY OFFICE Picture #: _____

Location 2: STATE BOARD ROOM Picture #: _____

Location 3: BOILER ROOM Picture #: _____

Location 4: FEMALE LOCKER ROOM Picture #: _____

Location 5: "A" SUPPLY Picture #: _____

"D" SUPPLY, "D" MAINTENANCE, FEMALE LATRINE, KITCHEN, "D" PAC OFFICE, MEDICAL PAC OFFICE, LIBRARY, INT CO-ORDINATOR OFFICE, MEDICENTERED OFFICE, BIO MED, BASEMENT STORAGE, BASEMENT HALLWAY

Mold observed (Yes or No): No

If yes, mold was observed at the following locations:

Location 1: _____ Picture #: _____

Location 2: _____ Picture #: _____

Location 3: _____ Picture #: _____

Location 4: _____ Picture #: _____

Location 5: _____ Picture #: _____

2.4 Visual Inspection - Housekeeping

Housekeeping (good, average, poor): Good

Comments (such as no dirt or trash was visible on the floors or the housekeeping was poor in that there was trash and debris on the floors that could lead to a tripping hazard, or there was dust in the vents.):

3.0 Building Concerns

3.1 Ergonomic Concerns

Ergonomic concerns (Yes or No): No

If there are ergonomic concerns at the armory, describe the extent of the problem, such as three employees stated that they perform repetitive motion at the XYZ machine for 6 hours per day, and they stated that they are suffering from symptoms of musculoskeletal disorders (MSDs).

3.2 Indoor Air Quality

IAQ concerns (based on employee interviews)(Yes or No): No

If yes, what were concerns:

Measurements for carbon dioxide, humidity, and temperature:

Location	CO ₂ (ppm)	Humidity (%)	Temperature (°F)	Occupancy (People in Room)
Outdoors -	354	23.2	40.1	0
1 st Floor -	422	27.5	73.2	1
2nd Floor -	—	—	—	—
3rd Floor -	—	—	—	—
Basement	330	23.9	69.8	1

4.0 Safety and Industrial Hygiene Programs

4.1 Confined Spaces

Are confined spaces applicable (Yes or No): No

If yes, does the program meet minimum standards (Yes or No):

If no, explain the deficiencies:

4.2 Hearing Conservation

Is hearing conservation applicable (Yes or No): No

If yes, does the program meet minimum standards (Yes or No): —

If no, explain the deficiencies:

4.3 Respiratory Protection

Is respiratory protection applicable (Yes or No): No

If yes, does the program meet minimum standards (Yes or No): —

If no, explain the deficiencies:

4.4 Hazard Communication

Is hazard communication applicable (Yes or No): Yes

If yes, does the program meet minimum standards (Yes or No): Yes

If no, explain the deficiencies:

4.5 Personal Protective Equipment

Is personal protective equipment applicable (Yes or No): Yes

If yes, does the program meet minimum standards (Yes or No): Yes

If no, explain the deficiencies:

5.0 Ventilation

5.1 Ventilation System Evaluation

Local exhaust ventilation systems at this armory (Yes or No): Yes

If yes, results of airflow patterns:

Location 1: _____

Airflow Pattern (acceptable or unacceptable, with reason):

Location 2: _____

Airflow Pattern (acceptable or unacceptable, with reason):

Location 3: _____

Airflow Pattern (acceptable or unacceptable, with reason):

5.2 Contamination of Clean Air Sources

Clean air sources contaminated by contaminated exhaust air (Yes or No): No

If yes, describe:

6.0 Noise Dosimetry

Potential hazardous noise areas (Yes or No): no

If yes, results of noise dosimetry sampling:

Employee sampled: _____

Results: _____ % Actual _____ % Projected 8-hour TWA _____ Equivalent dBA

Activity: _____

Employee sampled: _____

Results: _____ % Actual _____ % Projected 8-hour TWA _____ Equivalent dBA

Activity: _____

Employee sampled: _____

Results: _____ % Actual _____ % Projected 8-hour TWA _____ Equivalent dBA

Activity: _____

7.0 Lighting Evaluation

DIVISION BY 9

Location	Luminance Range (fc)
ISO OFFICE	90-100
CO OFFICE	95-100
ORDERLY OFFICE "A"	85-100
ORDERLY OFFICE "B"	50-15
HALLWAY NEAR DRILL HALL	20-40
NCC OFFICE	50-100
CLASSROOM	40-70
FEMALE LOCKER ROOM	20-110
SUPPLY "A"	50-60
SUPPLY "B"	50-60
TRI-MED ROOM	20-50
BOILER ROOM	10-45
PAINT PAINT	20-40
BASEMENT SUPPLY ROOM	70-90

MED CO TRAINING & LO OFFICE	60-120
MED CO PAL	80-130
CLASSROOM	110-140
CLASSROOMS B-1 & B-2	50-75

8.0 Converted Indoor Firing Ranges

Converted indoor firing range (Yes or No): YES

STORAGE AREA

If yes, locations sampled:

Sample #: 4/2 Picture #: — Location: Inside any remaining ventilation ductwork

Sample #: 5/2 Picture #: — Location: Exhaust ventilation system

Sample #: 19 Picture #: ✓ Location: Bullet trap

Sample #: 20 Picture #: ✓ Location: Light fixtures

Sample #: 21 Picture #: ✓ Location: Overhead heaters

Sample #: 22 Picture #: ✓ Location: Stored items

Sample #: 23 Picture #: ✓ Location: Floor

Sample #: 25 Picture #: ✓ Location: Outside the range

9.0 HVAC System

Does the HVAC system have maintenance performed on a regular basis (Yes or No):

YES

In yes, is the maintenance effective (Yes or No): YES

If no, describe:

10.0 HHIM

Complete HHIM form for facility (Initial as completed): Non-Responsive

Reproduction Room HHIM Necessary (Yes or No) (Initial if Yes): —

Film Developing Room HHIM Necessary (Yes or No) (Initial if Yes): —

Maintenance Area HHIM Necessary (Yes or No) (Initial if Yes): —

11.0 Additional Items

Table 1 (wipe sampling) completed (initial when completed): _____

Table 2 (air sampling) completed (initial when completed): _____

Table 3 (peeling paint), if necessary, completed (initial when completed): _____

Table 3 or 4 (IAQ) completed (initial when completed): _____

Table 4 or 5 (noise), if necessary, completed (initial when completed): _____

Table 5 or 6 (firing ranges), if necessary, completed (initial when completed): _____

Airflow pattern diagram(s) completed (initial when completed): _____

Building layout included (initial when completed): _____

Photographs (initial when completed): _____

Sampling Sheets and Laboratory Analyses (initial when completed): _____

Sampling tracking form completed and faxed to NGB ARNG R _____

within 5 days of date of this survey (initial when completed): _____

(Fax to Ken Forsythe at 410-942-0254)

State Lead Wipes Spreadsheet completed) (initial when completed): _____

Three copies of noise exposure notification letter, if necessary (initial when completed): _____

Three copies of contaminant exposure forms for each employee that participated in air sampling (initial when completed): _____

Non-Responsive

Charlottesville Armory Photo Log
National Guard Armory
Charlottesville, Virginia
Date of Survey: 8 January 2004

Photo	Description
1	Lead Wipe Assembly Room - Kitchen Service Window - Sample 1
2	Lead Wipe Assembly Room - Top Surface of Soda Machine - Sample 2
3	Lead Wipe Assembly Room - Base of Flag Stand - Sample 3
4	Lead Wipe Assembly Room - Top Surface Intercom Control Box - Sample 4
5	Lead Wipe Assembly Room - Top Surface of Table - Sample 5
6	25% Building - Classroom #1 Window Sill - Sample 7
7	25% Building - Female Locker Room Top Surface of Locker - Sample 8
8	25% Building - Med Co Supply Room - Top Surface of Desk - Sample 9
9	25% Building - Kitchen Top Surface of Ice Machine - Sample 10
10	25% Building - "A" Orderly Top Surface of Filing Cabinet - Sample 11
11	25 % Building - Med Co PAC Top Surface of Filing Cabinet - Sample 13
12	25% Building - Classroom B1 Window Sill - Sample 14
13	25% Building - Med Co Training NCO Top Surface of Refrigerator - Sample 15
14	25% Building - Basement Storage Room Top Surface of Shelf - Sample 16 (mislabeled as 17)
15	25% Building - Basement Hallway Top Surface of Shelf - Sample 17 (mislabeled as 18)
16	Firing Range - Floor Near Former Bullet Trap Location - Sample 19
17	Firing Range - Light Fixtures - Sample 20
18	Firing Range - Overhead Heaters - Sample 21
19	Firing Range - Stored Item - Sample 22
20	Firing Range - Floor Inside the Converted Firing Range - Sample 23
21	Firing Range - Floor Outside the Converted Firing Range - Sample 25
22	Firing Range - Artificial wall covering the bullet trap
23	Water Damage - Basement Hallway Ceiling
24	Water Damage - Basement Hallway Ceiling
25	Water Damage - Med Co Training NCO Room Ceiling
26	Water Damage - Library Ceiling
27	Suspected Asbestos and Water Damage - "A" Orderly Office Floor
28	Water Damage - State Guard Room Ceiling
29	Water Damage - INF Co Training NCO Ceiling
30	Water Damage & Peeling Paint - Boiler Room Wall
31	Water Damage & Peeling Paint - Female Locker Room Ceiling
32	Water Damage - "A" Supply Wall
33	Water Damage - Drill Floor/Assembly Hall Wall
34	Water Damage & Peeling Paint - Kitchen Wall
35	Water Damage & Peeling Paint - Women's Latrine Ceiling
36	Water Damage - Med Co PAC Ceiling
37	Water Damage - Basement Bio Med Room Ceiling

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



Industrial Hygiene Survey
for VAARNG – Charlottesville Readiness
Center
165 Peregory Lane
Charlottesville, Virginia 22902

AECOM
January 2013
Document No.: 60275401/ Charlottesville Readiness Center

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

Industrial Hygiene Survey
for VAARNG – Charlottesville Readiness
Center
165 Peregory Lane
Charlottesville, Virginia 22902

Non-Responsive

A large black rectangular redaction box covering several lines of text.

Industrial Hygienist

Non-Responsive

A large black rectangular redaction box covering several lines of text.

Project Manager

Non-Responsive

A large black rectangular redaction box covering several lines of text.

Northeast District Health & Safety Manager

AECOM Environment
January 2013
Document No.: 60275401/Charlottesville 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 Charlottesville Readiness Center Facility Layout

Appendix B Charlottesville Readiness Center Photographs

Appendix C Analytical Results

Appendix D References



List of Tables

Table 2-1: Lead Wipe Sample Results 2-1

Table 3-1: Indoor Air Quality Monitoring Results..... 3-2

Table 5-1: Light Survey 5-1



Executive Summary

On November 1, 2012, AECOM Technical Services Northeast, Inc. (AECOM) conducted an Industrial Hygiene (IH) survey of the Charlottesville Readiness Center facility located at 165 Peregrine Lane in Charlottesville, Virginia. SFC Non- was the point of contact for the facility and accompanied AECOM during the survey to provide access and information concerning the Charlottesville Readiness Center operations.

The industrial hygiene survey was conducted in general accordance with the scope of work as described in the "Statement of Work – Industrial Hygiene Services for National Guard Bureau Industrial Hygiene Region North – Baseline Surveys for Readiness Centers and Administrative Buildings", dated March 2009.

The Charlottesville Readiness Center is currently staffed by ten personnel. The facility is configured as an administrative area and a drill/assembly hall.

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

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

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

Wipe samples collected in association with most administrative areas indicated lead levels below the Occupational Safety and Health Administration's (OSHA's) Clarification of "as free as practicable" and lead contamination under 29 Code of Federal Regulations (CFR) 1926.62, The Compliance Directive for the Interim Standard for Lead in Construction, CPL 2-2.58. OSHA recommends the use of the U.S. Department of Housing and Urban Development's (HUD) acceptable decontamination level of 200 micrograms per square foot (ug/ft²) for floors in evaluating the cleanliness of change areas, storage facilities, and lunchrooms/eating areas.

However, wipe samples collected from the drill hall air return vent, boiler room and top of a heater in the former firing range area indicated levels of lead in excess of 200 ug/ft².

Damaged suspect asbestos containing materials were observed during the evaluation. A sample was collected from each of three areas and included ceiling plaster in the kitchen, pipe elbow insulation in the drill hall and acoustical wall tile in the former range. Results of analysis indicated no asbestos detected in the submitted samples.

Peeling lead-based paint was observed in the boiler room. A sample of the paint was submitted for analysis of lead content and determined to be below the reporting level of 0.0087% lead.

Significant water damage or visible mold growth was not observed during the survey. Water intrusion is a mold growth risk factor. Personnel indicate roof leaks in the drill hall and back classroom during heavy rains.



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

1.0 Facility Description and Operations

The Charlottesville Readiness Center is located in a masonry block brick facade building initially constructed prior to 1979. An addition was placed on the building in 1987. The section occupied by Readiness Center personnel consists of rooms configured as office space and is finished with acoustical drop ceilings, and floor tile.

The primary activity at the Charlottesville Readiness Center is routine administrative duties. The Charlottesville Readiness Center is currently staffed by approximately 10 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 multiple areas of the facility following the Occupational Safety & Health Administration (OSHA) wipe sampling method and using Ghost Wipes.

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

Table 2-1: Lead Wipe Sample Results

Sample Number	Sample Location	Lead Concentration
CRC-001	Assembly hall	390 ug/ft²
CRC-002	Assembly hall	<110 ug/ft ²
CRC-003	Boiler room	390 ug/ft²
CRC-004	Kitchen exhaust vent	<110 ug/ft ²
CRC-005	Top of locker-former range	<110 ug/ft ²
CRC-006	Top of heater-former range	250 ug/ft²
CRC-007	Outside firing range door on floor	<110 ug/ft ²
CRC-008	INF CO orderly room	<110 ug/ft ²
CRC-009	Firing range floor	<110 ug/ft ²
CRC-010	Foyer-main hall	<110 ug/ft ²
CRC-011	Copy room shelf	<110 ug/ft ²
CRC-012	SFC Goodman office	<110 ug/ft ²

ug/ft² = Micrograms per square foot.

Wipe samples collected in association with most administrative areas indicated lead levels below the Occupational Safety and Health Administration's (OSHA's) Clarification of "as free as practicable" and lead contamination under 29 CFR 1926.62, The Compliance Directive for the Interim Standard for Lead in Construction, CPL 2-2.58. OSHA recommends the use of HUD's acceptable decontamination level of 200 ug/ft² for floors in evaluating the cleanliness of change areas, storage facilities, and lunchrooms/eating areas.

Lead in excess of the action level of 200 micrograms per square foot (ug/ft²) per NG-PAM 420-15 was detected in wipe samples collected on the assembly hall air vent, boiler room and heater in the former firing range. Laboratory analytical results are presented in Appendix C.

2.1.2 Air Sampling

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

3.0 Physical Condition of Facility and Personnel Concerns

3.1.1 Lead Based Paint

Interior surfaces of walls are coated with paint. The paint on the walls is in serviceable condition with the exception of the peeling paint noted in the boiler room. A sample of the damaged paint in the boiler room was submitted for analysis of lead content and determined to be below the reporting level of 0.0087% lead.

3.1.2 Suspect Asbestos Containing Materials

AECOM observed damaged, friable suspect asbestos-containing materials (ACM) in readily accessible areas of the Charlottesville Readiness Center during this survey.

Damaged suspect asbestos containing materials were observed during the evaluation. A sample was collected from each of three areas and included ceiling plaster in the kitchen, pipe elbow insulation in the drill hall and acoustical wall tile in the former range. Results of analysis indicated no asbestos detected in the submitted samples.

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

3.1.3 Water Damage/Mold

Significant water damage or visible mold growth was not observed during the survey. Water intrusion is a mold growth risk factor. Personnel indicate roof leaks in the drill hall and back classroom during heavy rains.

3.1.4 Housekeeping

The Charlottesville 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 Charlottesville Readiness Center staff members. No Indoor Air Quality concerns were noted by the Charlottesville Readiness Center personnel.

Instantaneous real-time reading for carbon monoxide and carbon dioxide (parts per million or ppm), temperature (° Fahrenheit), and relative humidity (as percentage) are presented in the following table. The facility is mechanically air conditioned. Several temperature readings were below the recommended guidelines and a few relative humidity readings exceeded 60%. All other readings are within acceptable guidelines.

Table 3-1: Indoor Air Quality Monitoring Results

Location	Carbon Monoxide (ppm)	Carbon Dioxide (ppm)	Temp (°F)	Relative Humidity (%)
Orderly room	4.3	761	68.3	39.6
SFC Non- office	4.2	717	69.7	37.9
NCO office	4.4	763	69.9	38.5
Commander office	4.1	481	68.3	38.0
Kitchen	4.4	456	66.1	34.5
Kitchen rear storage	2.9	518	62.4	44.0
Men's bath	3.0	487	62.8	41.0
Drill hall	2.7	473	63.8	37.9
Shower	2.5	529	64.1	56.9
A-7 supply room	1.9	529	63.6	64.2
Boiler room	1.9	535	64.7	43.7
Room A-3	2.5	474	62.9	38.4
Room A-2	2.7	457	63.4	38.8
Recruiters room	3.0	465	63.9	39.1
Foyer	2.4	587	67.7	40.5
Room 3-2	2.4	855	68.6	43.1
Room 3-4	2.8	658	68.4	40.7
Mail room	3.0	710	68.6	42.1
Library	3.0	537	66.8	43.3
Large classroom	2.0	490	66.3	42.1
Room B-9	2.4	768	67.1	45.4
Room B-7	2.3	74	68.2	44.5

Table 3-1 Guidelines:

Carbon Monoxide: Office/Warehouse Space – 9 ppm based on United States Environmental Protection Agency's National Ambient Air Quality Standard.

OSHA Permissible Exposure Limit (PEL) = 50 ppm. American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit value (TLV) = 25, ppm.

Carbon Dioxide: Office Space -Approximately 700 ppm above background (Derived from American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE) Standard 62.1-2010). Not Applicable to warehouse and vehicle maintenance bays.

Relative Humidity: Mechanically air-conditioned space – Maximum 65% (Derived from ASHRAE Standard 62.1-2010 – 5.10.1).

Temperature: Winter (clothing insulation = 1.0 clo) Relative humidity 30-60% - Temp - 68 – 75°F

Summer Temp - 73 – 79°F. (Derived from ASHRAE Standard 55-2010)

Charlottesville 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 building has a central boiler and roof mounted AC unit HVAC system. No dust was observed at diffusers, and site personnel indicated that the system seems to work well. Temperature readings were constant in all areas occupied by readiness center personnel.

4.1.2 HVAC Maintenance

The HVAC system is serviced by a third party vendor. Maintenance records were not available for review during this survey.

There was no 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 generally not adequate in the surveyed areas.

Table 5-1: Light Survey

Location	Results (Foot candles)	Met Standard (Y/N)	Standard*
Orderly room	69.1	Y	50
SFC Non-office	51.0	Y	50
NCO office	37.6	N	50
Commander office	57.9	Y	50
Kitchen	35.2	N	50
Kitchen rear storage	23.4	N	30
Men's bath	7.0	Y	5
Drill hall	37.6	Y	10
Shower	11.6	Y	5
A-7 supply room	31.9	Y	30
Boiler room	30.1	Y	30
Room A-3	7.9	N	50
Room A-2	55.7	Y	50
Recruiters room	27.1	N	50
Foyer	33.6	Y	10
Room 3-2	43.0	N	50
Room 3-4	24.0	N	50
Mail room	23.0	N	30
Library	26.0	N	30
Large classroom	68.5	Y	30
Room B-9	40.8	N	50
Room B-7	53.3	Y	50
Office Lighting (ANSI/IESNA RP-1-04) and Industrial Lighting Facilities (ANSI/IESNA RP-7-01)			

6.0 Evaluation of Attached Garage

There is no garage associated with the Charlottesville 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 Charlottesville Readiness Center.

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

Wipe samples collected in association with most administrative areas indicated lead levels below the Occupational Safety and Health Administration's (OSHA's) Clarification of "as free as practicable" and lead contamination under 29 CFR 1926.62, The Compliance Directive for the Interim Standard for Lead in Construction, CPL 2-2.58. OSHA recommends the use of HUD's acceptable decontamination level of 200 ug/ft² for floors in evaluating the cleanliness of change areas, storage facilities, and lunchrooms/eating areas.

However, wipe samples collected from the drill hall air return vent, boiler room and top of a heater in the former firing range area indicated levels of lead in excess of 200 ug/ft².

Damaged suspect asbestos containing materials were observed during the evaluation. A sample was collected from each of three areas and included ceiling plaster in the kitchen, pipe elbow insulation in the drill hall and acoustical wall tile in the former range. Results of analysis indicated no asbestos detected in the submitted samples.

Peeling lead-based paint was observed in the boiler room. A sample of the paint was submitted for analysis of lead content and determined to be below the reporting level of 0.0087% lead.

Significant water damage or visible mold growth was not observed during the survey. Water intrusion is a mold growth risk factor. Personnel indicate roof leaks in the drill floor and back classroom during heavy rains.

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

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

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

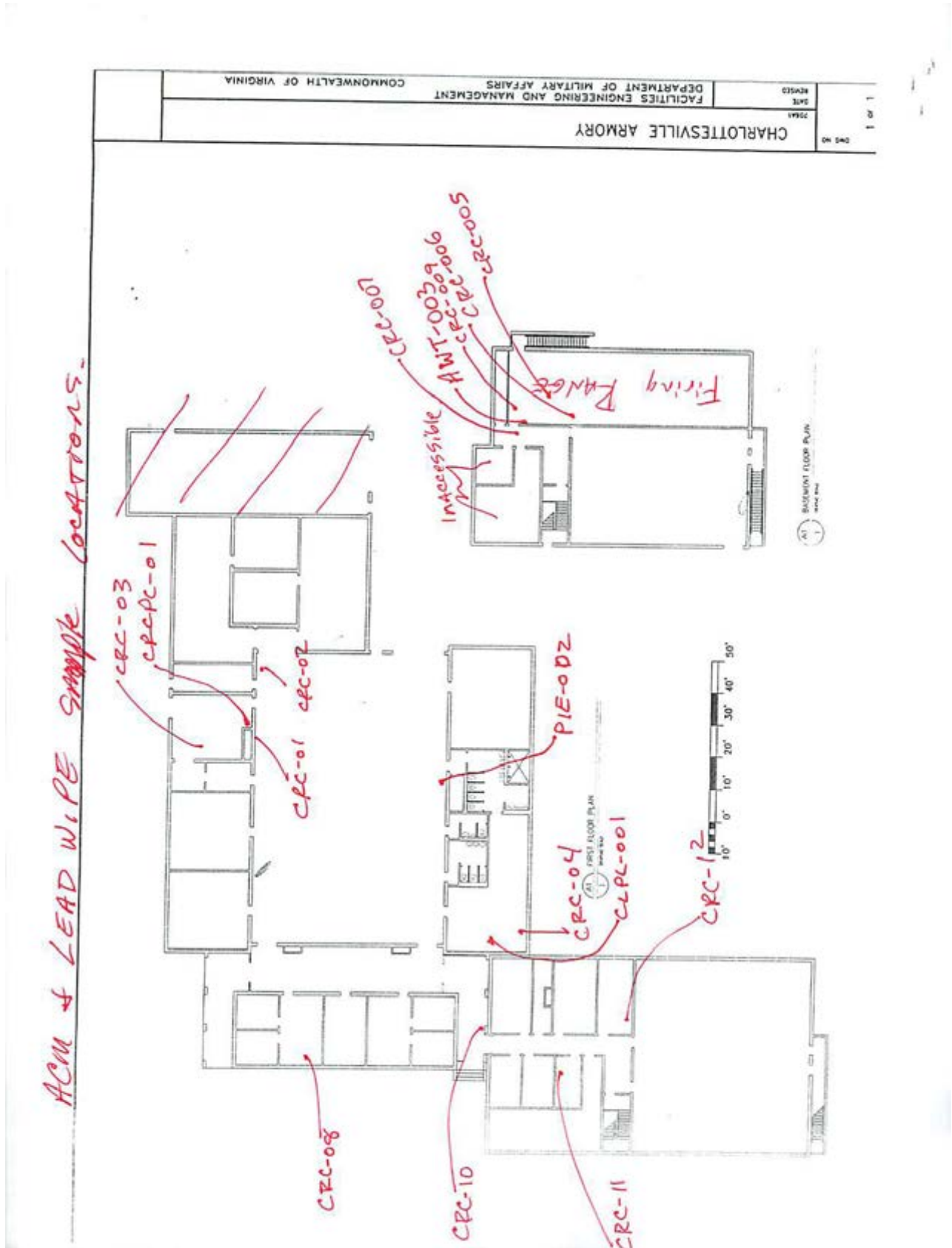
be used as a guide to evaluate the need for further investigation or the need for modifications to the processes or procedures surveyed.

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



Appendix A

Charlottesville Readiness Center Facility Layout





Appendix B

Charlottesville Readiness Center Photographs

Photograph 1



Charlottesville facility

Photograph 2



Peeling paint in kitchen (CLPL-001)

Photograph 3



Drill floor

Photograph 4



Typical interior

Photograph 5



Boiler room

Photograph 6



Air return assembly hall (CRC-01)

Photograph 7



Damaged elbow in drill hall (PIE-002)

Photograph 8



Representative office

Photograph 9



Former firing range

Photograph 10



ACM basement acoustic tile on wall of range (AWT-003)

Photograph 11



Orderly room desk wipe sample



Appendix C

Analytical Results

AMA Analytical Services, Inc.



A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS



Client: National Guard Bureau Job Name: VA ANGIH Survey Chain Of Custody: 514726
 Address: 301-TH Old Bay Lane, Attn: ARNG-CJG-P, Job Location: Charlottesville RC Date Submitted: 12/12/2012
 State Military Reservation
 Havre de Grace, Maryland 21078 Job Number: Not Provided Person Submitting: AECOM
 P.O. Number: W912K6-09-A-0003 Date Analyzed: 12/21/2012 Report Date: 12/21/2012

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
13022940	CRC-01	Flame	Wipe	***	0.111	110 ug/ft ²	44	390 ug/ft ²	
13022941	CRC-02	Flame	Wipe	***	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13022942	CRC-03	Flame	Wipe	***	0.111	110 ug/ft ²	43	390 ug/ft ²	
13022943	CRC-04	Flame	Wipe	***	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13022944	CRC-05	Flame	Wipe	***	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13022945	CRC-06	Flame	Wipe	***	0.111	110 ug/ft ²	28	250 ug/ft ²	
13022946	CRC-07	Flame	Wipe	***	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13022947	CRC-08	Flame	Wipe	***	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13022948	CRC-09	Flame	Wipe	***	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13022949	CRC-10	Flame	Wipe	***	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13022950	CRC-11	Flame	Wipe	***	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13022951	CRC-12	Flame	Wipe	***	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13022952	CRC-PC-01	Flame	Paint Chip	***	N/A	0.0087 %Pb		<0.0087 %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.

An AIHA (#100470) and NY ELAP (#10920) Accredited Laboratory

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

AMA Analytical Services, Inc.



A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS



LAB #100470

Client:	National Guard Bureau	Job Name:	VA ANG IH Survey	Chain Of Custody:	514726
Address:	301-1H Old Bay Lane, Attn: ARNG-CJG-P, State Military Reservation	Job Location:	Charlottesville RC	Date Submitted:	12/12/2012
	Havre de Grace, Maryland 21078	Job Number:	Not Provided	Person Submitting:	AECOM
		P.O. Number:	W912K6-09-A-0003	Date Analyzed:	12/21/2012
				Report Date:	12/21/2012

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
<p>Analysis Method for Flame: Air, Wipes, Paints, and Soil/Solids: EPA 600/R-93/200(M)-7000B; Water: SM-3111B</p> <p>Analysis Method For Furnace: Air, Wipes, Paints, and Soil/Solids: EPA 600/R-93/200(M)-7010; Water: SM-3113B</p> <p>N/A = Not Applicable mg/Kg = parts per million (ppm) on a dry weight basis mg/L = parts per million (ppm)</p> <p>%Pb = percent lead on a dry weight basis ug = micrograms ug/L = parts per billion (ppb)</p> <p>Note: All samples were received in good condition unless otherwise noted.</p> <p>Note: All results have two significant digits. Any additional digits shown should not be considered when interpreting the result.</p> <p>Air and Wipe results are not corrected for any blank results</p> <p>Final results for air and wipe samples are based on client supplied information not verified by this laboratory.</p> <p>All results are to be considered preliminary and subject to change unless signed by the Technical Director or Deputy.</p>							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.

An AIHA (#100470) and NY ELAP (#10920) Accredited Laboratory

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

AMA Analytical Services, Inc.



A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS



101143-0

Client: National Guard Bureau Job Name: VA ANG IH Survey Chain Of Custody: 514726
 Address: 301-III Old Bay Lane, Attn: ARNG-CIG-P, Job Location: Charlottesville RC Date Analyzed: 12/19/2012
 State Military Reservation
 Havre de Grace, Maryland 21078 Job Number: Not Provided Person Submitting: AECOM
 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
13022953	CLPL-001	NAD	--	--	--	--	--	--	--	--	--	100	CPL	White	Homogeneous	LBP	
13022954	PIE-002	NAD	--	--	--	--	30	--	--	--	--	70	Elbow	Gray	Homogeneous	LBP	
13022955	AWT-003	NAD	--	--	--	--	30	--	30	--	--	40	CT	White	Homogeneous	LBP	

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

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

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

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

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

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.

NVLAP (101143-0) Accredited Laboratory

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

January 2013

Surface Sampling Field Data Sheet

Date Collected: 10/31/12 Job Name: Charlottesville NGB RC IAD Company: H&P Page 1 of 1
 Job Number: 20120769 Job Location: CBE Phone Number: 434-547-7796
 Contact Person: Non-Responsive Address: 165 Perryway Lane Collected By: Non-Responsive
Charlottesville VA 22902 COC Number: _____

Sample Number	Sample Location	Surface/Substrate Sampled	Area Wiped (in ² /ft ²)	Collection Media
CRC-01	Assembly Hall	HVAC Return/metal	16 in ²	WIRE
CRC-02	Assembly Hall	File Locker/metal		
CRC-03	Boiler Room	Inside Unit/metal		
CRC-04	Kitchen Exhaust vent	Exhaust vent/metal		
CRC-05	Top of Locker - ^{former} Firing Range	Locker/metal		
CRC-06	Top of Heater ^{former} Firing Range	Boiler/metal		
CRC-07	Outside of Firing Range Door	Floor/concrete		
CRC-08	INF CO orderly Room	TABLETOP/WOOD		
CRC-09	Firing Range floor	Floor/concrete		
CRC-10	Foyer - MAIN HALL	FLOOR/VINYL TILE		
CRC-11	Copy Room - Shelf	SHELF/WOOD		
CRC-12	SFC GOODMAN office	Refrigerator/Aluminum		
CRC-01	Boiler Room Paint Chip	TAN PAINT-Homogenous. Cement Block	2 in ²	chip.

Please Return Samples To:

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

Bulk Sampling Survey Sheet

Date Collected: 10/31/12Job Name: Charlotteville NOB DC IADCompany: H&P Page 1 of 1Job Number: 2020569Job Location: CRCPhone Number: 434-847-7796Contact Person: Non-ResponsiveAddress: 165 Perry LaneCollected By: Non-ResponsiveCharlotteville VA 22902

COC Number: _____

Sample Number	Homogenous Area ID	Type of Material	Sample Location	Friable	Condition of Material	Accessibility	Photo	Comments
CLPL-001		Ceiling PLASTER	Kitchen	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Potentially	<input type="checkbox"/> Good <input checked="" type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input checked="" type="checkbox"/> Medium <input type="checkbox"/> High	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	CAUSED BY moisture intrusion
PIE-002		Pipe Insulation ELBOW	DRAW HALL 1 st Line	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input checked="" type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input checked="" type="checkbox"/> Medium <input type="checkbox"/> High	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	DAMAGED ELBOW
AWT-003		Acoustical WALL TILE	old Firing Range Entrance	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input checked="" type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input checked="" type="checkbox"/> High	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Slightly DAMAGED AT ENTRANCE
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	

Please Return Samples To:

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



Appendix D

References

References

1. Title 29, Code of Federal Regulations (CFR), Part 1910, Occupational Safety and Health Administration, current Ed. <http://www.osha.gov/comp-links.html>
2. Department of Defense Instruction (DODI) 6055.1, Department of Defense Occupational Safety and Health (OSH) Program, August 19, 1998. <http://www.dtic.mil/whs/directives/corres/pdf/605501p.pdf>
3. Army Regulation (AR) 11-34, The Army Respiratory Protection Program, 15 February 1990. http://armypubs.army.mil/epubs/pdf/R11_34.PDF
4. AR 40-5, Medical Service, Preventive Medicine, 25 May 2007. http://armypubs.army.mil/epubs/pdf/R40_5.PDF
5. AR 385-10, The Army Safety Program, 23 August 2007; Rapid Action Revision (RAR) issue date: 4 October 2011. http://armypubs.army.mil/epubs/pdf/R385_10.PDF
6. Department of the Army Pamphlet (DA PAM) 40-501, Medical Services, Hearing Conservation Program, 10 December 1998. http://armypubs.army.mil/epubs/pdf/P40_501.pdf
7. DA PAM 40-11, Preventive Medicine, 22 July 2005, RAR issue date: 19 October 2009. http://armypubs.army.mil/epubs/pdf/p40_11.pdf
8. DA PAM 40-503, Medical Services, Industrial Hygiene Program, 30 October 2000. http://armypubs.army.mil/epubs/pdf/P40_503.PDF
9. UFC 3-410-01FA, Heating, Ventilating, and Air Conditioning, 15 May 2003, change 4, January 2010. http://www.wbdg.org/ccb/DOD/UFC/ufc_3_410_01fa.pdf
10. Threshold Limit Values (TLVs) and Biological Exposure Indices (BEIs), American Conference of Governmental Industrial Hygienists (ACGIH), current Ed.
11. Industrial Ventilation – A Manual of Recommended Practice for Design, ACGIH, current Ed.
12. American National Standards Institute (ANSI)/International Safety Equipment Association (ISEA) Z358.1-2009, Emergency Eyewash and Shower Equipment.
13. ANSI/American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. (ASHRAE) 55-2010, Thermal Environmental Conditions for Human Occupancy.
14. ANSI/ASHRAE 62.1-2010, Ventilation for Acceptable Indoor Air Quality.
15. RP-1-2004, Office Lighting, ANSI/IESNA.
16. RP-7-2001, Industrial Lighting, ANSI/IESNA, change 20 July 2004.
17. OSHA Instruction Letter 02-02-058, Lead Exposure in Construction, Office of Health Compliance Assistance, 13 December 1993.
18. OSHA Standard Interpretation, Clarification of “as free as practicable” and lead contamination under 29 CFR 1926.62, dated January 13, 2003.
19. NG PAM 420-15, Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges, 3 November 2006. http://www.ngbpdc.ngb.army.mil/pubs/420/ngpam420_15.pdf

Shaw Environmental, Inc.

312 Directors Drive
Knoxville, TN 37923
865.690.3211
Fax 865.690.3626



**National Guard Armory
Danville Readiness Center
Danville, Virginia**

Industrial Hygiene Evaluation

Prepared for:

**National Guard Region North Industrial Hygiene Office
Havre De Grace, Maryland 21078**

Prepared by:

**Shaw Environmental, Inc.
312 Directors Drive
Knoxville, Tennessee 37923**

07 June 2004

**National Guard Armory
Danville Readiness Center
Danville, Virginia**

Industrial Hygiene Evaluation

Prepared for:

**National Guard Region North Industrial Hygiene Office
Havre De Grace, Maryland 21078**

Prepared by:

**Shaw Environmental, Inc.
312 Directors Drive
Knoxville, Tennessee 37923**

07 June 2004

Prepared by:

Non-Responsive

Environmental Scientist

Reviewed by:

Non-Responsive

Business Line Manager

Table of Contents

<i>Table of Contents</i>	<i>i</i>
<i>List of Tables</i>	<i>ii</i>
<i>List of Appendices</i>	<i>ii</i>
<i>Executive Summary</i>	<i>E-1</i>
<i>1.0 Introduction</i>	<i>1-1</i>
<i>2.0 Findings, Discussion, and Interpretation of Results</i>	<i>2-1</i>
<i>2.1 Sampling for Lead</i>	<i>2-1</i>
<i>2.1.1 Wipe Sampling</i>	<i>2-1</i>
<i>2.1.2 Air Sampling for Lead</i>	<i>2-2</i>
<i>2.2 Physical Condition of Facility</i>	<i>2-2</i>
<i>2.2.1 Peeling Paint - Lead</i>	<i>2-2</i>
<i>2.2.2 Visual Inspection - Asbestos</i>	<i>2-2</i>
<i>2.2.3 Visual Inspection - Water Damage and Mold</i>	<i>2-3</i>
<i>2.2.4 Visual Inspection - Housekeeping</i>	<i>2-3</i>
<i>2.3 Building Concerns</i>	<i>2-3</i>
<i>2.3.1 Ergonomic Concerns</i>	<i>2-3</i>
<i>2.3.2 Indoor Air Quality</i>	<i>2-3</i>
<i>2.4 Safety and Industrial Hygiene Programs</i>	<i>2-3</i>
<i>2.5 Ventilation</i>	<i>2-4</i>
<i>2.5.1 Ventilation System Evaluation</i>	<i>2-4</i>
<i>2.5.2 Contamination of Clean Air Sources</i>	<i>2-4</i>
<i>2.6 Noise Exposure</i>	<i>2-4</i>
<i>2.7 Lighting</i>	<i>2-4</i>
<i>2.8 Converted Indoor Firing Ranges</i>	<i>2-4</i>
<i>2.9 HVAC Systems</i>	<i>2-5</i>
<i>2.10 IHIM</i>	<i>2-5</i>
<i>3.0 Conclusions</i>	<i>3-1</i>
<i>Tables</i>	<i>Follows Section 3.0</i>
<i>Appendices</i>	<i>Follows Tables</i>

List of Tables

Table 1	Wipe Sampling for Lead
Table 2	Air Sampling for Lead
Table 3	Indoor Air Quality Measurements
Table 4	Illumination Readings
Table 5	Indoor Firing Ranges - Wipe Sampling

List of Appendices

Appendix A	IIFIM Data Form
Appendix B	Building Layout
Appendix C	Sampling Sheets and Laboratory Analyses
Appendix D	References
Appendix E	Recommendations for Surface Lead Dust in Armories

Executive Summary

Shaw Environmental, Inc. (Shaw) was contracted to perform an industrial hygiene evaluation for the Danville Readiness Center in Danville, Virginia. **Non-Responsive** performed the evaluation on 20 January 2004. The point of contact at the readiness center was MAJ. **Non-Responsive**

The following industrial hygiene concerns were evaluated.

- Wipe Sampling for Lead
- Air Sampling for Lead
- Peeling Paint – Lead
- Suspected Asbestos Containing Material
- Water Damage
- Presence of Mold
- Housekeeping
- Ergonomic Concerns
- Indoor Air Quality
- Safety and Industrial Hygiene Programs
- Ventilation System Evaluation
- Contamination of Clean Air Sources
- Noise Exposure
- Lighting
- Converted Indoor Firing Range
- HVAC Systems

The following items were either not applicable to the armory or the evaluation resulted in a conclusion that there were no industrial hygiene concerns.

- Air Sampling for Lead
- Peeling Paint – Lead
- Mold
- Housekeeping
- Ergonomic Concerns
- Safety and Industrial Hygiene Programs

- Ventilation System Evaluation
- Contamination of Clean Air Sources
- Noise Exposure
- Converted Indoor Firing Range
- HVAC Systems

Areas where there were industrial hygiene concerns are as follows:

- Wipe sampling for lead revealed concentrations above a level of 40 micrograms per square foot ($\mu\text{g}/\text{ft}^2$) in the drill floor/assembly hall and converted firing range. Areas with lead concentrations above 40 $\mu\text{g}/\text{ft}^2$ that will be accessible to children should be cleaned. If a special function is held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function.
- Materials (floor tiles) suspected of containing asbestos were observed. An operations and maintenance plan should be followed when performing any activities that may disturb the suspected asbestos-containing materials.
- Water damage was observed at several locations at the armory. The source of the water damage was likely from a mixture of roof and pipe leaks. The source of the water damage should be confirmed and actions taken to eliminate the source in order to prevent mold growth that may lead to indoor air quality problems.
- Indoor air quality measurements revealed that the humidity at the armory exceeded the recommended levels. It is recommended that a humidification system be installed at the armory.
- Lighting measurements were conducted at the armory. The lighting did not meet minimum requirements in some areas; therefore, consideration should be given to providing more lighting in these areas. This may be accomplished by replacing burnt out luminaires, cleaning fixtures, cleaning windows, painting walls with a lighter color, repositioning detailed work to higher illuminated areas, and using supplemental lighting.

1.0 Introduction

Shaw Environmental, Inc. (Shaw) was contracted to perform an industrial hygiene evaluation for the Danville Readiness Center in Danville, Virginia. Non-Responsive performed the evaluation on 20 January 2004. The point of contact at the readiness center was MAJ Non-Responsive

The findings, discussion, and interpretation of results are provided in Section 2.0. The conclusions are provided in Section 3.0. The HHIM data form for the facility is provided in Appendix A. The building layout is provided in Appendix B. Sampling sheets and laboratory analyses are provided in Appendix C. References are provided in Appendix D. The *Recommendations for Surface Lead Dust in Armories* document is provided in Appendix E.

The statements, opinions, and conclusions contained in this report are based solely upon the services performed by Shaw as described in the report. In performing these services and preparing the report, Shaw Environmental, Inc. relied upon the work and information provided by others, including public agencies, whose information is not guaranteed by Shaw Environmental, Inc.

2.0 Findings, Discussion, and Interpretation of Results

The results, discussion, and interpretation of results are provided in the following sections.

2.1. Sampling for Lead

2.1.1 Wipe Sampling

Wipe samples were collected for lead from the drill floor/assembly area. Also, wipe samples were collected for lead in rooms, hallways, foyers, etc. The sampling in rooms, hallways, foyers, etc. represented approximately 25% of the building.

Approximately half of the samples were collected from surfaces in common areas, such as surfaces of a desk. The remaining samples were collected from uncommon surface areas, such as a supply vent or the top of a file cabinet. The samples were collected and analyzed in accordance with the Instructions for *Completing the Sampling of ARMY National Guard Armories* procedure.

The only samples initially submitted for analysis were those from the drill floor/assembly hall. If there were any results above acceptable levels from the drill floor/assembly hall, the other samples would have been submitted for analysis.

Results of the wipe sampling are provided in Table 1. The results revealed lead at all locations sampled at concentrations below the recommended level of 200 micrograms lead per square foot ($\mu\text{g}/\text{ft}^2$) (See Appendix B); therefore, no actions are necessary. Since results were below acceptable levels from the drill/assembly hall, the other samples were not submitted for analysis.

However, wipe sampling for lead revealed concentrations above a level of $40 \mu\text{g}/\text{ft}^2$ in the drill floor/assembly hall and converted firing range. Please note that the *Recommendations for Surface Lead Dust in Armories* (Appendix E) states that all areas with lead concentrations above $40 \mu\text{g}/\text{ft}^2$ that will be accessible to children should be cleaned. If a special function is held in which children will be present in

this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function.

2.1.2 Air Sampling for Lead

Breathing zone air sampling was conducted on two (2) full-time building occupants. (Please note that no state employees were monitored.) The sample was collected and analyzed in accordance with Method 7082 of the National Institute of Occupational Safety and Health (NIOSH) Manual of Analytical Methods.

The results of the sampling are provided in Table 2. The results revealed non-detectable concentrations of lead in the breathing zone of the employee; therefore, no actions are necessary.

2.2 Physical Condition of Facility

2.2.1 Peeling Paint - Lead

Peeling paint was not observed at the armory; therefore, bulk samples for lead in paint were not taken.

2.2.2 Visual Inspection - Asbestos

A visual inspection was made to determine if there was any suspected asbestos-containing material at the armory. Materials (floor tiles) suspected of containing asbestos were observed. The suspected asbestos-containing materials, with condition and estimated quantity, were at the following locations:

- Offices 1, 2, 3, and 4 - Average Condition, Approximately 1002 Square Feet
- Offices 5, 5B, 5C, 6, 7, 8, and 9 - Average Condition, Approximately 1980 Square Feet
- Office 10 - Average Condition, Approximately 405 Square Feet
- Offices 11 and 12 - Average Condition, Approximately 324 Square Feet
- Lobby - Average Condition, Approximately 725 Square Feet
- Two Hallways - Average Condition, Approximately 675 Square Feet
-

An operation and maintenance plan should be followed when performing any activities that may disturb the suspected asbestos-containing materials.

2.2.3 Visual Inspection – Water Damage and Mold

A visual inspection was made to determine if there was any water damage or visible mold at the armory. Visible mold was not observed, however, water damage was observed at the armory. Water damage was observed on the ceilings and some walls in offices 8, 9, and 10, lobby, children's daycare room, men's latrine, recreation center storage room, recreation center office, drill floor/assembly hall, and converted firing range.

The source of the water damage was likely from a mixture of roof and pipe leaks. The source of the water damage should be confirmed and actions taken to eliminate the source in order to prevent the possibility of mold growth that may lead to indoor air quality problems.

2.2.4 Visual Inspection - Housekeeping

The housekeeping was determined to be good.

2.3. Building Concerns

2.3.1 Ergonomic Concerns

Interviews with employees and observation of work activities revealed no ergonomic concerns at the armory.

2.3.2 Indoor Air Quality

Interviews with employees and measurements for temperature and carbon dioxide revealed no indoor air quality concerns at the armory. However, measurements for humidity revealed that levels did not meet the recommended level of 30% in the facility. It is recommended that a humidification system be installed at the facility.

The results of the measurements for carbon dioxide, humidity, and temperature are provided in Table 4.

2.4. Safety and Industrial Hygiene Programs

An evaluation was performed to determine the applicability of the following programs.

- ♦ Confined Spaces

- Hearing Conservation
- Respiratory Protection
- Hazard Communication (HAZCOM)
- Personal Protective Equipment (PPE)

It was determined that none of the programs were applicable at the armory.

2.5. Ventilation

2.5.1 Ventilation System Evaluation

There were no local exhaust ventilation systems at this armory; therefore, no ventilation studies were performed.

2.5.2 Contamination of Clean Air Sources

Since there were no local exhaust ventilation systems at the armory, there was no possibility that clean air sources could be contaminated by exhaust air.

2.6. Noise Exposure

An evaluation was performed to determine if there were any hazardous noise areas at the armory. It was determined that there were no areas at the armory that would exceed the permissible exposure limit for noise.

2.7 Lighting

Lighting measurements were conducted at the armory. Results of the lighting evaluation are provided in Table 4. As can be seen from the results, the lighting did not meet the minimum requirements in some areas, including the fire support room and chaplain's office.

Consideration should be given to providing more lighting to the areas listed above. This may be accomplished by replacing burnt out luminaires, cleaning fixtures, cleaning windows, painting walls with a lighter color, repositioning detailed work to higher illuminated areas, and using supplemental lighting.

2.8 Converted Indoor Firing Ranges

There was a converted indoor firing range at the facility; therefore, wipe samples were taken for lead at various locations in or near the converted range. The space is

used as storage. The results are provided in Table 5. The results revealed lead, with associated concentrations, at the following locations:

- bullet trap at 35 micrograms lead per square foot ($\mu\text{g}/\text{ft}^2$);
- floor at $59 \mu\text{g}/\text{ft}^2$;
- floor outside the range at $15 \mu\text{g}/\text{ft}^2$;
- stored item at $39 \mu\text{g}/\text{ft}^2$; and
- light fixture at $15 \mu\text{g}/\text{ft}^2$.

The lead levels were below the recommended level of $200 \mu\text{g}/\text{ft}^2$, a level recommended in the *Guidelines for Converting Indoor Firing Ranges to Other Uses* document (Department of Army); therefore, no actions are necessary.

2.9. HVAC System

The maintenance schedule for the HVAC system was evaluated to verify that maintenance occurs on a regular basis. Also, the condition of the HVAC system was evaluated to determine if the maintenance performed is effective. It was deemed that maintenance occurs on a regular basis, and the maintenance performed is effective.

2.10. HHIM

A Health Hazard Information Module (HHIM) form was completed for the armory. The completed form is provided in Appendix A.

3.0 Conclusions

It is concluded that there were no industrial hygiene concerns at the armory with regards to atmospheric exposure to lead, peeling lead-based paint, visible mold, housekeeping, ergonomic conditions, safety and industrial hygiene programs, ventilation systems or contamination of clean air sources, noise exposure, surface lead contamination in the converted firing range, and HVAC systems.

There were industrial hygiene concerns at the armory with regards to lead surface contamination, suspected asbestos-containing material, water damage, indoor air quality, and lighting. These concerns are discussed in detail in Section 2.0 of this report.

TABLES

Table 1
Wipe Sampling for Lead
National Guard Armory
Danville Armory, Virginia
Date of Sampling: 20 January 2004

Sample Number	Location	Results, $\mu\text{g}/\text{ft}^2$ ^a
VADAN020-1	Drill Floor (kitchen service widow countertop) See Building Layout -- Appendix B	6.4
VADAN020-2	Drill Floor (heat register top surface) See Building Layout -- Appendix B	21
VADAN020-3	Drill Floor (heat register top surface) See Building Layout -- Appendix B	74
VADAN020-4	Drill Floor (heat register top surface) See Building Layout -- Appendix B	56
VADAN020-5	Drill Floor (heat register top surface) See Building Layout -- Appendix B	20
VADAN020-6	Field Blank	0.39 μg

^a Micrograms lead per square foot

The samples were taken and analyzed in accordance with the *Instructions for Completing the Sampling of ARMY National Guard Armories* procedure.

Table 2
Breathing Zone Air Samples for Lead
National Guard Armory
Danville, Virginia
Date of Sampling: 20 January 2004

Sample Number	Employee	Sampling Information			Results (mg/m ³) ^a
		Time Sampled / Minutes	Flow Rate (lpm) ^b	Volume (liters)	
VADAN020-A1	Non-Responsive	930-1210/160	1.607	257.14	<0.004
VADAN020-A2		935-1215/160	1.684	269.56	<0.004
VADAN020-A3	Field Blank	-	-	-	None Detected

^a Milligrams lead per cubic meter of air.

^b Liters of air per minute.

Method 7082 of the National Institute of Occupational Safety and Health (NIOSH) Manual of Analytical Methods was followed for sampling for lead.

Table 3
Indoor Air Quality Measurements for Carbon Dioxide, Humidity, and Temperature
National Guard Armory
Danville, Virginia
Date of Sampling: 20 January 2004

Location	Occupants In Area	Carbon Dioxide, parts per million parts of air (ppm)	Percent (%) Humidity	Temperature (°F)
1 st Floor	1	397	16.3	70.6
2 nd Floor	1	410	16.6	71.6
Basement	1	396	13.9	71.4
Outdoors	-	389	10.7	58.6

Carbon dioxide, humidity, and temperature measurements were taken with a TSI Q Trak Plus, Model 8554, Indoor Air Quality Meter, calibrated in April 2003.

American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE) recommends that indoor carbon dioxide levels be less than 700 ppm above outdoor levels.

ASHRAE recommends that the relative humidity levels be maintained between 30 to 60 percent.

ASHRAE recommends that the acceptable temperature range be 68 degrees Fahrenheit to 74 degrees Fahrenheit in the winter and 73 degrees Fahrenheit to 79 degrees Fahrenheit in the summer.

Table 4
Illumination Readings
National Guard Armory
Danville, Virginia
Date of Sampling: 20 January 2004

Location	Luminance (fc) ^a	Standard (fc) ^a	Standard Met
Weight Room	77.7-88.8	70	Yes
Kitchen	111.1-166.6	70	Yes
Children's Day Care Room	83.3-122.2	70	Yes
Front Hallway	22.2-55.5	7.5	Yes
Men's Latrine	44.4-66.6	40	Yes
HHSB Supply SGT Office	66.6-88.8	70	Some Areas
HHSB Training NCO Office	55.5-88.8	70	Some Areas
Mail Room	22.2-55.5	40	Some Areas
Fire Support Room	22.2-38.8	70	No
Chaplain's Office	44.4-66.6	70	No
Classrooms A, B, & C	44.4-88.8	70	Some Areas
Learning Center	88.8-111.1	70	Yes
Basement Storage Area	44.4-61.1	30	Yes
Converted Firing Range	66.6-88.8	70	Some Areas
Rooms 301, 301A, & 301B	111.1-133.3	70	Yes
Room 313	55.5-122.2	70	Some Areas
Room 307	100-111.1	70	Yes
Room 305	111.1-133.3	70	Yes

^a fc - Footcandles

The readings were taken with a Weston model 614-60 Lightmeter.

The standards listed above are from ANSI/IES RP-1 and RP-7.

Table 5
Wipe Sampling for Lead – Converted Firing Range
National Guard Armory
Danville, Virginia
Date of Sampling: 20 January 2004

Sample Number	Location	Results, $\mu\text{g}/\text{ft}^2$ ^a
VADAN020-25	Bullet Trap (floor near former bullet trap location)	35
VADAN020-26	Light Fixture	15
VADAN020-27	Stored Item	39
VADAN020-28	Floor (inside the converted firing range)	59
VADAN020-29	Floor (outside the converted firing range)	15
VADAN020-30	Field Blank	0.39 μg

^aMicrograms lead per square foot

The samples were taken and analyzed in accordance with the Instructions for *Completing the Sampling of ARMY National Guard Armories* procedure.

Appendix A

HHIM Data Form(s)

HEALTH HAZARD INFORMATION MODULE: INDUSTRIAL HYGIENE SURVEY

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

SECTION 1. DEMOGRAPHIC DATA

RLOC 24255		INSTALLATION APG-EA		BLDG/RM NO. DANVILLE	
LOCATION/CODE ADMINISTRATIVE AREA / AA			OPERATION/CODE ADMINISTRATIVE OPERATIONS / ADD		
SURVEY DATE 20 JANUARY 2004			EVALUATOR (Initials) Non-Responsive		
MACOM/CODE		SUBMACOM/CODE XX		SUPERVISOR MAJ. Non-Responsive	
TELEPHONE/DSN NO. (434) 836 8402		UNIT/ORGANIZATION DANVILLE ARMORY		RAC S	
FREQUENCY (hrs/day) 8					
NO. CIV(S) 1	NO. MIL 11	NO. CONTRACTOR(S) 0	NO. LOC(S) 1	NO. OTHER 1	

SECTION 2. FACILITY DATA

AB HOODS 0	VAPOR DEGREASERS 0	SPRAY BOOTHS 0
MAINTENANCE BAYS 1	OPEN SURFACE TANKS 0	VENTILATION UNITS 0

SECTION 3. SURVEY DATA

CONTROLS PRESENT	EVALUATION	UNIT CODE	CONTROLS REQUIRED	STATUS

PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized)

GLOVES	R	U	RESPIRATOR	NOSH TC NO.	MANUFACTURER	R	U
ACID			AIRLINE				
COLD SURFACES			ABRASIVE BLASTING HOOD				
HOT SURFACES			DISPOSABLE				
IBC AGENTS			FULL FACE AIR PURIFYING				
IL			1/2 FACE AIR PURIFYING				
SOLVENTS			POWERED AIR PURIFYING				
SURGICAL GLOVES			1/4 FACE AIR PURIFYING				
			SELF CONTAINED				

EYES/FACE	R	U	HEARING	R	U	BODY	R	U	HEAD/HIT	R	U
CHEMICAL SPLASH			CANAL CAPS			APRONS			COLD WEATHER BOOTS/HATS		
FULL FACE SHIELD			EAR PLUGS			COLD WEATHER CLOTHING			HARD HATS		
CHEMICAL/SAFETY			HELMETS			COVERALLS			IMPERMEABLE BOOTS		
SAFETY/IMPACT			MUFFS			FULL BODY SUIT			SAFETY/CONDUCTIVE SHOES		
WELDING HELMET			MUFF/EARPLUG COMBO			HEAT REFLECTIVE VEST/SUIT			SAFETY/NON-CONDUCTIVE SHOES		
			POWERED AIR PURIFYING			SAFETY BELT/HARNES					

Posted to NGB FOIA Reading Room

FOIA Requested Record # 18-0085 (VA)

SECTION 4. HAZARD INVENTORY DATA

CAS CODE	HAZARD DESCRIPTION	PAC	EPC
POVDTXXX	VIDEO DISPLAY TERMINALS	3-LOW	D- UNCONTROLLED PHYSICAL
7439-92-1	LEAD, INORGANIC DUSTS; FUMES	2-MODERATE	C- UNCONTROLLED RESPIRATORY
1332-21-4	ASBESTOS	2-MODERATE	C- UNCONTROLLED RESPIRATORY
124-38-4	CARBON DIOXIDE	2-MODERATE	C- UNCONTROLLED RESPIRATORY
POLIFTING	HEAVY LIFTING	2-MODERATE	D- UNCONTROLLED PHYSICAL
POHEATSTR	HEAT STRESS	3-LOW	D- UNCONTROLLED PHYSICAL

SECTION 5. PERSONNEL DATA

LAST NAME	FIRST NAME	MI	SEX	SSN	CATEGORY
(SEE ATTACHED UHIM DATA SHEET)					

SECTION 6. COMMENTS
☒ No comments

☐ See attached sheet
PRIVACY ACT STATEMENT

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

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

HQ 1/246th FA
Danville, Virginia

Non-Responsive

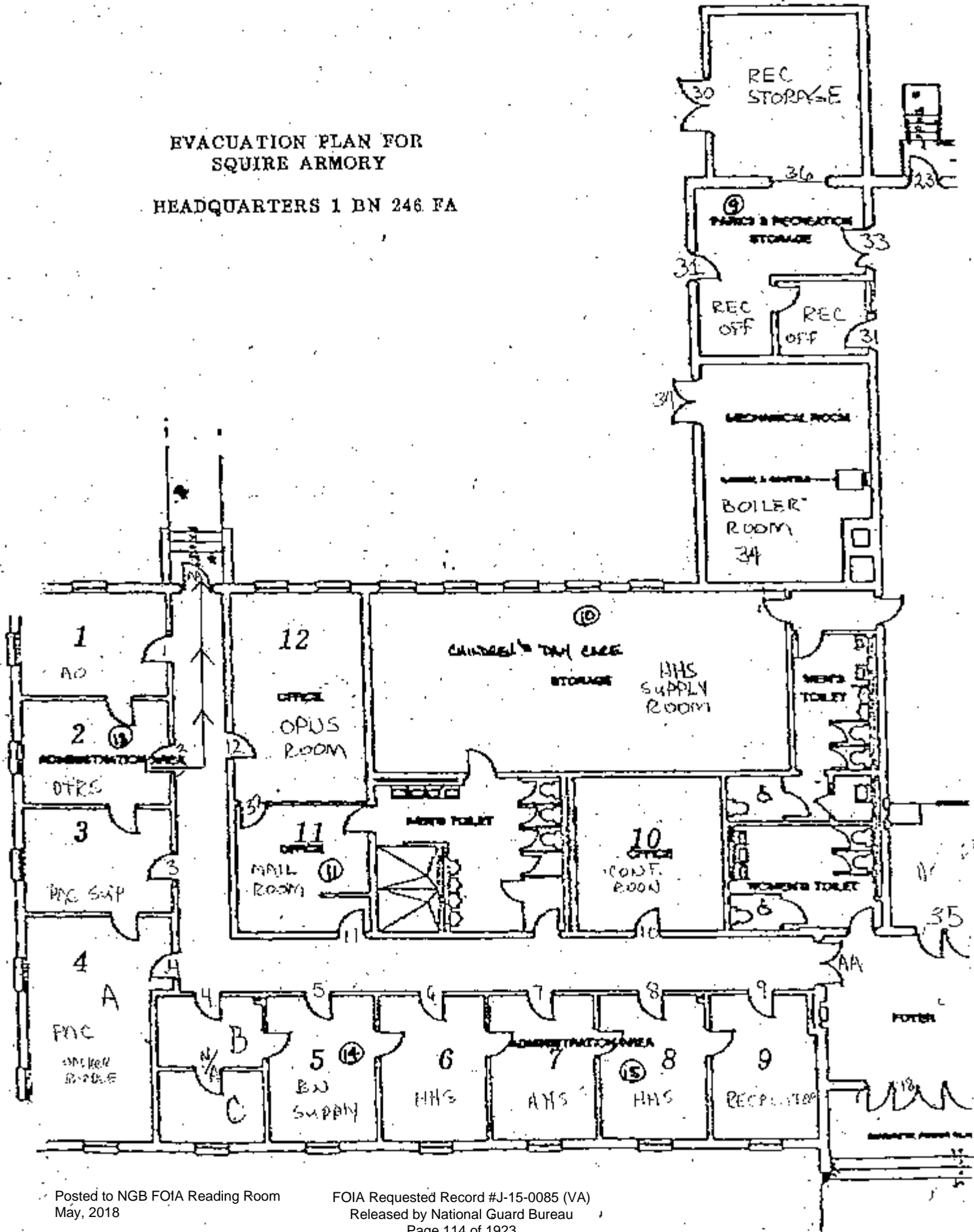


n Center (City of Danville)
Director

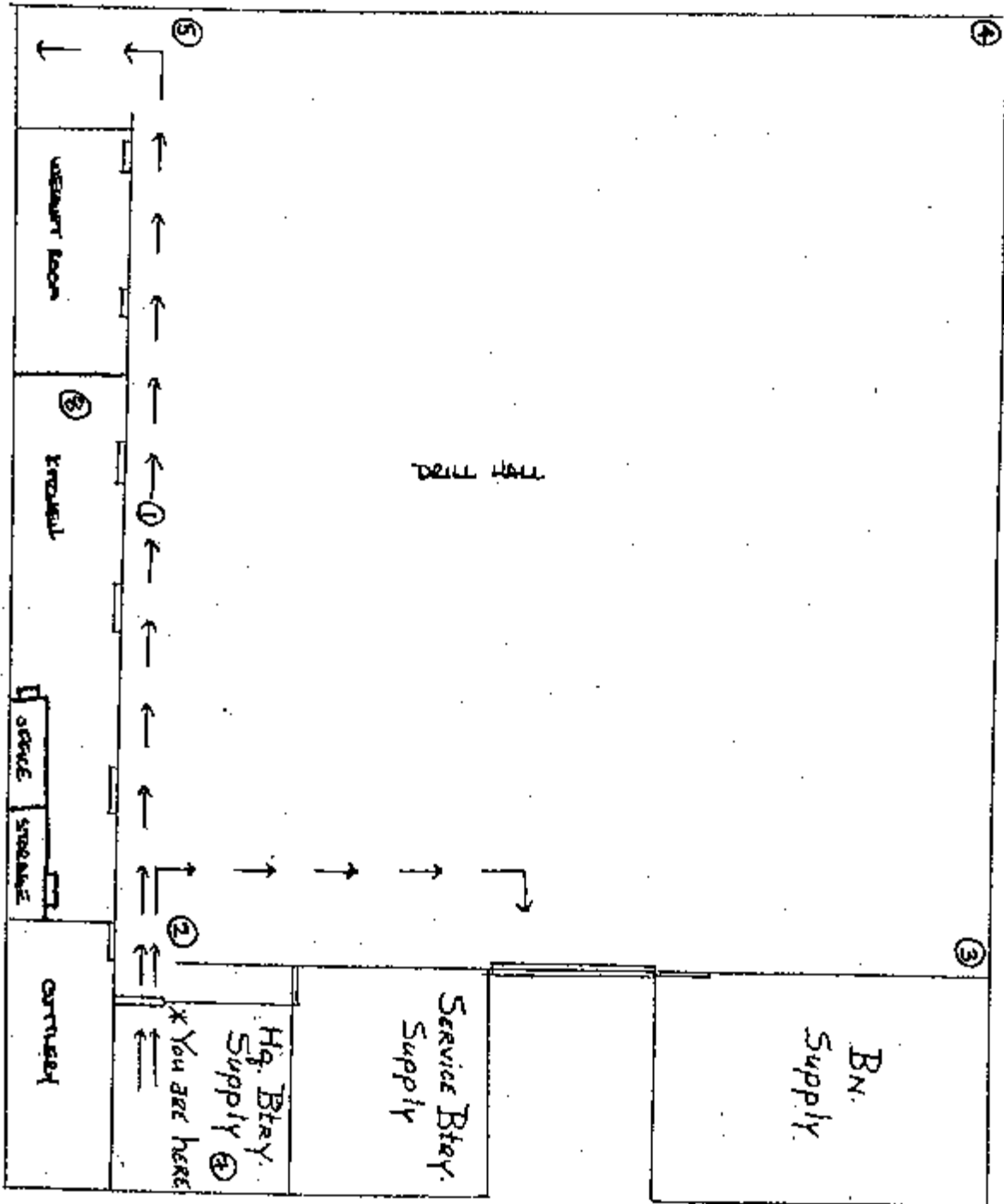
Appendix B

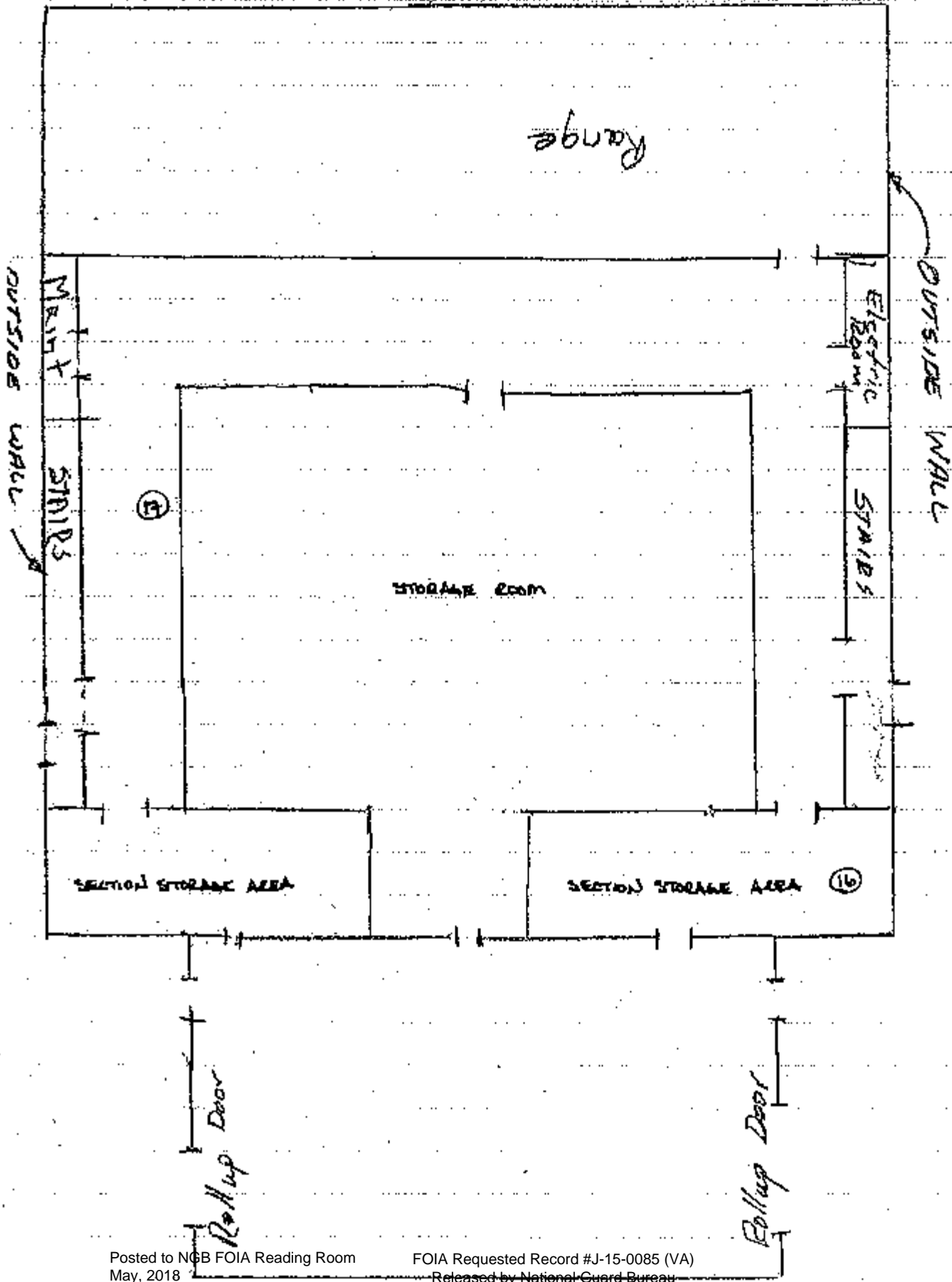
Building Layout

EVACUATION PLAN FOR
SQUIRE ARMORY
HEADQUARTERS 1 BN 246 FA



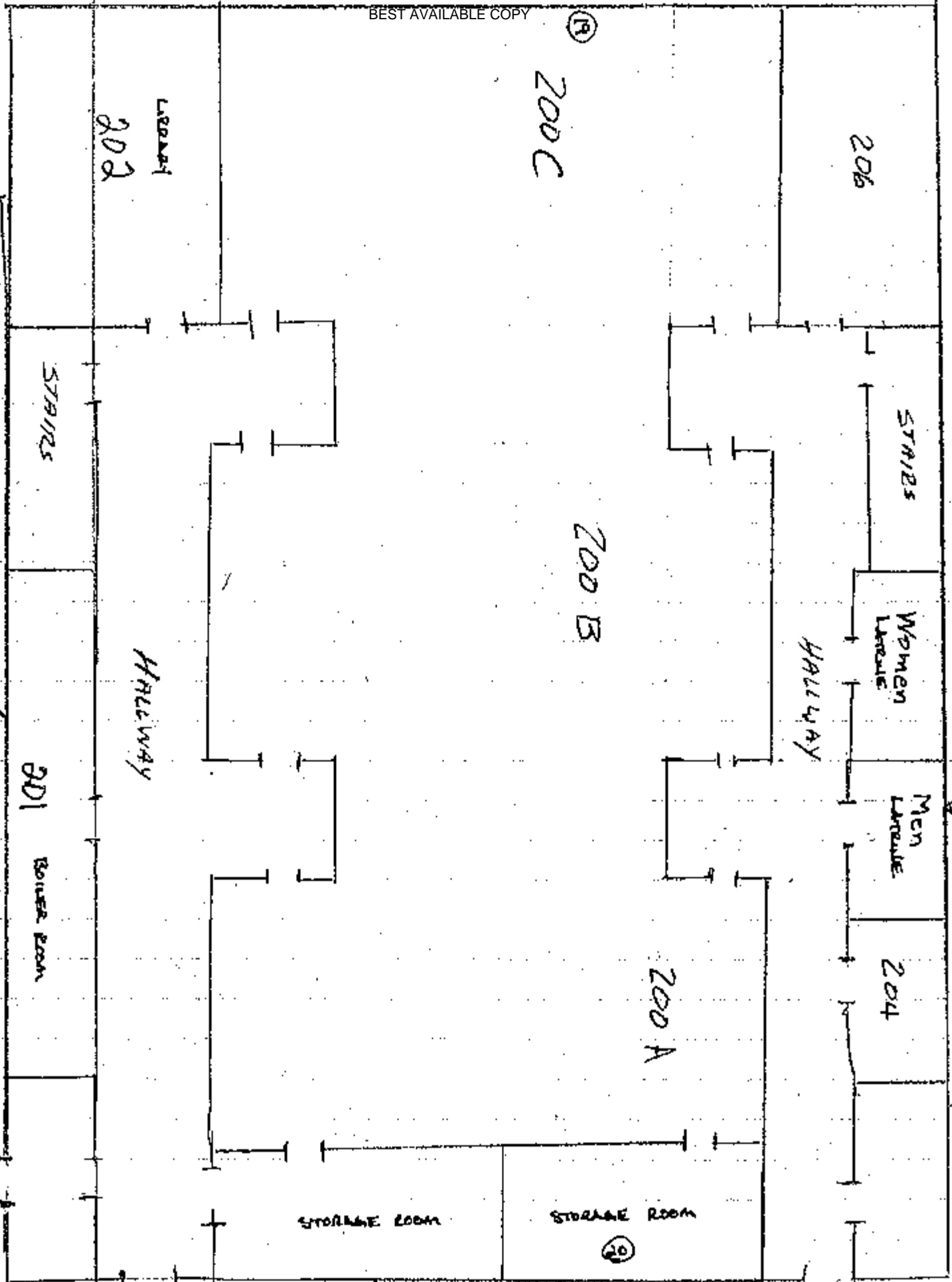
FIRE EVACUATION PLAN

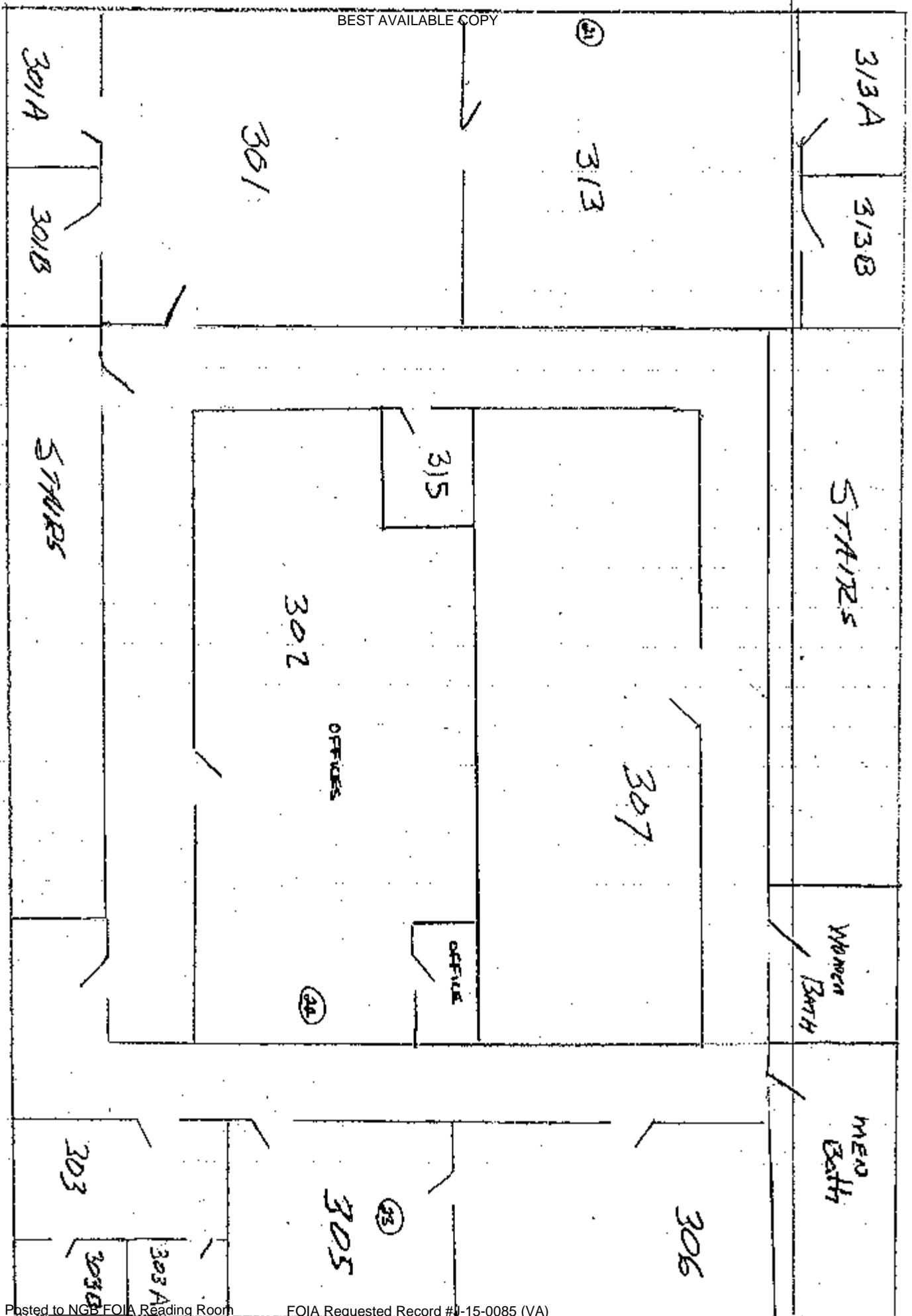




OUTSIDE WALL

OUTSIDE WALL





3rd Floor

Appendix C

Sampling Sheets and Laboratory Analyses

**DATA
CHEM**
LABORATORIES, INC.TEST REPORT
Page 1 of 2
1/30/04

Submitted To:

Non-Responsive

Shaw Environmental, Inc.
5700 Thurston Ave., Suite 116
Virginia Beach, VA 23455

Reference Data:

Client Sample No.:	Lead
P.O. No.:	VASOU021A1 through VACHA020A3
Sample Location:	1103
Sample Type:	Virginia
Method Reference:	Filter
DCL Set ID No.:	NIOSH 7300
DCL Sample ID No.:	04-S-0351
Sample Receipt Date:	04-01896 through 04-01904
Preparation Date:	1/27/2004
Analysis Date:	01/29/04

The samples were prepared and analyzed in accordance with NIOSH method 7300 using a Perkin Elmer 3000XL ICP.

The sample condition upon receipt was acceptable except where noted.

The results are in the enclosed data table. Results relate only to the items tested and are not blank corrected unless indicated in the data table.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Non-Responsive

Analyst

Non-Responsive

Reviewer

CINCINNATI OFFICE
4388 GLENDALE-MILFORD ROAD
CINCINNATI, OHIO 45242-3706
513 733-5336, FAX 513 733-5347WEST COAST OFFICE
11 SANTA YORMA COURT
NOVATO, CALIFORNIA 94945
800 280-8071, FAX 415 893-9469

Results

Lead

Client #	DCL #	Sample Volume (L)	µg/sample	mg/m ³
VASOU021A1	04-01896	206.31	ND	<0.005
VASOU021A2	04-01897	198.26	ND	<0.005
VASOU021A3	04-01898	0	ND	-
VADAN020A1	04-01899	257.14	ND	<0.004
VADAN020A2	04-01900	269.56	ND	<0.004
VADAN020A3	04-01901	0	ND	-
VACHA020A1	04-01902	123.50	ND	<0.008
VACHA020A2	04-01903	127.27	ND	<0.008
VACHA020A3	04-01904	0	ND	-
	Prep Blank		ND	
% Recovery	LCS		110.	
RPL			1.	

ND = not detected at or above the reporting limit (RPL).

LCS = laboratory control sample.

Non-Responsive

Analyst

Non-Responsive

Reviewer

Appendix D

References

References

Title 29, Code of Federal Regulations CFR), Part 1910, Occupational Safety and Health Administration (current edition)

American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc (ASHRAE) 62-2002, Ventilation for Acceptable Indoor Air Quality

Instructions for Completing the Sampling of Army National Guard Armories, Lead Wipe Sampling Procedure included with the Request for Proposal

Air Sampling for Lead - Method 7082 of the National Institute of Occupational Safety and Health (NIOSH) Manual of Analytical Methods

Design Guide DG-415-2, Logistics Facilities, National Guard Bureau Installation Division, 14 December 1999

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

Army Regulation (AR) 40-5, Medical Service, Preventive Medicine, 15 October 1990

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

Department of the Army Pamphlet (DA PAM) 40-501, Medical Services, Hearing Conservation Program, 10 December 1998

DA PAM 40-503, Medical Services, Industrial Hygiene Program, 30 October 2000

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

Guidelines for Converting Indoor Firing Ranges to Other Uses, Headquarters, Department of the Army and the Air Force, NG PAM (AR) 385-16/ANGPAM 91-101, 31 January 1994

24 CFR, Part 35, Subpart B, Section 35-110, Definition of Lead-Based Paint, Housing and Urban Development, U. S. Department of Housing

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 $0.05 \text{ mg}/\text{m}^3$ averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead dust in this building.

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

NGB-AVS-SI (40-5f)

23 June 2004

MEMORANDUM FOR VAARNG, Danville RC, ATTN: SFC [Redacted] 3194 North
Main Street, Danville, VA 24540

SUBJECT: Baseline Survey Report

1. I have enclosed the industrial hygiene survey report completed by Shaw Environmental Inc.
2. In addition to the attached discussion and recommendations regarding wipe samples for lead, if a special function is held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function.
3. Please contact me at (410) 942-0273 or 1-800-550-6967 if you have any questions regarding the enclosed report.

Encl

[Redacted]
Non-Responsive

Regional Industrial Hygienist

CF: SOHM, CPT [Redacted]
Non-Responsive

**National Guard Armory
Danville Readiness Center, Danville, Virginia
Industrial Hygiene Evaluation**

Recommendations

- Wipe sampling for lead revealed concentrations above a level of 40 micrograms per square foot ($\mu\text{g}/\text{ft}^2$) in the drill floor/assembly hall and converted firing range. Areas with lead concentrations above $40 \mu\text{g}/\text{ft}^2$ that will be accessible to children should be cleaned. If a special function is held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function. **RAC - 4**
- Materials (floor tiles) suspected of containing asbestos were observed. An operations and maintenance plan should be followed when performing any activities that may disturb the suspected asbestos-containing materials. **RAC - 5**
- Water damage was observed at several locations at the armory. The source of the water damage was likely from a mixture of roof and pipe leaks. The source of the water damage should be confirmed and actions taken to eliminate the source in order to prevent mold growth that may lead to indoor air quality problems. **RAC - 5**
- Indoor air quality measurements revealed that the humidity at the armory exceeded the recommended levels. It is recommended that a humidification system be installed at the armory. **RAC - 5**
- Lighting measurements were conducted at the armory. The lighting did not meet minimum requirements in some areas; therefore, consideration should be given to providing more lighting in these areas. This may be accomplished by replacing burnt out luminaires, cleaning fixtures, cleaning windows, painting walls with a lighter color, repositioning detailed work to higher illuminated areas, and using supplemental lighting. **RAC - 5**

BEST AVAILABLE COPY
MEDICAL RECORD – SUPPLEMENTAL MEDICAL DATA
For use of this form, see AR 40-66; the proponent agency is the Office of The Surgeon General.

REPORT TITLE WORKERS' OCCUPATIONAL WORKSITE SAMPLING DATA RECORD	OTSG APPROVED (Date)
--	----------------------

DIRECTORATE Danville Armory	BLDG/ROOM Danville
SPECIAL STUDY/REPORT NUMBER Virginia National Guard Study	
JOB DESCRIPTION/SERIES Military/Administrative Operations	
SAMPLING DATE January 20, 2004	

EXPOSURE MONITORED	TYPE SAMPLE*	PERMISSIBLE EXPOSURE LIMIT	SAMPLING RESULT	CALCULATED TWA	EXPOSURE CATEGORY**
1. Lead	P	0.05 mg/m ³	<0.004	<0.004	1
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					

*TYPE OF SAMPLE: G=General Area Sample
P=Personal Sample Collected in the Breathing Zone of the Worker.
R=Personal Sample Collected on another worker, but representative of expected exposure for this worker.

**EXPOSURE CATEGORY
1. Measured Exposure levels are below permissible exposure limit.
2. Measured Exposure levels are close to permissible exposure limits: See Comments.
3. Measured Exposure levels are above permissible exposure limits: See Comments.

COMMENTS:

NOTE: REFER TO THE SPECIAL STUDY OR REPORT REFERENCED FOR DETAILS OF SAMPLING AND RESULTS.

<small>(Continued on reverse)</small>		
PREPARED BY (Signature & Title) Non-Responsive Environmental Scientist	DEPARTMENT/SERVICE/CLINIC INDUSTRIAL HYGIENE SECTION	DATE 1/20/2004
PATIENT'S IDENTIFICATION (For typed or written entries give: Name --last, first, Middle; grade, date; hospital or medical facility) NAME: Non-Responsive FC: 1/20/2004		HISTORY/PHYSICAL FLOW CHART
SSN Non-Responsive (last four)		OTHER EXAMINATION OR EVALUATION OTHER (SPECIFY)
UNIT PHONE NO: 434-836-8402		DIAGNOSTIC STUDIES TREATMENT

DA FORM 4700
MAY 78

HSXR-APG-Z OP 32 1 Jan 90

BEST AVAILABLE COPY
MEDICAL RECORD - SUPPLEMENTAL MEDICAL DATA
For use of this form, see AR 40-66; the proponent agency is the Office of The Surgeon General.

REPORT TITLE WORKERS' OCCUPATIONAL WORKSITE SAMPLING DATA RECORD	OTSG APPROVED (Date)
--	----------------------

DIRECTORATE Danville Armory	BLDG/ROOM Danville
SPECIAL STUDY/REPORT NUMBER Virginia National Guard Study	
JOB DESCRIPTION/SERIES Military/Administrative Operations	
SAMPLING DATE January 20, 2004	

EXPOSURE MONITORED	TYPE SAMPLE*	PERMISSIBLE EXPOSURE LIMIT	SAMPLING RESULT	CALCULATED TWA	EXPOSURE CATEGORY**
1. Lead	P	0.05 mg/m ³	<0.004	<0.004	1
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					

*TYPE OF SAMPLE: G=General Area Sample
P=Personal Sample Collected in the Breathing Zone of the Worker.
R=Personal Sample Collected on another worker, but representative of expected exposure for this worker.

****EXPOSURE CATEGORY**

1. Measured Exposure levels are below permissible exposure limit.
2. Measured Exposure levels are close to permissible exposure limits: See Comments.
3. Measured Exposure levels are above permissible exposure limits: See Comments.

COMMENTS:

--

NOTE: REFER TO THE SPECIAL STUDY OR REPORT REFERENCED FOR DETAILS OF SAMPLING AND RESULTS.

<small>(Continue on reverse)</small>		
PREPARED BY (Signature & Title) Non-Environmental Scientist	DEPARTMENT/SERVICE/CLINIC INDUSTRIAL HYGIENE SECTION	DATE 1/20/2004
PATIENT'S IDENTIFICATION (For typed or written entries give: Name --last, first, Middle; grade, date; hospital or medical facility) NAME: Non-Responsive MSG: 1/20/2004		HISTORY/PHYSICAL FLOW CHART
SSN: Non-Resp (last four)		OTHER EXAMINATION OR EVALUATION OTHER (SPECIFY)
UNIT PHONE NO: 434-836-8402		DIAGNOSTIC STUDIES TREATMENT

DA FORM 4700
1 MAY 78
HSXR-APG-Z OP 32 1 Jan 90

Shaw Environmental, Inc.

312 Directors Drive
Knoxville, TN 37923
865.690.3211
Fax 865.690.3626



Shaw Environmental, Inc.

Jan, 20, 04

Reevd 3/17/04

rev 5/24/04

e-mailed 6-1-04

04 March 2004

Ms. **Non-Responsive**
Regional Industrial Hygienist
Region North Industrial Hygiene Office
Attn: NGB-AVS-SI
301-IH Old Bay Lane
Havre De Grace, Maryland 21078

RE: Draft Report for the Industrial Hygiene Evaluation at the Danville Readiness
Center – Danville, Virginia

Dear Ms. **Non-Responsive**

Attached is a copy of the referenced report. Also attached is a copy of the field notes, photographs and photograph log, and the completed contaminant exposure forms (three copies of each employee sampled). Please call me if you have questions.

Sincerely,

Non-Responsive

Project Manager

Field Notes and Checklist

State: VIRGINIA Location: DANVILLE ARMOY Date: JANUARY 20, 2004
Contact: MAJ. SUNDSON

1.0 Sampling for Lead

1.1 Wipe Sampling

Sample #: 1 Picture #: / Location: KITCHEN SINKS WINDOW CORNER TOP
Sample #: 2 Picture #: / Location: HEAT REGISTER TOP
Sample #: 3 Picture #: / Location: HEAT REGISTER TOP
Sample #: 4 Picture #: / Location: HEAT REGISTER TOP
Sample #: 5 Picture #: / Location: HEAT REGISTER TOP
Sample #: 6, 12, 13 Picture #: N/A Location: FIELD BLANKS
Sample #: 21, 22 Picture #: / Location: HHS SUPPLY 1/246 FA SUPPLY ROOM SHELF
Sample #: 8 Picture #: / Location: KITCHEN SHELF
Sample #: 9 Picture #: / Location: RECREATION CENTER OFFICE TOP OF COMPUTER MONITOR
Sample #: 10 Picture #: / Location: CHILD'S DAY CARE TOP OF STORAGE LOCKER
Sample #: 11 Picture #: / Location: MAIL ROOM MAIL BEN TOP
Sample #: 12 Picture #: / Location: OTIS (COMM) OFFICE WINDOW SILL
Sample #: 14 Picture #: / Location: 211 SUPPLY/COMMANDER OFFICE WINDOW SILL
Sample #: 15 Picture #: / Location: HHS TRAINING HQ OFFICE WINDOW SILL
Sample #: 16 Picture #: / Location: SEL STORAGE AREA SHELF
Sample #: 17 Picture #: / Location: FIRE EXTINGUISHER CASE TOP (HALLWAY)
Sample #: 19 Picture #: / Location: ROOM 200C CLASSROOM BOOKCASE
Sample #: 20 Picture #: / Location: SARAH'S ROOM AUDIO/VISUAL SHELF
Sample #: 21 Picture #: / Location: ROOM 213 WINDOW SILL
Sample #: 22 Picture #: / Location: ROOM 302 MICROWAVE TOP
Sample #: 23 Picture #: / Location: ROOM 305 TOP OF TV

(Also, please see the sketch of sampling locations.)

1.2 Breathing Zone Air Sampling

Sample #: A1 Employee Sampled: MAJ. JOHN R. SUNDSON SEN # 9561
Sample #: A2 Employee Sampled: SEC. DERWOOD A. BATEMAN SEN # 5700
A3 FIELD BLANKS

2.3 Visual Inspection – Water Damage and Mold

Water damage observed (Yes or No): YES

If yes, water damage was observed at the following locations:

Location 1: LOBBY Picture #: /
 Location 2: OFFICE 819 Picture #: /
 Location 3: OFFICE 10 Picture #: /
 Location 4: CHILD'S DAY CARE ROOM Picture #: /
 Location 5: MEN'S LATRINE Picture #: /

OTHER AREAS INCLUDE: RECREATION CENTER STORAGE ROOM, RECREATION OFFICE, DRILL HALL
 AND CONVERTED FIREARM RANGE

Mold observed (Yes or No): NO

If yes, mold was observed at the following locations:

Location 1: _____ Picture #: _____
 Location 2: _____ Picture #: _____
 Location 3: _____ Picture #: _____
 Location 4: _____ Picture #: _____
 Location 5: _____ Picture #: _____

2.4 Visual Inspection - Housekeeping

Housekeeping (good, average, poor): GOOD

Comments (such as no dirt or trash was visible on the floors or the housekeeping was poor in that there was trash and debris on the floors that could lead to a tripping hazard, or there was dust in the vents.):

3.0 Building Concerns

3.1 Ergonomic Concerns

Ergonomic concerns (Yes or No): NO

If there are ergonomic concerns at the armory, describe the extent of the problem, such as three employees stated that they perform repetitive motion at the XYZ machine for 6 hours per day, and they stated that they are suffering from symptoms of musculoskeletal disorders (MSDs).

3.2 Indoor Air Quality

IAQ concerns (based on employee interviews)(Yes or No): No

If yes, what were concerns:

Measurements for carbon dioxide, humidity, and temperature:

Location	CO ₂ (ppm)	Humidity (%)	Temperature (°F)	Occupancy (People in Room)
Outdoors -	324	10.7	58.6	0
1 st Floor -	347	16.3	70.6	1
2 nd Floor -	410	16.6	71.6	1
3 rd Floor -	---	---	---	---
Basement	346	13.9	71.4	1

4.0 Safety and Industrial Hygiene Programs

4.1 Confined Spaces

Are confined spaces applicable (Yes or No): No

If yes, does the program meet minimum standards (Yes or No): ---

If no, explain the deficiencies:

4.2 Hearing Conservation

Is hearing conservation applicable (Yes or No): no

If yes, does the program meet minimum standards (Yes or No): no

If no, explain the deficiencies:

4.3 Respiratory Protection

Is respiratory protection applicable (Yes or No): no

If yes, does the program meet minimum standards (Yes or No): no

If no, explain the deficiencies:

4.4 Hazard Communication

Is hazard communication applicable (Yes or No): no

If yes, does the program meet minimum standards (Yes or No): no

If no, explain the deficiencies:

HAZARD COMMUNICATION MATERIALS AND LOGS ARE KEPT IN A STORAGE
 SHED OUTSIDE OF THE MAIN BUILDING.

4.5 Personal Protective Equipment

Is personal protective equipment applicable (Yes or No): NO

If yes, does the program meet minimum standards (Yes or No): NO

If no, explain the deficiencies:

5.0 Ventilation

5.1 Ventilation System Evaluation

Local exhaust ventilation systems at this armory (Yes or No): NO

If yes, results of airflow patterns:

Location 1: _____

Airflow Pattern (acceptable or unacceptable, with reason):

Location 2: _____

Airflow Pattern (acceptable or unacceptable, with reason):

Location 3: _____

Airflow Pattern (acceptable or unacceptable, with reason):

5.2 Contamination of Clean Air Sources

Clean air sources contaminated by contaminated exhaust air (Yes or No): NO

If yes, describe:

6.0 Noise Dosimetry

Potential hazardous noise areas (Yes or No): No

If yes, results of noise dosimetry sampling:

Employee sampled: _____

Results: _____ % Actual _____ % Projected 8-hour TWA _____ Equivalent dBA

Activity: _____

Employee sampled: _____

Results: _____ % Actual _____ % Projected 8-hour TWA _____ Equivalent dBA

Activity: _____

Employee sampled: _____

Results: _____ % Actual _____ % Projected 8-hour TWA _____ Equivalent dBA

Activity: _____

7.0 Lighting Evaluation

DIVISION 21.9

Location	Luminance Range (fc)
WEIGHT ROOM	70-80
KITCHEN	100-150
DAY CARE ROOM	75-110
FRONT HALLWAY	20-50
DECK LARKIN	40-60
HHSB SUPPLY SGM OFFICE	60-80
HHSB TRAINING NCO OFFICE	50-80
MAIL ROOM	20-50
FIRE SUPPORT ROOM	20-35
CHAPLAIN'S OFFICE	40-60
ALBERGOM'S A, B, C	40-80
LEARNING CENTER	20-100
BASEMENT STORAGE AREA	40-55
CONVERTED FILING RABBE	60-80

Rooms 301, 301A, & 301B	100-120
Room 313	50-110
Room 307	90-100
Room 305	100-120

8.0 Converted Indoor Firing Ranges

Converted indoor firing range (Yes or No): YES

If yes, locations sampled:

Sample #: 3/A Picture #: --- Location: Inside any remaining ventilation ductwork

Sample #: 3/A Picture #: --- Location: Exhaust ventilation system

Sample #: 25 Picture #: / Location: Bullet trap

Sample #: 26 Picture #: / Location: Light fixtures

Sample #: 3/A Picture #: --- Location: Overhead heaters

Sample #: 27 Picture #: / Location: Stored items

Sample #: 28 Picture #: / Location: Floor

Sample #: 29 Picture #: / Location: Outside the range

9.0 HVAC System

Does the HVAC system have maintenance performed on a regular basis (Yes or No):

YES

In yes, is the maintenance effective (Yes or No): YES

If no, describe:

10.0 HHIM

Complete HHIM form for facility (Initial as completed): _____

Reproduction Room HHIM Necessary (Yes or No) (Initial if Yes): _____

Film Developing Room HHIM Necessary (Yes or No) (Initial if Yes): _____

Maintenance Area HHIM Necessary (Yes or No) (Initial if Yes): _____

11.0 Additional Items

- Table 1 (wipe sampling) completed (initial when completed): _____
- Table 2 (air sampling) completed (initial when completed): _____
- Table 3 (peeling paint), if necessary, completed (initial when completed): _____
- Table 3 or 4 (IAQ) completed (initial when completed): _____
- Table 4 or 5 (noise), if necessary, completed (initial when completed): _____
- Table 5 or 6 (firing ranges), if necessary, completed (initial when completed): _____
- Airflow pattern diagram(s) completed (initial when completed): _____
- Building layout included (initial when completed): _____
- Photographs (initial when completed): _____
- Sampling Sheets and Laboratory Analyses (initial when completed): _____
- Sampling tracking form completed and faxed to NGB ARNG Region North III office
within 5 days of date of this survey (initial when completed): _____
(Fax to Ken Forsythe at 410-942-0254)
- State Lead Wipes Spreadsheet* completed (initial when completed): _____
- Three copies of noise exposure notification letter, if necessary (initial when
completed): _____
- Three copies of contaminant exposure forms for each employee that participated in air
sampling (initial when completed): _____

Danville Armory Photo Log
National Guard Armory
Danville, Virginia
Date of Survey: 20 January 2004

Photo	Description
1	Lead Wipe Assembly Room - Kitchen Service Window Counter - Sample 1
2	Lead Wipe Assembly Room - Heat Register - Sample 2
3	Lead Wipe Assembly Room - Heat Register - Sample 3
4	Lead Wipe Assembly Room - Heat Register - Sample 4
5	Lead Wipe Assembly Room - Heat Register - Sample 5
6	25% Building - IHHA Supply Room Shelf - Sample 7
7	25% Building - Kitchen Shelf - Sample 8
8	25% Building - Recreation Center Office Computer Monitor Top - Sample 9
9	25% Building - Child's Day Care Storage Locker - Sample 10
10	25% Building - Mail Room Mail Ben - Sample 11
11	25% Building - OTRS (Comm) Office Window Sill - Sample 13
12	25% Building - BEI Supply Commander's Office Window Sill - Sample 14
13	25% Building - HHISB Training NCO Office Window Sill - Sample 15
14	25% Building - SEC Storage Area Shelf - Sample 16
15	25% Building - Hallway Fire Extinguisher Case - Sample 17
16	25% Building - Room 200C Classroom Bookcase - Sample 19
17	25% Building - Storage Room Audio/Visual Shelf - Sample 20
18	25% Building - Room 313 Window Sill - Sample 21
19	25% Building - Room 302 Microwave Top - Sample 22
20	25% Building - Room 305 Television - Sample 23 (Picture did not come out - Omitted)
21	Firing Range - Bullet Trap - Sample 25
22	Firing Range - Light Fixtures - Sample 26
23	Firing Range - Stored Item - Sample 27
24	Firing Range - Floor Inside the Converted Firing Range - Sample 28
25	Firing Range - Floor Outside the Converted Firing Range - Sample 29

Shaw Environmental, Inc.



Shaw™ Shaw Environmental, Inc.

312 Directors Drive
Knoxville, TN 37923
865.690.3211
Fax 865.690.3626

07 June 2004

Ms. **Non-Responsive**, CIH
Regional Industrial Hygienist
Region North Industrial Hygiene Office
Attn: NGB-AVS-SI
301-IH Old Bay Lane
Havre De Grace, Maryland 21078

RE: Final Report for the Industrial Hygiene Evaluation at the Danville Readiness
Center – Danville, Virginia

Dear Ms. **Non-Responsive**

Attached are four (4) copies of the referenced report. Please note that a copy of the field notes, photographs and photograph log, and the completed contaminant exposure forms (three copies of each employee sampled) were provided with the draft report. Please call me if you have questions.

Sincerely,

Non-Responsive

Project Manager

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



Industrial Hygiene Survey
for VAARNG – Danville Readiness Center
3194 North Main Street
Danville, Virginia 24540

AECOM
January 2013
Document No.: 60275401/ Danville Readiness Center

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

Industrial Hygiene Survey
for VAARNG – Danville Readiness Center
3194 North Main Street
Danville, Virginia 24540

Non-Responsive



Industrial Hygienist

Non-Responsive



Project Manager

Non-Responsive



Northeast District Health & Safety Manager

AECOM Environment
January 2013
Document No.: 60275401/ Danville 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 Danville Readiness Center Facility Layout

Appendix B Danville Readiness Center Photographs

Appendix C Analytical Results

Appendix D References



List of Tables

Table 2-1: Lead Wipe Sample Results 2-1

Table 3-1: Indoor Air Quality Monitoring Results..... 3-2

Table 5-1: Light Survey 5-1



Executive Summary

On November 29, 2012, AECOM Technical Services Northeast, Inc. (AECOM) conducted an Industrial Hygiene (IH) survey of the Danville Readiness Center facility located at 3194 North Main Street in Danville, Virginia. Non- [REDACTED] was the point of contact for the facility and accompanied AECOM during the survey to provide access and information concerning the Danville Readiness Center operations.

The industrial hygiene survey was conducted in general accordance with the scope of work as described in the "Statement of Work – Industrial Hygiene Services for National Guard Bureau Industrial Hygiene Region North – Baseline Surveys for Readiness Centers and Administrative Buildings", dated March 2009.

The Danville Readiness Center is currently staffed by 22 personnel. The facility is configured as an administrative area and a drill/assembly hall.

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

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

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

Wipe samples collected in association with most administrative areas indicated lead levels below the Occupational Safety and Health Administration's (OSHA's) Clarification of "as free as practicable" and lead contamination under 29 Code of Federal Regulations (CFR) 1926.62, The Compliance Directive for the Interim Standard for Lead in Construction, CPL 2-2.58. OSHA recommends the use of the U. S. Department of Housing and Urban Development's (HUD) acceptable decontamination level of 200 micrograms per square foot (ug/ft²) for floors in evaluating the cleanliness of change areas, storage facilities, and lunchrooms/eating areas.

A sample of damaged suspect asbestos containing materials was collected from the floor tile in the garage bay area. Both the floor tile and associated mastic indicated no asbestos detected.

Peeling damaged paint was observed on the ceiling of the drill hall but was not accessible for sampling.

Evidence of roof leaks was observed in the Drill hall area. Water damage and limited visible mold/mildew growth was observed during the survey. Water intrusion is a mold growth risk factor.

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

1.0 Facility Description and Operations

The Danville Readiness Center is a three floor (on basement) masonry block facility originally constructed in 1970. The section occupied by Readiness Center personnel consists of rooms configured as office space and is finished with acoustical drop ceilings, and floor tile. Storage areas are either concrete or tile floor with open trussed ceilings. Additions to the original construction were completed at unspecified dates.

The primary activity at the Danville Readiness Center is routine administrative duties. The Danville Readiness Center is currently staffed by approximately 22 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 multiple areas of the facility following the Occupational Safety & Health Administration (OSHA) wipe sampling method and using Ghost Wipes.

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

Table 2-1: Lead Wipe Sample Results

Sample Number	Sample Location	Lead Concentration
DL-001	Gymnasium supply filter (i.e. drill hall)	<110 ug/ft ²
DL-002	Middle gymnasium floor	<110 ug/ft ²
DL-003	Gymnasium horizontal surface	<110 ug/ft ²
DL-004	Kitchen counter area	<110 ug/ft ²
DL-005	Supply air grille office	<110 ug/ft ²
DL-006	Office 11 desk	<110 ug/ft ²
DL-007	Office 11 file cabinet	<110 ug/ft ²
DL-008	Hallway old section building	<110 ug/ft ²
DL-009	Foyer supply vent	<110 ug/ft ²

ug/ft² = Micrograms per square foot.

Wipe samples collected in association with most administrative areas indicated lead levels below the Occupational Safety and Health Administration's (OSHA's) Clarification of "as free as practicable" and lead contamination under 29 CFR 1926.62, The Compliance Directive for the Interim Standard for Lead in Construction, CPL 2-2.58. OSHA recommends the use of HUD's acceptable decontamination level of 200 ug/ft² for floors in evaluating the cleanliness of change areas, storage facilities, and lunchrooms/eating areas.

The wipe samples did not detect levels of lead in excess of the action level of 200 micrograms per square foot (ug/ft²) per OSHA 29 CFR 1926.62. Laboratory analytical results are presented in Appendix C.

2.1.2 Air Sampling

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

3.0 Physical Condition of Facility and Personnel Concerns

3.1.1 Lead Based Paint

Interior surfaces of walls are coated with paint. The paint on the walls is in serviceable condition with the exception of the inaccessible peeling paint observed on the ceiling of the gymnasium/drill hall.

3.1.2 Suspect Asbestos Containing Materials

AECOM observed damaged, nonfriable suspect asbestos-containing materials (ACM) in readily accessible areas of the Danville Readiness Center during this survey.

A sample of damaged suspect asbestos containing materials was collected from the floor tile in the garage bay area. Both the floor tile and associated mastic indicated no asbestos detected.

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

3.1.3 Water Damage/Mold

AECOM observed evidence of water intrusion during this survey. Visible indications of water intrusion and mold/mildew were observed in the facility gymnasium/drill hall.

3.1.4 Housekeeping

The Danville 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 Danville Readiness Center staff members. No Indoor Air Quality concerns were noted by the Danville Readiness Center personnel with the exception of the potential for mold/mildew in the gymnasium/drill hall.

Instantaneous real-time reading for carbon monoxide and carbon dioxide (parts per million or ppm), temperature (° Fahrenheit), and relative humidity (as percentage) are presented in the following table. Readings were generally within acceptable guidelines with the exception of humidity readings being slightly below recognized guidelines.

Table 3-1: Indoor Air Quality Monitoring Results

Location	Carbon Monoxide (ppm)	Carbon Dioxide (ppm)	Temp (°F)	Relative Humidity (%)
Office 11	0.1	704	70.6	27.1
Hallway Adj.	0.2	709	70.8	26.2
Office 8	0.2	682	70.4	26.1
Office 7	0.0	871	69.8	26.9
Boiler room	0.1	486	63.8	24.0
Orderly room	0.1	689	65.6	30.0
Men's 1st floor restroom	0.0	778	68.7	29.5
Foyer	0.0	596	70.2	26.5
Kitchen	0.1	563	69.5	23.4
Food service SGT	0.0	483	68.1	23.8
Front drill hall	0.2	401	68.4	23.7
Basement storage	0.2	385	68.3	22.4
Loading dock - Shipping/Receiving	0.0	409	68.3	23.3
Section equipment room	0.2	432	67.9	24.9
Office 206	0.0	678	71.9	22.7
Classroom 3	0.0	429	72.4	19.0
Classroom 2	0.1	471	73.3	18.0
Operations Rm 3r	0.1	644	72.9	19.0
Hallway	0.0	870	74.1	21.2
ADPRM	0.0	687	74.7	21.2
PAC Office	0.1	710	74.7	18.1
Mail room	0.0	617	75.3	20.2
Men's room/showers	0.0	514	75.7	21.4
Table 3-1 Guidelines: Carbon Monoxide: Office/Warehouse Space – 9 ppm based on United States Environmental Protection Agency's National Ambient Air Quality Standard. OSHA Permissible Exposure Limit (PEL) = 50 ppm. American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit value (TLV) = 25, ppm. Carbon Dioxide: Office Space -Approximately 700 ppm above background (Derived from American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE) Standard 62.1-2010). Not Applicable to warehouse and vehicle maintenance bays. Relative Humidity: Mechanically air-conditioned space – Maximum 65% (Derived from ASHRAE Standard 62.1-2010 – 5.10.1). Temperature: Winter (clothing insulation = 1.0 clo) Relative humidity 30-60% - Temp - 68 – 75°F Summer Temp - 73 – 79°F. (Derived from ASHRAE Standard 55-2010)				

Danville 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.

A central boiler forced air system supplies heat to the facility. Temperature readings were constant in all areas occupied by readiness center personnel.

4.1.2 HVAC Maintenance

Building maintenance personnel were unable to verify whether or not a maintenance schedule is in place.

There was no 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 not adequate in some of the surveyed areas.

Table 5-1: Light Survey

Location	Results (Foot candles)	Met Standard (Y/N)	Standard*
Office 11	122.6	Y	50
Hallway Adj.	122.5	Y	5
Office 8	65.0	Y	50
Office 7	74.9	Y	50
Boiler room	16.2	N	30
Orderly room	56.2	Y	50
Men's 1st floor restroom	20.8	Y	5
Foyer	21.5	Y	10
Kitchen	50.9	Y	50
Food service SGT	52.7	Y	50
Front drill hall	20.7	Y	10
Basement storage	8.9	N	30
Loading dock – Shipping/Receiving	56.1	Y	30
Section equipment room	8.1	N	30
Office 206	84.4	Y	50
Classroom 3	70.6	Y	30
Classroom 2	59.5	Y	30
Operations Rm 3r	76.5	N	50
Hallway	15.7	Y	5
ADPRM	29.1	N	50
PAC Office	34.1	N	50
Mail room	44.6	Y	30
Men's room/showers	18.3	Y	5
Office Lighting (ANSI/IESNA RP-1-04) and Industrial Lighting Facilities (ANSI/IESNA RP-7-01)			

6.0 Evaluation of Attached Garage

There is no garage associated with the Danville 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 Danville Readiness Center.

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

Wipe samples collected in association with most administrative areas indicated lead levels below the Occupational Safety and Health Administration's (OSHA's) Clarification of "as free as practicable" and lead contamination under 29 CFR 1926.62, The Compliance Directive for the Interim Standard for Lead in Construction, CPL 2-2.58. OSHA recommends the use of HUD's acceptable decontamination level of 200 ug/ft² for floors in evaluating the cleanliness of change areas, storage facilities, and lunchrooms/eating areas.

A sample of damaged suspect asbestos containing materials was collected from the floor tile in the garage bay area. Both the floor tile and associated mastic indicated no asbestos detected.

Peeling damaged paint was observed on the ceiling of the drill hall but was not accessible for sampling.

Evidence of roof leaks was observed in the Drill hall area. Water damage and limited visible mold/mildew growth was observed during the survey. Water intrusion is a mold growth risk factor.

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

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

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

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



Appendix A

Danville Readiness Center Facility Layout

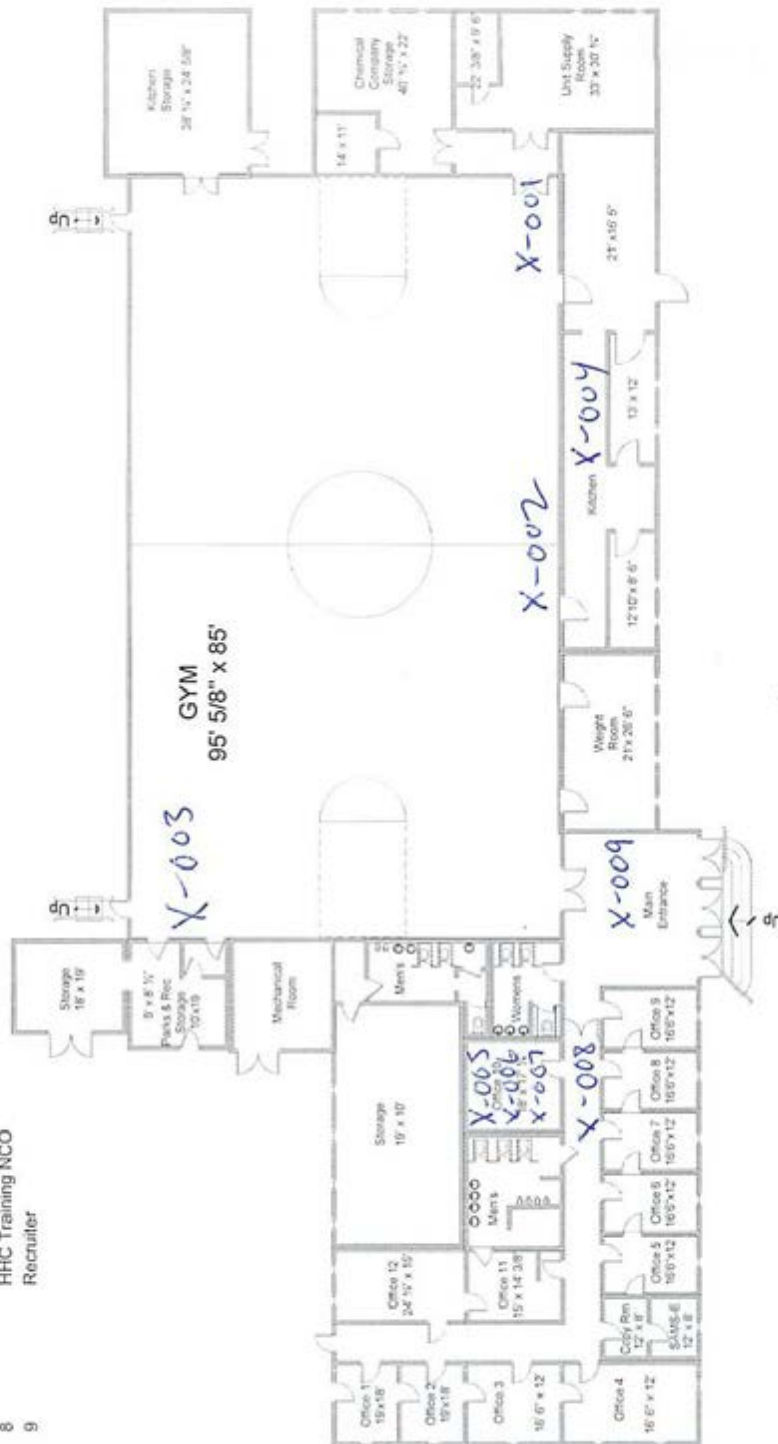
Basement Sample Locations
Potential ACM



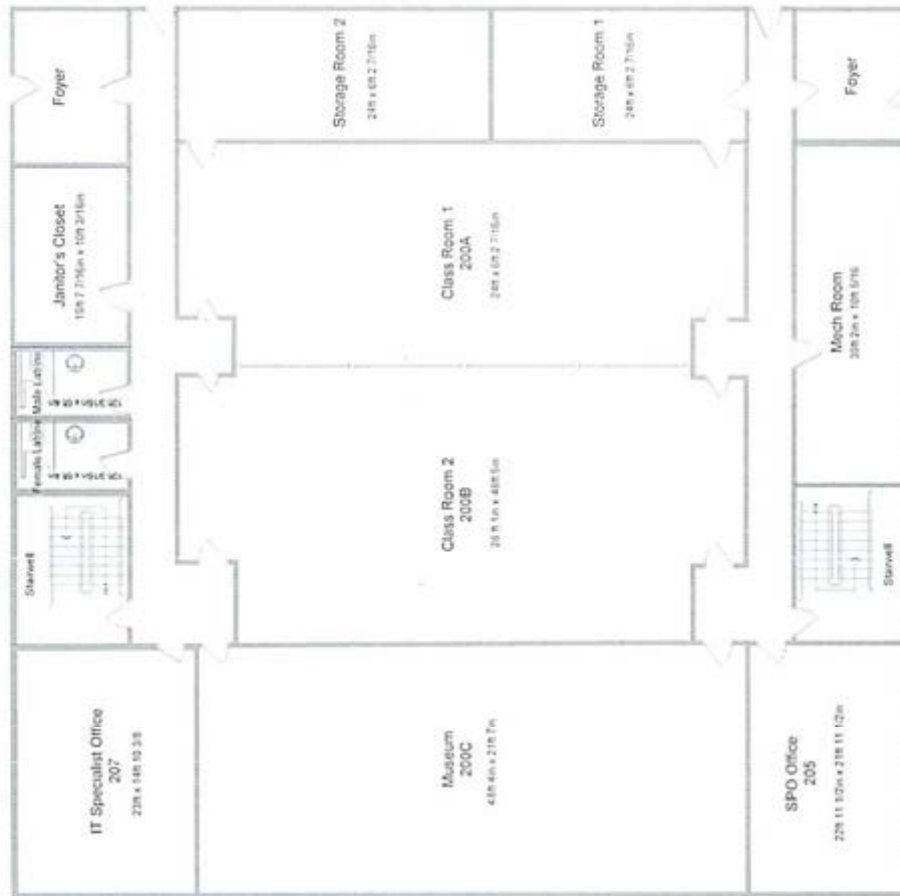
Lead Wipe Sampling

Danville Armory Old Section (Built 1970)

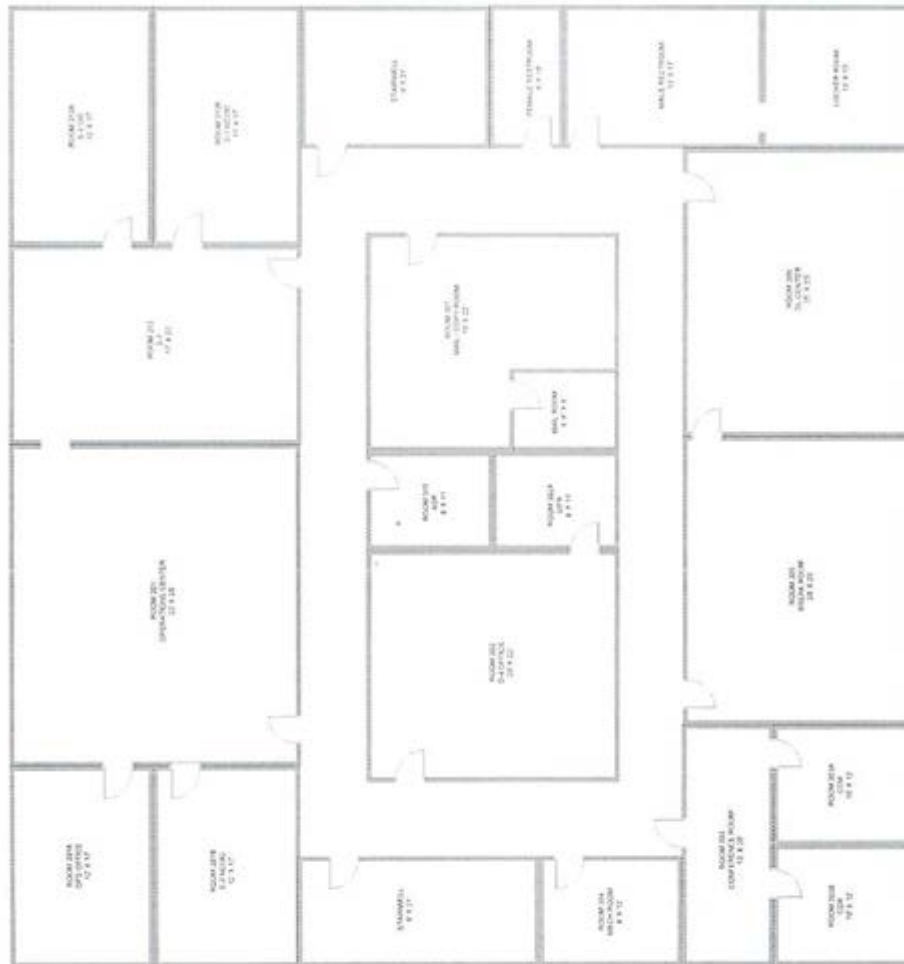
ROOM #	Occupant	ROOM#	Occupant
1	RSP NCO	10	229th Chemical
2	229th Chemical	11	HHC 1SG Sergeant
3	PBO/Contractor	12	IT Specialist (DOIM Rep)
4	PBO NCOIC and Assistant		
5	HHC Commander		
6	HHC Supply		
7	HHC Readiness NCO		
8	HHC Training NCO		
9	Recruiter		



2nd Floor



3rd Floor





Appendix B

Danville Readiness Center Photographs

Photograph 1



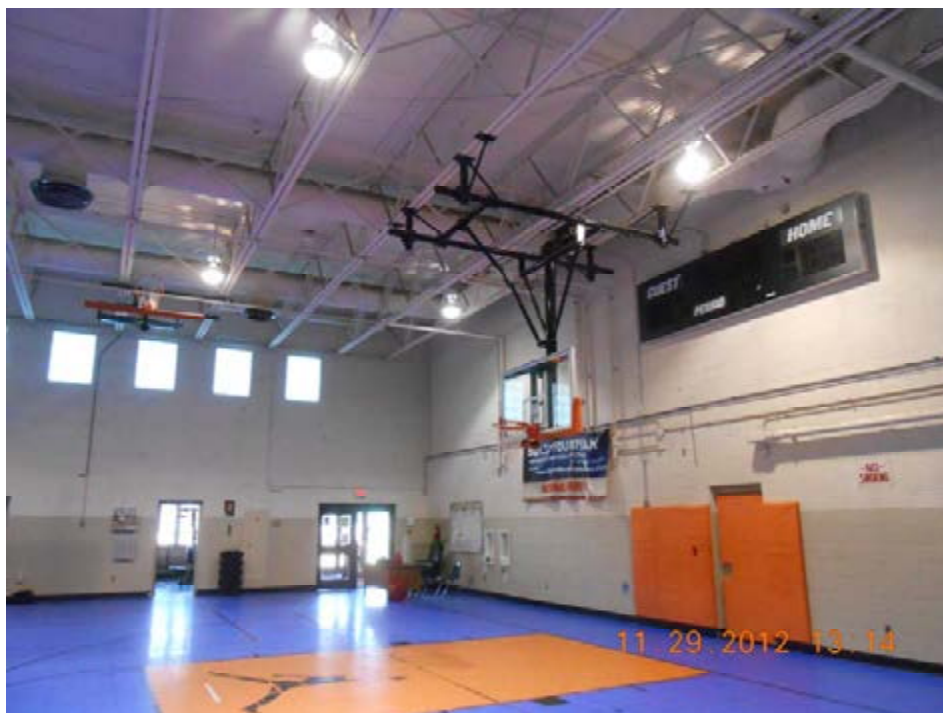
Front of building

Photograph 2



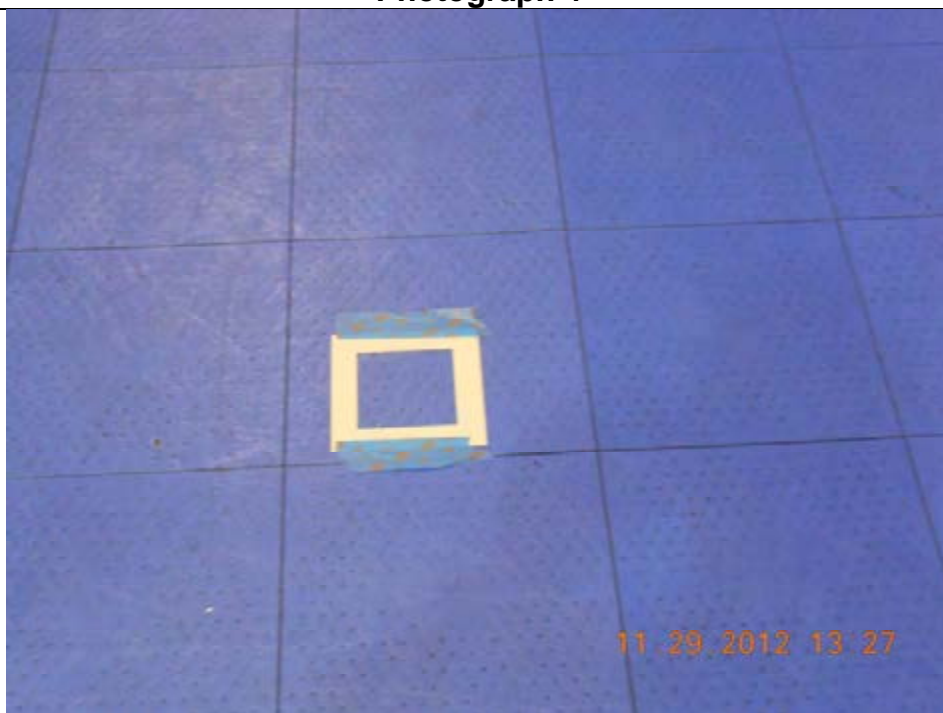
Typical construction

Photograph 3



Drill hall

Photograph 4



Gymnasium wipe sample

Photograph 5



Boiler room

Photograph 6



Peeling paint/water intrusion/gymnasium

Photograph 7



Floor tile mastic bay area

Photograph 8



Museum room



Appendix C

Analytical Results

AMA Analytical Services, Inc.



A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS



Client:	National Guard Bureau	Job Name:	VA ANGIH Survey	Chain Of Custody:	514749
Address:	301-JH Old Bay Lane, Attn: ARNG-CJG-P, State Military Reservation Havre de Grace, Maryland 21078	Job Location:	Danville RC	Date Submitted:	12/12/2012
		Job Number:	Not Provided	Person Submitting:	AECOM
		P.O. Number:	W912K6-09-A-0003	Date Analyzed:	12/20/2012
				Report Date:	12/20/2012

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
13023100	DL-001	Flame	Wipe	***	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13023101	DL-002	Flame	Wipe	***	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13023102	DL-003	Flame	Wipe	***	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13023103	DL-004	Flame	Wipe	***	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13023104	DL-005	Flame	Wipe	***	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13023105	DL-006	Flame	Wipe	***	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13023106	DL-007	Flame	Wipe	***	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13023107	DL-008	Flame	Wipe	***	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13023108	DL-009	Flame	Wipe	***	0.111	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. 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.

An AIHA (#100470) and NY ELAP (#10920) Accredited Laboratory

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

AMA Analytical Services, Inc.



A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS



LAB #100470

Client: National Guard Bureau Job Name: VA ANGIH Survey Chain Of Custody: 514749
 Address: 301-1H Old Bay Lane, Attn: ARING-CIG-P, Job Location: Darville EC Date Submitted: 12/12/2012
 State Military Reservation
 Havre de Grace, Maryland 21078 Job Number: Not Provided Person Submitting: AECOM
 P.O. Number: W912K6-99-A-0003 Date Analyzed: 12/20/2012 Report Date: 12/20/2012

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
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		
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.

An AIHA (#100470) and NY ELAP (#10920) Accredited Laboratory

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

January 2013

AMA Analytical Services, Inc.



A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS



101143-0

Client: National Guard Bureau Job Name: VA ANG IH Survey Chain Of Custody: 514749
 Address: 301-IH Old Bay Lane, Attn: ARNG-CJG-P, Job Location: Danville RC Date Analyzed: 12/19/2012
 State Military Reservation
 Havre de Grace, Maryland 21078 Job Number: Not Provided Person Submitting: AECOM
 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
13023109	DA-001 FT	NAD	--	--	--	--	--	--	--	--	--	100	FT	Multi	Homogeneous	SW	
13023110	DA-001 M	NAD	--	--	--	--	--	--	TR	--	--	100	MS	Black	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

Analysis(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.

NVLAP (101143-0) Accredited Laboratory

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



Focused on Results www.analab.com

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)

514749

Submittal Information:

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

1. Job Name: VA ANG 1H SURVEY
2. Job Location: DANVILLE RC
3. Job #: _____ PO #: W912KG-09-A-0003
4. Contact Person: Non-Responsive
5. Submitted by: AECOM Non-Responsive

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

AFTER HOURS (must be pre-scheduled) <input type="checkbox"/> Immediate Date/Time: _____ <input type="checkbox"/> 24 Hours Time Due: _____ Comments: _____		NORMALLY BUSINESS HOURS <input type="checkbox"/> Immediate <input type="checkbox"/> 3 Day <input type="checkbox"/> Next Day <input type="checkbox"/> 45 Day <input type="checkbox"/> 2 Day Date Due: <u>12/19/12</u>		REPORT TO: <input type="checkbox"/> Include COC and Data Sheet with report <input type="checkbox"/> Email: <u>Non-Responsiv</u> <input type="checkbox"/> Fax: <u>Non-Responsiv</u> <input type="checkbox"/> Verbal: <u>Non-Responsiv</u>	
--	--	---	--	--	--

Asbestos Analysis

- *PCM Air - Please Indicate Filter Type:
☐ NIOSH 7400 _____ (QTY)
☐ Fiberglass _____ (QTY)
TEM Air - Please Indicate Filter Type:
☐ AMERA _____ (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____(Quil) PLM____(Quil) PLMTEM____(Quil) PLMTEM____(Quil)
 *It is recommended that blank samples be submitted with all air and surface samples

TEM Bulk

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

TEM Dust®

- ☐ Qual. (pres/lbs) Vacuum/Dust _____ (QTY)
☐ Quan. (s/area) Vacuum D3755-95 _____ (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) _____, 9 (QTY) _____
☐ Pb Air _____ (QTY) _____
☐ Pb Soil/Solid _____ (QTY) _____
☐ Pb TCLP _____ (QTY) _____
☐ Drinking Water ☐ Pb _____ (QTY) ☐ Cu _____ (QTY) ☐ As _____ (QTY)
☐ Waste Water ☐ Pb _____ (QTY) ☐ Cu _____ (QTY) ☐ As _____ (QTY)
☐ Pb Furnace (Media _____) _____ (QTY) _____

Fungal Analysts

- 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) _____

1. If recommended, collect bulk samples of aluminum with an air and one surface samples

CLIENT ID #		SAMPLE INFORMATION SAMPLE LOCATION/ID		DATE/ TIME	VOL (L) Wipe Area	ANALYSIS							MATRIX						CLIENT CONTACT		
						TECH	PCN	PAY	LEAD	MOLD	AIR	BULK	DUST	WASH ACTION	OTHER ACTION	TAPE	SWAB	(LABORATORY STAFF ONLY)			
																		Date/Time:	Contact	By:	
SEE ATTACHED FIELD DATA SHEETS																					
																		Date/Time:	Contact	By:	
																		Date/Time:	Contact	By:	
																		Date/Time:	Contact	By:	
																		Date/Time:	Contact	By:	

LATORATORY STAFF ONLY:
(CUSTODY)

1: Date/Time RCVD: 12/12/12 @ 1630 Via: Fo Non-Responsive

2: Date/Time Analyzed: 12/19/12 @ By: (signature)

3: Results Reported: Non-Responsive

4: Comments:

Bulk Sampling Survey Sheet

Date Collected: 11/28/12 Job Name: Danville NG Armory
 Job Number: Non-Responsive Job Location: Danville, VA
 Contact Person: Non-Responsive Address: 3144 N. Main St.
Danville, VA 24540

Page of
 Company:
 Phone Number: Non-Responsive
 Collected By:
 COC Number:

Sample Number	Homogenous Area ID	Type of Material	Sample Location	Friable	Condition of Material	Accessibility	Photo	Comments
DA-001	1	Fl. Tile	12x12 FT. Garage Bay Area	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input checked="" type="checkbox"/> Poor	<input type="checkbox"/> Low <input checked="" type="checkbox"/> Medium <input type="checkbox"/> High	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	



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



Surface Sampling Field Data Sheet

Date Collected: 11/29/12

Job Name: Danville NG Armory

Page 1 of 1

Job Number:

Job Location: Danville, VA

Contact Person:

Non-Responsive

Address: 3194 N. Main St.

Christiansburg, VA 24540

Company:

Phone Number:

Collected By:

Non-Responsive

COC Number:

Sample Number	Sample Location	Surface/Substrate Sampled	Area Wiped (in ² /ft ²)	Collection Media
DL-001	Gymnasium Supply Filter	Metal	4x4 inch	Wipe
DL-002	Middle Gymnasium Floor	Floor		
DL-003	Gymnasium Horizontal Surface	Vending Machine		
DL-004	Kitchen Counter Area	Metal		
DL-005	Supply Air Grille Office	Metal		
DL-006	Office 11 Desk	Wood		
DL-007	Office 11 File Cabinet	Metal		
DL-008	Hallway Old Section Bldg.	Floor/Tile		
DL-009	Foyer Supply Vent	Metal		



Please Return Samples To:
 AMA Analytical Services, Inc., 4475 Forbes Blvd, Lanham, MD 29706, (800) 346-0961/(301) 459-2640 Fax, www.amalab.com, info@amalab.com





Appendix D

References

References

1. Title 29, Code of Federal Regulations (CFR), Part 1910, Occupational Safety and Health Administration, current Ed. <http://www.osha.gov/comp-links.html>
2. Department of Defense Instruction (DODI) 6055.1, Department of Defense Occupational Safety and Health (OSH) Program, August 19, 1998. <http://www.dtic.mil/whs/directives/corres/pdf/605501p.pdf>
3. Army Regulation (AR) 11-34, The Army Respiratory Protection Program, 15 February 1990. http://armypubs.army.mil/epubs/pdf/R11_34.PDF
4. AR 40-5, Medical Service, Preventive Medicine, 25 May 2007. http://armypubs.army.mil/epubs/pdf/R40_5.PDF
5. AR 385-10, The Army Safety Program, 23 August 2007; Rapid Action Revision (RAR) issue date: 4 October 2011. http://armypubs.army.mil/epubs/pdf/R385_10.PDF
6. Department of the Army Pamphlet (DA PAM) 40-501, Medical Services, Hearing Conservation Program, 10 December 1998. http://armypubs.army.mil/epubs/pdf/P40_501.pdf
7. DA PAM 40-11, Preventive Medicine, 22 July 2005, RAR issue date: 19 October 2009. http://armypubs.army.mil/epubs/pdf/p40_11.pdf
8. DA PAM 40-503, Medical Services, Industrial Hygiene Program, 30 October 2000. http://armypubs.army.mil/epubs/pdf/P40_503.PDF
9. UFC 3-410-01FA, Heating, Ventilating, and Air Conditioning, 15 May 2003, change 4, January 2010. http://www.wbdg.org/ccb/DOD/UFC/ufc_3_410_01fa.pdf
10. Threshold Limit Values (TLVs) and Biological Exposure Indices (BEIs), American Conference of Governmental Industrial Hygienists (ACGIH), current Ed.
11. Industrial Ventilation – A Manual of Recommended Practice for Design, ACGIH, current Ed.
12. American National Standards Institute (ANSI)/International Safety Equipment Association (ISEA) Z358.1-2009, Emergency Eyewash and Shower Equipment.
13. ANSI/American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. (ASHRAE) 55-2010, Thermal Environmental Conditions for Human Occupancy.
14. ANSI/ASHRAE 62.1-2010, Ventilation for Acceptable Indoor Air Quality.
15. RP-1-2004, Office Lighting, ANSI/IESNA.
16. RP-7-2001, Industrial Lighting, ANSI/IESNA, change 20 July 2004.
17. OSHA Instruction Letter 02-02-058, Lead Exposure in Construction, Office of Health Compliance Assistance, 13 December 1993.
18. OSHA Standard Interpretation, Clarification of “as free as practicable” and lead contamination under 29 CFR 1926.62, dated January 13, 2003.
19. NG PAM 420-15, Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges, 3 November 2006. http://www.ngbpdc.ngb.army.mil/pubs/420/ngpam420_15.pdf

Shaw Environmental, Inc.

312 Directors Drive
Knoxville, TN 37923
865.690.3211
Fax 865.690.3626



**National Guard Armory
Emporia Readiness Center
Emporia, Virginia**

Industrial Hygiene Evaluation

Prepared for:

**National Guard Region North Industrial Hygiene Office
Havre De Grace, Maryland 21078**

Prepared by:

**Shaw Environmental, Inc.
312 Directors Drive
Knoxville, Tennessee 37923**

13 December 2004

**National Guard Armory
Emporia Readiness Center
Emporia, Virginia**

Industrial Hygiene Evaluation

Prepared for:

**National Guard Region North Industrial Hygiene Office
Havre De Grace, Maryland 21078**

Prepared by:

**Shaw Environmental, Inc.
312 Directors Drive
Knoxville, Tennessee 37923**

13 December 2004

Prepared by:

Non-Responsive

Environmental Scientist

Reviewed by:

Non-Responsive

Business Line Manager

Table of Contents

<i>Table of Contents</i>	<i>i</i>
<i>List of Tables</i>	<i>ii</i>
<i>List of Appendices</i>	<i>ii</i>
<i>Executive Summary</i>	<i>E-1</i>
<i>1.0 Introduction</i>	<i>1-1</i>
<i>2.0 Findings, Discussion, and Interpretation of Results</i>	<i>2-1</i>
<i>2.1 Sampling for Lead</i>	<i>2-1</i>
<i>2.1.1 Wipe Sampling</i>	<i>2-1</i>
<i>2.1.2 Air Sampling for Lead</i>	<i>2-2</i>
<i>2.2 Physical Condition of Facility</i>	<i>2-2</i>
<i>2.2.1 Peeling Paint - Lead</i>	<i>2-2</i>
<i>2.2.2 Visual Inspection - Asbestos</i>	<i>2-2</i>
<i>2.2.3 Visual Inspection - Water Damage and Mold</i>	<i>2-2</i>
<i>2.2.4 Visual Inspection - Housekeeping</i>	<i>2-3</i>
<i>2.3 Building Concerns</i>	<i>2-3</i>
<i>2.3.1 Ergonomic Concerns</i>	<i>2-3</i>
<i>2.3.2 Indoor Air Quality</i>	<i>2-3</i>
<i>2.4 Safety and Industrial Hygiene Programs</i>	<i>2-3</i>
<i>2.5 Ventilation</i>	<i>2-4</i>
<i>2.5.1 Ventilation System Evaluation</i>	<i>2-4</i>
<i>2.5.2 Contamination of Clean Air Sources</i>	<i>2-4</i>
<i>2.6 Noise Exposure</i>	<i>2-4</i>
<i>2.7 Lighting</i>	<i>2-4</i>
<i>2.8 Converted Indoor Firing Ranges</i>	<i>2-4</i>
<i>2.9 HVAC Systems</i>	<i>2-5</i>
<i>2.10 HHM</i>	<i>2-5</i>
<i>3.0 Conclusions</i>	<i>3-1</i>
<i>Tables</i>	<i>Follows Section 3.0</i>
<i>Appendices</i>	<i>Follows Tables</i>

List of Tables

Table 1	Wipe Sampling for Lead
Table 2	Air Sampling for Lead
Table 3	Indoor Air Quality Measurements
Table 4	Illumination Readings
Table 5	Indoor Firing Ranges – Wipe Sampling

List of Appendices

Appendix A	IIHIM Data Form
Appendix B	Building Layout
Appendix C	Sampling Sheets and Laboratory Analyses
Appendix D	References
Appendix E	Recommendations for Surface Lead Dust in Armories

Executive Summary

Shaw Environmental, Inc. (Shaw) was contracted to perform an industrial hygiene evaluation for the Emporia Readiness Center in Emporia, Virginia. **Non-Responsive** performed the evaluation on 16 December 2003. The point of contact at the readiness center was ISC **Non-Responsive**

The following industrial hygiene concerns were evaluated.

- Wipe Sampling for Lead
- Air Sampling for Lead
- Peeling Paint – Lead
- Suspected Asbestos Containing Material
- Water Damage
- Presence of Mold
- Housekeeping
- Ergonomic Concerns
- Indoor Air Quality
- Safety and Industrial Hygiene Programs
- Ventilation System Evaluation
- Contamination of Clean Air Sources
- Noise Exposure
- Lighting
- Converted Indoor Firing Range
- HVAC Systems

The following items were either not applicable to the armory or the evaluation resulted in a conclusion that there were no industrial hygiene concerns.

- Air Sampling for Lead
- Peeling Paint – Lead
- Suspected Asbestos Containing Material
- Housekeeping
- Ergonomic Concerns
- Indoor Air Quality

- Safety and Industrial Hygiene Programs
- Ventilation System Evaluation
- Contamination of Clean Air Sources
- Noise Exposure
- HVAC Systems

Areas where there were industrial hygiene concerns are as follows:

- Wipe sampling for lead revealed concentrations above a level of 40 micrograms per square foot ($\mu\text{g}/\text{ft}^2$) in the drill floor/assembly hall and converted firing range. Areas with lead concentrations above $40 \mu\text{g}/\text{ft}^2$ that will be accessible to children should be cleaned. If a special function is held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function.
- Water damage was observed at several locations at the armory. The source of the water damage was likely from a mixture of roof and pipe leaks. The source of the water damage should be confirmed and actions taken to eliminate the source in order to prevent the possibility of mold growth that may lead to indoor air quality problems.
- Visual mold was observed in the armory. The area where the mold is located should be thoroughly cleaned with 0.5% sodium hypochlorite solution (1 part household bleach to nine parts water) or equivalent in order to eliminate the potential mold/indoor air quality problem. In addition, the source of the mold should be identified and actions taken to eliminate it.
- Lighting measurements were conducted at the armory. The lighting did not meet minimum requirements in some areas; therefore consideration should be given to providing more lighting in these areas. This may be accomplished by replacing burnt out luminaires, cleaning fixtures, cleaning windows, painting walls with a lighter color, repositioning detailed work to higher illuminated areas, and using supplemental lighting.
- Wipe sampling for lead revealed a concentration above the recommended level of 200 micrograms per square foot ($\mu\text{g}/\text{ft}^2$) at the bullet trap in the converted firing range. It is recommended that this surface and the areas immediately around this surface be thoroughly cleaned to reduce the lead level. In addition, any other dusty/dirty areas in the converted firing range should be thoroughly cleaned.

1.0 Introduction

Shaw Environmental, Inc. (Shaw) was contracted to perform an industrial hygiene evaluation for the Emporia Readiness Center in Emporia, Virginia. **Non-Responsive** performed the evaluation on 16 January 2003. The point of contact at the readiness center was 1SG **Non-Responsive**

The findings, discussion, and interpretation of results are provided in Section 2.0. The conclusions are provided in Section 3.0. The HHIM data form for the facility is provided in Appendix A. The building layout is provided in Appendix B. Sampling sheets and laboratory analyses are provided in Appendix C. References are provided in Appendix D. The *Recommendations for Surface Lead Dust in Armories* document is provided in Appendix E.

The statements, opinions, and conclusions contained in this report are based solely upon the services performed by Shaw as described in the report. In performing these services and preparing the report, Shaw Environmental, Inc. relied upon the work and information provided by others, including public agencies, whose information is not guaranteed by Shaw Environmental, Inc.

2.0 Findings, Discussion, and Interpretation of Results

The results, discussion, and interpretation of results are provided in the following sections.

2.1. Sampling for Lead

2.1.1 Wipe Sampling

Wipe samples were collected for lead from the drill floor/assembly area. Also, wipe samples were collected for lead in rooms, hallways, foyers, etc. The sampling in rooms, hallways, foyers, etc. represented approximately 25% of the building.

Approximately half of the samples were collected from surfaces in common areas, such as surfaces of a desk. The remaining samples were collected from uncommon surface areas, such as a supply vent or the top of a file cabinet. The samples were collected and analyzed in accordance with the Instructions for *Completing the Sampling of ARMY National Guard Armories* procedure.

The only samples initially submitted for analysis were those from the drill floor/assembly hall. If there were any results above acceptable levels from the drill floor/assembly hall, the other samples would have been submitted for analysis.

Results of the wipe sampling are provided in Table 1. The results revealed lead at all locations sampled at concentrations below the recommended level of 200 micrograms lead per square foot ($\mu\text{g}/\text{ft}^2$) (See Appendix E) at all of the drill floor/assembly hall sample locations. Since the levels were below the recommended level, the other samples were not submitted for analysis.

However, wipe sampling for lead revealed concentrations above a level of $40 \mu\text{g}/\text{ft}^2$ in the drill floor/assembly hall area and the converted firing range. Please note that the *Recommendations for Surface Lead Dust in Armories* (Appendix E) states that all areas with lead concentrations above $40 \mu\text{g}/\text{ft}^2$ that will be accessible to children should be cleaned. If a special function is held in which children will be present in

this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function.

2.1.2 Air Sampling for Lead

Breathing zone air sampling was conducted on two (2) full-time building occupants. (Please note that no state employees were monitored.) The sample was collected and analyzed in accordance with Method 7082 of the National Institute of Occupational Safety and Health (NIOSH) Manual of Analytical Methods.

The results of the sampling are provided in Table 2. The results revealed non-detectable concentrations of lead in the breathing zone of the employee; therefore, no actions are necessary.

2.2 Physical Condition of Facility

2.2.1 Peeling Paint - Lead

Peeling paint was not observed at the armory; therefore, bulk samples for lead in paint were not taken.

2.2.2 Visual Inspection - Asbestos

A visual inspection was made to determine if there was any suspected asbestos-containing material at the armory. The inspection did not reveal any materials suspected of containing asbestos.

2.2.3 Visual Inspection - Water Damage and Mold

A visual inspection was made to determine if there was any water damage or visible mold at the armory. Both visible mold and water damage was observed at the armory. Water damage was observed on the ceilings and some walls in rooms 103, 105, 100, and 100B. Visible mold was observed on the ceilings and walls in rooms 103 and 105.

The source of the water damage was likely from a mixture of roof and pipe leaks. The source of the water damage should be confirmed and actions taken to eliminate the source in order to prevent the possibility of mold growth that may lead to indoor air quality problems.

The area where the mold is located should be thoroughly cleaned with 0.5% sodium hypochlorite solution (1 part household bleach to nine parts water) or equivalent in order to eliminate the potential mold/indoor air quality problem. In addition, the source of the mold should be identified and actions taken to eliminate it.

2.2.4 Visual Inspection - Housekeeping

The housekeeping was determined to be good.

2.3. Building Concerns

2.3.1 Ergonomic Concerns

Interviews with employees and observation of work activities revealed no ergonomic concerns at the armory.

2.3.2 Indoor Air Quality

Interviews with employees and measurements for carbon dioxide, humidity, and temperature revealed no indoor air quality concerns at the armory. The results of the measurements for carbon dioxide, humidity, and temperature are provided in Table 3.

2.4. Safety and Industrial Hygiene Programs

An evaluation was performed to determine the applicability of the following programs.

- Confined Spaces
- Hearing Conservation
- Respiratory Protection
- Hazard Communication (HAZCOM)
- Personal Protective Equipment (PPE)

It was determined that Confined Spaces and the HAZCOM program are the only programs listed above that were applicable at the facility. Both the confined spaces and HAZCOM programs were evaluated and it was determined that the programs met the minimum requirements.

2.5. Ventilation

2.5.1 Ventilation System Evaluation

There were no local exhaust ventilation systems at this armory; therefore, no ventilation studies were performed.

2.5.2 Contamination of Clean Air Sources

Since there were no local exhaust ventilation systems at the armory, there was no possibility that clean air sources could be contaminated by exhaust air.

2.6. Noise Exposure

An evaluation was performed to determine if there were any hazardous noise areas at the armory. It was determined that there were no areas at the armory that would exceed the permissible exposure limit for noise.

2.7 Lighting

Lighting measurements were conducted at the armory. Results of the lighting evaluation are provided in Table 4. As can be seen from the results, the lighting did not meet the minimum requirements in some areas, including the locker room and break room.

Consideration should be given to providing more lighting to the areas listed above. This may be accomplished by replacing burnt out luminaries, cleaning fixtures, cleaning windows, painting walls with a lighter color, repositioning detailed work to higher illuminated areas, and using supplemental lighting.

2.8 Converted Indoor Firing Ranges

There was a converted indoor firing range at the facility; therefore, wipe samples were taken for lead at various locations in or near the converted range. The space is now used as storage. The results are provided in Table 5. The results revealed lead, with associated concentrations, at the following locations:

- bullet trap at 53000 micrograms lead per square foot ($\mu\text{g}/\text{ft}^2$);
- floor at $110 \mu\text{g}/\text{ft}^2$;
- floor outside the range at $20 \mu\text{g}/\text{ft}^2$;
- stored item at $90 \mu\text{g}/\text{ft}^2$;

- light fixture at 95 $\mu\text{g}/\text{ft}^2$; and
- overhead heaters at 110 $\mu\text{g}/\text{ft}^2$.

The lead level at the bullet trap location was above the recommended level of 200 $\mu\text{g}/\text{ft}^2$, a level recommended in the *Guidelines for Converting Indoor Firing Ranges to Other Uses* document (Department of Army). This area must be decontaminated by a thorough cleaning along with re-sampling until surface lead concentrations are reduced to below recommended levels. In addition, employees should not be allowed to work in this area without protective clothing.

2.9. HVAC System

The maintenance schedule for the HVAC system was evaluated to verify that maintenance occurs on a regular basis. Also, the condition of the HVAC system was evaluated to determine if the maintenance performed is effective. It was deemed that maintenance occurs on a regular basis, and the maintenance performed is effective.

2.10. HHIM

A Health Hazard Information Module (HHIM) form was completed for the armory. The completed form is provided in Appendix A.

3.0 Conclusions

It is concluded that there were no industrial hygiene concerns at the armory with regards to atmospheric exposure to lead, peeling lead-based paint, suspected asbestos-containing material, housekeeping, ergonomic conditions, indoor air quality, safety and industrial hygiene programs, ventilation systems or contamination of clean air sources, noise exposure, and HVAC systems.

There were industrial hygiene concerns at the armory with regards to lead surface contamination, visible water damage, visible mold, surface lead contamination in the converted firing range, and lighting. These concerns are discussed in detail in Section 2.0 of this report.

TABLES

Table 1
Wipe Sampling for Lead
National Guard Armory
Emporia Armory, Virginia
Date of Sampling: 16 December 2003

Sample Number	Location	Results, $\mu\text{g}/\text{ft}^2$ ^a
VAEMP350-1	Drill Floor (fire extinguisher case top surface) See Building Layout – Appendix B	14
VAEMP350-2	Drill Floor (coffee maker top surface) See Building Layout – Appendix B	4.8
VAEMP350-3	Drill Floor (scullery return service widow countertop) See Building Layout – Appendix B	< 2.7
VAEMP350-4	Drill Floor (fire extinguisher case top surface) See Building Layout – Appendix B	10
VAEMP350-5	Drill Floor (soda machine top surface) See Building Layout – Appendix B	180
VAEMP350-6	Field Blank	0.38

^a Micrograms lead per square foot

^b Below Detectable Limits, at a detection level of XX $\mu\text{g}/\text{ft}^2$

The samples were taken and analyzed in accordance with the *Instructions for Completing the Sampling of ARMY National Guard Armories* procedure.

Table 2
Breathing Zone Air Samples for Lead
National Guard Armory
Emporia, Virginia
Date of Sampling: 16 December 2003

Sample Number	Employee	Sampling Information			Results (mg/m ³) ^a
		Time Sampled / Minutes	Flow Rate (lpm) ^b	Volume (liters)	
VAEMP350-A1	Non-Responsive	0920-1125/125	1.639	204.88	<0.0049
VAEMP350-A2		0925-1130/125	1.596	199.47	<0.005
VAEMP350-A3	Field Blank	-	-	-	None Detected

^a Milligrams lead per cubic meter of air.

^b Liters of air per minute.

Method 7082 of the National Institute of Occupational Safety and Health (NIOSH) Manual of Analytical Methods was followed for sampling for lead.

Table 3
Indoor Air Quality Measurements for Carbon Dioxide, Humidity, and Temperature
National Guard Armory
Emporia, Virginia
Date of Sampling: 16 December 2003

Location	Occupants In Area	Carbon Dioxide, parts per million parts of air (ppm)	Percent (%) Humidity	Temperature (°F)
1 st Floor	1	412	42.3	68.6
Outdoors	-	357	33.4	66.4

Carbon dioxide, humidity, and temperature measurements were taken with a TSI Q Trak Plus, Model 8554, Indoor Air Quality Meter, calibrated in April 2003.

American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE) recommends that indoor carbon dioxide levels be less than 700 ppm above outdoor levels.

ASHRAE recommends that the relative humidity levels be maintained between 30 to 60 percent.

ASHRAE recommends that the acceptable temperature range be 68 degrees Fahrenheit to 74 degrees Fahrenheit in the winter and 73 degrees Fahrenheit to 79 degrees Fahrenheit in the summer.

Table 4
Illumination Readings
National Guard Armory
Emporia, Virginia
Date of Sampling: 16 December 2003

Location	Luminance (fc)^a	Standard (fc)^a	Standard Met
Men's Latrine	33.3-88.8	40	Some Areas
Room 100	22.2-88.8	70	Some Areas
Room 100A	66.6-111.1	70	Some Areas
Room 102	66.6-111.1	70	Some Areas
Room 104	33.3-88.8	40	Some Areas
Room 103 & 105	111.1-166.6	70	Yes
Room M1	55.5-105.5	70	Some Areas
Room M3	44.4-77.7	40	Yes
Bay Area	11.1-66.6	70	No
Room 115	11.1-77.7	70	Some Areas
Kitchen & Kitchen Prep Areas	111.1-166.6	70	Some Areas
Locker Room	22.2-55.5	40	Some Areas
Break Room	22.2-55.5	70	No

^afc - Footcandles

The readings were taken with a Weston model 614-60 Lightmeter.

The standards listed above are from ANSI/IES RP-1 and RP-7.

Table 5
Wipe Sampling for Lead – Converted Firing Range
National Guard Armory
Emporia, Virginia
Date of Sampling: 16 December 2003

Sample Number	Location	Results, $\mu\text{g}/\text{ft}^2$ ^a
VAEMP350-25	Bullet Trap (original bullet trap)	53000
VAEMP350-19	Light Fixture	95
VAEMP350-20	Overhead heaters	110
VAEMP350-21	Stored Item	90
VAEMP350-22	Floor (inside the converted firing range)	110
VAEMP350-23	Floor (outside the converted firing range)	20
VAEMP350-24	Field Blank	0.42

^aMicrograms lead per square foot

^bBelow Detectable Limits, at a detection level of XX $\mu\text{g}/\text{ft}^2$

The samples were taken and analyzed in accordance with the Instructions for *Completing the Sampling of ARMY National Guard Armories* procedure.

Appendix A

HHIM Data Form(s)

HEALTH HAZARD INFORMATION MODULE: INDUSTRIAL HYGIENE SURVEY

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

SECTION 1. DEMOGRAPHIC DATA

ARLOC 24255	INSTALLATION APG-EA	BLDG/RM NO. EMPORIA
LOCATION/CODE ADMINISTRATIVE AREAS / AA	OPERATION/CODE ADMINISTRATIVE OPERATIONS / ADO	
SURVEY DATE 16 DECEMBER 2003	EVALUATOR (Initials) Non-Responsive	
MACOM/CODE	SUBMACOM/CODE XX	SUPERVISOR 156 Non-Responsive
TELEPHONE/DSN NO. (434) 634 5160	UNIT/ORGANIZATION EMPORIA ARMORY	RAC S
NO. CIV(S) 1	NO. MIL 5	NO. CONTRACTOR(S) 0
	NO. LOC(S) 1	NO. OTHER 1

SECTION 2. FACILITY DATA

LAB HOODS 0	VAPOR DEGREASERS 0	SPRAY BOOTHS 0
MAINTENANCE BAYS 1	OPEN SURFACE TANKS 0	VENTILATION UNITS 0

SECTION 3. SURVEY DATA

CONTROLS PRESENT	EVALUATION	UNIT CODE	CONTROLS REQUIRED	STATUS

PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized)

GLOVES	R	U	RESPIRATOR	NIOSH TC NO.	MANUFACTURER	R	U
ACID			AIRLINE				
COLD SURFACES			ABRASIVE BLASTING HOOD				
HOT SURFACES			DISPOSABLE				
IBC AGENTS			FULL FACE AIR PURIFYING				
IL			1/2 FACE AIR PURIFYING				
OLVENTS			POWERED AIR PURIFYING				
URGICAL GLOVES			1/4 FACE AIR PURIFYING				
			SELF CONTAINED				

EYES/FACE	R	U	HEARING	R	U	BODY	R	U	HEAD/FIT	R	U
CHEMICAL SPLASH			CANAL CAPS			APRONS			COLD WEATHER BOOTS/HATS		
ULL FACE SHIELD			EAR PLUGS			COLD WEATHER CLOTHING			HARD HATS		
CHEMICAL/SAFETY			HELMETS			COVERALLS			IMPERMEABLE BOOTS		
AFETY/IMPACT			MUFFS			FULL BODY SUIT			SAFETY/CONDUCTIVE SHOES		
WELDING HELMET			MUFF/EARPLUG COMBO			HEAT REFLECTIVE VEST/SUIT			SAFETY/NON-CONDUCTIVE SHOES		

Posted to NGB Form 271-R (Test) 1 Jan 92. (HSHB-701-1)

SECTION 4. HAZARD INVENTORY DATA

CAS CODE	HAZARD DESCRIPTION	PAC	EPC
POVDTXXXX	VIDEO DISPLAY TERMINALS	3-LOW	UNCONTROLLED D - PHYSICAL
7439-92-1	LEAD, INORGANIC DUSTS, FUMES	2-MODERATE	UNCONTROLLED C - RESPIRATORY
1332-21-4	ASBESTOS	3-LOW	UNCONTROLLED C - RESPIRATORY
124-38-9	CARBON DIOXIDE	2-MODERATE	UNCONTROLLED C - RESPIRATORY
POLIFTING	HEAVY LIFTING	2-MODERATE	UNCONTROLLED D - PHYSICAL
POHEATSTR	HEAT STRESS	3-LOW	UNCONTROLLED D - PHYSICAL

SECTION 5. PERSONNEL DATA

LAST NAME	FIRST NAME	MI	SEX	SSN	CATEGORY
Non-Responsive		R	M	-	MIL
		E	M	-	MIL
		F	M	-	MIL
		F	M	-	MIL
		-	M	-	MIL
		W	M	-	CIV

SECTION 6. COMMENTS

/ No comments

See attached sheet

PRIVACY ACT STATEMENT

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

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



DEPARTMENT OF THE ARMY
BATTERY C, 2D BATTALION, 111TH FIELD ARTILLERY
940 COURTLAND ROAD
EMPORIA, VIRGINIA 23847-6553

REPLY TO
ATTENTION OF

16 December, 2003

MEMORANDUM FOR RECORD

1. The following are assigned to the Emporia Armory, located Emporia Virginia. This is a single unit Armory occupied by Battery C 2/111th Field Artillery, VaARNG.

Non-Responsive

Readiness NCO
Supply Sergeant
Recruiting NCO
AFTDS NCO
Training NCO

Facility Mgr.

2. POC this action is FSG RYALS, PH# 434-634-2123.

Non-Responsive

FSG, VaARNG
Readiness NCO

Appendix B

Building Layout



Appendix C

Sampling Sheets and Laboratory Analyses

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: VA EMP 350
Job Location: Emporia, Virginia
Job Number: 845702, 01000000
P.O. Number: 1103
Chain Of Custody: 121360
Date Analyzed: 01/02/2004
Person Submitting: **950000**
Report Date: 02-Jan-04

Attention: **950000** 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
0416875	VA EMP 350 1	Furnace	Wipe	****	0.111	2.70 ug/ft ²	14 ug/ft ²	
0416876	VA EMP 350 2	Furnace	Wipe	****	0.111	2.70 ug/ft ²	4.8 ug/ft ²	
0416877	VA EMP 350 3	Furnace	Wipe	****	0.111	2.70 ug/ft ²	< 2.7 ug/ft ²	
0416878	VA EMP 350 4	Furnace	Wipe	****	0.111	2.70 ug/ft ²	10 ug/ft ²	
0416879	VA EMP 350 5	Furnace	Wipe	****	0.111	67.51 ug/ft ²	180 ug/ft ²	
0416880	VA EMP 350 6	Furnace	Wipe Blank	****	N/A	0.30 ug	0.38 ug	
0416881	VA EMP 350 19	Furnace	Wipe	****	0.111	67.51 ug/ft ²	95 ug/ft ²	
0416882	VA EMP 350 20	Furnace	Wipe	****	0.111	67.51 ug/ft ²	110 ug/ft ²	
0416883	VA EMP 350 21	Furnace	Wipe	****	0.111	67.51 ug/ft ²	90 ug/ft ²	
0416884	VA EMP 350 22	Furnace	Wipe	****	0.111	67.51 ug/ft ²	110 ug/ft ²	
0416885	VA EMP 350 23	Furnace	Wipe	****	0.111	5.40 ug/ft ²	20 ug/ft ²	
0416886	VA EMP 350 24	Furnace	Wipe Blank	****	N/A	0.30 ug	0.42 ug	
0416887	VA EMP 350 25	Flame	Wipe	****	0.111	108.01 ug/ft ²	55000 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.

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

Client:	National Guard Bureau	Job Name:	VA EMP 350	Chain Of Custody:	121360
Address:	301-TH Old Bay Lane, Attn: NGB-AVN-SL State Military Reservation	Job Location:	Emporia, Virginia	Date Analyzed:	01/02/2004
	Havre de Grace, Maryland	Job Number:	845702, 01000000	Person Submitting:	Re sp on
		P.O. Number:	1103	Report Date:	02-Jan-04

Attention:

Non-Responsive

Summary of Atomic Absorption Analysis for Lead

[illegible]

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:

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. NVI, AP Accreditation applies only to polarized light microscopy of bulk samples and transmission electron microscopy of AHERA air samples.

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



TEST REPORT
Page 1 of 4
12/30/03

Submitted To: **Non-Responsive**
Shaw Environmental, Inc.
5700 Thurston Avenue; Suite 116
Virginia Beach, VA 23455-3302

Reference Data:	Lead
Client Sample No.:	VASAN344A1 through VABLA353A3
P.O. No.:	1103
Sample Location:	Virginia
Sample Type:	Filter
Method Reference:	NIOSH 7300
DCL Set ID No.:	03-S-6250
DCL Sample ID No.:	03-37000 through 03-37040
Sample Receipt Date:	12/23/2003
Preparation Date:	12/24/2003
Analysis Date:	12/29/2003

The samples were prepared and analyzed in accordance with NIOSH method 7300 using a Thermo Jarrell Ash Trace (ICP) purged spectrometer.

The sample condition upon receipt was acceptable except where noted.

The results are in the enclosed data table. Results relate only to the items tested and are not blank corrected unless indicated in the data table.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Non-Responsive

Analyst

Non-Responsive

Reviewer

CINCINNATI OFFICE
4388 GLENDALE-MILFORD ROAD
CINCINNATI, OHIO 45242-3706
513 733-5336, FAX 513 733-5347

Posted to NGB FOIA Reading Room
May, 2018

FOIA Requested Record #J-15-0085 (VA)
Released by National Guard Bureau
Page 206 of 1923

WEST COAST OFFICE
11 SANTA YORMA COURT
NOVATO, CALIFORNIA 94945
800 280-8071, FAX 415 893-9469

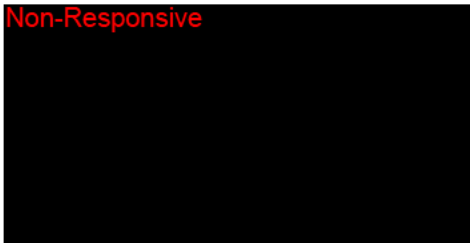
Results
Lead

Client #	DCL #	Sample Volume (L)	µg/sample	mg/m ³
VASAN343A3	03-37011	-	ND	-
VASANFR343A1	03-37012	120.41	ND	<0.0083
VASANFR343A2	03-37013	-	ND	-
VAFRA337A1	03-37014	266.08	ND	<0.0038
VAFRA337A2	03-37015	253.87	ND	<0.0039
VAFRA337A3	03-37016	-	ND	-
VASUF337A1	03-37017	207.51	ND	<0.0048
VASUF337A2	03-37018	232.33	ND	<0.0043
VASUF337A3	03-37019	-	ND	-
VAOHA338A1	03-37020	208.27	ND	<0.0048
VAOHA338A2	03-37021	183.40	ND	<0.0055
VAOHA338A3	03-37022	-	ND	-
VAPET350A1	03-37023	208.60	ND	<0.0048
VAPET350A2	03-37024	216.91	ND	<0.0046
VAPET350A3	03-37025	-	ND	-
VAEMP350A1	03-37026	204.88	ND	<0.0049
VAEMP350A2	03-37027	199.47	ND	<0.0050
VAEMP350A3	03-37028	-	ND	-
VAMAR351A1	03-37029	192.20	ND	<0.0052
VAMAR351A2	03-37030	200.52	ND	<0.0050
	Prep Blank 3		ND	
% Recovery	LCS 5		93.	
% Recovery	LCS 6		94.	
RPL			1.0	

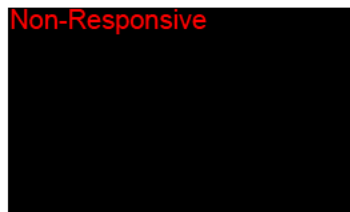
ND = not detected at or above the reporting limit (RPL).

LCS = laboratory control sample.

Non-Responsive



Non-Responsive



Reviewer

12/16/2003

204.88 Liters

199.47 Liters

Appendix D

References

References

Title 29, Code of Federal Regulations (CFR), Part 1910, Occupational Safety and Health Administration (current edition)

American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc (ASHRAE) 62-2002, Ventilation for Acceptable Indoor Air Quality

Instructions for Completing the Sampling of Army National Guard Armories, Lead Wipe Sampling Procedure included with the Request for Proposal

Air Sampling for Lead - Method 7082 of the National Institute of Occupational Safety and Health (NIOSH) Manual of Analytical Methods

Design Guide DG-415-2, Logistics Facilities, National Guard Bureau Installation Division, 14 December 1999

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

Army Regulation (AR) 40-5, Medical Service, Preventive Medicine, 15 October 1990

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

Department of the Army Pamphlet (DA PAM) 40-501, Medical Services, Hearing Conservation Program, 10 December 1998

DA PAM 40-503, Medical Services, Industrial Hygiene Program, 30 October 2000

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

Guidelines for Converting Indoor Firing Ranges to Other Uses, Headquarters, Department of the Army and the Air Force, NG PAM (AR) 385-16/ANGPAM 91-101, 31 January 1994

24 CFR, Part 35, Subpart B, Section 35-110, Definition of Lead-Based Paint, Housing and Urban Development, U. S. Department of Housing

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 $0.05 \text{ mg}/\text{m}^3$ averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead dust in this building.

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

NGB-AVS-SI (40-5f)

17 December 2004

MEMORANDUM FOR VAARNG, Emporia Readiness Center, ATTN: SFC

Non-
R 940 Courtland Road, Emporia, VA 23847

Non-
Responsi

SUBJECT: Baseline Survey

1. I have enclosed the industrial hygiene survey report completed by Shaw Environmental, Incorporated.
2. In addition to the attached discussion and recommendations regarding wipe samples for lead, if a special function is held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function.
3. Please contact me at (410) 942-0273 or 1-800-550-6967 if you have any questions regarding the enclosed report.

Encl

Non-Responsive

Regional Industrial Hygienist

CF: Organizational Maintenance Officer
Occupational Health Manager

National Guard Armory

Emporia Readiness Center, Emporia, Virginia

Industrial Hygiene Evaluation

Recommendations

- Wipe sampling for lead revealed concentrations above a level of 40 micrograms per square foot ($\mu\text{g}/\text{ft}^2$) in the drill floor/assembly hall and converted firing range. Areas with lead concentrations above 40 $\mu\text{g}/\text{ft}^2$ that will be accessible to children should be cleaned. If a special function is held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function. **RAC - 4**
- Water damage was observed at several locations at the armory. The source of the water damage was likely from a mixture of roof and pipe leaks. The source of the water damage should be confirmed and actions taken to eliminate the source in order to prevent the possibility of mold growth that may lead to indoor air quality problems. **RAC - 5**
- Visual mold was observed in the armory. The area where the mold is located should be thoroughly cleaned with 0.5% sodium hypochlorite solution (1 part household bleach to nine parts water) or equivalent in order to eliminate the potential mold/indoor air quality problem. In addition, the source of the mold should be identified and actions taken to eliminate it. **RAC - 5**
- Lighting measurements were conducted at the armory. The lighting did not meet minimum requirements in some areas; therefore consideration should be given to providing more lighting in these areas. This may be accomplished by replacing burnt out luminaries, cleaning fixtures, cleaning windows, painting walls with a lighter color, repositioning detailed work to higher illuminated areas, and using supplemental lighting. **RAC - 5**
- Wipe sampling for lead revealed a concentration above the recommended level of 200 micrograms per square foot ($\mu\text{g}/\text{ft}^2$) at the bullet trap in the converted firing range. It is recommended that this surface and the areas immediately around this surface be thoroughly cleaned to reduce the lead level. In addition, any other dusty/dirty areas in the converted firing range should be thoroughly cleaned. **RAC - 4**

MEDICAL RECORD – SUPPLEMENTAL MEDICAL DATA

For use of this form, see AR 40-66; the proponent agency is the Office of The Surgeon General.

REPORT TITLE

OTSG APPROVED (Date)

WORKERS' OCCUPATIONAL WORKSITE SAMPLING DATA RECORD

DIRECTORATE Emporia Armory

BLDG/ROOM Emporia

SPECIAL STUDY/REPORT NUMBER Virginia National Guard Study

JOB DESCRIPTION/SERIES Military/Administrative Operations

SAMPLING DATE December 16, 2003

EXPOSURE MONITORED	TYPE SAMPLE*	PERMISSIBLE EXPOSURE LIMIT	SAMPLING RESULT	CALCULATED TWA	EXPOSURE CATEGORY**
1. Lead	P	0.05 mg/m ³	<0.0050	<0.0050	1
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					

*TYPE OF SAMPLE: G=General Area Sample

P=Personal Sample Collected in the Breathing Zone of the Worker.

R=Personal Sample Collected on another worker, but representative of expected exposure for this worker.

**EXPOSURE CATEGORY

1. Measured Exposure levels are below permissible exposure limit.
2. Measured Exposure levels are close to permissible exposure limits: See Comments.
3. Measured Exposure levels are above permissible exposure limits: See Comments.

COMMENTS:

NOTE: REFER TO THE SPECIAL STUDY OR REPORT REFERENCED FOR DETAILS OF SAMPLING AND RESULTS.

(Continue on reverse)

PREPARED BY (Signature & Title)

DEPARTMENT/SERVICE/CLINIC

DATE

Non-Responsive

Environmental Scientist

INDUSTRIAL HYGIENE SECTION

12/16/2003

PATIENT'S IDENTIFICATION (For typed or written entries give: Name --last, first, Middle; grade; date; hospital or medical facility)

NAME: Non-Responsive SSN: 12/16/2003

HISTORY/PHYSICAL

FLOW CHART

SSN: Non-Responsive (last four)

OTHER EXAMINATION OR EVALUATION

OTHER (SPECIFY)

UNIT PHONE NO: 434-634-5160

DIAGNOSTIC STUDIES

TREATMENT

DA FORM 4700

1 MAY 73

HSXR-APG-Z OP 32 1 Jan 90

MEDICAL RECORD – SUPPLEMENTAL MEDICAL DATA

For use of this form, see AR 40-66; the proponent agency is the Office of The Surgeon General.

REPORT TITLE

OTSG APPROVED (Date)

WORKERS' OCCUPATIONAL WORKSITE SAMPLING DATA RECORD

DIRECTORATE Emporia Armory

BLDG/ROOM Emporia

SPECIAL STUDY/REPORT NUMBER Virginia National Guard Study

JOB DESCRIPTION/SERIES Military/Administrative Operations

SAMPLING DATE December 16, 2003

EXPOSURE MONITORED	TYPE SAMPLE*	PERMISSIBLE EXPOSURE LIMIT	SAMPLING RESULT	CALCULATED TWA	EXPOSURE CATEGORY**
1. Lead	P	0.05 mg/m ³	<0.0049	<0.0049	1
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					

*TYPE OF SAMPLE: G=General Area Sample

P=Personal Sample Collected in the Breathing Zone of the Worker.

R=Personal Sample Collected on another worker, but representative of expected exposure for this worker.

**EXPOSURE CATEGORY

1. Measured Exposure levels are below permissible exposure limit.
2. Measured Exposure levels are close to permissible exposure limits: See Comments.
3. Measured Exposure levels are above permissible exposure limits: See Comments.

COMMENTS:

NOTE: REFER TO THE SPECIAL STUDY OR REPORT REFERENCED FOR DETAILS OF SAMPLING AND RESULTS.

(Continue on reverse)

PREPARED BY (Signature & Title)

DEPARTMENT/SERVICE/CLINIC

DATE

Non-Environmental Scientist

INDUSTRIAL HYGIENE SECTION

12/16/2003

PATIENT'S IDENTIFICATION (For typed or written entries give: Name --last, first, middle, grade, date; hospital or medical facility)

NAME: Non-Responsive SG: 12/16/2003

HISTORY/PHYSICAL

FLOW CHART

SSN Non- (last four)

OTHER EXAMINATION OR EVALUATION

OTHER (SPECIFY)

UNIT PHONE NO: 434-634-5160

DIAGNOSTIC STUDIES

TREATMENT

DA FORM 4700

1 MAY 77

HSXR-APG-Z OP 32 1 Jan 90

Posted to NGB FOIA Reading Room
May, 2018

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

Released by National Guard Bureau

Page 217 of 1923

Shaw Environmental, Inc.

312 Directors Drive
Knoxville, TN 37923
865.690.3211
Fax 865.690.3626



Shaw Environmental, Inc.

116 Dec 03
Revised 3/25/04
rev 12/1/04

22 March 2004

Ms **Non-Responsive**
Regional Industrial Hygienist
Region North Industrial Hygiene Office
Attn: NGB-AVS-SI
301-IH Old Bay Lane
Havre De Grace, Maryland 21078

RE: Draft Report for the Industrial Hygiene Evaluation at the Emporia Readiness
Center – Emporia, Virginia

Dear Ms **Non-Responsive**

Attached is a copy of the referenced report. Also attached is a copy of the field notes,
photographs and photograph log, and the completed contaminant exposure forms (three
copies of each employee sampled). Please call me if you have questions.

Sincerely,

Non-Responsive

Project Manager

BUILDING WAS BUILT IN 1993
CONTAINS @ 40 ROOMS + HALLWAYS

Field Notes and Checklist

State: VIRGINIA Location: EMPORIA ARMORY Date: DECEMBER 16, 2003
Contact: SFC [REDACTED] Non-Responsive

1.0 Sampling for Lead

1.1 Wipe Sampling

Sample #:	<u>1</u>	Picture #:	<u>/</u>	Location:	<u>FIRE EXTINGUISHER CASE TOP</u>
Sample #:	<u>2</u>	Picture #:	<u>/</u>	Location:	<u>TOP OF COFFEE MAKER</u>
Sample #:	<u>3</u>	Picture #:	<u>/</u>	Location:	<u>KITCHEN / SCULLERY RETURN SERVICE HUSBANDS</u>
Sample #:	<u>4</u>	Picture #:	<u>/</u>	Location:	<u>FIRE EXTINGUISHER CASE TOP</u>
Sample #:	<u>5</u>	Picture #:	<u>/</u>	Location:	<u>TOP OF SODA MACHINE</u>
Sample #:	<u>6, 12</u>	Picture #:	<u>N/A</u>	Location:	<u>FIELD BLANKS</u>
Sample #:	<u>7, 24</u>	Picture #:	<u>/</u>	Location:	<u>ROOM 100E TOP OF CB TRANSCIEVER</u>
Sample #:	<u>8</u>	Picture #:	<u>/</u>	Location:	<u>ROOM 105 WINDOW SILL</u>
Sample #:	<u>9</u>	Picture #:	<u>/</u>	Location:	<u>ROOM 103 PODIUM TOP</u>
Sample #:	<u>10</u>	Picture #:	<u>/</u>	Location:	<u>ROOM 104 BOOKSHELF</u>
Sample #:	<u>11</u>	Picture #:	<u>/</u>	Location:	<u>ROOM 101 TOP OF TELEVISION</u>
Sample #:	<u>13</u>	Picture #:	<u>/</u>	Location:	<u>ROOM M1 TOP OF BOOK CASE</u>
Sample #:	<u>14</u>	Picture #:	<u>/</u>	Location:	<u>MAINTENANCE AREA TOP OF WORK BENCH</u>
Sample #:	<u>15</u>	Picture #:	<u>/</u>	Location:	<u>MECHANICAL ROOM TOP OF BOILER</u>
Sample #:	<u>16</u>	Picture #:	<u>/</u>	Location:	<u>KITCHEN PREP ROOM TOP OF ELECTRICAL BOX</u>
Sample #:	<u>17</u>	Picture #:	<u>/</u>	Location:	<u>BREAK ROOM TOP OF TELEVISION</u>
Sample #:	_____	Picture #:	_____	Location:	_____
Sample #:	_____	Picture #:	_____	Location:	_____
Sample #:	_____	Picture #:	_____	Location:	_____

(Also, please see the sketch of sampling locations.)

1.2 Breathing Zone Air Sampling

Sample #: A1 Employee Sampled: [REDACTED]
Sample #: A2 Employee Sampled: [REDACTED]
A3 FIELD BLANK

Non-Responsive

SSN

Non-Responsive

SSN #

Feeling paint observed (Yes or No): No

If peeling paint observed, samples were taken as follows:

[illegible]

Suspected asbestos-containing material observed (Yes or No): no

If suspected asbestos-containing material observed, samples were taken as follows:

Location 1: _____ Picture #: _____
 Condition: _____ Approximate (Square or Linear Feet): _____
 Location 2: _____ Picture #: _____
 Condition: _____ Approximate (Square or Linear Feet): _____
 Location 3: _____ Picture #: _____
 Condition: _____ Approximate (Square or Linear Feet): _____
 Location 4: _____ Picture #: _____
 Condition: _____ Approximate (Square or Linear Feet): _____
 Location 5: _____ Picture #: _____
 Condition: _____ Approximate (Square or Linear Feet): _____

2.3 Visual Inspection – Water Damage and Mold

Water damage observed (Yes or No): Yes

ROOF LEAKS

If yes, water damage was observed at the following locations:

Location 1: Room 103 Picture #: /
 Location 2: Room 105 Picture #: /
 Location 3: Room 100 Picture #: /
 Location 4: Room 100E Picture #: /
 Location 5: _____ Picture #: _____

Mold observed (Yes or No): Yes

If yes, mold was observed at the following locations:

Location 1: Room 103 Picture #: /
 Location 2: Room 105 Picture #: /
 Location 3: _____ Picture #: _____
 Location 4: _____ Picture #: _____
 Location 5: _____ Picture #: _____

2.4 Visual Inspection - Housekeeping

Housekeeping (good, average, poor): Good

Comments (such as no dirt or trash was visible on the floors or the housekeeping was poor in that there was trash and debris on the floors that could lead to a tripping hazard, or there was dust in the vents.):

3.0 Building Concerns

3.1 Ergonomic Concerns

Ergonomic concerns (Yes or No): No

If there are ergonomic concerns at the armory, describe the extent of the problem, such as three employees stated that they perform repetitive motion at the XYZ machine for 6 hours per day, and they stated that they are suffering from symptoms of musculoskeletal disorders (MSDs).

3.2 Indoor Air Quality

IAQ concerns (based on employee interviews)(Yes or No): NO

If yes, what were concerns:

Measurements for carbon dioxide, humidity, and temperature:

Location	CO ₂ (ppm)	Humidity (%)	Temperature (°F)	Occupancy (People in Room)
Outdoors -	357	33.4	66.4	0
1 st Floor -	412	42.3	68.6	1
2 nd Floor -	---	---	---	---
3 rd Floor -	---	---	---	---
Basement	---	---	---	---

4.0 Safety and Industrial Hygiene Programs

4.1 Confined Spaces

Are confined spaces applicable (Yes or No): YES

If yes, does the program meet minimum standards (Yes or No): YES

If no, explain the deficiencies:

4.2 Hearing Conservation

Is hearing conservation applicable (Yes or No): No

If yes, does the program meet minimum standards (Yes or No):

If no, explain the deficiencies:

4.3 Respiratory Protection

Is respiratory protection applicable (Yes or No): No

If yes, does the program meet minimum standards (Yes or No):

If no, explain the deficiencies:

4.4 Hazard Communication

Is hazard communication applicable (Yes or No): Yes

If yes, does the program meet minimum standards (Yes or No): Yes

If no, explain the deficiencies:

4.5 Personal Protective Equipment

Is personal protective equipment applicable (Yes or No): No

If yes, does the program meet minimum standards (Yes or No): Yes

If no, explain the deficiencies:

5.0 Ventilation

5.1 Ventilation System Evaluation

Local exhaust ventilation systems at this armory (Yes or No): No

If yes, results of airflow patterns:

Location 1: _____

Airflow Pattern (acceptable or unacceptable, with reason):

Location 2: _____

Airflow Pattern (acceptable or unacceptable, with reason):

Location 3: _____

Airflow Pattern (acceptable or unacceptable, with reason):

5.2 Contamination of Clean Air Sources

Clean air sources contaminated by contaminated exhaust air (Yes or No): No

If yes, describe:

6.0 Noise Dosimetry

Potential hazardous noise areas (Yes or No): no

If yes, results of noise dosimetry sampling:

Employee sampled: _____

Results: _____ % Actual _____ % Projected 8-hour TWA _____ Equivalent dBA

Activity: _____

Employee sampled: _____

Results: _____ % Actual _____ % Projected 8-hour TWA _____ Equivalent dBA

Activity: _____

Employee sampled: _____

Results: _____ % Actual _____ % Projected 8-hour TWA _____ Equivalent dBA

Activity: _____

7.0 Lighting Evaluation

DIVISION 24.9

Location	Luminance Range (fc)
men's lavatory	30-80
Room 100	20-80
Room 100A	100-100
Room 102	60-100
Room 104	30-80
Rooms 106 & 108	100-150
Room M1	50-95
Room M3	10-70
Bay Area	10-60
Room 115	10-70
KITCHEN & KITCHEN PREP AREA	100-150
LOCKER ROOM & BREAK ROOM	20-50

CONTRIBUTOR TO A SENSITIVE RECON-

If yes, locations sampled:

Sample #: 214 Picture #: 21 Location: Exhaust ventilation system

Sample #: 25 Picture #: 1 Location: Bullet trap

Sample #: 19 Picture #: 1 Location: Light fixtures

Sample #: 20 Picture #: 1 Location: Overhead heaters

Sample #: 24 Picture #: ✓ Location: Stored items

Sample #: 20 Picture #: 1 Location: Floor

Sample #: 23 Picture #: ✓ Location: Outside the range

Does the HVAC system have maintenance performed on a regular basis (Yes or No):

4 Feb

In yes, is the maintenance effective (Yes or No): yes

If no, describe:

[illegible]

Complete HHM form for facility (Initial as completed): _____

Reproduction Room HMM Necessary (Yes or No) (Initial if Yes): _____

Film Developing Room III UM Necessary (Yes or No) (Initial if Yes):

Maintenance Area HHIM Necessary (Yes or No) (Initial if Yes): _____

11.0 Additional Items

- Table 1 (wipe sampling) completed (initial when completed): _____
- Table 2 (air sampling) completed (initial when completed): _____
- Table 3 (peeling paint), if necessary, completed (initial when completed): _____
- Table 3 or 4 (IAQ) completed (initial when completed): _____
- Table 4 or 5 (noise), if necessary, completed (initial when completed): _____
- Table 5 or 6 (firing ranges), if necessary, completed (initial when completed): _____
- Airflow pattern diagram(s) completed (initial when completed): _____
- Building layout included (initial when completed): _____
- Photographs (initial when completed): _____
- Sampling Sheets and Laboratory Analyses (initial when completed): _____
- Sampling tracking form completed and faxed to NGB ARNG Region North IH office
within 5 days of date of this survey (initial when completed): _____
(Fax to Ken Forsythe at 410-942-0254)
- State Lead Wipes Spreadsheet* completed (initial when completed): _____
- Three copies of noise exposure notification letter, if necessary (initial when
completed): _____
- Three copies of contaminant exposure forms for each employee that participated in air
sampling (initial when completed): _____

Emporia Armory Photo Log
National Guard Armory
Emporia, Virginia
Date of Survey: 16 December 2003

Photo	Description
1	Lead Wipe Assembly Room - Fire Extinguisher Case - Sample 1
2	Lead Wipe Assembly Room - Coffee Maker - Sample 2
3	Lead Wipe Assembly Room - Scullery Service Window Counter - Sample 3
4	Lead Wipe Assembly Room - Fire Extinguisher Case - Sample 4
5	Lead Wipe Assembly Room - Soda Machine - Sample 5
6	25% Building - Room 100 ECB Receiver - Sample 7
7	25% Building - Room 105 Window Sill - Sample 8
8	25% Building - Room 103 Podium - Sample 9
9	25% Building - Room 104 Bookshelf - Sample 10
10	25% Building - Room 101 Television - Sample 11
11	25% Building - M1 Bookcase - Sample 13
12	25% Building - Maintenance Area Work Bench - Sample 14
13	25% Building - Mechanical Room Boiler - Sample 15
14	25% Building - Kitchen Prep Room Electrical Box - Sample 16
15	25% Building - Break Room Television - Sample 17
16	Firing Range - Bullet Trap
17	Firing Range - Light Fixture
18	Firing Range - Overhead Heaters
19	Firing Range - Store Item - Sample 21
20	Firing Range - Floor Inside the Converted Firing Range - Sample 22
21	Firing Range - Floor Outside the Converted Firing Range - Sample 23
22	Water Damage - Room 100
23	Water Damage & Mold - Room 103
24	Water Damage - Room 100E Office
25	Water Damage & Mold - Room 100F

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



Industrial Hygiene Survey
for VAARNG – Emporia Readiness Center
940 Courtland Road
Emporia, Virginia 23847

AECOM
January 2013
Document No.: 60275401/ Emporia Readiness Center

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

Industrial Hygiene Survey
for VAARNG – Emporia Readiness Center
940 Courtland Road
Emporia, Virginia 23847

Non-Responsive

A large black rectangular redaction box covering several lines of text.

Non-Responsive

A large black rectangular redaction box covering several lines of text.

Project Manager

Non-Responsive

A large black rectangular redaction box covering several lines of text.

Northeast District Health & Safety Manager

AECOM Environment
January 2013
Document No.: 60275401/ Emporia 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 Emporia Readiness Center Facility Layout

Appendix B Emporia Readiness Center Photographs

Appendix C Analytical Results

Appendix D References



List of Tables

Table 2-1: Lead Wipe Sample Results 2-1

Table 3-1: Indoor Air Quality Monitoring Results..... 3-2

Table 5-1: Light Survey 5-1



Executive Summary

On November 14, 2012, AECOM Technical Services Northeast, Inc. (AECOM) conducted an Industrial Hygiene (IH) survey of the Emporia Readiness Center facility located at 940 Courtland Road in Emporia, Virginia. Non- [REDACTED] was the point of contact for the facility and accompanied AECOM during the survey to provide access and information concerning the Emporia Readiness Center operations.

The industrial hygiene survey was conducted in general accordance with the scope of work as described in the "Statement of Work – Industrial Hygiene Services for National Guard Bureau Industrial Hygiene Region North – Baseline Surveys for Readiness Centers and Administrative Buildings", dated March 2009.

The Emporia Readiness Center is currently staffed by three personnel. The facility is configured as an administrative area and a drill/assembly hall.

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

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

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

Wipe samples collected in association with most administrative areas indicated lead levels below the Occupational Safety and Health Administration's (OSHA's) Clarification of "as free as practicable" and lead contamination under 29 Code of Federal Regulations (CFR) 1926.62, The Compliance Directive for the Interim Standard for Lead in Construction, CPL 2-2.58. OSHA recommends the use of the U. S. Department of Housing and Urban Development's (HUD) acceptable decontamination level of 200 micrograms per square foot (ug/ft²) for floors in evaluating the cleanliness of change areas, storage facilities, and lunchrooms/eating areas.

However, wipe samples collected from the top of the trophy case in the drill hall and floor of the battery charging room indicated levels of lead in excess of 200 ug/ft².

Damaged suspect asbestos containing materials was observed and sampled from Room 107 during the evaluation. A sample of both the 1'x1' ceiling tile and yellow mastic was collected from the ceiling of this area and submitted for analysis. Results indicated no asbestos detected in either of the samples.

An area of peeling paint was observed above the trophy case on the east side of the drill hall. A sample of the peeling paint was collected and submitted for analysis of lead content. Results of the analysis indicated a lead level below the reporting limit of 0.0098% lead.

Water damage was observed in Room 107, no visible mold growth was observed during the survey. Water intrusion is a mold growth risk factor.



The garage associated with the Emporia Readiness Center is used on training weekends for basic maintenance tasks. An active ventilation system designed to remove vehicle exhaust was present and operational. The flow rate of the local exhaust system does not meet the required guidelines.

The Heating, Ventilation & Air Conditioning (HVAC) system in the building consists of a boiler room that feeds radiant heaters throughout the building. There is no HVAC system that provides fresh air from the building exterior in administrative areas. A new system has recently been installed at the facility and multiple adjustments have been required to provide a properly operational system.

1.0 Facility Description and Operations

The Emporia Readiness Center was initially constructed in the mid 1980's and is a masonry block structure with steel roofing truss and concrete floors. The facility is approximately 20,329 square feet. The section occupied by Readiness Center personnel consists of rooms configured as office space and is finished with acoustical drop ceilings.

The primary activity at the Emporia Readiness Center is routine administrative duties. The Emporia Readiness Center is currently staffed by 3 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 multiple areas of the facility following the Occupational Safety & Health Administration (OSHA) wipe sampling method and using Ghost Wipes. The following table presents the results of the lead wipe sampling conducted at the facility.

Table 2-1: Lead Wipe Sample Results

Sample Number	Sample Location	Lead Concentration
EP-Pb-01	Drill hall top of vending machine	<110 ug/ft ²
EP-Pb-02	Drill hall top of trophy case	270 ug/ft²
EP-Pb-03	Drill hall doorway to lobby from floor	<110 ug/ft ²
EP-Pb-04	Scullery-drain board to disposal drain	<110 ug/ft ²
EP-Pb-05	Battery room –floor charging station	580 ug/ft²
EP-Pb-06	Rm 107 Former range light fixture	<110 ug/ft ²
EP-Pb-07	Rm 107 Top of transport case	<110 ug/ft ²
EP-Pb-08	Rm 107 Floor at main entrance door	<110 ug/ft ²
EP-Pb-09	Rm 102 Top of file cabinet	<110 ug/ft ²
EP-Pb-10	Rm 100C Top of desk	<110 ug/ft ²

ug/ft² = Micrograms per square foot.

Wipe samples collected in association with most administrative areas indicated lead levels below the Occupational Safety and Health Administration's (OSHA's) Clarification of "as free as practicable" and lead contamination under 29 CFR 1926.62, The Compliance Directive for the Interim Standard for Lead in Construction, CPL 2-2.58. OSHA recommends the use of HUD's acceptable decontamination level of 200 ug/ft² for floors in evaluating the cleanliness of change areas, storage facilities, and lunchrooms/eating areas.

Lead in excess of the action level of 200 micrograms per square foot (ug/ft²) per 29 CFR 1926.62 was detected in a wipe sample collected on the drill hall trophy case and floor of the battery charging room. Laboratory analytical results are presented in Appendix C.

2.1.2 Air Sampling

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

3.0 Physical Condition of Facility and Personnel Concerns

3.1.1 Lead Based Paint

Interior surfaces of walls are coated with paint. The majority of paint on the walls is in serviceable condition.

An area of peeling paint was observed above the trophy case on the east side of the drill hall. A sample of the peeling paint was collected and submitted for analysis of lead content. Results of the analysis indicated a lead level below the reporting limit of 0.0098% lead.

3.1.2 Suspect Asbestos Containing Materials

Damaged suspect asbestos containing materials was observed and sampled from Room 107 during the evaluation. A sample of both the 1' x1' ceiling tile and yellow mastic was collected from the ceiling of this area and submitted for analysis. Results indicated no asbestos detected in either of the samples.

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

3.1.3 Water Damage/Mold

AECOM did not observe evidence of significant water intrusion during this survey. Evidence of a roof leak was apparent in Room 107. Mold was not observed.

3.1.4 Housekeeping

The Emporia 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 Emporia Readiness Center staff members. No Indoor Air Quality concerns were noted by the Emporia Readiness Center personnel.

Instantaneous real-time reading for carbon monoxide and carbon dioxide (parts per million or ppm), temperature (° Fahrenheit), and relative humidity (as percentage) are presented in the following table. The facility is mechanically air conditioned. Readings for carbon dioxide, temperature and relative humidity were recorded outside of accepted guidelines.

Table 3-1: Indoor Air Quality Monitoring Results

Location	Carbon Monoxide (ppm)	Carbon Dioxide (ppm)	Temp (°F)	Relative Humidity (%)
Room 102	0.0	953	66.0	53.8
Room 104	0.0	704	70.1	43.9
Room 100E	0.3	727	72.5	37.0
Room 100D	1.0	886	73.2	35.6
Room 100C	1.0	661	73.7	35.4
Room 100B	1.0	664	74.6	34.5
Room 100A	1.0	713	75.2	35.0
Room 100	1.0	791	75.0	34.3
Classrooms 103/105	1.0	462	73.4	31.1
M1	0.5	423	60.4	32.8
Tool room	0.0	530	58.5	37.8
Maintenance supply	0.0	606	58.1	39.2
M4 Battery room	0.0	516	57.6	39.4
Maintenance bay	0.0	372	56.6	39.2
Mechanical room	0.1	369	50.6	41.5
Men's toilet	0.0	519	56.5	42.7
Room 113	0.0	664	56.4	43.4
Room 113A	0.0	470	56.3	42.4
Room 115A	0.0	459	60.4	43.0
Room 115 Foyer	0.5	548	57.5	38.7
Room 117 kitchen	0.0	421	54.5	41.4
Scullery	0.0	472	53.9	42.2
Lounge	0.0	492	57.2	42.6
Locker room 1	0.0	407	57.6	40.6
Room 101 recruiter	0.0	755	65.2	42.4
Room 107/former range	0.2	374	63.4	55.7
<p>Table 3-1 Guidelines:</p> <p>Carbon Monoxide: Office/Warehouse Space – 9 ppm based on United States Environmental Protection Agency's National Ambient Air Quality Standard.</p> <p>OSHA Permissible Exposure Limit (PEL) = 50 ppm. American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit value (TLV) = 25, ppm.</p> <p>Carbon Dioxide: Office Space -Approximately 700 ppm above background (Derived from American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE) Standard 62.1-2010). Not Applicable to warehouse and vehicle maintenance bays.</p> <p>Relative Humidity: Mechanically air-conditioned space – Maximum 65% (Derived from ASHRAE Standard 62.1-2010 – 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 55-2010)</p>				

Emporia 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 building has a new HVAC system. No dust was observed at diffusers. Ongoing adjustments should lead to a functioning system. Temperature readings were constant in all areas occupied by readiness center personnel.

4.1.2 HVAC Maintenance

The HVAC system is brand new and has been in operation for approximately one month, maintenance is not yet required. Building maintenance personnel were unable to verify whether or not a maintenance schedule is in place.

An operable active ventilation system was present in the facility garage. The system is used to connect to and remove vehicle exhaust from the occupied area of the garage.

5.0 Lighting

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

Table 5-1: Light Survey

Location	Results (Foot candles)	Met Standard (Y/N)	Standard*
Room 102	76.5	Y	50
Room 104	204.2	Y	50
Room 100E	56.4	Y	50
Room 100D	127.8	Y	50
Room 100C	110.8	Y	50
Room 100B	116.8	Y	50
Room 100A	164.4	Y	50
Room 100	47.3	N	50
Classrooms 103/105	82.8	Y	30
M1	50.1	Y	30
Tool room	26.8	N	30
Maintenance supply	59.1	Y	30
M4 Battery room	19.9	N	30
Maintenance bay (storage)	41.3	Y	30
Mechanical room	22.8	N	30
Men's toilet	66.9	Y	5
Room 113	18.3	N	50
Room 113A	40.9	N	50
Room 115A	30.2	N	50
Room 115 Foyer	48.8	Y	10
Room 117 kitchen	60.6	Y	50
Scullery	23.8	N	50
Lounge	NA	NA	50
Locker room 1	31.2	Y	7
Room 101 recruiter	53.8	Y	50
Room 107/former range(classroom)	39.7	N	50
Office Lighting (ANSI/IESNA RP-1-04) and Industrial Lighting Facilities (ANSI/IESNA RP-7-01)			

6.0 Evaluation of Attached Garage

The garage associated with the Emporia Readiness Center is used on training weekends for basic maintenance tasks. The two ports for vehicle exhaust were measured at 557.67 cubic feet per minute on the west side and 542.10 cubic feet per minute on the east side.

Table 6-1: Local Ventilation System Measured Air Flow Rates

Local Ventilation System Measured Air Flow Rates		
Location	Air Flow – cubic feet per minute (cfm)	Reference Value*
Garage Exhaust (East)	542.10 cfm	1370 cfm
Garage Exhaust (West)	557.67 cfm	1370 cfm

The Reference Value (1370 cubic feet per minute, or cfm) for the vehicle emission exhaust system was determined using theoretical values in the ACGIH calculation (below), based on an engine displacement of 6.2L, exhaust temperature of 267°F, and 3,800 engine rpm. These values were based on using the highest flow rate required for tactical vehicles routinely serviced by ARNG maintenance facilities.

- Reference calculation – $Q_e = (1.2)(D_{eng} \times N)[(460F + T_{eng})/530F]$

Where Q_e =Exhaust Flow; T_{eng} =Engine Tailpipe Temperature (°F); D_{eng} =Engine displacement (ft³); and N =Engine rpm; 1.2 represents a 20% safety factor.

Though not a typical maintenance facility, the system present in the garage does not meet minimum flow rate requirements for vehicles normally serviced by Field Maintenance Shops.

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 Emporia Readiness Center.

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

Wipe samples collected in association with most administrative areas indicated lead levels below the Occupational Safety and Health Administration's (OSHA's) Clarification of "as free as practicable" and lead contamination under 29 CFR 1926.62, The Compliance Directive for the Interim Standard for Lead in Construction, CPL 2-2.58. OSHA recommends the use of HUD's acceptable decontamination level of 200 ug/ft² for floors in evaluating the cleanliness of change areas, storage facilities, and lunchrooms/eating areas.

However, wipe samples collected from the top of the trophy case in the drill hall and floor of the battery charging room indicated levels of lead in excess of 200 ug/ft².

Damaged suspect asbestos containing materials was observed and sampled from Room 107 during the evaluation. A sample of both the 1'x1' ceiling tile and yellow mastic was collected from the ceiling of this area and submitted for analysis. Results indicated no asbestos detected in either of the samples.

An area of peeling paint was observed above the trophy case on the east side of the drill hall. A sample of the peeling paint was collected and submitted for analysis of lead content. Results of the analysis indicated a lead level below the reporting limit of 0.0098% lead.

Water damage was observed in Room 107, no visible mold growth was observed during the survey. Water intrusion is a mold growth risk factor.

The garage associated with the Emporia Readiness Center is used on training weekends for basic maintenance tasks. An active ventilation system designed to remove vehicle exhaust was present and operational. The flow rate of the local exhaust system does not meet the required guidelines.

The Heating, Ventilation & Air Conditioning (HVAC) system in the building consists of a boiler room that feeds radiant heaters throughout the building. There is no HVAC system that provides fresh air from the building exterior in administrative areas. A new system has recently been installed at the facility and multiple adjustments have been required to provide a properly operational system.

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.

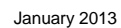
As with all such surveys, the results of the sampling represent conditions found on the date of the survey and may not represent conditions found at other times. Additionally, this survey was limited with respect to the specific parameters indicated above and should not be construed to be a comprehensive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

Emporia Readiness Center Facility Layout







Appendix B

Emporia Readiness Center Photographs

Photograph 1



Front of building

Photograph 2



Drill hall

Photograph 3



New HVAC unit

Photograph 4



Mechanical room

Photograph 5



Top of vending machine sample

Photograph 6



Flaking paint in drill hall

Photograph 7



Converted indoor range

Photograph 8



Damaged ceiling tile

Photograph 9



Room 102/ typical office space

Photograph 10



Typical corridor



Appendix C

Analytical Results



CERTIFICATE OF ANALYSIS



Job Name:	VA ANG III Survey
Job Location:	Emporia RC
Job Number:	Not Provided
P.O. Number:	W912K6-09-A-0003

Chain Of Custody: 514730
Date Analyzed: 12/19/2012
Person Submitting: AECOM

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
13022920	EP-Ab-01	NAD	--	--	--	--	30	--	30	--	--	40	CT	Multi	Layered	SW	
13022921	EP-Ab-02	NAD	--	--	--	--	2	--	TR	--	--	98	MS	Tan	Homogeneous	SW	

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.

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

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

Technical Director

Analyst(s)

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.

NVLAP (101143-0) 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



Client:	National Guard Bureau	Job Name:	VA ANGIH Survey	Chain Of Custody:	514730
Address:	301-H Old Bay Lane, Attn: ARNG-CJG-P, State Military Reservation	Job Location:	Emporia RC	Date Submitted:	12/12/2012
	Harve de Grace, Maryland 21078	Job Number:	Not Provided	Person Submitting:	AECOM
		P.O. Number:	W912K6-09-A-0003	Date Analyzed:	12/19/2012
				Report Date:	12/19/2012

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
13022909	EP-Pb-01	Flame	Wipe	***	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13022910	EP-Pb-02	Flame	Wipe	***	0.111	110 ug/ft ²	30	270 ug/ft ²	
13022911	EP-Pb-03	Flame	Wipe	***	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13022912	EP-Pb-04	Flame	Wipe	***	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13022913	EP-Pb-05	Flame	Wipe	***	0.111	110 ug/ft ²	65	510 ug/ft ²	
13022914	EP-Pb-06	Flame	Wipe	***	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13022915	EP-Pb-07	Flame	Wipe	***	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13022916	EP-Pb-08	Flame	Wipe	***	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13022917	EP-Pb-09	Flame	Wipe	***	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13022918	EP-Pb-10	Flame	Wipe	***	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13022919	EP-PC-01	Flame	Paint Chip	***	N/A	0.0098 %Pb		<0.0098 %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.

An AIHA (#100470) and NY ELAP (#10920) Accredited Laboratory

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

AMA Analytical Services, Inc.



A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS



LAB #100470

Client:	National Guard Bureau	Job Name:	VA ANGIH Survey	Chain Of Custody:	514730
Address:	301-1H Old Bay Lane, Attn: ARNG-CJG-P, State Military Reservation	Job Location:	Emporia RC	Date Submitted:	12/12/2012
	Havre de Grace, Maryland 21078	Job Number:	Not Provided	Person Submitting:	AECOM
		P.O. Number:	WS12K6-09-A-0003	Date Analyzed:	12/19/2012
				Report Date:	12/19/2012

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
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		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.

An AIHA (#100470) and NY ELAP (#10920) Accredited Laboratory

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

Samples Relinquished to Hunt's Property - 19 Nov 2012 @ 12005 Steph/AB/leley

Bulk Sampling Survey Sheet

Date Collected: 14 Nov 2012

Job Name: VA ANG 1H Surveys

Company: Hunt's Property Page 1 of 1

Job Number:

Job Location: Emporia Army

Phone Number: 757 665 1248

Contact Person:

Non-Responsive

Address: 940 Courtland Road

Collected By: Non-Responsive

Emporia, VA 23847

COC Number:

Sample Number	Homogenous Area ID	Type of Material	Sample Location	Friable	Condition of Material	Accessibility	Photo	Comments
EP-A5 01	1	1'x1' Ceiling Tile White	3rd Baffle west of east wall on south side of Rm 107 Ceiling	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input checked="" type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input checked="" type="checkbox"/> Medium <input type="checkbox"/> High	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
EP-A5 02	2	Ceiling Tile mastic-yellow	3rd Baffle from East Wall - in Ceiling - south side - Rm 107	<input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	

Please Return Samples To:

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

Samples Relinquished to Hunt/Proffitt - 19 Nov 2012 @ 1200 Stephen Bailey

Surface Sampling Field Data Sheet

Date Collected: 14 Nov 2012 Job Name: VA ANG 1H Survey Company: Hunt/Proffitt Page 1 of 1
 Job Number: Non-Responsive Job Location: EMPERIA Armory Phone Number: 257 645 1288
 Contact Person: Non-Responsive Address: 940 Courtland Rd Collected By: Non-Responsive
EMPERIA, VA 23847 COC Number:

Sample Number	Sample Location	Surface/Substrate Sampled	Area Wiped (in ² /ft ²)	Collection Media
EP-PB-01	Drill Hall - Top of Loading Machine	Metal	16 in ²	Ghostwipe
EP-PB-02	Drill Hall - Top of Trophy Case	Wood		
EP-PB-03	Drill Hall - Doorway Lobby - ^{Sample From Floor}	Concrete		
EP-PB-04	Sawtery - Drain board to disposal drain	Metal		
EP-PB-05	Battery Room - Floor @ charging station	Concrete		
EP-PB-06	Rm 107 - ^{Former Firing Range} Platoon etc. ^{From Ceiling} Light Fix.	Metal		
EP-PB-07	Rm 107 - Top of Transport Ace	Wood		
EP-PB-08	Rm 107 - Floor at main entry door	Concrete		
EP-PB-09	Rm 102 - Top of File Cabinet	Metal		
EP-PB-10	Rm 100C - Top of desk	Vinyl (Parham Pressing)		
EP-PC-01	Above Trophy Case on East wall of Drill Hall	Concrete Block	Not applicable	Paint chips

Please Return Samples To:

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





Appendix D

References

References

1. Title 29, Code of Federal Regulations (CFR), Part 1910, Occupational Safety and Health Administration, current Ed. <http://www.osha.gov/comp-links.html>
2. Department of Defense Instruction (DODI) 6055.1, Department of Defense Occupational Safety and Health (OSH) Program, August 19, 1998. <http://www.dtic.mil/whs/directives/corres/pdf/605501p.pdf>
3. Army Regulation (AR) 11-34, The Army Respiratory Protection Program, 15 February 1990. http://armypubs.army.mil/epubs/pdf/R11_34.PDF
4. AR 40-5, Medical Service, Preventive Medicine, 25 May 2007. http://armypubs.army.mil/epubs/pdf/R40_5.PDF
5. AR 385-10, The Army Safety Program, 23 August 2007; Rapid Action Revision (RAR) issue date: 4 October 2011. http://armypubs.army.mil/epubs/pdf/R385_10.PDF
6. Department of the Army Pamphlet (DA PAM) 40-501, Medical Services, Hearing Conservation Program, 10 December 1998. http://armypubs.army.mil/epubs/pdf/P40_501.pdf
7. DA PAM 40-11, Preventive Medicine, 22 July 2005, RAR issue date: 19 October 2009. http://armypubs.army.mil/epubs/pdf/p40_11.pdf
8. DA PAM 40-503, Medical Services, Industrial Hygiene Program, 30 October 2000. http://armypubs.army.mil/epubs/pdf/P40_503.PDF
9. UFC 3-410-01FA, Heating, Ventilating, and Air Conditioning, 15 May 2003, change 4, January 2010. http://www.wbdg.org/ccb/DOD/UFC/ufc_3_410_01fa.pdf
10. Threshold Limit Values (TLVs) and Biological Exposure Indices (BEIs), American Conference of Governmental Industrial Hygienists (ACGIH), current Ed.
11. Industrial Ventilation – A Manual of Recommended Practice for Design, ACGIH, current Ed.
12. American National Standards Institute (ANSI)/International Safety Equipment Association (ISEA) Z358.1-2009, Emergency Eyewash and Shower Equipment.
13. ANSI/American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. (ASHRAE) 55-2010, Thermal Environmental Conditions for Human Occupancy.
14. ANSI/ASHRAE 62.1-2010, Ventilation for Acceptable Indoor Air Quality.
15. RP-1-2004, Office Lighting, ANSI/IESNA.
16. RP-7-2001, Industrial Lighting, ANSI/IESNA, change 20 July 2004.
17. OSHA Instruction Letter 02-02-058, Lead Exposure in Construction, Office of Health Compliance Assistance, 13 December 1993.
18. OSHA Standard Interpretation, Clarification of “as free as practicable” and lead contamination under 29 CFR 1926.62, dated January 13, 2003.
19. NG PAM 420-15, Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges, 3 November 2006. http://www.ngbpdc.ngb.army.mil/pubs/420/ngpam420_15.pdf

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



Industrial Hygiene Survey for VAARNG – Fairfax Readiness Center 9797 Braddock Road Fairfax, Virginia 22032

AECOM
December 2012
Document No.: 60275401/ Fairfax Readiness Center

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

Industrial Hygiene Survey for VAARNG – Fairfax Readiness Center 9797 Braddock Road Fairfax, Virginia 22032

Non-Responsive

A large black rectangular redaction box covering several lines of text.

Industrial Hygienist

Non-Responsive

A large black rectangular redaction box covering several lines of text.

Project Manager

Non-Responsive

A large black rectangular redaction box covering several lines of text.

Northeast District Health & Safety Manager

AECOM Environment
December 2012
Document No.: 60275401/ Fairfax 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 Readiness Center Facility Layout

Appendix B Readiness Center Photographs

Appendix C Analytical Results

Appendix D References



List of Tables

Table 2-1: Lead Wipe Sample Results 2-1

Table 3-1: Indoor Air Quality Monitoring Results..... 3-2

Table 5-1: Light Survey 5-1



Executive Summary

On December 07, 2012, AECOM Technical Services Northeast, Inc. (AECOM) conducted an Industrial Hygiene (IH) survey of the Fairfax Readiness Center facility located at 9797 Braddock Road in Fairfax, Virginia. SFC Non- [REDACTED] was the point of contact for the facility and accompanied AECOM during the survey to provide access and information concerning the Fairfax Readiness Center operations.

The industrial hygiene survey was conducted in general accordance with the scope of work as described in the "Statement of Work – Industrial Hygiene Services for National Guard Bureau Industrial Hygiene Region North – Baseline Surveys for Readiness Centers and Administrative Buildings", dated March 2009.

The Fairfax Readiness Center is currently staffed by 30 personnel. The facility is configured as an administrative area and a drill/assembly hall. The facility has two floors.

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

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

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

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

However, wipe samples collected from the an air vent in the AWAC office and three locations in the former firing range indicated levels of lead at or in excess of $200 \text{ ug}/\text{ft}^2$.

No damaged suspect asbestos containing materials were observed during the evaluation.

No damaged or peeling paint was observed during the evaluation.

The ceiling showed some evidence of past water leaks and the duct work for both intake/return and supply appeared dirty and dusty.

The Heating, Ventilation & Air Conditioning (HVAC) system in the building consists of a boiler room that feeds radiant heaters throughout the building. The AC system functions via an external chiller. Both of the existing fresh air intakes are located in close proximity to the emergency diesel generator and represent a potential for contamination of clean outside air to occur.

1.0 Facility Description and Operations

The Fairfax Readiness Center is brick façade two story building and totals approximately 40,000 square feet. The building was recently occupied by a forensic unit and is still in the process of being converted for the use of its current occupants. In general, the building is finished with drywall; acoustical drop ceilings, carpet, and floor tile.

The primary activity at the Fairfax Readiness Center is routine administrative duties. The Fairfax Readiness Center is currently staffed by approximately 30 personnel. No vehicle maintenance activities are undertaken at the facility. However, it should be noted that there is a garage/parking area in the basement of building that was likely used to unload bodies for autopsy and/or to transport them to following autopsy. The garage area is large enough for two or more vehicles.

2.0 Sampling in Readiness Centers

2.1.1 Wipe Sampling

Wipe sampling for lead was conducted in multiple locations following the Occupational Safety & Health Administration (OSHA) wipe sampling method and using Ghost Wipes. The following table presents the results of the lead wipe sampling conducted at the facility.

Table 2-1: Lead Wipe Sample Results

Sample Number	Sample Location	Lead Concentration
001	HVAC main air intake	<110 ug/ft ²
002	Horizontal surface in drill hall/window ledge	<110 ug/ft ²
003	Supply air grill AWAC office	2500 ug/ft²
004	Office desk admin office	<110 ug/ft ²
005	Top of file cabinet garage area	<110 ug/ft ²
006	1 st floor hallway lobby area	<110 ug/ft ²
007	2 nd floor hallway outside DPU Commander office	<110 ug/ft ²
008	Indoor range ventilation duct	180 ug/ft²
009	Inside range exhaust duct	5000 ug/ft²
010	Bullet trap area	2900 ug/ft²
011	Floor of range	200 ug/ft ²
012	Floor outside range	130 ug/ft ²
013	Autopsy room/x-ray area	<110 ug/ft ²
014	Autopsy room /x-ray area	<110 ug/ft ²

ug/ft² = Micrograms per square foot.

Wipe samples collected in association with most administrative areas indicated lead levels below the Occupational Safety and Health Administration's (OSHA's) Clarification of "as free as practicable" and lead contamination under 29 CFR 1926.62, The Compliance Directive for the Interim Standard for Lead in Construction, CPL 2-2.58. OSHA recommends the use of HUD's acceptable decontamination level of 200 micrograms per square foot (ug/ft²) for floors in evaluating the cleanliness of change areas, storage facilities, and lunchrooms/eating areas.

Four wipe samples detected levels of lead in excess of the action level of 200 micrograms per square foot (ug/ft²) per NG-PAM 420-15. Laboratory analytical results are presented in Appendix C.

2.1.2 Air Sampling

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

3.0 Physical Condition of Facility and Personnel Concerns

3.1.1 Lead Based Paint

Interior surfaces of walls are coated with paint. The paint on the walls is in serviceable condition. AECOM did not observe damaged or peeling paint during this evaluation.

3.1.2 Suspect Asbestos Containing Materials

AECOM did not observe damaged, friable suspect asbestos-containing materials (ACM) in readily accessible areas of the Fairfax Readiness Center during this survey.

Typical miscellaneous building materials observed but not sampled include drywall, floor tiles and associated mastic, cove base and associated mastic, ceiling tiles, carpet mastic, and window caulks.

3.1.3 Water Damage/Mold

AECOM did not observe evidence of water intrusion during this survey. Condensate from AC units has caused some visible staining on ceiling tiles.

3.1.4 Housekeeping

The Fairfax 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 Fairfax Readiness Center staff members. No Indoor Air Quality concerns were noted by the Fairfax Readiness Center personnel with the exception that one individual indicated increased sensitivity to acne outbreaks and one individual indicated a "smoky" smell attributable to cigarette smoke.

Instantaneous real-time reading for carbon monoxide and carbon dioxide (parts per million or ppm), temperature (° Fahrenheit), and relative humidity (as percentage) are presented in the following table. The facility is mechanically air conditioned. Readings in those areas typically occupied by facility personnel were within acceptable guidelines. Fluctuations in temperature were observed between rooms.

Table 3-1: Indoor Air Quality Monitoring Results

Location	Carbon Monoxide (ppm)	Carbon Dioxide (ppm)	Temp (°F)	Relative Humidity (%)
DPV Admin	2.4	503	66.1	37.5
Facilities	2.3	508	66.9	37.2
Telecom room	2.3	485	67.6	35.2
Drill floor	2.3	600	67.3	34.7
Information operations	2.4	449	67.6	34.9
s-1/s-3	2.2	497	68.2	34.2
Net Ops Branch	2.4	418	68.1	33.5
Net Ops offices 1	2.4	408	68.1	33.7
Net Ops offices 2	2.4	460	67.0	33.6
Opsec office 1	2.4	593	67.4	34.5
Opsec office 2	1.8	426	67.8	31.1
Chemical storage	2.0	525	68.2	29.6
ISFO office	1.8	605	68.5	30.3
Men's room	1.8	518	69.0	31.4
Hallway outside shower room	1.8	577	70.1	30.7
AWAC	1.8	790	70.9	29.1
AWAC operations	2.4	577	71.8	25.2
Network Branch	2.6	491	70.1	28.1
AWAC admin	2.2	552	69.1	30.7
Server room	1.8	506	72.5	29.6
DPO Commander	2.4	539	70.5	29.8
Men's room 1 st floor	2.5	530	69.9	30.2
Front stairwell	2.3	635	69.4	29.9
Lobby	2.4	483	68.2	31.5
Break room	2.3	702	68.2	35.1
Classroom	1.8	521	69.0	32.4
Hallway outside 1 st floor mechanicals	1.8	589	66.4	32.7
1 st floor mechanicals	2.3	413	66.3	33.1
Boiler	2.1	439	65.8	38.1
Electric	1.5	436	66.4	37.1
Facilities office	1.4	437	64.0	37.7
Recruiters storage	1.3	451	65.0	34.3
Hallway outside recruiters office	1.2	501	65.2	36.2
Unimproved office	1.3	409	66.8	36.0
1 st floor restroom	1.8	691	68.9	46.2
Former autopsy	1.7	424	65.9	34.9
Autopsy x-ray room	2.4	470	64.4	36.6
Morgue/storage	1.9	464	63.5	37.01
Garage	1.3	417	63.5	38.9
Supply office	1.2	483	64.4	38.5
Facilities storage	1.5	408	63.9	36.0

Location	Carbon Monoxide (ppm)	Carbon Dioxide (ppm)	Temp (°F)	Relative Humidity (%)
DPO supply	1.9	412	61.2	39.0
117 storage	0.7	469	64.6	38.1
Autopsy room 2	1.3	465	65.0	38.8
Lose staff	1.8	479	66.3	33.8
XO office	1.3	510	66.7	33.3
SGM office	1.6	487	67.1	33.5
IOSC Commander office	1.8	518	67.2	34.4
Conference room	1.8	743	68.7	35.2
Recruiters office	1.8	548	69.1	32.6
Stairwell to basement	2.9	576	69.2	32.6
Former range area	2.7	498	69.0	31.5

Table 3-1 Guidelines:

Carbon Monoxide: Office/Warehouse Space – 9 ppm based on United States Environmental Protection Agency's National Ambient Air Quality Standard.

OSHA Permissible Exposure Limit (PEL) = 50 ppm. American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit value (TLV) = 25, ppm.

Carbon Dioxide: Office Space -Approximately 700 ppm above background (Derived from American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE) Standard 62.1-2010). Not Applicable to warehouse and vehicle maintenance bays.

Relative Humidity: Mechanically air-conditioned space – Maximum 65% (Derived from ASHRAE Standard 62.1-2010 – 5.10.1).

Temperature: Winter (clothing insulation = 1.0 clo) Relative humidity 30-60% - Temp - 68 – 75°F

Summer Temp - 73 – 79°F. (Derived from ASHRAE Standard 55-2010)

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

4.0 Ventilation and HVAC System

4.1.1 Ventilation Systems and Potential for Contamination of Clean Air Sources

Potential for contamination of clean air sources was observed at the facility. The first and second floor air intakes are located in close proximity to the exhaust of the emergency diesel generator and could be impacted by contaminated air.

The facility HVAC system is operational but appears to need the duct work cleaned. There is significant dust on returns and air supply vents. Temperature readings were constant in all areas occupied by readiness center personnel.

4.1.2 HVAC Maintenance

HVAC maintenance is performed via third party vendor, records were not available for review during this survey.

There was no operational 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 varied throughout the facility with several areas not meeting the 50 lumens standard.

Table 5-1: Light Survey

Location	Results (Foot candles)	Met Standard (Y/N)	Standard*
DPV Admin	34.0	N	50
Facilities	6.5	N	50
Telecom room	24.6	N	30
Drill floor	39.6	Y	10
Information operations	70.5	Y	50
s-1/s-3	68.0	Y	5
Net Ops Branch	30.0	N	50
Net Ops offices1	29.3	N	50
Net Ops offices 2	37.1	N	50
Opsec office 1	21.8	N	50
Opsec office 2	37.5	N	50
Chemical storage	37.5	Y	30
ISFO office	18.3	N	50
Men's room	19.8	Y	5
Hallway outside shower room	26.3	Y	5
AWAC	71.2	Y	50
AWAC operations	74.3	Y	50
Network Branch	44.1	N	50
AWAC admin	30.8	N	50
Server room	26.7	N	30
DPO Commander	25.6	N	50
Men's room 1 st floor	43.8	Y	5
Front stairwell	4.2	N	5
Lobby	21.2	Y	10
Break room	29.2	Y	10
Classroom	41.9	Y	30
Hallway outside 1 st floor mechanicals	31.6	Y	5
1 st floor mechanicals	5.7	N	30
Boiler	14.4	N	30
Electric	41.5	Y	30
Facilities office	17.5	N	50
Recruiters storage	10.1	N	30
Hallway outside recruiters office	14.2	Y	5
Unimproved office	42.6	N	50
1 st floor restroom	57.0	Y	5
Former autopsy(storage)	30.5	Y	30
Autopsy x-ray room (fitness)	76.2	Y	50

Location	Results (Foot candles)	Met Standard (Y/N)	Standard*
Morgue/storage	17.8	N	50
Garage	13.6	N	75
Supply office	29.3	N	50
Facilities storage	13.4	N	30
DPO supply	16.4	N	30
117 storage	0.5	N	30
Autopsy room 2 (storage)	52.7	Y	30
Lose staff	33.0	N	50
XO office	49.4	N	50
SGM office	69.7	Y	50
IOSC Commander office	65.4	Y	50
Conference room	47.0	N	30
Recruiters office	41.0	N	50
Stairwell to basement	6.6	Y	5
Former range area	9.7	Y	30
Office Lighting (ANSI/IESNA RP-1-04) and Industrial Lighting Facilities (ANSI RP-7-01)			

6.0 Evaluation of Attached Garage

The garage associated with the Fairfax Readiness Center was originally designed to allow vehicles to load and unload materials and bodies at the forensic center now utilized by the National Guard. There are no maintenance activities occurring and the garage is only occasionally used to load or unload materials.

The existing active ventilation system was not operational during the survey.

7.0 Conclusions and Limitations

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

Housekeeping is performed regularly at the Fairfax Readiness Center.

Lighting levels measured throughout the facility were generally not adequate as per American National Standard Institute/Illuminating Engineering Society of North America (ANSI/IESNA) RP-1-2004, Office Lighting, ANSI/IESNA RP-7-2001, Industrial Lighting, and the IESNA Lighting Handbook, 9th Edition, 11 April 2005.

Wipe samples collected in association with most administrative areas indicated lead levels below the Occupational Safety and Health Administration's (OSHA's) Clarification of "as free as practicable" and lead contamination under 29 CFR 1926.62, The Compliance Directive for the Interim Standard for Lead in Construction, CPL 2-2.58. OSHA recommends the use of HUD's acceptable decontamination level of 200 ug/ft² for floors in evaluating the cleanliness of change areas, storage facilities, and lunchrooms/eating areas.

However, wipe samples collected from the an air vent in the AWAC office and three locations in the former firing range the former firing range indicated levels of lead at or in excess of 200 ug/ft².

No damaged suspect asbestos containing materials were observed during the evaluation.

No damaged or peeling paint was observed during the evaluation.

The ceiling showed some evidence of past water leaks and the duct work for both intake/return and supply appeared dirty and dusty.

The Heating, Ventilation & Air Conditioning (HVAC) system in the building consists of a boiler room that feeds radiant heaters throughout the building. The AC system functions via an external chiller. Both of the existing fresh air intakes are located in close proximity to the emergency diesel generator and represent a potential for contamination of clean outside air to occur.

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

Fairfax Readiness Center Facility Layout





Appendix B

Fairfax Readiness Center Photographs

Photograph 1



Fairfax building

Photograph 2



Drill hall area

Photograph 3



Return grill in ARAC office

Photograph 4



Admin office wipe sample 004

Photograph 5



Typical hallway outside DPU Commander Office

Photograph 6



Typical stairway

Photograph 7



Lobby

Photograph 8



Autopsy X-ray area wipe 013

Photograph 9



Autopsy X-ray area wipe location 014

Photograph 10



Garage area wipe sample location

Photograph 11



Garage doors/note overhead vents are for exhaust but non-operational

Photograph 12



Former range

Photograph 13



Former range view is from bullet trap area

Photograph 14



Ground level air intake

Photograph 15



Generator is in close proximity to air intakes

Appendix C

Analytical Results

AMA Analytical Services, Inc.



A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS



LAB #100470

Client: National Guard Bureau Job Name: VA ANGIH Survey Chain Of Custody: 514740
 Address: 301-1H Old Bay Lane, Attn: ARNG-C/G-P, Job Location: Fairfax RC Date Submitted: 12/12/2012
 State Military Reservation
 Havre de Grace, Maryland 21078 Job Number: Not Provided Person Submitting: AECOM
 P.O. Number: W912K6-09-A-0003 Date Analyzed: 12/19/2012 Report Date: 12/20/2012

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
13021912	001	Flame	Wipe	***	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13021913	002	Flame	Wipe	***	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13021914	003	Flame	Wipe	***	0.111	110 ug/ft ²	270	2500 ug/ft ²	
13021915	004	Flame	Wipe	***	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13021916	005	Flame	Wipe	***	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13021917	006	Flame	Wipe	***	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13021918	007	Flame	Wipe	***	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13021919	008	Flame	Wipe	***	0.111	110 ug/ft ²	20	180 ug/ft ²	
13021920	009	Flame	Wipe	***	0.111	110 ug/ft ²	550	5000 ug/ft ²	
13021921	010	Flame	Wipe	***	0.111	110 ug/ft ²	320	2900 ug/ft ²	
13021922	011	Flame	Wipe	***	0.111	110 ug/ft ²	22	200 ug/ft ²	
13021923	012	Flame	Wipe	***	0.111	110 ug/ft ²	15	130 ug/ft ²	
13021924	013	Flame	Wipe	***	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13021925	014	Flame	Wipe	***	0.111	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. 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.

An AIHA (#100470) and NY ELAP (#10920) Accredited Laboratory

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

AMA Analytical Services, Inc.



A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS



LAB 110476

Client: National Guard Bureau Job Name: VA ANG IH Survey Chain Of Custody: 514740
 Address: 301-1H Old Bay Lane, Attn: ARMG-CJG-P, Job Location: Fairfax RC Date Submitted: 12/13/2012
 State Military Reservation
 Havre de Grace, Maryland 21078 Job Number: Not Provided Person Submitting: AECOM
 P.O. Number: W912K6-09-A-0003 Date Analyzed: 12/19/2012 Report Date: 12/20/2012

Attention:

Non-Responsive

Summary of Atomic Absorption Analysis for Lead

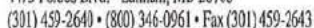
Page 2 of 2

AMA Sample Number	Client Sample Number	Analysis Type	Sample Type	Air Volume (L)	Area Wiped (ft ²)	Reporting Limit	Total ug	Final Result	Comments
Analysis Method for Flame: Air, Wipes, Paints, and Soil/Solids: EPA 600/R-93/200(M)-7030B; Water: SM-3111B Analysis Method For Furnace: Air, Wipes, Paints, and Soil/Solids: EPA 600/R-93/200(M)-7010; Water: SM-3113B 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.		
An							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.

An AIHA (#100470) and NY ELAP (#10920) Accredited Laboratory

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



(Please Refer To This
Number For Inquires)

514740

Submittal Information:

- (1) Job Name: VA ANG 1H SURVEY
(2) Job Location: Fairfax AC
3. Job #: [REDACTED] PO #: WS12KG-09-A-0003
4. Contact Person: Non-Responsive @ phone #
5. Submitted by: AECOM [REDACTED] Non-Responsive

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

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"/> 3 Day <input type="checkbox"/> 3 Day Date Due: <u>12/10/11</u>		REPORT TO: <input type="checkbox"/> Include Comments on Report <input type="checkbox"/> Email: _____ <input type="checkbox"/> Fax: _____ <input type="checkbox"/> Verbal: _____	
---	--	--	--	---	--

TEM Bulk

- ☐ Vermiculite

- ☐
- EPA 100.1 _____ (QTY)

- ### Financial Analysis

- ☐
- Other (Specify _____) _____ (QTY) _____

- ☐ Vermiculite

- ☐ Asbestos Soil PLM____(Qty) PLM____(Qty) PLM/TEM____(Qty) PLM/TEM____(Qty) If field data sheets are submitted, there is no need to complete bottom section.

- *It is recommended that blank samples be submitted with all air and surface samples

SAMPLE INFORMATION

*It is recommended that blank samples be submitted with all air and surface samples

SAMPLE INFORMATION		ANALYSIS												CLIENT CONTACT				
CLIENT ID #	SAMPLE LOCATION/ID	DATE/TIME	VOL (L) Wipe Area	TECH	PCN	PLAN	LEAD	MOLD	AIR	BULK	DUST	WATER ANALYSIS	TOXIC TRAC	TAPE	SWAB	(LABORATORY STAFF ONLY)		
																Date/Time:	Contact:	By:
	SEE ATTACHED FIELD DATA SHEETS																	

LABORATORY STAFF ONLY:
(CUSTODY)
1. Date/Time RCVD: 12/12/12 @ 060 Via FedEx By (init):
2. Date/Time Analyzed: / / @ By (init):
3. Results Reported To: Via Date: / / Time: Initials:
4. Comments: 799/0628 90730

Non-Responsive

Surface Sampling Field Data Sheet

Date Collected: 12/07/12Job Name: N/613-RC FAQCompany: H&PPage 1 of 4Job Number: 2012-0569Job Location: Fairfax VAPhone Number: 434-964-6042Contact Person: Non-ResponsiveAddress: 9797 Braddock Rd Fairfax VACollected By: Non-Responsive

COC Number: _____

Sample Number	Sample Location	Surface/Substrate Sampled	Area Wiped (in ² /ft ²)	Collection Media
001	HVAC Main air intake	Metal	16.1	NIR
002	Dusty Horizontal surface Drill Hall	Window ledge		
003	Supply Air Grill Alac office	Metal		
004	Office Desk Admin Office	Desk		
005	Top of Fil cabinet garage area	Metal		
006	1st floor hallway outside Lobby Floor	Tile		
007	2nd floor hallway outside Lobby Dr. Commander	Tile		
008	Under Range ventilation duct	Metal		
009	Under Range exhaust duct	Metal		
010	Bullet trap Area	Concrete		
011	Floor of Range	Tile/Concrete		
012	Floor outside Range	Tile		
013	Area of room unimpacted X-Ray Area	Tile		
014	Area of room unimpacted X-Ray Area	Metal		



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



Appendix D

References

References

1. Title 29, Code of Federal Regulations (CFR), Part 1910, Occupational Safety and Health Administration, current Ed. <http://www.osha.gov/comp-links.html>
2. Department of Defense Instruction (DODI) 6055.1, Department of Defense Occupational Safety and Health (OSH) Program, August 19, 1998. <http://www.dtic.mil/whs/directives/corres/pdf/605501p.pdf>
3. Army Regulation (AR) 11-34, The Army Respiratory Protection Program, 15 February 1990. http://armypubs.army.mil/epubs/pdf/R11_34.PDF
4. AR 40-5, Medical Service, Preventive Medicine, 25 May 2007. http://armypubs.army.mil/epubs/pdf/R40_5.PDF
5. AR 385-10, The Army Safety Program, 23 August 2007; Rapid Action Revision (RAR) issue date: 4 October 2011. http://armypubs.army.mil/epubs/pdf/R385_10.PDF
6. Department of the Army Pamphlet (DA PAM) 40-501, Medical Services, Hearing Conservation Program, 10 December 1998. http://armypubs.army.mil/epubs/pdf/P40_501.pdf
7. DA PAM 40-11, Preventive Medicine, 22 July 2005, RAR issue date: 19 October 2009. http://armypubs.army.mil/epubs/pdf/p40_11.pdf
8. DA PAM 40-503, Medical Services, Industrial Hygiene Program, 30 October 2000. http://armypubs.army.mil/epubs/pdf/P40_503.PDF
9. UFC 3-410-01FA, Heating, Ventilating, and Air Conditioning, 15 May 2003, change 4, January 2010. http://www.wbdg.org/ccb/DOD/UFC/ufc_3_410_01fa.pdf
10. Threshold Limit Values (TLVs) and Biological Exposure Indices (BEIs), American Conference of Governmental Industrial Hygienists (ACGIH), current Ed.
11. Industrial Ventilation – A Manual of Recommended Practice for Design, ACGIH, current Ed.
12. American National Standards Institute (ANSI)/International Safety Equipment Association (ISEA) Z358.1-2009, Emergency Eyewash and Shower Equipment.
13. ANSI/American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. (ASHRAE) 55-2010, Thermal Environmental Conditions for Human Occupancy.
14. ANSI/ASHRAE 62.1-2010, Ventilation for Acceptable Indoor Air Quality.
15. RP-1-2004, Office Lighting, ANSI/IESNA.
16. RP-7-2001, Industrial Lighting, ANSI/IESNA, change 20 July 2004.
17. OSHA Instruction Letter 02-02-058, Lead Exposure in Construction, Office of Health Compliance Assistance, 13 December 1993.
18. OSHA Standard Interpretation, Clarification of “as free as practicable” and lead contamination under 29 CFR 1926.62, dated January 13, 2003.
19. NG PAM 420-15, Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges, 3 November 2006. http://www.ngbpdc.ngb.army.mil/pubs/420/ngpam420_15.pdf

Shaw Environmental, Inc.

312 Directors Drive
Knoxville, TN 37923
865.690.3211
Fax 865.690.3626



Shaw™ Shaw Environmental, Inc.

**National Guard Armory
Farmville Readiness Center
Farmville, Virginia**

Industrial Hygiene Evaluation

Prepared for:

**National Guard Region North Industrial Hygiene Office
Havre De Grace, Maryland 21078**

Prepared by:

**Shaw Environmental, Inc.
312 Directors Drive
Knoxville, Tennessee 37923**

26 October 2004

**National Guard Armory
Farmville Readiness Center
Farmville, Virginia**

Industrial Hygiene Evaluation

Prepared for:

**National Guard Region North Industrial Hygiene Office
Havre De Grace, Maryland 21078**

Prepared by:

**Shaw Environmental, Inc.
312 Directors Drive
Knoxville, Tennessee 37923**

26 October 2004

Prepared by:

Non-Responsive

Environmental Scientist

Reviewed by:

Non-Responsive

Business Line Manager

Table of Contents

<i>Table of Contents</i>	<i>i</i>
<i>List of Tables</i>	<i>ii</i>
<i>List of Appendices</i>	<i>ii</i>
<i>Executive Summary</i>	<i>E-1</i>
<i>1.0 Introduction</i>	<i>1-1</i>
<i>2.0 Findings, Discussion, and Interpretation of Results</i>	<i>2-1</i>
<i>2.1 Sampling for Lead</i>	<i>2-1</i>
<i>2.1.1 Wipe Sampling</i>	<i>2-1</i>
<i>2.1.2 Air Sampling for Lead</i>	<i>2-2</i>
<i>2.2 Physical Condition of Facility</i>	<i>2-2</i>
<i>2.2.1 Peeling Paint - Lead</i>	<i>2-2</i>
<i>2.2.2 Visual Inspection - Asbestos</i>	<i>2-2</i>
<i>2.2.3 Visual Inspection - Water Damage and Mold</i>	<i>2-3</i>
<i>2.2.4 Visual Inspection - Housekeeping</i>	<i>2-3</i>
<i>2.3 Building Concerns</i>	<i>2-3</i>
<i>2.3.1 Ergonomic Concerns</i>	<i>2-3</i>
<i>2.3.2 Indoor Air Quality</i>	<i>2-3</i>
<i>2.4 Safety and Industrial Hygiene Programs</i>	<i>2-4</i>
<i>2.5 Ventilation</i>	<i>2-4</i>
<i>2.5.1 Ventilation System Evaluation</i>	<i>2-4</i>
<i>2.5.2 Contamination of Clean Air Sources</i>	<i>2-4</i>
<i>2.6 Noise Exposure</i>	<i>2-4</i>
<i>2.7 Lighting</i>	<i>2-4</i>
<i>2.8 Converted Indoor Firing Ranges</i>	<i>2-5</i>
<i>2.9 HVAC Systems</i>	<i>2-5</i>
<i>2.10 IHIM</i>	<i>2-5</i>
<i>3.0 Conclusions</i>	<i>3-1</i>
<i>Tables</i>	<i>Follows Section 3.0</i>
<i>Appendices</i>	<i>Follows Tables</i>

List of Tables

Table 1	Wipe Sampling for Lead
Table 2	Air Sampling for Lead
Table 3	Indoor Air Quality Measurements
Table 4	Illumination Readings
Table 5	Indoor Firing Ranges – Wipe Sampling

List of Appendices

Appendix A	HHIM Data Form
Appendix B	Building Layout
Appendix C	Sampling Sheets and Laboratory Analyses
Appendix D	References
Appendix E	Recommendations for Surface Lead Dust in Armories

Executive Summary

Shaw Environmental, Inc. (Shaw) was contracted to perform an industrial hygiene evaluation for the Farmville Readiness Center in Farmville, Virginia. Non-Responsive performed the evaluation on 18 December 2003. The point of contact at the readiness center was SSG Non-Responsive.

The following industrial hygiene concerns were evaluated.

- Wipe Sampling for Lead
- Air Sampling for Lead
- Peeling Paint – Lead
- Suspected Asbestos Containing Material
- Water Damage
- Presence of Mold
- Housekeeping
- Ergonomic Concerns
- Indoor Air Quality
- Safety and Industrial Hygiene Programs
- Ventilation System Evaluation
- Contamination of Clean Air Sources
- Noise Exposure
- Lighting
- Converted Indoor Firing Range
- HVAC Systems

The following items were either not applicable to the armory or the evaluation resulted in a conclusion that there were no industrial hygiene concerns.

- Air Sampling for Lead
- Housekeeping
- Ergonomic Concerns
- Safety and Industrial Hygiene Programs
- Ventilation System Evaluation
- Contamination of Clean Air Sources

- Noise Exposure
- Converted Indoor Firing Range
- HVAC Systems

Areas where there were industrial hygiene concerns are as follows:

- Wipe sampling for lead revealed concentrations above the recommended level of 200 micrograms per square foot ($\mu\text{g}/\text{ft}^2$) on the top surfaces of the suggestion box and storage locker in the drill floor/assembly hall area. It is recommended that these surfaces and the areas immediately around these surfaces be thoroughly cleaned to reduce the lead level. In addition, any other dusty/dirty areas in the assembly area/drill floor should be thoroughly cleaned.
- Wipe sampling for lead revealed concentrations above a level of 40 micrograms per square foot ($\mu\text{g}/\text{ft}^2$) in the drill floor/assembly hall area, maintenance record room, store room #12, supply room #16, and converted firing range. Areas with lead concentrations above 40 $\mu\text{g}/\text{ft}^2$ that will be accessible to children should be cleaned. If a special function is held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function.
- Employees indicated that there were materials suspected of containing asbestos (old floor tiles under the new floor tiles). An operation and maintenance plan should be followed when performing any activities that may disturb the old suspected asbestos-containing materials (floor tiles) under the new tiles.
- Water damage was observed at several locations at the armory. The source of the water damage was likely from roof or pipe leaks. The source of the water damage should be confirmed and actions taken to eliminate the source in order to prevent the possibility of mold growth that may lead to indoor air quality problems.
- Visual mold was observed in the armory. The area where the mold is located should be thoroughly cleaned with 0.5% sodium hypochlorite solution (1 part household bleach to nine parts water) or equivalent in order to eliminate the potential mold/indoor air quality problem. In addition, the source of the mold should be identified and actions taken to eliminate the source.
- Indoor air quality measurements for humidity revealed that levels did not meet the recommended level of 30% in the facility. It is recommended that a humidification system be installed at the facility.
- Lighting measurements were conducted at the armory. The lighting did not meet minimum requirements in some areas; therefore consideration should be given to

providing more lighting in these areas. This may be accomplished by replacing burnt out luminaries, cleaning fixtures, cleaning windows, painting walls with a lighter color, repositioning detailed work to higher illuminated areas, and using supplemental lighting.

Peeling paint was observed in the armory. The peeling paint was observed on the ceiling in the men's latrine. Bulk sampling could not be performed to determine if the paint contained lead due to the inability to safely access the location of the peeling paint.

1.0 Introduction

Shaw Environmental, Inc. (Shaw) was contracted to perform an industrial hygiene evaluation for the Farmville Readiness Center in Farmville, Virginia. **Non-Responsive** performed the evaluation on 18 December 2003. The point of contact at the readiness center was SSG **Non-Responsive**

The findings, discussion, and interpretation of results are provided in Section 2.0. The conclusions are provided in Section 3.0. The HHIM data form for the facility is provided in Appendix A. The building layout is provided in Appendix B. Sampling sheets and laboratory analyses are provided in Appendix C. References are provided in Appendix D. The *Recommendations for Surface Lead Dust in Armories* document is provided in Appendix E.

The statements, opinions, and conclusions contained in this report are based solely upon the services performed by Shaw as described in the report. In performing these services and preparing the report, Shaw Environmental, Inc. relied upon the work and information provided by others, including public agencies, whose information is not guaranteed by Shaw Environmental, Inc.

2.0 Findings, Discussion, and Interpretation of Results

The results, discussion, and interpretation of results are provided in the following sections.

2.1. Sampling for Lead

2.1.1 Wipe Sampling

Wipe samples were collected for lead from the drill floor/assembly area. Also, wipe samples were collected for lead in rooms, hallways, foyers, etc. The sampling in rooms, hallways, foyers, etc. represented approximately 25% of the building.

Approximately half of the samples were collected from surfaces in common areas, such as surfaces of a desk. The remaining samples were collected from uncommon surface areas, such as a supply vent or the top of a file cabinet. The samples were collected and analyzed in accordance with the Instructions for *Completing the Sampling of ARMY National Guard Armories* procedure.

The only samples initially submitted for analysis were those from the drill floor/assembly hall. Since there were results above recommended levels from the drill floor/assembly hall area, the remaining samples were submitted for analysis.

Results of the wipe sampling are provided in Table I. The results revealed lead at all locations sampled at concentrations below recommended level of 200 micrograms lead per square foot ($\mu\text{g}/\text{ft}^2$) (See Appendix B) except at two locations in the drill floor/assembly hall area. The two samples were collected from the suggestion box and storage locker, and had lead concentrations of 1400 and 230 $\mu\text{g}/\text{ft}^2$, respectively. It is recommended that these surfaces and the immediate areas around these surfaces be thoroughly cleaned to reduce the lead level to below 200 $\mu\text{g}/\text{ft}^2$. For guidance on the proper method of cleaning, please refer to NG PAM 385-16 (*Guidelines for Converting Indoor Firing Ranges to Other Uses*). In addition, any other dusty/dirty areas in the assembly area/drill floor should be thoroughly cleaned.

In addition, wipe sampling for lead revealed concentrations above a level of 40 $\mu\text{g}/\text{ft}^2$ in the drill floor/assembly hall area, maintenance record room, store room #12, supply room #16, and converted firing range. Please note that the *Recommendations for Surface Lead Dust in Armories* (Appendix I) states that all areas with lead concentrations above 40 $\mu\text{g}/\text{ft}^2$ that will be accessible to children should be cleaned. If a special function is held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function.

2.1.2 Air Sampling for Lead

Two (2) general air samples were collected at the facility. Employees were not available to conduct breathing zone samples. The samples were collected and analyzed in accordance with Method 7082 of the National Institute of Occupational Safety and Health (NIOSH) Manual of Analytical Methods.

The results of the sampling are provided in Table 2. The results revealed non-detectable concentrations of lead in the air; therefore, no actions are necessary.

2.2 Physical Condition of Facility

2.2.1 Peeling Paint - Lead

Peeling paint was observed in the armory. The peeling paint (approximately 2 square feet) was observed on the ceiling in the men's latrine. The condition of the peeling paint was considered good. Bulk sampling could not be performed to determine if the paint contained lead due to the inability to safely access the location of the peeling paint.

2.2.2 Visual Inspection - Asbestos

A visual inspection was made to determine if there was any suspected asbestos-containing material at the armory. Interviews with employees and observation revealed that old asbestos tile was covered over with new non-asbestos tile in October of 2003. No additional suspected asbestos-containing material was observed.

An operation and maintenance plan should be followed when performing any activities that may disturb the old suspected asbestos-containing materials (floor tiles) under the new tiles.

2.2.3 Visual Inspection – Water Damage and Mold

A visual inspection was made to determine if there was any water damage or visible mold at the armory. Both visible mold and water damage was observed at the armory. Water damage was observed on the ceilings and some walls in room #2, room #4, room # 5, room #7, room #14, room #15, and the entrance hallway. Visible mold was observed on the ceiling and walls of the men's shower room.

The source of the water damage was likely from a mixture of roof and pipe leaks. The source of the water damage should be confirmed and actions taken to eliminate the source in order to prevent the possibility of mold growth that may lead to indoor air quality problems.

The area where the mold is located should be thoroughly cleaned with 0.5% sodium hypochlorite solution (1 part household bleach to nine parts water) or equivalent in order to eliminate the potential mold/indoor air quality problem. In addition, the source of the mold should be identified and actions taken to eliminate the source of the mold.

2.2.4 Visual Inspection - Housekeeping

The housekeeping was determined to be good.

2.3. Building Concerns

2.3.1 Ergonomic Concerns

Interviews with employees and observation of work activities revealed no ergonomic concerns at the armory.

2.3.2 Indoor Air Quality

Interviews with employees and measurements for carbon dioxide and temperature revealed no indoor air quality concerns at the armory. However, measurements for humidity revealed that levels did not meet the recommended level of 30% in the facility. It is recommended that a humidification system be installed at the facility.

The results of the measurements for carbon dioxide, humidity, and temperature are provided in Table 3.

2.4. Safety and Industrial Hygiene Programs

An evaluation was performed to determine the applicability of the following programs.

- Confined Spaces
- Hearing Conservation
- Respiratory Protection
- Hazard Communication (HAZCOM)
- Personal Protective Equipment (PPE)

It was determined that the HAZCOM program was the only program listed above that was applicable at the facility. The HAZCOM program was evaluated and it was determined that the program met minimum requirements.

2.5. Ventilation

2.5.1 Ventilation System Evaluation

There were no local exhaust ventilation systems at this armory; therefore, no ventilation studies were performed.

2.5.2 Contamination of Clean Air Sources

Since there were no local exhaust ventilation systems at the armory, there was no possibility that clean air sources could be contaminated by exhaust air.

2.6. Noise Exposure

An evaluation was performed to determine if there were any hazardous noise areas at the armory. It was determined that there were no areas at the armory that would exceed the permissible exposure limit for noise.

2.7. Lighting

Lighting measurements were conducted at the armory. Results of the lighting evaluation are provided in Table 4. As can be seen from the results, the lighting did not meet the minimum requirements in some areas, including room #10, room #11, and room #15.

Consideration should be given to providing more lighting to the areas listed above. This may be accomplished by replacing burnt out luminaries, cleaning fixtures, cleaning windows, painting walls with a lighter color, repositioning detailed work to higher illuminated areas, and using supplemental lighting.

2.8. Converted Indoor Firing Ranges

There was a converted indoor firing range at the facility; therefore, wipe samples were taken for lead at various locations in or near the converted range. The space is used as a training room, and has been completely remodeled with new paint, sheet rock, ceiling tiles, carpet, and light fixtures. The results are provided in Table 5. The results revealed lead, with associated concentrations, at the following locations:

- bullet trap at 120 $\mu\text{g}/\text{ft}^2$;
- stored item at 62 $\mu\text{g}/\text{ft}^2$; and
- floor (outside the converted firing range) the range at 15 $\mu\text{g}/\text{ft}^2$

The lead levels in the firing range were below the recommended level of 200 $\mu\text{g}/\text{ft}^2$, a level recommended in the *Guidelines for Converting Indoor Firing Ranges to Other Uses* document (Department of Army); therefore, no actions are necessary.

2.9. HVAC System

The maintenance schedule for the HVAC system was evaluated to verify that maintenance occurs on a regular basis. Also, the condition of the HVAC system was evaluated to determine if the maintenance performed is effective. It was deemed that maintenance occurs on a regular basis, and the maintenance performed is effective.

This facility uses boilers for heat, and window unit for its air conditioning needs.

2.10. HHIM

A Health Hazard Information Module (HHIM) form was completed for the armory. The completed form is provided in Appendix A.

3.0 Conclusions

It is concluded that there were no industrial hygiene concerns at the armory with regards to atmospheric exposure to lead, housekeeping, ergonomic conditions, safety and industrial hygiene programs, ventilation systems or contamination of clean air sources, noise exposure, surface lead contamination in the converted firing range, and HVAC systems.

There were industrial hygiene concerns at the armory with regards to lead surface contamination, suspected asbestos-containing material, visible mold, water damage, indoor air quality, and lighting. These concerns are discussed in detail in Section 2.0 of this report.

Peeling paint was observed in the armory. The peeling paint was observed on the ceiling in the men's latrine. Bulk sampling could not be performed to determine if the paint contained lead due to the inability to safely access the location of the peeling paint.

TABLES

Table 1

Wipe Sampling for Lead

National Guard Armory

Farmville, Virginia

Date of Sampling: 18 December 2003

Sample Number	Location	Results, $\mu\text{g}/\text{ft}^2$ ^a
VA FAR352-1	Drill Floor (kitchen service widow countertop) See Building Layout -- Appendix B	23
VA FAR352-2	Drill Floor (suggestion box top surface outside supply top) See Building Layout -- Appendix B	1400
VA FAR352-3	Drill Floor (top surface of fire locker) See Building Layout -- Appendix B	61
VA FAR352-4	Drill Floor (top surface of podium) See Building Layout -- Appendix B	27
VA FAR352-5	Drill Floor (top surface of storage locker) See Building Layout -- Appendix B	230
VA FAR352-6	Field Blank	0.38
VA FAR352-7	25% Building (filing cabinet top surface in maintenance record room #2) See Building Layout -- Appendix B	65
VA FAR352-8	25% Building (window sill in maintenance record room #5) See Building Layout -- Appendix B	64
VA FAR352-9	25% Building (microwave top surface in CDR office #7) See Building Layout -- Appendix B	19
VA FAR352-10	25% Building (top surface of water heater in store room #12) See Building Layout -- Appendix B	120
VA FAR352-11	25% Building (top surface of shelf in kitchen room #14) See Building Layout -- Appendix B	12
VA FAR352-12	Field Blank	0.42
VA FAR352-13	25% Building (top surface of computer monitor in supply room #16) See Building Layout -- Appendix B	59

^a Micrograms lead per square foot^b Below Detectable Limits, at a detection level of XX $\mu\text{g}/\text{ft}^2$

The samples were taken and analyzed in accordance with the *Instructions for Completing the Sampling of ARMY National Guard Armories* procedure.

In armories that do not contain childcare facilities, the NGB Region North Industrial Hygiene Office recommends cleaning the areas with sample results greater than 200 $\mu\text{g}/\text{ft}^2$

Table 2
Breathing Zone Air Samples for Lead
National Guard Armory
Farmville, Virginia
Date of Sampling: 18 December 2003

Sample Number	Employee	Sampling Information			Results (mg/m ³) ^a
		Time Sampled / Minutes	Flow Rate (lpm) ^b	Volume (liters)	
VAFAR352-A1	General Air Sample	1215-1445/150	1.622	243.28	<0.0041
VAFAR352-A2	General Air Sample	1225-1450/145	1.690	245.10	<0.0041
VAFAR352-A3	Field Blank	-	-	-	None Detected

^a Milligrams lead per cubic meter of air.

^b Liters of air per minute.

Method 7082 of the National Institute of Occupational Safety and Health (NIOSH) Manual of Analytical Methods was followed for sampling for lead.

Table 3
Indoor Air Quality Measurements for Carbon Dioxide, Humidity, and Temperature
National Guard Armory
Farmville, Virginia
Date of Sampling: 18 December 2003

Location	Occupants In Area	Carbon Dioxide, parts per million parts of air (ppm)	Percent (%) Humidity	Temperature (°F)
1 st Floor	1	388	22.6	70.4
Outdoors	-	385	28.6	51.2

* Room is used throughout the by the Radford High School Physical Education (PE) Department for gym classes.

Carbon dioxide, humidity, and temperature measurements were taken with a TSI Q Trak Plus, Model 8554, Indoor Air Quality Meter, calibrated in April 2003.

American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE) recommends that indoor carbon dioxide levels be less than 700 ppm above outdoor levels.

ASHRAE recommends that the relative humidity levels be maintained between 30 to 60 percent.

ASHRAE recommends that the acceptable temperature range be 68 degrees Fahrenheit to 74 degrees Fahrenheit in the winter and 73 degrees Fahrenheit to 79 degrees Fahrenheit in the summer.

Table 4
Illumination Readings
National Guard Armory
Farmville, Virginia
Date of Sampling: 18 December 2003

Location	Luminance (fc) ^a	Standard (fc) ^a	Standard Met
Room # 2	55.5-88.8	70	Some Areas
Room # 3	27.7-94.4	70	Some Areas
Room # 4	38.8-94.4	70	Some Areas
Room # 5	27.7-100	70	Some Areas
Room # 6	16.6-105.5	70	Some Areas
Room # 7	22.2-155.5	70	Some Areas
Room # 8	100-155.5	70	Yes
Room # 9	27.7-144.4	70	Some Areas
Room # 10	5.5-11.1	40	No
Room # 11	16.6-38.8	40	No
Room # 14	66.6-122.2	70	Some Areas
Room # 15	44.4-66.6	70	No
Room # 16	38.8-77.7	30	Yes
Entrance Hallway	11.1-44.4	7.5	Yes

^a fc - Footcandles

The readings were taken with a Weston model 614-60 Lightmeter.

The standards listed above are from ANSI/IES RP-1 and RP-7.

Table 5
Wipe Sampling for Lead – Converted Firing Range
National Guard Armory
Farmville, Virginia
Date of Sampling: 18 December 2003

Sample Number	Location	Results, $\mu\text{g}/\text{ft}^2$ ^a
VA FAR352-14	Bullet Trap (floor near former bullet trap location)	120
VA FAR352-15	Stored Item	62
VA FAR352-16	Floor (outside the converted firing range area)	15

^a Micrograms lead per square foot

^b Below Detectable Limits, at a detection level of XX $\mu\text{g}/\text{ft}^2$

The samples were taken and analyzed in accordance with the Instructions for *Completing the Sampling of ARMY National Guard Armories* procedure.

Appendix A

HHIM Data Form(s)

HEALTH HAZARD INFORMATION MODULE: INDUSTRIAL HYGIENE SURVEY

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

SECTION 1. DEMOGRAPHIC DATA

ARLOC 24255	INSTALLATION APG-EA	BLDG/RM NO. FARMVILLE
LOCATION/CODE ADMINISTRATIVE AREAS / AA	OPERATION/CODE ADMINISTRATIVE OPERATIONS / ADO	
SURVEY DATE 18 DECEMBER 2003	EVALUATOR (Initials) Non-Responsive	
MACOM/CODE	SUBMACOM/CODE XX	SUPERVISOR SSG Non-Responsive
TELEPHONE/DSN NO. (43A) 392 3335	UNIT/ORGANIZATION FARMVILLE Army	RAC 4
NO. CIV(S) 0	NO. MIL 5	NO. CONTRACTOR(S) 0
	NO. LOC(S) —	NO. OTHER —
FREQUENCY (hrs/day) 8		

SECTION 2. FACILITY DATA

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

SECTION 3. SURVEY DATA

CONTROLS PRESENT	EVALUATION	UNIT CODE	CONTROLS REQUIRED	STATUS

PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized)

GLOVES	R	U	RESPIRATOR	NIOSH TC NO.	MANUFACTURER	R	U
ACID			AIRLINE				
COLD SURFACES			ABRASIVE BLASTING HOOD				
HOT SURFACES			DISPOSABLE				
NBC AGENTS			FULL FACE AIR PURIFYING				
OIL			1/2 FACE AIR PURIFYING				
SOLVENTS			POWERED AIR PURIFYING				
SURGICAL GLOVES			1/4 FACE AIR PURIFYING				
			SELF CONTAINED				

EYES/FACE	R	U	HEARING	R	U	BODY	R	U	HEAD/FIT	R	U
CHEMICAL SPLASH			CANAL CAPS			APRONS			COLD WEATHER BOOTS/HATS		
FULL FACE SHIELD			EAR PLUGS			COLD WEATHER CLOTHING			HARD HATS		
CHEMICAL/SAFETY			HELMETS			COVERALLS			IMPERMEABLE BOOTS		
SAFETY/IMPACT			MUFFS			FULL BODY SUIT			SAFETY/CONDUCTIVE SHOES		
WELDING HELMET			MUFF/EARPLUG COMBO			HEAT REFLECTIVE VEST/SUIT			SAFETY/NON-CONDUCTIVE SHOES		
			MUFF/EARPLUG W/TIME LIMIT			SAFETY BELT/HARNES					

SECTION 4. HAZARD INVENTORY DATA

CAS CODE	HAZARD DESCRIPTION	PAC	EPC
POVDTXXXX	VIDEO DISPLAY TERMINAL	3-LOW	D UNCONTROLLED PHYSICAL
7439-92-1	LEAD, INORGANIC DUSTS, FUMES	2-MODERATE	C UNCONTROLLED RESPIRATORY
1332-21-4	ASBESTOS	3-LOW	C UNCONTROLLED RESPIRATORY
124-38-9	CARBON DIOXIDE	2-MODERATE	C UNCONTROLLED RESPIRATORY
POLIFTINA	HEAVY LIFTING	2-MODERATE	D UNCONTROLLED PHYSICAL
POHEATSTR	HEAT STRESS	3-LOW	D UNCONTROLLED PHYSICAL

SECTION 5. PERSONNEL DATA

LAST NAME	FIRST NAME	MI	SEX	SSN	CATEGORY
Non-Responsive		D	M	Non-Responsive	MIL
		D	M		MIL
		B	M		MIL
		L	M		MIL
		B	M		MIL

SECTION 6. COMMENTS

☒ No comments

☐ See attached sheet

PRIVACY ACT STATEMENT

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

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



BEST AVAILABLE COPY
DEPARTMENT OF THE ARMY
BATTERY B
2nd BATTALION, 111th FIELD ARTILLERY
813 LONGWOOD AVENUE
FARMVILLE, VIRGINIA 23901-0526

REPLY TO
ATTENTION OF

(CDR)

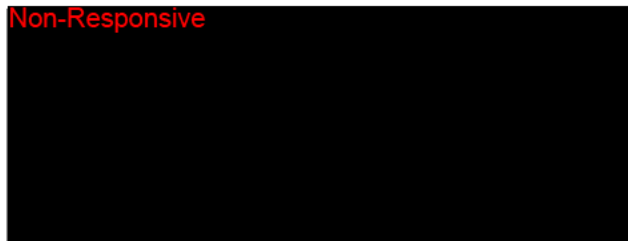
18 December 2003

MEMORANDUM FOR: Bravo Battery 2/111th FA, Virginia Army National Guard

SUBJECT: Full Time soldiers at the Farmville Armory, Farmville Virginia

1. Below are the names and ranks of the full timers that are stationed at this building on a daily basis.

Non-Responsive



3. Point of contact is SFC Non-Responsive at 434-392-3335.

R I

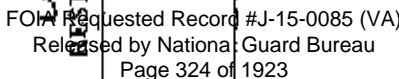
Non-Responsive



10.4
CPT, FA, VaARNG
Commanding

Appendix B

Building Layout



Appendix C

Sampling Sheets and Laboratory Analyses

CERTIFICATE OF ANALYSIS

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

Job Name: VA FAR 352
Job Location: Farmville, Virginia
Job Number: 845702 01000000
P.O. Number: 1103

Chain Of Custody: 121362
Date Analyzed: 01/02/2004
Person Submitting: Non Responsive
Report Date: 02-Jan-04

Attention: 909090

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 (ft ²)	Reporting Limit	Final Result	Comments
0416904	VA FAR 352 1	Furnace	Wipe	****	0.111	2.70 ug/ft ²	23 ug/ft ²	
0416905	VA FAR 352 2	Flame	Wipe	****	0.111	108.01 ug/ft ²	1400 ug/ft ²	
0416906	VA FAR 352 3	Furnace	Wipe	****	0.111	6.75 ug/ft ²	61 ug/ft ²	
0416907	VA FAR 352 4	Furnace	Wipe	****	0.111	2.70 ug/ft ²	27 ug/ft ²	
0416908	VA FAR 352 5	Furnace	Wipe	****	0.111	67.51 ug/ft ²	230 ug/ft ²	
0416909	VA FAR 352 6	Furnace	Wipe Blank	****	N/A	0.30 ug	0.38 ug	
0416910	VA FAR 352 14	Furnace	Wipe	****	0.111	33.75 ug/ft ²	120 ug/ft ²	
0416911	VA FAR 352 15	Furnace	Wipe	****	0.111	6.75 ug/ft ²	62 ug/ft ²	
0416912	VA FAR 352 16	Furnace	Wipe	****	0.111	2.70 ug/ft ²	15 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 results have two significant digits. Any additional digits shown should not be considered when interpreting the result.

Non-Responsive

Non-Responsive

Analyst:

Technical Manager:

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

An AIHA (#8863), NVLAP (#10143), & New York ELAP (#10920) Accredited Laboratory
4475 Forbes Blvd. • Lanham, MD 20706 • (301) 459-2640 • Toll Free (800) 346-0961 • Fax (301) 459-2643

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

Job Name: VAFAR352
Job Location: Farmville, VA
Job Number: 845702 01000000
P.O. Number: 1103

Chain Of Custody: 122716
Date Analyzed: 2/11/2004
Person Submitting: [Redacted]
Report Date: 11-Feb-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
0423916	VAFAR352 7	Furnace	Wipe	****	0.111	33.75 ug/ft²	65 ug/ft²	
0423917	VAFAR352 8	Furnace	Wipe	****	0.111	33.75 ug/ft²	64 ug/ft²	
0423918	VAFAR352 9	Furnace	Wipe	****	0.111	6.75 ug/ft²	19 ug/ft²	
0423919	VAFAR352 10	Furnace	Wipe	****	0.111	33.75 ug/ft²	120 ug/ft²	
0423920	VAFAR352 11	Furnace	Wipe	****	0.111	6.75 ug/ft²	12 ug/ft²	
0423921	VAFAR352 12	Furnace	Wipe Blank	****	N/A	0.30 ug	0.42 ug	
0423922	VAFAR352 13	Furnace	Wipe	****	0.111	33.75 ug/ft²	59 ug/ft²	

Analysis Method for Flame: Air, Wipes, Paints, and Soil/Solids: EPA 600/R-83/200(M)-7420; Water: SM-3111B
 Analysis Method For Furnace: Air, Wipes, Paints, and Soil/Solids : EPA 600/R-33/200(M)-7421; Water: SM-3113B

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

Non-Responsive

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.

An AIHA (#8863), NVLAP (#10143), & New York ELAP (#10920) Accredited Laboratory
 4475 Forbes Blvd. • Lanham, MD 20706 • (301) 459-2640 • Toll Free (800) 346-0961 • Fax (301) 459-2643



TEST REPORT
Page 1 of 4
12/30/03

Submitted To: **Non-Responsive**
Shaw Environmental, Inc.
5700 Thurston Avenue; Suite 116
Virginia Beach, VA 23455-3302

Reference Data:	Lead
Client Sample No.:	VASAN344A1 through VABLA353A3
P.O. No.:	1103
Sample Location:	Virginia
Sample Type:	Filter
Method Reference:	NIOSH 7300
DCL Set ID No.:	03-S-6250
DCL Sample ID No.:	03-37000 through 03-37040
Sample Receipt Date:	12/23/2003
Preparation Date:	12/24/2003
Analysis Date:	12/29/2003

The samples were prepared and analyzed in accordance with NIOSH method 7300 using a Thermo Jarrell Ash Trace (ICP) purged spectrometer.

The sample condition upon receipt was acceptable except where noted.

The results are in the enclosed data table. Results relate only to the items tested and are not blank corrected unless indicated in the data table.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Non-Responsive

Analyst

Non-Responsive

Reviewer

CINCINNATI OFFICE
4388 GLENDALE-MILFORD ROAD
CINCINNATI, OHIO 45242-3706
513 733-5336, FAX 513 733-5347

WEST COAST OFFICE
11 SANTA YORMA COURT
NOVATO, CALIFORNIA 94945
800 280-8071, FAX 415 893-9469

03-S-6250

Results
Lead

Client #	DCL #	Sample Volume (L)	µg/sample	mg/m ³
VAMAR351A3	03-37031	-	ND	-
VAROC351A1	03-37032	221.98	ND	<0.0045
VAROC351A2	03-37033	215.90	ND	<0.0046
VAROC351A3	03-37034	-	ND	-
VAFAR352A1	03-37035	243.28	ND	<0.0041
VAFAR352A2	03-37036	245.10	ND	<0.0041
VAFAR352A3	03-37037	-	ND	-
VABLA353A1	03-37038	226.09	ND	<0.0044
VABLA353A2	03-37039	216.46	ND	<0.0046
VABLA353A3	03-37040	-	ND	-
	Prep Blank 4		ND	
% Recovery	LCS 7		93.	
% Recovery	LCS 8		92.	
RPL			1.0	

ND = not detected at or above the reporting limit (RPL).

LCS = laboratory control sample.

Non-Responsive

Analyst

Non-Responsive

Reviewer

Location: Farmville
Date: 12/18/2003

Appendix D

References

References

Title 29, Code of Federal Regulations (CFR), Part 1910, Occupational Safety and Health Administration (current edition)

American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc (ASHRAE) 62-2002, Ventilation for Acceptable Indoor Air Quality

Instructions for Completing the Sampling of Army National Guard Armories, Lead Wipe Sampling Procedure included with the Request for Proposal

Air Sampling for Lead - Method 7082 of the National Institute of Occupational Safety and Health (NIOSH) Manual of Analytical Methods

Design Guide DG-415-2, Logistics Facilities, National Guard Bureau Installation Division, 14 December 1999

Department of Defense Instruction (DODI) 6055.1, Department of Defense Occupational Safety and Health (OSHH) Program, August 19, 1998

Army Regulation (AR) 40-5, Medical Service, Preventive Medicine, 15 October 1990

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

Department of the Army Pamphlet (DA PAM) 40-501, Medical Services, Hearing Conservation Program, 10 December 1998

DA PAM 40-503, Medical Services, Industrial Hygiene Program, 30 October 2000

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

Guidelines for Converting Indoor Firing Ranges to Other Uses, Headquarters, Department of the Army and the Air Force, NG PAM (AR) 385-16/ANGPAM 91-101, 31 January 1994

24 CFR, Part 35, Subpart B, Section 35-110, Definition of Lead-Based Paint, Housing and Urban Development, U. S. Department of Housing

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 $0.05 \text{ mg}/\text{m}^3$ averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead dust in this building.

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

NGB-AVS-SI (40-5f)

4 November 2004

MEMORANDUM FOR VAARNG, Farmville Readiness Center, ATTN: SSC **Non-Responsive**
Non- PO Box 526, 813 Longwood Avenue, Farmville, VA 23901

SUBJECT: Baseline Survey

1. I have enclosed the industrial hygiene survey report completed by Shaw Environmental, Incorporated.
2. In addition to the attached discussion and recommendations regarding wipe samples for lead, if a special function is held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function.
3. Please contact me at (410) 942-0273 or 1-800-550-6967 if you have any questions regarding the enclosed report.

Encl

Non-Responsive

Regional Industrial Hygienist

CF: Organizational Maintenance Officer
Occupational Health Manager

National Guard Armory

Farmville Readiness Center, Farmville, Virginia

Industrial Hygiene Evaluation

Recommendations

- Wipe sampling for lead revealed concentrations above the recommended level of 200 micrograms per square foot ($\mu\text{g}/\text{ft}^2$) on the top surfaces of the suggestion box and storage locker in the drill floor/assembly hall area. It is recommended that these surfaces and the areas immediately around these surfaces be thoroughly cleaned to reduce the lead level. In addition, any other dusty/dirty areas in the assembly area/drill floor should be thoroughly cleaned. **RAC - 4**
- Wipe sampling for lead revealed concentrations above a level of 40 micrograms per square foot ($\mu\text{g}/\text{ft}^2$) in the drill floor/assembly hall area, maintenance record room, store room #12, supply room #16, and converted firing range. Areas with lead concentrations above 40 $\mu\text{g}/\text{ft}^2$ that will be accessible to children should be cleaned. If a special function is held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function. **RAC - 4**
- Employees indicated that there were materials suspected of containing asbestos (old floor tiles under the new floor tiles). An operation and maintenance plan should be followed when performing any activities that may disturb the old suspected asbestos-containing materials (floor tiles) under the new tiles. **RAC - 5**
- Water damage was observed at several locations at the armory. The source of the water damage was likely from roof or pipe leaks. The source of the water damage should be confirmed and actions taken to eliminate the source in order to prevent the possibility of mold growth that may lead to indoor air quality problems. **RAC - 5**
- Visual mold was observed in the armory. The area where the mold is located should be thoroughly cleaned with 0.5% sodium hypochlorite solution (1 part household bleach to nine parts water) or equivalent in order to eliminate the potential mold/indoor air quality problem. In addition, the source of the mold should be identified and actions taken to it. **RAC - 5**
- Indoor air quality measurements for humidity revealed that levels did not meet the recommended level of 30% in the facility. It is recommended that a humidification system be installed at the facility. **RAC - 5**
- Lighting measurements were conducted at the armory. The lighting did not meet minimum requirements in some areas; therefore consideration should be given to providing more lighting in these areas. This may be accomplished by replacing burnt

out luminaries, cleaning fixtures, cleaning windows, painting walls with a lighter color, repositioning detailed work to higher illuminated areas, and using supplemental lighting. **RAC - 5**

Shaw Environmental, Inc.

312 Directors Drive
Knoxville, TN 37923
865.690.3211
Fax 865.690.3626



Shaw Environmental, Inc.

22 March 2004

Ms. **Non-Responsive**
Regional Industrial Hygienist
Region North Industrial Hygiene Office
Attn: NGB-AVS-SI
301-IH Old Bay Lane
Havre De Grace, Maryland 21078

RE: Draft Report for the Industrial Hygiene Evaluation at the Farmville Center –
Farmville, Virginia

Dear Ms. **Non-Responsive**

Attached is a copy of the referenced report. Also attached is a copy of the field notes, photographs, and photograph log. Please call me if you have questions.

Sincerely,

Non-Responsive

Project Manager

18 Dec 03
Rec'd 3/25/04
rev. 10/13/04
emailed 10/13/04
Rec'd 11/4/04

Field Notes and Checklist

State: VIRGINIA Location: FARMVILLE

Date: DECEMBER 18, 2003

Contact: SSG [REDACTED] **Non-Responsive**

1.0 Sampling for Lead

1.1 Wipe Sampling

Sample #:	<u>1</u>	Picture #:	<u>/</u>	Location:	<u>DISH RETURN COUNTER OUTSIDE KITCHEN</u>
Sample #:	<u>2</u>	Picture #:	<u>/</u>	Location:	<u>SUGGESTION BOX OUTSIDE SUPPLY OFFICE</u>
Sample #:	<u>3</u>	Picture #:	<u>/</u>	Location:	<u>TOP OF FIRE LOCKER</u>
Sample #:	<u>4</u>	Picture #:	<u>/</u>	Location:	<u>TOP OF PODIUM</u>
Sample #:	<u>5</u>	Picture #:	<u>/</u>	Location:	<u>TOP OF STORAGE LOCKER</u>
Sample #:	<u>6, 12</u>	Picture #:	<u>N/A</u>	Location:	<u>FIELD BLANK</u>
Sample #:	<u>7</u>	Picture #:	<u>/</u>	Location:	<u>MAINT RECORD ROOM #2 TOP OF FILING CABINET</u>
Sample #:	<u>8</u>	Picture #:	<u>/</u>	Location:	<u>MAINT RECORD ROOM #5 WINDOW SILL</u>
Sample #:	<u>9</u>	Picture #:	<u>/</u>	Location:	<u>CDR'S OFFICE ROOM #7 TOP OF MICROWAVE</u>
Sample #:	<u>10</u>	Picture #:	<u>/</u>	Location:	<u>STORE ROOM #12 TOP OF HOT WATER HEATER</u>
Sample #:	<u>11</u>	Picture #:	<u>/</u>	Location:	<u>KITCHEN ROOM #14 SHELF TOP</u>
Sample #:	<u>13</u>	Picture #:	<u>/</u>	Location:	<u>SUPPLY ROOM #16 TOP OF COMPUTER MONITOR</u>
Sample #:		Picture #:		Location:	
Sample #:		Picture #:		Location:	
Sample #:		Picture #:		Location:	
Sample #:		Picture #:		Location:	
Sample #:		Picture #:		Location:	
Sample #:		Picture #:		Location:	
Sample #:		Picture #:		Location:	
Sample #:		Picture #:		Location:	

(Also, please see the sketch of sampling locations.)

1.2 Breathing Zone Air Sampling

Sample #: A1 Employee Sampled: GENERAL AIR SAMPLE

Sample #: A2 Employee Sampled: GENERAL AIR SAMPLE

2.0 Physical Condition of Facility

2.1 Peeling Paint - Lead

Peeling paint observed (Yes or No): Yes

If peeling paint observed, samples were taken as follows:

Sample #: Picture #: Location: COULD NOT READ
 Condition (Good, Average, Poor): GOOD Quantity: 2 ft²
 Sample #: Picture #: Location:
 Condition (Good, Average, Poor): Quantity: ft²
 Sample #: Picture #: Location:
 Condition (Good, Average, Poor): Quantity: ft²
 Sample #: Picture #: Location:
 Condition (Good, Average, Poor): Quantity: ft²
 Sample #: Picture #: Location:
 Condition (Good, Average, Poor): Quantity: ft²

2.2 Visual Inspection - Asbestos

ALL OLD ASBESTOS FLOOR WAS COVERED W/ NEW TILE ON OCT 2003
 Suspected asbestos-containing material observed (Yes or No): —

If suspected asbestos-containing material observed, samples were taken as follows:

Location 1: Picture #:
 Condition: Approximate (Square or Linear Feet):
 Location 2: Picture #:
 Condition: Approximate (Square or Linear Feet):
 Location 3: Picture #:
 Condition: Approximate (Square or Linear Feet):
 Location 4: Picture #:
 Condition: Approximate (Square or Linear Feet):
 Location 5: Picture #:
 Condition: Approximate (Square or Linear Feet):

2.3 Visual Inspection – Water Damage and Mold

Water damage observed (Yes or No): YES

If yes, water damage was observed at the following locations:

Location 1: <u>Room #2</u>	Picture #: <u>✓</u>
Location 2: <u>Room #4</u>	Picture #: <u>✓</u>
Location 3: <u>Room #5 ; ELLERBANK HALLWAY</u>	Picture #: <u>✓</u>
Location 4: <u>Room #7</u>	Picture #: <u>✓</u>
Location 5: <u>Room #14 ; 15</u>	Picture #: <u>✓</u>

Mold observed (Yes or No): YES

If yes, mold was observed at the following locations:

Location 1: <u>MENS SHOWER ROOM</u>	Picture #: <u>✓</u>
Location 2: _____	Picture #: _____
Location 3: _____	Picture #: _____
Location 4: _____	Picture #: _____
Location 5: _____	Picture #: _____

2.4 Visual Inspection - Housekeeping

Housekeeping (good, average, poor): GOOD

Comments (such as no dirt or trash was visible on the floors or the housekeeping was poor in that there was trash and debris on the floors that could lead to a tripping hazard, or there was dust in the vents.):

3.0 Building Concerns

3.1 Ergonomic Concerns

Ergonomic concerns (Yes or No): NO

If there are ergonomic concerns at the armory, describe the extent of the problem, such as three employees stated that they perform repetitive motion at the XYZ machine for 6 hours per day, and they stated that they are suffering from symptoms of musculoskeletal disorders (MSDs).

3.2 Indoor Air Quality

IAQ concerns (based on employee interviews)(Yes or No): No

If yes, what were concerns:

Measurements for carbon dioxide, humidity, and temperature:

Location	CO ₂ (ppm)	Humidity (%)	Temperature (°F)	Occupancy (People in Room)
Outdoors -	385	28.6	51.2	0
1 st Floor -	388	22.6	70.4	1
2 nd Floor -	—	—	—	—
3 rd Floor -	—	—	—	—
Basement	—	—	—	—

4.0 Safety and Industrial Hygiene Programs

4.1 Confined Spaces

Are confined spaces applicable (Yes or No): No

If yes, does the program meet minimum standards (Yes or No): —

If no, explain the deficiencies:

4.2 Hearing Conservation

Is hearing conservation applicable (Yes or No): no

If yes, does the program meet minimum standards (Yes or No): —

If no, explain the deficiencies:

4.3 Respiratory Protection

Is respiratory protection applicable (Yes or No): no

If yes, does the program meet minimum standards (Yes or No): —

If no, explain the deficiencies:

4.4 Hazard Communication

Is hazard communication applicable (Yes or No): yes

If yes, does the program meet minimum standards (Yes or No): yes

If no, explain the deficiencies:

4.5 Personal Protective Equipment

Is personal protective equipment applicable (Yes or No): no

If yes, does the program meet minimum standards (Yes or No): —

If no, explain the deficiencies:

5.0 Ventilation

5.1 Ventilation System Evaluation

Local exhaust ventilation systems at this armory (Yes or No): no

If yes, results of airflow patterns:

Location 1: _____

Airflow Pattern (acceptable or unacceptable, with reason):

Location 2: _____

Airflow Pattern (acceptable or unacceptable, with reason):

Location 3: _____

Airflow Pattern (acceptable or unacceptable, with reason):

5.2 Contamination of Clean Air Sources

Clean air sources contaminated by contaminated exhaust air (Yes or No): no

If yes, describe:

6.0 Noise Dosimetry

Potential hazardous noise areas (Yes or No): no

If yes, results of noise dosimetry sampling:

Employee sampled: _____

Results: _____ % Actual _____ % Projected 8-hour TWA _____ Equivalent dBA

Activity: _____

Employee sampled: _____

Results: _____ % Actual _____ % Projected 8-hour TWA _____ Equivalent dBA

Activity: _____

Employee sampled: _____

Results: _____ % Actual _____ % Projected 8-hour TWA _____ Equivalent dBA

Activity: _____

7.0 Lighting Evaluation

Location	Luminance Range (fc)
Room # 2	50 - 80
Room # 3	25 - 85
Room # 4	35 - 86
Room # 5	25 - 90
Room # 6	15 - 95
Room # 7	20 - 140
Room # 8	90 - 140
Room # 9	25 - 130
Room # 10	5 - 10
Room # 11	15 - 35
Room # 14	60 - 110
Room # 15	40 - 60
Room # 16	35 - 70
ENTRANCE HALLWAY	10 - 40

8.0 Converted Indoor Firing RangesConverted indoor firing range (Yes or No): YES

If yes, locations sampled:

Sample #: NA Picture #: - Location: Inside any remaining ventilation ductworkSample #: NA Picture #: - Location: Exhaust ventilation systemSample #: 14 Picture #: / Location: Bullet trap FLOOR AROUND WHERE BULLET TRAP WASSample #: NA Picture #: - Location: Light fixturesSample #: NA Picture #: - Location: Overhead heatersSample #: 15 Picture #: / Location: Stored itemsSample #: NA Picture #: - Location: Floor OLD FLOOR GONE & REPLACED W/ NEW FLOORSample #: 16 Picture #: / Location: Outside the range**9.0 HVAC System**

Does the HVAC system have maintenance performed on a regular basis (Yes or No):

YES BOILER ROOM FOR HEAT
WINDOW UNITS FOR ACIn yes, is the maintenance effective (Yes or No): YES

If no, describe:

10.0 HHIMComplete HHIM form for facility (Initial as completed): Non-Reproduction Room HHIM Necessary (Yes or No) (Initial if Yes): -Film Developing Room HHIM Necessary (Yes or No) (Initial if Yes): -Maintenance Area HHIM Necessary (Yes or No) (Initial if Yes): -

11.0 Additional Items

Table 1 (wipe sampling) completed (initial when completed): _____

Table 2 (air sampling) completed (initial when completed): _____

Table 3 (peeling paint), if necessary, completed (initial when completed): _____

Table 3 or 4 (IAQ) completed (initial when completed): _____

Table 4 or 5 (noise), if necessary, completed (initial when completed): _____

Table 5 or 6 (firing ranges), if necessary, completed (initial when completed): _____

Airflow pattern diagram(s) completed (initial when completed): _____

Building layout included (initial when completed): _____

Photographs (initial when completed): _____

Sampling Sheets and Laboratory Analyses (initial when completed): _____

Sampling tracking form completed and faxed to NGB ARN _____

within 5 days of date of this survey (initial when completed): _____

(Fax to Ken Forsythe at 410-942-0254)

State Lead Wipes Spreadsheet completed (initial when completed): _____

Three copies of noise exposure notification letter, if necessary (initial when completed): _____

Three copies of contaminant exposure forms for each employee that participated in air sampling (initial when completed): _____

Non-Responsive

Farmville Armory Photo Log
National Guard Armory
Farmville, Virginia
Date of Survey: 18 December 2003

Photo	Description
1	Lead Wipe Assembly Room - Kitchen Service Window - Sample 1
2	Lead Wipe Assembly Room - Suggestion Box Outside the Supply Office - Sample 2
3	Lead Wipe Assembly Room - Fire Locker Top - Sample 3
4	Lead Wipe Assembly Room - Podium Top - Sample 4
5	Lead Wipe Assembly Room - Storage Locker Top - Sample 5
6	25% Building - Maintenance Record Room #2 Filing Cabinet - Sample 7
7	25% Building - Maintenance Record Room #5 Window Sill - Sample 8
8	25% Building - CDR's Office Room #7 Microwave Top - Sample 9
9	25% Building - Store Room #12 Hot Water Heater - Sample 10
10	25% Building - Kitchen Room #14 Shelf Top - Sample 11
11	25% Building - Supply Room #16 Computer Monitor Top - Sample 13
12	Firing Range - Bullet Trap - Sample 14
13	Firing Range - Store Item - Sample 15
14	Firing Range - Floor Outside the Covered Firing Range - Sample 16
15	Water Damage - Classroom
16	Water Damage - Kitchen
17	Water Damage - Office
18	Mold - Men's Shower Room
19	Water Damage - Lobby
20	Water Damage

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



Industrial Hygiene Survey for VAARNG – Farmville Readiness Center 813 Longwood Avenue Farmville, Virginia 23901

AECOM
January 2013
Document No.: 60275401/ Farmville Readiness Center

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

Industrial Hygiene Survey
for VAARNG – Farmville Readiness Center
813 Longwood Avenue
Farmville, Virginia 23901

Non-Responsive

A large black rectangular redaction box covering several lines of text.

Industrial Hygienist

Non-Responsive

A large black rectangular redaction box covering several lines of text.

Non-Responsive

A large black rectangular redaction box covering several lines of text.

Northeast District Health & Safety Manager

AECOM Environment
January 2013
Document No.: 60275401/Farmville 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 Farmville Readiness Center Facility Layout

Appendix B Farmville Readiness Center Photographs

Appendix C Analytical Results

Appendix D References



List of Tables

Table 2-1: Lead Wipe Sample Results 2-1

Table 3-1: Paint Chip Sample Results.....3-1

Table 3-2: Indoor Air Quality Monitoring Results..... 3-2

Table 5-1: Light Survey 5-1



Executive Summary

On November 15, 2012, AECOM Technical Services Northeast, Inc. (AECOM) conducted an Industrial Hygiene (IH) survey of the Farmville Readiness Center facility located at 813 Longwood Avenue in Farmville, Virginia. SSG **Non** was the point of contact for the facility and accompanied AECOM during the survey to provide access and information concerning the Farmville Readiness Center operations.

The industrial hygiene survey was conducted in general accordance with the scope of work as described in the "Statement of Work – Industrial Hygiene Services for National Guard Bureau Industrial Hygiene Region North – Baseline Surveys for Readiness Centers and Administrative Buildings", dated March 2009.

The Farmville Readiness Center is currently staffed by five personnel. The facility is configured as an administrative area and a drill/assembly hall.

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

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

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

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

However, wipe sample FL-007 collected from the file cabinet located in a facility office area exceeded the 200 ug/ft^2 action level standard.

No damaged suspect asbestos containing materials were observed during the evaluation.

Peeling, damaged paint was observed in the kitchen and hallway outside of the Recruiters office. A sample was collected from each area and submitted for analysis. Results did not indicate a concentration of lead above the reporting limit.

Neither water damage nor visible mold growth was observed during the survey. Water intrusion is a mold growth risk factor.

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

1.0 Facility Description and Operations

The Farmville Readiness Center is a single story masonry block, brick facade structure. Administrative areas occupied by Readiness Center personnel consists of rooms configured as office space and is finished with acoustical drop ceilings and floor tile.

The primary activity at the Farmville Readiness Center is routine administrative duties. The Farmville Readiness Center is currently staffed by approximately 5 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 multiple areas of the facility following the Occupational Safety & Health Administration (OSHA) wipe sampling method and using Ghost Wipes.

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

Table 2-1: Lead Wipe Sample Results

Sample Number	Sample Location	Lead Concentration
FL-001	Drill supply side filter	<110 ug/ft ²
FL-002	Drill hall fan side	<110 ug/ft ²
FL-003	File cabinet drill hall	190 ug/ft ²
FL-004	Kitchen counter	<110 ug/ft ²
FL-005	Drill hall floor	<110 ug/ft ²
FL-006	Office desk	<110 ug/ft ²
FL-007	Office file cabinet	270 ug/ft²
FL-008	Hallway floor	<110 ug/ft ²
FL-009	Foyer supply air vent	<110 ug/ft ²

ug/ft² = Micrograms per square foot.

Wipe samples collected in association within most administrative areas indicated lead levels below the Occupational Safety and Health Administration's (OSHA's) Clarification of "as free as practicable" and lead contamination under 29 CFR 1926.62, The Compliance Directive for the Interim Standard for Lead in Construction, CPL 2-2.58. OSHA recommends the use of HUD's acceptable decontamination level of 200 ug/ft² for floors in evaluating the cleanliness of change areas, storage facilities, and lunchrooms/eating areas.

Lead in excess of the action level of 200 micrograms per square foot (ug/ft²) per 29 CFR 1926.62 was detected in a wipe sample collected from an office file cabinet. None of the other samples collected exceeded the action level. Laboratory analytical results are presented in Appendix C.

2.1.2 Air Sampling

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

3.0 Physical Condition of Facility and Personnel Concerns

3.1.1 Lead Based Paint

Interior surfaces of walls are coated with paint. AECOM observed and sampled damaged or peeling paint from two locations of the facility during this evaluation.

Table 3-1: Lead Paint Chip Sample Results

Sample Number	Sample Location	Lead Concentration
FLC-001	Office door casing	<0.01 %
FLC-002	Interior kitchen door casing	<0.011%

Note – 40 CFR Part 745 defines lead-based as .5% PB.

3.1.2 Suspect Asbestos Containing Materials

AECOM did not observe damaged, friable suspect asbestos-containing materials (ACM) in readily accessible areas of the Farmville Readiness Center during this survey.

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

3.1.3 Water Damage/Mold

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

3.1.4 Housekeeping

The Farmville 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 Farmville Readiness Center staff members. No Indoor Air Quality concerns were noted by the Farmville Readiness Center personnel.

Instantaneous real-time reading for carbon monoxide and carbon dioxide (parts per million or ppm), temperature (° Fahrenheit), and relative humidity (as percentage) are presented in the following table. The facility is mechanically air conditioned. Readings were typically within acceptable guidelines. The exception being several locations recording temperatures below the recommended 68 degree lower limit.

Table 3-2: Indoor Air Quality Monitoring Results

Location	Carbon Monoxide (ppm)	Carbon Dioxide (ppm)	Temp (°F)	Relative Humidity (%)
Front drill hall	0.2	567	67.3	36.1
Middle drill hall	0.4	468	66.6	36.3
Back drill hall	0.2	568	66.6	36.7
Front foyer	0.6	471	65.7	37.3
Kitchen	0.7	525	65.4	38.1
Backs storage	0.7	442	64.1	36.9
Janitors room	0.2	490	64.0	38.0
Classroom	0.2	571	64.1	39.3
Men's bathroom	0.5	515	64.7	42.9
Handicap bath	0.1	794	65.7	45.3
Boiler room	0.1	581	64.5	38.1
Boiler room west	0.1	366	64.5	37.9
Office	0.3	447	66.4	37.5
Woman's restroom	0.1	540	69.1	47.7
Recruiters office	0.2	518	71.0	38.4
SFC Non-P office	0.0	683	74.6	35.9
Hallway	0.1	656	74.7	33.1
Office end hall	0.2	660	74.7	33.2
SSG Non office	0.3	520	68.7	36.1

Table 3-1 Guidelines:

Carbon Monoxide: Office/Warehouse Space – 9 ppm based on United States Environmental Protection Agency's National Ambient Air Quality Standard.

OSHA Permissible Exposure Limit (PEL) = 50 ppm. American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit value (TLV) = 25, ppm.

Carbon Dioxide: Office Space -Approximately 700 ppm above background (Derived from American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE) Standard 62.1-2010). Not Applicable to warehouse and vehicle maintenance bays.

Relative Humidity: Mechanically air-conditioned space – Maximum 65% (Derived from ASHRAE Standard 62.1-2010 – 5.10.1).

Temperature: Winter (clothing insulation = 1.0 clo) Relative humidity 30-60% - Temp - 68 – 75°F

Summer Temp - 73 – 79°F. (Derived from ASHRAE Standard 55-2010)

Farmville 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 building has a recently replaced HVAC system. No dust was observed at diffusers, and site personnel indicated that the system seems to work well. Temperature readings were constant in all areas occupied by readiness center personnel.

4.1.2 HVAC Maintenance

The HVAC system is recently installed and is serviced by a third party vendor. The system is reportedly serviced monthly.

There was no 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 typically not adequate.

Table 5-1: Light Survey

Location	Results (Foot candles)	Met Standard (Y/N)	Standard*
Front drill hall	28.0	Y	10
Middle drill hall	28.2	Y	10
Back drill hall	28.4	Y	10
Front foyer	57.3	Y	10
Kitchen	24.8	N	50
Backs storage	18.4	N	30
Janitors room	24.0	N	30
Classroom	24.0	N	30
Men's bathroom	14.7	N	5
Handicap bath	13.9	N	5
Boiler room	16.1	N	30
Boiler room west	16.5	N	30
Office	20.7	N	50
Woman's restroom	17.7	Y	5
Recruiters office	61.3	Y	50
SFC Non-office	56.5	Y	50
Hallway	50.8	Y	5
Office end hall	50.2	Y	5
SSC Non office	30.0	N	50
Office Lighting (ANSI/IESNA RP-1-04) and Industrial Lighting Facilities (ANSI/IESNA RP-7-01)			

6.0 Evaluation of Attached Garage

There is no garage associated with the Farmville 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 Farmville Readiness Center.

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

Wipe samples collected in association within most administrative areas indicated lead levels below the Occupational Safety and Health Administration's (OSHA's) Clarification of "as free as practicable" and lead contamination under 29 CFR 1926.62, The Compliance Directive for the Interim Standard for Lead in Construction, CPL 2-2.58. OSHA recommends the use of HUD's acceptable decontamination level of 200 ug/ft² for floors in evaluating the cleanliness of change areas, storage facilities, and lunchrooms/eating areas.

However, wipe sample FL-007 collected from the file cabinet located on an office file cabinet exceeded the 200 ug/ft² action level standard.

No damaged suspect asbestos containing materials were observed during the evaluation.

Peeling, damaged paint was observed in the kitchen and hallway outside of the Recruiters office. A sample was collected from each area and submitted for analysis. Results did not indicate a concentration of lead above the reporting limit.

Neither water damage nor visible mold growth was observed during the survey. Water intrusion is a mold growth risk factor.

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

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.

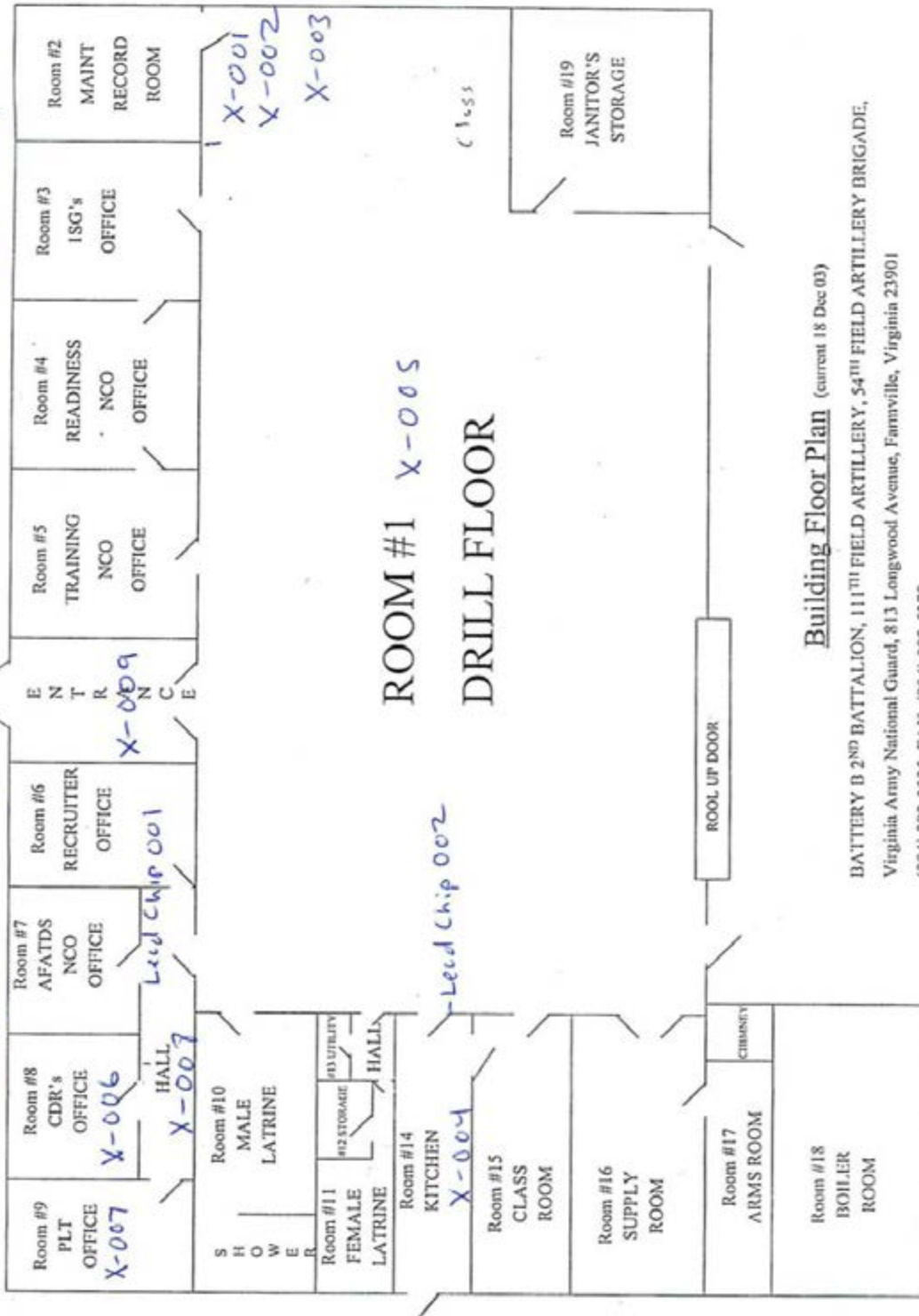
As with all such surveys, the results of the sampling represent conditions found on the date of the survey and may not represent conditions found at other times. Additionally, this survey was limited with respect to the specific parameters indicated above and should not be construed to be a comprehensive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

Farmville Readiness Center Facility Layout

Lead Wipe Locations & Lead Chip Sampling



Building Floor Plan (current 18 Dec 03)

BATTERY B 2ND BATTALION, 111TH FIELD ARTILLERY, 54TH FIELD ARTILLERY BRIGADE,
Virginia Army National Guard, 813 Longwood Avenue, Farmville, Virginia 23901
(804) 392-3335 FAX: (804) 392-5370
SFC Taylor, Readiness NCO, SSG Skelton, Supply Sgt, SSG Robins AFATDS NCO, SGT George, Training

Appendix B

Farmville Readiness Center Photographs

Photograph 1



Front of building

Photograph 2



Sign in front of building

Photograph 3



Typical construction

Photograph 4



Drill hall

Photograph 5



Men's room overhead water lines

Photograph 6



Wipe sample from kitchen

Photograph 7



Damaged paint on door casing

Photograph 8



Damaged paint

Photograph 9



Possible TSI piping running through bathrooms

Appendix C

Analytical Results

AMA Analytical Services, Inc.



A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS



Client: National Guard Bureau Job Name: VA ANGIH Survey Chain Of Custody: 514761
 Address: 301-TH Old Bay Lane, Attn: ARNG-CJG-P, Job Location: Farmville RC Date Submitted: 12/12/2012
 State Military Reservation
 Havre de Grace, Maryland 21078 Job Number: Not Provided Person Submitting: AECOM
 P.O. Number: W912K6-09-A-0003 Date Analyzed: 12/19/2012 Report Date: 12/19/2012

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
13021634	FL-001	Flame	Wipe	***	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13021635	FL-002	Flame	Wipe	***	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13021636	FL-003	Flame	Wipe	***	0.111	110 ug/ft ²	21	190 ug/ft ²	
13021637	FL-004	Flame	Wipe	***	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13021638	FL-005	Flame	Wipe	***	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13021639	FL-006	Flame	Wipe	***	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13021640	FL-007	Flame	Wipe	***	0.111	110 ug/ft ²	30	270 ug/ft ²	
13021641	FL-008	Flame	Wipe	***	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13021642	FL-009	Flame	Wipe	***	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13021643	FLC-001	Flame	Paint Chip	***	N/A	0.01 %Pb		<0.01 %Pb	
13021644	FLC-002	Flame	Paint Chip	***	N/A	0.011 %Pb		<0.011 %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.

An AIHA (#100470) and NY ELAP (#10920) Accredited Laboratory

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

AMA Analytical Services, Inc.



A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS



Client:	National Guard Bureau	Job Name:	VA ANGIH Survey	Chain Of Custody:	514751
Address:	301-BH Old Bay Lane, Attn: ARNG-CIG-P, State Military Reservation Havre de Grace, Maryland 21078	Job Location:	Farmville RC	Date Submitted:	12/12/2012
		Job Number:	Not Provided	Person Submitting:	AECOM
		P.O. Number:	W912K6-09-A-9003	Date Analyzed:	12/19/2012
				Report Date:	12/19/2012

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
-------------------	----------------------	---------------	-------------	----------------	-------------------------------	-----------------	----------	--------------	----------

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.

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. 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.

An AIHA (#100470) and NY ELAP (#10920) Accredited Laboratory

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



(Please Refer To This
Number For Inquires)

514761

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

1. Job Name: VA ANG 1H SURVEY
2. Job Location: FARMVILLE RC
3. Job #: DO #: W912K6-09-A-0003
4. Contact Person: Non-Responsive @ phone #
5. Submitted by: AECOM Signature: Non-Responsive

Reporting Info (Results provided as soon as technically feasible). If no TAT/Reporting Info is provided, AMA will assign defaults of 5-Days.

AFTER-HOURS (must be pre-scheduled)		NORMAL BUSINESS HOURS		REPORT TO:
<input type="checkbox"/> Incomplete	<input type="checkbox"/> Date Due: _____	<input type="checkbox"/> Incomplete	<input type="checkbox"/> Results Required By: Noon	<input type="checkbox"/> Incomplete
<input type="checkbox"/> 24 Hours	<input type="checkbox"/> Time Due: _____	<input type="checkbox"/> Next Day		<input type="checkbox"/> Non-Responsive
<input type="checkbox"/> Comments: _____		<input type="checkbox"/> 2 Day	<input type="checkbox"/> Due Date: <u>12/6/12</u>	<input type="checkbox"/> Pending
				<input type="checkbox"/> Verified

*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)

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

☐ GPO Paint Chip _____ (QTY) _____
☒ * Pb Dust Wipe (wipe type _____) 9 (QTY) _____
☐ * Pb Air _____ (QTY) _____
☐ Pb Soil/Solid _____ (QTY) _____
☐ Pb TCLP _____ (QTY) _____
☐ Drinking Water ☐ Pb _____ (QTY) ☐ Cu _____ (QTY) ☐ As _____ (QTY)
☐ Waste Water ☐ Pb _____ (QTY) ☐ Cu _____ (QTY) ☐ As _____ (QTY)
☐ Pb Furnace (Media _____) _____ (QTY) _____

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

☐ Qunt. (pres/bbs)_____ (QTY)
☐ ELAP 198.2/EPA 100.2_____ (QTY)
☐ EPA 100.1_____ (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)

☐ Vermiculite (TEM Water samples _____ °C)
☐ Asbestos Soil PLV____(Quil) PLM____(Quil) PLM/TEM____(Quil) PLM/TEM____(Quil) if field data sheets are submitted, there is no need to complete bottom section.

CLIENT CONTACT

(LABORATORY STAFF ONLY)

[illegible]

Surface Sampling Field Data Sheet

Date Collected: 11/15/12

Job Name: Formville NB Armory

Page 1 of 1

Job Number: 7

Job Location: Formville, VA

Contact Person:

Non-Responsive

Address:

813 Longwood Ave
Formville, VA

Company:

Phone Number:

Non-Responsive

Collected By:

COC Number:

Sample Number	Sample Location	Surface/Substrate Sampled	Area Wiped (in ² /ft ²)	Collection Media
FL-001	Drill Supply Side Filter	Metal	4x4 in	Wipe
FL-002	Drill Hall Fan Side	Metal		
FL-003	Kitchen Counter File Cabinet Drill Hall	Metal		
FL-004	Kitchen Counter	Metal		
FL-005	Drill Hall Floor Center	Floor		
FL-006	Office Desk	Wood		
FL-007	Office File Cabinet	Metal		
FL-008	Hallway Floor	Floor		
FL-009	Foyer Supply Air Vent	Metal		

Please Return Samples To:

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

Date Collected: 11/15/12

Job Name: Farmville NG Armory

Page 1 of 1

Job Number:

Job Location: Terrell, TX

Company: _____

Contact Person

Address: 813 Longwood Ave

Phone Number: _____

Collected By:

COC Number: _____

[illegible]

Please Return Samples To:

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



Appendix D

References

References

1. Title 29, Code of Federal Regulations (CFR), Part 1910, Occupational Safety and Health Administration, current Ed. <http://www.osha.gov/comp-links.html>
2. Department of Defense Instruction (DODI) 6055.1, Department of Defense Occupational Safety and Health (OSH) Program, August 19, 1998. <http://www.dtic.mil/whs/directives/corres/pdf/605501p.pdf>
3. Army Regulation (AR) 11-34, The Army Respiratory Protection Program, 15 February 1990. http://armypubs.army.mil/epubs/pdf/R11_34.PDF
4. AR 40-5, Medical Service, Preventive Medicine, 25 May 2007. http://armypubs.army.mil/epubs/pdf/R40_5.PDF
5. AR 385-10, The Army Safety Program, 23 August 2007; Rapid Action Revision (RAR) issue date: 4 October 2011. http://armypubs.army.mil/epubs/pdf/R385_10.PDF
6. Department of the Army Pamphlet (DA PAM) 40-501, Medical Services, Hearing Conservation Program, 10 December 1998. http://armypubs.army.mil/epubs/pdf/P40_501.pdf
7. DA PAM 40-11, Preventive Medicine, 22 July 2005, RAR issue date: 19 October 2009. http://armypubs.army.mil/epubs/pdf/p40_11.pdf
8. DA PAM 40-503, Medical Services, Industrial Hygiene Program, 30 October 2000. http://armypubs.army.mil/epubs/pdf/P40_503.PDF
9. UFC 3-410-01FA, Heating, Ventilating, and Air Conditioning, 15 May 2003, change 4, January 2010. http://www.wbdg.org/ccb/DOD/UFC/ufc_3_410_01fa.pdf
10. Threshold Limit Values (TLVs) and Biological Exposure Indices (BEIs), American Conference of Governmental Industrial Hygienists (ACGIH), current Ed.
11. Industrial Ventilation – A Manual of Recommended Practice for Design, ACGIH, current Ed.
12. American National Standards Institute (ANSI)/International Safety Equipment Association (ISEA) Z358.1-2009, Emergency Eyewash and Shower Equipment.
13. ANSI/American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. (ASHRAE) 55-2010, Thermal Environmental Conditions for Human Occupancy.
14. ANSI/ASHRAE 62.1-2010, Ventilation for Acceptable Indoor Air Quality.
15. RP-1-2004, Office Lighting, ANSI/IESNA.
16. RP-7-2001, Industrial Lighting, ANSI/IESNA, change 20 July 2004.
17. OSHA Instruction Letter 02-02-058, Lead Exposure in Construction, Office of Health Compliance Assistance, 13 December 1993.
18. OSHA Standard Interpretation, Clarification of “as free as practicable” and lead contamination under 29 CFR 1926.62, dated January 13, 2003.
19. NG PAM 420-15, Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges, 3 November 2006. http://www.ngbpdc.ngb.army.mil/pubs/420/ngpam420_15.pdf

Shaw Environmental, Inc.

312 Directors Drive
Knoxville, TN 37923
865.690.3211
Fax 865.690.3626



**National Guard Armory
Franklin Readiness Center
Franklin, Virginia**

Industrial Hygiene Evaluation

Prepared for:

**National Guard Region North Industrial Hygiene Office
Havre De Grace, Maryland 21078**

Prepared by:

**Shaw Environmental, Inc.
312 Directors Drive
Knoxville, Tennessee 37923**

25 October 2004

**National Guard Armory
Franklin Readiness Center
Franklin, Virginia**

Industrial Hygiene Evaluation

Prepared for:

**National Guard Region North Industrial Hygiene Office
Havre De Grace, Maryland 21078**

Prepared by:

**Shaw Environmental, Inc.
312 Directors Drive
Knoxville, Tennessee 37923**

25 October 2004

Prepared by:

Non-Responsive

Environmental Scientist

Reviewed by:

Non-Responsive

Business Line Manager

Table of Contents

<i>Table of Contents</i>	<i>i</i>
<i>List of Tables</i>	<i>ii</i>
<i>List of Appendices</i>	<i>ii</i>
<i>Executive Summary</i>	<i>B-1</i>
<i>1.0 Introduction</i>	<i>1-1</i>
<i>2.0 Findings, Discussion, and Interpretation of Results</i>	<i>2-1</i>
<i>2.1 Sampling for Lead</i>	<i>2-1</i>
<i>2.1.1 Wipe Sampling</i>	<i>2-1</i>
<i>2.1.2 Air Sampling for Lead</i>	<i>2-2</i>
<i>2.2 Physical Condition of Facility</i>	<i>2-2</i>
<i>2.2.1 Peeling Paint - Lead</i>	<i>2-2</i>
<i>2.2.2 Visual Inspection - Asbestos</i>	<i>2-2</i>
<i>2.2.3 Visual Inspection - Water Damage and Mold</i>	<i>2-2</i>
<i>2.2.4 Visual Inspection - Housekeeping</i>	<i>2-3</i>
<i>2.3 Building Concerns</i>	<i>2-3</i>
<i>2.3.1 Ergonomic Concerns</i>	<i>2-3</i>
<i>2.3.2 Indoor Air Quality</i>	<i>2-3</i>
<i>2.4 Safety and Industrial Hygiene Programs</i>	<i>2-3</i>
<i>2.5 Ventilation</i>	<i>2-4</i>
<i>2.5.1 Ventilation System Evaluation</i>	<i>2-4</i>
<i>2.5.2 Contamination of Clean Air Sources</i>	<i>2-4</i>
<i>2.6 Noise Exposure</i>	<i>2-4</i>
<i>2.7 Lighting</i>	<i>2-4</i>
<i>2.8 Converted Indoor Firing Ranges</i>	<i>2-5</i>
<i>2.9 HVAC Systems</i>	<i>2-5</i>
<i>2.10 IHIM</i>	<i>2-5</i>
<i>3.0 Conclusions</i>	<i>3-1</i>
<i>Tables</i>	<i>Follows Section 3.0</i>
<i>Appendices</i>	<i>Follows Tables</i>

List of Tables

Table 1	Wipe Sampling for Lead
Table 2	Air Sampling for Lead
Table 3	Indoor Air Quality Measurements
Table 4	Illumination Readings
Table 5	Indoor Firing Ranges – Wipe Sampling

List of Appendices

Appendix A	IIIM Data Form
Appendix B	Building Layout
Appendix C	Sampling Sheets and Laboratory Analyses
Appendix D	References
Appendix E	Recommendations for Surface Lead Dust in Armories

Executive Summary

Shaw Environmental, Inc. (Shaw) was contracted to perform an industrial hygiene evaluation for the Franklin Readiness Center in Franklin, Virginia. **Non-Responsive** performed the evaluation on 3 December 2003. The point of contact at the readiness center was SGT **Non-Responsive**

The following industrial hygiene concerns were evaluated.

- Wipe Sampling for Lead
- Air Sampling for Lead
- Peeling Paint – Lead
- Suspected Asbestos Containing Material
- Water Damage
- Presence of Mold
- Housekeeping
- Ergonomic Concerns
- Indoor Air Quality
- Safety and Industrial Hygiene Programs
- Ventilation System Evaluation
- Contamination of Clean Air Sources
- Noise Exposure
- Lighting
- Converted Indoor Firing Range
- HVAC Systems

The following items were either not applicable to the armory or the evaluation resulted in a conclusion that there were no industrial hygiene concerns.

- Air Sampling for Lead
- Peeling Paint – Lead
- Presence of Mold
- Housekeeping
- Ergonomic Concerns
- Safety and Industrial Hygiene Programs

- Ventilation System Evaluation
- Contamination of Clean Air Sources
- Noise Exposure
- Converted Indoor Firing Range
- HVAC Systems

Areas where there were industrial hygiene concerns are as follows:

- Wipe sampling for lead revealed a concentration above the recommended level of 200 micrograms per square foot ($\mu\text{g}/\text{ft}^2$) on the top surface of the soda machine in the drill floor/assembly hall area and the top surface of the podium in the classroom. It is recommended that these surfaces and the areas immediately around these surfaces be thoroughly cleaned to reduce the lead level. In addition, any other dusty/dirty areas in the assembly area/drill floor and classroom should be thoroughly cleaned.
- Wipe sampling for lead revealed concentrations above a level of 40 micrograms per square foot ($\mu\text{g}/\text{ft}^2$) in the drill floor/assembly hall area, classroom, office, and converted firing range. Areas with lead concentrations above 40 $\mu\text{g}/\text{ft}^2$ that will be accessible to children should be cleaned. If a special function is held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function.
- Materials (floor tiles) suspected of containing asbestos were observed. It is recommended that an operations and maintenance plan be followed when performing any activities that may disturb the suspected asbestos-containing materials.
- Water damage was observed at several locations at the armory. The source of the water damage was likely from roof and pipe leaks. The source of the water damage should be confirmed and actions taken to eliminate the source in order to prevent the possibility of mold growth that may lead to indoor air quality problems.
- Indoor air quality measurements for humidity revealed that levels did not meet the recommended level of 30% in the facility. It is recommended that a humidification system be installed at the facility. In addition, measurements for temperature revealed that levels exceeded the recommended level of 74° in the facility. It is recommended that the thermostat be reset between 68° and 74° in the facility for winter conditions.
- Lighting measurements were conducted at the armory. The lighting did not meet minimum requirements in some areas; therefore consideration should be given to providing more lighting in these areas. This may be accomplished by replacing burnt

out luminaries, cleaning fixtures, cleaning windows, painting walls with a lighter color, repositioning detailed work to higher illuminated areas, and using supplemental lighting.

1.0 Introduction

Shaw Environmental, Inc. (Shaw) was contracted to perform an industrial hygiene evaluation for the Franklin Readiness Center in Franklin, Virginia. [Non-Responsive] performed the evaluation on 3 December 2003. The point of contact at the readiness center was SG [Non-Responsive]

The findings, discussion, and interpretation of results are provided in Section 2.0. The conclusions are provided in Section 3.0. The HHIM data form for the facility is provided in Appendix A. The building layout is provided in Appendix B. Sampling sheets and laboratory analyses are provided in Appendix C. References are provided in Appendix D. The *Recommendations for Surface Lead Dust in Armories* document is provided in Appendix E.

The statements, opinions, and conclusions contained in this report are based solely upon the services performed by Shaw as described in the report. In performing these services and preparing the report, Shaw Environmental, Inc. relied upon the work and information provided by others, including public agencies, whose information is not guaranteed by Shaw Environmental, Inc.

2.0 Findings, Discussion, and Interpretation of Results

The results, discussion, and interpretation of results are provided in the following sections.

2.1. Sampling for Lead

2.1.1 Wipe Sampling

Wipe samples were collected for lead from the drill floor/assembly area. Also, wipe samples were collected for lead in rooms, hallways, foyers, etc. The sampling in rooms, hallways, foyers, etc. represented approximately 25% of the building. Approximately half of the samples were collected from surfaces in common areas, such as surfaces of a desk. The remaining samples were collected from uncommon surface areas, such as a supply vent or the top of a file cabinet. The samples were collected and analyzed in accordance with the Instructions for *Completing the Sampling of ARMY National Guard Armories* procedure.

The only samples initially submitted for analysis were those from the drill floor/assembly hall. Since there were results above recommended levels from the drill floor/assembly hall area, the remaining samples were submitted for analysis.

Results of the wipe sampling are provided in Table I. The results revealed lead at all locations sampled at concentrations below recommended level of 200 micrograms lead per square foot ($\mu\text{g}/\text{ft}^2$) (See Appendix F) except at two locations. The sample collected from the basketball hoop winch box in the drill floor/assembly hall area had a lead concentration of 630 $\mu\text{g}/\text{ft}^2$. The sample collected from the top surface of the podium in the classroom had a lead concentration of 280 $\mu\text{g}/\text{ft}^2$. It is recommended that these surfaces and the immediate areas around these surfaces be thoroughly cleaned to reduce the lead level to below 200 $\mu\text{g}/\text{ft}^2$. For guidance on the proper method of cleaning, please refer to NG PAM 385-16 (*Guidelines for Converting Indoor Firing Ranges to Other Uses*). In addition, any other dusty/dirty areas in the assembly area/drill floor should be thoroughly cleaned.

In addition, wipe sampling for lead revealed concentrations above a level of $40 \mu\text{g}/\text{ft}^2$ in the drill floor/assembly hall area, classroom, office, and converted firing range. Please note that the *Recommendations for Surface Lead Dust in Armories* (Appendix E) states that all areas with lead concentrations above $40 \mu\text{g}/\text{ft}^2$ that will be accessible to children should be cleaned. If a special function is held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function.

2.1.2 Air Sampling for Lead

Two (2) general air samples were collected at the facility. Employees were not available to conduct breathing zone samples. The samples were collected and analyzed in accordance with Method 7082 of the National Institute of Occupational Safety and Health (NIOSH) Manual of Analytical Methods.

The results of the sampling are provided in Table 2. The results revealed non-detectable concentrations of lead in the breathing zone of the employees; therefore, no actions are necessary.

2.2 Physical Condition of Facility

2.2.1 Peeling Paint - Lead

Peeling paint was not observed at the armory; therefore, bulk samples for lead in paint were not taken.

2.2.2 Visual Inspection - Asbestos

A visual inspection was made to determine if there was any suspected asbestos-containing material at the armory. Materials suspected of containing asbestos were observed. The suspected asbestos-containing materials (floor tiles) were in the storage area (good condition, approximately 224.4 square feet).

An operation and maintenance plan should be followed when performing any activities that may disturb the suspected asbestos-containing materials.

2.2.3 Visual Inspection - Water Damage and Mold

A visual inspection was made to determine if there was any water damage or visible mold at the armory. Visible mold was not observed, however, water damage was

observed at the armory. Water damage was observed on the ceilings and some walls in the classroom and kitchen pantry area.

The source of the water damage was likely from a mixture of roof and pipe leaks. The source of the water damage should be confirmed and actions taken to eliminate the source in order to prevent the possibility of mold growth that may lead to indoor air quality problems.

2.2.4 Visual Inspection - Housekeeping

The housekeeping was determined to be good.

2.3. Building Concerns

2.3.1 Ergonomic Concerns

Interviews with employees and observation of work activities revealed no ergonomic concerns at the armory.

2.3.2 Indoor Air Quality

Interviews with employees and measurements for carbon dioxide revealed no indoor air quality concerns at the armory. However, measurements for humidity revealed that levels did not meet the recommended level of 30% in the facility. It is recommended that a humidification system be installed at the facility. In addition, measurements for temperature revealed that levels exceeded the recommended level of 74° in the facility. It is recommended that the thermostat be reset between 68° and 74° for winter conditions.

The results of the measurements for carbon dioxide, humidity, and temperature are provided in Table 3.

2.4. Safety and Industrial Hygiene Programs

An evaluation was performed to determine the applicability of the following programs.

- Confined Spaces
- Hearing Conservation
- Respiratory Protection

- Hazard Communication (HAZCOM)
- Personal Protective Equipment (PPE)

It was determined that the Hearing Conservation and Personal Protective Equipment (PPE) programs were the only program listed above that was applicable at the facility. The Hearing Conservation and Personal Protective Equipment (PPE) programs were evaluated and it was determined that the program met minimum requirements.

2.5. Ventilation

2.5.1 Ventilation System Evaluation

There were no local exhaust ventilation systems at this armory; therefore, no ventilation studies were performed.

2.5.2 Contamination of Clean Air Sources

Since there were no local exhaust ventilation systems at the armory, there was no possibility that clean air sources could be contaminated by exhaust air.

2.6. Noise Exposure

An evaluation was performed to determine if there were any hazardous noise areas at the armory. It was determined that there were no areas at the armory that would exceed the permissible exposure limit for noise.

2.7. Lighting

Lighting measurements were conducted at the armory. Results of the lighting evaluation are provided in Table 4. As can be seen from the results, the lighting did not meet the minimum requirements in some areas, including the men's and women's latrines.

Consideration should be given to providing more lighting to the areas listed above. This may be accomplished by replacing burnt out luminaires, cleaning fixtures, cleaning windows, painting walls with a lighter color, repositioning detailed work to higher illuminated areas, and using supplemental lighting.

2.8. Converted Indoor Firing Ranges

There was a converted indoor firing range at the facility; therefore, wipe samples were taken for lead at various locations in or near the converted range. The space is used as a training room, and has been completely remodeled with new paint, sheet rock, ceiling tiles, carpet, and light fixtures. The results are provided in Table 5. The results revealed lead, with associated concentrations, at the following locations:

- bullet trap at 77 $\mu\text{g}/\text{ft}^2$;
- light fixtures at 150 $\mu\text{g}/\text{ft}^2$;
- floor (inside the converted firing range) at 54 $\mu\text{g}/\text{ft}^2$;
- floor (outside the converted firing range) at 14 $\mu\text{g}/\text{ft}^2$; and
- stored item at 14 $\mu\text{g}/\text{ft}^2$

The lead levels in the converted firing range were below the recommended level of 200 $\mu\text{g}/\text{ft}^2$, a level recommended in the *Guidelines for Converting Indoor Firing Ranges to Other Uses* document (Department of Army); therefore, no actions are necessary.

2.9. HVAC System

The maintenance schedule for the HVAC system was evaluated to verify that maintenance occurs on a regular basis. Also, the condition of the HVAC system was evaluated to determine if the maintenance performed is effective. It was deemed that maintenance occurs on a regular basis, and the maintenance performed is effective.

2.10. HHIM

A Health Hazard Information Module (HHIM) form was completed for the armory. The completed form is provided in Appendix A.

3.0 Conclusions

It is concluded that there were no industrial hygiene concerns at the armory with regards to atmospheric exposure to lead, visible mold, peeling lead-based paint, housekeeping, ergonomic conditions, safety and industrial hygiene programs, ventilation systems or contamination of clean air sources, noise exposure, surface lead contamination in the converted firing range, and HVAC systems.

There were industrial hygiene concerns at the armory with regards to lead surface contamination, suspected asbestos-containing material, water damage, indoor air quality, and lighting. These concerns are discussed in detail in Section 2.0 of this report.

TABLES

Table 1
Wipe Sampling for Lead
National Guard Armory
Franklin, Virginia
Date of Sampling: 3 December 2003

Sample Number	Location	Results, $\mu\text{g}/\text{ft}^2$ ^a
VAFRA337-1	Drill Floor (top surface of snack machine) See Building Layout – Appendix B	18
VAFRA337-2	Drill Floor (top surface of soda machine) See Building Layout -- Appendix B	15
VAFRA337-3	Drill Floor (basketball hoop winch box top surface) See Building Layout – Appendix B	630
VAFRA337-4	Drill Floor (top surface of electrical box) See Building Layout – Appendix B	45
VAFRA337-5	Drill Floor (kitchen service window countertop) See Building Layout – Appendix B	17
VAFRA337-6	Field Blank	0.34
VAFRA337-7	25% Building (office window sill) See Building Layout -- Appendix B	170
VAFRA337-8	25% Building (top surface of podium in classroom) See Building Layout -- Appendix B	280
VAFRA337-9	25% Building (top surface of cabinet in kitchen) See Building Layout – Appendix B	17

^a Micrograms lead per square foot

The samples were taken and analyzed in accordance with the *Instructions for Completing the Sampling of ARMY National Guard Armories* procedure.

In armories that do not contain childcare facilities, the NGB Region North Industrial Hygiene Office recommends cleaning the areas with sample results greater than 200 $\mu\text{g}/\text{ft}^2$

Table 2
Breathing Zone Air Samples for Lead
National Guard Armory
Franklin, Virginia
Date of Sampling: 3 December 2003

Sample Number	Employee	Sampling Information			Results (mg/m ³) ^a
		Time Sampled / Minutes	Flow Rate (lpm) ^b	Volume (liters)	
VAFRA337-A1	General Air Sample	1330-1610/160	1.663	266.08	<0.0038
VA FRA337-A2	General Air Sample	1340-1615/155	1.638	253.87	<0.0039
VA FRA337-A3	Field Blank	-	-	-	None Detected

^a Milligrams lead per cubic meter of air.

^b Liters of air per minute.

Method 7082 of the National Institute of Occupational Safety and Health (NIOSH) Manual of Analytical Methods was followed for sampling for lead.

Table 3
Indoor Air Quality Measurements for Carbon Dioxide, Humidity, and Temperature
National Guard Armory
Franklin, Virginia
Date of Sampling: 3 December 2003

Location	Occupants In Area	Carbon Dioxide, parts per million parts of air (ppm)	Percent (%) Humidity	Temperature (°F)
1 st Floor	1	462	22.3	75.4
Outdoors	-	382	36.1	57.3

* Room is used throughout the by the Radford High School Physical Education (PE) Department for gym classes.

Carbon dioxide, humidity, and temperature measurements were taken with a TSI Q Trak Plus, Model 8554, Indoor Air Quality Meter, calibrated in April 2003.

American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE) recommends that indoor carbon dioxide levels be less than 700 ppm above outdoor levels.

ASHRAE recommends that the relative humidity levels be maintained between 30 to 60 percent.

ASHRAE recommends that the acceptable temperature range be 68 degrees Fahrenheit to 74 degrees Fahrenheit in the winter and 73 degrees Fahrenheit to 79 degrees Fahrenheit in the summer.

Table 4
Illumination Readings
National Guard Armory
Franklin, Virginia
Date of Sampling: 3 December 2003

Location	Luminance (fc) ^a	Standard (fc) ^a	Standard Met
Classroom	47.7-78.8	70	Some Areas
Men's Latrine	2.22-11.1	40	No
Women's Latrine	6.66-21.1	40	No
Kitchen/Pantry Area	111.1-233.3	70	Yes
Office #1	44.4-84.4	70	Some Areas
Office #2	53.3-120	70	Some Areas

^a fc - Footcandles

The readings were taken with a Weston model 614-60 Lightmeter.

The standards listed above are from ANSI/IES RP-1 and RP-7.

Table 5
Wipe Sampling for Lead – Converted Firing Range
National Guard Armory
Franklin, Virginia
Date of Sampling: 3 December 2003

Sample Number	Location	Results, $\mu\text{g}/\text{ft}^2$ ^a
VAFRA337-10	Bullet Trap (floor near former bullet trap location)	77
VAFRA337-11	Light Fixtures	150
VAFRA337-12	Field Blank	< 0.3
VAFRA337-13	Floor (inside the converted firing range)	54
VAFRA337-14	Floor (outside the converted firing range area)	14
VAFRA337-15	Stored Item	14

^a Micrograms lead per square foot

The samples were taken and analyzed in accordance with the Instructions for *Completing the Sampling of ARMY National Guard Armories* procedure.

Appendix A

HHIM Data Form(s)

HEALTH HAZARD INFORMATION MODULE: INDUSTRIAL HYGIENE SURVEY

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

SECTION 1. DEMOGRAPHIC DATA

ARLOC 24255		INSTALLATION APG-EA		BLDG/RM NO. FRANKLIN	
LOCATION/CODE ADMINISTRATIVE AREAS / AA			OPERATION/CODE ADMINISTRATIVE OPERATIONS / ADO		
SURVEY DATE 3 DECEMBER 2003			EVALUATOR (Initials) Non-Responsive		
WACOM/CODE		SUBMACOM/CODE XX		SUPERVISOR	
TELEPHONE/DSN NO. (757) 562 0809		UNIT/ORGANIZATION FRANKLIN ARMORY		RAC 4	
FREQUENCY (hrs/day) 8					
NO. CIV(S) 1	NO. MIL 1	NO. CONTRACTOR(S) 0	NO. LOC(S) 1	NO. OTHER 1	

SECTION 2. FACILITY DATA

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

SECTION 3. SURVEY DATA

CONTROLS PRESENT	EVALUATION	UNIT CODE	CONTROLS REQUIRED	STATUS

PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized)

GLOVES	R	U	RESPIRATOR	NIOSH TC NO.	MANUFACTURER	R	U
ACID			AIRLINE				
COLD SURFACES			ABRASIVE BLASTING HOOD				
HOT SURFACES			DISPOSABLE				
NBC AGENTS			FULL FACE AIR PURIFYING				
OIL			1/2 FACE AIR PURIFYING				
SOLVENTS			POWERED AIR PURIFYING				
SURGICAL GLOVES			1/4 FACE AIR PURIFYING				
			SELF CONTAINED				

EYES/FACE	R	U	HEARING	R	U	BODY	R	U	HEAD/FIT	R	U
CHEMICAL SPLASH			CANAL CAPS			APRONS			COLD WEATHER BOOTS/HATS		
FULL FACE SHIELD			EAR PLUGS			COLD WEATHER CLOTHING			HARD HATS		
CHEMICAL/SAFETY			HELMETS			COVERALLS			IMPERMEABLE BOOTS		
SAFETY/IMPACT			MUFFS			FULL BODY SUIT			SAFETY/CONDUCTIVE SHOES		
WELDING HELMET			MUFFE/EARPLUG COMBO			HEAT REFLECTIVE VEST/SUIT			SAFETY/NON-CONDUCTIVE SHOES		
			MUFF/EARPLUG W/TIME LIMIT			SAFETY GOGGLES					

Posted to NGB Form 271-R (Test) 1 Jan 92

May 2018

FOIA Requested by National Guard Bureau

(HSHB-M-1) Page 402 of 1923

SECTION 4. HAZARD INVENTORY DATA

CAS CODE	HAZARD DESCRIPTION	PAC	EPC
POVSTXXX	VIDEO DISPLAY TERMINAL	3-LOW	D UNCONTROLLED PHYSICAL
7439-92-1	LEAD, INORGANIC DUSTS, FUMES	2-MODERATE	C UNCONTROLLED RESPIRATORY
1332-21-4	ASBESTOS	2-MODERATE	C UNCONTROLLED RESPIRATORY
124-38-9	CARBON DIOXIDE	2-MODERATE	C UNCONTROLLED RESPIRATORY
PO-LIFTING	HEAVY LIFTING	2-MODERATE	D UNCONTROLLED PHYSICAL
PO-HEATSTR	HEAT STRESS	3-LOW	D UNCONTROLLED PHYSICAL

SECTION 5. PERSONNEL DATA

LAST NAME	FIRST NAME	MI	SEX	SSN	CATEGORY
Non-Responsive		L	M	Non-Responsive	MIL
		T	M		CIV

SECTION 6. COMMENTS

☒ No comments

☐ See attached sheet

PRIVACY ACT STATEMENT

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

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

Department of the Army
Battery B, 3 Bn 111th ADA
900 Armory Drive
Franklin, VA 23851

Full-time personnel:

Non-Responsive

(CUSTODIAN)

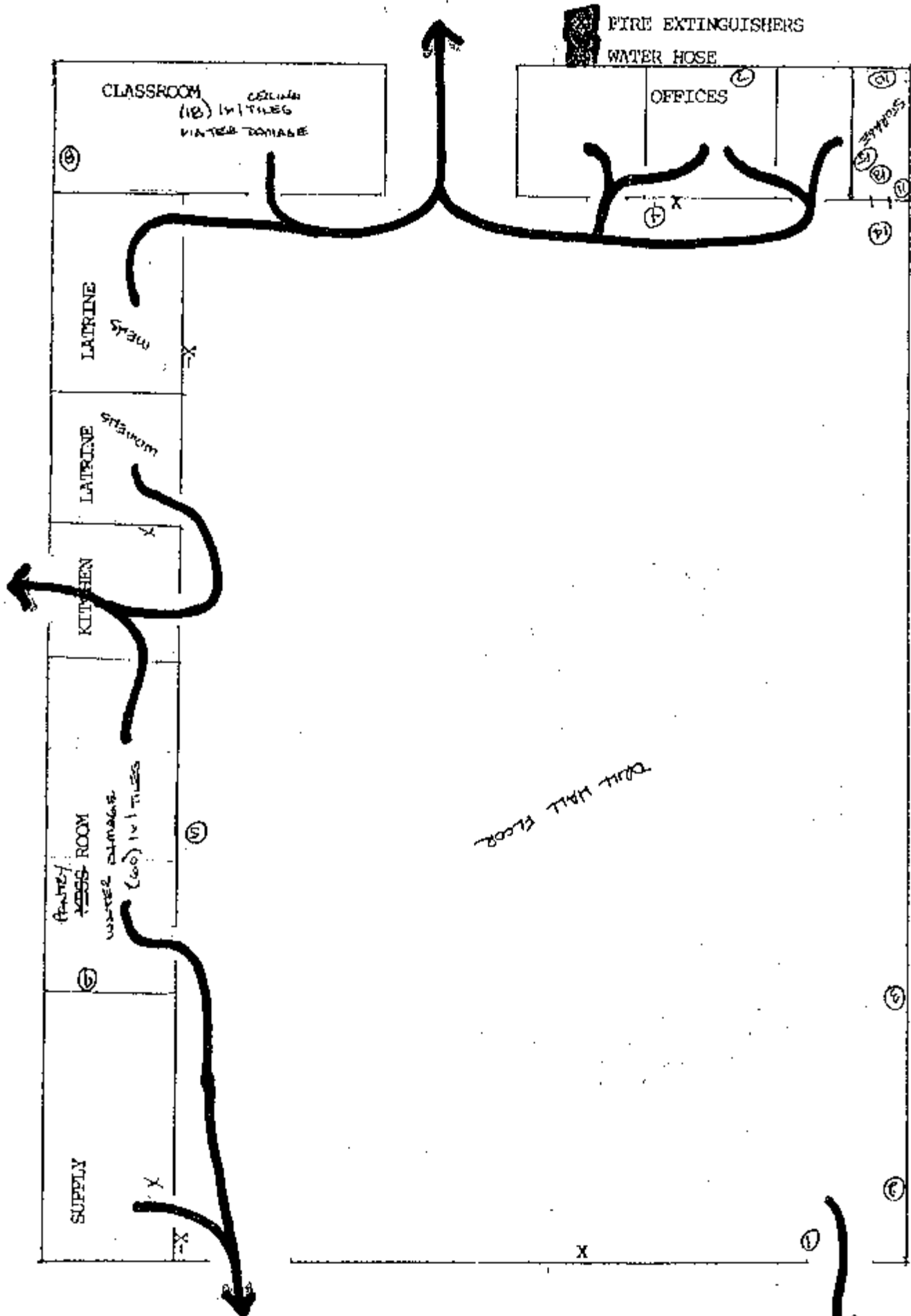
Units assigned to building:

Battery B, 3rd Battalion, 111th Air Defense Artillery

City of Franklin Parks and Recreations

Appendix B

Building Layout



Appendix C

Sampling Sheets and Laboratory Analyses



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: VA FRA 337
Job Location: Franklin, Virginia
Job Number: 845702 01000000
P.O. Number: 1103

Chain Of Custody: 121486
Date Analyzed: 1/8/2004

Person Submitting: Non-Responsive
Report Date: 08-Jan-04

Attention: Non-Responsive

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
0416997	VA FRA 337 1	Furnace	Wipe	****	0.111	2.70 ug/ft²	18 ug/ft²	
0416998	VA FRA 337 2	Furnace	Wipe	****	0.111	2.70 ug/ft²	15 ug/ft²	
0416999	VA FRA 337 3	Furnace	Wipe	****	0.111	67.51 ug/ft²	630 ug/ft²	
0417000	VA FRA 337 4	Furnace	Wipe	****	0.111	13.50 ug/ft²	45 ug/ft²	
0417001	VA FRA 337 5	Furnace	Wipe	****	0.111	2.70 ug/ft²	17 ug/ft²	
0417002	VA FRA 337 6	Furnace	Wipe Blank	****	N/A	0.30 ug	0.34 ug	
0417003	VA FRA 337 10	Furnace	Wipe	****	0.111	67.51 ug/ft²	77 ug/ft²	
0417004	VA FRA 337 11	Furnace	Wipe	****	0.111	67.51 ug/ft²	150 ug/ft²	
0417005	VA FRA 337 12	Furnace	Wipe Blank	****	N/A	0.30 ug	< 0.3 ug	
0417006	VA FRA 337 13	Furnace	Wipe	****	0.111	13.50 ug/ft²	54 ug/ft²	
0417007	VA FRA 337 14	Furnace	Wipe	****	0.111	2.70 ug/ft²	14 ug/ft²	
0417008	VA FRA 337 15	Furnace	Wipe	****	0.111	2.70 ug/ft²	14 ug/ft²	

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

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

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

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

Non-Responsive

Non-Responsive

Analyst:

Technical Manager:

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public and these Laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from us. Sample types, locations and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information. Residual sample material will be discarded in accordance with the appropriate regulatory guidelines, unless otherwise requested by the client. 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 (#5863), 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

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

Job Name: VAFRA337
Job Location: Franklin, VA
Job Number: 845702 01000000
P.O. Number: 1103

Chain Of Custody: 122715
Date Analyzed: 2/11/2004
Person Submitting: **Non-Responsive**
Report Date: 11-Feb-04

Attention: **Non-Responsive**

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 (m ²)	Reporting Limit	Final Result	Comments
0423907	VAFRA337 7	Furnace	Wipe	****	0.111	67.51 ug/l ²	170 ug/l ²	
0423908	VAFRA337 8	Furnace	Wipe	****	0.111	67.51 ug/l ²	280 ug/l ²	
0423909	VAFRA337 9	Furnace	Wipe	****	0.111	2.70 ug/l ²	17 ug/l 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 results have two significant digits. Any additional digits shown should not be considered when interpreting the result.

Analyst:

Technical Manager:

Non-Responsive

Non-Responsive

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

All rights reserved. AMA Analytical Services, Inc.

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

**DATA
CHEM**
LABORATORIES, INC.TEST REPORT
Page 1 of 4
12/30/03Submitted To: **Non-Responsive**Shaw Environmental, Inc.
5700 Thurston Avenue; Suite 116
Virginia Beach, VA 23455-3302

Reference Data:	Lead
Client Sample No.:	VASAN344A1 through VABLA353A3
P.O. No.:	1103
Sample Location:	Virginia
Sample Type:	Filter
Method Reference:	NIOSH 7300
DCL Set ID No.:	03-S-6250
DCL Sample ID No.:	03-37000 through 03-37040
Sample Receipt Date:	12/23/2003
Preparation Date:	12/24/2003
Analysis Date:	12/29/2003

The samples were prepared and analyzed in accordance with NIOSH method 7300 using a Thermo Jarrell Ash Trace (ICP) purged spectrometer.

The sample condition upon receipt was acceptable except where noted.

The results are in the enclosed data table. Results relate only to the items tested and are not blank corrected unless indicated in the data table.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Non-Responsive**Non-Responsive**

Reviewer

CINCINNATI OFFICE
4388 GLENDALE-MILFORD ROAD
CINCINNATI, OHIO 45242-3706
513 733-5336, FAX 513 733-5347WEST COAST OFFICE
11 SANTA YORMA COURT
NOVATO, CALIFORNIA 94945
800 280-8071, FAX 415 893-9469

Results
Lead

Client #	DCL #	Sample Volume (L)	µg/sample	mg/m ³
VASAN343A3	03-37011	-	ND	-
VASANFR343A1	03-37012	120.41	ND	<0.0083
VASANFR343A2	03-37013	-	ND	-
VAFRA337A1	03-37014	266.08	ND	<0.0038
VAFRA337A2	03-37015	253.87	ND	<0.0039
VAFRA337A3	03-37016	-	ND	-
VASUF337A1	03-37017	207.51	ND	<0.0048
VASUF337A2	03-37018	232.33	ND	<0.0043
VASUF337A3	03-37019	-	ND	-
VAOHA338A1	03-37020	208.27	ND	<0.0048
VAOHA338A2	03-37021	183.40	ND	<0.0055
VAOHA338A3	03-37022	-	ND	-
VAPET350A1	03-37023	208.60	ND	<0.0048
VAPET350A2	03-37024	216.91	ND	<0.0046
VAPET350A3	03-37025	-	ND	-
VAEMP350A1	03-37026	204.88	ND	<0.0049
VAEMP350A2	03-37027	199.47	ND	<0.0050
VAEMP350A3	03-37028	-	ND	-
VAMAR351A1	03-37029	192.20	ND	<0.0052
VAMAR351A2	03-37030	200.52	ND	<0.0050
	Prep Blank 3		ND	
% Recovery	LCS 5		93.	
% Recovery	LCS 6		94.	
RPL			1.0	

ND = not detected at or above the reporting limit (RPL).

LCS = laboratory control sample.

Non-Responsive

Non-Responsive

Reviewer

12/3/2003

Appendix D

References

References

Title 29, Code of Federal Regulations (CFR), Part 1910, Occupational Safety and Health Administration (current edition)

American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc (ASHRAE) 62-2002, Ventilation for Acceptable Indoor Air Quality

Instructions for Completing the Sampling of Army National Guard Armories, Lead Wipe Sampling Procedure included with the Request for Proposal

Air Sampling for Lead - Method 7082 of the National Institute of Occupational Safety and Health (NIOSH) Manual of Analytical Methods

Design Guide DG-415-2, Logistics Facilities, National Guard Bureau Installation Division, 14 December 1999

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

Army Regulation (AR) 40-5, Medical Service, Preventive Medicine, 15 October 1990

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

Department of the Army Pamphlet (DA PAM) 40-501, Medical Services, Hearing Conservation Program, 10 December 1998

DA PAM 40-503, Medical Services, Industrial Hygiene Program, 30 October 2000

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

Guidelines for Converting Indoor Firing Ranges to Other Uses, Headquarters, Department of the Army and the Air Force, NG PAM (AR) 385-16/ANGPAM 91-101, 31 January 1994

24 CFR, Part 35, Subpart D, Section 35-110, Definition of Lead-Based Paint, Housing and Urban Development, U. S. Department of Housing

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 $0.05 \text{ mg}/\text{m}^3$ averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead dust in this building.

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

NGB-AVS-SI (40-5f)

4 November 2004

MEMORANDUM FOR VAARNG, Franklin Readiness Center, ATTN: SGT [Non-Responsive]
[Non-Responsive] 900 Armory Drive, Franklin, VA 23851-4400
[Non-Responsive]

SUBJECT: Baseline Survey

1. I have enclosed the industrial hygiene survey report completed by Shaw Environmental, Incorporated.
2. In addition to the attached discussion and recommendations regarding wipe samples for lead, if a special function is held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function.
3. Please contact me at (410) 942-0273 or 1-800-550-6967 if you have any questions regarding the enclosed report.

Encl

[Non-Responsive]

Regional Industrial Hygienist

CF: Organizational Maintenance Officer
Occupational Health Manager

National Guard Armory

Franklin Readiness Center, Franklin, Virginia

Industrial Hygiene Evaluation

Recommendations

- Wipe sampling for lead revealed a concentration above the recommended level of 200 micrograms per square foot ($\mu\text{g}/\text{ft}^2$) on the top surface of the soda machine in the drill floor/assembly hall area and the top surface of the podium in the classroom. It is recommended that these surfaces and the areas immediately around these surfaces be thoroughly cleaned to reduce the lead level. In addition, any other dusty/dirty areas in the assembly area/drill floor and classroom should be thoroughly cleaned. **RAC - 4**
- Wipe sampling for lead revealed concentrations above a level of 40 micrograms per square foot ($\mu\text{g}/\text{ft}^2$) in the drill floor/assembly hall area, classroom, office, and converted firing range. Areas with lead concentrations above 40 $\mu\text{g}/\text{ft}^2$ that will be accessible to children should be cleaned. If a special function is held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function. **RAC - 4**
- Materials (floor tiles) suspected of containing asbestos were observed. It is recommended that an operations and maintenance plan be followed when performing any activities that may disturb the suspected asbestos-containing materials. **RAC - 5**
- Water damage was observed at several locations at the armory. The source of the water damage was likely from roof and pipe leaks. The source of the water damage should be confirmed and actions taken to eliminate the source in order to prevent the possibility of mold growth that may lead to indoor air quality problems. **RAC - 5**
- Indoor air quality measurements for humidity revealed that levels did not meet the recommended level of 30% in the facility. It is recommended that a humidification system be installed at the facility. In addition, measurements for temperature revealed that levels exceeded the recommended level of 74° in the facility. It is recommended that the thermostat be reset between 68° and 74° in the facility for winter conditions. **RAC - 5**
- Lighting measurements were conducted at the armory. The lighting did not meet minimum requirements in some areas; therefore consideration should be given to providing more lighting in these areas. This may be accomplished by replacing burnt out luminaries, cleaning fixtures, cleaning windows, painting walls with a lighter color, repositioning detailed work to higher illuminated areas, and using supplemental lighting. **RAC - 5**

Non-Responsive

CIV NGB

From: Non-Responsive [redacted]@shawgrp.com]

Sent: Tuesday, October 26, 2004 9:20 AM

To: Non-Responsive [redacted]@md.ngb.army.mil

Subject: Response to Question

TO:
file

Non-Responsive

Hope things are still going well for you. Things

It's good for consultants.

On the Franklin, VA report, you mentioned that the lead I considered that it had been completely remodeled. Note that the levels in the IFR were in the facility (drill floor, office, and classroom), so there is some contamination from handling the weapons.

You also mentioned that the IFR looked small. I questioned the evaluator Non-Responsive about this some time ago. He said that several IFRs in Virginia were designed with a bullet trap area only, with the firing area being in the open drill floor area. In other words, the IFR was not an enclosed room. I had never seen this before.

Have a good day.

Non-

R I

Non-Responsive [redacted] IH, CSP, CIAQP

Program Manager

Shaw Environmental, Inc.

312 Directors Drive

Knoxville, Tennessee 37923

Non-Responsive [redacted]@shawgrp.com

(865) 694-7332 (Office Direct)

(865) 690-3626 (Fax)

(865) 368-4248 (Cell)

*****Internet Email Confidentiality Footer*****

Privileged/Confidential Information may be contained in this message. If you are not the addressee indicated in this message (or responsible for delivery of the message to such person), you may not copy or deliver this message to anyone. In such case, you should destroy this message and notify the sender by reply email. Please advise immediately if you or your employer do not consent to Internet email for messages of this kind. Opinions, conclusions and other information in this message that do not relate to the official business of The Shaw Group Inc. or its subsidiaries shall be understood as neither given nor endorsed by it.

The Shaw Group Inc.

<http://www.shawgrp.com>

Shaw Environmental, Inc.

312 Directors Drive
Knoxville, TN 37923
865.690.3211
Fax 865.690.3626



Shaw Environmental, Inc.

22 March 2004

Non-Responsive

Regional Industrial Hygienist
Region North Industrial Hygiene Office
Attn: NGB-AVS-SI
301-IH Old Bay Lane
Havre De Grace, Maryland 21078

RE: Draft Report for the Industrial Hygiene Evaluation at the Franklin Center –
Franklin, Virginia

Dear Mr. Non-Responsive

Attached is a copy of the referenced report. Also attached is a copy of the field notes, photographs, and photograph log. Please call me if you have questions.

Sincerely,

Non-Responsive

Project Manager

3 Dec 03
Rec'd 3/25/04
rev 10/13/04
emailed 10/13/04
Rec'd 11/4/04

Field Notes and Checklist

State: VIRGINIA Location: FRANKLIN ARMORY Date: DECEMBER 3, 2003
Contact: Non-Responsive 900 ARMORY DRIVE
FRANKLIN, VIRGINIA 23861

1.0 Sampling for Lead

1.1 Wipe Sampling

Sample #:	<u>1</u>	Picture #:	<u> </u>	Location:	<u>SLACK MACHINE TOP</u>
Sample #:	<u>2</u>	Picture #:	<u> </u>	Location:	<u>SODA MACHINE TOP</u>
Sample #:	<u>3</u>	Picture #:	<u> </u>	Location:	<u>BASKETBALL HOOP WINK BOX</u>
Sample #:	<u>4</u>	Picture #:	<u> </u>	Location:	<u>ELECTRICAL BOX</u>
Sample #:	<u>5</u>	Picture #:	<u> </u>	Location:	<u>OUTSIDE KITCHEN AREA COUNTER</u>
Sample #:	<u>6, 12</u>	Picture #:	<u> </u>	Location:	<u>FIELD BLANK</u>
Sample #:	<u>7</u>	Picture #:	<u> </u>	Location:	<u>WINDOW SILL IN OFFICE</u>
Sample #:	<u>8</u>	Picture #:	<u> </u>	Location:	<u>PODIUM IN CLASSROOM</u>
Sample #:	<u>9</u>	Picture #:	<u> </u>	Location:	<u>TOP OF CABINET IN KITCHEN</u>
Sample #:	<u> </u>	Picture #:	<u> </u>	Location:	<u> </u>
Sample #:	<u> </u>	Picture #:	<u> </u>	Location:	<u> </u>
Sample #:	<u> </u>	Picture #:	<u> </u>	Location:	<u> </u>
Sample #:	<u> </u>	Picture #:	<u> </u>	Location:	<u> </u>
Sample #:	<u> </u>	Picture #:	<u> </u>	Location:	<u> </u>
Sample #:	<u> </u>	Picture #:	<u> </u>	Location:	<u> </u>
Sample #:	<u> </u>	Picture #:	<u> </u>	Location:	<u> </u>
Sample #:	<u> </u>	Picture #:	<u> </u>	Location:	<u> </u>
Sample #:	<u> </u>	Picture #:	<u> </u>	Location:	<u> </u>
Sample #:	<u> </u>	Picture #:	<u> </u>	Location:	<u> </u>

(Also, please see the sketch of sampling locations.)

1.2 Breathing Zone Air Sampling

Sample #: A1 Employee Sampled: GENERAL AIR SAMPLE OFFICE
Sample #: A2 Employee Sampled: GENERAL AIR SAMPLE CLASSROOM
A3 FIELD BLANK

Feeling paint observed (Yes or No): +10

If peeling paint observed, samples were taken as follows:

[illegible]

Suspected asbestos-containing material observed (Yes or No): Yes

If suspected asbestos-containing material observed, samples were taken as follows:

Location 1: STORAGE AREA OFF OF DRILL HALL (21x19) Picture #: ✓
 Condition: AVERAGE Approximate (Square or Linear Feet): 224.4 SQUARE FT
 Location 2: _____ Picture #: _____
 Condition: _____ Approximate (Square or Linear Feet): _____
 Location 3: _____ Picture #: _____
 Condition: _____ Approximate (Square or Linear Feet): _____
 Location 4: _____ Picture #: _____
 Condition: _____ Approximate (Square or Linear Feet): _____
 Location 5: _____ Picture #: _____
 Condition: _____ Approximate (Square or Linear Feet): _____

2.3 Visual Inspection - Water Damage and Mold

Water damage observed (Yes or No): Yes

If yes, water damage was observed at the following locations:

Location 1:	<u>CLASSROOM</u>	Picture #:	<u>✓</u>
Location 2:	<u>KITCHEN / LAUNDRY</u>	Picture #:	<u>✓</u>
Location 3:		Picture #:	
Location 4:		Picture #:	
Location 5:		Picture #:	

Mold observed (Yes or No): NO

If yes, mold was observed at the following locations:

Location 1:		Picture #:	
Location 2:		Picture #:	
Location 3:		Picture #:	
Location 4:		Picture #:	
Location 5:		Picture #:	

2.4 Visual Inspection - Housekeeping

Housekeeping (good, average, poor): GOOD

Comments (such as no dirt or trash was visible on the floors or the housekeeping was poor in that there was trash and debris on the floors that could lead to a tripping hazard, or there was dust in the vents.):

3.0 Building Concerns

3.1 Ergonomic Concerns

Ergonomic concerns (Yes or No): NONE

If there are ergonomic concerns at the armory, describe the extent of the problem, such as three employees stated that they perform repetitive motion at the XYZ machine for 6 hours per day, and they stated that they are suffering from symptoms of musculoskeletal disorders (MSDs).

3.2 Indoor Air Quality

IAQ concerns (based on employee interviews)(Yes or No): No

If yes, what were concerns:

Measurements for carbon dioxide, humidity, and temperature:

Location	CO ₂ (ppm)	Humidity (%)	Temperature (°F)	Occupancy (People in Room)
Outdoors -				
1 st Floor -	462	22.3	75.4	1
2 nd Floor -	389	36.1	57.3	0
3 rd Floor -	—	—	—	—
Basement	—	—	—	—

4.0 Safety and Industrial Hygiene Programs

4.1 Confined Spaces

Are confined spaces applicable (Yes or No): No

If yes, does the program meet minimum standards (Yes or No): —

If no, explain the deficiencies:

4.2 Hearing Conservation

Is hearing conservation applicable (Yes or No): YES

If yes, does the program meet minimum standards (Yes or No): YES

If no, explain the deficiencies:

ONLY WHEN MOWING GRASS

4.3 Respiratory Protection

Is respiratory protection applicable (Yes or No): NO

If yes, does the program meet minimum standards (Yes or No):

If no, explain the deficiencies:

4.4 Hazard Communication

NOT ENTERED IN MAIN BUILDING
LOCATED IN MOTOR POOL AREA

Is hazard communication applicable (Yes or No): NO

If yes, does the program meet minimum standards (Yes or No):

If no, explain the deficiencies:

4.5 Personal Protective Equipment

Is personal protective equipment applicable (Yes or No): YES

JOINTER IS REQUIRED TO WEAR STEEL TOES GLOVES; MASK WHEN DEALING W/ CHEMICALS

If yes, does the program meet minimum standards (Yes or No): YES HARD HAT, EAR PROTECTION; GOGGLES WHEN

If no, explain the deficiencies:

.....

.....

.....

.....

5.0 Ventilation

5.1 Ventilation System Evaluation

Local exhaust ventilation systems at this armory (Yes or No): NO

If yes, results of airflow patterns:

Location 1:

Airflow Pattern (acceptable or unacceptable, with reason):

.....

.....

Location 2:

Airflow Pattern (acceptable or unacceptable, with reason):

.....

.....

Location 3:

Airflow Pattern (acceptable or unacceptable, with reason):

.....

.....

5.2 Contamination of Clean Air Sources

Clean air sources contaminated by contaminated exhaust air (Yes or No): NO

If yes, describe:

.....

Potential hazardous noise areas (Yes or No): No

Employee sampled: _____
Results: _____ % Actual _____ % Projected 8-hour TWA _____ Equivalent dBA
Activity: _____

Employee sampled: _____
Results: _____% Actual _____% Projected 8-hour TWA _____ Equivalent dBA
Activity: _____

Employee sampled: _____
Results: _____ % Actual _____ % Projected 8-hour TWA _____ Equivalent dBA
Activity: _____

Divide by .9

[illegible]

8.0 Converted Indoor Firing Ranges

Converted indoor firing range (Yes or No): YES

If yes, locations sampled:

FIRING RANGE WAS NEVER USED.

Sample #: NA Picture #: — Location: Inside any remaining ventilation ductwork

Sample #: NA Picture #: — Location: Exhaust ventilation system

Sample #: 10 Picture #: / Location: Bullet trap FLOOR ^{AREA} WHERE BULLET TRAP USE TO BE

Sample #: 11 Picture #: / Location: Light fixtures OVERHEAD LIGHTING

Sample #: NA Picture #: — Location: Overhead heaters

Sample #: 15 Picture #: / Location: Stored items TABLE TOP IN AREA

Sample #: 13 Picture #: / Location: Floor

Sample #: 14 Picture #: / Location: Outside the range

9.0 HVAC System

Does the HVAC system have maintenance performed on a regular basis (Yes or No):

YES

In yes, is the maintenance effective (Yes or No): YES

If no, describe:

10.0 HHIM

Complete HHIM form for facility (Initial as completed): Non-Responsive

Reproduction Room HHIM Necessary (Yes or No) (Initial if Yes): —

Film Developing Room HHIM Necessary (Yes or No) (Initial if Yes): —

Maintenance Area HHIM Necessary (Yes or No) (Initial if Yes): —

11.0 Additional Items

Non-Responsive

- Table 1 (wipe sampling) completed (initial when completed): _____
- Table 2 (air sampling) completed (initial when completed): _____
- Table 3 (peeling paint), if necessary, completed (initial when completed): _____
- Table 3 or 4 (IAQ) completed (initial when completed): _____
- Table 4 or 5 (noise), if necessary, completed (initial when completed): _____
- Table 5 or 6 (firing ranges), if necessary, completed (initial when completed): _____
- Airflow pattern diagram(s) completed (initial when completed): _____
- Building layout included (initial when completed): _____
- Photographs (initial when completed): _____
- Sampling Sheets and Laboratory Analyses (initial when completed): _____
- Sampling tracking form completed and faxed to NGB AR
within 5 days of date of this survey (initial when completed): _____
(Fax to Ken Forsythe at 410-942-0254)
- State Lead Wipes Spreadsheet* completed (initial when completed): _____
- Three copies of noise exposure notification letter, if necessary (initial when completed): _____
- Three copies of contaminant exposure forms for each employee that participated in air sampling (initial when completed): _____

Franklin Armory Photo Log
National Guard Armory
Franklin, Virginia
Date of Survey: 03 December 2003

Photo	Description
1	Lead Wipe Assembly Room - Snack Machine - Sample 1
2	Lead Wipe Assembly Room - Soda Machine - Sample 2
3	Lead Wipe Assembly Room - Basketball Hoop Winch Box - Sample 3
4	Lead Wipe Assembly Room - Electrical Box - Sample 4
5	Lead Wipe Assembly Room - Kitchen Service Window Counter - Sample 5
6	25% Building - Office Window Sill - Sample 7
7	25% Building - Classroom Podium - Sample 8
7	25% Building - Kitchen Cabinet - Sample 9
9	Firing Range - Bullet Trap - Sample 10
10	Firing Range - Light Fixtures - Sample 11
11	Firing Range - Floor Inside the Converted Firing Range - Sample 13
12	Firing Range - Floor Outside the Converted Firing Range - Sample 14
13	Firing Range - Stored Item - Sample 15
14	Water Damage - Classroom
15	Water Damage - Classroom
16	Water Damage - Pantry Room
17	Water Damage - Pantry Room
18	Suspected Asbestos - Storage Room Floor

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



Industrial Hygiene Survey
for VAARNG – Franklin Readiness Center
900 Armory Drive
Franklin, Virginia 23851

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

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

Industrial Hygiene Survey
for VAARNG – Franklin Readiness Center
900 Armory Drive
Franklin, Virginia 23851

Non-Responsive

A large black rectangular redaction box covering several lines of text.

Non-Responsive

A large black rectangular redaction box covering several lines of text.

Project Manager

Non-Responsive

A large black rectangular redaction box covering several lines of text.

Northeast District Health & Safety Manager

AECOM Environment
January 2013
Document No.: 60276421/ Franklin 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 Franklin Readiness Center Facility Layout

Appendix B Franklin Readiness Center Photographs

Appendix C Analytical Results

Appendix D References



List of Tables

Table 2-1: Lead Wipe Sample Results 2-1

Table 3-1: Indoor Air Quality Monitoring Results..... 3-2

Table 5-1: Light Survey 5-1



Executive Summary

On November 14, 2012, AECOM Technical Services Northeast, Inc. (AECOM) conducted an Industrial Hygiene (IH) survey of the Franklin Readiness Center facility located at 900 Armory Drive in Franklin, Virginia. **Non-Responsive** was the point of contact for the facility and accompanied AECOM during the survey to provide access and information concerning the Franklin Readiness Center operations.

The industrial hygiene survey was conducted in general accordance with the scope of work as described in the "Statement of Work – Industrial Hygiene Services for National Guard Bureau Industrial Hygiene Region North – Baseline Surveys for Readiness Centers and Administrative Buildings", dated March 2009.

The Franklin Readiness Center is currently staffed by one person. The facility is configured as an administrative area and a drill/assembly hall.

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

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

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

Wipe samples collected in association with most administrative areas indicated lead levels below the Occupational Safety and Health Administration's (OSHA's) Clarification of "as free as practicable" and lead contamination under 29 Code of Federal Regulations (CFR) 1926.62, The Compliance Directive for the Interim Standard for Lead in Construction, CPL 2-2.58. OSHA recommends the use of the U.S. Department of Housing and Urban Development's (HUD) acceptable decontamination level of 200 micrograms per square foot (ug/ft²) for floors in evaluating the cleanliness of change areas, storage facilities, and lunchrooms/eating areas.

However, wipe samples collected from the temporary flooring in the drill hall, foyer floor, and venetian blinds in Room 100 exceeded the action level.

No damaged suspect asbestos containing materials were observed during the evaluation.

Damaged and peeling paint was observed on the inside of the roll up door located in the drill hall. A sample of the peeling paint was collected for analysis and determined to be 0.45% lead.

Neither water damage nor visible mold growth was observed during the survey. Water intrusion is a mold growth risk factor.

The Heating, Ventilation & Air Conditioning (HVAC) system in the building consists of a boiler room that feeds radiant heaters throughout the building. There is no HVAC system that provides fresh air from the building exterior in administrative areas. The HVAC system was not operating correctly at the time of this survey.

1.0 Facility Description and Operations

The Franklin Readiness Center is single story masonry block building constructed in 1953. The section occupied by Readiness Center personnel is configured as office space and is finished with; acoustical drop ceilings. The remaining sections of the facility are concrete floor with metal roof trussed ceilings.

The primary activity at the Franklin Readiness Center is routine administrative duties. The Franklin Readiness Center is currently staffed by approximately 1 person. 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 multiple areas of the facility following the Occupational Safety & Health Administration (OSHA) wipe sampling method and using Ghost Wipes.

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

Table 2-1: Lead Wipe Sample Results

Sample Number	Sample Location	Lead Concentration
FL-Pb-01	Drill hall top of locker south wall	<110 ug/ft ²
FL-Pb-02	Drill hall top of cabinet north wall	<110 ug/ft ²
FL-Pb-03	Drill hall floor at roll up door	210 ug/ft ²
FL-Pb-04	Kitchen stove top shelf	<110 ug/ft ²
FL-Pb-05	Foyer-table top	<110 ug/ft ²
FL-Pb-06	RM 100 Venetian blinds at AC	340ug/ft ²
FL-Pb-07	Room 101 top of desk	<110 ug/ft ²
FL-Pb-08	Foyer floor @ entry door	250 ug/ft ²
FL-Pb-09	Room 100 file cabinet	<110 ug/ft ²

ug/ft² = Micrograms per square foot.

Wipe samples collected in association with several administrative areas indicated lead levels below the Occupational Safety and Health Administration's (OSHA's) Clarification of "as free as practicable" and lead contamination under 29 CFR 1926.62, The Compliance Directive for the Interim Standard for Lead in Construction, CPL 2-2.58. OSHA recommends the use of HUD's acceptable decontamination level of 200 ug/ft² for floors in evaluating the cleanliness of change areas, storage facilities, and lunchrooms/eating areas.

The wipe samples detected levels of lead in excess of the action level of 200 micrograms per square foot (ug/ft²) per 29 CFR 1926.62 in wipe samples collected from the temporary drill hall and foyer floor, as well as, the venetian blinds in room 100. Laboratory analytical results are presented in Appendix C.

2.1.2 Air Sampling

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

3.0 Physical Condition of Facility and Personnel Concerns

3.1.1 Lead Based Paint

Interior surfaces of walls are coated with paint. AECOM observed peeling paint on the inside of the roll-up door located in the drill hall of the facility. A sample of the paint was collected for analysis and determined to contain 0.45% lead.

3.1.2 Suspect Asbestos Containing Materials

AECOM did not observe damaged, friable suspect asbestos-containing materials (ACM) in readily accessible areas of the Franklin Readiness Center during this survey.

Typical suspect miscellaneous building materials observed but not sampled include drywall, floor tiles and associated mastic, cove base and associated mastic, ceiling tiles, carpet mastic, and window caulks.

3.1.3 Water Damage/Mold

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

3.1.4 Housekeeping

The Franklin 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 Franklin Readiness Center staff members. No Indoor Air Quality concerns were noted by the Franklin Readiness Center personnel.

Instantaneous real-time reading for carbon monoxide and carbon dioxide (parts per million or ppm), temperature (° Fahrenheit), and relative humidity (as percentage) are presented in the following table. The facility is not centrally air conditioned but windows units are in use at the facility. It was noted that these units were dirty. Temperature readings were below the established guidelines but were obviously influenced by the lack of an operating heating system. It was noted during the survey that portable radiant heaters were in use at the facility.

Table 3-1: Indoor Air Quality Monitoring Results

Location	Carbon Monoxide (ppm)	Carbon Dioxide (ppm)	Temp (°F)	Relative Humidity (%)
Rm 100	0.0	435	62.5	44.1
Rm 101	0.1	491	62.9	44.3
Rm 102	0.5	507	63.3	45.0
Space 103	0.5	533	62.8	42.4
Drill hall	0.5	407	63.8	40.2
Kitchen	0.4	392	63.7	37.9
Room 200 classroom	0.0	530	62.0	46.0
Men's room	0.4	433	60.4	44.3
Ladies room	0.1	551	60.4	46.7
<p>Table 3-1 Guidelines:</p> <p>Carbon Monoxide: Office/Warehouse Space – 9 ppm based on United States Environmental Protection Agency's National Ambient Air Quality Standard.</p> <p>OSHA Permissible Exposure Limit (PEL) = 50 ppm. American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit value (TLV) = 25, ppm.</p> <p>Carbon Dioxide: Office Space -Approximately 700 ppm above background (Derived from American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE) Standard 62.1-2010). Not Applicable to warehouse and vehicle maintenance bays.</p> <p>Relative Humidity: Mechanically air-conditioned space – Maximum 65% (Derived from ASHRAE Standard 62.1-2010 – 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 55-2010)</p>				

Franklin 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 facility heating system is boiler operated forced air. The system was not operational at the time of the survey.

There is no central AC at the facility. Window units are present at various locations of the building and appear to be in need of cleaning.

4.1.2 HVAC Maintenance

Building personnel were unable to verify whether or not a maintenance schedule is in place.

There was no 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 generally adequate.

Table 5-1: Light Survey

Location	Results (Foot candles)	Met Standard (Y/N)	Standard*
Rm 100	107.1	Y	50
Rm 101	125.2	Y	50
Rm 102	77.3	Y	50
Space 103	14.3	N	30
Drill hall	65.2	Y	10
Kitchen	70.4	Y	50
Room 200 classroom	110.4	Y	30
Men's room	29.5	Y	5
Ladies room	49.7	Y	5
Office Lighting (ANSI/IESNA RP-1-04) and Industrial Lighting Facilities (ANSI/IESNA RP-7-01)			

6.0 Evaluation of Attached Garage

There is no garage associated with the Franklin 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 Franklin Readiness Center.

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

Wipe samples collected in association with several administrative areas indicated lead levels below the Occupational Safety and Health Administration's (OSHA's) Clarification of "as free as practicable" and lead contamination under 29 CFR 1926.62, The Compliance Directive for the Interim Standard for Lead in Construction, CPL 2-2.58. OSHA recommends the use of HUD's acceptable decontamination level of 200 ug/ft² for floors in evaluating the cleanliness of change areas, storage facilities, and lunchrooms/eating areas.

However, wipe samples collected from the temporary flooring in the drill hall, foyer floor, and venetian blinds in Room 100 exceeded the action level.

No damaged suspect asbestos containing materials were observed during the evaluation.

Damaged and peeling paint was observed on the inside of the roll up door located in the drill hall. A sample of the peeling paint was collected for analysis and determined to be 0.45% lead.

Neither water damage nor visible mold growth was observed during the survey. Water intrusion is a mold growth risk factor.

The Heating, Ventilation & Air Conditioning (HVAC) system in the building consists of a boiler room that feeds radiant heaters throughout the building. There is no HVAC system that provides fresh air from the building exterior in administrative areas. The HVAC system was not operating correctly at the time of this survey.

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.

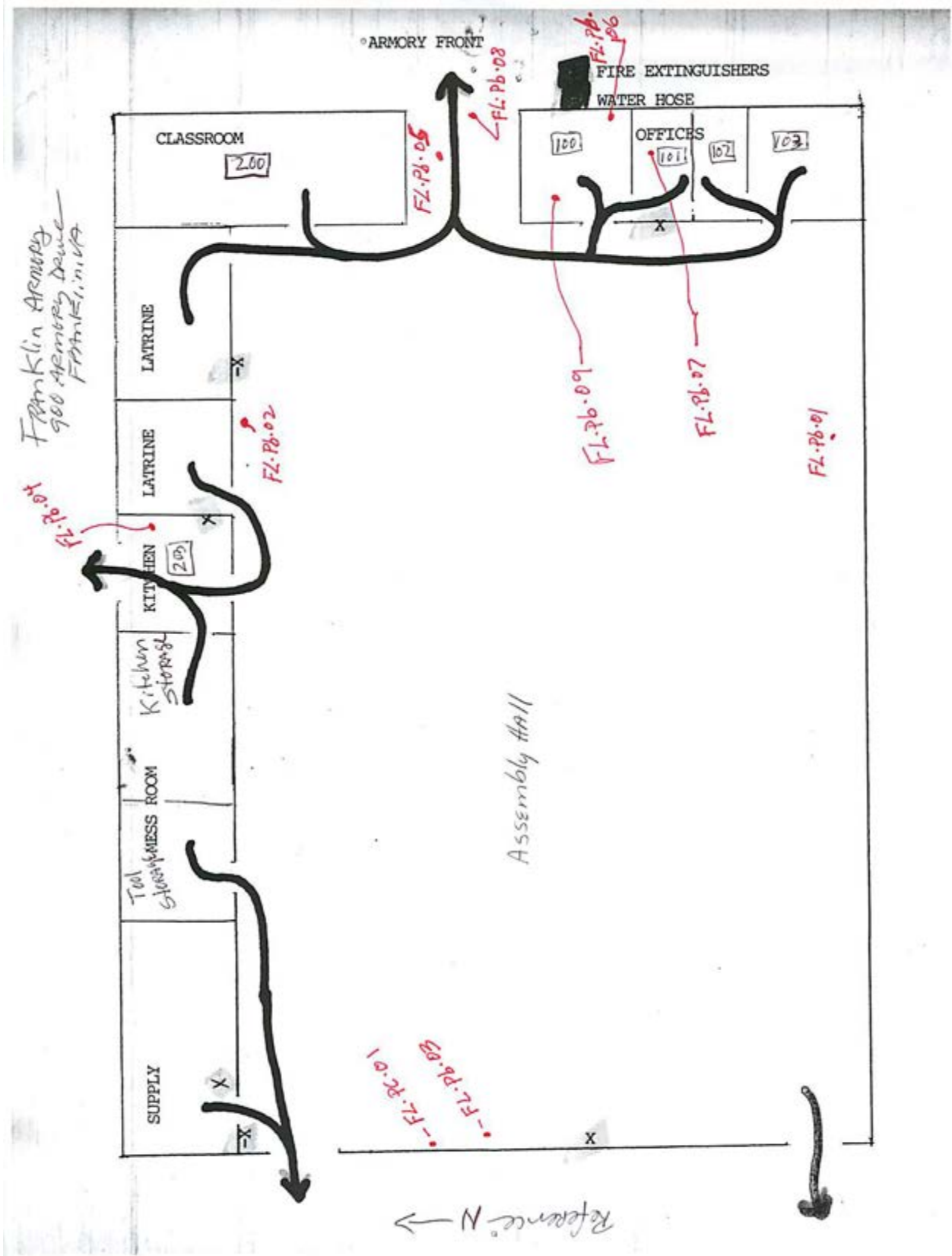
As with all such surveys, the results of the sampling represent conditions found on the date of the survey and may not represent conditions found at other times. Additionally, this survey was limited with respect to the specific parameters indicated above and should not be construed to be a comprehensive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

Franklin Readiness Center Facility Layout





Appendix B

Franklin Readiness Center Photographs

Photograph 1



Front of building

Photograph 2



Drill hall HVAC

Photograph 3



Drill hall

Photograph 4



Typical office with window AC

Photograph 5



Drill hall wipe sample location

Photograph 6



Drill hall roll up door/damaged paint

Photograph 7



Foyer, non-operable vent

Photograph 8



Duct insulation ceiling of drill hall

Appendix C

Analytical Results

AMA Analytical Services, Inc.



A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS



LAB #100470

Client: National Guard Bureau Job Name: VA ANGIH Survey Chain Of Custody: 514737
 Address: 301-JH Old Bay Lane, Attn: ARNG-CJG-P, Job Location: Franklin RC Date Submitted: 12/12/2012
 State Military Reservation
 Havre de Grace, Maryland 21078 Job Number: Not Provided Person Submitting: AECOM
 P.O. Number: W912KG-09-A-0003 Date Analyzed: 12/18/2012 Report Date: 12/19/2012

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
13021976	FL-Pb-01	Flame	Wipe	****	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13021977	FL-Pb-02	Flame	Wipe	****	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13021978	FL-Pb-03	Flame	Wipe	****	0.111	110 ug/ft ²	24	210 ug/ft ²	
13021979	FL-Pb-04	Flame	Wipe	****	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13021980	FL-Pb-05	Flame	Wipe	****	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13021981	FL-Pb-06	Flame	Wipe	****	0.111	110 ug/ft ²	38	340 ug/ft ²	
13021982	FL-Pb-07	Flame	Wipe	****	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13021983	FL-Pb-08	Flame	Wipe	****	0.111	110 ug/ft ²	28	250 ug/ft ²	
13021984	FL-Pb-09	Flame	Wipe	****	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13021985	FL-PC-01	Flame	Paint Chip	****	N/A	0.0076 %Pb		0.45 %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.

An AIHA (#100470) and NY ELAP (#10920) Accredited Laboratory

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

AMA Analytical Services, Inc.



A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS



Client: National Guard Bureau Job Name: VA ANGIH Survey Chain Of Custody: 514737
 Address: 301-1H Old Day Lane, Attn: ARNG-CJG-P, Job Location: Franklin RC Date Submitted: 12/12/2012
 State Military Reservation
 Havre de Grace, Maryland 21078 Job Number: Not Provided Person Submitting: AECOM
 P.O. Number: W912K6-09-A-0003 Date Analyzed: 12/18/2012 Report Date: 12/19/2012
 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
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.		
Analytical Results: 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.

An AIHA (#100470) and NY ELAP (#10920) Accredited Laboratory

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


AMA Analytical Services, Inc.

Focused on Results www.amalab.com

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

4475 Forbes Blvd. • Lanham, MD 20706

(301) 459-2640 • (800) 345-0961 • Fax (301) 459-2643

CHAIN OF CUSTODY

 (Please Refer To This
Number For Inquiries)

514737

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: VA ANG-1H SURVEY
- Job Location: FRANKLIN R.C.
- Job #: W912K6-09-A-0003
- Contact Person: Non-Responsive
- Submitted by: AECOM

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

AFTER HOURS (must be pre-arranged)		NORMAL BUSINESS HOURS		REPORT TO:
<input type="checkbox"/> Immediate	<input type="checkbox"/> Date Due	<input type="checkbox"/> Immediate	<input type="checkbox"/> 3 Day	<input type="checkbox"/> Immediate
<input type="checkbox"/> 4 Hours	<input type="checkbox"/> Time Due	<input type="checkbox"/> Next Day	<input type="checkbox"/> 5 Day	<input type="checkbox"/> 3 Day
Comments:		<input type="checkbox"/> Results Required By Noon		<input type="checkbox"/> 5 Day

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

- ☐ NIOSH 7400 (QTY)
☐ Filterglass (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 Triable 198.1 (QTY)
☐ Grav. Reduction ELAP 198.6 (QTY)
☐ Other (specify) (QTY)

MISC

- ☐ Vermiculite
☐ Asbestos Soil PLM (Qty) PLM (Qty) PLM/TEM (Qty) PLM/TEM (Qty)

*It is recommended that blank samples be submitted with all air and surface samples

TEM Bulk

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

TEM Dust*

- ☐ Qual. (pres/sbs) Vacuum/Dust (QTY)
☐ Quan. (s/s) Vacuum D1755-95 (QTY)
☐ Quan. (s/s) Dust D6480-99 (QTY)

TEM Water

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

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

Metals Analysis

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

Biological 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 #	SAMPLE INFORMATION SAMPLE LOCATION/ID	DATE/TIME	VOL (L) Wipe Area	ANALYSIS										MATRIX				CLIENT CONTACT		
				TEM	PCM	PLM	LEAD	MOLD	AIR	BULK	DUST	WATER	SOIL	PAINT	SWAB	DATE/TIME	CONTACT	BY		
	SEE ATTACHED FIELD DATA SHEETS																			

 LABORATORY
STAFF ONLY:
(CUSTODY)

1. Date/Time RCVD: 12/12/12 @ 10:00 AM By: [Signature]

2. Date/Time Analyzed: 12/12/12 @ 10:00 AM By: [Signature]

3. Results Reported To: [Signature] Via: [Signature] Date: 12/12/12

4. Comments: 1491 0628 9000

Non-Responsive

Samples Relinquished 19 Nov 2012 @ 1200 Stephen Bliley - to Hunt & Peroff H

Surface Sampling Field Data Sheet

Date Collected: 14 Nov 2012

Job Name: VA ANG 1H Survey

Company: Hunt & Peroff Page 1 of 1

Job Number:

Job Location:

Franklin Armory

Phone Number: 757-685-1288

Contact Person:

Non-Responsive

Address:

900 Armory Drive

Collected By: **Non-Responsive**

Franklin, VA 23851

COC Number:

Sample Number	Sample Location	Surface/Substrate Sampled	Area Wiped (in ² /ft ²)	Collection Media
FL-Pb-01	Drill Hall - Sample from Top of Locker on South Wall	metal	16 in ²	Ghostwipe
FL-Pb-02	Drill Hall - Sample from Top of Locker on North Wall	metal		
FL-Pb-03	Drill Hall - Sample from Floor @ Roll-up door	Plastic (Temporary Flooring)		
FL-Pb-04	Kitchen - Stone Top Shelf	metal		
FL-Pb-05	Foyer - Table Top	Vinyl Paper on Pressboard		
FL-Pb-06	Rm 100 - Venetian Blinds @ Air Conditioner Vent	Vinyl		
FL-Pb-07	Room 101 - Top of Desk	Vinyl Paper on Pressboard		
FL-Pb-08	Foyer - Floor @ Entry Doors	Plastic - Temporary Floor		
FL-Pb-09	Rm 100 - Top of File Cabinet	metal		
FL-PC-01	Drill Hall - Inside of Roll-up door on West Wall	metal		

Please Return Samples To:

AMA Analytical Services, Inc., 4475 Forbes Blvd., Lanham, MD 20706, (800) 346-0961/(301) 459-2640 Fax, www.ama-lab.com, info@ama-lab.com





Appendix D

References

References

1. Title 29, Code of Federal Regulations (CFR), Part 1910, Occupational Safety and Health Administration, current Ed. <http://www.osha.gov/comp-links.html>
2. Department of Defense Instruction (DODI) 6055.1, Department of Defense Occupational Safety and Health (OSH) Program, August 19, 1998. <http://www.dtic.mil/whs/directives/corres/pdf/605501p.pdf>
3. Army Regulation (AR) 11-34, The Army Respiratory Protection Program, 15 February 1990. http://armypubs.army.mil/epubs/pdf/R11_34.PDF
4. AR 40-5, Medical Service, Preventive Medicine, 25 May 2007. http://armypubs.army.mil/epubs/pdf/R40_5.PDF
5. AR 385-10, The Army Safety Program, 23 August 2007; Rapid Action Revision (RAR) issue date: 4 October 2011. http://armypubs.army.mil/epubs/pdf/R385_10.PDF
6. Department of the Army Pamphlet (DA PAM) 40-501, Medical Services, Hearing Conservation Program, 10 December 1998. http://armypubs.army.mil/epubs/pdf/P40_501.pdf
7. DA PAM 40-11, Preventive Medicine, 22 July 2005, RAR issue date: 19 October 2009. http://armypubs.army.mil/epubs/pdf/p40_11.pdf
8. DA PAM 40-503, Medical Services, Industrial Hygiene Program, 30 October 2000. http://armypubs.army.mil/epubs/pdf/P40_503.PDF
9. UFC 3-410-01FA, Heating, Ventilating, and Air Conditioning, 15 May 2003, change 4, January 2010. http://www.wbdg.org/ccb/DOD/UFC/ufc_3_410_01fa.pdf
10. Threshold Limit Values (TLVs) and Biological Exposure Indices (BEIs), American Conference of Governmental Industrial Hygienists (ACGIH), current Ed.
11. Industrial Ventilation – A Manual of Recommended Practice for Design, ACGIH, current Ed.
12. American National Standards Institute (ANSI)/International Safety Equipment Association (ISEA) Z358.1-2009, Emergency Eyewash and Shower Equipment.
13. ANSI/American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. (ASHRAE) 55-2010, Thermal Environmental Conditions for Human Occupancy.
14. ANSI/ASHRAE 62.1-2010, Ventilation for Acceptable Indoor Air Quality.
15. RP-1-2004, Office Lighting, ANSI/IESNA.
16. RP-7-2001, Industrial Lighting, ANSI/IESNA, change 20 July 2004.
17. OSHA Instruction Letter 02-02-058, Lead Exposure in Construction, Office of Health Compliance Assistance, 13 December 1993.
18. OSHA Standard Interpretation, Clarification of “as free as practicable” and lead contamination under 29 CFR 1926.62, dated January 13, 2003.
19. NG PAM 420-15, Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges, 3 November 2006. http://www.ngbpdc.ngb.army.mil/pubs/420/ngpam420_15.pdf

Shaw Environmental, Inc.

312 Directors Drive
Knoxville, TN 37923
865.690.3211
Fax 865.690.3626



Shaw Environmental, Inc.

**National Guard Armory
Fredericksburg Readiness Center
Fredericksburg, Virginia**

Industrial Hygiene Evaluation

Prepared for:

**National Guard Region North Industrial Hygiene Office
Havre De Grace, Maryland 21078**

Prepared by:

**Shaw Environmental, Inc.
312 Directors Drive
Knoxville, Tennessee 37923**

25 October 2004

**National Guard Armory
Fredericksburg Readiness Center
Fredericksburg, Virginia**

Industrial Hygiene Evaluation

Prepared for:

**National Guard Region North Industrial Hygiene Office
Havre De Grace, Maryland 21078**

Prepared by:

**Shaw Environmental, Inc.
312 Directors Drive
Knoxville, Tennessee 37923**

25 October 2004

Prepared by:

Non-Responsive

Environmental Scientist

Reviewed by:

Non-Responsive

Business Line Manager

Table of Contents

<i>Table of Contents</i>	<i>i</i>
<i>List of Tables</i>	<i>ii</i>
<i>List of Appendices</i>	<i>ii</i>
<i>Executive Summary</i>	<i>E-1</i>
<i>1.0 Introduction</i>	<i>1-1</i>
<i>2.0 Findings, Discussion, and Interpretation of Results</i>	<i>2-1</i>
<i>2.1 Sampling for Lead</i>	<i>2-1</i>
<i>2.1.1 Wipe Sampling</i>	<i>2-1</i>
<i>2.1.2 Air Sampling for Lead</i>	<i>2-2</i>
<i>2.2 Physical Condition of Facility</i>	<i>2-2</i>
<i>2.2.1 Peeling Paint - Lead</i>	<i>2-2</i>
<i>2.2.2 Visual Inspection - Asbestos</i>	<i>2-2</i>
<i>2.2.3 Visual Inspection - Water Damage and Mold</i>	<i>2-3</i>
<i>2.2.4 Visual Inspection - Housekeeping</i>	<i>2-3</i>
<i>2.3 Building Concerns</i>	<i>2-3</i>
<i>2.3.1 Ergonomic Concerns</i>	<i>2-3</i>
<i>2.3.2 Indoor Air Quality</i>	<i>2-3</i>
<i>2.4 Safety and Industrial Hygiene Programs</i>	<i>2-4</i>
<i>2.5 Ventilation</i>	<i>2-4</i>
<i>2.5.1 Ventilation System Evaluation</i>	<i>2-4</i>
<i>2.5.2 Contamination of Clean Air Sources</i>	<i>2-4</i>
<i>2.6 Noise Exposure</i>	<i>2-5</i>
<i>2.7 Lighting</i>	<i>2-5</i>
<i>2.8 Converted Indoor Firing Ranges</i>	<i>2-5</i>
<i>2.9 HVAC Systems</i>	<i>2-6</i>
<i>2.10 HHIM</i>	<i>2-6</i>
<i>3.0 Conclusions</i>	<i>3-1</i>
<i>Tables</i>	<i>Follows Section 3.0</i>
<i>Appendices</i>	<i>Follows Tables</i>

List of Tables

Table 1	Wipe Sampling for Lead
Table 2	Air Sampling for Lead
Table 3	Indoor Air Quality Measurements
Table 4	Illumination Readings
Table 5	Indoor Firing Ranges -- Wipe Sampling

List of Appendices

Appendix A	HHIM Data Form
Appendix B	Building Layout
Appendix C	Sampling Sheets and Laboratory Analyses
Appendix D	References
Appendix E	Recommendations for Surface Lead Dust in Armories

Executive Summary

Shaw Environmental, Inc. (Shaw) was contracted to perform an industrial hygiene evaluation for the Fredericksburg Readiness Center in Fredericksburg, Virginia. Non-Responsive performed the evaluation on 29 January 2004. The point of contact at the readiness center was SFC Non-Responsive.

The following industrial hygiene concerns were evaluated.

- Wipe Sampling for Lead
- Air Sampling for Lead
- Peeling Paint – Lead
- Suspected Asbestos Containing Material
- Water Damage
- Presence of Mold
- Housekeeping
- Ergonomic Concerns
- Indoor Air Quality
- Safety and Industrial Hygiene Programs
- Ventilation System Evaluation
- Contamination of Clean Air Sources
- Noise Exposure
- Lighting
- Converted Indoor Firing Range
- HVAC Systems

The following items were either not applicable to the armory or the evaluation resulted in a conclusion that there were no industrial hygiene concerns.

- Air Sampling for Lead
- Peeling Paint – Lead
- Housekeeping
- Ergonomic Concerns
- Safety and Industrial Hygiene Programs
- Ventilation System Evaluation

- Contamination of Clean Air Sources
- Noise Exposure
- HVAC Systems

Areas where there were industrial hygiene concerns are as follows:

- Wipe sampling for lead revealed a concentration above the recommended level of 200 micrograms per square foot ($\mu\text{g}/\text{ft}^2$) in the drill floor/assembly hall area, locker room, and medic's office. It is recommended that these surfaces and the areas immediately around these surfaces be thoroughly cleaned to reduce the lead level. In addition, any other dusty/dirty areas in these areas should be thoroughly cleaned. Also, the medical supplies stored in the medic's office must be decontaminated by a thorough cleaning before use.
- Wipe sampling for lead revealed concentrations above a level of 40 micrograms per square foot ($\mu\text{g}/\text{ft}^2$) in the drill floor/assembly hall area, locker room, medic's office, kitchen, foyer, storage room, supply room, basement hallway, and converted firing range. Areas with lead concentrations above $40 \mu\text{g}/\text{ft}^2$ that will be accessible to children should be cleaned. If a special function is held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function.
- Materials (pipe insulation) suspected of containing asbestos were observed. An operation and maintenance plan should be followed when performing any activities that may disturb the suspected asbestos-containing materials.
- Water damage was observed at several locations at the armory. The source of the water damage was likely from a combination of roof and pipe leaks. The source of the water damage should be confirmed and actions taken to eliminate the source in order to prevent the possibility of mold growth that may lead to indoor air quality problems.
- Visual mold was observed in the armory. The area where the mold is located should be thoroughly cleaned with 0.5% sodium hypochlorite solution (1 part household bleach to nine parts water) or equivalent in order to eliminate the potential mold/indoor air quality problem. In addition, the source of the mold should be identified and actions taken to eliminate it.
- Measurements for temperature revealed that levels did not meet the recommended level of 68° Fahrenheit in the facility. If possible, the heating units should be adjusted so the temperature will fall within the acceptable range. In addition, space heaters could be used to increase the temperature at specific locations.

- Measurements for humidity revealed that levels did not meet the recommended level of 30% in the facility. It is recommended that a humidification system be installed at the facility
- Lighting measurements were conducted at the armory. The lighting did not meet minimum requirements in some areas; therefore, consideration should be given to providing more lighting in these areas. This may be accomplished by replacing burnt out luminaries, cleaning fixtures, cleaning windows, painting walls with a lighter color, repositioning detailed work to higher illuminated areas, and using supplemental lighting.
- Wipe sampling for lead revealed a concentration above the recommended level of 200 micrograms per square foot ($\mu\text{g}/\text{ft}^2$) in several locations in the converted firing range area. It is recommended that these areas and the stored items in these areas be decontaminated by a thorough cleaning until surface lead concentrations are reduced to below recommended levels. In addition, any other dusty/dirty areas in the converted firing range should be thoroughly cleaned.

1.0 Introduction

Shaw Environmental, Inc. (Shaw) was contracted to perform an industrial hygiene evaluation for the Fredericksburg Readiness Center in Fredericksburg, Virginia. [Non-Responsive] performed the evaluation on 29 January 2004. The point of contact at the readiness center was SFC [Non-Responsive].

The findings, discussion, and interpretation of results are provided in Section 2.0. The conclusions are provided in Section 3.0. The HHIM data form for the facility is provided in Appendix A. The building layout is provided in Appendix B. Sampling sheets and laboratory analyses are provided in Appendix C. References are provided in Appendix D. The *Recommendations for Surface Lead Dust in Armories* document is provided in Appendix E.

The statements, opinions, and conclusions contained in this report are based solely upon the services performed by Shaw as described in the report. In performing these services and preparing the report, Shaw Environmental, Inc. relied upon the work and information provided by others, including public agencies, whose information is not guaranteed by Shaw Environmental, Inc.

2.0 Findings, Discussion, and Interpretation of Results

The results, discussion, and interpretation of results are provided in the following sections.

2.1. Sampling for Lead

2.1.1 Wipe Sampling

Wipe samples were collected for lead from the drill floor/assembly area. Also, wipe samples were collected for lead in rooms, hallways, foyers, etc. The sampling in rooms, hallways, foyers, etc. represented approximately 25% of the building. Approximately half of the samples were collected from surfaces in common areas, such as surfaces of a desk. The remaining samples were collected from uncommon surface areas, such as a supply vent or the top of a file cabinet. The samples were collected and analyzed in accordance with the Instructions for *Completing the Sampling of ARMY National Guard Armories* procedure.

The only samples initially submitted for analysis were those from the drill floor/assembly hall. Since there were results above acceptable levels from the drill floor/assembly hall area, the remaining samples were submitted for analysis.

Results of the wipe sampling are provided in Table I. The results revealed lead at four locations sampled at concentrations above the recommended level of 200 micrograms lead per square foot ($\mu\text{g}/\text{ft}^2$) (See Appendix E). The samples collected from the top surface of the fire hose housing at two different locations in the drill floor/assembly hall area had lead concentrations of 1300 and 1700 $\mu\text{g}/\text{ft}^2$. The samples collected from the locker room window sill and medic's office window sill had lead concentrations of 630 and 1800 $\mu\text{g}/\text{ft}^2$, respectively. It is recommended that these surfaces and the immediate areas around these surfaces be thoroughly cleaned to reduce the lead level to below 200 $\mu\text{g}/\text{ft}^2$. For guidance on the proper method of cleaning, please refer to NG PAM 385-15 (*Guidelines and Procedures for Indoor Firing Range (IFR) Rehabilitation, Conversion, and Cleaning*). In addition, any other dusty/dirty areas in these areas should be thoroughly cleaned. Also, the medical

supplies stored in the medic's office must be decontaminated by a thorough cleaning before use.

In addition, wipe sampling for lead revealed concentrations above a level of $40 \mu\text{g}/\text{ft}^2$ in the drill floor/assembly hall area, locker room, medic's office, kitchen, foyer, storage room, supply room, basement hallway, and converted firing range. Please note that the *Recommendations for Surface Lead Dust in Armories* (Appendix E) states that all areas with lead concentrations above $40 \mu\text{g}/\text{ft}^2$ that will be accessible to children should be cleaned. If a special function is held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function.

2.1.2 Air Sampling for Lead

General air sampling was conducted because employees were not available for sampling. The samples were collected and analyzed in accordance with Method 7082 of the National Institute of Occupational Safety and Health (NIOSH) Manual of Analytical Methods.

The results of the sampling are provided in Table 2. The results revealed non-detectable concentrations of lead in air; therefore, no actions are necessary.

2.2 Physical Condition of Facility

2.2.1 Peeling Paint - Lead

Peeling paint was not observed at the armory; therefore, bulk samples for lead in paint were not taken.

2.2.2 Visual Inspection - Asbestos

A visual inspection was made to determine if there was any suspected asbestos-containing material at the armory. Materials (pipe insulation) suspected of containing asbestos were observed. The suspected asbestos-containing materials were in the storage area (average condition, approximately 50 linear feet).

An operation and maintenance plan should be followed when performing any activities that may disturb the suspected asbestos-containing materials.

2.2.3 Visual Inspection – Water Damage and Mold

A visual inspection was made to determine if there was any water damage or visible mold at the armory. Both visible mold and water damage was observed at the armory. Water damage was observed on the ceilings and some walls in the locker room, assembly hall/drill floor area, vestibules, foyer, old classrooms, storage room, hallway, medics office, CAP office, recruiters office, hallway to storage room, classroom #1, conference room, rooms 3, 5, 9, 11, 15, 14, 12, 8, 20, classrooms A&B, and the stairwell to the basement.

The source of the water damage was likely from a combination of roof and pipe leaks. The source of the water damage should be confirmed and actions taken to eliminate the source in order to prevent the possibility of mold growth that may lead to indoor air quality problems.

Visible mold was observed on the ceilings and walls in HHC offices, men's latrine, and medic's office. The area where the mold is located should be thoroughly cleaned with 0.5% sodium hypochlorite solution (1 part household bleach to nine parts water) or equivalent in order to eliminate the potential mold/indoor air quality problem. In addition, the source of the mold should be identified and actions taken to eliminate it.

2.2.4 Visual Inspection - Housekeeping

The housekeeping was determined to be good.

2.3. Building Concerns

2.3.1 Ergonomic Concerns

Interviews with employees and observation of work activities revealed no ergonomic concerns at the armory.

2.3.2 Indoor Air Quality

Interviews with employees and measurements for carbon dioxide revealed no indoor air quality concerns at the armory. However, measurements for temperature revealed that levels did not meet the American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE) recommended level of 68° Fahrenheit in the facility. If possible, the heating units should be adjusted so the temperature will fall

within the acceptable range. In addition, space heaters could be used to increase the temperature at specific locations.

In addition, measurements for humidity revealed that levels did not meet the ASHRAE recommended level of 30% in the facility. It is recommended that a humidification system be installed at the facility.

The results of the measurements for carbon dioxide, humidity, and temperature are provided in Table 3.

2.4. Safety and Industrial Hygiene Programs

An evaluation was performed to determine the applicability of the following programs.

- Confined Spaces
- Hearing Conservation
- Respiratory Protection
- Hazard Communication (HAZCOM)
- Personal Protective Equipment (PPE)

It was determined that the HAZCOM program was the only program listed above that was applicable at the facility. The HAZCOM program was evaluated and it was determined that the program met minimum requirements.

2.5. Ventilation

2.5.1 Ventilation System Evaluation

There were no local exhaust ventilation systems at this armory; therefore, no ventilation studies were performed.

2.5.2 Contamination of Clean Air Sources

Since there were no local exhaust ventilation systems at the armory, there was no possibility that clean air sources could be contaminated by exhaust air.

2.6. Noise Exposure

An evaluation was performed to determine if there were any hazardous noise areas at the armory. It was determined that there were no areas at the armory that would exceed the permissible exposure limit for noise.

2.7. Lighting

Lighting measurements were conducted at the armory. Results of the lighting evaluation are provided in Table 4. As can be seen from the results, the lighting did not meet the minimum requirements in some areas, including the converted firing range and kitchen.

Consideration should be given to providing more lighting to these areas. This may be accomplished by replacing burnt out luminaries, cleaning fixtures, cleaning windows, painting walls with a lighter color, repositioning detailed work to higher illuminated areas, and using supplemental lighting.

2.8. Converted Indoor Firing Ranges

There was a converted indoor firing range at the facility; therefore, wipe samples were taken for lead at various locations in or near the converted range. The space is used as a storage room. The results are provided in Table 5. The results revealed lead, with associated concentrations, at the following locations:

- bullet trap (floor near former bullet trap location) at 4900 $\mu\text{g}/\text{ft}^2$;
- stored items (bulletin board) at 690 $\mu\text{g}/\text{ft}^2$;
- floor (inside the converted firing range) at 970 $\mu\text{g}/\text{ft}^2$; and
- floor (outside the converted firing range) at 290 $\mu\text{g}/\text{ft}^2$

Wipe sampling for lead revealed concentrations at all locations above the recommended level of 200 $\mu\text{g}/\text{ft}^2$, a level recommended in the *Guidelines for Converting Indoor Firing Ranges to Other Uses* document (Department of Army). These areas and stored items in the converted firing range must be decontaminated by a thorough cleaning until surface lead concentrations are reduced to below recommended levels. For guidance on proper cleaning methods, please refer to NGB PAM385-15 (*Guidelines and Procedures for Indoor Firing Range (IFR) Rehabilitation, Conversion, and Cleaning*). In addition, any other dusty/dirty areas in the converted firing range should be thoroughly cleaned.

2.9. HVAC System

The maintenance schedule for the HVAC system was evaluated to verify that maintenance occurs on a regular basis. Also, the condition of the HVAC system was evaluated to determine if the maintenance performed is effective. It was deemed that maintenance occurs on a regular basis, and the maintenance performed is effective.

2.10. IHIM

A Health Hazard Information Module (IHIM) form was completed for the armory. The completed form is provided in Appendix A.

3.0 Conclusions

It is concluded that there were no industrial hygiene concerns at the armory with regards to atmospheric exposure to lead, peeling lead-based paint, housekeeping, ergonomic conditions, safety and industrial hygiene programs, ventilation systems or contamination of clean air sources, noise exposure, and HVAC systems.

There were industrial hygiene concerns at the armory with regards to lead surface contamination, suspected asbestos-containing material, water damage, visible mold, indoor air quality, lighting, and surface lead contamination in the converted firing range. These concerns are discussed in detail in Section 2.0 of this report.

TABLES

Table 1
Wipe Sampling for Lead
National Guard Armory
Fredericksburg, Virginia
Date of Sampling: 29 January 2004

Sample Number	Location	Results, $\mu\text{g}/\text{ft}^2$ ^a
VAFRE029-1	Drill Floor (kitchen service window) See Building Layout -- Appendix B	17
VAFRE029-2	Drill Floor (top surface of fire hose housing) See Building Layout -- Appendix B	1300
VAFRE029-3	Drill Floor (top surface of heat register) See Building Layout -- Appendix B	79
VAFRE029-4	Drill Floor (top surface of heat register) See Building Layout -- Appendix B	73
VAFRE029-5	Drill Floor (top surface of fire hose housing) See Building Layout -- Appendix B	1700
VAFRE029-6	Field Blank	0.42
VAFRE029-7	25% Building (kitchen window sill) See Building Layout -- Appendix B	59
VAFRE029-8	25% Building (locker room window sill) See Building Layout -- Appendix B	630
VAFRE029-9	25% Building (supply room top surface of computer monitor) See Building Layout -- Appendix B	29
VAFRE029-10	25% Building (foyer top surface of water fountain) See Building Layout -- Appendix B	78
VAFRE029-11	Drill Floor (classroom 1 table top) See Building Layout -- Appendix B	7.9
VAFRE029-12	Field Blank	< 0.3
VAFRE029-13	25% Building (recruiter's office window sill) See Building Layout -- Appendix B	30
VAFRE029-14	25% Building (medics office window sill) See Building Layout -- Appendix B	1800
VAFRE029-15	25% Building (storage room desktop) See Building Layout -- Appendix B	43

Table 1
Wipe Sampling for Lead
National Guard Armory
Fredericksburg, Virginia
Date of Sampling: 29 January 2004

VAFRE029-16	25% Building (retention NCO top surface of computer CPU) See Building Layout -- Appendix B	30
VAFRE029-17	25% Building (conference room window sill) See Building Layout -- Appendix B	16
VAFRE029-18	Field Blank	0.47
VAFRE029-19	25% Building (top surface of typewriter) See Building Layout -- Appendix B	62
VAFRE029-20	25% Building (top surface of desktop) See Building Layout -- Appendix B	15
VAFRE029-21	25% Building (top surface of desktop) See Building Layout -- Appendix B	25
VAFRE029-22	25% Building (HCO classroom storage locker) See Building Layout -- Appendix B	10
VAFRE029-23	25% Building (classroom B podium top) See Building Layout -- Appendix B	< 14
VAFRE029-24	Field Blank	< 0.3
VAFRE029-25	25% Building (showers & gym room) See Building Layout -- Appendix B	25
VAFRE029-26	25% Building (supply room) See Building Layout -- Appendix B	15
VAFRE029-27	25% Building (supply room bookcase) See Building Layout -- Appendix B	130
VAFRE029-28	25% Building (basement hallway heater) See Building Layout -- Appendix B	100

^a Micrograms lead per square foot

The samples were taken and analyzed in accordance with the *Instructions for Completing the Sampling of ARMY National Guard Armories* procedure.

In armories that do not contain childcare facilities, the NGB Region North Industrial Hygiene Office recommends cleaning the areas with sample results greater than 200 µg/ft²

Table 2
Breathing Zone Air Samples for Lead
National Guard Armory
Fredericksburg, Virginia
Date of Sampling: 29 January 2004

Sample Number	Employee	Sampling Information			Results (mg/m ³) ^a
		Time Sampled / Minutes	Flow Rate (lpm) ^b	Volume (liters)	
VAFRE029-A1	General Air Sample	1035-1320/165	1.6791	277.06	< 0.004
VAFRE029-A2	General Air Sample	1030-1330/180	1.6478	296.60	< 0.003
VAFRE029-A3	Field Blank	-	-	-	None Detected

^a Milligrams lead per cubic meter of air.

^b Liters of air per minute.

Method 7082 of the National Institute of Occupational Safety and Health (NIOSH) Manual of Analytical Methods was followed for sampling for lead.

Table 3
Indoor Air Quality Measurements for Carbon Dioxide, Humidity, and Temperature
National Guard Armory
Fredericksburg, Virginia
Date of Sampling: 29 January 2004

Location	Occupants In Area	Carbon Dioxide, parts per million parts of air (ppm)	Percent (%) Humidity	Temperature (°F)
1 st Floor	1	321	26.5	66.9
Basement	1	343	24.2	61.7
Outdoors	-	267	21.7	59.4

Carbon dioxide, humidity, and temperature measurements were taken with a TSI Q Trak Plus, Model 8554, Indoor Air Quality Meter, calibrated in April 2003.

American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE) recommends that indoor carbon dioxide levels be less than 700 ppm above outdoor levels.

ASHRAE recommends that the relative humidity levels be maintained between 30 to 60 percent.

ASHRAE recommends that the acceptable temperature range be 68 degrees Fahrenheit to 74 degrees Fahrenheit in the winter and 73 degrees Fahrenheit to 79 degrees Fahrenheit in the summer.

Table 4
Illumination Readings
National Guard Armory
Fredericksburg, Virginia
Date of Sampling: 29 January 2004

Location	Luminance (fc) ^a	Standard (fc) ^a	Standard Met
Firing Range	22.2-33.3	70	No
Basement Hallway	22.2-55.5	7.5	Yes
Shower & Gym Room	22.2-55.5	40	Some Areas
Classroom B	55.5-100	70	Some Areas
Room 17	55.5-111.1	70	Some Areas
Room 15	44.4-122.2	70	Some Areas
Mail Room	66.6-111.1	70	Some Areas
Learning Center	88.8-144.4	70	Yes
Upstairs Hallway	11.1-66.6	7.5	Yes
Room 4	77.7-133.3	70	Yes
Medics Room	88.8-111.1	70	Yes
Front Classroom	44.4-88.8	70	Some Areas
Men's Latrine	33.3-44.4	40	Some Areas
Lobby	55.5-77.7	7.5	Yes
Kitchen	22.2-55.5	70	No
Storage Room	22.2-44.4	30	Some Areas
Supply Room	22.2-66.6	30	Some Areas

^a fc - Footcandles

The readings were taken with a Weston model 614-60 Lightmeter.

The standards listed above are from ANSI/IES RP-1 and RP-7.

Table 5
Wipe Sampling for Lead – Converted Firing Range
National Guard Armory
Fredericksburg, Virginia
Date of Sampling: 29 January 2004

Sample Number	Location	Results, $\mu\text{g}/\text{ft}^2$ ^a
VAFRE029-29	Bullet Trap (floor near former bullet trap location)	4900
VAFRE029-30	Field Blank	0.41
VAFRE029-31	Stored Item (Bulletin Board)	690
VAFRE029-32	Floor (inside the converted firing range)	970
VAFRE029-33	Floor (outside the converted firing range)	290

^aMicrograms lead per square foot

The samples were taken and analyzed in accordance with the Instructions for *Completing the Sampling of ARMY National Guard Armories* procedure.

Appendix A

HHIM Data Form(s)

HEALTH HAZARD INFORMATION MODULE: INDUSTRIAL HYGIENE SURVEY

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

SECTION 1. DEMOGRAPHIC DATA

ARLOC 24255	INSTALLATION APG-EA	BLDG/RM NO. FREDERICKS BURG
LOCATION/CODE ADMINISTRATIVE AREAS / AA	OPERATION/CODE ADMINISTRATIVE OPERATIONS / ADO	
SURVEY DATE 29 JANUARY 2004	EVALUATOR (Initials) Non-Responsive	
MACOM/CODE	SUBMACOM/CODE XX	SUPERVISOR SFC Non-Responsive
TELEPHONE/DSN NO. (540) 899 4007	UNIT/ORGANIZATION FREDERICKS BURG ARMORY	RAC 4
NO. CIV(S) 0	NO. MIL 16	NO. CONTRACTOR(S) 0
NO. LOC(S) 0	NO. OTHER —	FREQUENCY (hrs/day) 8

SECTION 2. FACILITY DATA

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

SECTION 3. SURVEY DATA

CONTROLS PRESENT	EVALUATION	UNIT CODE	CONTROLS REQUIRED	STATUS

PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized)

GLOVES	R	U	RESPIRATOR	NIOSH TC NO.	MANUFACTURER	R	U
COLD SURFACES			AIRLINE				
HOT SURFACES			ABRASIVE BLASTING HOOD				
BC AGENTS			DISPOSABLE				
			FULL FACE AIR PURIFYING				
			1/2 FACE AIR PURIFYING				
			POWERED AIR PURIFYING				
			1/4 FACE AIR PURIFYING				
			SELF CONTAINED				

EYES/FACE	R	U	HEARING	R	U	BODY	R	U	HEAD/FIT	R	U
CHEMICAL SPLASH			CANAL CAPS			APRONS			COLD WEATHER BOOTS/HATS		
FULL FACE SHIELD			EAR PLUGS			COLD WEATHER CLOTHING			HARD HATS		
CHEMICAL/SAFETY			HELMETS			COVERALLS			IMPERMEABLE BOOTS		
SAFETY/IMPACT			MUFFS			FULL BODY SUIT			SAFETY/CONDUCTIVE SHOES		
WELDING HELMET			MUFF/EARPLUG COMBO			HEAT REFLECTIVE VEST/SUIT			SAFETY/NON-CONDUCTIVE SHOES		

Posted to NGB Form 771-R (Test) 1 Jan 92 (HSHB-771-R) May 2018

SECTION 4. HAZARD INVENTORY DATA

CAS CODE	HAZARD DESCRIPTION	PAC	EPC
POVOTXXX	VIDEO DISPLAY TERMINAL	3-LOW	D - UNCONTROLLED PHYSICAL
7439-92-1	LEAD, INORGANIC DUSTS; FUMES	2-MODERATE	C - UNCONTROLLED RESPIRATORY
1332-21-4	ASBESTOS	3-LOW	C - UNCONTROLLED RESPIRATORY
121-38-9	CARBON DIOXIDE	2-MODERATE	C - UNCONTROLLED RESPIRATORY
POLIFTING	HEAVY LIFTING	2-MODERATE	D - UNCONTROLLED PHYSICAL
POHEATSTR	HEAT STRESS	3-LOW	D - UNCONTROLLED PHYSICAL

SECTION 5. PERSONNEL DATA

LAST NAME	FIRST NAME	MI	SEX	SSN	CATEGORY
(SEE ATTACH HUI M INFORMATION FORM)					

SECTION 6. COMMENTS

☒ No comments

☐ See attached sheet

PRIVACY ACT STATEMENT

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

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

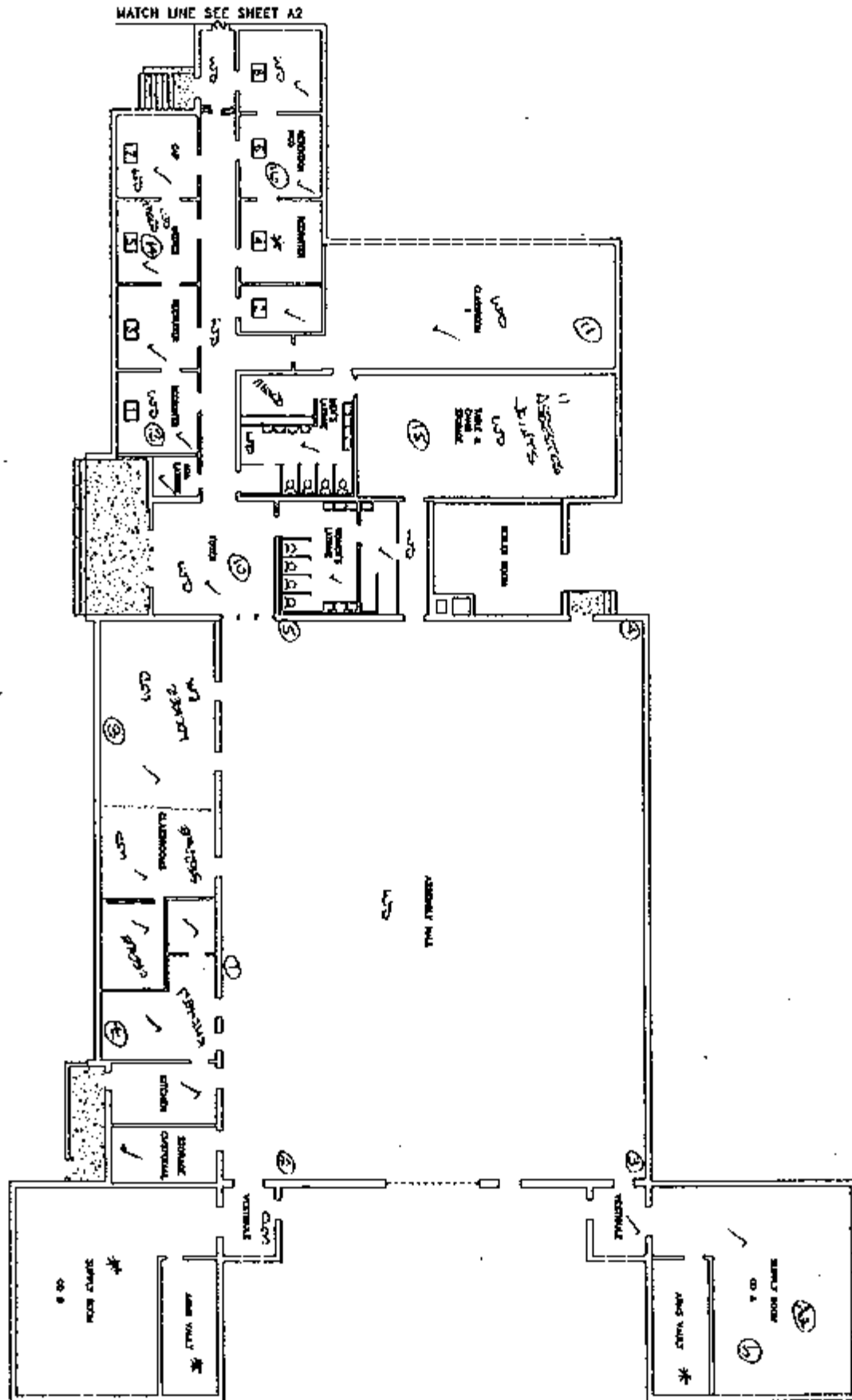
229 EN BN, 29th ID (L)
1700 Jefferson Davis Highway
Fredericksburg, Virginia

Non-Responsive



Appendix B

Building Layout



Appendix C

Sampling Sheets and Laboratory Analyses



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: VA FRE 029
Job Location: Fredericksburg, Virginia
Job Number: 845702 01000000
P.O. Number: 1103

Chain Of Custody: 122663
Date Analyzed: 02/07/2004
Person Submitting: **Non Responsive**
Report Date: 09-Feb-04

Attention: **Non Responsive**

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 (ft ²)	Reporting Limit	Final Result	Comments
0422924	VA FRE 029 1	Furnace	Wipe	****	0.111	2.70 ug/ft ²	17 ug/ft ²	
0422925	VA FRE 029 2	Furnace	Wipe	****	0.111	108.01 ug/ft ²	1300 ug/ft ²	
0422926	VA FRE 029 3	Furnace	Wipe	****	0.111	13.50 ug/ft ²	79 ug/ft ²	
0422927	VA FRE 029 4	Furnace	Wipe	****	0.111	13.50 ug/ft ²	73 ug/ft ²	
0422928	VA FRE 029 5	Furnace	Wipe	****	0.111	108.01 ug/ft ²	1700 ug/ft ²	
0422929	VA FRE 029 6	Furnace	Wipe Blank	****	N/A	0.30 ug	0.42 ug	
0422930	VA FRE 029 29	Furnace	Wipe	****	0.111	108.01 ug/ft ²	4900 ug/ft ²	
0422931	VA FRE 029 30	Furnace	Wipe Blank	****	N/A	0.30 ug	0.41 ug	
0422932	VA FRE 029 31	Furnace	Wipe	****	0.111	108.01 ug/ft ²	690 ug/ft ²	
0422933	VA FRE 029 32	Furnace	Wipe	****	0.111	108.01 ug/ft ²	970 ug/ft ²	
0422934	VA FRE 029 33	Furnace	Wipe	****	0.111	67.51 ug/ft ²	290 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 results have two significant digits. Any additional digits shown should not be considered when interpreting the result.

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 the 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.

An AIHA (#8863), NVLAP (#10920) Accredited Laboratory

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

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: VA FRE 029

Job Location: Fredericksburg, Virginia

Chain Of Custody: 123449

Date Analyzed: 3/26/2004

Person Submitting: Non-Responsible

Report Date: 26-Mar-04

Attention:

Non-Responsible

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
0432053	VA FRE 029 7	Furnace	Wipe	****	0.111	33.75 ug/ft²	59 ug/ft²	
0432054	VA FRE 029 8	Flame	Wipe	****	0.111	108.01 ug/ft²	630 ug/ft²	
0432055	VA FRE 029 9	Furnace	Wipe	****	0.111	13.50 ug/ft²	29 ug/ft²	
0432056	VA FRE 029 10	Furnace	Wipe	****	0.111	13.50 ug/ft²	78 ug/ft²	
0432057	VA FRE 029 11	Furnace	Wipe	****	0.111	6.75 ug/ft²	7.9 ug/ft²	
0432058	VA FRE 029 12	Furnace	Wipe Blank	****	N/A	0.30 ug	<	
0432059	VA FRE 029 13	Furnace	Wipe	****	0.111	13.50 ug/ft²	30 ug/ft²	
0432060	VA FRE 029 14	Flame	Wipe	****	0.111	108.01 ug/ft²	1800 ug/ft²	
0432061	VA FRE 029 15	Furnace	Wipe	****	0.111	13.50 ug/ft²	43 ug/ft²	
0432062	VA FRE 029 16	Furnace	Wipe	****	0.111	13.50 ug/ft²	30 ug/ft²	
0432063	VA FRE 029 17	Furnace	Wipe	****	0.111	2.70 ug/ft²	16 ug/ft²	
0432064	VA FRE 029 18	Furnace	Wipe Blank	****	N/A	0.30 ug	0.47 ug	
0432065	VA FRE 029 19	Furnace	Wipe	****	0.111	13.50 ug/ft²	62 ug/ft²	
0432066	VA FRE 029 20	Furnace	Wipe	****	0.111	2.70 ug/ft²	15 ug/ft²	
0432067	VA FRE 029 21	Furnace	Wipe	****	0.111	2.70 ug/ft²	25 ug/ft²	
0432068	VA FRE 029 22	Furnace	Wipe	****	0.111	2.70 ug/ft²	10 ug/ft²	
0432069	VA FRE 029 23	Furnace	Wipe	****	0.111	13.50 ug/ft²	<	
0432070	VA FRE 029 24	Furnace	Wipe Blank	****	N/A	0.30 ug	<	
0432071	VA FRE 029 25	Furnace	Wipe	****	0.111	13.50 ug/ft²	25 ug/ft²	
0432072	VA FRE 029 26	Furnace	Wipe	****	0.111	13.50 ug/ft²	15 ug/ft²	

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



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: VA FRE 029
Job Location: Fredericksburg, Virginia
Job Number: 845702 010000000
P.O. Number: 1103

Chain Of Custody: 123449
Date Analyzed: 3/26/2004
Person Submitting: [Redacted]
Report Date: 26-Mar-04

Attention: [Redacted]

Summary of Atomic Absorption Analysis for Lead

AMA Sample Number	Client Sample Number	Analysis Type	Sample Type	Air Volume (L)	Area Wiped (ft²)	Reporting Limit	Final Result	Comments
0432073	VA FRE 029 27	Furnace	Wipe	****	0.111	33.75 ug/ft²	130 ug/ft²	
0432074	VA FRE 029 28	Furnace	Wipe	****	0.111	33.75 ug/ft²	100 ug/ft²	

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

Analyst: [Redacted] **Technical Manager:** [Redacted]

BEST AVAILABLE COPY

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

Submitted To: **Non-Responsive**Shaw Environmental, Inc.
5700 Thurston Ave., Suite 116
Virginia Beach, VA 23455

Reference Data:	Lead
Client Sample No.:	VAW00027A1 through VALEE028A3
P.O. No.:	1103
Sample Location:	Virginia
Sample Type:	Filter
Method Reference:	NIOSH 7300
DCL Set ID No.:	04-S-0488
DCL Sample ID No.:	04-02620 through 04-02635
Sample Receipt Date:	2/3/2004
Preparation Date:	02/04/04
Analysis Date:	02/05/04

The samples were prepared and analyzed in accordance with NIOSH method 7300 using a Perkin Elmer 3000XL ICP.

The sample condition upon receipt was acceptable except where noted.

The results are in the enclosed data table. Results relate only to the items tested and are not blank corrected unless indicated in the data table.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Non-Responsive

Analyst

Non-Responsive

Reviewer

CINCINNATI OFFICE
4388 GLENDALE-MILFORD ROAD
CINCINNATI, OHIO 45242-3706
513 733-5336, FAX 513 733-5347WEST COAST OFFICE
11 SANTA YORBA COURT
NOVATO, CALIFORNIA 94945
800 280-8071, FAX 415 893-9469

Results Lead

Client #	DCL #	Sample Volume (L)	µg/sample	mg/m ³
VAWOO027A1	04-02620	142.00	ND	<0.007
VAWOO027A2	04-02621	140.00	ND	<0.007
VAWOO027A3	04-02622	0	ND	-
VAFRE029A1	04-02623	277.06	ND	<0.004
VAFRE029A2	04-02624	296.60	ND	<0.003
VAFRE029A3	04-02625	0	ND	-
VAWAR029A1	04-02626	125.75	ND	<0.008
VAWAR029A2	04-02627	123.36	ND	<0.008
VAWAR029A3	04-02628	0	ND	-
VAMAN028A1	04-02629	218.41	ND	<0.005
VAMAN028A2	04-02630	225.70	ND	<0.004
VAMAN028A3	04-02631	0	ND	-
VALEE028A1	04-02633	192.77	ND	<0.005
VALEE028A2	04-02634	195.65	ND	<0.005
VALEE028A3	04-02635	0	ND	-
	Prep Blank		ND	
% Recovery	LCS		118.	
RPL			1.	

ND = not detected at or above the reporting limit (RPL).

LCS = laboratory control sample.

Non-Responsive

Analyst

Non-Responsive

Reviewer

Industrial Hygiene Sampling Calculation Worksheet

National Guard Armory

Location:

Fredericksburg

Date:

1/29/2004

Sample 1

Sample Number: VAFRE029A1

Pump: 647605

Pre Flow Rate

Post Flow Rate

1.699

1.660

1.684

1.683

1.676

1.672

1.678

1.681

Average

1.684

1.674

Average Pre and Post

1.6791

Time 1

10:35

Time 2

13:20

Total Time Sampled

2:45

Minutes Sampled

165.00

Volume

277.06 Liters

Sample 2

Sample Number: VAFRE029A2

Pump: 647633

Pre Flow Rate

Post Flow Rate

1.658

1.643

1.666

1.634

1.653

1.639

1.647

1.642

Average

1.656

1.640

Average Pre and Post

1.6478

Time 1

10:30

Time 2

13:30

Total Time Sampled

3:00

Minutes Sampled

180.00

Volume

296.60 Liters

Appendix D

References

References

Title 29, Code of Federal Regulations CFR), Part 1910, Occupational Safety and Health Administration (current edition)

American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc (ASHRAE) 62-2002, Ventilation for Acceptable Indoor Air Quality

Instructions for Completing the Sampling of Army National Guard Armories, Lead Wipe Sampling Procedure included with the Request for Proposal

Air Sampling for Lead - Method 7082 of the National Institute of Occupational Safety and Health (NIOSH) Manual of Analytical Methods

Design Guide DG-415-2, Logistics Facilities, National Guard Bureau Installation Division, 14 December 1999

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

Army Regulation (AR) 40-5, Medical Service, Preventive Medicine, 15 October 1990

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

Department of the Army Pamphlet (DA PAM) 40-501, Medical Services, Hearing Conservation Program, 10 December 1998

DA PAM 40-503, Medical Services, Industrial Hygiene Program, 30 October 2000

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

Guidelines for Converting Indoor Firing Ranges to Other Uses, Headquarters, Department of the Army and the Air Force, NG PAM (AR) 385-16/ANGPAM 91-101, 31 January 1994

24 CFR, Part 35, Subpart B, Section 35-110, Definition of Lead-Based Paint, Housing and Urban Development, U. S. Department of Housing

Non-Responsive

IV NGB

From: Non-Responsive [REDACTED]@shawgrp.com]

Sent: Tuesday, October 26, 2004 11:25 AM

To: Non-Responsive [REDACTED]@md.ngb.army.mil

Subject: Fredericksburg Report

Vanessa - In an attempt to answer your question about why lead level in the medic's office was high, I talked to the evaluator Non-Responsive [REDACTED] and the Major at the facility. Neither had any reason why the level was higher in the medic's office than the areas around the office. The drill floor had comparable lead levels, so the contamination could have been transferred from the drill floor. The medical supplies are stored in a cage in the medic's office, so the lead would not be transferred by the supplies. I have added to the report that the medical supplies in the medic's office should be thoroughly decontaminated before using, but we don't have a good explanation as to why the lead levels in this office were high..

Non-Responsive

Non-Responsive [REDACTED], CSP, CIAQP

Program Manager

Shaw Environmental, Inc.

312 Directors Drive

Knoxville, Tennessee 37923

Non-Responsive [REDACTED]@shawgrp.com

(865) 694-7332 (Office Direct)

(865) 690-3626 (Fax)

(865) 368-4248 (Cell)

*****Internet Email Confidentiality Footer*****

Privileged/Confidential Information may be contained in this message. If you are not the addressee indicated in this message (or responsible for delivery of the message to such person), you may not copy or deliver this message to anyone. In such case, you should destroy this message and notify the sender by reply email. Please advise immediately if you or your employer do not consent to Internet email for messages of this kind. Opinions, conclusions and other information in this message that do not relate to the official business of The Shaw Group Inc. or its subsidiaries shall be understood as neither given nor endorsed by it.

The Shaw Group Inc.<http://www.shawgrp.com>

Shaw Environmental, Inc.

312 Directors Drive
Knoxville, TN 37923
865.690.3211
Fax 865.690.3626



Shaw Environmental, Inc.

22 April 2004

Ms **Non-Responsive** CIH
Regional Industrial Hygienist
Region North Industrial Hygiene Office
Attn: NGB-AVS-SI
301-IH Old Bay Lane
Havre De Grace, Maryland 21078

RE: Draft Report for the Industrial Hygiene Evaluation at the Fredericksburg
Readiness Center – Fredericksburg, Virginia

Dear Ms **Non-Responsive**

Attached is a copy of the referenced report. Also attached is a copy of the field notes, photographs, and photograph log. Please call me if you have questions.

Sincerely,

Non-Responsive

IAQP

Project Manager

Survey Date 29 Jan 04
Rec'd 5/13/04
rev 10/12/04
emailed 10/12/04

Fredericksburg Armory Photo Log
National Guard Armory
Fredericksburg, Virginia
Date of Survey: 29 January 2004

Photo	Description
1	Lead Wipe Assembly Room - Kitchen Service Window - Sample 1
2	Lead Wipe Assembly Room - Fire Hose Housing - Sample 2
3	Lead Wipe Assembly Room - Heat Register - Sample 3
4	Lead Wipe Assembly Room - Heat Register - Sample 4
5	Lead Wipe Assembly Room - Fire Hose Housing - Sample 5
6	25% Building - Kitchen Service Window - Sample 7
7	25% Building - Locker Room Window Sill - Sample 8
No Photo	25% Building - Supply Room Computer Monitor - Sample 9
9	25% Building - Foyer Water Fountain - Sample 10
10	25% Building - Classroom Table Top - Sample 11
11	25% Building - Recruiter's Office Window Sill - Sample 13
12	25% Building - Medics Office Window Sill - Sample 14
13	25% Building - Storage Room Desktop - Sample 15
14	25% Building - Retention NCO Office Computer CPU - Sample 16
15	25% Building - Conference Room Window Sill - Sample 17
16	25% Building - Typewriter - Sample 19
17	25% Building - Desktop - Sample 20
18	25% Building - Desktop - Sample 21
19	25% Building - HCO Classroom Storage Lockers - Sample 22
20	25% Building - Classroom B Podium - Sample 23
21	25% Building - Shower & Gym - Sample 25
22	25% Building - Supply Room Office - Sample 26
23	25% Building - Supply Room Bookcase - Sample 27
24	25% Building - Basement Hallway Heater - Sample 28
25	Firing Range - Bullet Trap - Sample 29
26	Firing Range - Stored Item (Bulletin Board) - Sample 31
27	Firing Range - Floor Inside the Converted Firing Range - Sample 32
28	Firing Range - Floor Outside the Converted Firing Range - Sample 33
29	Asbestos - Storage Room
30	Asbestos - Storage Room
31	Mold - Men's Latrine
32	Mold - Men's Latrine
33	Water Damage
34	Water Damage - Room 3
35	Water Damage - Room 5
36	Water Damage - Conference Room 1
37	Water Damage - Classroom
38	Water Damage
39	Water Damage
40	Water Damage
41	Mold - Room 14 Office
42	Water Damage & Mold Room 14
43	Water Damage - Hallway to Storage Room

44	Asbestos - Storage Room
45	Water Damage - Storage Room
46	Water Damage

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

NGB-AVS-SI (40-5f)

4 November 2004

MEMORANDUM FOR VAARNG, Fredericksburg Readiness Center, ATTN: SFC [Redacted]
[Redacted] 1700 Jefferson Davis Hwy., Fredericksburg, VA 22401-1178

SUBJECT: Baseline Survey

1. I have enclosed the industrial hygiene survey report completed by Shaw Environmental, Incorporated.
2. In addition to the attached discussion and recommendations regarding wipe samples for lead, if a special function is held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function.
3. Please contact me at (410) 942-0273 or 1-800-550-6967 if you have any questions regarding the enclosed report.

Encl

Non-Responsive

Regional Industrial Hygienist

CF: Organizational Maintenance Officer
Occupational Health Manager

**National Guard Armory
Fredericksburg Readiness Center
Fredericksburg, Virginia
Industrial Hygiene Evaluation**

Recommendations

- Wipe sampling for lead revealed a concentration above the recommended level of 200 micrograms per square foot ($\mu\text{g}/\text{ft}^2$) in the drill floor/assembly hall area, locker room, and medic's office. It is recommended that these surfaces and the areas immediately around these surfaces be thoroughly cleaned to reduce the lead level. In addition, any other dusty/dirty areas in these areas should be thoroughly cleaned. Also, the medical supplies stored in the medic's office must be decontaminated by a thorough cleaning before use. **RAC - 4**
- Wipe sampling for lead revealed concentrations above a level of 40 micrograms per square foot ($\mu\text{g}/\text{ft}^2$) in the drill floor/assembly hall area, locker room, medic's office, kitchen, foyer, storage room, supply room, basement hallway, and converted firing range. Areas with lead concentrations above 40 $\mu\text{g}/\text{ft}^2$ that will be accessible to children should be cleaned. If a special function is held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function. **RAC - 4**
- Materials (pipe insulation) suspected of containing asbestos were observed. An operation and maintenance plan should be followed when performing any activities that may disturb the suspected asbestos-containing materials. **RAC - 5**
- Water damage was observed at several locations at the armory. The source of the water damage was likely from a combination of roof and pipe leaks. The source of the water damage should be confirmed and actions taken to eliminate the source in order to prevent the possibility of mold growth that may lead to indoor air quality problems. **RAC - 5**
- Visual mold was observed in the armory. The area where the mold is located should be thoroughly cleaned with 0.5% sodium hypochlorite solution (1 part household bleach to nine parts water) or equivalent in order to eliminate the potential mold/indoor air quality problem. In addition, the source of the mold should be identified and actions taken to eliminate it. **RAC - 5**
- Measurements for temperature revealed that levels did not meet the recommended level of 68° Fahrenheit in the facility. If possible, the heating units should be adjusted

so the temperature will fall within the acceptable range. In addition, space heaters could be used to increase the temperature at specific locations. **RAC - 5**

- Measurements for humidity revealed that levels did not meet the recommended level of 30% in the facility. It is recommended that a humidification system be installed at the facility. **RAC - 5**
- Lighting measurements were conducted at the armory. The lighting did not meet minimum requirements in some areas; therefore, consideration should be given to providing more lighting in these areas. This may be accomplished by replacing burnt out luminaries, cleaning fixtures, cleaning windows, painting walls with a lighter color, repositioning detailed work to higher illuminated areas, and using supplemental lighting. **RAC - 5**
- Wipe sampling for lead revealed a concentration above the recommended level of 200 micrograms per square foot ($\mu\text{g}/\text{ft}^2$) in several locations in the converted firing range area. It is recommended that these areas and the stored items in these areas be decontaminated by a thorough cleaning until surface lead concentrations are reduced to below recommended levels. In addition, any other dusty/dirty areas in the converted firing range should be thoroughly cleaned. **RAC - 4**

ATTACHED TO ROOMS & HALLWAYS
OLD PART OF BUILDING BEST AVAILABLE COPY
NEW PART OF BUILDING BUILT IN LATE 80'S EARLY 90'S

Field Notes and Checklist

State: Virginia Location: FREDRICKSBURG ARMORY Date: JANUARY 29, 2009
Contact: SF Non-Responsive

1.0 Sampling for Lead

1.1 Wipe Sampling

Sample #: 1 Picture #: / Location: KITCHEN SERVICE WINDOW
Sample #: 2 Picture #: / Location: FIRE HOSE HOUSING
Sample #: 3 Picture #: / Location: HEAT REGISTAR TOP
Sample #: 4 Picture #: / Location: HEAT REGISTAR TOP
Sample #: 5 Picture #: / Location: FIRE HOSE HOUSING
Sample #: 6, 12, 15 Picture #: - Location: FIELD BLANK
Sample #: 24, 30, 31 Picture #: / Location: KITCHEN WINDOW SILL
Sample #: 8 Picture #: / Location: LOCKER RM WINDOW SILL
Sample #: 9 Picture #: / Location: SUPPLY ROOM COMPUTER MONITOR TOP
Sample #: 10 Picture #: / Location: FOYER WATER FOUNTAIN TOP
Sample #: 11 Picture #: / Location: CLASSROOM 1 TABLE TOP
Sample #: 13 Picture #: / Location: RECRUITERS OFFICE WINDOW SILL
Sample #: 14 Picture #: / Location: MEDICS OFFICE WINDOW SILL
Sample #: 15 Picture #: / Location: STORAGE ROOM DESKTOP
Sample #: 16 Picture #: / Location: RETENTION NCO COMPUTER CPU
Sample #: 17 Picture #: / Location: CONFERENCE ROOM WINDOW SILL
Sample #: 19 Picture #: / Location: TOP OF TYPEWRITER
Sample #: 20 Picture #: / Location: DESKTOP
Sample #: 21 Picture #: / Location: DESKTOP
Sample #: 22 Picture #: / Location: HCO CLASSROOM STORAGE LOCKER

(Also, please see the sketch of sampling locations.)

1.2 Breathing Zone Air Sampling

Sample #: A1 Employee Sampled: GENERAL AIR SAMPLE
Sample #: A2 Employee Sampled: GENERAL AIR SAMPLE

Contact: SFC **Non-Responsive**

Sample #: _____ Picture #: _____ Location: _____

2.0 Physical Condition of Facility

2.1 Peeling Paint - Lead

Peeling paint observed (Yes or No): NO

If peeling paint observed, samples were taken as follows:

Sample #: _____ Picture #: _____ Location: _____
 Condition (Good, Average, Poor): _____ Quantity: _____ ft²
 Sample #: _____ Picture #: _____ Location: _____
 Condition (Good, Average, Poor): _____ Quantity: _____ ft²
 Sample #: _____ Picture #: _____ Location: _____
 Condition (Good, Average, Poor): _____ Quantity: _____ ft²
 Sample #: _____ Picture #: _____ Location: _____
 Condition (Good, Average, Poor): _____ Quantity: _____ ft²
 Sample #: _____ Picture #: _____ Location: _____
 Condition (Good, Average, Poor): _____ Quantity: _____ ft²

2.2 Visual Inspection - Asbestos

Suspected asbestos-containing material observed (Yes or No): YES

If suspected asbestos-containing material observed, samples were taken as follows:

Location 1: STORAGE ROOM Picture #: 1
 Condition: GOOD Approximate (Square or Linear Feet): 10
 Location 2: _____ Picture #: _____
 Condition: _____ Approximate (Square or Linear Feet): _____
 Location 3: _____ Picture #: _____
 Condition: _____ Approximate (Square or Linear Feet): _____
 Location 4: _____ Picture #: _____
 Condition: _____ Approximate (Square or Linear Feet): _____
 Location 5: _____ Picture #: _____
 Condition: _____ Approximate (Square or Linear Feet): _____

2.3 Visual Inspection – Water Damage and Mold

Water damage observed (Yes or No): YES

If yes, water damage was observed at the following locations:

Location 1:	<u>Locker Room</u>	Picture #:	<u>/</u>
Location 2:	<u>Assembly Hall</u>	Picture #:	<u>/</u>
Location 3:	<u>Vestibule</u>	Picture #:	<u>/</u>
Location 4:	<u>Foyer</u>	Picture #:	<u>/</u>
Location 5:	<u>Classrooms</u>	Picture #:	<u>/</u>

STORAGE ROOM, HALLWAY, MEDIC'S OFFICE, CAP OFFICE, RELQUIERS OFFICE
HALLWAY TO STORAGE ROOM, CLASSROOM #1, CONFERENCE ROOM

Mold observed (Yes or No): YES
Room #3, Room #5, Room #7, Room #11, Room #15
Room #14, Room #12, Room #13, CLASSROOMS A, B

If yes, mold was observed at the following locations: Room #20, STAIRWELL TO BASEMENT
Room #15

Location 1:	<u>UNC OFFICES</u>	Picture #:	<u>/</u>
Location 2:	<u>MENS LATRINE</u>	Picture #:	<u>/</u>
Location 3:	<u>MEDIC'S OFFICE</u>	Picture #:	<u>/</u>
Location 4:	<u></u>	Picture #:	<u>/</u>
Location 5:	<u></u>	Picture #:	<u>/</u>

2.4 Visual Inspection – Housekeeping

Housekeeping (good, average, poor): GOOD

Comments (such as no dirt or trash was visible on the floors or the housekeeping was poor in that there was trash and debris on the floors that could lead to a tripping hazard, or there was dust in the vents.):

3.0 Building Concerns

3.1 Ergonomic Concerns

Ergonomic concerns (Yes or No): NO

If there are ergonomic concerns at the armory, describe the extent of the problem, such as three employees stated that they perform repetitive motion at the XYZ machine for 6 hours per day, and they stated that they are suffering from symptoms of musculoskeletal disorders (MSDs).

3.2 Indoor Air Quality

IAQ concerns (based on employee interviews)(Yes or No): No

If yes, what were concerns:

Measurements for carbon dioxide, humidity, and temperature:

Location	CO ₂ (ppm)	Humidity (%)	Temperature (°F)	Occupancy (People in Room)
Outdoors -	267	21.7	59.4	0
1 st Floor -	321	26.5	66.9	1
2nd Floor -				
3rd Floor -				
Basement	343	24.2	61.7	1

4.0 Safety and Industrial Hygiene Programs

4.1 Confined Spaces

Are confined spaces applicable (Yes or No): No

If yes, does the program meet minimum standards (Yes or No): _____

If no, explain the deficiencies:

4.2 Hearing Conservation

Is hearing conservation applicable (Yes or No): no

If yes, does the program meet minimum standards (Yes or No): _____

If no, explain the deficiencies:

4.3 Respiratory Protection

Is respiratory protection applicable (Yes or No): no

If yes, does the program meet minimum standards (Yes or No): _____

If no, explain the deficiencies:

4.4 Hazard Communication

Is hazard communication applicable (Yes or No): yes

If yes, does the program meet minimum standards (Yes or No): yes

If no, explain the deficiencies:

4.5 Personal Protective Equipment

Is personal protective equipment applicable (Yes or No): No

If yes, does the program meet minimum standards (Yes or No): _____

If no, explain the deficiencies:

5.0 Ventilation

5.1 Ventilation System Evaluation

Local exhaust ventilation systems at this armory (Yes or No): No

If yes, results of airflow patterns:

Location 1: _____

Airflow Pattern (acceptable or unacceptable, with reason):

Location 2: _____

Airflow Pattern (acceptable or unacceptable, with reason):

Location 3: _____

Airflow Pattern (acceptable or unacceptable, with reason):

5.2 Contamination of Clean Air Sources

Clean air sources contaminated by contaminated exhaust air (Yes or No): No

If yes, describe:

6.0 Noise Dosimetry

Potential hazardous noise areas (Yes or No): no

If yes, results of noise dosimetry sampling:

Employee sampled: _____

Results: _____ % Actual _____ % Projected 8-hour TWA _____ Equivalent dBA

Activity: _____

Employee sampled: _____

Results: _____ % Actual _____ % Projected 8-hour TWA _____ Equivalent dBA

Activity: _____

Employee sampled: _____

Results: _____ % Actual _____ % Projected 8-hour TWA _____ Equivalent dBA

Activity: _____

7.0 Lighting Evaluation

DIVIDE BY .9

Location	Luminance Range (fc)
FIRING RANGE	20-30
RAVEMENT HALLWAY	20-50
SHOWER & 6' x 12' RM	20-50
CLASSROOM B	50-90
Rm 17	50-100
Rm 15	40-110
MAIL ROOM	60-100
LEARNING CENTER	80-130
UPSTAIRS HALLWAY	10-60
Rm 4	70-120
MEDICAL RM	80-100
FRONT CLASSROOM	40-80
MEN'S LATRINE	30-40
LOBBY	50-70

<u>KITCHEN</u>	<u>20-50</u>
<u>STORAGE RM</u>	<u>20-40</u>
<u>SUPPLY RM</u>	<u>20-60</u>

8.0 Converted Indoor Firing Ranges

Converted indoor firing range (Yes or No): YES

If yes, locations sampled:

Sample #: 1A Picture #: — Location: Inside any remaining ventilation ductwork

Sample #: 1A Picture #: — Location: Exhaust ventilation system

Sample #: 2A Picture #: / Location: Bullet trap

Sample #: 1A Picture #: X Location: Light fixtures COULD NOT GET TO

Sample #: 1A Picture #: — Location: Overhead heaters

Sample #: 31 Picture #: / Location: Stored items

Sample #: 32 Picture #: / Location: Floor

Sample #: 33 Picture #: / Location: Outside the range

9.0 HVAC System

Does the HVAC system have maintenance performed on a regular basis (Yes or No):

YES

In yes, is the maintenance effective (Yes or No): YES

If no, describe:

10.0 HHIM

Complete HHIM form for facility (Initial as completed): Non-Responsive

Reproduction Room HHIM Necessary (Yes or No) (Initial if Yes): —

Film Developing Room HHIM Necessary (Yes or No) (Initial if Yes): —

Maintenance Area HHIM Necessary (Yes or No) (Initial if Yes): —

11.0 Additional Items

Table 1 (wipe sampling) completed (initial when completed): Non-Responsive

Table 2 (air sampling) completed (initial when completed): [REDACTED]

Table 3 (peeling paint), if necessary, completed (initial when completed): [REDACTED]

Table 3 or 4 (IAQ) completed (initial when completed): [REDACTED]

Table 4 or 5 (noise), if necessary, completed (initial when completed): [REDACTED]

Table 5 or 6 (firing ranges), if necessary, completed (initial when completed): [REDACTED]

Airflow pattern diagram(s) completed (initial when completed): [REDACTED]

Building layout included (initial when completed): [REDACTED]

Photographs (initial when completed): [REDACTED]

Sampling Sheets and Laboratory Analyses (initial when completed): [REDACTED]

Sampling tracking form completed and faxed to NGB ARNG B [REDACTED]

within 5 days of date of this survey (initial when completed): [REDACTED]

(Fax to Ken Forsythe at 410-942-0254)

State Lead Wipes Spreadsheet completed) (initial when completed): [REDACTED]

Three copies of noise exposure notification letter, if necessary (initial when completed): [REDACTED]

Three copies of contaminant exposure forms for each employee that participated in air sampling (initial when completed): [REDACTED]

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



**Industrial Hygiene Survey
for VAARNG – Fredericksburg Readiness
Center
1700 Jefferson Davis Highway
Fredericksburg, Virginia 22401**

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



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

Industrial Hygiene Survey
for VAARNG – Fredericksburg Readiness
Center
1700 Jefferson Davis Highway
Fredericksburg, Virginia 22401

Non-Responsive

A large black rectangular redaction box covering several lines of text.

Industrial Hygienist

Non-Responsive

A large black rectangular redaction box covering several lines of text.

Non-Responsive

A large black rectangular redaction box covering several lines of text.

Northeast District Health & Safety Manager

AECOM Environment
January 2013
Document No.: 60276421/ Fredericksburg 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 Fredericksburg Readiness Center Facility Layout

Appendix B Fredericksburg Readiness Center Photographs

Appendix C Analytical Results

Appendix D References



List of Tables

Table 2-1: Lead Wipe Sample Results 2-1

Table 3-1: Indoor Air Quality Monitoring Results..... 3-2

Table 5-1: Light Survey 5-1



Executive Summary

On December 5, 2012, AECOM Technical Services Northeast, Inc. (AECOM) conducted an Industrial Hygiene (IH) survey of the Fredericksburg Readiness Center facility located at 1700 Jefferson Davis Highway in Fredericksburg, Virginia. 1stSGT Non- [REDACTED] was the point of contact for the facility and accompanied AECOM during the survey to provide access and information concerning the Fredericksburg Readiness Center operations.

The industrial hygiene survey was conducted in general accordance with the scope of work as described in the "Statement of Work – Industrial Hygiene Services for National Guard Bureau Industrial Hygiene Region North – Baseline Surveys for Readiness Centers and Administrative Buildings", dated March 2009.

The Fredericksburg Readiness Center is currently staffed by fourteen personnel. The facility is configured as an administrative area and a drill/assembly hall.

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

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

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

Wipe samples collected in association with most administrative areas indicated lead levels below the Occupational Safety and Health Administration's (OSHA's) Clarification of "as free as practicable" and lead contamination under 29 Code of Federal Regulations (CFR) 1926.62, The Compliance Directive for the Interim Standard for Lead in Construction, CPL 2-2.58. OSHA recommends the use of the U.S. Department of Housing and Urban Development's (HUD) acceptable decontamination level of 200 micrograms per square foot (ug/ft²) for floors in evaluating the cleanliness of change areas, storage facilities, and lunchrooms/eating areas.

Damaged suspect asbestos containing materials were observed during the evaluation. A sample was collected from the exposed thermal system insulation in the supply room (room 205) and the ceiling tile in the chair storage room (room 200). Results of the analysis indicated no asbestos detected in the submitted samples.

Several small patches (2 X 2 inch) of peeling paint were observed on the walls of the drill hall. A sample of the peeling paint was collected and submitted for analysis. Results of the testing indicated a lead concentration of less than the reporting limit.

Neither significant water damage nor visible mold growth was observed during the survey in association with roof leaks or water intrusion. Visible mold/mildew growth was observed in the men's shower. It was noted that no operable exhaust fan was present in this area.

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

1.0 Facility Description and Operations

The Fredericksburg Readiness Center is located in a purpose built masonry block structure with brick façade. The single story structure on a basement was initially constructed in 1957 and approximately 35-thousand square feet. The section occupied by Readiness Center personnel consists of rooms configured as office space and is finished with acoustical drop ceilings, and floor tile.

The primary activity at the Fredericksburg Readiness Center is routine administrative duties. The Fredericksburg Readiness Center is currently staffed by approximately 14 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 multiple areas of the facility following the Occupational Safety & Health Administration (OSHA) wipe sampling method and using Ghost Wipes.

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

Table 2-1: Lead Wipe Sample Results

Sample Number	Sample Location	Lead Concentration
001	Drill hall top of heater box	<110 ug/ft ²
002	Kitchen	<110 ug/ft ²
003	Supply air grill office 2-2 common space	<110 ug/ft ²
004	Top of desk office 105	<110 ug/ft ²
005	Basement storage	140 ug/ft ²
006	Main hallway outside room 2-7	<110 ug/ft ²
007	Foyer air supply vent	<110 ug/ft ²

ug/ft² = Micrograms per square foot.

Wipe samples collected in association with most administrative areas indicated lead levels below the Occupational Safety and Health Administration's (OSHA's) Clarification of "as free as practicable" and lead contamination under 29 CFR 1926.62, The Compliance Directive for the Interim Standard for Lead in Construction, CPL 2-2.58. OSHA recommends the use of HUD's acceptable decontamination level of 200 ug/ft² for floors in evaluating the cleanliness of change areas, storage facilities, and lunchrooms/eating areas. Laboratory analytical results are presented in Appendix C.

2.1.2 Air Sampling

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

3.0 Physical Condition of Facility and Personnel Concerns

3.1.1 Lead Based Paint

Interior surfaces of walls are coated with paint. AECOM observed and sampled damaged/ peeling paint from the walls of the drill hall. Results of analysis of the submitted sample indicated a lead concentration below the reporting limiting of 0.0082% lead.

3.1.2 Suspect Asbestos Containing Materials

Damaged suspect asbestos containing materials were observed during the evaluation. A sample was collected from the exposed thermal system insulation in the supply room (room 205) and the ceiling tile in the chair storage room (room 200). Results of the analysis indicated no asbestos detected in the submitted samples.

Typical suspect miscellaneous building materials observed but not sampled include drywall, floor tiles and associated mastic, cove base and associated mastic, ceiling tiles, carpet mastic, and window caulks.

3.1.3 Water Damage/Mold

Neither significant water damage nor visible mold growth was observed during the survey in association with roof leaks or water intrusion. Visible mold/mildew growth was observed in the men's shower. It was noted that no operable exhaust fan was present in this area.

3.1.4 Housekeeping

The Fredericksburg 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 Fredericksburg Readiness Center staff members. No Indoor Air Quality concerns were noted by the Fredericksburg Readiness Center personnel.

Instantaneous real-time reading for carbon monoxide and carbon dioxide (parts per million or ppm), temperature (° Fahrenheit), and relative humidity (as percentage) are presented in the following table. The facility is mechanically air conditioned. All readings were within acceptable guidelines.

Table 3-1: Indoor Air Quality Monitoring Results

Location	Carbon Monoxide (ppm)	Carbon Dioxide (ppm)	Temp (°F)	Relative Humidity (%)
2-2 office/common area	2.1	598	70.5	50.4
2-2A office	2.4	647	70.6	52.0
2-2B office	2.4	798	70.7	51.1
2-2C office	2.4	679	70.9	50.7
2-4 office	2.4	678	70.9	49.5
2-4B office	2.4	679	71.2	49.1
2-10 Break room	2.4	612	70.9	46.2
Hallway outside 2-10	2.3	632	71.3	46.7
2-8 storage	2.3	550	71.2	44.7
2-13 copy/mail	2.4	563	70.5	43.3
2-12 Civil air	2.3	672	70.6	48.5
2-16 restroom	2.3	644	69.9	47.8
2-20 gym	2.2	480	69.1	46.0
2-19 classroom	2.4	497	67.6	49.6
2-17 office/common area	2.4	602	67.9	49.6
2-15 office/common area	1.5	544	69.5	47.1
2-15B office	1.8	536	69.8	47.1
2-15C office	1.8	557	70.2	46.9
2-15A office	1.8	561	70.4	46.1
2-11 office/common area	2.0	703	70.2	47.5
2-11A office	2.0	703	70.3	47.7
2-11B office	2.4	627	70.1	47.5
2-11C office	1.8	551	70.1	47.1
2-9 office	1.9	817	70.3	51.2
2-9A office	2.3	796	69.9	52.2
2-9B office	2.2	617	69.7	50.2
2-7 office	1.8	936	70.4	52.4
2-7A office	1.8	910	71.7	52.4
2-7B office	1.8	983	71.8	51.4
2-1 conference	2.5	558	68.5	51.5
Hallway outside 2-5	2.4	567	68.2	50.4
2-3 office/common area	1.8	661	66.5	55.0
2-3A office	1.9	578	65.5	55.8
2-3B office	1.9	579	64.6	57.3
2-3C office	1.3	565	63.8	59.1
2-3D office	1.5	572	64.5	58.5
110	0.7	529	69.8	57.4
109 office	1.1	530	68.8	53.1
103 office	1.8	664	69.5	51.7
105 office	1.8	612	69.8	51.1
107 office	2.4	597	69.9	50.3
104 classroom	2.2	467	70.0	51.9

Location	Carbon Monoxide (ppm)	Carbon Dioxide (ppm)	Temp (°F)	Relative Humidity (%)
Entrance foyer	1.8	438	69.5	43.4
Drill floor	1.8	403	71.4	40.7
Chair storage 200	1.8	411	71.5	40.0
Hallway 207	1.9	459	70.7	44.6
Electronic range	1.8	478	69.7	47.7
200B storage	1.8	463	70.3	43.6
200C storage	1.8	440	70.4	44.0
201/202 kitchen	1.8	427	70.1	40.6
204 supply	1.8	469	70.7	42.5
Shower room	2.2	589	69.5	75.7
205 supply room	1.8	540	69.5	47.0
Stairway to basement	1.3	454	71.5	37.3
B-1	1.2	416	70.4	37.2
B-3 rest room	2.9	436	69.5	41.8
B-4	2.4	480	69.3	44.0
Hallway outside B-6	1.8	434	68.8	41.0
B9B supply	1.8	478	66.5	41.1

Table 3-1 Guidelines:

Carbon Monoxide: Office/Warehouse Space – 9 ppm based on United States Environmental Protection Agency's National Ambient Air Quality Standard.

OSHA Permissible Exposure Limit (PEL) = 50 ppm. American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit value (TLV) = 25, ppm.

Carbon Dioxide: Office Space -Approximately 700 ppm above background (Derived from American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE) Standard 62.1-2010). Not Applicable to warehouse and vehicle maintenance bays.

Relative Humidity: Mechanically air-conditioned space – Maximum 65% (Derived from ASHRAE Standard 62.1-2010 – 5.10.1).

Temperature: Winter (clothing insulation = 1.0 clo) Relative humidity 30-60% - Temp - 68 – 75°F

Summer Temp - 73 – 79°F. (Derived from ASHRAE Standard 55-2010)

Fredericksburg 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 building has a newer boiler and air conditioning system. No dust was observed at diffusers, and site personnel indicated that the system seems to work well. Temperature readings were generally constant in all areas occupied by readiness center personnel.

4.1.2 HVAC Maintenance

The HVAC system is new and has been in operation for only a few months, maintenance is not yet required. Building maintenance personnel were unable to verify whether or not a maintenance schedule is in place.

There was no 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 generally not adequate.

Table 5-1: Light Survey

Location	Results (Foot candles)	Met Standard (Y/N)	Standard*
2-2 office/common area	41.3	N	50
2-2A office	52.9	Y	30
2-2B office	52.3	Y	50
2-2C office	52.8	Y	50
2-4 office	62.0	Y	50
2-4B office	49.6	N	50
2-10 Break room	50.7	Y	50
Hallway outside 2-10	57.1	Y	5
2-8 storage	48.9	Y	30
2-13 copy/mail	29.1	N	10
2-12 Civil air	13.2	N	50
2-16 restroom	25.3	Y	5
2-20 gym	23.7	Y	10
2-19 classroom	46.1	Y	30
2-17 office/common area	33.6	Y	10
2-15 office/common area	20.9	Y	10
2-15B office	40.6	N	50
2-15C office	28.8	N	50
2-15A office	41.2	N	50
2-11 office/common area	35.2	Y	10
2-11A office	66.9	Y	50
2-11B office	42.0	N	50
2-11C office	44.2	N	50
2-9 office	20.0	Y	10
2-9A office	16.6	N	50
2-9B office	74.2	Y	50
2-7 office	17.6	Y	10
2-7A office	13.3	N	50
2-7B office	33.6	N	50
2-1 conference	29.6	N	30
Hallway outside 2-5	83.1	Y	5
2-3 office/common area	20.5	Y	10
2-3A office	30.4	N	50
2-3B office	40.0	N	50
2-3C office	40.1	N	50
2-3D office	23.3	N	50
110	38.0	N	50
109 office	22.7	N	50
103 office	53.8	Y	50

Location	Results (Foot candles)	Met Standard (Y/N)	Standard*
105 office	28.8	N	50
107 office	32.3	N	50
104 classroom	52.1	Y	30
Entrance foyer	22.9	Y	10
Drill floor	38.0	Y	10
Chair storage 200	15.3	N	30
Hallway 207	39.5	Y	5
Electronic range	42.8	N	50
200B storage	9.3	N	30
200C storage	11.2	N	30
201/202 kitchen	18.5	N	50
204 supply	15.4	N	30
Shower room	8.3	Y	5
205 supply room	18.7	N	30
Stairway to basement	28.1	Y	5
B-1	25.1	N	30
B-3 rest room	27.3	Y	5
B-4	18.0	N	50
Hallway outside B-6	16.5	Y	5
B9B supply	10.0	N	30
Office Lighting (ANSI/IESNA RP-1-04) and Industrial Lighting Facilities (ANSI/IESNA RP-7-01)			

6.0 Evaluation of Attached Garage

There is no garage associated with the Fredericksburg 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 Fredericksburg Readiness Center.

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

Wipe samples collected in association with most administrative areas indicated lead levels below the Occupational Safety and Health Administration's (OSHA's) Clarification of "as free as practicable" and lead contamination under 29 CFR 1926.62, The Compliance Directive for the Interim Standard for Lead in Construction, CPL 2-2.58. OSHA recommends the use of HUD's acceptable decontamination level of 200 ug/ft² for floors in evaluating the cleanliness of change areas, storage facilities, and lunchrooms/eating areas.

Damaged suspect asbestos containing materials were observed during the evaluation. A sample was collected from the exposed thermal system insulation in the supply room (room 205) and the ceiling tile in the chair storage room (room 200). Results of the analysis indicated no asbestos detected in the submitted samples.

Several small patches (2 X 2 inch) of peeling paint were observed on the walls of the drill hall. A sample of the peeling paint was collected and submitted for analysis. Results of the testing indicated a lead concentration of less than the reporting limit.

Neither significant water damage nor visible mold growth was observed during the survey in association with roof leaks or water intrusion. Visible mold/mildew growth was observed in the men's shower. It was noted that no operable exhaust fan was present in this area.

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

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

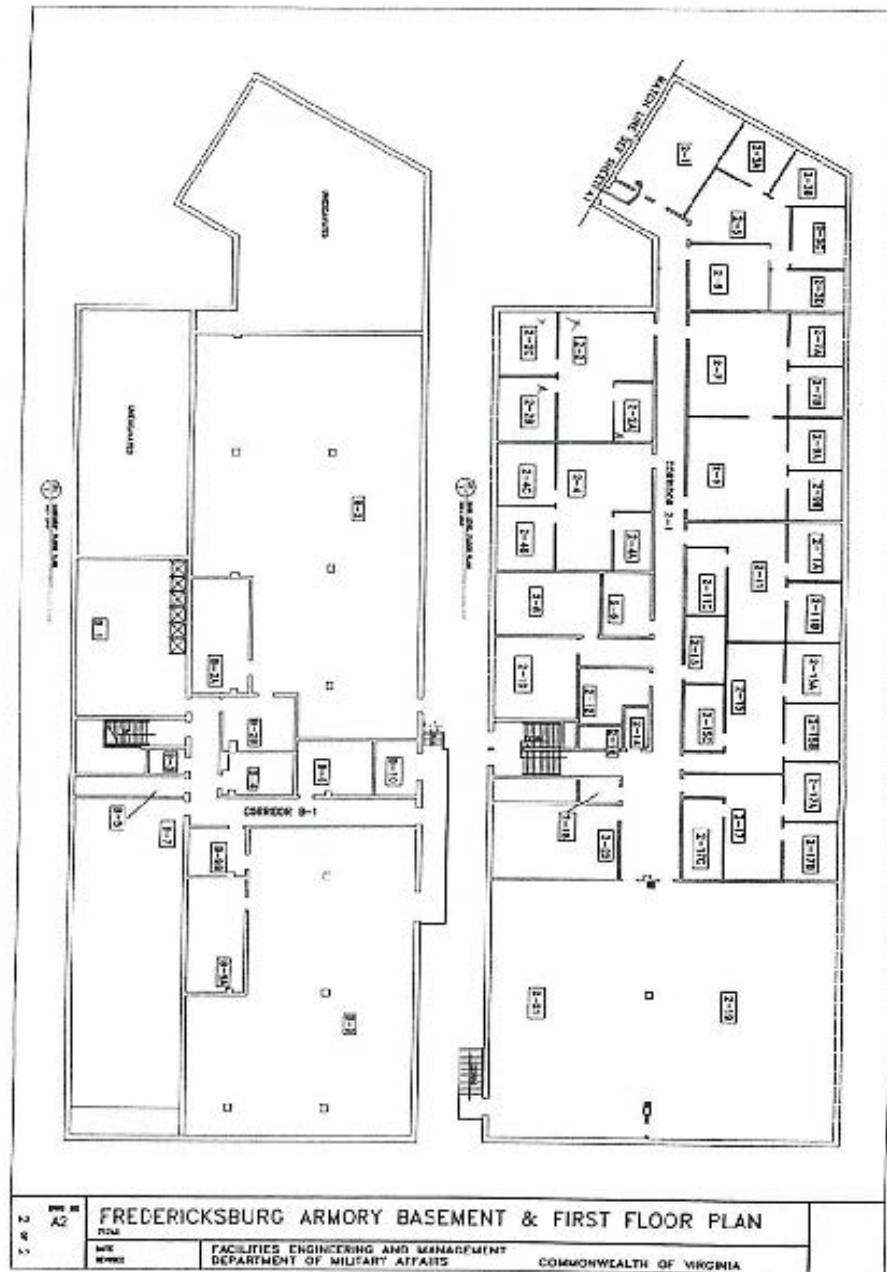
As with all such surveys, the results of the sampling represent conditions found on the date of the survey and may not represent conditions found at other times. Additionally, this survey was limited with respect to the specific parameters indicated above and should not be construed to be a comprehensive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

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



Appendix A

Fredericksburg Readiness Center Facility Layout





Appendix B

Fredericksburg Readiness Center Photographs

Photograph 1



Fredericksburg building

Photograph 2



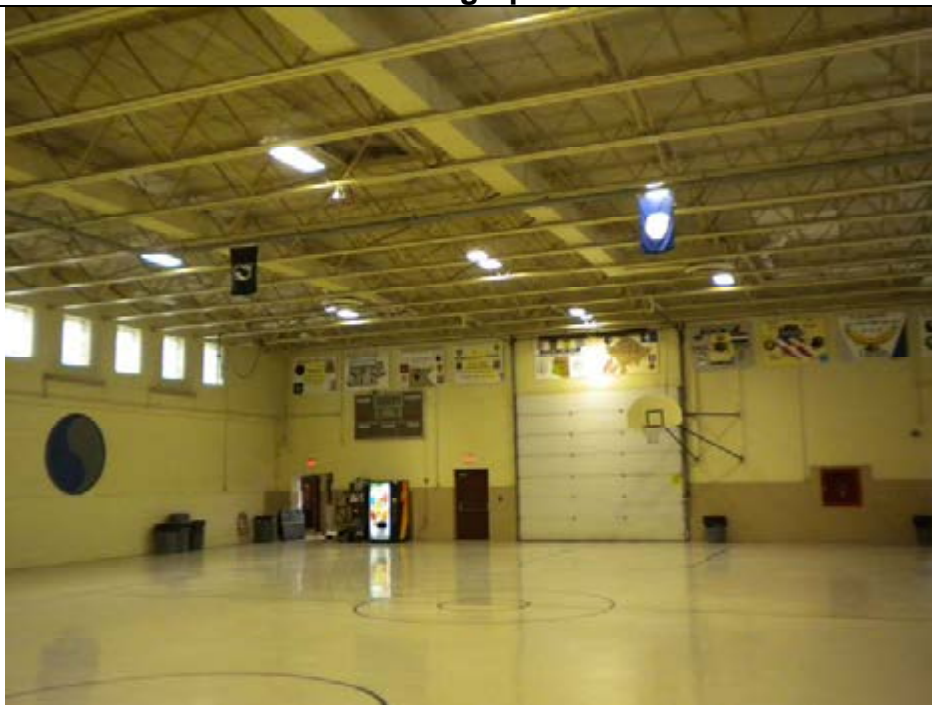
Supply grill room 2-2

Photograph 3



Foyer area/supply grill behind table

Photograph 4



Drill floor

Photograph 5



Ceiling tile room 200

Photograph 6



Drill floor wipe sample location

Photograph 7



Kitchen area wipe sample

Photograph 8



Office 105 wipe 004

Photograph 9



Men's shower note mold

Photograph 10



Basement storage area, note sample location on wall box

Photograph 11



Representative hallway

Photograph 12



Chipping paint outside room 200

Photograph 13



Damaged ceiling tile room 200

Photograph 14



Suspect ACM room 205

Photograph 15



Suspect ACM storage room

Photograph 16



Additional exterior photo



Appendix C

Analytical Results



Chain Of Custody:	514742		
Date Submitted:	12/12/2012		
Person Submitting:	AECOM		
Date Analyzed:	12/31/2012	Report Date:	12/21/2012

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
13023056	001	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
13023057	002	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
13023058	003	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
13023059	004	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
13023040	005	Flame	Wipe	****	0.111	110 ug/ft²	16	140 ug/ft²	
13023041	006	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
13023042	007	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
13023043	008	Flame	Paint Chip	****	N/A	0.0062 %Pb		<0.0052 %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 NTELAAP, AIHA, or any agency of the Federal Government. All rights reserved. ANA Analytical Services, Inc.

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



CERTIFICATE OF ANALYSIS



Client:	National Guard Bureau	Job Name:	VA ANG IH Survey	Chain Of Custody:	514742
Address:	301-IH Old Bay Lane, Attn: ARNG-C/G-P, State Military Reservation Havre de Grace, Maryland 21078	Job Location:	Fredericksburg	Date Submitted:	12/12/2012
		Job Number:	Not Provided	Person Submitting:	AECOM
		P.O. Number:	W912K6-09-A-0003	Date Analyzed:	12/21/2012
				Report Date:	12/21/2012

Non-
R i

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
-------------------	----------------------	---------------	-------------	----------------	------------------	-----------------	----------	--------------	----------

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

associated with these samples.

samples

samples.

Non-Responsive

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.

An AIHA (#100470) and NY ELAP (#10920) Accredited Laboratory

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

AMA Analytical Services, Inc.



A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS

NVLAP®

101143-0

Client: National Guard Bureau Job Name: VAANGIH Survey Chain Of Custody: 514742
 Address: 301-1H Old Bay Lane, Attn: ARNG-CJG-P, Job Location: Fredericksburg Date Analyzed: 12/19/2012
 Havre de Grace, Maryland 21078 Job Number: Not Provided Person Submitting: AECOM
 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	Crucioilite Percent	Other Asbestos Percent	Mineral Wool Percent	Fiberglass	Organic	Synthetic	Other	Particulate	Sample Type	Sample Color	Homogeneity	Analyst ID	Comments
13023044	009	NAD	--	--	--	--	40	--	--	--	--	60	TSI	Off-White	Homogeneous	LBP	
13023045	010	NAD	--	--	--	--	90	--	--	--	--	10	CT	Yellow	Homogeneous	LBP	

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

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

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

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

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

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

Technical Director

Non-Responsive

Analysis(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.

NVLAP (101143-0) Accredited Laboratory

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



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

(Please Refer To This
Number For Inquires)

514742

Submittal Information:

1. Job Name: VA ANG 1H SURVEY
2. Job Location: Fredericksburg
3. Job #: _____ P.O. #: W912KG-09-A-0003
4. Contact Person: Non-Responsive @ phone #
5. Submitted by: AECOM (Signature) Non-

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

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>12/19/12</u>		<input type="checkbox"/> Results Required By Noon	REPORT TO: <input checked="" type="checkbox"/> Include <input type="checkbox"/> Email <input type="checkbox"/> Fax <input type="checkbox"/> Verbal
<div style="text-align: right; color: red; font-weight: bold;">Non-Responsive</div>					

TEM Bulk

- *It is recommended that blank samples be submitted

- ☒
- All samples received in good con

(TEM Water samples _____ °C)

☐ *Spore-Trap____(QTY)☐ Other (Specify _____) _____ (OTN)

SAMPLE INFORMATION																ANALYSIS								MATRIX							CLIENT CONTACT		
CLIENT ID #	SAMPLE LOCATION/ID	DATE/ TIME	VOL (L) Wipe Area	TEMP	PCN	PEN	LEAD	MOLD	AIR	BULK	DUST	WATER MATERIALS	SPRINKLER SYSTEM	TAPE	SWAB	(LABORATORY STAFF ONLY)																	
																	Date/Time:	Contact:	By:														
	SEE ATTACHED FIELD DATA SHEETS																																
																	Date/Time:	Contact:	By:														
																	Date/Time:	Contact:	By:														

Surface Sampling Field Data Sheet

Date Collected: 12/05/12

Job Name: Fredericksburg NGB FTR

Company: H&P Page 1 of 1

Job Number: 20120569

Job Location: Fredericksburg VA

Phone Number: 474-547-7796

Contact Person: Non-Respon

Address: 1702 Jefferson Davis Hwy

Collected By: Non-Respon

Fredericksburg VA 22401

COC Number:

Sample Number	Sample Location	Surface/Substrate Sampled	Area Wiped (in ² /ft ²)	Collection Media
001	Drain Hall top at Hunter Bldg	Metal	16 in ²	Wipe
002	Kitchen	Stainless	1	1
003	Supply Air Unit office 2-2 common area	Drain top	1	1
004	Top of drain office 105	Drain top	1	1
005	Basement Storage top at Cabinet Room B-1	Cabinet top	1	1
006	Main Hallway floor outside Room 2-7	Floor tile	1	1
007	Fogor Air Supply Unit	Metal	↓	↓
008	Paint chip Drain Hall outside room 202	with paint chip		

Please Return Samples To:

AMA Analytical Services, Inc., 4475 Forbes Blvd., Lanham, MD 20706, (800) 346-0961/(301) 459-2640 Fax, www.ama-lab.com, info@ama-lab.com

Bulk Sampling Survey Sheet

Date Collected: 12/05/12Job Name: Fredericksburg VEG DADCompany: HCL Page 1 of 4Job Number: 20120569Job Location: Fredericksburg VAPhone Number: 434-847-7296Contact Person: Non-ResponsiveAddress: 1700 Jefferson Davis HwyCollected By: Non-ResponsiveFredericksburg VA 22404

COC Number: _____

Sample Number	Homogenous Area ID	Type of Material	Sample Location	Frangible	Condition of Material	Accessibility	Photo	Comments
009		VEG Supply	Elbow on c/s is pipe to	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input checked="" type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input checked="" type="checkbox"/> High	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
010		c/s is tile	c/s is tile in chair group	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Potentially	<input type="checkbox"/> Good <input checked="" type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input checked="" type="checkbox"/> Medium <input type="checkbox"/> High	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	



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





Appendix D

References



References

1. Title 29, Code of Federal Regulations (CFR), Part 1910, Occupational Safety and Health Administration, current Ed. <http://www.osha.gov/comp-links.html>
2. Department of Defense Instruction (DODI) 6055.1, Department of Defense Occupational Safety and Health (OSH) Program, August 19, 1998. <http://www.dtic.mil/whs/directives/corres/pdf/605501p.pdf>
3. Army Regulation (AR) 11-34, The Army Respiratory Protection Program, 15 February 1990. http://armypubs.army.mil/epubs/pdf/R11_34.PDF
4. AR 40-5, Medical Service, Preventive Medicine, 25 May 2007. http://armypubs.army.mil/epubs/pdf/R40_5.PDF
5. AR 385-10, The Army Safety Program, 23 August 2007; Rapid Action Revision (RAR) issue date: 4 October 2011. http://armypubs.army.mil/epubs/pdf/R385_10.PDF
6. Department of the Army Pamphlet (DA PAM) 40-501, Medical Services, Hearing Conservation Program, 10 December 1998. http://armypubs.army.mil/epubs/pdf/P40_501.pdf
7. DA PAM 40-11, Preventive Medicine, 22 July 2005, RAR issue date: 19 October 2009. http://armypubs.army.mil/epubs/pdf/p40_11.pdf
8. DA PAM 40-503, Medical Services, Industrial Hygiene Program, 30 October 2000. http://armypubs.army.mil/epubs/pdf/P40_503.PDF
9. UFC 3-410-01FA, Heating, Ventilating, and Air Conditioning, 15 May 2003, change 4, January 2010. http://www.wbdg.org/ccb/DOD/UFC/ufc_3_410_01fa.pdf
10. Threshold Limit Values (TLVs) and Biological Exposure Indices (BEIs), American Conference of Governmental Industrial Hygienists (ACGIH), current Ed.
11. Industrial Ventilation – A Manual of Recommended Practice for Design, ACGIH, current Ed.
12. American National Standards Institute (ANSI)/International Safety Equipment Association (ISEA) Z358.1-2009, Emergency Eyewash and Shower Equipment.
13. ANSI/American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. (ASHRAE) 55-2010, Thermal Environmental Conditions for Human Occupancy.
14. ANSI/ASHRAE 62.1-2010, Ventilation for Acceptable Indoor Air Quality.
15. RP-1-2004, Office Lighting, ANSI/IESNA.
16. RP-7-2001, Industrial Lighting, ANSI/IESNA, change 20 July 2004.
17. OSHA Instruction Letter 02-02-058, Lead Exposure in Construction, Office of Health Compliance Assistance, 13 December 1993.
18. OSHA Standard Interpretation, Clarification of “as free as practicable” and lead contamination under 29 CFR 1926.62, dated January 13, 2003.
19. NG PAM 420-15, Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges, 3 November 2006. http://www.ngbpdc.ngb.army.mil/pubs/420/ngpam420_15.pdf

Shaw Environmental, Inc.

312 Directors Drive
Knoxville, TN 37923
865.690.3211
Fax 865.690.3626



**National Guard Armory
Gate City Readiness Center – Gate City, Virginia**

Industrial Hygiene Evaluation

Prepared for:

**National Guard Region North Industrial Hygiene Office
Havre De Grace, Maryland 21078**

Prepared by:

**Shaw Environmental, Inc.
312 Directors Drive
Knoxville, Tennessee 37923**

07 June 2004

**National Guard Armory
Gate City Readiness Center – Gate City, Virginia**

Industrial Hygiene Evaluation

Prepared for:

**National Guard Region North Industrial Hygiene Office
Havre De Grace, Maryland 21078**

Prepared by:

**Shaw Environmental, Inc.
312 Directors Drive
Knoxville, Tennessee 37923**

07 June 2004

Prepared by:

Non-Responsive

Industrial Hygienist

Reviewed by:

Non-Responsive

Business Line Manager

Table of Contents

<i>Table of Contents</i>	<i>i</i>
<i>List of Tables</i>	<i>ii</i>
<i>List of Appendices</i>	<i>ii</i>
<i>Executive Summary</i>	<i>E-1</i>
<i>1.0 Introduction</i>	<i>1-1</i>
<i>2.0 Findings, Discussion, and Interpretation of Results</i>	<i>2-1</i>
<i>2.1 Sampling for Lead</i>	<i>2-1</i>
<i>2.1.1 Wipe Sampling</i>	<i>2-1</i>
<i>2.1.2 Air Sampling for Lead</i>	<i>2-2</i>
<i>2.2 Physical Condition of Facility</i>	<i>2-2</i>
<i>2.2.1 Peeling Paint - Lead</i>	<i>2-2</i>
<i>2.2.2 Visual Inspection - Asbestos</i>	<i>2-2</i>
<i>2.2.3 Visual Inspection - Water Damage and Mold</i>	<i>2-3</i>
<i>2.2.4 Visual Inspection - Housekeeping</i>	<i>2-3</i>
<i>2.3 Building Concerns</i>	<i>2-3</i>
<i>2.3.1 Ergonomic Concerns</i>	<i>2-3</i>
<i>2.3.2 Indoor Air Quality</i>	<i>2-3</i>
<i>2.4 Safety and Industrial Hygiene Programs</i>	<i>2-4</i>
<i>2.5 Ventilation</i>	<i>2-4</i>
<i>2.5.1 Ventilation System Evaluation</i>	<i>2-4</i>
<i>2.5.2 Contamination of Clean Air Sources</i>	<i>2-4</i>
<i>2.6 Noise Exposure</i>	<i>2-4</i>
<i>2.7 Lighting</i>	<i>2-4</i>
<i>2.8 Converted Indoor Firing Ranges</i>	<i>2-5</i>
<i>2.9 HVAC Systems</i>	<i>2-5</i>
<i>2.10 HHM</i>	<i>2-5</i>
<i>3.0 Conclusions</i>	<i>3-1</i>
<i>Tables</i>	<i>Follows Section 3.0</i>
<i>Appendices</i>	<i>Follows Tables</i>

List of Tables

Table 1	Wipe Sampling for Lead
Table 2	Air Sampling for Lead
Table 3	Indoor Air Quality Measurements
Table 4	Illumination Readings
Table 5	Indoor Firing Ranges - Wipe Sampling

List of Appendices

Appendix A	HHIM Data Form
Appendix B	Building Layout
Appendix C	Sampling Sheets and Laboratory Analyses
Appendix D	References
Appendix E	Recommendations for Surface Lead Dust in Armories

Executive Summary

Shaw Environmental, Inc. (Shaw) was contracted to perform an industrial hygiene evaluation for the Gate City Readiness Center in Gate City, Virginia. Non-Responsive performed the evaluation on 03 December 2003. The point of contact at the readiness center was Captain Non-Responsive

The following industrial hygiene concerns were evaluated.

- Wipe Sampling for Lead
- Air Sampling for Lead
- Peeling Paint – Lead
- Suspected Asbestos Containing Material
- Water Damage
- Presence of Mold
- Housekeeping
- Ergonomic Concerns
- Indoor Air Quality
- Safety and Industrial Hygiene Programs
- Ventilation System Evaluation
- Contamination of Clean Air Sources
- Noise Exposure
- Lighting
- Converted Indoor Firing Range
- HVAC Systems

The following items were either not applicable to the armory or the evaluation resulted in a conclusion that there were no industrial hygiene concerns.

- Air Sampling for Lead
- Peeling Paint – Lead
- Presence of Mold
- Housekeeping
- Ergonomic Concerns
- Safety and Industrial Hygiene Programs

- Ventilation System Evaluation
- Contamination of Clean Air Sources
- Noise Exposure
- HVAC Systems

Areas where there were industrial hygiene concerns are as follows:

- Wipe sampling for lead revealed a concentration above the recommended level in the assembly hall and supply room (basement) of the armory. It is recommended that these surfaces and the areas immediately around these surfaces be thoroughly cleaned to reduce the lead level. In addition, any other dusty/dirty areas in the assembly area/drill floor and supply room should be thoroughly cleaned.
- Wipe sampling for lead revealed concentrations above a level of 40 micrograms per square foot ($\mu\text{g}/\text{ft}^2$) in the assembly hall, supply room (basement), office #5 (first floor), and the converted firing range. Areas with lead concentrations above $40 \mu\text{g}/\text{ft}^2$ that will be accessible to children should be cleaned. If a special function is held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function.
- Materials (floor tiles) suspected of containing asbestos were observed. An operations and maintenance plan should be followed when performing any activities that may disturb the asbestos-containing materials or suspected asbestos-containing materials.
- Water damage was observed at the armory. The source of the water damage was likely from roof or foundation leaks. The source of the water damage should be confirmed and actions taken to eliminate the source in order to prevent the possibility of mold growth that may lead to indoor air quality problems.
- Measurements for temperature revealed that levels in the basement were below the American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE) recommended range of 68 degrees Fahrenheit to 74 degrees Fahrenheit in the winter. If possible, the heating units should be adjusted so the temperature will fall within the acceptable range. Space heaters could also be used to increase the temperature at specific locations. In addition, measurements for humidity revealed that levels did not meet the ASHRAE recommended level of 30% in the facility. It is recommended that a humidification system be installed at the facility.
- Lighting measurements were conducted at the armory. The lighting did not meet minimum requirements in most of the areas measured; therefore, consideration should be given to providing more lighting in these areas. This may be accomplished by

replacing burnt out luminaries, cleaning fixtures, cleaning windows, painting walls with a lighter color, repositioning detailed work to higher illuminated areas, and using supplemental lighting.

- Wipe sampling for lead in the converted firing range revealed concentrations above the recommended level. These areas must be decontaminated by a thorough cleaning until surface lead concentrations are reduced to below recommended levels.

1.0 Introduction

Shaw Environmental, Inc. (Shaw) was contracted to perform an industrial hygiene evaluation for the Gate City Readiness Center in Gate City, Virginia. Non-Responsive performed the evaluation on 03 December 2003. The point of contact at the readiness center was Captain Non-Responsive.

The findings, discussion, and interpretation of results are provided in Section 2.0. The conclusions are provided in Section 3.0. The HHIM data form for the facility is provided in Appendix A. The building layout is provided in Appendix B. Sampling sheets and laboratory analyses are provided in Appendix C. References are provided in Appendix D. The *Recommendations for Surface Lead Dust in Armories* document is provided in Appendix E.

The statements, opinions, and conclusions contained in this report are based solely upon the services performed by Shaw as described in the report. In performing these services and preparing the report, Shaw Environmental, Inc. relied upon the work and information provided by others, including public agencies, whose information is not guaranteed by Shaw Environmental, Inc.

2.0 Findings, Discussion, and Interpretation of Results

The results, discussion, and interpretation of results are provided in the following sections.

2.1. Sampling for Lead

2.1.1 Wipe Sampling

Wipe samples were collected for lead from the drill/assembly hall. Also, wipe samples were collected for lead in rooms, hallways, foyers, etc. The sampling in rooms, hallways, foyers, etc. represented approximately 25% of the building. Approximately half of the samples were collected from surfaces in common areas, such as surfaces of a desk. The remaining samples were collected from uncommon surface areas, such as a supply vent or the top of a file cabinet. The samples were collected and analyzed in accordance with the Instructions for *Completing the Sampling of ARMY National Guard Armories* procedure.

The only samples initially submitted for analysis were those from the drill/assembly hall. If there were any results above acceptable levels from the drill/assembly hall, the other samples would be submitted for analysis.

Results of the wipe sampling are provided in Table 1. The results revealed lead at all locations sampled at concentrations below the recommended level of 200 micrograms lead per square foot ($\mu\text{g}/\text{ft}^2$) (See Appendix D) except at two locations. One sample collected from the assembly hall (fire extinguisher cabinet shelf surfaces) had a lead concentration of $370 \mu\text{g}/\text{ft}^2$. The sample collected in the supply room (shelf surface) in the basement had a lead concentration of $330 \mu\text{g}/\text{ft}^2$. It is recommended that these surfaces and the immediate areas around these surfaces be thoroughly cleaned to reduce the lead level to below $200 \mu\text{g}/\text{ft}^2$. For guidance on the proper method of cleaning, please refer to NGB PAM 385-16 (*Guidelines for Converting Indoor Firing Ranges to Other Uses*). In addition, any other dusty/dirty areas in the assembly area/drill floor and supply room should be thoroughly cleaned.

In addition, wipe sampling for lead revealed concentrations above a level of $40 \mu\text{g}/\text{ft}^2$ in the assembly area, supply room, office #5 (first floor), and the converted firing range. Please note that the *Recommendations for Surface Lead Dust in Armories* (Appendix E) states that all areas with lead concentrations above $40 \mu\text{g}/\text{ft}^2$ that will be accessible to children should be cleaned. If a special function is held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function.

2.1.2 Air Sampling for Lead

Breathing zone air sampling was conducted on two (2) full-time building occupants. (Please note that no state employees were monitored.) The samples were collected and analyzed in accordance with Method 7082 of the National Institute of Occupational Safety and Health (NIOSH) Manual of Analytical Methods.

The results of the sampling are provided in Table 2. The results revealed non-detectable concentrations of lead in the breathing zone of the employees; therefore, no actions are necessary.

2.2 Physical Condition of Facility

2.2.1 Peeling Paint - Lead

Peeling paint was not observed at the armory; therefore, bulk samples for lead in paint were not taken.

2.2.2 Visual Inspection - Asbestos

A visual inspection was made to determine if there was any suspected asbestos-containing material at the armory. Materials suspected of containing asbestos were observed. The suspected asbestos-containing materials were floor tiles in the main hallway and rooms #1, #2, #3, #4, #5, #6, #7, #8 and #9 (approximately square 2370 feet). The condition of the floor tiles in all the rooms was considered good.

An operation and maintenance plan should be followed when performing any activities that may disturb the asbestos-containing materials or suspected asbestos-containing materials.

2.2.3 Visual Inspection - Water Damage and Mold

A visual inspection was made to determine if there was any water damage or visible mold at the armory. No mold was observed, however, the inspection revealed water damage in the form of stained ceiling tiles in the main hallway and mailroom. Water damage was also observed on the ceiling and walls in the converted firing range.

The source of the water damage was likely from roof leaks concerning the hallway and mailroom. Since the converted firing range was located in the basement, the source of the damage was likely due to a high water table or foundation leaks. The sources of the water damage should be confirmed and actions taken to eliminate the source in order to prevent the possibility of mold growth that may lead to indoor air quality problems.

2.2.4 Visual Inspection - Housekeeping

The housekeeping was determined to be good.

2.3. Building Concerns

2.3.1 Ergonomic Concerns

Interviews with employees and observation of work activities revealed no ergonomic concerns at the armory.

2.3.2 Indoor Air Quality

An interview with the caretaker and measurements for carbon dioxide revealed no indoor air quality concerns at the armory. However, measurements for temperature revealed that levels in the basement were below the American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE) recommended range of 68 degrees Fahrenheit to 74 degrees Fahrenheit in the winter. If possible, the heating units should be adjusted so the temperature will fall within the acceptable range. Space heaters could also be used to increase the temperature at specific locations. In addition, measurements for humidity revealed that levels did not meet the ASHRAE recommended level of 30% in the facility. It is recommended that a humidification system be installed at the facility.

The results of the measurements for carbon dioxide, humidity, and temperature are provided in Table 3.

2.4. Safety and Industrial Hygiene Programs

An evaluation was performed to determine the applicability of the following programs.

- Confined Spaces
- Hearing Conservation
- Respiratory Protection
- Hazard Communication (HAZCOM)
- Personal Protective Equipment (PPE)

It was determined that the HAZCOM program was the only program listed above that was applicable at the facility. The HAZCOM program was evaluated and it was determined that the program met minimum requirements.

2.5. Ventilation

2.5.1 Ventilation System Evaluation

There were no local exhaust ventilation systems at this armory; therefore, no ventilation studies were performed.

2.5.2 Contamination of Clean Air Sources

Since there were no local exhaust ventilation systems at the armory, there was no possibility that clean air sources could be contaminated by exhaust air.

2.6. Noise Exposure

An evaluation was performed to determine if there were any hazardous noise areas at the armory. It was determined that there were no areas at the armory that would exceed the permissible exposure limit for noise.

2.7 Lighting

Lighting measurements were conducted at the armory. Results of the lighting evaluation are provided in Table 5. As can be seen from the results, the lighting did not meet the minimum requirements in most areas, including the Drill Hall, kitchen stove and sink rooms, classroom, offices #2, #9, and #210, women's latrine and orderly room.

Consideration should be given to providing more lighting to the areas listed above. This may be accomplished by replacing burnt out luminaries, cleaning fixtures, cleaning windows, painting walls with a lighter color, repositioning detailed work to higher illuminated areas, and using supplemental lighting.

2.8 Converted Indoor Firing Ranges

There was a converted indoor firing range at the facility; therefore, wipe samples were taken for lead at various locations in or near the converted range. The firing range was converted into the battalion supply cage and room. The results are provided in Table 6. The results revealed lead, with associated concentrations, at the following locations:

- floor outside the range at less than 2.7 micrograms lead per square foot ($\mu\text{g}/\text{ft}^2$);
- floor at less than 2.7 $\mu\text{g}/\text{ft}^2$;
- stored item (flammable cabinet top surface) at 13 $\mu\text{g}/\text{ft}^2$;
- overhead heater at 740 $\mu\text{g}/\text{ft}^2$;
- light fixture at 120 $\mu\text{g}/\text{ft}^2$; and
- inside remaining ventilation ductwork at 130 $\mu\text{g}/\text{ft}^2$.

The lead level at one of these locations was above the recommended level of 200 $\mu\text{g}/\text{ft}^2$, a level recommended in the *Guidelines for Converting Indoor Firing Ranges to Other Uses* document (Department of Army). This area must be decontaminated by a thorough cleaning until surface lead concentrations are reduced to below recommended levels. For guidance on the proper method of cleaning, please refer to NG PAM 385-16 (*Guidelines for Converting Indoor Firing Ranges to Other Uses*).

2.9. HVAC System

There was not a HVAC system at the armory.

2.10. HHIM

A Health Hazard Information Module (HHIM) form was completed for the armory. The completed form is provided in Appendix A.

3.0 Conclusions

It is concluded that there were no industrial hygiene concerns at the armory with regards to atmospheric exposure to lead, peeling lead-based paint, visible mold, housekeeping, ergonomic concerns, safety and industrial hygiene programs, ventilation systems or contamination of clean air sources, noise exposure, and HVAC systems

There were industrial hygiene concerns at the armory with regards to lead surface contamination, suspected asbestos-containing material, water damage, indoor air quality, lighting, and surface lead contamination in the converted firing range. These concerns are discussed in detail in Section 2.0 of this report.

TABLES

Table 1
Wipe Sampling for Lead
National Guard Armory
Gate City, Virginia
Date of Sampling: 03 December 2003

Sample Number	Location	Results, $\mu\text{g}/\text{ft}^2$ ^a
VAGAT337-1	Assembly room -- kitchen serving counter (See Building Layout -- Appendix B)	3.1
VAGAT337-2	Assembly room -- vending machine top surface (See Building Layout -- Appendix B)	22
VAGAT337-3	Assembly room -- stair surface (See Building Layout -- Appendix B)	28
VAGAT337-4	Assembly room -- fire alarm box top surface (See Building Layout -- Appendix B)	30
VAGAT337-5	Assembly room -- fire hose cabinet surface (See Building Layout -- Appendix B)	370
VAGAT337-6	Field Blank	< 0.3 μg
VAGAT337-14	First Floor -- Supply Room (adjacent to kitchen) -- flammable cabinet top surface	24
VAGAT337-15	First Floor -- Kitchen Sink Room -- electrical control box top surface	19
VAGAT337-16	First Floor -- Classroom -- table top	5
VAGAT337-17	First Floor -- Office #8 -- cabinet top surface	7.6
VAGAT337-18	Field Blank	< 0.3 μg
VAGAT337-19	First Floor -- Office #5 -- window sill	49
VAGAT337-20	First Floor -- Office #3 -- desktop	20
VAGAT337-21	First Floor -- Lobby -- heater vent top surface	31
VAGAT337-22	Second Floor -- Locker Room -- locker top surface	17
VAGAT337-23	First Floor -- Office #201 -- trophy top surface	4.1
VAGAT337-24	Field Blank	< 0.3 μg
VAGAT337-25	First Floor -- Office #208 -- computer monitor top surface	9.7

^a Micrograms lead per square foot

Table 1 Continued
Wipe Sampling for Lead
National Guard Armory
Gate City, Virginia
Date of Sampling: 03 December 2003

Sample Number	Location	Results, $\mu\text{g}/\text{ft}^2$ ^a
VAGAT337-26	First Floor – Conference Room – television top surface	3.7
VAGAT337-27	First Floor – Orderly Room – table top	5.4
VAGAT337-28	Basement – Supply – table top	6
VAGAT337-29	Basement – Supply – shelf surface	330
VAGAT337-30	Field Blank	0.35 μg

^a Micrograms lead per square foot

The samples were taken and analyzed in accordance with the Instructions for *Completing the Sampling of Army National Guard Armories* procedure.

In armories that do not contain childcare facilities, the NGB Region North Industrial Hygiene Office recommends cleaning the areas with lead concentrations greater than 200 $\mu\text{g}/\text{ft}^2$.

Table 2
Breathing Zone Air Samples for Lead
National Guard Armory
Gate City, Virginia
Date of Sampling: 03 December 2003

Sample Number	Employee	Sampling Information			Results (mg/m ³) ^a
		Time Sampled / Minutes	Flow Rate (lpm) ^b	Volume (liters)	
VAGAT337-A1	Non-Responsive	0834-1057/143	2.4969	357.05	<0.003
VAGAT337-A2		0835-1057/142	2.4553	348.65	<0.003
VAGAT337-A3	Field Blank	-	-	-	None Detected

^a Milligrams lead per cubic meter of air.

^b Liters of air per minute.

Method 7082 of the National Institute of Occupational Safety and Health (NIOSH) Manual of Analytical Methods was followed for sampling for lead.

Table 3

**Indoor Air Quality Measurements for Carbon Dioxide, Humidity, and Temperature
National Guard Armory
Gate City, Virginia
Date of Sampling: 03 December 2003**

Location	Occupants in Area	Carbon Dioxide, parts per million parts of air (ppm)	Percent (%) Humidity	Temperature (°F)
1 st Floor – Drill Hall	1	617	21.9	68.0
2 nd Floor – Locker Room	1	585	19.2	74.7
Basement – Supply Room	1	526	29.8	59.5
Outdoors	-	513	29.8	43.3

Carbon dioxide, humidity, and temperature measurements were taken with a TSI Q Trak Plus, Model 8554, Indoor Air Quality Meter, calibrated in April 2003.

American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE) recommends that indoor carbon dioxide levels be less than 700 ppm above outdoor levels.

ASHRAE recommends that the relative humidity levels be maintained between 30 to 60 percent.

ASHRAE recommends that the acceptable temperature range be 68 degrees Fahrenheit to 74 degrees Fahrenheit in the winter and 73 degrees Fahrenheit to 79 degrees Fahrenheit in the summer.

Table 4
Illumination Readings
National Guard Armory
Gate City, Virginia
Date of Sampling: 03 December 2003

Location	Luminance (fc) ^a	Standard (fc) ^a	Standard Met
First Floor -- Drill Hall	11.4-30.1	70	No
First Floor -- Kitchen Sink Room	14.3-24.7	70	No
First Floor -- Kitchen Stove Room	4.79-20.5	70	No
First Floor -- Classroom	18.2-57.6	70	No
First Floor -- Office #2	19.3-29.2	70	No
First Floor -- Office #9	15.5-20.7	70	No
First Floor -- Main Hallway	6.58-32.4	7.5	Some Areas
First Floor -- Women's Latrine	5.7-17.8	40	No
First Floor -- Orderly Room	15.9-29.5	70	No
First Floor -- Hallway (new edition)	6.79-24.7	7.5	Some Areas
First Floor -- Office #210	22.6-28.9	70	No

^a fc - Footcandles

* Additional lighting provided above one area, not representative of the entire space, luminance range 2.0-11.3 foot candles predominantly.

The readings were taken with a Cooke Corporation cal-LIGHT 400 Calibrated Precision Lightmeter, calibrated on 19 Aug 2002.

The standards listed above are from ANSI/IES RP-1 and RP-7.

Table 5
Wipe Sampling for Lead -- Converted Firing Range
National Guard Armory
Gate City, Virginia
Date of Sampling: 03 December 2003

Sample Number	Location	Results, $\mu\text{g}/\text{ft}^2$ ^a
VAGAT337-7	Outside the Range	< 2.7
VAGAT337-8	Floor	< 2.7
VAGAT337-9	Stored Item (shelf surface)	13
VAGAT337-10	Overhead Heater	740
VAGAT337-11	Light Fixture	120
VAGAT337-12	Field Blank	< 0.3 μg
VAGAT337-13	Inside any Remaining Ventilation Ductwork	130

^aMicrograms lead per square foot

The samples were taken and analyzed in accordance with the Instructions for *Completing the Sampling of ARMY National Guard Armories* procedure.

Appendix A

HHIM Data Form(s)

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

SECTION 4. HAZARD INVENTORY DATA

CAS CODE	HAZARD DESCRIPTION	PAC	EPC
POVTDXXX X	Video Display Terminal	3-low	D-Uncontrolled Physical
7439-92-1	Lead, Inorganic dusts, fumes, as Pb	2-moderate	C-Uncontrolled Respiratory
1332-22-4	Asbestos (other)	2-moderate	1

SECTION 5. PERSONNEL DATA

LAST NAME	FIRST NAME	MI	SEX	SSN	CATEGORY
Non-Responsive			M	Non-Responsive	MIL
				Unavailable	
			M	Non-Responsive	
			M	Unavailable	CIV

SECTION 6. COMMENTS

* post-title.

No comments

See attached sheet

Survey conducted by [Non-Responsive] Building contains 6 full-time military staff (on date of survey had 1 additional member) and 1 civilian caretaker. Employees perform mainly administrative functions.

PRIVACY ACT STATEMENT

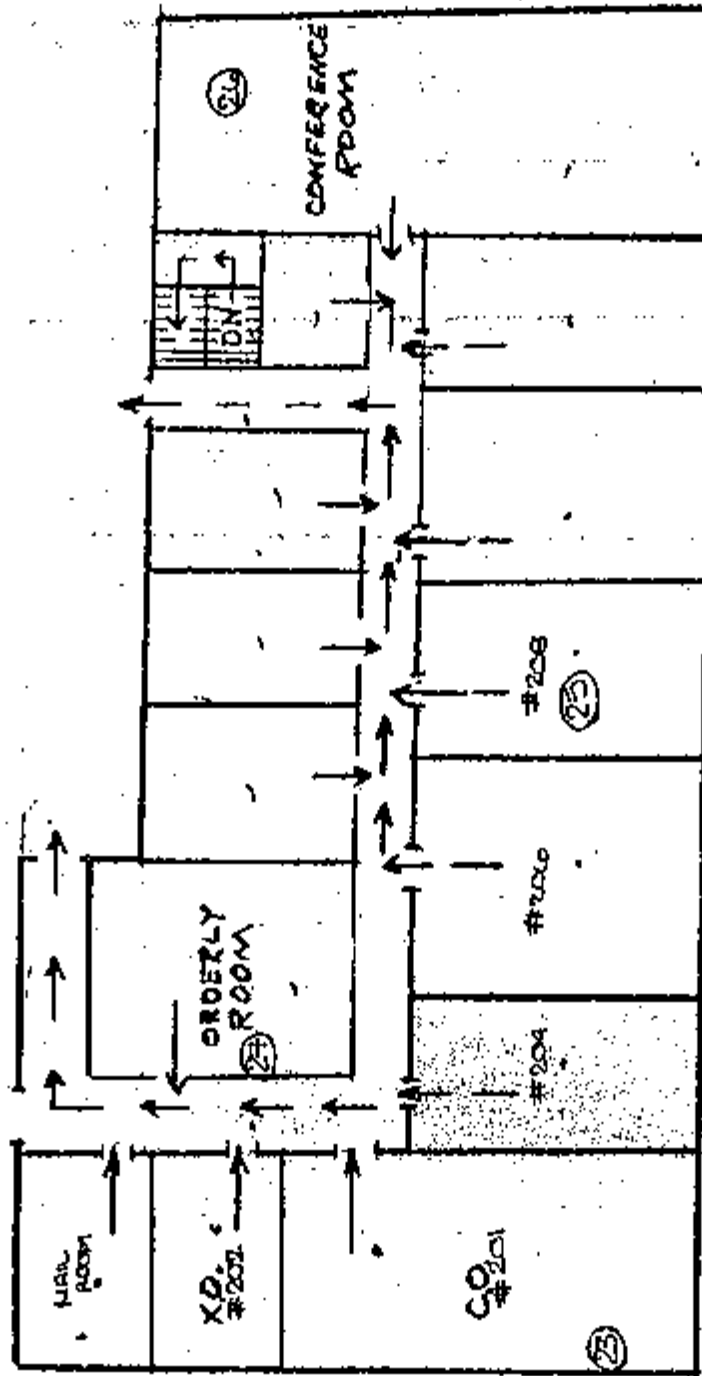
Title 5 US Code, Section 301; Executive Order 9397 authorizes the use of your Social Security Number as an identification number. The purpose of this information is to identify and monitor data relating each DA civilian and military employee exposed to a hazardous workplace or operation. The use of this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

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

Appendix B

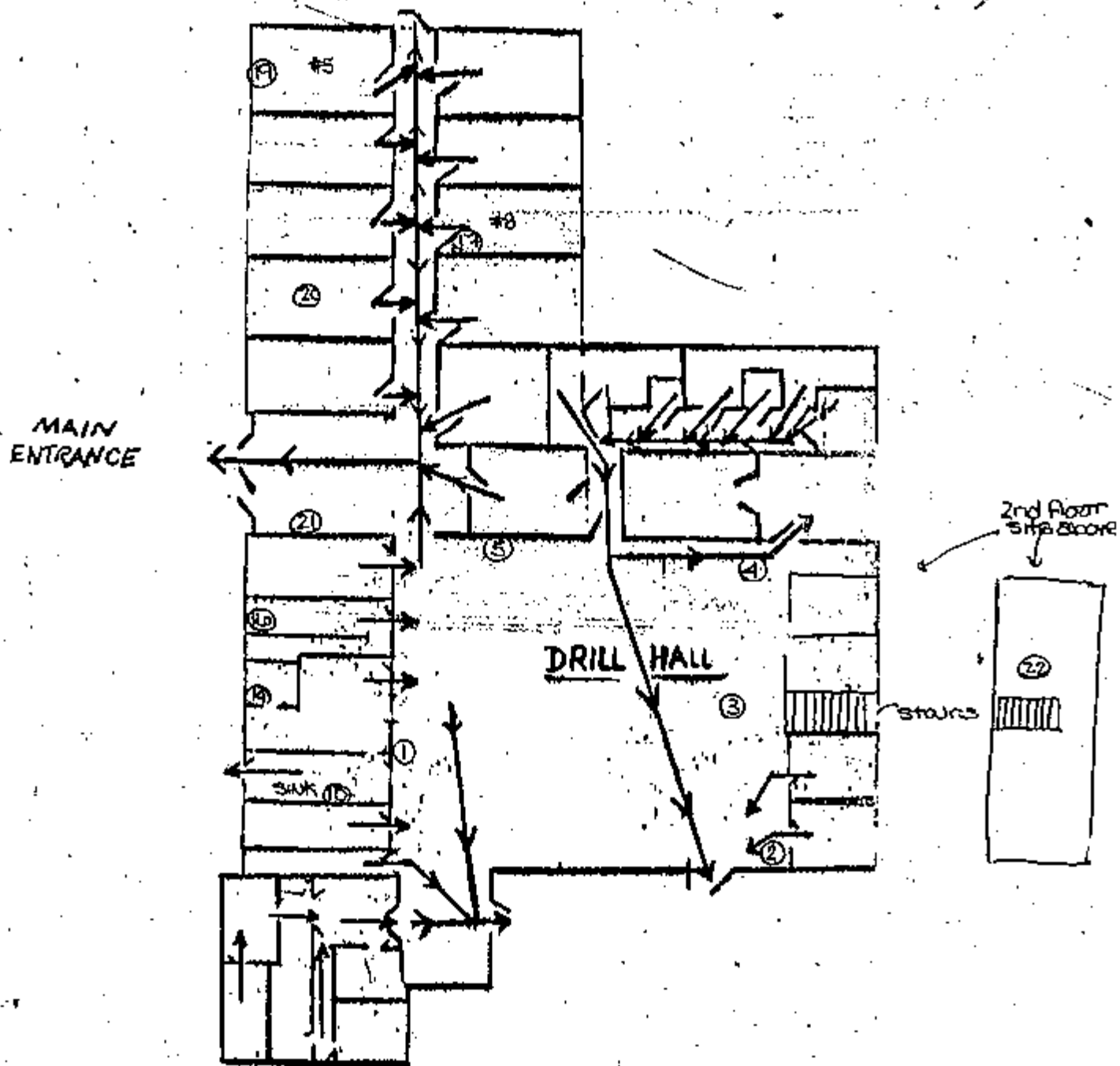
Building Layout

PARKING AREA

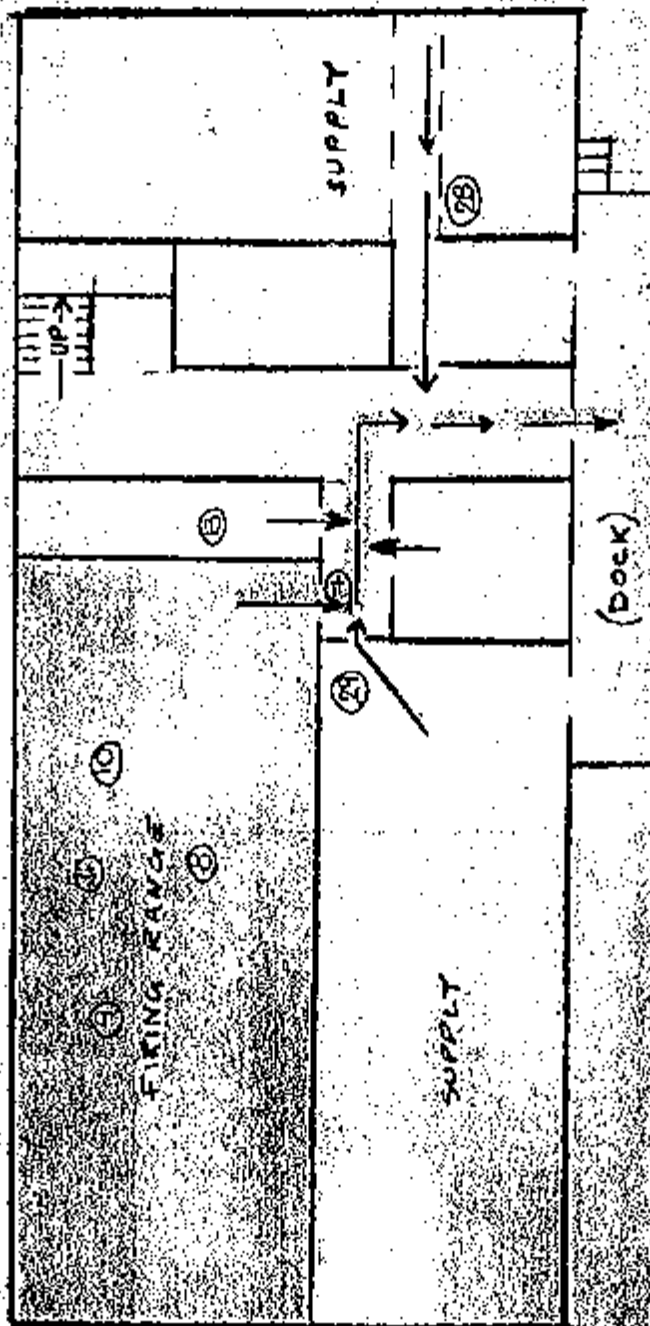


18 rooms/halls

FIRE EVACUATION PLAN
(FIRST FLOOR NEW EDITION)



FIRE EVACUATION PLAN



FIRE EVACUATION PLAN
(BASEMENT NEW EDITION) ---

Appendix C

Sampling Sheets and Laboratory Analyses

CERTIFICATE OF ANALYSIS

NVLAP
NY ELAP
AIHA

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

Job Name: VAGAT337
Job Location: Gate City, Va
Job Number: Not Provided
P.O. Number: 1103

Chain Of Custody: 121259
Date Analyzed: 12/22/2003
Person Submitting: Non-Responsible
Report Date: 22-Dec-03

Attendant:

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
0413557	VAGAT337-1	Furnace	Wipe	****	0.111	2.70 ug/ft²	3.1 ug/ft²	
0413558	VAGAT337-2	Furnace	Wipe	****	0.111	6.75 ug/ft²	22 ug/ft²	
0413559	VAGAT337-3	Furnace	Wipe	****	0.111	6.75 ug/ft²	28 ug/ft²	
0413560	VAGAT337-4	Furnace	Wipe	****	0.111	6.75 ug/ft²	30 ug/ft²	
0413561	VAGAT337-5	Furnace	Wipe	****	0.111	67.51 ug/ft²	370 ug/ft²	
0413562	VAGAT337-6	Furnace	Wipe Blank	****	N/A	0.30 ug	0.3 ug	
0413563	VAGAT337-7	Furnace	Wipe	****	0.111	2.70 ug/ft²	2.7 ug/ft²	
0413564	VAGAT337-8	Furnace	Wipe	****	0.111	2.70 ug/ft²	2.7 ug/ft²	
0413565	VAGAT337-9	Furnace	Wipe	****	0.111	2.70 ug/ft²	13 ug/ft²	
0413566	VAGAT337-10	Flame	Wipe	****	0.111	108.01 ug/ft²	740 ug/ft²	
0413567	VAGAT337-11	Furnace	Wipe	****	0.111	67.51 ug/ft²	120 ug/ft²	
0413568	VAGAT337-12	Furnace	Wipe Blank	****	N/A	0.30 ug	0.3 ug	
0413569	VAGAT337-13	Furnace	Wipe	****	0.111	67.51 ug/ft²	130 ug/ft²	

BEST AVAILABLE COPY

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



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

Job Name: VAGAT337
Job Location: Gate City, Va
Job Number: Not Provided
P.O. Number: 1103

Chain Of Custody: 121259
Date Analyzed: 12/22/2003
Person Submitting: Non-Responsive
Report Date: 22-Dec-03

Attention: Non-Responsive

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 800/R-83/200(M)-7420; Water: SM-3111B
Analysis Method For Furnace: Air, Wipes, Paints, and Soil/Solids: EPA 800/R-83/200(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.

Non-Responsive

Non-Responsive

Technical Manager:

Analyst

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.

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



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

Job Name: VAGAT337
Job Location: Gate City, VA
Job Number: Not Provided
P.O. Number: 1103

Chain Of Custody: 122733
Date Analyzed: 3/1/2004
Person Submitting: **Non-Responsible**
Report Date: 01-Mar-04

Attention:

Non-Responsible

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
0424155	VAGAT337 14	Furnace	Wipe	****	0.111	2.70 ug/ft²	24 ug/ft²	
0424156	VAGAT337 15	Furnace	Wipe	****	0.111	2.70 ug/ft²	19 ug/ft²	
0424157	VAGAT337 16	Furnace	Wipe	****	0.111	2.70 ug/ft²	5 ug/ft²	
0424158	VAGAT337 17	Furnace	Wipe	****	0.111	2.70 ug/ft²	7.6 ug/ft²	
0424159	VAGAT337 18	Furnace	Wipe Blank	****	N/A	0.30 ug	< 0.3 ug	
0424160	VAGAT337 19	Furnace	Wipe	****	0.111	6.75 ug/ft²	49 ug/ft²	
0424161	VAGAT337 20	Furnace	Wipe	****	0.111	2.70 ug/ft²	20 ug/ft²	
0424162	VAGAT337 21	Furnace	Wipe	****	0.111	6.75 ug/ft²	31 ug/ft²	
0424163	VAGAT337 22	Furnace	Wipe	****	0.111	2.70 ug/ft²	17 ug/ft²	
0424164	VAGAT337 23	Furnace	Wipe	****	0.111	2.70 ug/ft²	4.1 ug/ft²	
0424165	VAGAT337 24	Furnace	Wipe Blank	****	N/A	0.30 ug	< 0.3 ug	
0424166	VAGAT337 25	Furnace	Wipe	****	0.111	2.70 ug/ft²	9.7 ug/ft²	
0424167	VAGAT337 26	Furnace	Wipe	****	0.111	2.70 ug/ft²	3.7 ug/ft²	
0424168	VAGAT337 27	Furnace	Wipe	****	0.111	2.70 ug/ft²	5.4 ug/ft²	
0424169	VAGAT337 28	Furnace	Wipe	****	0.111	2.70 ug/ft²	6 ug/ft²	
0424170	VAGAT337 29	Furnace	Wipe	****	0.111	67.51 ug/ft²	330 ug/ft²	
0424171	VAGAT337 30	Furnace	Wipe Blank	****	N/A	0.30 ug	0.35 ug	

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 (#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



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

Job Name: VAGAT337
Job Location: Gate City, VA
Job Number: Not Provided
P.O. Number: 1103

Chain Of Custody: 122733
Date Analyzed: 3/1/2004

Person Submitting: **Non-Responsive**
Report Date: 01-Mar-04

Attention:

Non-Responsive

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:

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

AMA AIHA (#88863), 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



12/17/03

Submitted To: **Non-Responsive**

Shaw Environmental, Inc.
101 Field Crest Ave., 4th Floor
Edison, NJ 08837

Reference Data:

Lead

Client Sample No.:	VAPOR329-A1 through VVWIL335-A3
P.O. No.:	1103
Sample Location:	West Virginia / Virginia
Sample Type:	Filter
Method Reference:	NIOSH 7300
DCL Set ID No.:	03-S-6027
DCL Sample ID No.:	03-35454 through 03-35502
Sample Receipt Date:	12/11/2003
Preparation Date:	12/15/03
Analysis Date:	12/15/03

The samples were prepared and analyzed in accordance with NIOSH method 7300 using a Perkin Elmer 3000XL ICP.

The sample condition upon receipt was acceptable except where noted.

The results are in the enclosed data table. Results relate only to the items tested and are not blank corrected unless indicated in the data table.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Non-Responsive

Analyst

Non-Responsive

Reviewer

CINCINNATI OFFICE
4388 GLENDALE-MILFORD ROAD
CINCINNATI, OHIO 45242-3706
513 733-5336, FAX 513 733-5347

WEST COAST OFFICE
11 SANTA YORMA COURT
NOVATO, CALIFORNIA 94945
800 280-8071, FAX 415 893-9469

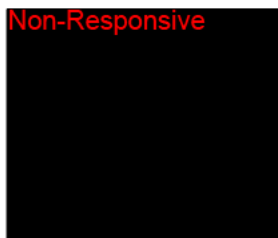
Results Lead

Client #	DCL #	Sample Volume (L)	µg/sample	mg/m ³
VAPOR329-A1	03-35454	362.12	ND	<0.003
VAPOR329-A2	03-35455	355.29	ND	<0.003
VAPOR329-A3	03-35456	0	ND	-
VAVIR329-A1	03-35462	241.75	ND	<0.004
VAVIR329-A2	03-35463	239.35	ND	<0.004
VAVIR329-A3	03-35464	0	ND	-
WVWAL338-A1	03-35466	255.30	ND	<0.004
WVWAL338-A2	03-35467	246.10	ND	<0.004
WVWAL338-A3	03-35468	0	ND	-
WVBLU338-A1	03-35470	340.39	ND	<0.003
WVBLU338-A2	03-35471	326.60	ND	<0.003
WVBLU338-A3	03-35472	0	ND	-
VAGAT337-A1	03-35473	243.02 357.05	ND	<0.003
VAGAT337-A2	03-35474	254.11 348.65	ND	<0.003
VAGAT337-A3	03-35475	0	ND	-
VAHAM330-A1	03-35476	250.47	ND	<0.004
VAHAM330-A2	03-35477	255.99	ND	<0.004
VAHAM330-A3	03-35478	0	ND	-
VABIG336-A1	03-35479	343.24	ND	<0.003
VABIG336-A2	03-35480	307.31	ND	<0.003
	Prep Blank		ND	
% Recovery	LCS 1		96.	
% Recovery	LCS 2		98.	
RPL			1.	

ND = not detected at or above the reporting limit (RPL).

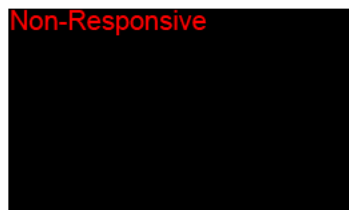
LCS = laboratory control sample.

Non-Responsive



Analyst

Non-Responsive



Reviewer

Results
Lead

Client #	DCL #	Sample Volume (L)	µg/sample	mg/m ³
VABIG336-A3	03-35481	0	ND	-
WVHIN339-A1	03-35486	238.94	ND	<0.004
WVHIN339-A2	03-35487	237.41	ND	<0.004
WVHIN339-A3	03-35488	0	ND	-
WVMON335-A1	03-35489	283.66	ND	<0.004
WVMON335-A2	03-35490	288.02	ND	<0.003
WVMON335-A3	03-35491	0	ND	-
WVRIC339-A1	03-35495	299.70	ND	<0.003
WVRIC339-A2	03-35496	296.83	ND	<0.003
WVRIC339-A3	03-35497	0	ND	-
VACED337-A1	03-35498	243.02	ND	<0.004
VACED337-A2	03-35499	254.11	ND	<0.004
VACED337-A3	03-35500	0	ND	-
WVWIL335-A1	03-35501	247.64	ND	<0.004
WVWIL335-A2	03-35502	0	ND	-
WVWIL335-A3	03-35503	252.18	ND	<0.004
	Prep Blank		ND	
% Recovery	LCS 3		101.	
% Recovery	LCS 4		98.	
RPL			1.	

ND = not detected at or above the reporting limit (RPL).

LCS = laboratory control sample.

Non-Responsive

Analyst

Non-Responsive

Reviewer

Industrial Hygiene Sampling Calculation Worksheet

National Guard Armory
Date: 12/3/2003

Location: Gate City

Sample 1

Sample Number: VAGAT337-A1

Pump: 647615

	Pre Flow Rate	Post Flow Rate
	2.51	2.493
	2.512	2.482
	2.506	2.482
	2.502	2.488
Average	2.508	2.486

Average Pre and Post 2.4969

Time 1 8:34

Time 2 10:57

Total Time Sampled 2:23

Minutes Sampled 143.00

Volume 357.05 Liters

Sample 2

Sample Number: VAGAT337-A2

Pump: 648339

	Pre Flow Rate	Post Flow Rate
	2.449	2.464
	2.449	2.463
	2.44	2.463
	2.439	2.475
Average	2.444	2.466

Average Pre and Post 2.4553

Time 1 8:35

Time 2 10:57

Total Time Sampled 2:22

Minutes Sampled 142.00

Volume 348.65 Liters

VAGAT337

Industrial Hygiene Sampling Calculation Worksheet

National Guard Armory
Date:

Location: Gate City
12/3/08

Sample 1

Sample Number: VABAT337-A1
Pump: 647615

Pre Flow Rate	Post Flow Rate
2510	2493
2512	2482
Average 2506	2482
Average Pre and Post 2502	2488
2508	2486

Time 1 0834
Time 2 1051
Total Time Sampled
Minutes Sampled

Volume

Liters

Sample 2

Sample Number: VABAT337-A2
Pump: 648329

Pre Flow Rate	Post Flow Rate
2449	2464
2449	2463
Average 2440	2463
Average Pre and Post 2439	2475
2444	2466

Average

Average Pre and Post

Time 1 0835
Time 2 1057
Total Time Sampled
Minutes Sampled

Volume

Liters

Appendix D

References

References

Title 29, Code of Federal Regulations CFR), Part 1910, Occupational Safety and Health Administration (current edition)

American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc (ASHRAE) 62-2002, Ventilation for Acceptable Indoor Air Quality

Instructions for Completing the Sampling of Army National Guard Armories, Lead Wipe Sampling Procedure included with the Request for Proposal

Air Sampling for Lead - Method 7082 of the National Institute of Occupational Safety and Health (NIOSH) Manual of Analytical Methods

Design Guide DG-415-2, Logistics Facilities, National Guard Bureau Installation Division, 14 December 1999

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

Army Regulation (AR) 40-5, Medical Service, Preventive Medicine, 15 October 1990

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

Department of the Army Pamphlet (DA PAM) 40-501, Medical Services, Hearing Conservation Program, 10 December 1998

DA PAM 40-503, Medical Services, Industrial Hygiene Program, 30 October 2000

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

Guidelines for Converting Indoor Firing Ranges to Other Uses, Headquarters, Department of the Army and the Air Force, NG PAM (AR) 385-16/ANGPAM 91-101, 31 January 1994

24 CFR, Part 35, Subpart B, Section 35-110, Definition of Lead-Based Paint, Housing and Urban Development, U. S. Department of Housing

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(e)) 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.

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

NGB-AVS-SI (40-5f)

23 June 2004

MEMORANDUM FOR VAARNG, Gate City RC, ATTN: SCF **Non-Responsive** 157
Beach Street, Gate City, VA 24251-3620

SUBJECT: Baseline Survey Report

1. I have enclosed the industrial hygiene survey report completed by Shaw Environmental Inc.
2. In addition to the attached discussion and recommendations regarding wipe samples for lead, if a special function is held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function.
3. Please contact me at (410) 942-0273 or 1-800-550-6967 if you have any questions regarding the enclosed report.

Encl

Non-Responsive

Regional Industrial Hygienist

CF: SOHM, CPT **Non-Responsive**

National Guard Armory

Gate City Readiness Center – Gate City, Virginia

Industrial Hygiene Evaluation

Recommendations

- Wipe sampling for lead revealed a concentration above the recommended level in the assembly hall and supply room (basement) of the armory. It is recommended that these surfaces and the areas immediately around these surfaces be thoroughly cleaned to reduce the lead level. In addition, any other dusty/dirty areas in the assembly area/drill floor and supply room should be thoroughly cleaned. **RAC - 4**
- Wipe sampling for lead revealed concentrations above a level of 40 micrograms per square foot ($\mu\text{g}/\text{ft}^2$) in the assembly hall, supply room (basement), office #5 (first floor), and the converted firing range. Areas with lead concentrations above 40 $\mu\text{g}/\text{ft}^2$ that will be accessible to children should be cleaned. If a special function is held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function. **RAC - 4**
- Materials (floor tiles) suspected of containing asbestos were observed. An operations and maintenance plan should be followed when performing any activities that may disturb the asbestos-containing materials or suspected asbestos-containing materials. **RAC - 5**
- Water damage was observed at the armory. The source of the water damage was likely from roof or foundation leaks. The source of the water damage should be confirmed and actions taken to eliminate the source in order to prevent the possibility of mold growth that may lead to indoor air quality problems. **RAC - 5**
- Measurements for temperature revealed that levels in the basement were below the American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE) recommended range of 68 degrees Fahrenheit to 74 degrees Fahrenheit in the winter. If possible, the heating units should be adjusted so the temperature will fall within the acceptable range. Space heaters could also be used to increase the temperature at specific locations. In addition, measurements for humidity revealed that levels did not meet the ASHRAE recommended level of 30% in the facility. It is recommended that a humidification system be installed at the facility. **RAC - 5**
- Lighting measurements were conducted at the armory. The lighting did not meet minimum requirements in most of the areas measured; therefore, consideration should be given to providing more lighting in these areas. This may be accomplished by replacing burnt out luminaries, cleaning fixtures, cleaning windows, painting walls

with a lighter color, repositioning detailed work to higher illuminated areas, and using supplemental lighting. **RAC - 5**

- Wipe sampling for lead in the converted firing range revealed concentrations above the recommended level. These areas must be decontaminated by a thorough cleaning until surface lead concentrations are reduced to below recommended levels. **RAC - 4**

MEDICAL RECORD – SUPPLEMENTAL MEDICAL DATA

For use of this form, see AR 40-56; the proponent agency is the Office of The Surgeon General.

REPORT TITLE

OTSG APPROVED (Date)

WORKERS' OCCUPATIONAL WORKSITE SAMPLING DATA RECORD

DIRECTORATE Gate City Armory

BLDG/ROOM Gate City

SPECIAL STUDY/REPORT NUMBER Virginia National Guard Study

JOB DESCRIPTION/SERIES Military/Administrative Operations

SAMPLING DATE December 3, 2003

EXPOSURE MONITORED	TYPE SAMPLE*	PERMISSIBLE EXPOSURE LIMIT	SAMPLING RESULT	CALCULATED TWA	EXPOSURE CATEGORY**
1. Lead	P	0.05 mg/m ³	<0.004	<0.003	1
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					

*TYPE OF SAMPLE: G=General Area Sample

P=Personal Sample Collected in the Breathing Zone of the Worker.

R=Personal Sample Collected on another worker, but representative of expected exposure for this worker.

**EXPOSURE CATEGORY

1. Measured Exposure levels are below permissible exposure limit.
2. Measured Exposure levels are close to permissible exposure limits: See Comments.
3. Measured Exposure levels are above permissible exposure limits: See Comments.

COMMENTS:

NOTE: REFER TO THE SPECIAL STUDY OR REPORT REFERENCED FOR DETAILS OF SAMPLING AND RESULTS.

(Continue on reverse)

PREPARED BY (Signature & Title)	DEPARTMENT/SERVICE/CLINIC	DATE
Non-Industrial Hygienist	INDUSTRIAL HYGIENE SECTION	1/27/2003
PATIENT'S IDENTIFICATION (For typed or written entries give: Name --last, first, Middle; grade; date; hospital or medical facility)	HISTORY/PHYSICAL	FLOW CHART
NAME: Non-Responsive CPT: 12/3/2003	OTHER EXAMINATION OR EVALUATION	OTHER (SPECIFY)
SSN: (Last Four # Non-)	DIAGNOSTIC STUDIES	TREATMENT
UNIT PHONE NO: 276-386-7698		

DA FORM 4700
1 MAY 72

HSXR-APG-Z OP 32 1 Jan 90

BEST AVAILABLE COPY
MEDICAL RECORD – SUPPLEMENTAL MEDICAL DATA
For use of this form, see AR 40-66; the proponent agency is the Office of The Surgeon General.

REPORT TITLE

OTSG APPROVED (Date)

WORKERS' OCCUPATIONAL WORKSITE SAMPLING DATA RECORD

DIRECTORATE Gate City Armory

BLDG/ROOM Gate City

SPECIAL STUDY/REPORT NUMBER Virginia National Guard Study

JOB DESCRIPTION/SERIES Military/Administrative Operations

SAMPLING DATE December 3, 2003

EXPOSURE MONITORED	TYPE SAMPLE*	PERMISSIBLE EXPOSURE LIMIT	SAMPLING RESULT	CALCULATED TWA	EXPOSURE CATEGORY**
1. Lead	P	0.05 mg/m ³	<0.004	<0.003	1
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					

*TYPE OF SAMPLE: G=General Area Sample

P=Personal Sample Collected in the Breathing Zone of the Worker.

R=Personal Sample Collected on another worker, but representative of expected exposure for this worker.

**EXPOSURE CATEGORY

1. Measured Exposure levels are below permissible exposure limit.
2. Measured Exposure levels are close to permissible exposure limits: See Comments.
3. Measured Exposure levels are above permissible exposure limits: See Comments.

COMMENTS:

NOTE: REFER TO THE SPECIAL STUDY OR REPORT REFERENCED FOR DETAILS OF SAMPLING AND RESULTS.

(Continue on reverse)

PREPARED BY (Signature & Title)	DEPARTMENT/SERVICE/CLINIC	DATE
Non-Responsive Industrial Hygienist	INDUSTRIAL HYGIENE SECTION	1/27/2003
IDENTIFICATION (For typed or written entries give: Name –last, first, Middle; grade; date; hospital or medical facility)	HISTORY/PHYSICAL	FLOW CHART
NAME Non-Responsive PSC: 12/3/2003	OTHER EXAMINATION OR EVALUATION	OTHER (SPECIFY)
SSN: (Last Four # Non-Responsive)	DIAGNOSTIC STUDIES	TREATMENT
UNIT PHONE NO: 276-386-7698		

DA FORM 4700

1 MAY 78

HSXR-APG-Z OP 32 1 Jan 90

Shaw Environmental, Inc.

312 Directors Drive
Knoxville, TN 37923
865.690.3211
Fax 865.690.3626



Shaw Environmental, Inc.

12 March 2004

Ms. **Non-Responsive** CIH
Regional Industrial Hygienist
Region North Industrial Hygiene Office
Attn: NGB-AVS-SI
301-IH Old Bay Lane
Havre De Grace, Maryland 21078

RE: Draft Report for the Industrial Hygiene Evaluation at the Gate City Readiness
Center – Gate City, Virginia

Dear Ms. **Non-Responsive**

Attached is a copy of the referenced report. Also attached is a copy of the field notes, photographs and photograph log, and the completed contaminant exposure forms (three copies of each employee sampled). Please call me if you have questions.

Sincerely,

Non-Responsive

Project Manager

Dec-03-03
Recvd 3/17/04
rev 5/24/04
e-mailed 6-1-04

Field Notes and Checklist

State: Virginia Location: Gate CityDate: 12/3/03Contact: Capt Non-Responsive

1.0 Sampling for Lead

1.1 Wipe Sampling

UAGAT327-

- Sample #: 1 Picture #: Location: drill hall kitchen serving counter
- Sample #: 2 Picture #: Location: central machine top
- Sample #: 3 Picture #: Location: table-top stair
- Sample #: 4 Picture #: Location: fire alarm box
- Sample #: 5 Picture #: Location: fire hose cabinet lead ok
- Sample #: 6, 12, 18, 24, 30 Picture #: Location: blanks
- Sample #: 7, 13 Picture #: Location: fire range. usual. see pg 8
- Sample #: 14 Picture #: Location: 2570 bldg 1st floor - supply kitchen
- Sample #: 15 Picture #: Location: kitchen sink room - electrical box top
- Sample #: 16 Picture #: Location: classroom - table top
- Sample #: 17 Picture #: Location: office #8 cabinet top
- Sample #: 19 Picture #: Location: office #5 - window sill
- Sample #: 20 Picture #: Location: #3 - desk top
- Sample #: 21 Picture #: Location: lobby - heater vent top
- Sample #: 22 Picture #: Location: 2nd floor locker room - locker top
- Sample #: 23 Picture #: Location: 2570 bldg 1st floor conf room office 201
- Sample #: 25 Picture #: Location: office - computer monitor top
- Sample #: 26 Picture #: Location: office conf room - tv top
- Sample #: 27 Picture #: Location: auditorium - table top
- Sample #: 28 Picture #: Location: 2570 bldg basement - supply table top
- 29 supply - shelf top lead ok

(Also, please see the sketch of sampling locations.)

1.2 Breathing Zone Air Sampling

UAGAT327

Sample #: A1 Employee SampledSample #: A2 Employee Sampled

CAPT
Non-Responsive

0567# 9026

PSC

2.0 Physical Condition of Facility

2.1 Peeling Paint - Lead

Peeling paint observed (Yes or No): NO

If peeling paint observed, samples were taken as follows:

Sample #: Picture #: Location:
 Condition (Good, Average, Poor): Quantity: ft²
 Sample #: Picture #: Location:
 Condition (Good, Average, Poor): Quantity: ft²
 Sample #: Picture #: Location:
 Condition (Good, Average, Poor): Quantity: ft²
 Sample #: Picture #: Location:
 Condition (Good, Average, Poor): Quantity: ft²
 Sample #: Picture #: Location:
 Condition (Good, Average, Poor): Quantity: ft²

2.2 Visual Inspection - Asbestos

Suspected asbestos-containing material observed (Yes or No): Yes

If suspected asbestos-containing material observed, samples were taken as follows: total 29 ft
= 2378

Location 1: frontiles - main hall Picture #: ✓ as example
 Condition: good Approximate (Square or Linear Feet) $(9 \times 9) \times (8 \times 9) = 409.5 \text{ ft}^2$
 Location 2: office #1 tiles floor Picture #: 68.25 x 6
 Condition: good Approximate (Square or Linear Feet) $(19 \times 9) \times (19 \times 9) = 203 \text{ ft}^2$
 Location 3: office #2 Picture #: 14.25 x 14.25
 Condition: good Approximate (Square or Linear Feet) $(19 \times 9) \times (19 \times 9) = 203 \text{ ft}^2$
 Location 4: office #3 Picture #: 14.25 x 14.25
 Condition: good Approximate (Square or Linear Feet) $(19 \times 9) \times (19 \times 9) = 203 \text{ ft}^2$
 Location 5: office #4 Picture #: 14.25 x 14.25
 Condition: good Approximate (Square or Linear Feet) $(18 \frac{1}{2} \times 9) \times (19 \times 9) = 19 \text{ ft}^2$
 Location 6: office #5 good cond. $(19 \times 9) \times (13 \times 9) = 139 \text{ ft}^2$
 Location 7: office #6 good cond. $(26 \frac{1}{4} \times 9) \times (12 \frac{1}{2} \times 9) = 185 \text{ ft}^2$
 Location 8: office #7 good cond. $(26 \frac{1}{4} \times 9) \times (18 \frac{1}{2} \times 9) = 273 \text{ ft}^2$

2.3 Visual Inspection - Water Damage and Mold

Water damage observed (Yes or No): Yes

If yes, water damage was observed at the following locations:

** Only tiles to be replaced - no damage*

X Location 1: office #208 - recently fixed Picture #: ✓

Location 2: basement wall/corridor Picture #: ✓

Location 3: main hall stained ceiling tiles Picture #: ✓

Location 4: set office (1st floor) - roof Picture #: ✓

Location 5: _____ Picture #: _____

Mold observed (Yes or No): NO

If yes, mold was observed at the following locations:

Location 1: SPA Picture #: _____

Location 2: _____ Picture #: _____

Location 3: _____ Picture #: _____

Location 4: _____ Picture #: _____

Location 5: Q Picture #: _____

2.4 Visual Inspection - Housekeeping

Housekeeping (good, average, poor): good

Comments (such as no dirt or trash was visible on the floors or the housekeeping was poor in that there was trash and debris on the floors that could lead to a tripping hazard, or there was dust in the vents.):

3.0 Building Concerns

3.1 Ergonomic Concerns

Ergonomic concerns (Yes or No): NO

If there are ergonomic concerns at the armory, describe the extent of the problem, such as three employees stated that they perform repetitive motion at the XYZ machine for 6 hours per day, and they stated that they are suffering from symptoms of musculoskeletal disorders (MSDs).

MSD
↓

3.2 Indoor Air Quality

IAQ concerns (based on employee interviews)(Yes or No): NO

If yes, what were concerns:

MSD
↓

Measurements for carbon dioxide, humidity, and temperature:

	Location	CO ₂ (ppm)	Humidity (%)	Temperature (°F)	Occupancy (People in Room)
	Outdoors - front doors	513	29.8	43.3	0
	1 st Floor - drill hall	617	21.9	68.0	1
Basement	2nd Floor - corr. & supply room	520	29.8	59.5	1
	3 rd Floor - <u>MSD</u>				
2nd Floor	Basement - lockew room	585	19.2	74.7	1

4.0 Safety and Industrial Hygiene Programs

4.1 Confined Spaces

Arc confined spaces applicable (Yes or No): NO

If yes, does the program meet minimum standards (Yes or No): MSD

If no, explain the deficiencies:

MSD
↓

4.2 Hearing Conservation

Is hearing conservation applicable (Yes or No): NO

If yes, does the program meet minimum standards (Yes or No): NA

If no, explain the deficiencies:

NA

4.3 Respiratory Protection

Is respiratory protection applicable (Yes or No): NO

If yes, does the program meet minimum standards (Yes or No): NA

If no, explain the deficiencies:

NA

4.4 Hazard Communication

Is hazard communication applicable (Yes or No): Yes. Form. cabinet

If yes, does the program meet minimum standards (Yes or No): Yes - MSDS on file

If no, explain the deficiencies:

NA

4.5 Personal Protective Equipment

Is personal protective equipment applicable (Yes or No): NO

If yes, does the program meet minimum standards (Yes or No): NA

If no, explain the deficiencies:

NA

5.0 Ventilation

5.1 Ventilation System Evaluation

Local exhaust ventilation systems at this armory (Yes or No): NO

If yes, results of airflow patterns:

Location 1: NA

Airflow Pattern (acceptable or unacceptable, with reason):

NA

Location 2: NA

Airflow Pattern (acceptable or unacceptable, with reason):

NA

Location 3: NA

Airflow Pattern (acceptable or unacceptable, with reason):

NA

5.2 Contamination of Clean Air Sources

Clean air sources contaminated by contaminated exhaust air (Yes or No): NO

If yes, describe:

NA

6.0 Noise Dosimetry

Potential hazardous noise areas (Yes or No): NO

If yes, results of noise dosimetry sampling:

Employee sampled: ISA
Results: _____ % Actual _____ % Projected 8-hour TWA _____ Equivalent dBA

Activity: _____

Employee sampled: _____

Results: _____ % Actual _____ % Projected 8-hour TWA _____ Equivalent dBA

Activity: _____

Employee sampled: _____

Results: _____ % Actual _____ % Projected 8-hour TWA _____ Equivalent dBA

Activity: _____

7.0 Lighting Evaluation

Location	Luminance Range (fc)
1st Flr Drill hall	11.4-30.1
Kitchen (sink)	14.2-24.7
Kitchen (stove)	4.79-20.5
Classroom	18.2-51.6
Office #2	19.3-29.1
Office #9	5.5-20.7
Main hall (old bldg)	6.58-32.4
Women latrine	5.7-17.8
Wrestler's locker room - order room	15.9-29.5
Hallway	6.79-24.7
Office #210	22.6-28.9

8.0 Converted Indoor Firing Ranges

Converted indoor firing range (Yes or No): Yes - ballistics supply cage.

If yes, locations sampled:

Sample #: 18 Picture #: Location: Inside any remaining ventilation ductwork - air grille.
 Sample #: DA Picture #: X Location: Exhaust ventilation system
 Sample #: DA Picture #: X Location: Bullet trap ASONE - dry-walled - no admit. to area
 Sample #: 11 Picture #: Location: Light fixtures
 Sample #: 10 Picture #: Location: Overhead heaters
 Sample #: 9 Picture #: Location: Stored items
 Sample #: 8 Picture #: Location: Floor
 Sample #: 7 Picture #: Location: Outside the range

9.0 HVAC System

Does the HVAC system have maintenance performed on a regular basis (Yes or No):

Yes - rewedition

In yes, is the maintenance effective (Yes or No): Yes - but maintenance has had to repair the unit due to parts malfunction

If no, describe:

10.0 HHIM

Complete HHIM form for facility (Initial as completed):

Reproduction Room HHIM Necessary (Yes or No) (Initial if Yes): DA

Film Developing Room HHIM Necessary (Yes or No) (Initial if Yes): DA

Maintenance Area HHIM Necessary (Yes or No) (Initial if Yes): DA

11.0 Additional Items

Table 1 (wipe sampling) completed (initial when completed): Non-Resp

Table 2 (air sampling) completed (initial when completed): _____

Table 3 (peeling paint), if necessary, completed (initial when completed): _____

Table 3 or 4 (IAQ) completed (initial when completed): _____

Table 4 or 5 (noise), if necessary, completed (initial when completed): NA

Table 5 or 6 (firing ranges), if necessary, completed (initial when completed): _____

Airflow pattern diagram(s) completed (initial when completed): _____

Building layout included (initial when completed): _____

Photographs (initial when completed): _____

Sampling Sheets and Laboratory Analyses (initial when completed): _____

Sampling tracking form completed and faxed to NGB ARNG Region North IH office within 5 days of date of this survey (initial when completed): _____

(Fax to Ken Forsythe at 410-942-0254)

State Lead Wipes Spreadsheet completed (initial when completed): _____

Three copies of noise exposure notification letter, if necessary (initial when completed): NA

Three copies of contaminant exposure forms for each employee that participated in air sampling (initial when completed): _____

SACU cont

LOC 9: office # 8 (26 1/4 x 9") x (19 1/4 x 9") = 282 ft²
 good cond. 19.6875 x 14.4375

LOC 10 office # 9 (26 1/4 x 9") x (19 x 9") = 280 ft²
 good cond. 19.6875 x 14.25

Gate City Armory Photo Log
National Guard Armory
Gate City, Virginia
Date of Survey: 03 December 2003

Photo	Description
1	Lead Wipe Assembly Room-kitchen serving counter Sample 1
2	Lead Wipe Assembly Room-vending machine top surface Sample 2
3	Lead Wipe Assembly Room-stair surface Sample 3
4	Lead Wipe Assembly Room-fire alarm box top surface Sample 4
5	Lead Wipe Assembly Room-fire hose cabinet surface Sample 5
6	Lead Wipe Converted Firing Range Outside the Range Floor Sample 7
7	Lead Wipe Converted Firing Range Floor Sample 8
8	Lead Wipe Converted Firing Range Stored Item, shelf surface Sample 9
9	Lead Wipe Converted Firing Range Overhead Heater Sample 10
10	Lead Wipe Converted Firing Range Light Fixture Sample 11
11	Lead Wipe Converted Firing Range Inside remaining ventilation ductwork Sample 13
12	Lead Wipe 25% Bldg. First Floor Supply Room, flammable cabinet top surface Sample 14
13	Lead Wipe 25% Bldg. First Floor Kitchen Sink Room, electrical control box top surface Sample 15
14	Lead Wipe 25% Bldg. First Floor Classroom, table top Sample 16
15	Lead Wipe 25% Bldg. First Floor Office #8, cabinet top surface Sample 17
16	Lead Wipe 25% Bldg. First Floor Office #5, window sill Sample 19
17	Lead Wipe 25% Bldg. First Floor Office #3, desktop Sample 20
18	Lead Wipe 25% Bldg. First Floor Lobby, heater vent top surface Sample 21
19	Lead Wipe 25% Bldg. Second Floor Locker Room, locker top surface Sample 22
20	Lead Wipe 25% Bldg. First Floor Office #201, trophy top surface Sample 23
21	Lead Wipe 25% Bldg. First Floor Office #208, computer monitor top surface Sample 25
22	Lead Wipe 25% Bldg. First Floor Conference Room, television top surface Sample 26
23	Lead Wipe 25% Bldg. First Floor Orderly Room, table top Sample 27
24	Lead Wipe 25% Bldg. Basement Supply, table top Sample 28
25	Lead Wipe 25% Bldg. Basement Supply, shelf top Sample 29
26/27	Water Damage - hallway stained ceiling tiles
28	Water Damage - converted firing range, stained ceiling/tiled wall
29/30	Water Damage - hallway outside mail room in new edition, stained ceiling tiles.
31	Suspected Asbestos Containing Material - hallway floor tiles, good condition example.

Shaw Environmental, Inc.

312 Directors Drive
Knoxville, TN 37923
865.690.3211
Fax 865.690.3626



07 June 2004

Ms. Vanessa Franchere, CIH
Regional Industrial Hygienist
Region North Industrial Hygiene Office
Attn: NGB-AVS-SI
301-1H Old Bay Lane
Havre De Grace, Maryland 21078

RE: Final Report for the Industrial Hygiene Evaluation at the Gate City Readiness
Center - Gate City, Virginia

Dear Ms. Franchere:

Attached are four (4) copies of the referenced report. Please note that a copy of the field notes, photographs and photograph log, and the completed contaminant exposure forms (three copies of each employee sampled) were provided with the draft report. Please call me if you have questions.

Sincerely,

A handwritten signature in black ink, appearing to read "Harry A. Pullum".

Harry A. Pullum, CIH, CSP, CIAQP
Project Manager

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



Industrial Hygiene Survey for VAARNG – Gate City Readiness Center 157 Beach Street Gate City, Virginia 24251

AECOM
January 2013
Document No.: 60276421/ Gate City Readiness Center

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

Industrial Hygiene Survey
for VAARNG – Gate City Readiness Center
157 Beach Street
Gate City, Virginia 24251

Non-Responsive

A large black rectangular redaction box covering several lines of text.

Industrial Hygienist

Non-Responsive

A large black rectangular redaction box covering several lines of text.

Non-Responsive

A large black rectangular redaction box covering several lines of text.

Northeast District Health & Safety Manager

AECOM Environment
January 2013
Document No.: 60276421/ Gate City 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 Gate City Readiness Center Facility Layout

Appendix B Gate City Readiness Center Photographs

Appendix C Analytical Results

Appendix D References



List of Tables

Table 2-1: Lead Wipe Sample Results 2-1

Table 3-1: Indoor Air Quality Monitoring Results..... 3-2

Table 5-1: Light Survey 5-1



Executive Summary

On October 31, 2012, AECOM Technical Services Northeast, Inc. (AECOM) conducted an Industrial Hygiene (IH) survey of the Gate City Readiness Center facility located at 157 Beach Street in Gate City, Virginia. Captain **Non-** was the point of contact for the facility and accompanied AECOM during the survey to provide access and information concerning the Gate City Readiness Center operations.

The industrial hygiene survey was conducted in general accordance with the scope of work as described in the "Statement of Work – Industrial Hygiene Services for National Guard Bureau Industrial Hygiene Region North – Baseline Surveys for Readiness Centers and Administrative Buildings", dated March 2009.

The Gate City Readiness Center is currently staffed by eighteen personnel. The facility is configured as an administrative area and a drill/assembly hall.

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

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

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

Wipe samples collected in association with most administrative areas indicated lead levels below the Occupational Safety and Health Administration's (OSHA's) Clarification of "as free as practicable" and lead contamination under 29 Code of Federal Regulations (CFR) 1926.62, The Compliance Directive for the Interim Standard for Lead in Construction, CPL 2-2.58. OSHA recommends the use of the U.S. Department of Housing and Urban Development's (HUD) acceptable decontamination level of 200 micrograms per square foot (ug/ft²) for floors in evaluating the cleanliness of change areas, storage facilities, and lunchrooms/eating areas.

However, wipe samples collected from a file cabinet in the Drill hall, the Foyer floor and each of the three areas sampled in the former firing range indicated levels of lead in excess of 200 ug/ft².

Damaged suspect asbestos containing materials were observed during the evaluation. The floor tile at the back of the Drill hall and the ceiling tile in the basement were both sampled and submitted for analysis. Results of the analysis indicated no asbestos detected in the submitted samples.

Three areas of damaged or peeling potentially lead-based paint were observed in the former firing range on the floor, piping, and vent duct. Results indicated lead concentrations below the reporting limit for the floor and duct sample and 0.032% for the piping sample.

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

1.0 Facility Description and Operations

The Gate City Readiness Center is a single story masonry building with brick façade. The section occupied by Readiness Center personnel consists of rooms configured as office space and is finished with acoustical drop ceilings and floor tile.

The primary activity at the Gate City Readiness Center is routine administrative duties. The Gate City Readiness Center is currently staffed by approximately 18 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 multiple areas of the facility following the Occupational Safety & Health Administration (OSHA) wipe sampling method and using Ghost Wipes. The following table presents the results of the lead wipe sampling conducted at the facility.

Table 2-1: Lead Wipe Sample Results

Sample Number	Sample Location	Lead Concentration
GCW-001	Center drill hall	<110 ug/ft ²
GCW-002	Drill hall near garage door	<110 ug/ft ²
GCW-003	Drill hall-file cabinet	360 ug/ft ²
GCW-004	Kitchen sink	<110 ug/ft ²
GCW-005	Classroom windowsill	150 ug/ft ²
GCW-006	Conference room	<110 ug/ft ²
GCW-007	Room 211 top of file cabinet	<110 ug/ft ²
GCW-008	Hallway-corridor	<110 ug/ft ²
GCW-009	Foyer floor	340 ug/ft ²
GCW-010	Former firing range vent duct	220 ug/ft ²
GCW-011	Former firing range floor-floor-concrete	170 ug/ft ²
GCW-012	Former firing range-top of locker	360 ug/ft ²

ug/ft² = Micrograms per square foot.

Wipe samples collected in association with most administrative areas indicated lead levels below the Occupational Safety and Health Administration's (OSHA's) Clarification of "as free as practicable" and lead contamination under 29 CFR 1926.62, The Compliance Directive for the Interim Standard for Lead in Construction, CPL 2-2.58. OSHA recommends the use of HUD's acceptable decontamination level of 200 ug/ft² for floors in evaluating the cleanliness of change areas, storage facilities, and lunchrooms/eating areas.

Lead in excess of the action level of 200 micrograms per square foot (ug/ft²) per NG-PAM 420-15 and 29 CFR 1926.62 was detected in wipe samples collected from the drill hall file cabinet, foyer floor, former firing range vent duct and storage locker. Laboratory analytical results are presented in Appendix C.

2.1.2 Air Sampling

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

3.0 Physical Condition of Facility and Personnel Concerns

3.1.1 Lead Based Paint

Interior surfaces of walls are coated with paint. AECOM observed and sampled damaged or peeling paint in the former firing range, from the floor, piping and the vent duct. Results indicated lead content of less than 5%

3.1.2 Suspect Asbestos Containing Materials

Damaged suspect asbestos containing materials were observed during the evaluation. The floor tile at the back of the Drill hall and the ceiling tile in the basement were both sampled and submitted for analysis. Results of the analysis indicated no asbestos detected in the submitted samples.

Typical suspect miscellaneous building materials observed but not sampled include drywall, floor tiles and associated mastic, cove base and associated mastic, ceiling tiles, carpet mastic, and window caulks.

3.1.3 Water Damage/Mold

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

3.1.4 Housekeeping

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

3.1.5 Indoor Air Quality/ Ergonomics

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

Instantaneous real-time reading for carbon monoxide and carbon dioxide (parts per million or ppm), temperature (° Fahrenheit), and relative humidity (as percentage) are presented in the following table. The facility is mechanically air conditioned with window units. All readings were within acceptable guidelines.

Table 3-1: Indoor Air Quality Monitoring Results

Location	Carbon Monoxide (ppm)	Carbon Dioxide (ppm)	Temp (°F)	Relative Humidity (%)
Supply room	1.0	491	64.2	42.1
Adj supply room	0.4	562	65.3	41.0
Drill hall south	0.6	868	66.7	38.5
Drill hall center	0.4	899	66.9	38.1
Drill hall south	0.2	1120	67.1	38.1
Classroom	0.5	672	61.1	38.3
Kitchen	0.3	502	63.1	42.0
Front foyer	0.2	573	65.3	40.3
Foyer men's room	0.1	621	66.5	40.3
Room 3 conference	0.2	624	67.6	46.0
Hallway at room 3	0.5	581	67.8	40.2
Room 6	0.6	547	67.9	39.3
Room 8 orderly room	0.7	545	68.5	38.0
Room 204	0.1	453	69.0	38.0
Room 201	0.6	449	69.1	34.8
Hallway at XO	0.1	507	69.9	34.7
SFC Bilberry office	0.1	475	70.0	33.9
Downstairs supply	0.2	384	69.6	37.7
Downstairs laundry storage	0.4	384	69.4	37.2
Stairwell	0.2	392	69.7	37.5
<p>Table 3-1 Guidelines:</p> <p>Carbon Monoxide: Office/Warehouse Space – 9 ppm based on United States Environmental Protection Agency's National Ambient Air Quality Standard.</p> <p>OSHA Permissible Exposure Limit (PEL) = 50 ppm. American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit value (TLV) = 25, ppm.</p> <p>Carbon Dioxide: Office Space -Approximately 700 ppm above background (Derived from American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE) Standard 62.1-2010). Not Applicable to warehouse and vehicle maintenance bays.</p> <p>Relative Humidity: Mechanically air-conditioned space – Maximum 65% (Derived from ASHRAE Standard 62.1-2010 – 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 55-2010)</p>				

Gate City 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 building uses window mounted units for HVAC. Temperature readings were slightly low but constant in areas occupied by readiness center personnel.

4.1.2 HVAC Maintenance

Personnel were unable to verify whether or not a maintenance schedule is in place.

There was no 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 not adequate in all of the surveyed areas.

Table 5-1: Light Survey

Location	Results (Foot candles)	Met Standard (Y/N)	Standard*
Supply room	46.4	Y	30
Adj supply room	7.5	N	30
Drill hall south	25.8	Y	10
Drill hall center	27.4	Y	10
Drill hall south	27.5	Y	10
Classroom	12.0	N	30
Kitchen	77.0	Y	50
Front foyer	26.0	Y	10
Foyer men's room	100	Y	10
Room 3 conference	53.6	Y	30
Hallway at room 3	54.9	Y	5
Room 6	54.8	Y	50
Room 8 orderly room	54.5	Y	50
Room 204	50.8	Y	50
Room 201	55.9	Y	50
Hallway at XO	15.0	N	5
SFC Non-office	71.0	Y	50
Downstairs supply	29.0	N	30
Downstairs laundry storage	31.0	Y	30
Stairwell	8.7	Y	5
Office Lighting (ANSI/IESNA RP-1-04) and Industrial Lighting Facilities (ANSI/IESNA RP-7-01)			

6.0 Evaluation of Attached Garage

There is no garage associated with the Gate City Readiness Center.

7.0 Conclusions and Limitations

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

Housekeeping is performed regularly at the Gate City Readiness Center.

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

Wipe samples collected in association with most administrative areas indicated lead levels below the Occupational Safety and Health Administration's (OSHA's) Clarification of "as free as practicable" and lead contamination under 29 CFR 1926.62, The Compliance Directive for the Interim Standard for Lead in Construction, CPL 2-2.58. OSHA recommends the use of HUD's acceptable decontamination level of 200 ug/ft² for floors in evaluating the cleanliness of change areas, storage facilities, and lunchrooms/eating areas.

However, wipe samples collected from a file cabinet in the Drill hall, the Foyer floor and each of the three areas sampled in the former firing range indicated levels of lead in excess of 200 ug/ft².

Damaged suspect asbestos containing materials were observed during the evaluation. The floor tile at the back of the Drill hall and the ceiling tile in the basement were both sampled and submitted for analysis. Results of the analysis indicated no asbestos detected in the submitted samples.

Three areas of damaged or peeling potentially lead-based paint were observed in the former firing range on the floor, piping and vent duct. Results indicated lead concentrations below the reporting limit for the floor and duct sample and 0.032% for the piping sample.

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

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

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

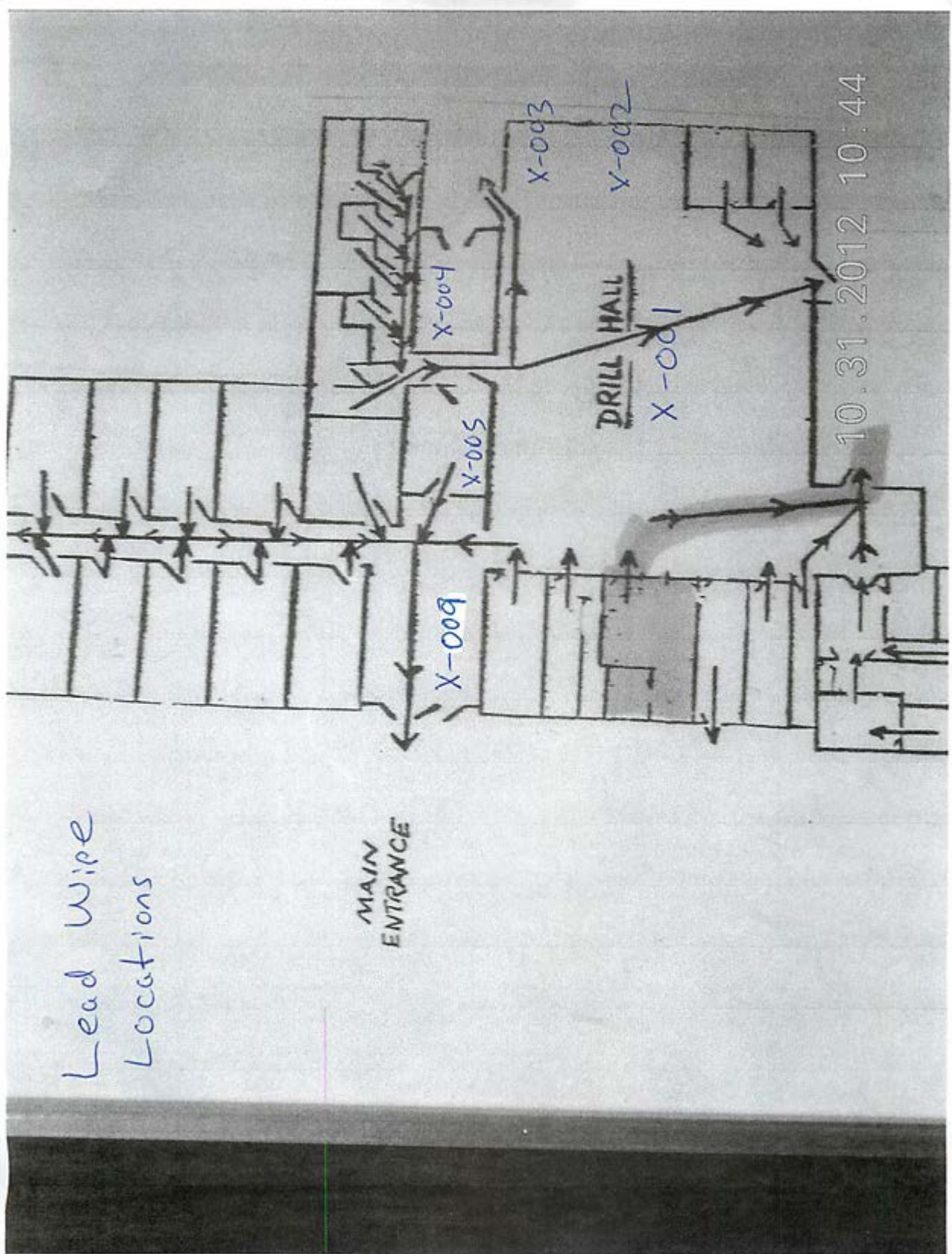
The Client recognizes and agrees that all testing and remediation methods have reliability limitations, no method nor number of sampling locations can guarantee that a condition will be discovered within the

performance of the services as authorized by the Client. Additionally, the passage of time may result in a change in the environmental characteristics at this site. This report does not warrant against future operations or conditions that could affect the recommendations made. The results, findings, conclusions, and recommendations expressed in this report are based only on conditions that were observed during AECOM's inspection of the site.

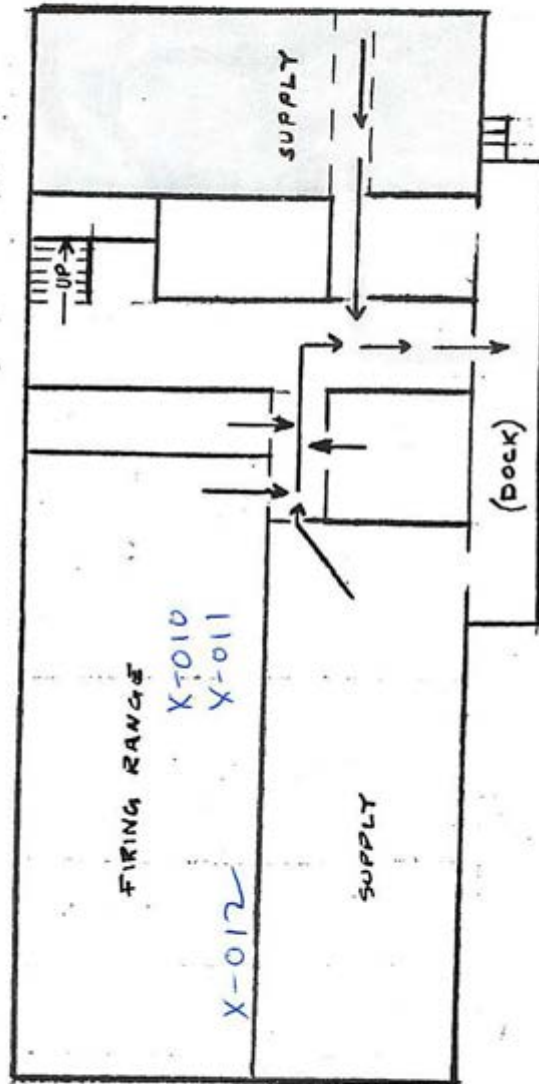


Appendix A

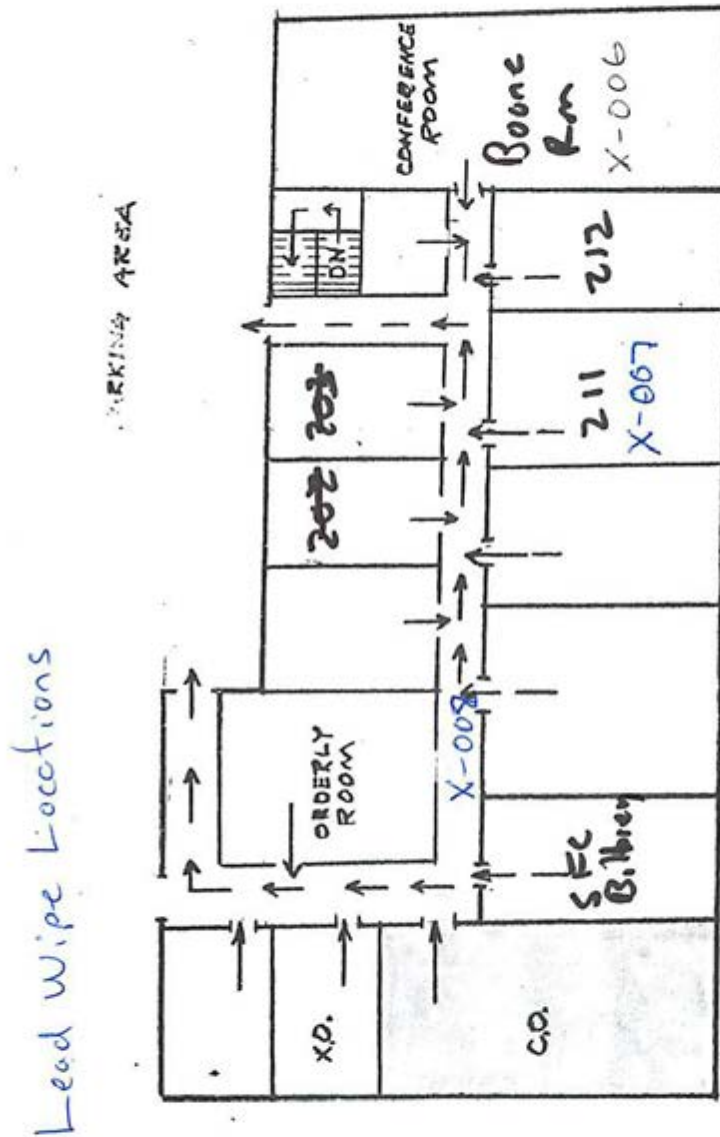
Gate City Readiness Center Facility Layout



Lead Wipe Sampling Locations



FIRE EVACUATION PLAN
(BASEMENT NEW EDITION)



FIRE EVACUATION PLAN
(FIRST FLOOR NEW EDITION)



Appendix B

Gate City Readiness Center Photographs

Photograph 1



Building

Photograph 2



Building plaque

Photograph 3



Drill hall

Photograph 4



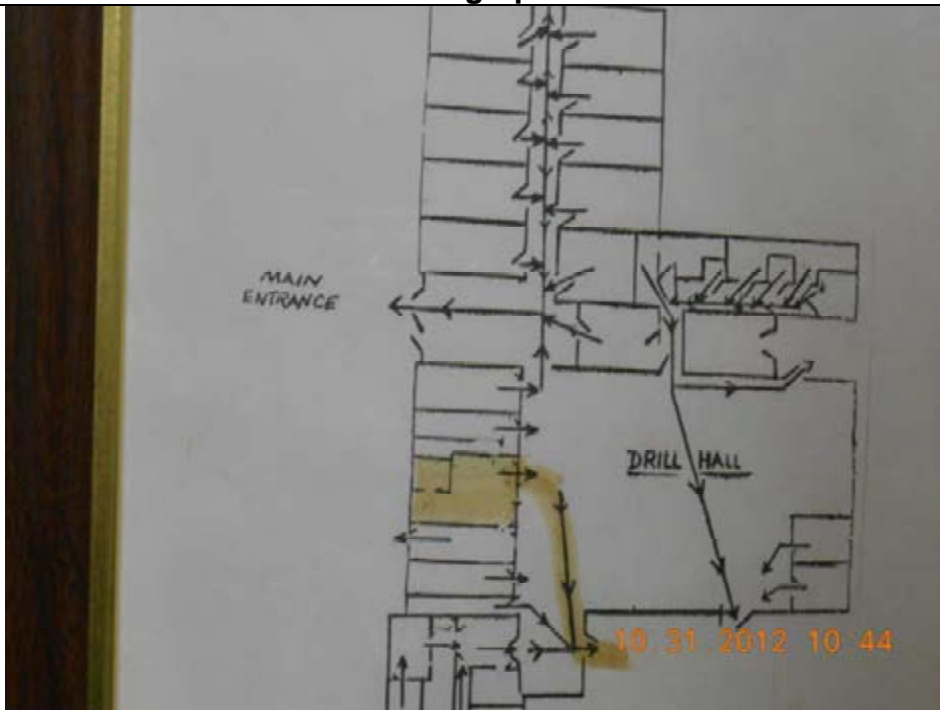
Typical construction

Photograph 5



Damaged floor tile

Photograph 6



Building schematic

Photograph 7



Wipe sample location-kitchen

Photograph 8



Floor tile

Photograph 9



Former firing range

Photograph 10



Wall tile in former range area



Appendix C

Analytical Results



CERTIFICATE OF ANALYSIS



LAFB #100470

Client:	National Guard Bureau	Job Name:	VA ANG IHSurvey	Chain Of Custody:	514741
Address:	301-JH Old Bay Lane, Attn: ARNG-C/JG-P, State Military Reservation Havre de Grace, Maryland 21078	Job Location:	Gate City RC	Date Submitted:	12/12/2012
		Job Number:	Not Provided	Person Submitting:	AECOM
		P.O. Number:	W912K6-09-A-0003	Date Analyzed:	12/21/2012
Attention:	Non- B			Report Date:	12/21/2012

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
13023006	GCW-001	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
13023007	GCW-002	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
13023008	GCW-003	Flame	Wipe	****	0.111	110 ug/ft²	40	360 ug/ft²	
13023009	GCW-004	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
13023010	GCW-005	Flame	Wipe	****	0.111	110 ug/ft²	17	150 ug/ft²	
13023011	GCW-006	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
13023012	GCW-007	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
13023013	GCW-008	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
13023014	GCW-009	Flame	Wipe	****	0.111	110 ug/ft²	38	340 ug/ft²	
13023015	GCW-010	Flame	Wipe	****	0.111	110 ug/ft²	25	220 ug/ft²	
13023016	GCW-011	Flame	Wipe	****	0.111	110 ug/ft²	19	170 ug/ft²	
13023017	GCW-012	Flame	Wipe	****	0.111	110 ug/ft²	39	360 ug/ft²	
13023018	GCC-001	Flame	Paint Chip	****	N/A	0.0089 %Pb		<0.0089 %Pb	
13023019	GCC-002	Flame	Paint Chip	****	N/A	0.01 %Pb		0.032 %Pb	
13023020	GCC-003	Flame	Paint Chip	****	N/A	0.009 %Pb		<0.009 %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.

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

January 2013

AMA Analytical Services, Inc.



A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS



Client: National Guard Bureau Job Name: VA ANG IH Survey Chain Of Custody: 514744
 Address: 301-IH Old Bay Lane, Attn: ARNG-CJG-P, Job Location: Gate City RC Date Submitted: 12/12/2012
 State Military Reservation
 Havre de Grace, Maryland 21078 Job Number: Not Provided Person Submitting: AECOM
 P.O. Number: W912KG-09-A-0063 Date Analyzed: 12/21/2012 Report Date: 12/21/2012
 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
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.

An AIHA (#100470) and NY ELAP (#10920) Accredited Laboratory

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

AMA Analytical Services, Inc.



A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS



101143-0

Client: National Guard Bureau Job Name: VA ANGIH Survey Chain Of Custody: 514744
 Address: 301-11 Old Bay Lane, Attn: ARNG-CJG-P, Job Location: Gate City RC Date Analyzed: 12/19/2012
 Havre de Grace, Maryland 21078 Job Number: Not Provided Person Submitting: AECOM
 P.O. Number: W912K6-09-A-3003

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
13023021	GCA-1 FT	NAD	--	--	--	--	--	--	--	--	--	100	FT	Multi	Homogeneous	SW	
13023022	GCA-1 M	NAD	--	--	--	--	--	--	TR	--	--	100	MS	Black	Homogeneous	SW	
13023023	GCA-2	NAD	--	--	--	--	30	--	30	--	--	40	CT	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

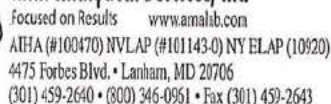
Analyst(s)

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.

NVLAP (101143-0) Accredited Laboratory

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



(Please Refer To This
Number For Inquires)

514744

Submittal Information:

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

1. Job Name: VA ANG 1H SURVEY
2. Job Location: GATE CITY RC
3. Job #: [REDACTED] PO #: W912K6-09-A-0003
4. Contact Person: Non-Responsive @ phone # [REDACTED]
5. Submitted by: AECOM [REDACTED] Non-Responsive

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

AFTER HOURS (must be pre-scheduled) Immediate Date/Day: _____ 24 Hours Time/Day: _____ 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/Day: <u>12/19/12</u> <input type="checkbox"/> Results Requested By Noon				REPORT TO: <input checked="" type="checkbox"/> Immediate <input type="checkbox"/> 3 Day <input checked="" type="checkbox"/> Email <input type="checkbox"/> Fax <input type="checkbox"/> Voice	
								Non-Responsive	

TEM Bulk

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

- TEM Bulk**
- ☐ ELAP 198.4/Chatfield _____ (QTY)
- ☐ NY State PLM/TEM _____ (QTY)
- ☐ Residual Ash _____ (QTY)
- TEM Dust***
- ☐ Qual. (pres/fabs) Vacuum/Dust _____ (QTY)
- ☐ Quan. (slarea) Vacuum D5755-95 _____ (QTY)
- ☐ Quan. (slarea) Dust D6480-99 _____ (QTY)

PLM Bulk

☒ EPA 600 - Visual Estimate 2 (QTY)
☐ EPA Point Count _____ (QTY)
☐ NY State Friable 198.1 _____ (QTY)
☐ Grav. Reduction ELAP 198.5 _____ (QTY)
☐ Other (specify _____) _____ (QTY)

TEM Water

☐ Qual. (pres/abs) _____ (QTY)
☐ ELAP 158.2/EPA 100.2 _____ (QTY)
☐ EPA 100.1 _____ (QTY)

MISC

☐ Vermiculite
☐ Asbestos Soil PLM (Qual) PLM (Quan) PLMTEM (Qual) PLMTEM (Quan)

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

(Metals Analysis)

☒ Pb Paint Chip (QTY) 3
☒ Pb Dust Wipe (wipe type 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)

*It is recommended that blank samples be submitted with all air and surface samples

CLIENT ID #	SAMPLE INFORMATION SAMPLE LOCATION/ID	DATE/ TIME	VOL (L) Wipe Area	ANALYSIS										MATRIX										CLIENT CONTACT																																																																																																																																																																																																																																																																																																								
				720g	PCAs	DEAF	LEAD	MOLD	ATR	RTLK	DUST	HAZ ARSENIC	HAZ Cadmium	HAZ Mercury	HAZ Nickel	HAZ Silver	HAZ Zinc	HAZ Copper	HAZ Chromium	HAZ Manganese	HAZ Selenium	HAZ Vanadium	HAZ Molybdenum	HAZ Cobalt	HAZ Iron	HAZ Aluminum	HAZ Silicon	HAZ Sulfur	HAZ Phosphorus	HAZ Nitrogen	HAZ Carbon	HAZ Hydrogen	HAZ Oxygen	HAZ Fluorine	HAZ Chlorine	HAZ Bromine	HAZ Iodine	HAZ Selenium	HAZ Tellurium	HAZ Antimony	HAZ Bismuth	HAZ Cadmium	HAZ Mercury	HAZ Nickel	HAZ Silver	HAZ Zinc	HAZ Copper	HAZ Chromium	HAZ Manganese	HAZ Selenium	HAZ Vanadium	HAZ Molybdenum	HAZ Cobalt	HAZ Iron	HAZ Aluminum	HAZ Silicon	HAZ Sulfur	HAZ Phosphorus	HAZ Nitrogen	HAZ Carbon	HAZ Hydrogen	HAZ Oxygen	HAZ Fluorine	HAZ Chlorine	HAZ Bromine	HAZ Iodine	HAZ Selenium	HAZ Tellurium	HAZ Antimony	HAZ Bismuth	HAZ Cadmium	HAZ Mercury	HAZ Nickel	HAZ Silver	HAZ Zinc	HAZ Copper	HAZ Chromium	HAZ Manganese	HAZ Selenium	HAZ Vanadium	HAZ Molybdenum	HAZ Cobalt	HAZ Iron	HAZ Aluminum	HAZ Silicon	HAZ Sulfur	HAZ Phosphorus	HAZ Nitrogen	HAZ Carbon	HAZ Hydrogen	HAZ Oxygen	HAZ Fluorine	HAZ Chlorine	HAZ Bromine	HAZ Iodine	HAZ Selenium	HAZ Tellurium	HAZ Antimony	HAZ Bismuth	HAZ Cadmium	HAZ Mercury	HAZ Nickel	HAZ Silver	HAZ Zinc	HAZ Copper	HAZ Chromium	HAZ Manganese	HAZ Selenium	HAZ Vanadium	HAZ Molybdenum	HAZ Cobalt	HAZ Iron	HAZ Aluminum	HAZ Silicon	HAZ Sulfur	HAZ Phosphorus	HAZ Nitrogen	HAZ Carbon	HAZ Hydrogen	HAZ Oxygen	HAZ Fluorine	HAZ Chlorine	HAZ Bromine	HAZ Iodine	HAZ Selenium	HAZ Tellurium	HAZ Antimony	HAZ Bismuth	HAZ Cadmium	HAZ Mercury	HAZ Nickel	HAZ Silver	HAZ Zinc	HAZ Copper	HAZ Chromium	HAZ Manganese	HAZ Selenium	HAZ Vanadium	HAZ Molybdenum	HAZ Cobalt	HAZ Iron	HAZ Aluminum	HAZ Silicon	HAZ Sulfur	HAZ Phosphorus	HAZ Nitrogen	HAZ Carbon	HAZ Hydrogen	HAZ Oxygen	HAZ Fluorine	HAZ Chlorine	HAZ Bromine	HAZ Iodine	HAZ Selenium	HAZ Tellurium	HAZ Antimony	HAZ Bismuth	HAZ Cadmium	HAZ Mercury	HAZ Nickel	HAZ Silver	HAZ Zinc	HAZ Copper	HAZ Chromium	HAZ Manganese	HAZ Selenium	HAZ Vanadium	HAZ Molybdenum	HAZ Cobalt	HAZ Iron	HAZ Aluminum	HAZ Silicon	HAZ Sulfur	HAZ Phosphorus	HAZ Nitrogen	HAZ Carbon	HAZ Hydrogen	HAZ Oxygen	HAZ Fluorine	HAZ Chlorine	HAZ Bromine	HAZ Iodine	HAZ Selenium	HAZ Tellurium	HAZ Antimony	HAZ Bismuth	HAZ Cadmium	HAZ Mercury	HAZ Nickel	HAZ Silver	HAZ Zinc	HAZ Copper	HAZ Chromium	HAZ Manganese	HAZ Selenium	HAZ Vanadium	HAZ Molybdenum	HAZ Cobalt	HAZ Iron	HAZ Aluminum	HAZ Silicon	HAZ Sulfur	HAZ Phosphorus	HAZ Nitrogen	HAZ Carbon	HAZ Hydrogen	HAZ Oxygen	HAZ Fluorine	HAZ Chlorine	HAZ Bromine	HAZ Iodine	HAZ Selenium	HAZ Tellurium	HAZ Antimony	HAZ Bismuth	HAZ Cadmium	HAZ Mercury	HAZ Nickel	HAZ Silver	HAZ Zinc	HAZ Copper	HAZ Chromium	HAZ Manganese	HAZ Selenium	HAZ Vanadium	HAZ Molybdenum	HAZ Cobalt	HAZ Iron	HAZ Aluminum	HAZ Silicon	HAZ Sulfur	HAZ Phosphorus	HAZ Nitrogen	HAZ Carbon	HAZ Hydrogen	HAZ Oxygen	HAZ Fluorine	HAZ Chlorine	HAZ Bromine	HAZ Iodine	HAZ Selenium	HAZ Tellurium	HAZ Antimony	HAZ Bismuth	HAZ Cadmium	HAZ Mercury	HAZ Nickel	HAZ Silver	HAZ Zinc	HAZ Copper	HAZ Chromium	HAZ Manganese	HAZ Selenium	HAZ Vanadium	HAZ Molybdenum	HAZ Cobalt	HAZ Iron	HAZ Aluminum	HAZ Silicon	HAZ Sulfur	HAZ Phosphorus	HAZ Nitrogen	HAZ Carbon	HAZ Hydrogen	HAZ Oxygen	HAZ Fluorine	HAZ Chlorine	HAZ Bromine	HAZ Iodine	HAZ Selenium	HAZ Tellurium	HAZ Antimony	HAZ Bismuth	HAZ Cadmium	HAZ Mercury	HAZ Nickel	HAZ Silver	HAZ Zinc	HAZ Copper	HAZ Chromium	HAZ Manganese	HAZ Selenium	HAZ Vanadium	HAZ Molybdenum	HAZ Cobalt	HAZ Iron	HAZ Aluminum	HAZ Silicon	HAZ Sulfur	HAZ Phosphorus	HAZ Nitrogen	HAZ Carbon	HAZ Hydrogen	HAZ Oxygen	HAZ Fluorine	HAZ Chlorine	HAZ Bromine	HAZ Iodine	HAZ Selenium	HAZ Tellurium	HAZ Antimony	HAZ Bismuth	HAZ Cadmium	HAZ Mercury	HAZ Nickel	HAZ Silver	HAZ Zinc	HAZ Copper	HAZ Chromium	HAZ Manganese	HAZ Selenium	HAZ Vanadium	HAZ Molybdenum	HAZ Cobalt	HAZ Iron	HAZ Aluminum	HAZ Silicon	HAZ Sulfur	HAZ Phosphorus	HAZ Nitrogen

Surface Sampling Field Data Sheet

Date Collected: 10/31/12

Job Name: Gate City NGB Armory, VA

Company: NGB Page: of

Job Number:

Job Location: Gate City, VA

Phone Number: 410-942-0272

Contact Person:

Non-Responsive

Address: 157 Beech St.

Collector:

Non-Responsive

Gate City, VA

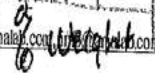
COC Number:

Sample Number	Sample Location	Surface/Substrate Sampled	Area Wiped (in ² /ft ²)	Collection Media
GCW-001	Center Drill Hall	Concrete	4 in x 4 in wipe	
GCW-002	Drill Hall Near Garage Dr.	Concrete		
GCW-003	Drill Hall - File Cabinet	Metal		
GCW-004	Kitchen - Sink	Metal		
GCW-005	Classroom ^{Windowsill} Floor - Adj. Drill Hall	slate		
GCW-006	Conference Room	Wood		
GCW-007	Room 211 - Top File Cabinet	Metal		
GCW-008	Hallway - Corridor	Fl. Tile		
GCW-009	Foyer - Floor	Tile		
GCW-010	Firing Range Vent Duct	Metal		
GCW-011	Firing Range Floor - Concrete	Concrete		
GCW-012	Firing Range - Top Locker	Metal		
GCC-001	Interior - Firing Range Floor	Building - concrete	2 weight	Chip
GCC-002	Interior - Firing Range Piping	Building - metal	2 weight	Chip
GCC-003	Interior - Firing Range Vent Duct	Building - metal	2 weight	Chip



Please Return Samples To:

AMA Analytical Services, Inc., 4475 Forbes Blvd., Lanham, MD 20706, (800) 346-0961/(301) 459-2640 Fax, www.amaanalytical.com



Bulk Sampling Survey Sheet

Date Collected: 10/31/12 Job Name: Gate City NG Armory
 Job Number: Non-Responsive Job Location: Gate City, VA
 Contact Person: Non-Responsive Address: 157 Beech St.
Gate City, VA

Company: NGB Page 1 of 1
 Phone Number: 410-942-0273
 Collected By: Non-Responsive
 COC Number: _____

Sample Number	Homogenous Area ID	Type of Material	Sample Location	Friable	Condition of Material	Accessibility	Photo	Comments
GCA-1	1	^{FAM} Floor Tile	Back of Drill Hall	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input checked="" type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input checked="" type="checkbox"/> High	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	White 12x12 Assume mastic
GCA-2	2	ceiling tile	Basement	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input checked="" type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input checked="" type="checkbox"/> High	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	



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





Appendix D

References

References

1. Title 29, Code of Federal Regulations (CFR), Part 1910, Occupational Safety and Health Administration, current Ed. <http://www.osha.gov/comp-links.html>
2. Department of Defense Instruction (DODI) 6055.1, Department of Defense Occupational Safety and Health (OSH) Program, August 19, 1998. <http://www.dtic.mil/whs/directives/corres/pdf/605501p.pdf>
3. Army Regulation (AR) 11-34, The Army Respiratory Protection Program, 15 February 1990. http://armypubs.army.mil/epubs/pdf/R11_34.PDF
4. AR 40-5, Medical Service, Preventive Medicine, 25 May 2007. http://armypubs.army.mil/epubs/pdf/R40_5.PDF
5. AR 385-10, The Army Safety Program, 23 August 2007; Rapid Action Revision (RAR) issue date: 4 October 2011. http://armypubs.army.mil/epubs/pdf/R385_10.PDF
6. Department of the Army Pamphlet (DA PAM) 40-501, Medical Services, Hearing Conservation Program, 10 December 1998. http://armypubs.army.mil/epubs/pdf/P40_501.pdf
7. DA PAM 40-11, Preventive Medicine, 22 July 2005, RAR issue date: 19 October 2009. http://armypubs.army.mil/epubs/pdf/p40_11.pdf
8. DA PAM 40-503, Medical Services, Industrial Hygiene Program, 30 October 2000. http://armypubs.army.mil/epubs/pdf/P40_503.PDF
9. UFC 3-410-01FA, Heating, Ventilating, and Air Conditioning, 15 May 2003, change 4, January 2010. http://www.wbdg.org/ccb/DOD/UFC/ufc_3_410_01fa.pdf
10. Threshold Limit Values (TLVs) and Biological Exposure Indices (BEIs), American Conference of Governmental Industrial Hygienists (ACGIH), current Ed.
11. Industrial Ventilation – A Manual of Recommended Practice for Design, ACGIH, current Ed.
12. American National Standards Institute (ANSI)/International Safety Equipment Association (ISEA) Z358.1-2009, Emergency Eyewash and Shower Equipment.
13. ANSI/American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. (ASHRAE) 55-2010, Thermal Environmental Conditions for Human Occupancy.
14. ANSI/ASHRAE 62.1-2010, Ventilation for Acceptable Indoor Air Quality.
15. RP-1-2004, Office Lighting, ANSI/IESNA.
16. RP-7-2001, Industrial Lighting, ANSI/IESNA, change 20 July 2004.
17. OSHA Instruction Letter 02-02-058, Lead Exposure in Construction, Office of Health Compliance Assistance, 13 December 1993.
18. OSHA Standard Interpretation, Clarification of “as free as practicable” and lead contamination under 29 CFR 1926.62, dated January 13, 2003.
19. NG PAM 420-15, Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges, 3 November 2006. http://www.ngbpdc.ngb.army.mil/pubs/420/ngpam420_15.pdf

Shaw Environmental, Inc.

312 Directors Drive
Knoxville, TN 37923
865.690.3211
Fax 865.690.3626



**National Guard Armory
Harrisonburg Readiness Center
Harrisonburg, Virginia**

Industrial Hygiene Evaluation

Prepared for:

**National Guard Region North Industrial Hygiene Office
Havre De Grace, Maryland 21078**

Prepared by:

**Shaw Environmental, Inc.
312 Directors Drive
Knoxville, Tennessee 37923**

13 December 2004

**National Guard Armory
Harrisonburg Readiness Center
Harrisonburg, Virginia**

Industrial Hygiene Evaluation

Prepared for:

**National Guard Region North Industrial Hygiene Office
Havre De Grace, Maryland 21078**

Prepared by:

**Shaw Environmental, Inc.
312 Directors Drive
Knoxville, Tennessee 37923**

13 December 2004

Prepared by:

Non-Responsive

Reviewed by:

Non-Responsive

Business Line Manager

Table of Contents

<i>Table of Contents</i>	<i>i</i>
<i>List of Tables</i>	<i>ii</i>
<i>List of Appendices</i>	<i>ii</i>
<i>Executive Summary</i>	<i>E-1</i>
<i>1.0 Introduction</i>	<i>1-1</i>
<i>2.0 Findings, Discussion, and Interpretation of Results</i>	<i>2-1</i>
<i>2.1 Sampling for Lead</i>	<i>2-1</i>
<i>2.1.1 Wipe Sampling</i>	<i>2-1</i>
<i>2.1.2 Air Sampling for Lead</i>	<i>2-2</i>
<i>2.2 Physical Condition of Facility</i>	<i>2-2</i>
<i>2.2.1 Peeling Paint - Lead</i>	<i>2-2</i>
<i>2.2.2 Visual Inspection - Asbestos</i>	<i>2-2</i>
<i>2.2.3 Visual Inspection – Water Damage and Mold</i>	<i>2-2</i>
<i>2.2.4 Visual Inspection - Housekeeping</i>	<i>2-3</i>
<i>2.3 Building Concerns</i>	<i>2-3</i>
<i>2.3.1 Ergonomic Concerns</i>	<i>2-3</i>
<i>2.3.2 Indoor Air Quality</i>	<i>2-3</i>
<i>2.4 Safety and Industrial Hygiene Programs</i>	<i>2-3</i>
<i>2.5 Ventilation</i>	<i>2-4</i>
<i>2.5.1 Ventilation System Evaluation</i>	<i>2-4</i>
<i>2.5.2 Contamination of Clean Air Sources</i>	<i>2-4</i>
<i>2.6 Noise Exposure</i>	<i>2-4</i>
<i>2.7 Lighting</i>	<i>2-4</i>
<i>2.8 Converted Indoor Firing Ranges</i>	<i>2-4</i>
<i>2.9 HVAC Systems</i>	<i>2-5</i>
<i>2.10 HHIM</i>	<i>2-5</i>
<i>3.0 Conclusions</i>	<i>3-1</i>
<i>Tables</i>	<i>Follows Section 3.0</i>
<i>Appendices</i>	<i>Follows Tables</i>

List of Tables

Table 1	Wipe Sampling for Lead
Table 2	Air Sampling for Lead
Table 3	Indoor Air Quality Measurements
Table 4	Illumination Readings
Table 5	Indoor Firing Ranges – Wipe Sampling

List of Appendices

Appendix A	IIHIM Data Form
Appendix B	Building Layout
Appendix C	Sampling Sheets and Laboratory Analyses
Appendix D	References
Appendix E	Recommendations for Surface Lead Dust in Armories

Executive Summary

Shaw Environmental, Inc. (Shaw) was contracted to perform an industrial hygiene evaluation for the Harrisonburg Readiness Center in Harrisonburg, Virginia. Non-
 Non- performed the evaluation on 23 January 2004. The point of contact at the Respons
 R I readiness center was SSG Non-Responsive

The following industrial hygiene concerns were evaluated.

- Wipe Sampling for Lead
- Air Sampling for Lead
- Peeling Paint – Lead
- Suspected Asbestos Containing Material
- Water Damage
- Presence of Mold
- Housekeeping
- Ergonomic Concerns
- Indoor Air Quality
- Safety and Industrial Hygiene Programs
- Ventilation System Evaluation
- Contamination of Clean Air Sources
- Noise Exposure
- Lighting
- Converted Indoor Firing Range
- HVAC Systems

The following items were either not applicable to the armory or the evaluation resulted in a conclusion that there were no industrial hygiene concerns.

- Air Sampling for Lead
- Peeling Paint – Lead
- Suspected Asbestos Containing Material
- Housekeeping
- Ergonomic Concerns
- Safety and Industrial Hygiene Programs

- Ventilation System Evaluation
- Contamination of Clean Air Sources
- Noise Exposure
- HVAC Systems

Areas where there were industrial hygiene concerns are as follows:

- Wipe sampling for lead revealed a concentration above the recommended level of 200 micrograms per square foot ($\mu\text{g}/\text{ft}^2$) on the top surface of fire hose housing, top surface of heat register, top surface of heat register, and top surface of fire hose housing in the drill floor/assembly hall area. It is recommended that these surfaces and the areas immediately around these surfaces be thoroughly cleaned to reduce the lead level. In addition, any other dusty/dirty areas in the assembly area/drill floor and classroom/storage room should be thoroughly cleaned.
- Wipe sampling for lead revealed concentrations above a level of 40 micrograms per square foot ($\mu\text{g}/\text{ft}^2$) in the drill floor/assembly hall area, classroom/storage room, kitchen, orderly room, 1st platoon office, and converted firing range. Areas with lead concentrations above 40 $\mu\text{g}/\text{ft}^2$ that will be accessible to children should be cleaned. If a special function is held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function.
- Water damage was observed at several locations at the armory. The source of the water damage was likely from a combination of roof and pipe leaks. The source of the water damage should be confirmed and actions taken to eliminate the source in order to prevent the possibility of mold growth that may lead to indoor air quality problems.
- Visual mold was observed in the armory. The area where the mold is located should be thoroughly cleaned with 0.5% sodium hypochlorite solution (1 part household bleach to nine parts water) or equivalent in order to eliminate the potential mold/indoor air quality problem. In addition, the source of the mold should be identified and actions taken to eliminate it.
- Measurements for humidity revealed that levels did not meet the recommended level of 30% humidity in the facility. It is recommended that a humidification system be installed at the facility.
- Lighting measurements were conducted at the armory. The lighting did not meet minimum requirements in some areas; therefore, consideration should be given to providing more lighting in these areas. This may be accomplished by replacing burnt out luminaires, cleaning fixtures, cleaning windows, painting walls with a lighter

color, repositioning detailed work to higher illuminated areas, and using supplemental lighting.

- Wipe sampling for lead in the converted firing range revealed a concentration above the recommended level. This area must be decontaminated by a thorough cleaning until surface lead concentrations are reduced to below recommended levels.

1.0 Introduction

Shaw Environmental, Inc. (Shaw) was contracted to perform an industrial hygiene evaluation for the Harrisonburg Readiness Center in Harrisonburg, Virginia. Non-Respo
Non-Respo performed the evaluation on 23 January 2004. The point of contact at the readiness center was SSC Non-Responsive

The findings, discussion, and interpretation of results are provided in Section 2.0. The conclusions are provided in Section 3.0. The HHIM data form for the facility is provided in Appendix A. The building layout is provided in Appendix B. Sampling sheets and laboratory analyses are provided in Appendix C. References are provided in Appendix D. The *Recommendations for Surface Lead Dust in Armories* document is provided in Appendix E.

The statements, opinions, and conclusions contained in this report are based solely upon the services performed by Shaw as described in the report. In performing these services and preparing the report, Shaw Environmental, Inc. relied upon the work and information provided by others, including public agencies, whose information is not guaranteed by Shaw Environmental, Inc.

2.0 Findings, Discussion, and Interpretation of Results

The results, discussion, and interpretation of results are provided in the following sections.

2.1. Sampling for Lead

2.1.1 Wipe Sampling

Wipe samples were collected for lead from the drill floor/assembly area. Also, wipe samples were collected for lead in rooms, hallways, foyers, etc. The sampling in rooms, hallways, foyers, etc. represented approximately 25% of the building. Approximately half of the samples were collected from surfaces in common areas, such as surfaces of a desk. The remaining samples were collected from uncommon surface areas, such as a supply vent or the top of a file cabinet. The samples were collected and analyzed in accordance with the Instructions for *Completing the Sampling of ARMY National Guard Armories* procedure.

The only samples initially submitted for analysis were those from the drill floor/assembly hall. Since there were results above acceptable levels from the drill floor/assembly hall area, the remaining samples were submitted for analysis.

Results of the wipe sampling are provided in Table 1. The results revealed lead at all locations sampled at concentrations below the recommended level of 200 micrograms lead per square foot ($\mu\text{g}/\text{ft}^2$) (See Appendix E) except at three locations. The samples collected from the top surfaces of two fire hose housing units in the drill floor/assembly hall area had concentrations of 1600 and 2300 $\mu\text{g}/\text{ft}^2$. The sample collected from the top surface of a shelf in the classroom/storage room had a lead concentration of 210 $\mu\text{g}/\text{ft}^2$. It is recommended that these surfaces and the immediate areas around these surfaces be thoroughly cleaned to reduce the lead level to below 200 $\mu\text{g}/\text{ft}^2$. For guidance on the proper method of cleaning, please refer to NG PAM 385-15 (*Guidelines and Procedures for Indoor Firing Range (IFR) Rehabilitation, Conversion, and Cleaning*). In addition, any other dusty/dirty areas in the assembly area/drill floor and classroom/storage room should be thoroughly cleaned.

In addition, wipe sampling for lead revealed concentrations above a level of $40 \mu\text{g}/\text{ft}^2$ in the drill floor/assembly hall area, classroom/storage room, kitchen, orderly room, 1st platoon office, and converted firing range. Please note that the *Recommendations for Surface Lead Dust in Armories* (Appendix E) states that all areas with lead concentrations above $40 \mu\text{g}/\text{ft}^2$ that will be accessible to children should be cleaned. If a special function is held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function.

2.1.2 Air Sampling for Lead

General air sampling was conducted because employees were not available for sampling. The samples were collected and analyzed in accordance with Method 7082 of the National Institute of Occupational Safety and Health (NIOSH) Manual of Analytical Methods.

The results of the sampling are provided in Table 2. The results revealed non-detectable concentrations of lead in air; therefore, no actions are necessary.

2.2 Physical Condition of Facility

2.2.1 Peeling Paint - Lead

Peeling paint was not observed at the armory; therefore, bulk samples for lead in paint were not taken.

2.2.2 Visual Inspection - Asbestos

A visual inspection was made to determine if there was any suspected asbestos-containing material at the armory. The inspection did not reveal any materials suspected of containing asbestos.

2.2.3 Visual Inspection - Water Damage and Mold

A visual inspection was made to determine if there was any water damage or visible mold at the armory. Both visible mold and water damage was observed at the armory. Water damage was observed on the ceilings and some walls in room 113, kitchen, men's latrine, women's latrine, room 110, room 101a, room 101b, room 102, room 104, room 105, and room 108.

The source of the water damage was likely from a combination of roof and pipe leaks. The source of the water damage should be confirmed and actions taken to eliminate the source in order to prevent the possibility of mold growth that may lead to indoor air quality problems.

Visible mold was observed on the ceilings and walls in room 104. The area where the mold is located should be thoroughly cleaned with 0.5% sodium hypochlorite solution (1 part household bleach to nine parts water) or equivalent in order to eliminate the potential mold/indoor air quality problem. In addition, the source of the mold should be identified and actions taken to eliminate it.

2.2.4 Visual Inspection - Housekeeping

The housekeeping was determined to be good.

2.3. Building Concerns

2.3.1 Ergonomic Concerns

Interviews with employees and observation of work activities revealed no ergonomic concerns at the armory.

2.3.2 Indoor Air Quality

Interviews with employees and measurements for temperature and carbon dioxide revealed no indoor air quality concerns at the armory. Measurements for humidity revealed that levels did not meet the recommended level of 30% humidity in the facility. It is recommended that a humidification system be installed at the facility.

The results of the measurements for carbon dioxide, humidity, and temperature are provided in Table 3.

2.4. Safety and Industrial Hygiene Programs

An evaluation was performed to determine the applicability of the following programs.

- Confined Spaces
- Hearing Conservation
- Respiratory Protection

- Hazard Communication (HAZCOM)
- Personal Protective Equipment (PPE)

It was determined that the HAZCOM program was the only program listed above that was applicable at the facility. The HAZCOM program was evaluated and it was determined that the program met minimum requirements.

2.5. Ventilation

2.5.1 Ventilation System Evaluation

There were no local exhaust ventilation systems at this armory; therefore, no ventilation studies were performed.

2.5.2 Contamination of Clean Air Sources

Since there were no local exhaust ventilation systems at the armory, there was no possibility that clean air sources could be contaminated by exhaust air.

2.6. Noise Exposure

An evaluation was performed to determine if there were any hazardous noise areas at the armory. It was determined that there were no areas at the armory that would exceed the permissible exposure limit for noise.

2.7. Lighting

Lighting measurements were conducted at the armory. Results of the lighting evaluation are provided in Table 5. As can be seen from the results, the lighting did not meet the minimum requirements in some areas, including the kitchen, room 113, room 108, room 105, and copy room.

Consideration should be given to providing more lighting to these areas. This may be accomplished by replacing burnt out luminaires, cleaning fixtures, cleaning windows, painting walls with a lighter color, repositioning detailed work to higher illuminated areas, and using supplemental lighting.

2.8. Converted Indoor Firing Ranges

There was a converted indoor firing range at the facility; therefore, wipe samples were taken for lead at various locations in or near the converted range. The space is

used as a storage room. The results are provided in Table 5. The results revealed lead, with associated concentrations, at the following locations:

- bullet trap (floor near former bullet trap location) at 120 $\mu\text{g}/\text{ft}^2$;
- light fixtures at 35 $\mu\text{g}/\text{ft}^2$;
- overhead heaters at 260 $\mu\text{g}/\text{ft}^2$;
- stored items at 65 $\mu\text{g}/\text{ft}^2$;
- floor (inside the converted firing range) the range at 32 $\mu\text{g}/\text{ft}^2$; and
- floor (outside the converted firing range) at 13 $\mu\text{g}/\text{ft}^2$

The lead levels at one of these locations was above the recommended level of 200 $\mu\text{g}/\text{ft}^2$, a level recommended in the *Guidelines for Converting Indoor Firing Ranges to Other Uses* document (Department of Army). This areas must be decontaminated by a thorough cleaning until surface lead concentrations are reduced to below recommended levels. For guidance on the proper method of cleaning, please refer to NG PAM 385-15 (*Guidelines and Procedures for Indoor Firing Range (IFR) Rehabilitation, Conversion, and Cleaning*).

2.9. HVAC System

The maintenance schedule for the HVAC system was evaluated to verify that maintenance occurs on a regular basis. Also, the condition of the HVAC system was evaluated to determine if the maintenance performed is effective. It was deemed that maintenance occurs on a regular basis, and the maintenance performed is effective.

2.10. HHIM

A Health Hazard Information Module (HHIM) form was completed for the armory. The completed form is provided in Appendix A.

3.0 Conclusions

It is concluded that there were no industrial hygiene concerns at the armory with regards to atmospheric exposure to lead, peeling lead-based paint, suspected asbestos-containing material, housekeeping, ergonomic conditions, safety and industrial hygiene programs, ventilation systems or contamination of clean air sources, noise exposure, and HVAC systems.

There were industrial hygiene concerns at the armory with regards to lead surface contamination, water damage, visible mold, indoor air quality, lighting, and surface lead contamination in the converted firing range. These concerns are discussed in detail in Section 2.0 of this report.

TABLES

Table 1
Wipe Sampling for Lead
National Guard Armory
Harrisonburg, Virginia
Date of Sampling: 23 January 2004

Sample Number	Location	Results, $\mu\text{g}/\text{ft}^2$ ^a
VAHAR023-1	Drill Floor (top surface of vending machine) See Building Layout – Appendix B	80
VAHAR023-2	Drill Floor (top surface of electrical conduit cover) See Building Layout – Appendix B	45
VAHAR023-3	Drill Floor (top surface of fire hose housing) See Building Layout – Appendix B	1600
VAHAR023-4	Drill Floor (top surface of fire hose housing) See Building Layout – Appendix B	2300
VAHAR023-5	Drill Floor (top surface of electrical conduit cover) See Building Layout – Appendix B	45
VAHAR023-6	Field Blank	0.39
VAHAR023-7	25% Building (kitchen top surface of ice machine) See Building Layout – Appendix B	71
VAHAR023-8	25% Building (orderly room window sill) See Building Layout – Appendix B	77
VAHAR023-9	25% Building (classroom #1 top surface of podium) See Building Layout – Appendix B	34
VAHAR023-10	25% Building (mail room top surface of shelf) See Building Layout – Appendix B	35
VAHAR023-11	25% Building (room 114 top surface of desk) See Building Layout – Appendix B	16
VAHAR023-12	Field Blank	0.57
VAHAR023-13	25% Building (room 108 window sill) See Building Layout – Appendix B	12
VAHAR023-14	25% Building (1 st platoon office top surface of desk) See Building Layout – Appendix B	43
VAHAR023-15	25% Building (classroom/storage top surface of shelf) See Building Layout – Appendix B	210

Table 1 (Continued)
Wipe Sampling for Lead
National Guard Armory
Harrisonburg, Virginia
Date of Sampling: 23 January 2004

VAHAR023-16	25% Building (supply room top surface of storage trunk) See Building Layout – Appendix B	26
-------------	---	----

^a Micrograms lead per square foot

The samples were taken and analyzed in accordance with the *Instructions for Completing the Sampling of ARMY National Guard Armories* procedure.

In armories that do not contain childcare facilities, the NGB Region North Industrial Hygiene Office recommends cleaning the areas with sample results greater than 200 $\mu\text{g}/\text{ft}^2$

Table 2
Breathing Zone Air Samples for Lead
National Guard Armory
Harrisonburg, Virginia
Date of Sampling: 23 January 2004

Sample Number	Employee	Sampling Information			Results (mg/m ³) ^a
		Time Sampled / Minutes	Flow Rate (lpm) ^b	Volume (liters)	
VAHAR023-A1	General Air Sample	1505-1700/115	1.681	193.39	< 0.005
VAHAR023-A2	General Air Sample	1510-1705/115	1.627	187.12	< 0.005
VAHAR023-A3	Field Blank	-	-	-	None Detected

^a Milligrams lead per cubic meter of air.

^b Liters of air per minute.

Method 7082 of the National Institute of Occupational Safety and Health (NIOSH) Manual of Analytical Methods was followed for sampling for lead.

Table 3

**Indoor Air Quality Measurements for Carbon Dioxide, Humidity, and Temperature
National Guard Armory
Harrisonburg, Virginia
Date of Sampling: 23 January 2004**

Location	Occupants In Area	Carbon Dioxide, parts per million parts of air (ppm)	Percent (%) Humidity	Temperature (°F)
1 st Floor	1	387	17.8	71.1
Outdoors	-	354	21.6	48.3

Carbon dioxide, humidity, and temperature measurements were taken with a TSI Q Trak Plus, Model 8554, Indoor Air Quality Meter, calibrated in April 2003.

American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE) recommends that indoor carbon dioxide levels be less than 700 ppm above outdoor levels.

ASHRAE recommends that the relative humidity levels be maintained between 30 to 60 percent.

ASHRAE recommends that the acceptable temperature range be 68 degrees Fahrenheit to 74 degrees Fahrenheit in the winter and 73 degrees Fahrenheit to 79 degrees Fahrenheit in the summer.

Table 4
Illumination Readings
National Guard Armory
Harrisonburg, Virginia
Date of Sampling: 23 January 2004

Location	Lumiance (fc)^a	Standard (fc)^a	Standard Met
Kitchen	22.2-66.6	70	No
Men's Latrine	33.3-55.5	40	Some Areas
Women's Latrine	33.3-55.5	40	Some Areas
Orderly Office	44.4-88.8	70	Some Areas
Classroom 101 A & B	44.4-88.8	70	Some Areas
Admin Office	33.3-77.7	70	Some Areas
Mail Room	33.3-72.2	70	Some Areas
Copy Room	33.3-66.6	70	No
Room 109	44.4-88.8	70	Some Areas
Room 110	44.4-83.3	70	Some Areas
Room 113	22.2-55.5	70	No
Room 108	22.2-66.6	70	No
Room 105	33.3-66.6	70	No

^afc - Footcandles

The readings were taken with a Weston model 614-60 Lightmeter.

The standards listed above are from ANSI/IES RP-1 and RP-7.

Table 5
Wipe Sampling for Lead – Converted Firing Range
National Guard Armory
Harrisonburg, Virginia
Date of Sampling: 23 January 2004

Sample Number	Location	Results, $\mu\text{g}/\text{ft}^2$ ^a
VAHAR023-17	Bullet Trap (floor near former bullet trap location)	120
VAHAR023-18	Light Fixtures	35
VAHAR023-19	Overhead Heaters	260
VAHAR023-20	Stored Item	65
VAHAR023-21	Floor (inside the converted firing range)	32
VAHAR023-22	Floor (outside the converted firing range)	13

^a Micrograms lead per square foot

The samples were taken and analyzed in accordance with the Instructions for *Completing the Sampling of ARMY National Guard Armories* procedure.

Appendix A

HHIM Data Form(s)

HEALTH HAZARD INFORMATION MODULE: INDUSTRIAL HYGIENE SURVEY

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

SECTION 1. DEMOGRAPHIC DATA

ARLOC 24255		INSTALLATION APG-EA		BLDG/RM NO. HARRISON BURN	
LOCATION/CODE ADMINISTRATIVE AREAS / AA			OPERATION/CODE ADMINISTRATIVE OPERATIONS / ADO		
SURVEY DATE 23 JANUARY 2004			EVALUATOR (Initials) Non-Responsive		
MACOM/CODE		SUBMACOM/CODE XX		SUPERVISOR SSA Non-Responsive	
TELEPHONE/DSN NO. (540) 434 6594		UNIT/ORGANIZATION HARRISON BURN ARMORY		RAC A	
NO. CIV(S) 0		NO. MIL 3		NO. CONTRACTOR(S) 0	
		NO. LOC(S) -		FREQUENCY (hrs/day) 8	
				NO. OTHER -	

SECTION 2. FACILITY DATA

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

SECTION 3. SURVEY DATA

CONTROLS PRESENT	EVALUATION	UNIT CODE	CONTROLS REQUIRED	STATUS

PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized)

GLOVES	R	U	RESPIRATOR	NIOSH TC NO.	MANUFACTURER	R	U
COLD SURFACES			AIRLINE				
HOT SURFACES			ABRASIVE BLASTING HOOD				
HC AGENTS			DISPOSABLE				
OLVENTS			FULL FACE AIR PURIFYING				
URGICAL GLOVES			1/2 FACE AIR PURIFYING				
			POWERED AIR PURIFYING				
			1/4 FACE AIR PURIFYING				
			SELF CONTAINED				

EYES/FACE	R	U	HEARING	R	U	BODY	R	U	HEAD/FIT	R	U
CHEMICAL SPLASH			CANAL CAPS			APRONS			COLD WEATHER BOOTS/HATS		
ULL FACESHIELD			EAR PLUGS			COLD WEATHER CLOTHING			HARD HATS		
CHEMICAL/SAFETY			HELMETS			COVERALLS			IMPERMEABLE BOOTS		
AFETY/IMPACT			MUFFS			FULL BODY SUIT			SAFETY/CONDUCTIVE SHOES		
ELDING HELMET			MUFF/EARPLUG COMBO			HEAT REFLECTIVE VEST/SUIT			SAFETY/NON-CONDUCTIVE SHOES		
			MUFF/EARPLUG W/TIME LIMIT			SAFETY BELT/HARNES					

SECTION 4. HAZARD INVENTORY DATA

CAS CODE	HAZARD DESCRIPTION	PAC	EPC
POVDTXXX	VIDEO DISPLAY TERMINALS	3-LOW	D- UNCONTROLLED PHYSICAL
7439-29-1	LEAD, INORGANIC DUSTS & FUMES	2-MODERATE	C- UNCONTROLLED RESPIRATORY
1332-21-A	ASBESTOS	3-LOW	C- UNCONTROLLED RESPIRATORY
124-38-9	CARBON DIOXIDE	2-MODERATE	C- UNCONTROLLED RESPIRATORY
PO LIFTING	HEAVY LIFTING	2-MODERATE	D- UNCONTROLLED PHYSICAL
PO HEAT STR	HEAT STRESS	3-LOW	D- UNCONTROLLED PHYSICAL

SECTION 5. PERSONNEL DATA

LAST NAME	FIRST NAME	MI	SEX	SSN	CATEGORY
Non-Responsive		C.	M		MIL
		C.	M		MIL
		C.	M		MIL

SECTION 6. COMMENTS

☒ No comments

☐ See attached sheet

PRIVACY ACT STATEMENT

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

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

DEPARTMENT OF THE ARMY
COMPANY C 2ND BATTALION 116TH INFANTRY
29TH INFANTRY DIVISION (LIGHT)
VIRGINIA ARMY NATIONAL GUARD
340 S. WILLOW ST.; HARRISONBURG, VIRGINIA 22801-1936

1 February, 2004

MEMORANDUM FOR: Whom it may concern**SUBJECT:** Roster of individuals authorized Unaccompanied Access to the Arms Room.

1. In accordance with paragraph 5-1 (a) (1), VaARNG Supplement 1 to NGR 190-11, the following individuals are authorized unaccompanied access to the keys and/or combinations to the Arms Room, Racks and Containers.

<u>NAME</u>	<u>RANK</u>	<u>TOE POSITION</u>	<u>DATE OF LAST LOCAL LAW ENFORCEMENT CHECK:</u>		
			<u>NAC</u>	<u>HOR</u>	<u>ARMORY</u>
Non-Responsive	SFC	Readiness NCO			

2. IAW paragraph 5-1 (2) (1) and 5-3 (a) (2), VaARNG Supplement 1 to NGR 190-11, The following individuals are authorized unaccompanied access to keys and combinations to arms room; and to receive keys to the arms racks and containers upon proper transfer from the Arms Room Key/Lock Custodian:

<u>NAME</u>	<u>RANK</u>	<u>TOE POSITION</u>	<u>DATE OF LAST LOCAL LAW ENFORCEMENT CHECK:</u>		
			<u>NAC</u>	<u>HOR</u>	<u>ARMORY</u>
Non-Responsive	SFC	Recruiter			/
	SSG	Supply Sergeant			

3. The personnel listed above have read and understand the provisions of NGR 190-11 and VaARNG Supplement 1 to NGR 190-11.

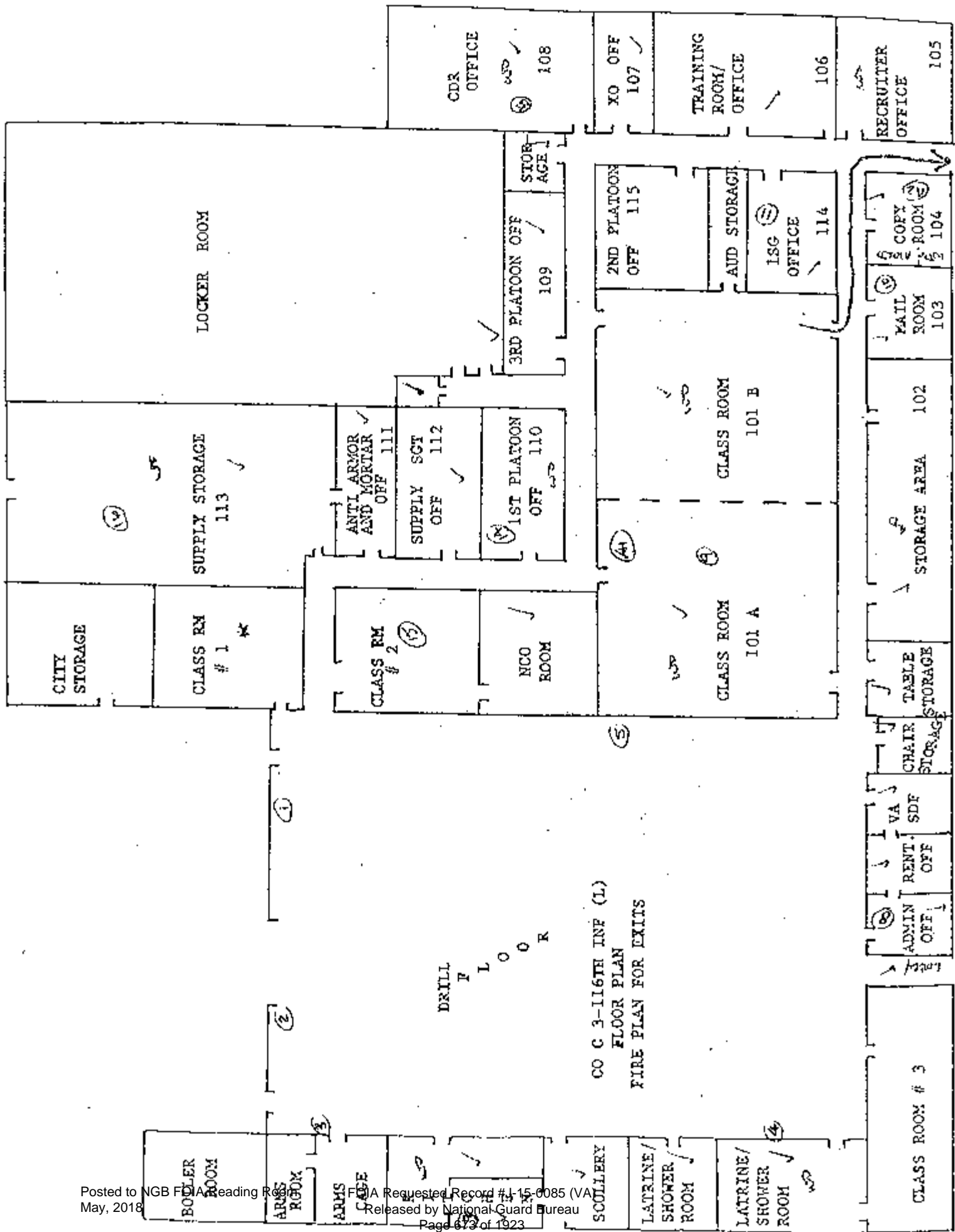
Non-Responsive

CPT, IN, VaARNG
COMMANDING

CF:
 For Security Binder
 Inside Arms Room Door

Appendix B

Building Layout



Appendix C

Sampling Sheets and Laboratory Analyses

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: VA HAR 023
Job Location: Harrisonburg, Virginia
Job Number: 845702 01000000
P.O. Number: 1103

Chain Of Custody: 122244
Date Analyzed: 2/3/2004
Person Submitting:
Report Date: 03-Feb-04

Attention: Non Responsive

Summary of Atomic Absorption Analysis for Lead

AMA Sample Number	Client Sample Number	Analysis Type	Sample Type	Air Volume (L)	Area Wiped (ft²)	Reporting Limit	Final Result	Comments
0421960	VA HAR 023 1	Furnace	Wipe	****	0.111	13.50 ug/ft²	80 ug/ft²	
0421961	VA HAR 023 2	Furnace	Wipe	****	0.111	6.75 ug/ft²	45 ug/ft²	
0421962	VA HAR 023 3	Flame	Wipe	****	0.111	108.01 ug/ft²	1600 ug/ft²	
0421963	VA HAR 023 4	Flame	Wipe	****	0.111	108.01 ug/ft²	2300 ug/ft²	
0421964	VA HAR 023 5	Furnace	Wipe	****	0.111	6.75 ug/ft²	45 ug/ft²	
0421965	VA HAR 023 6	Furnace	Wipe Blank	****	N/A	0.30 ug	0.39 ug	
0421966	VA HAR 023 17	Furnace	Wipe	****	0.111	33.75 ug/ft²	120 ug/ft²	
0421967	VA HAR 023 18	Furnace	Wipe Blank	****	N/A	7.50 ug	35 ug	
0421968	VA HAR 023 19	Furnace	Wipe	****	0.111	67.51 ug/ft²	260 ug/ft²	
0421969	VA HAR 023 20	Furnace	Wipe	****	0.111	13.50 ug/ft²	65 ug/ft²	
0421970	VA HAR 023 21	Furnace	Wipe	****	0.111	5.40 ug/ft²	32 ug/ft²	
0421971	VA HAR 023 22	Furnace	Wipe	****	0.111	2.70 ug/ft²	13 ug/ft²	

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

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

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

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

Analyst:

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.

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

Job Name: VAHAR023
Job Location: Harrisonburg, VA
Job Number: 845702 01000000
P.O. Number: 1103

Chain Of Custody: 122738
Date Analyzed: 02/18/2004
Person Submitting: [Redacted]
Report Date: 18-Feb-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 (ft ²)	Reporting Limit	Final Result	Comments
0424011	VAHAR023 7	Furnace	Wipe	****	0.111	33.75 ug/ft ²	71 ug/ft ²	
0424012	VAHAR023 8	Furnace	Wipe	****	0.111	33.75 ug/ft ²	77 ug/ft ²	
0424013	VAHAR023 9	Furnace	Wipe	****	0.111	6.75 ug/ft ²	34 ug/ft ²	
0424014	VAHAR023 10	Furnace	Wipe	****	0.111	6.75 ug/ft ²	35 ug/ft ²	
0424015	VAHAR023 11	Furnace	Wipe	****	0.111	2.70 ug/ft ²	16 ug/ft ²	
0424016	VAHAR023 12	Furnace	Wipe Blank	****	N/A	0.30 ug	0.57 ug	
0424017	VAHAR023 13	Furnace	Wipe	****	0.111	2.70 ug/ft ²	12 ug/ft ²	
0424018	VAHAR023 14	Furnace	Wipe	****	0.111	6.75 ug/ft ²	43 ug/ft ²	
0424019	VAHAR023 15	Furnace	Wipe	****	0.111	67.51 ug/ft ²	210 ug/ft ²	
0424020	VAHAR023 16	Furnace	Wipe	****	0.111	2.70 ug/ft ²	26 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 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.

Analyst:

Technical Manager:

Non-Responsive

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.

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



TEST REPORT
Page 1 of 2
1/30/04

Submitted To: **Non-Responsive**
Shaw Environmental, Inc.
5700 Thurston Ave., Suite 116
Virginia Beach, VA 23455

Reference Data:	Lead
Client Sample No.:	VAHAR023A1 through VALEX022A3
P.O. No.:	1103
Sample Location:	Virginia
Sample Type:	Filter
Method Reference:	NIOSH 7300
DCL Set ID No.:	04-S-0355
DCL Sample ID No.:	04-01909 through 04-01917
Sample Receipt Date:	1/27/2004
Preparation Date:	01/29/04
Analysis Date:	01/29/04

The samples were prepared and analyzed in accordance with NIOSH method 7300 using a Perkin Elmer 3000XL ICP.

The sample condition upon receipt was acceptable except where noted.

The results are in the enclosed data table. Results relate only to the items tested and are not blank corrected unless indicated in the data table.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Non-Responsive

Analyst

Non-Responsive

Reviewer

CINCINNATI OFFICE
4388 GLENDALE-MILFORD ROAD
CINCINNATI, OHIO 45242-3706
513 733-5336, FAX 513 733-5347

WEST COAST OFFICE
11 SANTA YORMA COURT
NOVATO, CALIFORNIA 94945
800 280-8071, FAX 415 893-9469

Results
Lead

Client #	DCL #	Sample Volume (L)	µg/sample	mg/m ³
VAHAR023A1	04-01909	193.39	ND	<0.005
VAHAR023A2	04-01910	187.12	ND	<0.005
VAHAR023A3	04-01911	0	ND	-
VASTA023A1	04-01912	327.08	ND	<0.003
VASTA023A2	04-01913	280.95	ND	<0.004
VASTA023A3	04-01914	0	ND	-
VALEX022A1	04-01915	182.92	ND	<0.005
VALEX022A2	04-01916	162.81	ND	<0.006
VALEX022A3	04-01917	0	ND	-
	Prep Blank		ND	
% Recovery	LCS		105.	
RPL			1.	

ND = not detected at or above the reporting limit (RPL).

LCS = laboratory control sample.

Non-Responsive

Analyst

Non-Responsive

Reviewer

1/23/2004

115.00

193.39 Liters

115.00

187.12 Liters

Appendix D

References

References

Title 29, Code of Federal Regulations CFR), Part 1910, Occupational Safety and Health Administration (current edition)

American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc (ASHRAE) 62-2002, Ventilation for Acceptable Indoor Air Quality

Instructions for Completing the Sampling of Army National Guard Armories, Lead Wipe Sampling Procedure included with the Request for Proposal

Air Sampling for Lead - Method 7082 of the National Institute of Occupational Safety and Health (NIOSH) Manual of Analytical Methods

Design Guide DG-415-2, Logistics Facilities, National Guard Bureau Installation Division, 14 December 1999

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

Army Regulation (AR) 40-5, Medical Service, Preventive Medicine, 15 October 1990

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

Department of the Army Pamphlet (DA PAM) 40-501, Medical Services, Hearing Conservation Program, 10 December 1998

DA PAM 40-503, Medical Services, Industrial Hygiene Program, 30 October 2000

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

Guidelines for Converting Indoor Firing Ranges to Other Uses, Headquarters, Department of the Army and the Air Force, NG PAM (AR) 385-16/ANGPAM 91-101, 31 January 1994

24 CFR, Part 35, Subpart B, Section 35-110, Definition of Lead-Based Paint, Housing and Urban Development, U. S. Department of Housing

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 $0.05 \text{ mg}/\text{m}^3$ averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead dust in this building.

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

NGB-AVS-SI (40-5f)

17 December 2004

MEMORANDUM FOR VAARNG, Harrisonburg Readiness Center, ATTN: SFC [Non-Respon]
[Non-Respon] 340 South Willow Street, Harrisonburg, VA 22801

SUBJECT: Baseline Survey

1. I have enclosed the industrial hygiene survey report completed by Shaw Environmental, Incorporated.
2. In addition to the attached discussion and recommendations regarding wipe samples for lead, if a special function is held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function.
3. Please contact me at (410) 942-0273 or 1-800-550-6967 if you have any questions regarding the enclosed report.

Encl

[Non-Responsive]

Regional Industrial Hygienist

CF: Organizational Maintenance Officer
Occupational Health Manager

National Guard Armory

Harrisonburg Readiness Center, Harrisonburg, Virginia

Industrial Hygiene Evaluation

Recommendations

- Wipe sampling for lead revealed a concentration above the recommended level of 200 micrograms per square foot ($\mu\text{g}/\text{ft}^2$) on the top surface of fire hose housing, top surface of heat register, top surface of heat register, and top surface of fire hose housing in the drill floor/assembly hall area. It is recommended that these surfaces and the areas immediately around these surfaces be thoroughly cleaned to reduce the lead level. In addition, any other dusty/dirty areas in the assembly area/drill floor and classroom/storage room should be thoroughly cleaned. **RAC - 4**
- Wipe sampling for lead revealed concentrations above a level of 40 micrograms per square foot ($\mu\text{g}/\text{ft}^2$) in the drill floor/assembly hall area, classroom/storage room, kitchen, orderly room, 1st platoon office, and converted firing range. Areas with lead concentrations above 40 $\mu\text{g}/\text{ft}^2$ that will be accessible to children should be cleaned. If a special function is held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function. **RAC - 4**
- Water damage was observed at several locations at the armory. The source of the water damage was likely from a combination of roof and pipe leaks. The source of the water damage should be confirmed and actions taken to eliminate the source in order to prevent the possibility of mold growth that may lead to indoor air quality problems. **RAC - 5**
- Visual mold was observed in the armory. The area where the mold is located should be thoroughly cleaned with 0.5% sodium hypochlorite solution (1 part household bleach to nine parts water) or equivalent in order to eliminate the potential mold/indoor air quality problem. In addition, the source of the mold should be identified and actions taken to eliminate it. **RAC - 5**
- Measurements for humidity revealed that levels did not meet the recommended level of 30% humidity in the facility. It is recommended that a humidification system be installed at the facility. **RAC - 5**
- Lighting measurements were conducted at the armory. The lighting did not meet minimum requirements in some areas; therefore, consideration should be given to providing more lighting in these areas. This may be accomplished by replacing burnt out luminaries, cleaning fixtures, cleaning windows, painting walls with a lighter

color, repositioning detailed work to higher illuminated areas, and using supplemental lighting. **RAC - 5**

- Wipe sampling for lead in the converted firing range revealed a concentration above the recommended level. This area must be decontaminated by a thorough cleaning until surface lead concentrations are reduced to below recommended levels. **RAC - 4**

Shaw Environmental, Inc.

312 Directors Drive
Knoxville, TN 37923
865.690.3211
Fax 865.690.3626



Shaw Environmental, Inc.

Survey 23 Jan 04
Rec'd 9 Apr 04
REV 11/30/04

05 April 2004

Ms. **Non-Responsive**
Regional Industrial Hygienist
Region North Industrial Hygiene Office
Attn: NGB-AVS-SI
301-IH Old Bay Lane
Havre De Grace, Maryland 21078

RE: Draft Report for the Industrial Hygiene Evaluation at the Harrisonburg Readiness
Center – Harrisonburg, Virginia

Dear Ms. **Non-Responsive**

Attached is a copy of the referenced report. Also attached is a copy of the field notes,
photographs, and photograph log,. Please call me if you have questions.

Sincerely,
Non-Responsive

Project Manager

Harrisonburg Armory Photo Log
National Guard Armory
Harrisonburg, Virginia
Date of Survey: 23 January 2004

Photo	Description
1	Lead Wipe Assembly Room - Top Surface of Vending Machine - Sample 1
2	Lead Wipe Assembly Room - Top Surface of Electrical Conduit Cover - Sample 2
3	Lead Wipe Assembly Room - Fire Hose Housing - Sample 3
4	Lead Wipe Assembly Room - Fire Hose Housing - Sample 4
5	Lead Wipe Assembly Room - Top Surface of Electrical Conduit Cover - Sample 5
6	25% Building - Kitchen Top Surface of Ice Machine - Sample 7
7	25% Building - Orderly Room Window Sill - Sample 8
8	25% Building - Classroom #1 Top Surface of Podium - Sample 9
9	25% Building - Mail Room Top Surface of Shelf - Sample 10
10	25% Building - Room 114 Top Surface of Desk - Sample 11
11	25% Building - Room 108 Window Sill - Sample 13
12	25% Building - 1st Platoon Office Top Surface of Desk - Sample 14
13	25 % Building - Classroom/ Storage Room Top Surface of Shelf - Sample 15
14	25% Building - Supply Room Top Surface of Storage Trunk - Sample 16
15	Firing Range - Bullet Trap Area - Sample 17
16	Firing Range - Light Fixtures - Sample 19
17	Firing Range - Overhead Heaters - Sample 20
18	Firing Range - Stored Item - Sample 21 (Misabeled as sample 20)
19	Firing Range - Floor Inside the Converted Firing Range - Sample 22 (Misabeled as sample 21)
20	Firing Range - Floor Outside the Converted Firing Range - Sample 23 (Misabeled as sample 22)
21	Water Damage - Firing Range
22	Water Damage - Firing Range
23	Water Damage - Firing Range

Field Notes and Checklist

State: VIRGINIA Location: Harrisonburg Date: JANUARY 23, 2004
Contact: SSG [REDACTED] Non-Responsive

1.0 Sampling for Lead

1.1 Wipe Sampling

Sample #:	<u>1</u>	Picture #:	<u>/</u>	Location:	<u>VENDING MACHINE TOP</u>
Sample #:	<u>2</u>	Picture #:	<u>/</u>	Location:	<u>ELECTRICAL CONDUIT COVER</u>
Sample #:	<u>3</u>	Picture #:	<u>/</u>	Location:	<u>FIRE HOSE HOUSING</u>
Sample #:	<u>4</u>	Picture #:	<u>/</u>	Location:	<u>FIRE HOSE HOUSING</u>
Sample #:	<u>5</u>	Picture #:	<u>/</u>	Location:	<u>ELECTRICAL CONDUIT COVER</u>
Sample #:	<u>6, 12</u>	Picture #:	<u>N/A</u>	Location:	<u>FIELD BLANK</u>
Sample #:	<u>7</u>	Picture #:	<u>/</u>	Location:	<u>KITCHEN TOP OF ICE MACHINE</u>
Sample #:	<u>8</u>	Picture #:	<u>/</u>	Location:	<u>ORDERLY ROOM WINDOW SILL</u>
Sample #:	<u>9</u>	Picture #:	<u>/</u>	Location:	<u>CLASSROOM #1 PODIUM</u>
Sample #:	<u>10</u>	Picture #:	<u>/</u>	Location:	<u>MAIL ROOM # SHELF</u>
Sample #:	<u>11</u>	Picture #:	<u>/</u>	Location:	<u>RM 119 DESKTOP</u>
Sample #:	<u>13</u>	Picture #:	<u>/</u>	Location:	<u>RM 118 WINDOW SILL</u>
Sample #:	<u>14</u>	Picture #:	<u>/</u>	Location:	<u>1ST PLATOON OFFICE DESKTOP</u>
Sample #:	<u>15</u>	Picture #:	<u>/</u>	Location:	<u>CLASSROOM/STORAGE ROOM SHELF</u>
Sample #:	<u>16</u>	Picture #:	<u>/</u>	Location:	<u>SUPPLY ROOM SIGNAGE TRUNK</u>
Sample #:		Picture #:		Location:	
Sample #:		Picture #:		Location:	
Sample #:		Picture #:		Location:	
Sample #:		Picture #:		Location:	

(Also, please see the sketch of sampling locations.)

1.2 Breathing Zone Air Sampling

Sample #: A1 Employee Sampled: GENERAL AIR SAMPLE
Sample #: A2 Employee Sampled: GENERAL AIR SAMPLE
A3 FIELD BLANK

2.0 Physical Condition of Facility

2.1 Peeling Paint - Lead

Peeling paint observed (Yes or No): No

If peeling paint observed, samples were taken as follows:

Sample #: _____ Picture #: _____ Location: _____
 Condition (Good, Average, Poor): _____ Quantity: _____ ft²
 Sample #: _____ Picture #: _____ Location: _____
 Condition (Good, Average, Poor): _____ Quantity: _____ ft²
 Sample #: _____ Picture #: _____ Location: _____
 Condition (Good, Average, Poor): _____ Quantity: _____ ft²
 Sample #: _____ Picture #: _____ Location: _____
 Condition (Good, Average, Poor): _____ Quantity: _____ ft²
 Sample #: _____ Picture #: _____ Location: _____
 Condition (Good, Average, Poor): _____ Quantity: _____ ft²

2.2 Visual Inspection - Asbestos

Suspected asbestos-containing material observed (Yes or No): No

If suspected asbestos-containing material observed, samples were taken as follows:

Location 1: _____ Picture #: _____
 Condition: _____ Approximate (Square or Linear Feet): _____
 Location 2: _____ Picture #: _____
 Condition: _____ Approximate (Square or Linear Feet): _____
 Location 3: _____ Picture #: _____
 Condition: _____ Approximate (Square or Linear Feet): _____
 Location 4: _____ Picture #: _____
 Condition: _____ Approximate (Square or Linear Feet): _____
 Location 5: _____ Picture #: _____
 Condition: _____ Approximate (Square or Linear Feet): _____

2.3 Visual Inspection – Water Damage and Mold

Water damage observed (Yes or No): Yes

If yes, water damage was observed at the following locations:

Location 1:	<u>Room 113</u>	Picture #:	<u>/</u>
Location 2:	<u>KITCHEN</u>	Picture #:	<u>/</u>
Location 3:	<u>LATRINE</u>	Picture #:	<u>/</u>
Location 4:	<u>Room 110</u>	Picture #:	<u>/</u>
Location 5:	<u>Room 101 A, B</u> <u>Room 102, 104, 105, 108</u>	Picture #:	<u>/</u> <u>/</u>

Mold observed (Yes or No): Yes

If yes, mold was observed at the following locations:

Location 1:	<u>Room 104</u>	Picture #:	<u>/</u>
Location 2:		Picture #:	
Location 3:		Picture #:	
Location 4:		Picture #:	
Location 5:		Picture #:	

2.4 Visual Inspection – Housekeeping

Housekeeping (good, average, poor): Good

Comments (such as no dirt or trash was visible on the floors or the housekeeping was poor in that there was trash and debris on the floors that could lead to a tripping hazard, or there was dust in the vents.):

3.0 Building Concerns

3.1 Ergonomic Concerns

Ergonomic concerns (Yes or No): No

If there are ergonomic concerns at the armory, describe the extent of the problem, such as three employees stated that they perform repetitive motion at the XYZ machine for 6 hours per day, and they stated that they are suffering from symptoms of musculoskeletal disorders (MSDs).

3.2 Indoor Air Quality

IAQ concerns (based on employee interviews)(Yes or No): Yes

If yes, what were concerns:

Measurements for carbon dioxide, humidity, and temperature:

Location	CO ₂ (ppm)	Humidity (%)	Temperature (°F)	Occupancy (People in Room)
Outdoors -	354	21.6	48.3	0
1 st Floor -	257	17.8	71.1	1
2 nd Floor -	-	-	-	-
3 rd Floor -	-	-	-	-
Basement	-	-	-	-

4.0 Safety and Industrial Hygiene Programs

4.1 Confined Spaces

Are confined spaces applicable (Yes or No): Yes

If yes, does the program meet minimum standards (Yes or No): Yes

If no, explain the deficiencies:

4.2 Hearing Conservation

Is hearing conservation applicable (Yes or No): Yes

If yes, does the program meet minimum standards (Yes or No): Yes

If no, explain the deficiencies:

4.3 Respiratory Protection

Is respiratory protection applicable (Yes or No): Yes

If yes, does the program meet minimum standards (Yes or No): Yes

If no, explain the deficiencies:

4.4 Hazard Communication

Is hazard communication applicable (Yes or No): Yes

If yes, does the program meet minimum standards (Yes or No): Yes

If no, explain the deficiencies:

4.5 Personal Protective Equipment

Is personal protective equipment applicable (Yes or No): Yes

If yes, does the program meet minimum standards (Yes or No): Yes

If no, explain the deficiencies:

.....

.....

.....

.....

5.0 Ventilation

5.1 Ventilation System Evaluation

Local exhaust ventilation systems at this armory (Yes or No): Yes

If yes, results of airflow patterns:

Location 1:

Airflow Pattern (acceptable or unacceptable, with reason):

.....

.....

Location 2:

Airflow Pattern (acceptable or unacceptable, with reason):

.....

.....

Location 3:

Airflow Pattern (acceptable or unacceptable, with reason):

.....

.....

5.2 Contamination of Clean Air Sources

Clean air sources contaminated by contaminated exhaust air (Yes or No): No

If yes, describe:

.....

6.0 Noise Dosimetry

Potential hazardous noise areas (Yes or No): No

If yes, results of noise dosimetry sampling:

Employee sampled: _____
Results: _____ % Actual _____ % Projected 8-hour TWA _____ Equivalent dBA

Activity: _____

Employee sampled: _____
Results: _____ % Actual _____ % Projected 8-hour TWA _____ Equivalent dBA

Activity: _____

Employee sampled: _____
Results: _____ % Actual _____ % Projected 8-hour TWA _____ Equivalent dBA

Activity: _____

7.0 Lighting Evaluation

DIVIDE BY 9

Location	Luminance Range (fc)
KITCHEN	20 - 60
LATERAL MAIL ROOMS	30 - 50
PROPERTY OFFICE	40 - 80
CLASSROOM 101A/B	40 - 80
ADMIN OFFICE	30 - 70
MAIL ROOM	30 - 65
COPY ROOM	30 - 60
ROOM 109	40 - 80
ROOM 110	40 - 75
ROOM 113	20 - 50
ROOM 108	20 - 60
ROOM 105	30 - 60

8.0 Converted Indoor Firing Ranges

Converted indoor firing range (Yes or No): Yes

If yes, locations sampled:

Sample #: 1/2 Picture #: - Location: Inside any remaining ventilation ductwork

Sample #: N/A Picture #: - Location: Exhaust ventilation system

Sample #: 17 Picture #: ✓ Location: Bullet trap

Sample #: 18 Picture #: ✓ Location: Light fixtures

Sample #: 19 Picture #: ✓ Location: Overhead heaters

Sample #: 20 Picture #: ✓ Location: Stored items

Sample #: 21 Picture #: ✓ Location: Floor

Sample #: 22 Picture #: - Location: Outside the range

9.0 HVAC System

Does the HVAC system have maintenance performed on a regular basis (Yes or No):

Yes

In yes, is the maintenance effective (Yes or No): Yes

If no, describe:

10.0 HHIM

Complete HHIM form for facility (Initial as completed): Non-Responsive

Reproduction Room HHIM Necessary (Yes or No) (Initial if Yes): -

Film Developing Room HHIM Necessary (Yes or No) (Initial if Yes): -

Maintenance Area HHIM Necessary (Yes or No) (Initial if Yes): -

11.0 Additional Items

Table 1 (wipe sampling) completed (initial when completed): _____

Table 2 (air sampling) completed (initial when completed): _____

Table 3 (peeling paint), if necessary, completed (initial when completed): _____

Table 3 or 4 (IAQ) completed (initial when completed): _____

Table 4 or 5 (noise), if necessary, completed (initial when completed): _____

Table 5 or 6 (firing ranges), if necessary, completed (initial when completed): _____

Airflow pattern diagram(s) completed (initial when completed): _____

Building layout included (initial when completed): _____

Photographs (initial when completed): _____

Sampling Sheets and Laboratory Analyses (initial when completed): _____

Sampling tracking form completed and faxed to NGB ARNG
within 5 days of date of this survey (initial when completed): _____
(Fax to Ken Forsythe at 410-942-0254)

State Lead Wipes Spreadsheet completed (initial when completed): _____

Three copies of noise exposure notification letter, if necessary (initial when completed): _____

Three copies of contaminant exposure forms for each employee that participated in air sampling (initial when completed): _____

Non-Responsive

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



Industrial Hygiene Survey
for VAARNG – Harrisonburg Readiness Center
340 South Wilson Street
Harrisonburg, Virginia 22801

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

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

Industrial Hygiene Survey
for VAARNG – Harrisonburg Readiness Center
340 South Wilson Street
Harrisonburg, Virginia 22801

Non-Responsive

A large black rectangular redaction box covering several lines of text.

Industrial Hygienist

Non-Responsive

A large black rectangular redaction box covering several lines of text.

Project Manager

Non-Responsive

A black rectangular redaction box covering a few lines of text.

Northeast District Health & Safety Manager

AECOM Environment
January 2013
Document No.: 60276421/ Harrisonburg 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 Harrisonburg Readiness Center Facility Layout

Appendix B Harrisonburg Readiness Center Photographs

Appendix C Analytical Results

Appendix D References



List of Tables

Table 2-1: Lead Wipe Sample Results 2-1

Table 3-1: Paint Chip Results 3-2

Table 3-2: Indoor Air Quality Monitoring Results..... 3-2

Table 5-1: Light Survey 5-1



Executive Summary

On November 08, 2012, AECOM Technical Services Northeast, Inc. (AECOM) conducted an Industrial Hygiene (IH) survey of the Harrisonburg Readiness Center facility located at 340 South Wilson Street in Harrisonburg, Virginia. SFC Non- was the point of contact for the facility and accompanied AECOM during the survey to provide access and information concerning the Harrisonburg Readiness Center operations.

The industrial hygiene survey was conducted in general accordance with the scope of work as described in the "Statement of Work – Industrial Hygiene Services for National Guard Bureau Industrial Hygiene Region North – Baseline Surveys for Readiness Centers and Administrative Buildings", dated March 2009.

The Harrisonburg Readiness Center is currently staffed by three personnel. The facility is configured as an administrative area and a drill/assembly hall.

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

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

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

Wipe samples collected in association with most administrative areas indicated lead levels below the Occupational Safety and Health Administration's (OSHA's) Clarification of "as free as practicable" and lead contamination under 29 Code of Federal Regulations (CFR) 1926.62, The Compliance Directive for the Interim Standard for Lead in Construction, CPL 2-2.58. OSHA recommends the use of the U.S. Department of Housing and Urban Development's (HUD) acceptable decontamination level of 200 micrograms per square foot (ug/ft²) for floors in evaluating the cleanliness of change areas, storage facilities, and lunchrooms/eating areas.

No damaged suspect asbestos containing materials were observed during the evaluation.

Peeling paint was observed in the scullery and boiler room of the facility. A paint sample from each location was submitted for analysis and indicated 0.14% lead in the sample collected from ceiling of the boiler room.

A new roof was recently put on the Harrisonburg facility. Signs of previous water intrusion were observed but no indications of mold or mildew growth were identified during this survey.

The Heating, Ventilation & Air Conditioning (HVAC) system in the building consists of a boiler room that feeds radiant heaters throughout the building. Air conditioning units are located on the roof of the structure and were not accessed as part of this survey.

1.0 Facility Description and Operations

The Harrisonburg Readiness Center is located in a one story masonry building originally constructed in 1953. An addition was completed in the 1980's. The section occupied by Readiness Center personnel consists of office and storage space and is finished with drywall; acoustical drop ceilings, and floor tile or is unfinished storage space.

The primary activity at the Harrisonburg Readiness Center is routine administrative duties. The Harrisonburg Readiness Center is currently staffed by approximately 3 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 multiple areas of the facility following the Occupational Safety & Health Administration (OSHA) wipe sampling method and using Ghost Wipes. The following table presents the results of the lead wipe sampling conducted at the facility.

Table 2-1: Lead Wipe Sample Results

Sample Number	Sample Location	Lead Concentration
001	Amnesty box located in drill hall	<110 ug/ft ²
002	Kitchen roll up window	<110 ug/ft ²
003	Supply air grill computer room	<110 ug/ft ²
004	Classroom 101 A	<110 ug/ft ²
005	File cabinet SFC Melan's office	<110 ug/ft ²
006	Hallway inside main foyer	<110 ug/ft ²
007	Former range heater	<110 ug/ft ²
008	Top of locker #7	<110 ug/ft ²
009	Floor inside range	<110 ug/ft ²
010	Floor outside range	<110 ug/ft ²

ug/ft² = Micrograms per square foot.

Wipe samples collected in association with most administrative areas indicated lead levels below the Occupational Safety and Health Administration's (OSHA's) Clarification of "as free as practicable" and lead contamination under 29 CFR 1926.62, The Compliance Directive for the Interim Standard for Lead in Construction, CPL 2-2.58. OSHA recommends the use of HUD's acceptable decontamination level of 200 ug/ft² for floors in evaluating the cleanliness of change areas, storage facilities, and lunchrooms/eating areas.

The wipe samples did not detect levels of lead in excess of the action level of 200 micrograms per square foot (ug/ft²) per NG-PAM 420-15. There was limited access to certain areas of the former indoor firing range, including the bullet trap area. If these remaining areas are to be converted it should be done in accordance with NG-PAM 420-15. Laboratory analytical results are presented in Appendix C.

2.1.2 Air Sampling

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

3.0 Physical Condition of Facility and Personnel Concerns

3.1.1 Lead Based Paint

Interior surfaces of walls are coated with paint. The paint on the walls is in fair to poor condition. AECOM observed damaged or peeling paint during this evaluation and collected a sample from each of the following locations;

Table 3-1: Paint Chip Sample Results

Sample Number	Sample Location	Lead Concentration
011	Sculley area paint chip	<0.0081%
012	Boiler room paint chip	0.14%

Reporting limit is 0.0081% Pb. 40 CFR Part 745 defines lead-based paint as .5% PB.

3.1.2 Suspect Asbestos Containing Materials

AECOM did not observe damaged, friable suspect asbestos-containing materials (ACM) in readily accessible areas of the Harrisonburg Readiness Center during this survey.

Typical suspect miscellaneous building materials observed but not sampled include drywall, floor tiles and associated mastic, cove base and associated mastic, ceiling tiles, carpet mastic, and window caulks.

3.1.3 Water Damage/Mold

AECOM did not observe evidence of recent water intrusion during this survey. Prior to replacement of the roof several leaks were reported.

3.1.4 Housekeeping

The Harrisonburg 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 Harrisonburg Readiness Center staff members. No Indoor Air Quality concerns were noted by the Harrisonburg Readiness Center personnel.

Instantaneous real-time reading for carbon monoxide and carbon dioxide (parts per million or ppm), temperature (° Fahrenheit), and relative humidity (as percentage) are presented in the following table. The facility is mechanically air conditioned. Readings are summarized in the following table, as indicated; several readings for relative humidity and temperature were outside of accepted ranges.

Table 3-2: Indoor Air Quality Monitoring Results

Location	Carbon Monoxide (ppm)	Carbon Dioxide (ppm)	Temp (°F)	Relative Humidity (%)
Office 105	1.8	479	71.8	19.6
Platoon office 114	1.3	491	71.0	28.0
Office 115	1.3	465	70.2	28.8
Office 107	1.2	474	69.9	25.4
Office 109	1.3	431	68.7	25.8
Classroom 1 and 2	0.7	610	70.4	24.6
Office 110	1.8	521	70.2	27.4
Office 108	1.5	600	70.2	24.3
Former firing range	1.8	426	68.1	15.5
Computer lab	3.3	577	74.4	23.7
Bunk room	2.3	615	79.0	17.7
Drill floor	2.7	435	77.7	16.8
Weight room	2.4	890	75.1	31.2
Storage	2.1	407	73.1	21.0
Kitchen	1.3	377	71.8	21.9
Woman's room	1.3	403	71.5	27.8
Men's room	1.1	402	71.8	19.3
NCO office	1.9	391	74.0	19.6
Boiler room	1.5	390	71.5	32.6
Storage 102	2.0	420	68.4	29.2
Copy room 104	1.5	440	68.0	23.4
<p>Table 3-1 Guidelines:</p> <p>Carbon Monoxide: Office/Warehouse Space – 9 ppm based on United States Environmental Protection Agency's National Ambient Air Quality Standard.</p> <p>OSHA Permissible Exposure Limit (PEL) = 50 ppm. American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit value (TLV) = 25, ppm.</p> <p>Carbon Dioxide: Office Space -Approximately 700 ppm above background (Derived from American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE) Standard 62.1-2010). Not Applicable to warehouse and vehicle maintenance bays.</p> <p>Relative Humidity: Mechanically air-conditioned space – Maximum 65% (Derived from ASHRAE Standard 62.1-2010 – 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 55-2010)</p>				

Harrisonburg 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.

Third party vendors were in the process of preparing estimates and work orders to initiate updating of the HVAC system.

4.1.2 HVAC Maintenance

HVAC Maintenance is conducted by third party vendors, records were not available for review.

There was no 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 typically insufficient.

Table 5-1: Light Survey

Location	Results (Foot candles)	Met Standard (Y/N)	Standard*
Office 105	29.8	N	50
Platoon office 114	27.8	N	50
Office 115	43.7	N	50
Office 107	22.6	N	50
Office 109	57.1	Y	50
Classroom 1 and 2	37.8	Y	30
Office 110	66.6	Y	50
Office 108	70.1	Y	50
Former firing range	12.7	N	30
Computer lab	24.9	N	30
Bunk room	26.4	N	50
Drill floor	36.1	Y	10
Weight room	19.8	N	30
Storage	12.4	N	30
Kitchen	30.3	N	50
Woman's room	11.7	Y	5
Men's room	9.6	Y	5
NCO office	51.4	Y	50
Boiler room	4.3	N	30
Storage 102	3.7	N	30
Copy room 104	34.7	Y	10
Office Lighting (ANSI/IESNA RP-1-04) and Industrial Lighting Facilities (ANSI/IESNA RP-7-01)			

6.0 Evaluation of Attached Garage

There is no garage associated with the Harrisonburg 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 Harrisonburg Readiness Center.

Lighting levels measured throughout the facility were generally not adequate as per American National Standard Institute/Illuminating Engineering Society of North America (ANSI/IESNA) RP-1-2004, Office Lighting, ANSI/IESNA RP-7-2001, Industrial Lighting, and the IESNA Lighting Handbook, 9th Edition, 11 April 2005.

Wipe samples collected in association with most administrative areas indicated lead levels below the Occupational Safety and Health Administration's (OSHA's) Clarification of "as free as practicable" and lead contamination under 29 CFR 1926.62, The Compliance Directive for the Interim Standard for Lead in Construction, CPL 2-2.58. OSHA recommends the use of HUD's acceptable decontamination level of 200 ug/ft² for floors in evaluating the cleanliness of change areas, storage facilities, and lunchrooms/eating areas.

No damaged suspect asbestos containing materials were observed during the evaluation.

Peeling paint was observed in the scullery and boiler room of the facility. A paint sample from each location was submitted for analysis and indicated 0.14% lead in the sample collected from the boiler room ceiling.

A new roof was recently put on the Harrisonburg facility. Signs of previous water intrusion were observed but no indications of mold or mildew growth were identified during this survey.

The Heating, Ventilation & Air Conditioning (HVAC) system in the building consists of a boiler room that feeds radiant heaters throughout the building. Air conditioning units are located on the roof of the structure and were not accessed as part of this survey.

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.

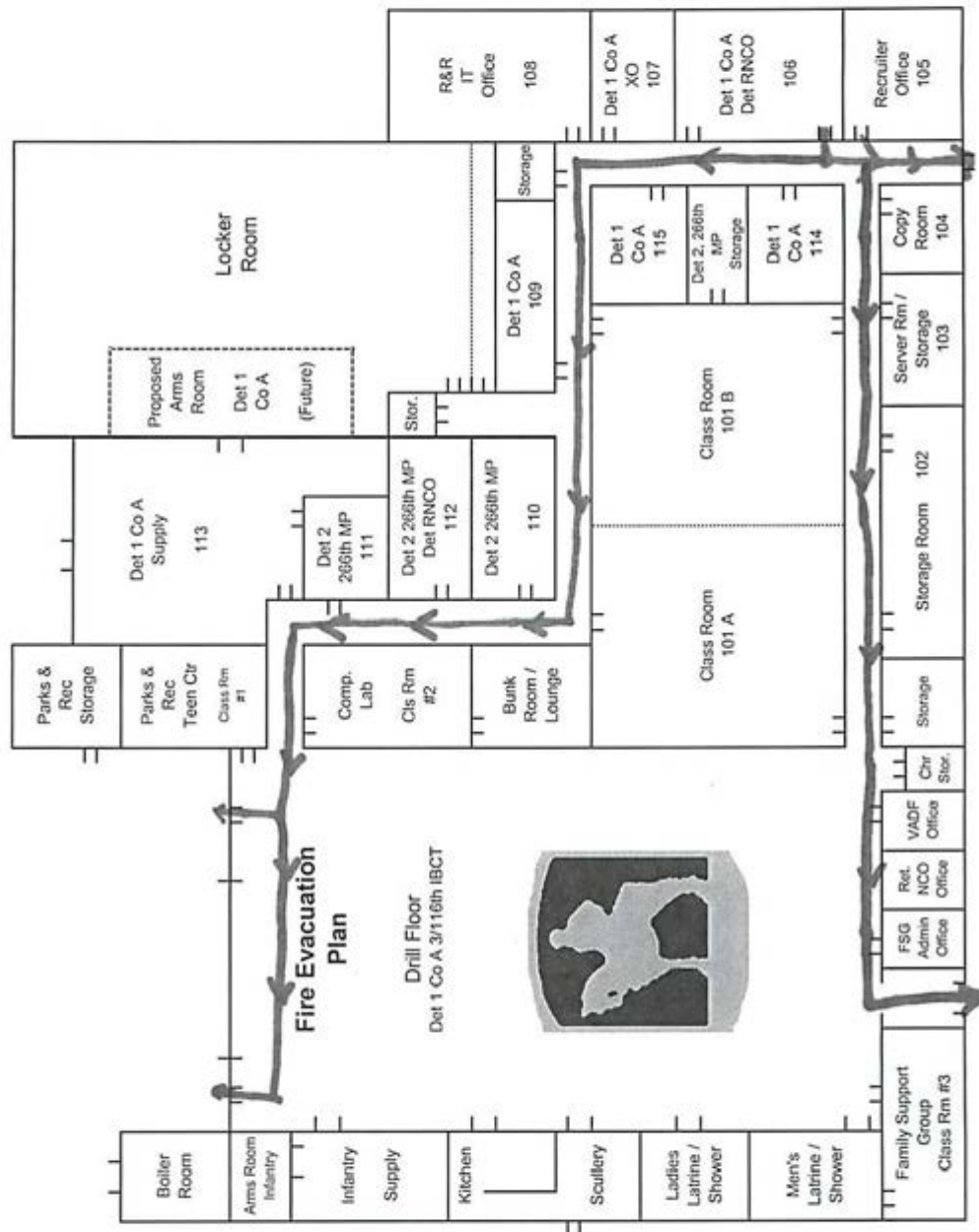
The Client recognizes and agrees that all testing and remediation methods have reliability limitations, no method nor number of sampling locations can guarantee that a condition will be discovered within the performance of the services as authorized by the Client. Additionally, the passage of time may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

Harrisonburg Readiness Center Facility Layout



January 2013



Appendix B

Harrisonburg Readiness Center Photographs

Photograph 1



Harrisonburg building

Photograph 2



Drill hall wipe sample from top of suggestion box

Photograph 3



Scully and wipe sample location

Photograph 4



Peeling paint in scully area

Photograph 5



Peeling paint in boiler area

Photograph 6



Typical hallway/construction

Photograph 7



Former firing range

Photograph 8



Blocked access to bullet trap area



Appendix C

Analytical Results

AMA Analytical Services, Inc.



A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS



Client: National Guard Bureau Job Name: VA ANG IH Survey Chain Of Custody: 514735
 Address: 301-H1 Old Bay Lane, Attn: ARNG-CJG-P, Job Location: Harrisonburg RC Date Submitted: 12/12/2012
 State Military Reservation
 Havre de Grace, Maryland 21078 Job Number: Not Provided Person Submitting: AECOM
 P.O. Number: W912K6-05-A-0093 Date Analyzed: 12/18/2012 Report Date: 12/19/2012

Attention:

Non-

R

I

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
13021986	001	Flame	Wipe	****	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13021987	002	Flame	Wipe	****	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13021988	003	Flame	Wipe	****	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13021989	004	Flame	Wipe	****	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13021990	005	Flame	Wipe	****	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13021991	006	Flame	Wipe	****	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13021992	007	Flame	Wipe	****	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13021993	008	Flame	Wipe	****	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13021994	009	Flame	Wipe	****	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13021995	010	Flame	Wipe	****	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13021996	011	Flame	Paint Chip	****	N/A	0.0081 %Pb		<0.0081 %Pb	
13021997	012	Flame	Paint Chip	****	N/A	0.0094 %Pb		0.14 %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 enforcement by NY ELAP, AIHA, or any agency of the Federal Government. All rights reserved. AMA Analytical Services, Inc.

An AIHA (#100470) and NY ELAP (#10920) Accredited Laboratory

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

AMA Analytical Services, Inc.



A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS



LAB #100470

Client:	National Guard Bureau	Job Name:	VA ANG IH Survey	Chain Of Custody:	514735
Address:	301-1H Old Bay Lane, Attn: ARNG-CJG-P, State Military Reservation	Job Location:	Harrisonburg RC	Date Submitted:	12/12/2012
	Havre de Grace, Maryland 21078	Job Number:	Not Provided	Person Submitting:	AECOM
		P.O. Number:	W912K6-09-A-0063	Date Analyzed:	12/18/2012
				Report Date:	12/19/2012

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
<p>Analysis Method for Flame: Air, Wipes, Paints, and Soil/Solids: EPA 600/R-93/200(M)-7000B; Water: SM-3111B</p> <p>Analysis Method For Furnace: Air, Wipes, Paints, and Soil/Solids : EPA 600/R-93/200(M)-7010; Water: SM-3113B</p> <p>N/A = Not Applicable mg/Kg = parts per million (ppm) on a dry weight basis mg/L = parts per million (ppm)</p> <p>%Pb = percent lead on a dry weight basis ug = micrograms ug/L = parts per billion (ppb)</p> <p>Note: All samples were received in good condition unless otherwise noted.</p> <p>Note: All results have two significant digits. Any additional digits shown should not be considered when interpreting the result.</p> <p>Air and Wipe results are not corrected for any blank results</p> <p>Final results for air and wipe samples are based on client supplied information not verified by this laboratory.</p> <p>All results are to be considered preliminary and subject to change unless signed by the Technical Director or Deputy.</p>							See CC Summary for analytical results of quality control samples associated with these samples.		
<p>Analysis: Non-Responsive</p>							<p>Technical Manager: Non-Responsive</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. 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.

An AIHA (#100470) and NY ELAP (#10920) Accredited Laboratory

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



514735

5. Submitted by: AECOM Signature: [Signature] **Non-Responsive**

FOIA Requested Record #J-15-0085 (VA)
Released by National Guard Bureau
Page 724 of 1923

Surface Sampling Field Data Sheet

Date Collected: 11/08/12Job Name: Harrisonburg NGB F&OCompany: H&C Page 1 of 1Job Number: 2012 0569Job Location: Harrisonburg VAPhone Number: 434-847-7796Contact Person: **Non-Response**Address: 2nd South Wilson StreetCollected By: **Non-Resp**Harrisonburg, VA 22801

COC Number: _____

Sample Number	Sample Location	Surface/Substrate Sampled	Area Wiped (in ² /ft ²)	Collection Media
001	Drill Hall	ARMORY Back/Ward	16 in ²	Wipe
002	Kitchen Roll up window	Stainless Steel		
003	Supply Air Grill Computer Room	Metal		
004	Class Room 101 A	Desk Top		
005	Fil: Caliente SFC Motors Office	Metal		
006	Hallway Inside Main Foyer	Tile Floor		
007	Former Range Heater	Steel		
008	Top of Locker #7 in Firing Range	Steel		
009	Floor in Range	Tile Floor		
010	Floor outside Range	Tile Floor	↓	↓
011	scullery paint chip	ceiling		
012	Boiler Room paint chip	ceiling		



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





Appendix D

References

References

1. Title 29, Code of Federal Regulations (CFR), Part 1910, Occupational Safety and Health Administration, current Ed. <http://www.osha.gov/comp-links.html>
2. Department of Defense Instruction (DODI) 6055.1, Department of Defense Occupational Safety and Health (OSH) Program, August 19, 1998. <http://www.dtic.mil/whs/directives/corres/pdf/605501p.pdf>
3. Army Regulation (AR) 11-34, The Army Respiratory Protection Program, 15 February 1990. http://armypubs.army.mil/epubs/pdf/R11_34.PDF
4. AR 40-5, Medical Service, Preventive Medicine, 25 May 2007. http://armypubs.army.mil/epubs/pdf/R40_5.PDF
5. AR 385-10, The Army Safety Program, 23 August 2007; Rapid Action Revision (RAR) issue date: 4 October 2011. http://armypubs.army.mil/epubs/pdf/R385_10.PDF
6. Department of the Army Pamphlet (DA PAM) 40-501, Medical Services, Hearing Conservation Program, 10 December 1998. http://armypubs.army.mil/epubs/pdf/P40_501.pdf
7. DA PAM 40-11, Preventive Medicine, 22 July 2005, RAR issue date: 19 October 2009. http://armypubs.army.mil/epubs/pdf/p40_11.pdf
8. DA PAM 40-503, Medical Services, Industrial Hygiene Program, 30 October 2000. http://armypubs.army.mil/epubs/pdf/P40_503.PDF
9. UFC 3-410-01FA, Heating, Ventilating, and Air Conditioning, 15 May 2003, change 4, January 2010. http://www.wbdg.org/ccb/DOD/UFC/ufc_3_410_01fa.pdf
10. Threshold Limit Values (TLVs) and Biological Exposure Indices (BEIs), American Conference of Governmental Industrial Hygienists (ACGIH), current Ed.
11. Industrial Ventilation – A Manual of Recommended Practice for Design, ACGIH, current Ed.
12. American National Standards Institute (ANSI)/International Safety Equipment Association (ISEA) Z358.1-2009, Emergency Eyewash and Shower Equipment.
13. ANSI/American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. (ASHRAE) 55-2010, Thermal Environmental Conditions for Human Occupancy.
14. ANSI/ASHRAE 62.1-2010, Ventilation for Acceptable Indoor Air Quality.
15. RP-1-2004, Office Lighting, ANSI/IESNA.
16. RP-7-2001, Industrial Lighting, ANSI/IESNA, change 20 July 2004.
17. OSHA Instruction Letter 02-02-058, Lead Exposure in Construction, Office of Health Compliance Assistance, 13 December 1993.
18. OSHA Standard Interpretation, Clarification of “as free as practicable” and lead contamination under 29 CFR 1926.62, dated January 13, 2003.
19. NG PAM 420-15, Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges, 3 November 2006. http://www.ngbpdc.ngb.army.mil/pubs/420/ngpam420_15.pdf

Shaw Environmental, Inc.

312 Directors Drive
Knoxville, TN 37923
865.690.3211
Fax 865.690.3626



**National Guard Armory
Leesburg Readiness Center
Leesburg, Virginia**

Industrial Hygiene Evaluation

Prepared for:

**National Guard Region North Industrial Hygiene Office
Havre De Grace, Maryland 21078**

Prepared by:

**Shaw Environmental, Inc.
312 Directors Drive
Knoxville, Tennessee 37923**

25 October 2004

**National Guard Armory
Leesburg Readiness Center
Leesburg, Virginia**

Industrial Hygiene Evaluation

Prepared for:

**National Guard Region North Industrial Hygiene Office
Havre De Grace, Maryland 21078**

Prepared by:

**Shaw Environmental, Inc.
312 Directors Drive
Knoxville, Tennessee 37923**

25 October 2004

Prepared by:

Non-Responsive

Environmental Scientist

Reviewed by:

Non-Responsive

Business Line Manager

Table of Contents

Table of Contents	i
List of Tables	ii
List of Appendices	ii
Executive Summary	E-1
1.0 Introduction	1-1
2.0 Findings, Discussion, and Interpretation of Results	2-1
2.1 Sampling for Lead	2-1
2.1.1 Wipe Sampling	2-1
2.1.2 Air Sampling for Lead	2-2
2.2 Physical Condition of Facility	2-2
2.2.1 Peeling Paint - Lead	2-2
2.2.2 Visual Inspection - Asbestos	2-2
2.2.3 Visual Inspection - Water Damage and Mold	2-2
2.2.4 Visual Inspection - Housekeeping	2-3
2.3 Building Concerns	2-3
2.3.1 Ergonomic Concerns	2-3
2.3.2 Indoor Air Quality	2-3
2.4 Safety and Industrial Hygiene Programs	2-3
2.5 Ventilation	2-4
2.5.1 Ventilation System Evaluation	2-4
2.5.2 Contamination of Clean Air Sources	2-4
2.6 Noise Exposure	2-4
2.7 Lighting	2-4
2.8 Converted Indoor Firing Ranges	2-4
2.9 HVAC Systems	2-5
2.10 IHIM	2-5
3.0 Conclusions	3-1
Tables	Follows Section 3.0
Appendices	Follows Tables

List of Tables

Table 1	Wipe Sampling for Lead
Table 2	Air Sampling for Lead
Table 3	Indoor Air Quality Measurements
Table 4	Illumination Readings
Table 5	Indoor Firing Ranges -- Wipe Sampling

List of Appendices

Appendix A	IIHIM Data Form
Appendix B	Building Layout
Appendix C	Sampling Sheets and Laboratory Analyses
Appendix D	References
Appendix E	Recommendations for Surface Lead Dust in Armories

Executive Summary

Shaw Environmental, Inc. (Shaw) was contracted to perform an industrial hygiene evaluation for the Leesburg Readiness Center in Leesburg, Virginia. [Non-Responsive] performed the evaluation on 28 January 2004. The point of contact at the readiness center was SFC [Non-Responsive].

The following industrial hygiene concerns were evaluated.

- Wipe Sampling for Lead
- Air Sampling for Lead
- Peeling Paint – Lead
- Suspected Asbestos Containing Material
- Water Damage
- Presence of Mold
- Housekeeping
- Ergonomic Concerns
- Indoor Air Quality
- Safety and Industrial Hygiene Programs
- Ventilation System Evaluation
- Contamination of Clean Air Sources
- Noise Exposure
- Lighting
- Converted Indoor Firing Range
- HVAC Systems

The following items were either not applicable to the armory or the evaluation resulted in a conclusion that there were no industrial hygiene concerns.

- Air Sampling for Lead
- Peeling Paint – Lead
- Suspected Asbestos Containing Material
- Housekeeping
- Ergonomic Concerns
- Indoor Air Quality

- Safety and Industrial Hygiene Programs
- Ventilation System Evaluation
- Contamination of Clean Air Sources
- Noise Exposure
- HVAC Systems

Areas where there were industrial hygiene concerns are as follows:

- Wipe sampling for lead revealed concentrations above a level of 40 micrograms per square foot ($\mu\text{g}/\text{ft}^2$) in several locations in the drill floor/assembly hall area and the converted firing range. Areas with lead concentrations above 40 $\mu\text{g}/\text{ft}^2$ that will be accessible to children should be cleaned. If a special function is held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function.
- Water damage was observed at several locations at the armory. The source of the water damage was likely from roof leaks and pipe leaks. The source of the water damage should be confirmed and actions taken to eliminate the source in order to prevent the possibility of mold growth that may lead to indoor air quality problems.
- Visual mold was observed in the armory. The area where the mold is located should be thoroughly cleaned with 0.5% sodium hypochlorite solution (1 part household bleach to nine parts water) or equivalent in order to eliminate the potential mold/indoor air quality problem. In addition, the source of the mold should be identified and actions taken to eliminate the source of the mold.
- Lighting measurements were conducted at the armory. The lighting did not meet minimum requirements in some areas; therefore, consideration should be given to providing more lighting in these areas. This may be accomplished by replacing burnt out luminaires, cleaning fixtures, cleaning windows, painting walls with a lighter color, repositioning detailed work to higher illuminated areas, and using supplemental lighting.
- Wipe sampling for lead in the converted firing range revealed concentrations above the recommended level. These areas must be decontaminated by a thorough cleaning until surface lead concentrations are reduced to below recommended levels. In addition, employees should not be allowed to work in these areas without protective clothing until the areas have been cleaned and re-sampled.

1.0 Introduction

Shaw Environmental, Inc. (Shaw) was contracted to perform an industrial hygiene evaluation for the Leesburg Readiness Center in Leesburg, Virginia. [Non-Responsive] performed the evaluation on 28 January 2004. The point of contact at the readiness center was SFC [Non-Responsive].

The findings, discussion, and interpretation of results are provided in Section 2.0. The conclusions are provided in Section 3.0. The HHIM data form for the facility is provided in Appendix A. The building layout is provided in Appendix B. Sampling sheets and laboratory analyses are provided in Appendix C. References are provided in Appendix D. The *Recommendations for Surface Lead Dust in Armories* document is provided in Appendix E.

The statements, opinions, and conclusions contained in this report are based solely upon the services performed by Shaw as described in the report. In performing these services and preparing the report, Shaw Environmental, Inc. relied upon the work and information provided by others, including public agencies, whose information is not guaranteed by Shaw Environmental, Inc.

2.0 Findings, Discussion, and Interpretation of Results

The results, discussion, and interpretation of results are provided in the following sections.

2.1. Sampling for Lead

2.1.1 Wipe Sampling

Wipe samples were collected for lead from the drill floor/assembly area. Also, wipe samples were collected for lead in rooms, hallways, foyers, etc. The sampling in rooms, hallways, foyers, etc. represented approximately 25% of the building. Approximately half of the samples were collected from surfaces in common areas, such as surfaces of a desk. The remaining samples were collected from uncommon surface areas, such as a supply vent or the top of a file cabinet. The samples were collected and analyzed in accordance with the Instructions for *Completing the Sampling of ARMY National Guard Armories* procedure.

The only samples initially submitted for analysis were those from the drill floor/assembly hall. If there were any results above the recommended level from the drill floor/assembly hall, the other samples would have been submitted for analysis.

Results of the wipe sampling are provided in Table 1. The results revealed lead at all locations sampled at concentrations below the recommended level of 200 micrograms lead per square foot ($\mu\text{g}/\text{ft}^2$) (See Appendix B); therefore, no actions are necessary. Since the levels were below the recommended level, the other samples were not submitted for analysis.

However, wipe sampling for lead revealed concentrations above a level of $40 \mu\text{g}/\text{ft}^2$ in the drill floor/assembly hall area and the converted firing range. Please note that the *Recommendations for Surface Lead Dust in Armories* (Appendix E) states that all areas with lead concentrations above $40 \mu\text{g}/\text{ft}^2$ that will be accessible to children should be cleaned. If a special function is held in which children will be present in

this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function.

2.1.2 Air Sampling for Lead

Breathing zone air sampling was conducted on two (2) full-time building occupants. (Please note that no state employees were monitored.) The samples were collected and analyzed in accordance with Method 7082 of the National Institute of Occupational Safety and Health (NIOSH) Manual of Analytical Methods.

The results of the sampling are provided in Table 2. The results revealed non-detectable concentrations of lead in the breathing zone of the employees; therefore, no actions are necessary.

2.2 Physical Condition of Facility

2.2.1 Peeling Paint - Lead

Peeling paint was not observed at the armory; therefore, bulk samples for lead in paint were not taken.

2.2.2 Visual Inspection - Asbestos

A visual inspection was made to determine if there was any suspected asbestos-containing material at the armory. The inspection did not reveal any materials suspected of containing asbestos.

2.2.3 Visual Inspection – Water Damage and Mold

A visual inspection was made to determine if there was any water damage or visible mold at the armory. Both visible mold and water damage was observed at the armory. Water damage was observed on the ceilings and some walls in rooms 101, 111, 113, 115, 116, 116A, 117, and kitchen.

The source of the water damage was likely from a mixture of roof and pipe leaks. The source of the water damage should be confirmed and actions taken to eliminate the source in order to prevent the possibility of mold growth that may lead to indoor air quality problems.

Visible mold was observed on the ceilings and walls in rooms 115, 116, and hallway outside room 115.

The area where the mold is located should be thoroughly cleaned with 0.5% sodium hypochlorite solution (1 part household bleach to nine parts water) or equivalent in order to eliminate the potential mold/indoor air quality problem. In addition, the source of the mold should be identified and actions taken to eliminate the source of the mold.

2.2.4 Visual Inspection - Housekeeping

The housekeeping was determined to be good.

2.3. Building Concerns

2.3.1 Ergonomic Concerns

Interviews with employees and observation of work activities revealed no ergonomic concerns at the armory.

2.3.2 Indoor Air Quality

Interviews with employees and measurements for carbon dioxide, humidity, and temperature revealed no indoor air quality concerns at the armory. The results of the measurements for carbon dioxide, humidity, and temperature are provided in Table 3.

2.4. Safety and Industrial Hygiene Programs

An evaluation was performed to determine the applicability of the following programs.

- Confined Spaces
- Hearing Conservation
- Respiratory Protection
- Hazard Communication (HAZCOM)
- Personal Protective Equipment (PPE)

It was determined that the HAZCOM program was the only program listed above that was applicable at the facility. The HAZCOM program was evaluated and it was determined that the program met minimum requirements.

2.5. Ventilation

2.5.1 Ventilation System Evaluation

There were no local exhaust ventilation systems at this armory; therefore, no ventilation studies were performed.

2.5.2 Contamination of Clean Air Sources

Since there were no local exhaust ventilation systems at the armory, there was no possibility that clean air sources could be contaminated by exhaust air.

2.6. Noise Exposure

An evaluation was performed to determine if there were any hazardous noise areas at the armory. It was determined that there were no areas at the armory that would exceed the permissible exposure limit for noise.

2.7. Lighting

Lighting measurements were conducted at the armory. Results of the lighting evaluation are provided in Table 4. As can be seen from the results, the lighting did not meet the minimum requirements in some areas, including rooms 102B and 103.

Consideration should be given to providing more lighting to the areas listed above. This may be accomplished by replacing burnt out luminaries, cleaning fixtures, cleaning windows, painting walls with a lighter color, repositioning detailed work to higher illuminated areas, and using supplemental lighting.

2.8. Converted Indoor Firing Ranges

There was a converted indoor firing range at the facility; therefore, wipe samples were taken for lead at various locations in or near the converted range. The space was divided into a storage room and an indoor pellet gun range. The results are provided in Table 5. The results revealed lead, with associated concentrations, at the following locations:

- floor outside the converted range at 170 micrograms lead per square foot ($\mu\text{g}/\text{ft}^2$);
- floor inside the converted range at 670 $\mu\text{g}/\text{ft}^2$;

- bullet trap at 140 $\mu\text{g}/\text{ft}^2$;
- stored item at 470 $\mu\text{g}/\text{ft}^2$; and
- overhead heater at 260 $\mu\text{g}/\text{ft}^2$

The lead levels at three of these locations were above the recommended level of 200 $\mu\text{g}/\text{ft}^2$, a level recommended in the *Guidelines for Converting Indoor Firing Ranges to Other Uses* document (Department of Army). These areas must be decontaminated by a thorough cleaning until surface lead concentrations are reduced to below recommended levels. For guidance on the proper method of cleaning, please refer to NG PAM 385-15 (*Guidelines and Procedures for Indoor Firing Range (IFR) Rehabilitation, Conversion, and Cleaning*). In addition, employees should not be allowed to work in these areas without protective clothing until the areas have been cleaned and re-sampled.

2.9. HVAC System

The maintenance schedule for the HVAC system was evaluated to verify that maintenance occurs on a regular basis. Also, the condition of the HVAC system was evaluated to determine if the maintenance performed is effective. It was deemed that maintenance occurs on a regular basis, and the maintenance performed is effective.

2.10. HHIM

A Health Hazard Information Module (HHIM) form was completed for the armory. The completed form is provided in Appendix A.

3.0 Conclusions

It is concluded that there were no industrial hygiene concerns at the armory with regards to atmospheric exposure to lead, peeling lead-based paint, suspected asbestos-containing material, housekeeping, ergonomic conditions, indoor air quality, safety and industrial hygiene programs, ventilation systems or contamination of clean air sources, noise exposure, and HVAC systems.

There were industrial hygiene concerns at the armory with regards to lead surface contamination, water damage, visible mold, surface lead contamination in the converted firing range, and lighting. These concerns are discussed in detail in Section 2.0 of this report.

TABLES

Table 1
Wipe Sampling for Lead
National Guard Armory
Leesburg, Virginia
Date of Sampling: 28 January 2004

Sample Number	Location	Results, $\mu\text{g}/\text{ft}^2$ ^a
VALHE028-1	Drill Floor (fire extinguisher case top surface) See Building Layout – Appendix B	110
VALHE028-2	Drill Floor (kitchen service windowsill) See Building Layout – Appendix B	11
VALHE028-3	Drill Floor (candy machine top surface) See Building Layout – Appendix B	140
VALHE028-4	Drill Floor (fire extinguisher case top surface) See Building Layout – Appendix B	49
VALHE028-5	Drill Floor (fire extinguisher case top surface) See Building Layout – Appendix B	37
VALHE028-6	Field Blank	0.69

^aMicrograms lead per square foot

The samples were taken and analyzed in accordance with the *Instructions for Completing the Sampling of ARMY National Guard Armories* procedure.

In armories that do not contain childcare facilities, the NGB Region North Industrial Hygiene Office recommends cleaning the areas with sample results greater than 200 $\mu\text{g}/\text{ft}^2$

Table 2
Breathing Zone Air Samples for Lead
National Guard Armory
Leesburg, Virginia
Date of Sampling: 28 January 2004

Sample Number	Employee	Sampling Information			Results (mg/m ³) ^a
		Time Sampled / Minutes	Flow Rate (lpm) ^b	Volume (liters)	
VALEE028-A1	Non-Responsive	1045-1245/120	1.606	192.77	<0.005
VALEE028-A2		1050-1315/145	1.630	236.40	<0.005
VALEE028-A3	Field Blank	-	-	-	None Detected

^a Milligrams lead per cubic meter of air.

^b Liters of air per minute.

Method 7082 of the National Institute of Occupational Safety and Health (NIOSH) Manual of Analytical Methods was followed for sampling for lead.

Table 3
Indoor Air Quality Measurements for Carbon Dioxide, Humidity, and Temperature
National Guard Armory
Leesburg, Virginia
Date of Sampling: 28 January 2004

Location	Occupants In Area	Carbon Dioxide, parts per million parts of air (ppm)	Percent (%) Humidity	Temperature (°F)
1 st Floor	50	901	34.8	70.7
Outdoors	-	282	14.4	46.7

Carbon dioxide, humidity, and temperature measurements were taken with a TSI Q Trak Plus, Model 8554, Indoor Air Quality Meter, calibrated in April 2003.

American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE) recommends that indoor carbon dioxide levels be less than 700 ppm above outdoor levels.

ASHRAE recommends that the relative humidity levels be maintained between 30 to 60 percent.

ASHRAE recommends that the acceptable temperature range be 68 degrees Fahrenheit to 74 degrees Fahrenheit in the winter and 73 degrees Fahrenheit to 79 degrees Fahrenheit in the summer.

Table 4
Illumination Readings
National Guard Armory
Leesburg, Virginia
Date of Sampling: 28 January 2004

Location	Luminance (fc) ^a	Standard (fc) ^a	Standard Met
Room 113	22.2-111.1	70	Some Areas
Room 101	66.6-83.3	70	Some Areas
Room 115	22.2-77.7	70	Some Areas
Room 117	22.2-77.7	70	Some Areas
Room 116	33.3-100	70	Some Areas
Room 116A	100-144.4	70	Yes
Room 102	44.4-88.8	70	Some Areas
Room 102B	44.4-55.5	70	No
Room 103	11.1-44.4	70	No
Men's Latrine	44.4-88.8	40	Yes
Kitchen	66.6-122.2	70	Some Areas
Scullery	44.4-66.6	70	No
Supply Room	22.2-88.8	30	Some Areas
Room 112	44.4-83.3	70	Some Areas

^a fc - Footcandles

The readings were taken with a Weston model 614-60 Lightmeter.

The standards listed above are from ANSI/IES RP-1 and RP-7.

Table 5
Wipe Sampling for Lead – Converted Firing Range
National Guard Armory
Leesburg, Virginia
Date of Sampling: 28 January 2004

Sample Number	Location	Results, $\mu\text{g}/\text{ft}^2$ ^a
VALEE028-15	Bullet Trap	140
VALEE028-16	Stored Item	470
VALEE028-17	Overhead Heaters	260
VALEE028-18	Field Blank	0.79
VALEE028-19	Floor (inside the converted firing range)	670
VALEE028-20	Floor (outside the converted firing range)	170

^aMicrograms lead per square foot

The samples were taken and analyzed in accordance with the Instructions for *Completing the Sampling of ARMY National Guard Armories* procedure.

Appendix A

HHIM Data Form(s)

HEALTH HAZARD INFORMATION MODULE: INDUSTRIAL HYGIENE SURVEY

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

SECTION 1. DEMOGRAPHIC DATA

ARLOC 24255		INSTALLATION APG-EA		BLDG/RM NO. LEES BURN	
LOCATION/CODE ADMINISTRATIVE AREAS / AA			OPERATION/CODE ADMINISTRATIVE OPERATIONS / ADD		
SURVEY DATE 28 JANUARY 2004			EVALUATOR (Initials) Non-Responsive		
MACOM/CODE		SUBMACOM/CODE XX		SUPERVISOR SFC Non-Responsive	
TELEPHONE/DSN NO. (703) 771-2500		UNIT/ORGANIZATION LEES BURN ARMORY		RAC G 4	
NO. CIV(S) 0		NO. MIL 3		NO. CONTRACTOR(S) 0	
		NO. LOC(S) -		NO. OTHER -	
FREQUENCY (hrs/day) 8					

SECTION 2. FACILITY DATA

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

SECTION 3. SURVEY DATA

CONTROLS PRESENT	EVALUATION	UNIT CODE	CONTROLS REQUIRED	STATUS

PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized)

GLOVES	R	U	RESPIRATOR	NIOSH TC NO.	MANUFACTURER	R	U
ACID			AIRLINE				
COLD SURFACES			ABRASIVE BLASTING HOOD				
HOT SURFACES			DISPOSABLE				
IBC AGENTS			FULL FACE AIR PURIFYING				
IL			1/2 FACE AIR PURIFYING				
SOLVENTS			POWERED AIR PURIFYING				
SURGICAL GLOVES			1/4 FACE AIR PURIFYING				
			SELF CONTAINED				

EYES/FACE	R	U	HEARING	R	U	BODY	R	U	HEAD/FIT	R	U
CHEMICAL SPLASH			CANAL CAPS			APRONS			COLD WEATHER BOOTS/HATS		
FULL FACE SHIELD			EAR PLUGS			COLD WEATHER CLOTHING			HARD HATS		
CHEMICAL/SAFETY			HELMETS			COVERALLS			IMPERMEABLE BOOTS		
SAFETY/IMPACT			MUFFS			FULL BODY SUIT			SAFETY/CONDUCTIVE SHOES		
WELDING HELMET			MUFF/EARPLUG COMBO			HEAT REFLECTIVE VEST/SUIT			SAFETY/NON-CONDUCTIVE SHOES		

Posted to NGB FOIA Reading Room May 2, 2018

EHA Form 10-18 (Test) 1 Jan 92

FOIA Requested Records 1950085 (VA)

(HSPB-11) National Guard Bureau

Page 748 of 1923

SECTION 4. HAZARD INVENTORY DATA

CAS CODE	HAZARD DESCRIPTION	PAC	EPC
POVDTXXX	VIDEO DISPLAY TERMINALS	3-LOW	UNCONTROLLED D - PHYSICAL
7439-92-1	LEAD, INORGANIC DUSTS; FUMES	2-MODERATE	UNCONTROLLED C - RESPIRATORY
1332-21-4	ASBESTOS	3-LOW	UNCONTROLLED C - RESPIRATORY
124-38-9	CARBON DIOXIDE	2-MODERATE	UNCONTROLLED C - RESPIRATORY
PO LIFTING	HEAVY LIFTING	2-MODERATE	UNCONTROLLED D - PHYSICAL
PO HEAT STC	HEAT STRESS	3-LOW	UNCONTROLLED D - PHYSICAL

SECTION 5. PERSONNEL DATA

LAST NAME	FIRST NAME	MI	SEX	SSN	CATEGORY
Non-Responsive		L	M	-	MIL
		O	M	-	MIL
		L	M	-	MIL

SECTION 6. COMMENTS

☒ No comments

☐ See attached sheet

PRIVACY ACT STATEMENT

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

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

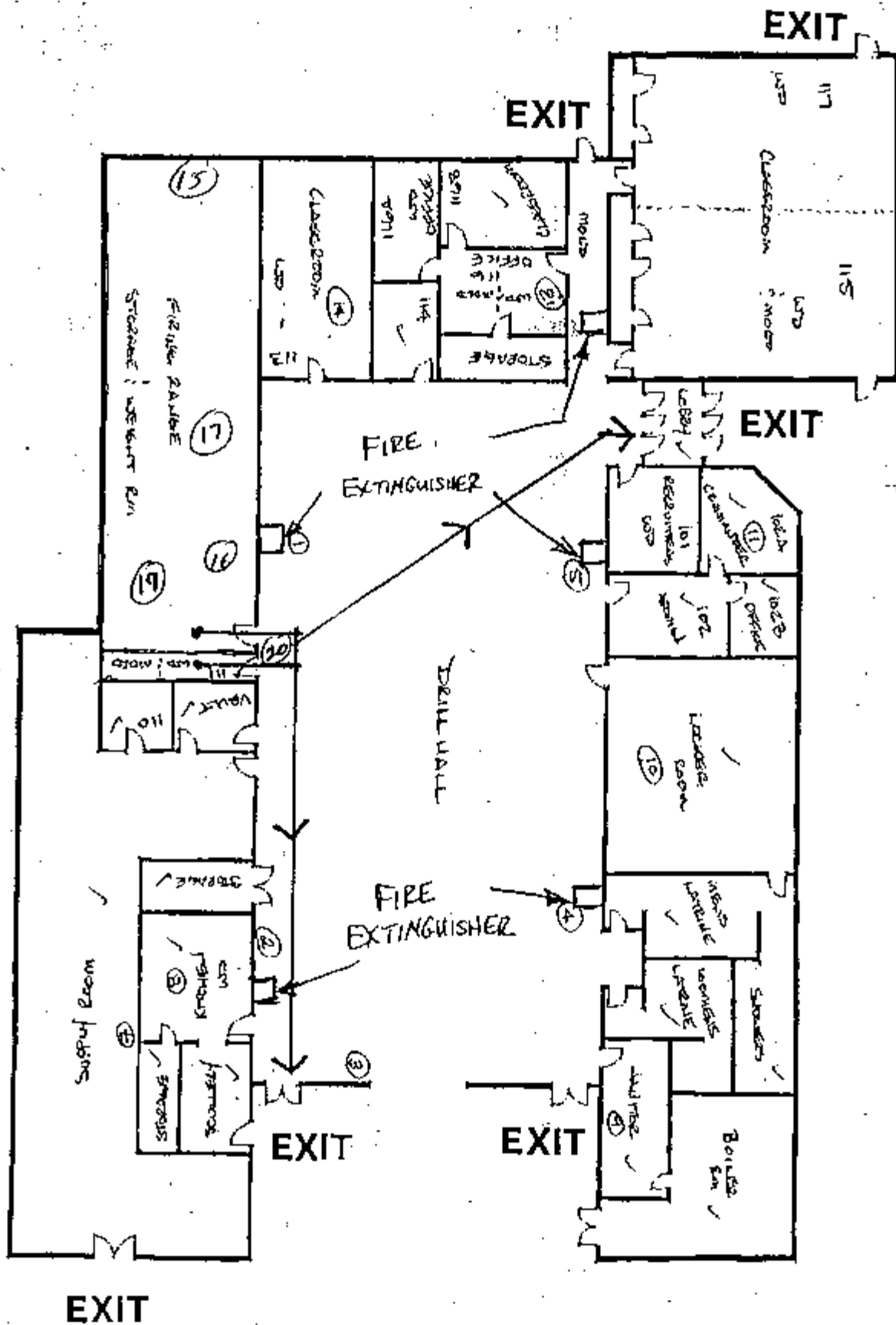
Leesburg Armory

Non-Responsive

Readiness NCO
Supply SGT
Administrative Specialist

Appendix B

Building Layout



Appendix C

Sampling Sheets and Laboratory Analyses

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

Job Name: VA Lee 028
Job Location: Leesburg, Virginia

Chain Of Custody: 122662
Date Analyzed: 02/07/2004

Job Number: 845702 01000000
P.O. Number: 1103
Person Submitting:
Report Date: 09-Feb-04

Attention: **Res** **No**

Res **No**

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 (ft ²)	Reporting Limit	Final Result	Comments
0422967	VA LEE 028 1	Furnace	Wipe	****	0.111	33.75 ug/ft ²	110 ug/ft ²	
0422968	VA LEE 028 2	Furnace	Wipe	****	0.111	2.70 ug/ft ²	11 ug/ft ²	
0422969	VA LEE 028 3	Furnace	Wipe	****	0.111	33.75 ug/ft ²	140 ug/ft ²	
0422970	VA LEE 028 4	Furnace	Wipe	****	0.111	6.75 ug/ft ²	49 ug/ft ²	
0422971	VA LEE 028 5	Furnace	Wipe	****	0.111	6.75 ug/ft ²	37 ug/ft ²	
0422972	VA LEE 028 6	Furnace	Wipe Blank	****	N/A	0.30 ug	0.69 ug	
0422973	VA LEE 028 15	Furnace	Wipe	****	0.111	33.75 ug/ft ²	140 ug/ft ²	
0422974	VA LEE 028 16	Furnace	Wipe	****	0.111	67.51 ug/ft ²	470 ug/ft ²	
0422975	VA LEE 028 17	Furnace	Wipe	****	0.111	67.51 ug/ft ²	260 ug/ft ²	
0422976	VA LEE 028 18	Furnace	Wipe Blank	****	N/A	0.30 ug	0.79 ug	
0422977	VA LEE 028 19	Flame	Wipe	****	0.111	108.01 ug/ft ²	670 ug/ft ²	
0422978	VA LEE 028 20	Furnace	Wipe	****	0.111	33.75 ug/ft ²	170 ug/ft ²	

Analysis Method for Flame: Air, Wipes, Paints, and Soil/Solids: EPA 600/R-93/200(M)-7420; Water: SM-311B

Analysis Method For Furnace: Air, Wipes, Paints, and Soil/Solids: EPA 600/R-93/200(M)-7421; Water: SM-311B

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:

Non-Responsive

Non-Responsive

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

All rights reserved. AMA Analytical Services, Inc.

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

**DATA
CHEM**
LABORATORIES, INC.

TEST REPORT

Page 1 of 2

2/6/04

Submitted To: **Non-Responsive**Shaw Environmental, Inc.
5700 Thurston Ave., Suite 116
Virginia Beach, VA 23455

Reference Data:

	Lead
Client Sample No.:	VAW00027A1 through VALEE028A3
P.O. No.:	1103
Sample Location:	Virginia
Sample Type:	Filter
Method Reference:	NIOSH 7300
DCL Set ID No.:	04-S-0488
DCL Sample ID No.:	04-02620 through 04-02635
Sample Receipt Date:	2/3/2004
Preparation Date:	02/04/04
Analysis Date:	02/05/04

The samples were prepared and analyzed in accordance with NIOSH method 7300 using a Perkin Elmer 3000XL ICP.

The sample condition upon receipt was acceptable except where noted.

The results are in the enclosed data table. Results relate only to the items tested and are not blank corrected unless indicated in the data table.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Non-Responsive

Analyst

Non-Responsive

Reviewer

CINCINNATI OFFICE
4388 GLENDALE-MILFORD ROAD
CINCINNATI, OHIO 45242-3706
513 733-5336, FAX 513 733-5347WEST COAST OFFICE
11 SANTA YORMA COURT
NOVATO, CALIFORNIA 94045
800 280-8071, FAX 415 893-8469

TEST REPORT
Page 2 of 2
04-S-0488

Results Lead

Client #	DCL #	Sample Volume (L)	µg/sample	mg/m ³
VAW00027A1	04-02620	142.00	ND	<0.007
VAW00027A2	04-02621	140.00	ND	<0.007
VAW00027A3	04-02622	0	ND	-
VAFRE029A1	04-02623	277.06	ND	<0.004
VAFRE029A2	04-02624	296.60	ND	<0.003
VAFRE029A3	04-02625	0	ND	-
VAWAR029A1	04-02626	125.75	ND	<0.008
VAWAR029A2	04-02627	123.36	ND	<0.008
VAWAR029A3	04-02628	0	ND	-
VAMAN028A1	04-02629	218.41	ND	<0.005
VAMAN028A2	04-02630	225.70	ND	<0.004
VAMAN028A3	04-02631	0	ND	-
VALEE028A1	04-02633	192.77	ND	<0.005
VALEE028A2	04-02634	195.65	ND	<0.005
VALEE028A3	04-02635	0	ND	-
	Prep Blank		ND	
% Recovery	LCS		118.	
RPL			1.	

ND = not detected at or above the reporting limit (RPL).

LCS = laboratory control sample.

Non-Responsive

Analyst

Non-Responsive

Reviewer

1/28/2004

236.40 Liters

BEST AVAILABLE COPY

**DATA
CHEM**
LABORATORIES, INC.TEST REPORT
Page 1 of 2
2/6/04Submitted To: **Non-Responsive**Shaw Environmental, Inc.
5700 Thurston Ave., Suite 116
Virginia Beach, VA 23455

Reference Data:

	Lead
Client Sample No.:	VAW00027A1 through VALEE028A3
P.O. No.:	1103
Sample Location:	Virginia
Sample Type:	Filter
Method Reference:	NIOSH 7300
DCL Set ID No.:	04-S-0488
DCL Sample ID No.:	04-02620 through 04-02635
Sample Receipt Date:	2/3/2004
Preparation Date:	02/04/04
Analysis Date:	02/05/04

The samples were prepared and analyzed in accordance with NIOSH method 7300 using a Perkin Elmer 3000XL ICP.

The sample condition upon receipt was acceptable except where noted.

The results are in the enclosed data table. Results relate only to the items tested and are not blank corrected unless indicated in the data table.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Non-Responsive

Analyst

Non-Responsive

Reviewer

CINCINNATI OFFICE
4388 GLENDALE-MILFORD ROAD
CINCINNATI, OHIO 45242-3708
513 733-5336, FAX 513 733-5347WEST COAST OFFICE
11 SANTA YORMA COURT
NOVATO, CALIFORNIA 94045
800 280-8071, FAX 415 893-8469

BEST AVAILABLE COPY

TEST REPORT
Page 2 of 2
04-S-0488

Results

Lead

Client #	DCL #	Sample Volume (L)	µg/sample	mg/m ³
VAW00027A1	04-02620	142.00	ND	<0.007
VAW00027A2	04-02621	140.00	ND	<0.007
VAW00027A3	04-02622	0	ND	-
VAFRE029A1	04-02623	277.06	ND	<0.004
VAFRE029A2	04-02624	296.60	ND	<0.003
VAFRE029A3	04-02625	0	ND	-
VAWAR029A1	04-02626	125.75	ND	<0.008
VAWAR029A2	04-02627	123.36	ND	<0.008
VAWAR029A3	04-02628	0	ND	-
VAMAN028A1	04-02629	218.41	ND	<0.005
VAMAN028A2	04-02630	225.70	ND	<0.004
VAMAN028A3	04-02631	0	ND	-
VALEE028A1	04-02633	192.77	ND	<0.005
VALEE028A2	04-02634	195.65	ND	<0.005
VALEE028A3	04-02635	0	ND	-
	Prep Blank		ND	
% Recovery	LCS		118.	
RPL			1.	

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

Non-Responsive

Analyst

Non-Responsive

Reviewer

Appendix D

References

References

Title 29, Code of Federal Regulations CFR), Part 1910, Occupational Safety and Health Administration (current edition)

American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc (ASHRAE) 62-2002, Ventilation for Acceptable Indoor Air Quality

Instructions for Completing the Sampling of Army National Guard Armories, Lead Wipe Sampling Procedure included with the Request for Proposal

Air Sampling for Lead - Method 7082 of the National Institute of Occupational Safety and Health (NIOSH) Manual of Analytical Methods

Design Guide DG-415-2, Logistics Facilities, National Guard Bureau Installation Division, 14 December 1999

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

Army Regulation (AR) 40-5, Medical Service, Preventive Medicine, 15 October 1990

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

Department of the Army Pamphlet (DA PAM) 40-501, Medical Services, Hearing Conservation Program, 10 December 1998

DA PAM 40-503, Medical Services, Industrial Hygiene Program, 30 October 2000

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

Guidelines for Converting Indoor Firing Ranges to Other Uses, Headquarters, Department of the Army and the Air Force, NG PAM (AR) 385-16/ANGPAM 91-101, 31 January 1994

24 CFR, Part 35, Subpart B, Section 35-110, Definition of Lead-Based Paint, Housing and Urban Development, U. S. Department of Housing

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(l)(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 (USACIHPM) 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.

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

NGB-AVS-SI (40-5f)

4 November 2004

MEMORANDUM FOR VAARNG, Leesburg Readiness Center, ATTN: SFC [Redacted]
41905 Loudoun Center Place, Leesburg, VA 22075-8901

SUBJECT: Baseline Survey

1. I have enclosed the industrial hygiene survey report completed by Shaw Environmental, Incorporated.
2. In addition to the attached discussion and recommendations regarding wipe samples for lead, if a special function is held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function.
3. Please contact me at (410) 942-0273 or 1-800-550-6967 if you have any questions regarding the enclosed report.

Encl

[Redacted]
Non-Responsive

Regional Industrial Hygienist

CF: Organizational Maintenance Officer
Occupational Health Manager

National Guard Armory Leesburg Readiness Center, Leesburg, Virginia Industrial Hygiene Evaluation

Recommendations

- Wipe sampling for lead revealed concentrations above a level of 40 micrograms per square foot ($\mu\text{g}/\text{ft}^2$) in several locations in the drill floor/assembly hall area and the converted firing range. Areas with lead concentrations above 40 $\mu\text{g}/\text{ft}^2$ that will be accessible to children should be cleaned. If a special function is held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function. **RAC - 4**
- Water damage was observed at several locations at the armory. The source of the water damage was likely from roof leaks and pipe leaks. The source of the water damage should be confirmed and actions taken to eliminate the source in order to prevent the possibility of mold growth that may lead to indoor air quality problems. **RAC - 5**
- Visual mold was observed in the armory. The area where the mold is located should be thoroughly cleaned with 0.5% sodium hypochlorite solution (1 part household bleach to nine parts water) or equivalent in order to eliminate the potential mold/indoor air quality problem. In addition, the source of the mold should be identified and actions taken to eliminate it. **RAC - 5**
- Lighting measurements were conducted at the armory. The lighting did not meet minimum requirements in some areas; therefore, consideration should be given to providing more lighting in these areas. This may be accomplished by replacing burnt out luminaries, cleaning fixtures, cleaning windows, painting walls with a lighter color, repositioning detailed work to higher illuminated areas, and using supplemental lighting. **RAC - 5**
- Wipe sampling for lead in the converted firing range revealed concentrations above the recommended level. These areas must be decontaminated by a thorough cleaning until surface lead concentrations are reduced to below recommended levels. In addition, employees should not be allowed to work in these areas without protective clothing until the areas have been cleaned and re-sampled. **RAC - 4**

MEDICAL RECORD – SUPPLEMENTAL MEDICAL DATA

For use of this form, see AR 40-66; the proponent agency is the Office of The Surgeon General.

REPORT TITLE

OTSG APPROVED (Date)

WORKERS' OCCUPATIONAL WORKSITE SAMPLING DATA RECORD

DIRECTORATE Leesburg Armory

BLDG/ROOM Leesburg

SPECIAL STUDY/REPORT NUMBER Virginia National Guard Study

JOB DESCRIPTION/SERIES Military/Administrative Operations

SAMPLING DATE January 28, 2004

EXPOSURE MONITORED	TYPE SAMPLE*	PERMISSIBLE EXPOSURE LIMIT	SAMPLING RESULT	CALCULATED TWA	EXPOSURE CATEGORY**
1. Lead	P	0.05 mg/m ³	<0.0050	<0.0050	1
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					

*TYPE OF SAMPLE: G=General Area Sample

P=Personal Sample Collected in the Breathing Zone of the Worker.

R=Personal Sample Collected on another worker, but representative of expected exposure for this worker.

**EXPOSURE CATEGORY

1. Measured Exposure levels are below permissible exposure limit.
2. Measured Exposure levels are close to permissible exposure limits: See Comments.
3. Measured Exposure levels are above permissible exposure limits: See Comments.

COMMENTS:

NOTE: REFER TO THE SPECIAL STUDY OR REPORT REFERENCED FOR DETAILS OF SAMPLING AND RESULTS.

(Continue on reverse)

PREPARED BY (Signature & Title)

DEPARTMENT/SERVICE/CLINIC

DATE

Non-Responsive Environmental Scientist

INDUSTRIAL HYGIENE SECTION

1/28/2004

PATIENT'S IDENTIFICATION (For typed or written entries give: Name --last, first, Middle; grade; date; hospital or medical facility)

NAME: Non-Responsive SPC: 1/28/2004

HISTORY/PHYSICAL

FLOW CHART

SSN: Non-Responsive (last four)

OTHER EXAMINATION OR EVALUATION

OTHER (SPECIFY)

UNIT PHONE NO: 703-771-2500

DIAGNOSTIC STUDIES

TREATMENT

DA FORM 4700
1 MAY 78

HSXR-APG-Z OP 32 1 Jan 90

MEDICAL RECORD -- SUPPLEMENTAL MEDICAL DATA

For use of this form, see AR 40-68; the proponent agency is the Office of The Surgeon General.

REPORT TITLE

OTSG APPROVED (Date)

WORKERS' OCCUPATIONAL WORKSITE SAMPLING DATA RECORD

DIRECTORATE Leesburg Armory

BLDG/ROOM Leesburg

SPECIAL STUDY/REPORT NUMBER Virginia National Guard Study

JOB DESCRIPTION/SERIES Military/Administrative Operations

SAMPLING DATE January 28, 2004

EXPOSURE MONITORED	TYPE SAMPLE*	PERMISSIBLE EXPOSURE LIMIT	SAMPLING RESULT	CALCULATED TWA	EXPOSURE CATEGORY**
1. Lead	P	0.05 mg/m ³	<0.0050	<0.0050	1
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					

*TYPE OF SAMPLE: G=General Area Sample

P=Personal Sample Collected in the Breathing Zone of the Worker.

R=Personal Sample Collected on another worker, but representative of expected exposure for this worker.

**EXPOSURE CATEGORY

1. Measured Exposure levels are below permissible exposure limit.
2. Measured Exposure levels are close to permissible exposure limits: See Comments.
3. Measured Exposure levels are above permissible exposure limits: See Comments.

COMMENTS:

NOTE: REFER TO THE SPECIAL STUDY OR REPORT REFERENCED FOR DETAILS OF SAMPLING AND RESULTS.

(Continue on reverse)

PREPARED BY (Signature & Title)	DEPARTMENT/SERVICE/CLINIC	DATE
Non-Responsive Environmental Scientist	INDUSTRIAL HYGIENE SECTION	1/28/2004
PATIENT IDENTIFICATION (For typed or written entries give: Name --last, first, Middle; grade; date; hospital or medical facility)		
NAME: Non-Responsive SPC: 1/28/2004	HISTORY/PHYSICAL	FLOW CHART
SSN: Non- last four)	OTHER EXAMINATION OR EVALUATION	OTHER (SPECIFY)
UNIT PHONE NO: 703-771-2500	DIAGNOSTIC STUDIES	TREATMENT

DA FORM 4700
1 MAY 72

HSXR-APG-Z OP 32 1 Jan 90

Shaw Environmental, Inc.

312 Directors Drive
Knoxville, TN 37923
865.690.3211
Fax 865.690.3626



Shaw Environmental, Inc.

29 March 2004

Ms. **Non-Responsive** IH
Regional Industrial Hygienist
Region North Industrial Hygiene Office
Attn: NGB-AVS-SI
301-IH Old Bay Lane
Havre De Grace, Maryland 21078

RE: Draft Report for the Industrial Hygiene Evaluation at the Leesburg Readiness Center – Leesburg, Virginia

Dear Ms. **Non-Responsive**

Attached is a copy of the referenced report. Also attached is a copy of the field notes, photographs and photograph log, and the completed contaminant exposure forms (three copies of each employee sampled). Please call me if you have questions.

Sincerely,

Non-Responsive

Project Manager

*Survey 28 Jan 04
Rec'd 9 Apr 04
rev 10/12/04
emailed 10/12/04
Rec'd 11/4/04*

Field Notes and Checklist

State: VIRGINIA Location: LEESBURG ARMORY Date: JANUARY 26, 2004
 Contact: SFC [REDACTED] Non-Responsive

1.0 Sampling for Lead

1.1 Wipe Sampling

Sample #:	<u>1</u>	Picture #:	<u>/</u>	Location:	<u>FIRE EXTINGUISHER CASE TOP</u>
Sample #:	<u>2</u>	Picture #:	<u>/</u>	Location:	<u>KITCHEN SERVICES WINDOW SILL</u>
Sample #:	<u>3</u>	Picture #:	<u>/</u>	Location:	<u>CANDY MACHINE TOP</u>
Sample #:	<u>4</u>	Picture #:	<u>/</u>	Location:	<u>FIRE EXTINGUISHER CASE TOP</u>
Sample #:	<u>5</u>	Picture #:	<u>/</u>	Location:	<u>FIRE EXTINGUISHER CASE TOP</u>
Sample #:	<u>6, 12</u>	Picture #:	<u>12</u>	Location:	<u>FIELD BLANKS</u>
Sample #:	<u>7</u>	Picture #:	<u>/</u>	Location:	<u>SUPPLY ROOM FIRE EXTINGUISHER CASE TOP</u>
Sample #:	<u>8</u>	Picture #:	<u>/</u>	Location:	<u>KITCHEN TOP OF MICROWAVE</u>
Sample #:	<u>9</u>	Picture #:	<u>/</u>	Location:	<u>JANITORS ROOM TOP OF TV</u>
Sample #:	<u>10</u>	Picture #:	<u>/</u>	Location:	<u>LOCKER ROOM TOP OF LOCKER</u>
Sample #:	<u>11</u>	Picture #:	<u>/</u>	Location:	<u>ROOM 102A WINDOW SILL</u>
Sample #:	<u>13</u>	Picture #:	<u>/</u>	Location:	<u>ROOM 114 FILING CABINET TOP</u>
Sample #:	<u>14</u>	Picture #:	<u>/</u>	Location:	<u>ROOM 113 TOP OF TV</u>
Sample #:	_____	Picture #:	_____	Location:	_____
Sample #:	_____	Picture #:	_____	Location:	_____
Sample #:	_____	Picture #:	_____	Location:	_____
Sample #:	_____	Picture #:	_____	Location:	_____
Sample #:	_____	Picture #:	_____	Location:	_____
Sample #:	_____	Picture #:	_____	Location:	_____
Sample #:	_____	Picture #:	_____	Location:	_____

(Also, please see the sketch of sampling locations.)

1.2 Breathing Zone Air Sampling

Sample #:	<u>A1</u>	Employee Sampled:	<u>SFC [REDACTED]</u> Non-Responsive	<u>ID # 1727</u>
Sample #:	<u>A2</u>	Employee Sampled:	<u>SFC [REDACTED]</u>	<u>SSN # 5877</u>
	<u>A3</u>	<u>FIELD BLANK</u>		

Peeling paint observed (Yes or No): No

If peeling paint observed, samples were taken as follows:

[illegible]

Suspected asbestos-containing material observed (Yes or No): Yes

If suspected asbestos-containing material observed, samples were taken as follows:

Location 1: _____ Picture #: _____
 Condition: _____ Approximate (Square or Linear Feet): _____
 Location 2: _____ Picture #: _____
 Condition: _____ Approximate (Square or Linear Feet): _____
 Location 3: _____ Picture #: _____
 Condition: _____ Approximate (Square or Linear Feet): _____
 Location 4: _____ Picture #: _____
 Condition: _____ Approximate (Square or Linear Feet): _____
 Location 5: _____ Picture #: _____
 Condition: _____ Approximate (Square or Linear Feet): _____

2.3 Visual Inspection – Water Damage and Mold

Water damage observed (Yes or No): YES

If yes, water damage was observed at the following locations:

Location 1:	<u>KITCHEN</u>	Picture #:	<u>✓</u>
Location 2:	<u>Room 111 & 113</u>	Picture #:	<u>✓</u>
Location 3:	<u>Room 101</u>	Picture #:	<u>✓</u>
Location 4:	<u>Room 115 & 117</u>	Picture #:	<u>✓</u>
Location 5:	<u>Room 116 & 116A</u>	Picture #:	<u>✓</u>

Mold observed (Yes or No):

If yes, mold was observed at the following locations:

Location 1:	<u>HALLWAY</u>	Picture #:	<u>✓</u>
Location 2:	<u>Room 116</u>	Picture #:	<u>✓</u>
Location 3:	<u>Room 115</u>	Picture #:	<u>✓</u>
Location 4:	<u> </u>	Picture #:	<u> </u>
Location 5:	<u> </u>	Picture #:	<u> </u>

2.4 Visual Inspection - Housekeeping

Housekeeping (good, average, poor): GOOD

Comments (such as no dirt or trash was visible on the floors or the housekeeping was poor in that there was trash and debris on the floors that could lead to a tripping hazard, or there was dust in the vents.):

3.0 Building Concerns

3.1 Ergonomic Concerns

Ergonomic concerns (Yes or No): NO

If there are ergonomic concerns at the armory, describe the extent of the problem, such as three employees stated that they perform repetitive motion at the XYZ machine for 6 hours per day, and they stated that they are suffering from symptoms of musculoskeletal disorders (MSDs).

3.2 Indoor Air Quality

IAQ concerns (based on employee interviews)(Yes or No): No

If yes, what were concerns:

Measurements for carbon dioxide, humidity, and temperature:

Location	CO ₂ (ppm)	Humidity (%)	Temperature (°F)	Occupancy (People in Room)
Outdoors -	282	14.1	46.7	0
1 st Floor -	901	34.8	70.7	50
2 nd Floor -				
3 rd Floor -				
Basement				

3rd Floor was working A PRE-DEPLOYMENT PT EXERCISE

4.0 Safety and Industrial Hygiene Programs

4.1 Confined Spaces

Are confined spaces applicable (Yes or No): No

If yes, does the program meet minimum standards (Yes or No): No

If no, explain the deficiencies:

4.2 Hearing Conservation

Is hearing conservation applicable (Yes or No): Yes

If yes, does the program meet minimum standards (Yes or No): Yes

If no, explain the deficiencies:

.....

.....

.....

.....

4.3 Respiratory Protection

Is respiratory protection applicable (Yes or No): No

If yes, does the program meet minimum standards (Yes or No): Yes

If no, explain the deficiencies:

.....

.....

.....

.....

4.4 Hazard Communication

Is hazard communication applicable (Yes or No): Yes

If yes, does the program meet minimum standards (Yes or No): Yes

If no, explain the deficiencies:

.....

.....

.....

.....

4.5 Personal Protective Equipment

Is personal protective equipment applicable (Yes or No): Yes

If yes, does the program meet minimum standards (Yes or No): Yes

If no, explain the deficiencies:

5.0 Ventilation

5.1 Ventilation System Evaluation

Local exhaust ventilation systems at this armory (Yes or No): Yes

If yes, results of airflow patterns:

Location 1: _____

Airflow Pattern (acceptable or unacceptable, with reason):

Location 2: _____

Airflow Pattern (acceptable or unacceptable, with reason):

Location 3: _____

Airflow Pattern (acceptable or unacceptable, with reason):

5.2 Contamination of Clean Air Sources

Clean air sources contaminated by contaminated exhaust air (Yes or No): No

If yes, describe:

6.0 Noise Dosimetry

Potential hazardous noise areas (Yes or No): NO

If yes, results of noise dosimetry sampling:

Employee sampled: _____

Results: _____ % Actual _____ % Projected 8-hour TWA _____ Equivalent dBA

Activity: _____

Employee sampled: _____

Results: _____ % Actual _____ % Projected 8-hour TWA _____ Equivalent dBA

Activity: _____

Employee sampled: _____

Results: _____ % Actual _____ % Projected 8-hour TWA _____ Equivalent dBA

Activity: _____

7.0 Lighting Evaluation

Divide by 9

Location	Luminance Range (fc)
Room 113	20-100
Room 101	60-75
Room 115 & 117	20-70
Room 116	30-90
Room 116A	90-130
Room 102	40-80
Room 102B	40-50
Room 103	10-40
mp, SLASH, 116	40-80
KITCHEN	60-110
SULLERY	40-60
SUPPLY ROOM	20-80
Room 112	40-75

8.0 Converted Indoor Firing Ranges

Converted indoor firing range (Yes or No): YES

If yes, locations sampled:

Converted to storage / classroom? PERMIT ENVIRONMENT

Sample #: 13 Picture #: — Location: Inside any remaining ventilation ductwork

Sample #: 14 Picture #: — Location: Exhaust ventilation system

Sample #: 15 Picture #: ✓ Location: Bullet trap

Sample #: 16 Picture #: — Location: Light fixtures COULD NOT REACH

Sample #: 17 Picture #: ✓ Location: Overhead heaters

Sample #: 18 Picture #: ✓ Location: Stored items

Sample #: 19 Picture #: ✓ Location: Floor

Sample #: 20 Picture #: ✓ Location: Outside the range

9.0 HVAC System

Does the HVAC system have maintenance performed on a regular basis (Yes or No):

YES

In yes, is the maintenance effective (Yes or No): YES

If no, describe:

.....

.....

10.0 HHIM

Complete HHIM form for facility (Initial as completed):

Reproduction Room HHIM Necessary (Yes or No) (Initial if Yes):

Film Developing Room HHIM Necessary (Yes or No) (Initial if Yes):

Maintenance Area HHIM Necessary (Yes or No) (Initial if Yes):

11.0 Additional Items

Table 1 (wipe sampling) completed (initial when completed):

Table 2 (air sampling) completed (initial when completed):

Table 3 (peeling paint), if necessary, completed (initial when completed):

Table 3 or 4 (IAQ) completed (initial when completed):

Table 4 or 5 (noise), if necessary, completed (initial when completed):

Table 5 or 6 (firing ranges), if necessary, completed (initial when completed):

Airflow pattern diagram(s) completed (initial when completed):

Building layout included (initial when completed):

Photographs (initial when completed):

Sampling Sheets and Laboratory Analyses (initial when completed):

Sampling tracking form completed and faxed to NGB ARNG Region North III office
within 5 days of date of this survey (initial when completed):

(Fax to Ken Forsythe at 410-942-0254)

State Lead Wipes Spreadsheet completed (initial when completed):

Three copies of noise exposure notification letter, if necessary (initial when
completed):

Three copies of contaminant exposure forms for each employee that participated in air
sampling (initial when completed):

Leesburg Armory Photo Log
National Guard Armory
Leesburg, Virginia
Date of Survey: 28 January 2004

Photo	Description
1	Lead Wipe Assembly Room - Fire Extinguisher Case - Sample 1
2	Lead Wipe Assembly Room - Kitchen Service Window - Sample 2
3	Lead Wipe Assembly Room - Candy Machine - Sample 3
4	Lead Wipe Assembly Room - Fire Extinguisher Case - Sample 4
5	Lead Wipe Assembly Room - Fire Extinguisher Case - Sample 5
6	25% Building - Supply Room Fire Extinguisher Case - Sample 7
7	25% Building - Kitchen Microwave - Sample 8
8	25% Building - Janitor's Room Television - Sample 9
9	25% Building - Locker Room Locker Top - Sample 10
10	25% Building - Room 102A Window Sill - Sample 11
11	25% Building - Room 116 Filing Cabinet Top - Sample 13
12	25% Building - Room 113 Television - Sample 14
13	Firing Range - Bullet Trap - Sample 15
14	Firing Range - Stored Item - Sample 16
15	Firing Range - Floor Inside the Converted Firing Range - Sample 17
16	Firing Range - Overhead Heaters - Sample 19
17	Firing Range - Floor Outside the Converted Firing Range - Sample 20
18	Water Damage - Kitchen
19	Water Damage - Office
20	Water Damage - Office
21	Water Damage & Mold - Classroom
22	Mold - Hallway Outside Classroom
23	Water Damage - Classroom
24	Water Damage & Mold - Office

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



Industrial Hygiene Survey for VAARNG – Leesburg Readiness Center 4109 Loudon Center Place Leesburg, Virginia 20175

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

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

Industrial Hygiene Survey for VAARNG – Leesburg Readiness Center 41905 Loudon Center Place Leesburg, Virginia 20175

Non-Responsive



Industrial Hygienist

Non-Responsive



Project Manager

Non-Responsive



Northeast District Health & Safety Manager

AECOM Environment
January 2013
Document No.: 60276421/ Leesburg 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 Leesburg Readiness Center Facility Layout

Appendix B Leesburg Readiness Center Photographs

Appendix C Analytical Results

Appendix D References



List of Tables

Table 2-1: Lead Wipe Sample Results 2-1

Table 3-1: Indoor Air Quality Monitoring Results..... 3-2

Table 5-1: Light Survey 5-1



Executive Summary

On November 13 2012, AECOM Technical Services Northeast, Inc. (AECOM) conducted an Industrial Hygiene (IH) survey of the Leesburg Readiness Center facility located at 41905 Loudon Center Place in Leesburg, Virginia. SGT Non- [REDACTED] was the point of contact for the facility and accompanied AECOM during the survey to provide access and information concerning the Leesburg Readiness Center operations.

The industrial hygiene survey was conducted in general accordance with the scope of work as described in the "Statement of Work – Industrial Hygiene Services for National Guard Bureau Industrial Hygiene Region North – Baseline Surveys for Readiness Centers and Administrative Buildings", dated March 2009.

The Leesburg Readiness Center is currently staffed by five personnel. The facility is configured as an administrative area and a drill/assembly hall.

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

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

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

Wipe samples collected in association with most administrative areas indicated lead levels below the Occupational Safety and Health Administration's (OSHA's) Clarification of "as free as practicable" and lead contamination under 29 Code of Federal Regulations (CFR) 1926.62, The Compliance Directive for the Interim Standard for Lead in Construction, CPL 2-2.58. OSHA recommends the use of the U.S. Department of Housing and Urban Development's (HUD) acceptable decontamination level of 200 micrograms per square foot (ug/ft²) for floors in evaluating the cleanliness of change areas, storage facilities, and lunchrooms/eating areas.

The acoustic tile on the walls of the former firing range was damaged. A sample of this material was collected and analyzed as a suspect asbestos containing material. Results of the analysis indicated that no asbestos was detected in the submitted sample.

No damaged or peeling paint was observed during the survey.

Multiple roof leaks were reported by building maintenance personnel and observed during the survey. Visual signs of mold and mildew were observed in classroom 114. Water intrusion is a mold growth risk factor.

The Heating, Ventilation & Air Conditioning (HVAC) system in the building consists of a boiler room that feeds radiant heaters throughout the building. The system was not operational during this survey and can be attributed to temperature readings obtained during this survey. No ground level air condition units were observed during the survey.

1.0 Facility Description and Operations

The Leesburg Readiness Center is a single story masonry block building with brick facade. The building is a dedicated readiness center constructed in the 1990's. The section occupied by Readiness Center personnel consists of rooms configured as office space and is finished with acoustical drop ceilings and floor tile.

The primary activity at the Leesburg Readiness Center is routine administrative duties. The Leesburg Readiness Center is currently staffed by approximately 5 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 multiple areas of the facility following the Occupational Safety & Health Administration (OSHA) wipe sampling method and using Ghost Wipes.

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

Table 2-1: Lead Wipe Sample Results

Sample Number	Sample Location	Lead Concentration
001	Drill floor dusty surface top of wall box	<110 ug/ft ²
002	Kitchen surface/shelf	<110 ug/ft ²
003	Supply air grill office 115	<110 ug/ft ²
004	Office 102 coffee machine area	<110 ug/ft ²
005	Office 102C cabinet	<110 ug/ft ²
006	Hallway outside classroom at 114	<110 ug/ft ²
007	Overhead heater in former range	110 ug/ft ²
008	Storage container in range	<110 ug/ft ²
009	Floor of range	<110 ug/ft ²
010	Drill floor outside range	<110 ug/ft ²
	Range exhaust	<110 ug/ft ²

ug/ft² = Micrograms per square foot.

Wipe samples collected in association with most administrative areas indicated lead levels below the Occupational Safety and Health Administration's (OSHA's) Clarification of "as free as practicable" and lead contamination under 29 CFR 1926.62, The Compliance Directive for the Interim Standard for Lead in Construction, CPL 2-2.58. OSHA recommends the use of HUD's acceptable decontamination level of 200 ug/ft² for floors in evaluating the cleanliness of change areas, storage facilities, and lunchrooms/eating areas.

The wipe samples did not detect levels of lead in excess of the action level of 200 micrograms per square foot (ug/ft²) per NG-PAM 420-15. Laboratory analytical results are presented in Appendix C.

2.1.2 Air Sampling

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

3.0 Physical Condition of Facility and Personnel Concerns

3.1.1 Lead Based Paint

Interior surfaces of walls are coated with paint. The paint on the walls is in serviceable condition. AECOM did not observe damaged or peeling paint during this evaluation.

3.1.2 Suspect Asbestos Containing Materials

AECOM observed damaged, friable suspect asbestos-containing materials (ACM) in readily accessible areas of the Leesburg Readiness Center during this survey. A single sample was collected from the acoustical tile in the former range. Results of this analysis indicated no asbestos detected.

Typical suspect miscellaneous building materials observed but not sampled include drywall, floor tiles and associated mastic, cove base and associated mastic, ceiling tiles, carpet mastic, and window caulks.

3.1.3 Water Damage/Mold

AECOM observed evidence of water intrusion and mold during this survey. Of particular note was the evidence of water intrusion in room 102 and mold/mildew in room 114. A photograph of both areas is attached.

3.1.4 Housekeeping

The Leesburg Readiness Center was observed to be generally clean and orderly during this assessment. AECOM did not observe significant 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 Leesburg Readiness Center staff members. No Indoor Air Quality concerns were noted by the Leesburg Readiness Center personnel. A concern over mildew odors and potential mold growth was noted.

Instantaneous real-time reading for carbon monoxide and carbon dioxide (parts per million or ppm), temperature (° Fahrenheit), and relative humidity (as percentage) are presented in the following table. Readings were influenced by the lack of an operational HVAC system during this survey.

Table 3-1: Indoor Air Quality Monitoring Results

Location	Carbon Monoxide (ppm)	Carbon Dioxide (ppm)	Temp (°F)	Relative Humidity (%)
Office 112	2.1	723	59.3	53.6
Office 113	1.6	440	57.4	52.4
Classroom 114	1.3	636	57.4	58.6
Office 115	1.5	406	56.6	51.7
115 Platoon	2.4	403	56.3	55.6
115C	1.3	416	55.9	54.4
15 office	1.3	430	55.7	55.0
115 training closet	1.3	415	56.4	58.9
Office 101	0.8	592	60.5	53.5
Office 102C	1.8	701	60.8	48.5
Office 102 B	3.3	438	59.8	48.1
Office 102	2.3	436	59.3	49.5
111 former range	1.9	388	59.1	66.7
Office 107	1.3	456	60.9	53.9
Supply room 109	1.9	521	60.6	55.4
Kitchen	2.0	392	59.5	48.6
Boiler room	2.0	419	55.2	44.9
Janitor room 102	1.9	437	55.6	48.1
Men's room	1.3	414	57.2	56.9
Locker room	1.1	512	59.1	58.4
<p>Table 3-1 Guidelines:</p> <p>Carbon Monoxide: Office/Warehouse Space – 9 ppm based on United States Environmental Protection Agency's National Ambient Air Quality Standard.</p> <p>OSHA Permissible Exposure Limit (PEL) = 50 ppm. American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit value (TLV) = 25, ppm.</p> <p>Carbon Dioxide: Office Space -Approximately 700 ppm above background (Derived from American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE) Standard 62.1-2010). Not Applicable to warehouse and vehicle maintenance bays.</p> <p>Relative Humidity: Mechanically air-conditioned space – Maximum 65% (Derived from ASHRAE Standard 62.1-2010 – 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 55-2010)</p>				

Leesburg 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 HVAC system was not operational during this survey and was being repaired by a third party vendor.

4.1.2 HVAC Maintenance

The HVAC system is serviced by third party vendor and records were not available for review during this survey.

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 not adequate in the majority of surveyed areas.

Table 5-1: Light Survey

Location	Results (Foot candles)	Met Standard (Y/N)	Standard*
Office 112	17.1	N	50
Office 113	11.2	N	50
Classroom 114	39.2	Y	30
Office 115	27.0	N	50
115 Platoon	32.9	N	50
115C	39.0	N	50
15 office	45.7	N	50
115 training closet	19.3	N	30
Office 101	54.0	Y	50
Office 102C	25.4	N	50
Office 102 B	17.0	N	50
Office 102	43.1	N	50
111 former range	17.6	N	30
Office 107	32.0	N	50
Supply room 109	19.2	N	30
Kitchen	42.6	N	50
Boiler room	13.3	N	30
Janitor room 102	9.2	N	50
Men's room	37.8	Y	5
Locker room	7.9	Y	5
Office Lighting (ANSI/IESNA RP-1-04) and Industrial Lighting Facilities (ANSI/IESNA RP-7-01)			

6.0 Evaluation of Attached Garage

There is no garage associated with the Leesburg 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 Leesburg Readiness Center.

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

Wipe samples collected in association with most administrative areas indicated lead levels below the Occupational Safety and Health Administration's (OSHA's) Clarification of "as free as practicable" and lead contamination under 29 CFR 1926.62, The Compliance Directive for the Interim Standard for Lead in Construction, CPL 2-2.58. OSHA recommends the use of HUD's acceptable decontamination level of 200 ug/ft² for floors in evaluating the cleanliness of change areas, storage facilities, and lunchrooms/eating areas.

The acoustic tile on the walls of the former firing range was damaged. A sample of this material was collected and analyzed as a suspect asbestos containing material. Results of the analysis indicated that no asbestos was detected in the submitted sample.

No damaged or peeling paint was observed during the survey.

Multiple roof leaks were reported by building maintenance personnel and observed during the survey. Visual signs of mold and mildew were observed in classroom 114. Water intrusion is a mold growth risk factor.

The Heating, Ventilation & Air Conditioning (HVAC) system in the building consists of a boiler room that feeds radiant heaters throughout the building. The system was not operational during this survey and can be attributed to temperature readings obtained during this survey. No ground level air condition units were observed during the survey.

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

Leesburg Readiness Center Facility Layout

Appendix B

Leesburg Readiness Center Photographs

Photograph 1



Building

Photograph 2



Drill hall

Photograph 3



Kitchen wipe sample

Photograph 4



Supply vent Room 115

Photograph 5



Mold room 114

Photograph 6



Classroom 114

Photograph 7



Converted firing range

Photograph 8



Range exhaust vents

Photograph 9



Overhead fan/heater in drill hall

Photograph 10



Boiler room

Appendix C

Analytical Results

AMA Analytical Services, Inc.



A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS



LAB #100470

Client: National Guard Bureau Job Name: VA ANG IH Survey Chain Of Custody: 514733
 Address: 301-1H Old Bay Lane, Attn: ARNG-CJG-P, Job Location: Leesburg RC Date Submitted: 12/12/2012
 State Military Reservation
 Havre de Grace, Maryland 21078 Job Number: Not Provided Person Submitting: AECOM
 P.O. Number: W912K6-09-A-0003 Date Analyzed: 12/20/2012 Report Date: 12/21/2012
 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
13023024	001	Flame	Wipe	****	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13023025	002	Flame	Wipe	****	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13023026	003	Flame	Wipe	****	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13023027	004	Flame	Wipe	****	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13023028	005	Flame	Wipe	****	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13023029	006	Flame	Wipe	****	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13023030	007	Flame	Wipe	****	0.111	110 ug/ft ²	12	110 ug/ft ²	
13023031	008	Flame	Wipe	****	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13023032	009	Flame	Wipe	****	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13023033	010	Flame	Wipe	****	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13023034	011	Flame	Wipe	****	0.111	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. 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.

An AIHA (#100470) and NY ELAP (#109201) Accredited Laboratory

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

CERTIFICATE OF ANALYSIS



LAWSON 20

Attention: **Non-Responsive**

Page 2 of 2

Analysis Method for Flame: Air, Wipes, Paints, and Soil/Solids: EPA 800/R-93/200(M)-7000B; Water: SM-3111B
Analysis Method For Furnace: Air, Wipes, Paints, and Soil/Solids : EPA 603/R-93/200(M)-7010; Water: SM-3113B
N/A = Not Applicable mg/Kg = parts per million (ppm) on a dry weight basis mg/L = parts per million (ppm)
%Pb = percent lead on a dry weight basis ug = micrograms ug/L = parts per billion (ppb)

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

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

Air and Wipe results are not corrected for any blank results

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

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

Non-Responsive

Non-Responsive

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 NIELAP, AIHA, or any agency of the Federal Government. All rights reserved. AMA Analytical Services, Inc.

An AIHA (#100470) and NY ELAP (#10920) Accredited Laboratory

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

AMA Analytical Services, Inc.



A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS

 NVLAP®
101143-0

Client: National Guard Bureau Job Name: VA ANGIH Survey Chain Of Custody: 514733
 Address: 301-H Old Bay Lane, Attn: ARNG-CJG-P, Job Location: Leesburg RC Date Analyzed: 12/19/2012
 State Military Reservation
 Havre de Grace, Maryland 21078 Job Number: Not Provided Person Submitting: AECOM
 P.O. Number: W912K6-09-A-9003

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
13023035	012	NAD	--	--	--	--	--	--	10	--	--	90	Tile	Off-White	Homogeneous	LBP	

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

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

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

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

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

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

Technical Director

 Non-
R

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.

NVLAP (101143-0) Accredited Laboratory

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

January 2013



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

(Please Refer To This
Number For Inquires)

514733

Submittal Information:

- | | |
|--|---|
| 1. Client Name: National Guard Bureau | (1) Job Name: VA ANG 1H SURVEY |
| 2. Address 1: 301-1H Old Bay Lane | (2) Job Location: Leesburg Rc |
| 3. Address 2: Attn: NGB-AVN-SI, State Military Reservation | 3. Job #: PD #: W912K6-C9-A-0003 |
| 4. Address 3: Havre de Grace, Maryland 21078 | 4. Contact Person: Non-Responsive @ phone # |
| 5. Phone #: (410) 942-0273 Fax #: (410) 942-0254 | 5. Submitted by: AECOM (Signature) Non-Responsive |

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

AFTER HOURS (must be pre-scheduled) <input type="checkbox"/> Immediate Date Due: _____ <input checked="" type="checkbox"/> 24 Hours Time Due: _____ Comments: _____		NORMAL BUSINESS HOURS <input type="checkbox"/> Immediate <input type="checkbox"/> 30 Day <input checked="" type="checkbox"/> Next Day <input type="checkbox"/> 45 Day <input type="checkbox"/> 2 Day Date Due: <u>12/19/12</u> <input type="checkbox"/> Reels Required By Noon		REPORT TO: <input type="checkbox"/> Include COC for all data sheets and data <input checked="" type="checkbox"/> Email: Non-Responsive <input type="checkbox"/> Fax: _____ <input type="checkbox"/> Website: _____	
--	--	---	--	---	--

TEM Bulk

- *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)

- TEM Dust**
- ☐ ELAP 1984/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)

PLM Bulk

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

MISC

- ☐ Vermiculite (TEM Water samples _____ °C)
- ☐ Asbestos Soil PLM____(Qul) PLM____(Qun) PLMTEM____(Qul) PLMTEM____(Qun)
- If field data sheets are submitted, there is no need to complete bottom section.
- ¹⁾ It is recommended that blank samples be submitted with all air and surface samples.

Metals Analysis

- ☐ Pb Paint Chip _____ (QTY)
☒ Pb Dust Wipe (wipe type Quartz) 11 (QTY)
☐ *Pb Air _____ (QTY)
☐ Pb Soil/Solid _____ (QTY)
☐ Pb TCLP _____ (QTY)
☐ Drinking Water ☐ Pb _____ (QTY) ☐ Cu _____ (QTY) ☐ As _____ (QTY)
☐ Wastewater ☐ 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)

[illegible]

Surface Sampling Field Data Sheet

Date Collected: 11/15/12 Job Name: Leesburg VA Company: H&P Page 1 of 1
 Job Number: _____ Job Location: 41905 Leeson Center Pkwy Phone Number: 434-969-6022
 Contact Person: Non-Respon Address: Leesburg VA 20175 Collected By: Non-Respon
 COC Number: _____

Sample Number	Sample Location	Surface/Substrate Sampled	Area Wiped (in ² /ft ²)	Collection Media
001	Prin Floor Dusty Lumen Top of VAN Box	Metal	16 in ²	Wipe
002	Kitchen Surface/Sheet	Metal		
003	Supply Air Grill Office 115	Metal		
004	Office 102 Control Machine and	drum		
005	Office 102 C Cabinet	cabinet Top		
006	Hallway outside Classroom 2 Room 114	Tile		
007	air hand Hunter in Range	Metal		
008	Storage container in Range	Metal		
009	Floor of Range	Tile		
010	Prin Hdr outside Range	Tile		
011	Inter. EXHAUST	Aluminum	↓	↓

Please Return Samples To:

ANA Analytical Services, Inc., 4475 Forbes Blvd., Lanham, MD 20706, (800) 346-0961/(301) 459-2640 Fax, www.analab.com, info@analab.com

Bulk Sampling Survey Sheet

Date Collected: 11/13/12 Job Name: Leesburg VA NGB FAD Company: H&F Page 1 of 1
 Job Number: _____ Job Location: Leesburg VA Phone Number: 434-969-6282
 Contact Person: **Non-Respo** Address: 41905 Leesburg Center Place Collected By: **Non-Respo**
Leesburg VA 20175 COC Number: _____

Sample Number	Homogenous Area ID	Type of Material	Sample Location	Friable	Condition of Material	Accessibility	Photo	Comments
012		Acoustic Tile	Firm Range Acoustic Tile	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Potentially	<input type="checkbox"/> Good <input checked="" type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input checked="" type="checkbox"/> Medium <input type="checkbox"/> High	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	

Please Return Samples To:

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


Appendix D

References

References

1. Title 29, Code of Federal Regulations (CFR), Part 1910, Occupational Safety and Health Administration, current Ed. <http://www.osha.gov/comp-links.html>
2. Department of Defense Instruction (DODI) 6055.1, Department of Defense Occupational Safety and Health (OSH) Program, August 19, 1998. <http://www.dtic.mil/whs/directives/corres/pdf/605501p.pdf>
3. Army Regulation (AR) 11-34, The Army Respiratory Protection Program, 15 February 1990. http://armypubs.army.mil/epubs/pdf/R11_34.PDF
4. AR 40-5, Medical Service, Preventive Medicine, 25 May 2007. http://armypubs.army.mil/epubs/pdf/R40_5.PDF
5. AR 385-10, The Army Safety Program, 23 August 2007; Rapid Action Revision (RAR) issue date: 4 October 2011. http://armypubs.army.mil/epubs/pdf/R385_10.PDF
6. Department of the Army Pamphlet (DA PAM) 40-501, Medical Services, Hearing Conservation Program, 10 December 1998. http://armypubs.army.mil/epubs/pdf/P40_501.pdf
7. DA PAM 40-11, Preventive Medicine, 22 July 2005, RAR issue date: 19 October 2009. http://armypubs.army.mil/epubs/pdf/p40_11.pdf
8. DA PAM 40-503, Medical Services, Industrial Hygiene Program, 30 October 2000. http://armypubs.army.mil/epubs/pdf/P40_503.PDF
9. UFC 3-410-01FA, Heating, Ventilating, and Air Conditioning, 15 May 2003, change 4, January 2010. http://www.wbdg.org/ccb/DOD/UFC/ufc_3_410_01fa.pdf
10. Threshold Limit Values (TLVs) and Biological Exposure Indices (BEIs), American Conference of Governmental Industrial Hygienists (ACGIH), current Ed.
11. Industrial Ventilation – A Manual of Recommended Practice for Design, ACGIH, current Ed.
12. American National Standards Institute (ANSI)/International Safety Equipment Association (ISEA) Z358.1-2009, Emergency Eyewash and Shower Equipment.
13. ANSI/American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. (ASHRAE) 55-2010, Thermal Environmental Conditions for Human Occupancy.
14. ANSI/ASHRAE 62.1-2010, Ventilation for Acceptable Indoor Air Quality.
15. RP-1-2004, Office Lighting, ANSI/IESNA.
16. RP-7-2001, Industrial Lighting, ANSI/IESNA, change 20 July 2004.
17. OSHA Instruction Letter 02-02-058, Lead Exposure in Construction, Office of Health Compliance Assistance, 13 December 1993.
18. OSHA Standard Interpretation, Clarification of “as free as practicable” and lead contamination under 29 CFR 1926.62, dated January 13, 2003.
19. NG PAM 420-15, Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges, 3 November 2006. http://www.ngbpdcc.ngb.army.mil/pubs/420/ngpam420_15.pdf

Shaw Environmental, Inc.

312 Directors Drive
Knoxville, TN 37923
865.690.3211
Fax 865.690.3626



**National Guard Armory
Lynchburg Readiness Center
Lynchburg, Virginia**

Industrial Hygiene Evaluation

Prepared for:

**National Guard Region North Industrial Hygiene Office
Havre De Grace, Maryland 21078**

Prepared by:

**Shaw Environmental, Inc.
312 Directors Drive
Knoxville, Tennessee 37923**

25 October 2004

**National Guard Armory
Lynchburg Readiness Center
Lynchburg, Virginia**

Industrial Hygiene Evaluation

Prepared for:

**National Guard Region North Industrial Hygiene Office
Havre De Grace, Maryland 21078**

Prepared by:

**Shaw Environmental, Inc.
312 Directors Drive
Knoxville, Tennessee 37923**

25 October 2004

Prepared by:

Non-Responsive

Environmental Scientist

Reviewed by:

Non-Responsive

Business Line Manager

Table of Contents

<i>Table of Contents</i>	<i>i</i>
<i>List of Tables</i>	<i>ii</i>
<i>List of Appendices</i>	<i>ii</i>
<i>Executive Summary</i>	<i>E-1</i>
<i>1.0 Introduction</i>	<i>1-1</i>
<i>2.0 Findings, Discussion, and Interpretation of Results</i>	<i>2-1</i>
<i>2.1 Sampling for Lead</i>	<i>2-1</i>
<i>2.1.1 Wipe Sampling</i>	<i>2-1</i>
<i>2.1.2 Air Sampling for Lead</i>	<i>2-2</i>
<i>2.2 Physical Condition of Facility</i>	<i>2-2</i>
<i>2.2.1 Peeling Paint - Lead</i>	<i>2-2</i>
<i>2.2.2 Visual Inspection - Asbestos</i>	<i>2-2</i>
<i>2.2.3 Visual Inspection -- Water Damage and Mold</i>	<i>2-3</i>
<i>2.2.4 Visual Inspection - Housekeeping</i>	<i>2-3</i>
<i>2.3 Building Concerns</i>	<i>2-3</i>
<i>2.3.1 Ergonomic Concerns</i>	<i>2-3</i>
<i>2.3.2 Indoor Air Quality</i>	<i>2-4</i>
<i>2.4 Safety and Industrial Hygiene Programs</i>	<i>2-4</i>
<i>2.5 Ventilation</i>	<i>2-4</i>
<i>2.5.1 Ventilation System Evaluation</i>	<i>2-4</i>
<i>2.5.2 Contamination of Clean Air Sources</i>	<i>2-4</i>
<i>2.6 Noise Exposure</i>	<i>2-5</i>
<i>2.7 Lighting</i>	<i>2-5</i>
<i>2.8 Converted Indoor Firing Ranges</i>	<i>2-5</i>
<i>2.9 HVAC Systems</i>	<i>2-6</i>
<i>2.10 IHIM</i>	<i>2-6</i>
<i>3.0 Conclusions</i>	<i>3-1</i>
<i>Tables</i>	<i>Follows Section 3.0</i>
<i>Appendices</i>	<i>Follows Tables</i>

List of Tables

Table 1	Wipe Sampling for Lead
Table 2	Air Sampling for Lead
Table 3	Peeling Paint Sampling for Lead
Table 4	Indoor Air Quality Measurements
Table 5	Illumination Readings
Table 6	Indoor Firing Ranges -- Wipe Sampling

List of Appendices

Appendix A	IIIM Data Form
Appendix B	Building Layout
Appendix C	Sampling Sheets and Laboratory Analyses
Appendix D	References
Appendix E	Recommendations for Surface Lead Dust in Armories

Executive Summary

Shaw Environmental, Inc. (Shaw) was contracted to perform an industrial hygiene evaluation for the Lynchburg Readiness Center in Lynchburg, Virginia. Non-Responsive performed the evaluation on 13 January 2004. The point of contact at the readiness center was SFC Non-Responsive.

The following industrial hygiene concerns were evaluated.

- Wipe Sampling for Lead
- Air Sampling for Lead
- Peeling Paint – Lead
- Suspected Asbestos Containing Material
- Water Damage
- Presence of Mold
- Housekeeping
- Ergonomic Concerns
- Indoor Air Quality
- Safety and Industrial Hygiene Programs
- Ventilation System Evaluation
- Contamination of Clean Air Sources
- Noise Exposure
- Lighting
- Converted Indoor Firing Range
- HVAC Systems

The following items were either not applicable to the armory or the evaluation resulted in a conclusion that there were no industrial hygiene concerns.

- Air Sampling for Lead
- Peeling Paint – Lead
- Housekeeping
- Ergonomic Concerns
- Safety and Industrial Hygiene Programs
- Ventilation System Evaluation

- Contamination of Clean Air Sources
- Noise Exposure
- HVAC Systems

Areas where there were industrial hygiene concerns are as follows:

- Wipe sampling for lead revealed a concentration above the recommended level of 200 micrograms per square foot ($\mu\text{g}/\text{ft}^2$) in the drill floor/assembly hall area. It is recommended that this surface and the areas immediately around this surface be thoroughly cleaned to reduce the lead level. In addition, any other dusty/dirty areas in the assembly area/drill floor should be thoroughly cleaned.
- Wipe sampling for lead revealed concentrations above a level of 40 micrograms per square foot ($\mu\text{g}/\text{ft}^2$) in the drill floor/assembly hall area, HHC supply room, HHC orderly room, HHC locker room, BN storage cages, classroom #2, and converted firing range. Areas with lead concentrations above 40 $\mu\text{g}/\text{ft}^2$ that will be accessible to children should be cleaned. If a special function is held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function.
- Materials (floor tiles) suspected of containing asbestos were observed. An operation and maintenance plan should be followed when performing any activities that may disturb the suspected asbestos-containing materials.
- Water damage was observed at several locations at the armory. The source of the water damage was likely from a combination of roof and pipe leaks. The source of the water damage should be confirmed and actions taken to eliminate the source in order to prevent the possibility of mold growth that may lead to indoor air quality problems.
- Visual mold was observed in the armory. The area where the mold is located should be thoroughly cleaned with 0.5% sodium hypochlorite solution (1 part household bleach to nine parts water) or equivalent in order to eliminate the potential mold/indoor air quality problem. In addition, the source of the mold should be identified and actions taken to eliminate the source of the mold.
- Measurements for humidity revealed that levels did not meet the recommended level of 30% humidity in the facility. It is recommended that a humidification system be installed at the facility.
- Lighting measurements were conducted at the armory. The lighting did not meet minimum requirements in some areas; therefore consideration should be given to providing more lighting in these areas. This may be accomplished by replacing burnt

out luminaries, cleaning fixtures, cleaning windows, painting walls with a lighter color, repositioning detailed work to higher illuminated areas, and using supplemental lighting.

- Wipe sampling for lead revealed a concentration above the recommended level in the converted firing range. This area must be decontaminated by a thorough cleaning until the surface lead concentration is reduced to below the recommended level. In addition, employees should not be allowed to work in this area without protective clothing until the area have been cleaned and re-sampled.

1.0 Introduction

Shaw Environmental, Inc. (Shaw) was contracted to perform an industrial hygiene evaluation for the Lynchburg Readiness Center in Lynchburg, Virginia. [Non-Responsive] performed the evaluation on 13 January 2004. The point of contact at the readiness center was SFC [Non-Responsive].

The findings, discussion, and interpretation of results are provided in Section 2.0. The conclusions are provided in Section 3.0. The HHIM data form for the facility is provided in Appendix A. The building layout is provided in Appendix B. Sampling sheets and laboratory analyses are provided in Appendix C. References are provided in Appendix D. The *Recommendations for Surface Lead Dust in Armories* document is provided in Appendix E.

The statements, opinions, and conclusions contained in this report are based solely upon the services performed by Shaw as described in the report. In performing these services and preparing the report, Shaw Environmental, Inc. relied upon the work and information provided by others, including public agencies, whose information is not guaranteed by Shaw Environmental, Inc.

2.0 Findings, Discussion, and Interpretation of Results

The results, discussion, and interpretation of results are provided in the following sections.

2.1. Sampling for Lead

2.1.1 Wipe Sampling

Wipe samples were collected for lead from the drill floor/assembly area. Also, wipe samples were collected for lead in rooms, hallways, foyers, etc. The sampling in rooms, hallways, foyers, etc. represented approximately 25% of the building. Approximately half of the samples were collected from surfaces in common areas, such as surfaces of a desk. The remaining samples were collected from uncommon surface areas, such as a supply vent or the top of a file cabinet. The samples were collected and analyzed in accordance with the Instructions for *Completing the Sampling of ARMY National Guard Armories* procedure.

The only samples initially submitted for analysis were those from the drill floor/assembly hall. Since there were results above acceptable levels from the drill floor/assembly hall area, the remaining samples were submitted for analysis.

Results of the wipe sampling are provided in Table 1. The results revealed lead at all locations sampled at concentrations below recommended level of 200 micrograms lead per square foot ($\mu\text{g}/\text{ft}^2$) (See Appendix E) except at one location. The sample collected from the top surface of a soda machine in the drill floor/assembly hall area had a lead concentration of $270 \mu\text{g}/\text{ft}^2$.

It is recommended that this surface and the immediate areas around this surface be thoroughly cleaned to reduce the lead level to below $200 \mu\text{g}/\text{ft}^2$. For guidance on the proper method of cleaning, please refer to NG PAM 385-15 (*Guidelines and Procedures for Indoor Firing Range (IFR) Rehabilitation, Conversion, and Cleaning*). In addition, any other dusty/dirty areas in the assembly area/drill floor should be thoroughly cleaned.

In addition, wipe sampling for lead revealed concentrations above a level of $40 \mu\text{g}/\text{ft}^2$ in the drill floor/assembly hall area, IHC supply room, IHC orderly room, IHC locker room, BN storage cages, classroom #2, and converted firing range. Please note that the *Recommendations for Surface Lead Dust in Armories* (Appendix E) states that all areas with lead concentrations above $40 \mu\text{g}/\text{ft}^2$ that will be accessible to children should be cleaned. If a special function is held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function.

2.1.2 Air Sampling for Lead

General air sampling was conducted because employees were not available for sampling. The samples were collected and analyzed in accordance with Method 7082 of the National Institute of Occupational Safety and Health (NIOSH) Manual of Analytical Methods.

The results of the sampling are provided in Table 2. The results revealed non-detectable concentrations of lead in air; therefore, no actions are necessary.

2.2 Physical Condition of Facility

2.2.1 Peeling Paint - Lead

Peeling paint was observed in the armory in the drill floor/assembly hall. The Department of Housing and Urban Development (HUD) defines lead-based paint as paint or other surface coatings that contain lead equal to or exceeding 0.5 percent by weight. Bulk sampling results revealed that the lead concentrations at all locations were below 0.5 percent by weight. Since HUD does not consider the paints as lead-based paints, no actions are necessary. The results of the sampling are provided in Table 3.

2.2.2 Visual Inspection - Asbestos

A visual inspection was made to determine if there was any suspected asbestos-containing material at the armory. Materials suspected of containing asbestos were observed. The suspected asbestos-containing material was floor tiles in the firing range (average condition, approximately 2436 square feet).

An operation and maintenance plan should be followed when performing any activities that may disturb the suspected asbestos-containing materials.

2.2.3 Visual Inspection – Water Damage and Mold

A visual inspection was made to determine if there was any water damage or visible mold at the armory. Both visible mold and water damage was observed at the armory. Water damage was observed on the ceilings and some walls in the HHIC supply room, drill floor/assembly hall area, kitchen, company C supply room, HHIC orderly room, HHIC 1Sg office, HHIC CDR office, company C orderly room, company C 1Sg office, firing range, CSM room, S3 section room, S3 offices, S4 office, classroom #1, classroom #2, and lobby.

The source of the water damage was likely from a combination of roof and pipe leaks. The source of the water damage should be confirmed and actions taken to eliminate the source in order to prevent the possibility of mold growth that may lead to indoor air quality problems.

Visible mold was observed on the ceilings and walls in the HHIC supply room, CSM room, and firing range.

The area where the mold is located should be thoroughly cleaned with 0.5% sodium hypochlorite solution (1 part household bleach to nine parts water) or equivalent in order to eliminate the potential mold/indoor air quality problem. In addition, the source of the mold should be identified and actions taken to eliminate the source of the mold.

2.2.4 Visual Inspection – Housekeeping

The housekeeping was determined to be good.

2.3. Building Concerns

2.3.1 Ergonomic Concerns

Interviews with employees and observation of work activities revealed no ergonomic concerns at the armory.

2.3.2 Indoor Air Quality

Interviews with employees and measurements for temperature and carbon dioxide revealed no indoor air quality concerns at the armory. However, measurements for humidity revealed that levels did not meet the recommended level of 30% humidity in the facility. It is recommended that a humidification system be installed at the facility.

The results of the measurements for carbon dioxide, humidity, and temperature are provided in Table 4.

2.4. Safety and Industrial Hygiene Programs

An evaluation was performed to determine the applicability of the following programs.

- Confined Spaces
- Hearing Conservation
- Respiratory Protection
- Hazard Communication (HAZCOM)
- Personal Protective Equipment (PPE)

It was determined that the HAZCOM program was the only program listed above that was applicable at the facility. The HAZCOM program was evaluated and it was determined that the program met minimum requirements.

2.5. Ventilation

2.5.1 Ventilation System Evaluation

There were no local exhaust ventilation systems at this armory; therefore, no ventilation studies were performed.

2.5.2 Contamination of Clean Air Sources

Since there were no local exhaust ventilation systems at the armory, there was no possibility that clean air sources could be contaminated by exhaust air.

2.6. Noise Exposure

An evaluation was performed to determine if there were any hazardous noise areas at the armory. It was determined that there were no areas at the armory that would exceed the permissible exposure limit for noise.

2.7. Lighting

Lighting measurements were conducted at the armory. Results of the lighting evaluation are provided in Table 5. As can be seen from the results, the lighting did not meet the minimum requirements in some areas, including the PAC SUPV office and HHC ISg office.

Consideration should be given to providing more lighting to these areas. This may be accomplished by replacing burnt out luminaries, cleaning fixtures, cleaning windows, painting walls with a lighter color, repositioning detailed work to higher illuminated areas, and using supplemental lighting.

2.8. Converted Indoor Firing Ranges

There was a converted indoor firing range at the facility; therefore, wipe samples were taken for lead at various locations in or near the converted range. The space is used as a storage room. The results are provided in Table 6. The results revealed lead, with associated concentrations, at the following locations:

- bullet trap (floor near former bullet trap location) at 23000 $\mu\text{g}/\text{ft}^2$;
- light fixtures at 160 $\mu\text{g}/\text{ft}^2$;
- stored items at 15 $\mu\text{g}/\text{ft}^2$;
- floor (inside the converted firing range) at 160 $\mu\text{g}/\text{ft}^2$; and
- floor (outside the converted firing range) at 140 $\mu\text{g}/\text{ft}^2$.

Wipe sampling for lead revealed a concentration above the recommended level of 200 $\mu\text{g}/\text{ft}^2$, a level recommended in the *Guidelines for Converting Indoor Firing Ranges to Other Uses* document (Department of Army). This area must be decontaminated by a thorough cleaning until surface lead concentrations are reduced to below the recommended level. For guidance on proper cleaning methods, please refer to NG PAM385-15 (*Guidelines and Procedures for Indoor Firing Range (IFR) Rehabilitation, Conversion, and Cleaning*). In addition,

employees should not be allowed to work in this area without protective clothing until the area have been cleaned and re-sampled.

2.9. HVAC System

The maintenance schedule for the HVAC system was evaluated to verify that maintenance occurs on a regular basis. Also, the condition of the HVAC system was evaluated to determine if the maintenance performed is effective. It was deemed that maintenance occurs on a regular basis, and the maintenance performed is effective.

2.10. HHIM

A Health Hazard Information Module (HHIM) form was completed for the armory. The completed form is provided in Appendix A.

3.0 Conclusions

It is concluded that there were no industrial hygiene concerns at the armory with regards to atmospheric exposure to lead, peeling lead-based paint, housekeeping, ergonomic conditions, safety and industrial hygiene programs, ventilation systems or contamination of clean air sources, noise exposure, and HVAC systems.

There were industrial hygiene concerns at the armory with regards to lead surface contamination, suspected asbestos-containing material, water damage, visible mold, indoor air quality, lighting, and surface lead contamination in the converted firing range. These concerns are discussed in detail in Section 2.0 of this report.

TABLES

Table 1
Wipe Sampling for Lead
National Guard Armory
Lynchburg, Virginia
Date of Sampling: 13 January 2004

Sample Number	Location	Results, $\mu\text{g}/\text{ft}^2$ ^a
VALYN013-1	Drill Floor (kitchen service widow) See Building Layout – Appendix B	22
VALYN013-2	Drill Floor (top surface of soda machine) See Building Layout – Appendix B	100
VALYN013-3	Drill Floor (top surface of soda machine) See Building Layout – Appendix B	270
VALYN013-4	Drill Floor (top surface of table) See Building Layout – Appendix B	20
VALYN013-5	Drill Floor (top surface of basketball hoop base) See Building Layout – Appendix B	69
VALYN013-6	Field Blank	< 0.3
VALYN013-7	25% Building (IHC supply room top surface of fire locker) See Building Layout – Appendix B	59
VALYN013-8	25% Building (IHC orderly room top surface of television) See Building Layout – Appendix B	42
VALYN013-9	25% Building (company C orderly room top surface of filing cabinet) See Building Layout – Appendix B	37
VALYN013-10	25% Building (kitchen top surface of ice machine) See Building Layout – Appendix B	32
VALYN013-11	25% Building (IHC locker room top surface of locker) See Building Layout – Appendix B	190
VALYN013-12	Field Blank	< 0.3
VALYN013-13	25% Building (S1 office top surface of computer monitor) See Building Layout – Appendix B	22
VALYN013-14	25% Building (BN storage cages top surface of fire locker) See Building Layout – Appendix B	140
VALYN013-15	25% Building (XO office top surface of filing cabinet) See Building Layout – Appendix B	20

Table 1 (Continued)
Wipe Sampling for Lead
National Guard Armory
Lynchburg, Virginia
Date of Sampling: 13 January 2004

VALYN013-16	25% Building (S4 office top surface of micro file machine) See Building Layout – Appendix B	37
VALYN013-17	25% Building (classroom # 2 top surface of podium) See Building Layout – Appendix B	73
VALYN013-18	Field Blank	0.34

^a Micrograms lead per square foot

The samples were taken and analyzed in accordance with the *Instructions for Completing the Sampling of ARMY National Guard Armories* procedure.

In armories that do not contain childcare facilities, the NGB Region North Industrial Hygiene Office recommends cleaning the areas with sample results greater than 200 µg/ft²

Table 2
Breathing Zone Air Samples for Lead
National Guard Armory
Lynchburg, Virginia
Date of Sampling: 13 January 2004

Sample Number	Employee	Sampling Information			Results (mg/m ³) ^a
		Time Sampled / Minutes	Flow Rate (lpm) ^b	Volume (liters)	
VALYN013-A1	General Air Sample	1000-1230/150	1.712	256.93	< 0.004
VALYN013-A2	General Air Sample	1005-1240/155	1.653	256.22	< 0.004
VALYN013-A3	Field Blank	-	-	-	None Detected

^a Milligrams lead per cubic meter of air.

^b Liters of air per minute.

Method 7082 of the National Institute of Occupational Safety and Health (NIOSH) Manual of Analytical Methods was followed for sampling for lead.

Table 3
Peeling Paint Sampling for Lead
National Guard Armory
Lynchburg, Virginia
Date of Sampling: 13 January 2004

Sample Number	Location	Results, % By Weight
VALYN013-PC1	Drill Floor/Assembly Hall Area	0.037

The Department of Housing and Urban Development (HUD) defines lead-based as paint or other surface coatings that contain lead equal to or exceeding 0.5 percent by weight.

Table 4

**Indoor Air Quality Measurements for Carbon Dioxide, Humidity, and Temperature
National Guard Armory
Lynchburg, Virginia
Date of Sampling: 13 January 2004**

Location	Occupants In Area	Carbon Dioxide, parts per million parts of air (ppm)	Percent (%) Humidity	Temperature (°F)
1 st Floor	1	431	25.5	70.9
Outdoors	-	331	22.5	58.4

Carbon dioxide, humidity, and temperature measurements were taken with a TSI Q Trak Plus, Model 8554, Indoor Air Quality Meter, calibrated in April 2003.

American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE) recommends that indoor carbon dioxide levels be less than 700 ppm above outdoor levels.

ASHRAE recommends that the relative humidity levels be maintained between 30 to 60 percent.

ASHRAE recommends that the acceptable temperature range be 68 degrees Fahrenheit to 74 degrees Fahrenheit in the winter and 73 degrees Fahrenheit to 79 degrees Fahrenheit in the summer.

Table 5
Illumination Readings
National Guard Armory
Lynchburg, Virginia
Date of Sampling: 13 January 2004

Location	Luminance (fc) ^a	Standard (fc) ^a	Standard Met
Kitchen	55.5-111.1	70	Some Areas
Company C Orderly Room	22.2-100	70	Some Areas
Company C ISg Office	55.5-77.7	70	Some Areas
BN Storage Cages	22.2-61.1	30	Some Areas
S1 Office	66.6-133.3	70	Some Areas
PAC SUPV Office	11.1-66.6	70	No
BN CDR Office	44.4-122.2	70	Some Areas
CSM Room	44.4-111.1	70	Some Areas
PAC Office	50-111.1	70	Some Areas
Rear and Side Hallways	11.1-44.4	7.5	Yes
S3 Office	55.5-122.2	70	Some Areas
Classroom #1	22.2-77.7	70	Some Areas
Classroom # 2	22.2-77.7	70	Some Areas
Men's Latrine	11.1-88.8	40	Some Areas
Women's Latrine	5.5-44.4	40	Some Areas
HHC Orderly Room	11.1-166.6	70	Some Areas
HHC ISg Office	22.2-66.6	70	No
Front Hallway	11.1-33.3	7.5	Yes

^a fc - Footcandles

The readings were taken with a Weston model 614-60 Lightmeter.

The standards listed above are from ANSI/IES RP-1 and RP-7.

Table 6
Wipe Sampling for Lead – Converted Firing Range
National Guard Armory
Lynchburg, Virginia
Date of Sampling: 13 January 2004

Sample Number	Location	Results, $\mu\text{g}/\text{ft}^2$ ^a
VALYN013-19	Bullet Trap (floor near former bullet trap location)	23000
VALYN013-20	Light Fixtures	160
VALYN013-21	Stored Item	15
VALYN013-22	Floor (inside the converted firing range)	160
VALYN013-23	Floor (outside the converted firing range)	140
VALYN013-24	Field Blank	0.36

^a Micrograms lead per square foot

The samples were taken and analyzed in accordance with the Instructions for *Completing the Sampling of ARMY National Guard Armories* procedure.

Appendix A

HHIM Data Form(s)

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

ARLOC 24255	INSTALLATION APG-EA	BLDG/RM NO. LYNCHBORN
----------------	------------------------	--------------------------

LOCATION/CODE	OPERATION/CODE
ADMINISTRATIVE AREA /AA	ADMINISTRATIVE OPERATIONS /ADO

SURVEY DATE	EVALUATOR (Initials)
13 JANUARY 2004	Non-Responsi

MACOM/CODE	SUBMACOM/CODE	SUPERVISOR
	XX	SFL Non-Responsive

TELEPHONE/DSN NO.	UNIT/ORGANIZATION	RAC	FREQUENCY (hrs/day)
	LYNCHBURG ARMORY	4	8

NO. CIV(S)	NO. MIL	NO. CONTRACTOR(S)	NO. LOC(S)	NO. OTHER
0	12	0	—	—

LAB HOODS	VAPOR DEGREASERS	SPRAY BOOTHS
-----------	------------------	--------------

MAINTENANCE BAYS	OPEN SURFACE TANKS	VENTILATION UNITS
------------------	--------------------	-------------------

[illegible]

GLOVES	R	U	RESPIRATOR	NOSH TC NO.	MANUFACTURER	R	U
ACID			AIRLINE				
COLD SURFACES			ABRASIVE BLASTING HOOD				
HOT SURFACES			DISPOSABLE				
HBC AGENTS			FULL FACE AIR PURIFYING				
OIL			1/2 FACE AIR PURIFYING				
SOLVENTS			POWERED AIR PURIFYING				
SURGICAL GLOVES			1/4 FACE AIR PURIFYING				
			SELF CONTAINED				

EYES/FACE	R	U	HEARING	R	U	BODY	R	U	HEAD/FIT	R
CHEMICAL SPLASH			CANAL CAPS			APRONS			COLD WEATHER BOOTS/HATS	
FULL FACE SHIELD			EAR PLUGS			COLD WEATHER CLOTHING			HARD HATS	
CHEMICAL/SAFETY			HELMETS			COVERALLS			IMPERMEABLE BOOTS	
SAFETY/IMPACT			MUFFS			FULL BODY SUIT			SAFETY/CONDUCTIVE SHOES	
WELDING HELMET			MUFF/EARPLUG COMBO			HEAT REFLECTIVE VEST/SUIT			SAFETY/NON-CONDUCTIVE SHOES	
			MUFF/EARPLUG W/TIME LIMIT			SAFETY BELT/HARNES				

SECTION 4. HAZARD INVENTORY DATA

CAS CODE	HAZARD DESCRIPTION	PAC	EPC
8001 XXXX	VIDEO DISPLAY TERMINALS	3-LOW	D UNCONTROLLED PHYSICAL
7439-92-1	LEAD, INORGANIC DUSTS & FUMES	2-MODERATE	C UNCONTROLLED RESPIRATORY
1332-21-4	ASBESTOS	2-MODERATE	C UNCONTROLLED RESPIRATORY
124-88-9	CARBON DIOXIDE	2-MODERATE	C UNCONTROLLED RESPIRATORY
LIFTING	HEAVY LIFTING	2-MODERATE	D UNCONTROLLED PHYSICAL
PO HEAT STR.	HEAT STRESS	8-LOW	D UNCONTROLLED PHYSICAL

SECTION 5. PERSONNEL DATA

LAST NAME	FIRST NAME	MI	SEX	SSN	CATEGORY
(SEE ATTACHED HHM INFORMATION SHEET)					

SECTION 6. COMMENTS

No comments

See attached sheet

PRIVACY ACT STATEMENT

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

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

Non-Responsive



UNIT DRILL LIST

HEADQUARTERS 2-116TH IN

CO A (DET 1) 2-116TH IN

OMS 11 MAINTENANCE SHOP

Appendix B

Building Layout

Fire Escape Plan for PAC

FIRE DEPARTMENT NUMBER

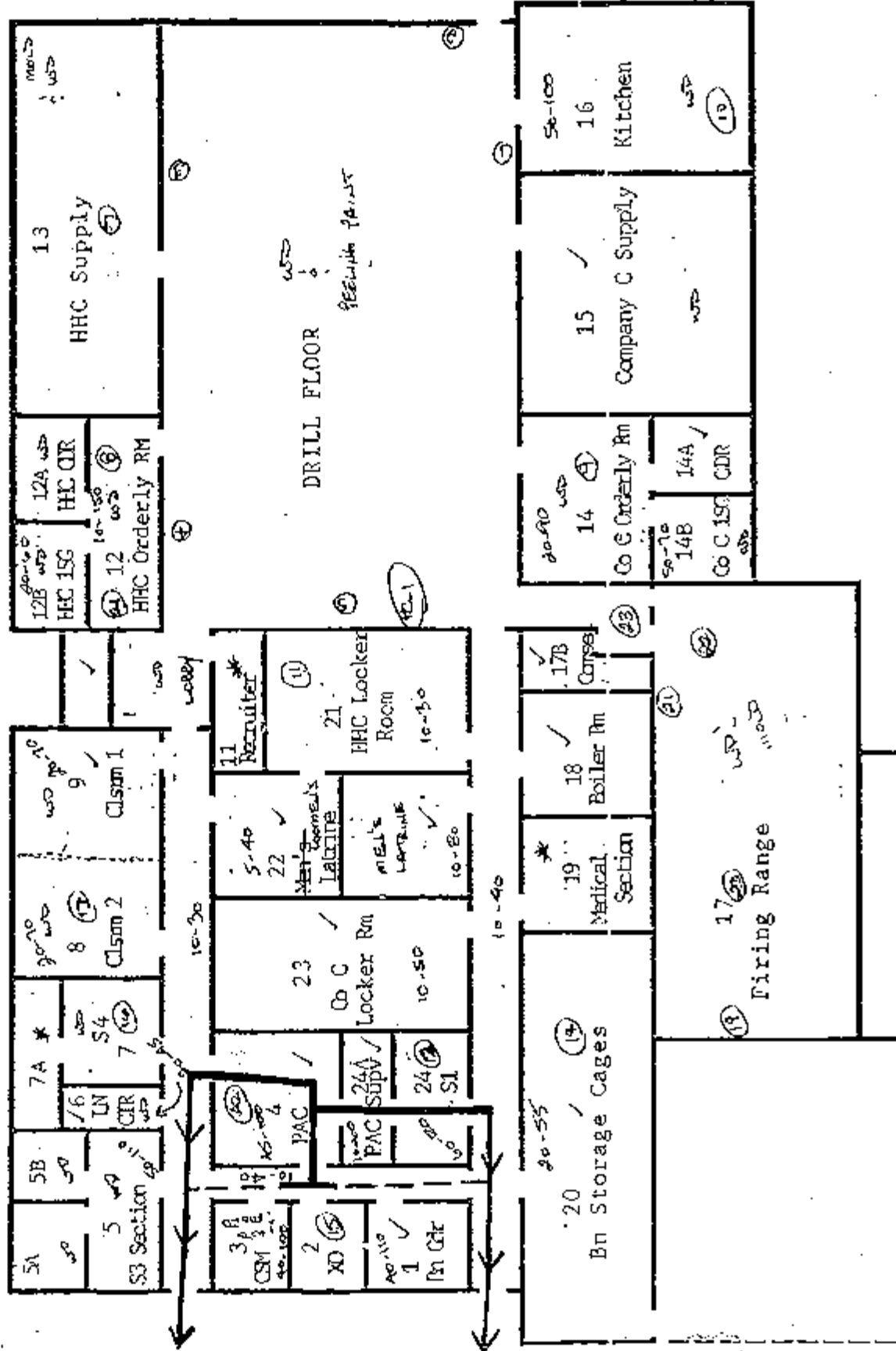
You are in Room Number 4

239 - 2550

1. Your primary escape route is marked as →
2. Your alternate escape route is marked as →
3. Stay low to the floor to avoid smoke; shut windows and doors.

* Could not get into room
DO NOT FIGHT THE FIRE !!!

Building contains approx 36 rooms; hallways
Bathroom was built 1984
25% of building - 10 rooms



Appendix C

Sampling Sheets and Laboratory Analyses

CERTIFICATE OF ANALYSIS

Client: National Guard Bureau
Address: 301-H Old Bay Lane, Attn: NGB-AVN-SI,
State Military Reservation
Havre de Grace, Maryland 21078
Job Name: VA LYN 013
Job Location: Lynchburg, Virginia
Job Number: 845702 01000000
P.O. Number: 1103
Chain Of Custody: 122178
Date Analyzed: 2/3/2004
Person Submitting: **Non Responsive**
Report Date: 03-Feb-04

Attention: **Non Responsive** 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 (ft ²)	Reporting Limit	Final Result	Comments
0422037	VA LYN 013 1	Furnace	Wipe	****	0.111	2.70 ug/ft ²	22 ug/ft ²	
0422038	VA LYN 013 2	Furnace	Wipe	****	0.111	33.75 ug/ft ²	100 ug/ft ²	
0422039	VA LYN 013 3	Furnace	Wipe	****	0.111	67.51 ug/ft ²	270 ug/ft ²	
0422040	VA LYN 013 4	Furnace	Wipe	****	0.111	2.70 ug/ft ²	20 ug/ft ²	
0422041	VA LYN 013 5	Furnace	Wipe	****	0.111	13.50 ug/ft ²	69 ug/ft ²	
0422042	VA LYN 013 6	Furnace	Wipe Blank	****	N/A	0.30 ug	< 0.3 ug	
0422043	VA LYN 013 19	Flame	Wipe	****	0.111	108.01 ug/ft ²	23000 ug/ft ²	
0422044	VA LYN 013 20	Furnace	Wipe	****	0.111	67.51 ug/ft ²	160 ug/ft ²	
0422045	VA LYN 013 21	Furnace	Wipe	****	0.111	2.70 ug/ft ²	15 ug/ft ²	
0422046	VA LYN 013 22	Furnace	Wipe	****	0.111	67.51 ug/ft ²	160 ug/ft ²	
0422047	VA LYN 013 23	Furnace	Wipe	****	0.111	33.75 ug/ft ²	140 ug/ft ²	
0422048	VA LYN 013 24	Furnace	Wipe Blank	****	N/A	0.30 ug	0.36 ug	

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

%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.

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.

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

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

Submitted To: **Non-Responsive**Shaw Environmental, Inc.
5700 Thurston Ave., Suite 116
Virginia Beach, VA 23455

Reference Data:

Client Sample No.:	Lead
P.O. No.:	VALYN013A1 through VAROA015A3
Sample Location:	1103
Sample Type:	Virginia
Method Reference:	Filter
DCL Set ID No.:	NIOSH 7300
DCL Sample ID No.:	04-S-0356
Sample Receipt Date:	04-01918 through 04-01936
Preparation Date:	1/27/2004
Analysis Date:	01/30/04
	02/05/04

The samples were prepared and analyzed in accordance with NIOSH method 7300 using a Perkin Elmer 3000XL ICP.

The sample condition upon receipt was acceptable except where noted.

The results are in the enclosed data table. Results relate only to the items tested and are not blank corrected unless indicated in the data table.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Non-Responsive

Analyst

Non-Responsive

Reviewer

CINCINNATI OFFICE
4388 GLENDALE-MILFORD ROAD
CINCINNATI, OHIO 45242-3706
513 733-5336, FAX 513 733-5347WEST COAST OFFICE
11 SANTA YORMA COURT
NOVATO, CALIFORNIA 94945
800 280-8071, FAX 415 893-9469

Results
Lead

Client #	DCL #	Sample Volume (L)	µg/sample	mg/m ³
VALYN013A1	04-01918	256.93	ND	<0.004
VALYN013A2	04-01919	256.22	ND	<0.004
VALYN013A3	04-01920	0	ND	-
VABED013A1	04-01922	156.86	ND	<0.006
VABED013A2	04-01923	152.71	ND	<0.007
VABED013A3	04-01924	0	ND	-
VARAD014A1	04-01925	154.11	ND	<0.006
VARAD014A2	04-01926	160.15	ND	<0.006
VARAD014A3	04-01927	0	ND	-
VACHR014A1	04-01928	177.93	ND	<0.006
VACHR014A2	04-01929	183.21	ND	<0.005
VACHR014A3	04-01930	0	ND	-
VAPUL015A1	04-01931	152.90	ND	<0.007
VAPUL015A2	04-01932	158.40	ND	<0.006
VAPUL015A3	04-01933	0	ND	-
VAROA015A1	04-01934	188.74	ND	<0.005
VAROA015A2	04-01935	210.28	ND	<0.005
VAROA015A3	04-01936	0	ND	-
	Prep Blank		ND	
% Recovery	LCS		120.	
RPL			1.	

ND = not detected at or above the reporting limit (RPL).

LCS = laboratory control sample.

Non-Responsive

Analyst

Non-Responsive

Reviewer



Submitted To: **Non-Responsive**
Shaw Environmental, Inc.
5700 Thurston Ave., Suite 116
Virginia Beach, VA 23455

Reference Data:	Lead
Client Sample No.:	VALYN013PC-1
P.O. No.:	1103
Sample Location:	Virginia
Sample Type:	Paint Chip
Method Reference:	3050B/6010B
DCL Set ID No.:	04-S-0356
DCL Sample ID No.:	04-01921
Sample Receipt Date:	1/27/2004
Preparation Date:	1/29/2003
Analysis Date:	1/30/2003

The samples were prepared in accordance with EPA method 3050B. Sample condition was acceptable upon receipt except where noted. The samples were then analyzed in accordance with EPA method 6010B using a Jarrell Ash Trace ICP.

The results are provided in the enclosed data table. Results relate only to the items tested and are not blank corrected unless indicated in the data table.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Non-Responsive

Analyst

Non-Responsive

Reviewer

CINCINNATI OFFICE
4388 GLENDALE-MILFORD ROAD
CINCINNATI, OHIO 45242-3706
513 733-5336, FAX 513 733-5347

WEST COAST OFFICE
11 SANTA YORMA COURT
NOVATO, CALIFORNIA 94945
800 280-8071, FAX 415 893-9489

Results

Lead

Client #	DCL #	mg/Kg (ppm)	% by weight
VALYN013PC-1	04-01921	370.	0.037
	Prep Blank	ND	
% Recovery	LCS	90.	
% Recovery	01889MS	97.	
% Recovery	01889MSD	95.	
RPL		25.	0.0025

ND = not detected at or above the reporting limit (RPL).

LCS = laboratory control sample.

MS/MSD = matrix spike/matrix spike duplicate.

Non-Responsive



Analyst

Non-Responsive



Reviewer

Appendix D

References

References

Title 29, Code of Federal Regulations (CFR), Part 1910, Occupational Safety and Health Administration (current edition)

American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc (ASHRAE) 62-2002, Ventilation for Acceptable Indoor Air Quality

Instructions for Completing the Sampling of Army National Guard Armories, Lead Wipe Sampling Procedure included with the Request for Proposal

Air Sampling for Lead - Method 7082 of the National Institute of Occupational Safety and Health (NIOSH) Manual of Analytical Methods

Design Guide DG-415-2, Logistics Facilities, National Guard Bureau Installation Division, 14 December 1999

Department of Defense Instruction (DODI) 6055.1, Department of Defense Occupational Safety and Health (OSI) Program, August 19, 1998

Army Regulation (AR) 40-5, Medical Service, Preventive Medicine, 15 October 1990

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

Department of the Army Pamphlet (DA PAM) 40-501, Medical Services, Hearing Conservation Program, 10 December 1998

DA PAM 40-503, Medical Services, Industrial Hygiene Program, 30 October 2000

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

Guidelines for Converting Indoor Firing Ranges to Other Uses, Headquarters, Department of the Army and the Air Force, NG PAM (AR) 385-16/ANGPAM 91-101, 31 January 1994

24 CFR, Part 35, Subpart B, Section 35-110, Definition of Lead-Based Paint, Housing and Urban Development, U. S. Department of Housing

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 $0.05 \text{ mg}/\text{m}^3$ averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead dust in this building.

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

NGB-AVS-SI (40-5f)

4 November 2004

MEMORANDUM FOR VAARNG, Lynchburg Readiness Center, ATTN: SFC [Non-Response]
[Non-Response] 168 Constitution Lane, Lynchburg, VA 24502

SUBJECT: Baseline Survey

1. I have enclosed the industrial hygiene survey report completed by Shaw Environmental, Incorporated.
2. In addition to the attached discussion and recommendations regarding wipe samples for lead, if a special function is held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function.
3. Please contact me at (410) 942-0273 or 1-800-550-6967 if you have any questions regarding the enclosed report.

Encl

[Non-Responsive]

Regional Industrial Hygienist

CF: Organizational Maintenance Officer
Occupational Health Manager

National Guard Armory

Lynchburg Readiness Center, Lynchburg, Virginia

Industrial Hygiene Evaluation

Recommendations

- Wipe sampling for lead revealed a concentration above the recommended level of 200 micrograms per square foot ($\mu\text{g}/\text{ft}^2$) in the drill floor/assembly hall area. It is recommended that this surface and the areas immediately around this surface be thoroughly cleaned to reduce the lead level. In addition, any other dusty/dirty areas in the assembly area/drill floor should be thoroughly cleaned. **RAC - 4**
- Wipe sampling for lead revealed concentrations above a level of 40 micrograms per square foot ($\mu\text{g}/\text{ft}^2$) in the drill floor/assembly hall area, IHIC supply room, IHIC orderly room, IHIC locker room, BN storage cages, classroom #2, and converted firing range. Areas with lead concentrations above 40 $\mu\text{g}/\text{ft}^2$ that will be accessible to children should be cleaned. If a special function is held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function. **RAC - 4**
- Materials (floor tiles) suspected of containing asbestos were observed. An operation and maintenance plan should be followed when performing any activities that may disturb the suspected asbestos-containing materials. **RAC - 5**
- Water damage was observed at several locations at the armory. The source of the water damage was likely from a combination of roof and pipe leaks. The source of the water damage should be confirmed and actions taken to eliminate the source in order to prevent the possibility of mold growth that may lead to indoor air quality problems. **RAC - 5**
- Visual mold was observed in the armory. The area where the mold is located should be thoroughly cleaned with 0.5% sodium hypochlorite solution (1 part household bleach to nine parts water) or equivalent in order to eliminate the potential mold/indoor air quality problem. In addition, the source of the mold should be identified and actions taken to eliminate it. **RAC - 5**
- Measurements for humidity revealed that levels did not meet the recommended level of 30% humidity in the facility. It is recommended that a humidification system be installed at the facility. **RAC - 5**
- Lighting measurements were conducted at the armory. The lighting did not meet minimum requirements in some areas; therefore consideration should be given to providing more lighting in these areas. This may be accomplished by replacing burnt out luminaries, cleaning fixtures, cleaning windows, painting walls with a lighter

color, repositioning detailed work to higher illuminated areas, and using supplemental lighting. **RAC - 5**

- Wipe sampling for lead revealed a concentration above the recommended level in the converted firing range. This area must be decontaminated by a thorough cleaning until the surface lead concentration is reduced to below the recommended level. In addition, employees should not be allowed to work in this area without protective clothing until the area have been cleaned and re-sampled. **RAC - 4**

Shaw Environmental, Inc.

312 Directors Drive
Knoxville, TN 37923
865.690.3211
Fax 865.690.3626



Shaw Environmental, Inc.

30 March 2004

Ms. **Non-Responsive** CIH
Regional Industrial Hygienist
Region North Industrial Hygiene Office
Attn: NGB-AVS-SI
301-IH Old Bay Lane
Havre De Grace, Maryland 21078

RE: Draft Report for the Industrial Hygiene Evaluation at the Lynchburg Readiness Center -- Lynchburg, Virginia

Dear Ms. **Non-Responsive**

Attached is a copy of the referenced report. Also attached is a copy of the field notes, photographs, and photograph log. Please call me if you have questions.

Sincerely,

Non-Responsive

Project Manager

Survey 13 Jan 04
Rec'd 9 Apr 04
rev 10/13/04
emailed 10/13/04
Rec'd 4 Nov 04

Lynchburg Armory Photo Log
National Guard Armory
Lynchburg, Virginia
Date of Survey: 13 January 2004

Photo	Description
1	Lead Wipe Assembly Room - Kitchen Service Window - Sample 1
2	Lead Wipe Assembly Room - Top Surface of Soda Machine - Sample 2
3	Lead Wipe Assembly Room - Top Surface of Soda Machine - Sample 3
4	Lead Wipe Assembly Room - Top Surface of Table - Sample 4
5	Lead Wipe Assembly Room - Top Surface of Basketball Hoop Base - Sample 5
6	Peeling Paint - Wall in the Drill Hall - PC-1
7	Peeling Paint - Wall in the Drill Hall - PC-1
8	25% Building - HHIC Supply Room Top Surface of Fire Locker - Sample 7
9	25% Building - HHIC Orderly Room Top Surface of Television - Sample 8
10	25% Building - CoC Orderly Room Top Surface of Filing Cabinet - Sample 9
11	25 % Building - Kitchen Top Surface of Ice Machine - Sample 10
12	25% Building - HHIC Locker Room Top Surface of Locker - Sample 11
13	25% Building - S1 Office Top Surface of Computer Monitor - Sample 13
14	25% Building - BN Storage Cages Top Surface of Fire Locker - Sample 14
15	25% Building - XO Office Top Surface of Filing Cabinet - Sample 15
16	25% Building - S4 Office Top Surface of Micro Fise Machine - Sample 16
17	25% Building - Classroom #2 Top Surface of Podium - Sample 17
18	Mold - HHIC Supply Room Wall
19	Water Damage - HHIC Orderly Room Ceiling
20	Water Damage - HHIC ISG Office Ceiling
21	Water Damage - HHIC CDR Office Ceiling
22	Water Damage & Mold - CSM Room Ceiling
23	Firing Range - Floor Near Former Bullet Trap Location - Sample 19
24	Firing Range - Light Fixtures - Sample 20
25	Firing Range - Stored Item Top Surface of Fire Locker - Sample 21
26	Firing Range - Floor Inside the Converted Firing Range - Sample 22
27	Firing Range - Floor Outside the Converted Firing Range - Sample 23
28	Water Damage & Damaged Tiles - Firing Range
29	Water Damage, Mold & Damaged Tiles - Firing Range
30	Water Damage - Firing Range
31	Water Damage - Firing Range
32	Water Damage - Kitchen Ceiling

Field Notes and Checklist

State: VIRGINIA Location: LYNCHBURG ARMORY Date: JANUARY 13, 2004
 Contact: SFC Non-
R I

1.0 Sampling for Lead

1.1 Wipe Sampling

Sample #:	<u>1</u>	Picture #:	<u>/</u>	Location:	<u>KITCHEN SERVICE WINDOW</u>
Sample #:	<u>2</u>	Picture #:	<u>/</u>	Location:	<u>SODA MACHINE TOP</u>
Sample #:	<u>3</u>	Picture #:	<u>/</u>	Location:	<u>SODA MACHINE TOP</u>
Sample #:	<u>4</u>	Picture #:	<u>/</u>	Location:	<u>TABLE TOP</u>
Sample #:	<u>5</u>	Picture #:	<u>/</u>	Location:	<u>BASKETBALL HOOP BASE</u>
Sample #:	<u>6, 12, 18</u>	Picture #:	<u>N/A</u>	Location:	<u>FIELD BLANKS</u>
Sample #:	<u>7</u>	Picture #:	<u>/</u>	Location:	<u>WHC SUPPLY ROOM FIRE LOCKER/CABINET TOP</u>
Sample #:	<u>8</u>	Picture #:	<u>/</u>	Location:	<u>WHC ORDERLY ROOM TOP OF TELEVISION</u>
Sample #:	<u>9</u>	Picture #:	<u>/</u>	Location:	<u>CO C ORDERLY ROOM TOP OF FILING CABINET</u>
Sample #:	<u>10</u>	Picture #:	<u>/</u>	Location:	<u>KITCHEN TOP OF ICE MACHINE</u>
Sample #:	<u>11</u>	Picture #:	<u>/</u>	Location:	<u>WHC LOCKER ROOM LOCKER TOP</u>
Sample #:	<u>13</u>	Picture #:	<u>/</u>	Location:	<u>SI OFFICE TOP OF COMPUTER MONITOR</u>
Sample #:	<u>14</u>	Picture #:	<u>/</u>	Location:	<u>BI1 STORAGE CAGES FIRE LOCKER/CABINET TOP</u>
Sample #:	<u>15</u>	Picture #:	<u>/</u>	Location:	<u>XO OFFICE TOP OF FILING CABINET</u>
Sample #:	<u>16</u>	Picture #:	<u>/</u>	Location:	<u>SA OFFICE TOP OF MICROFICHE MACHINE</u>
Sample #:	<u>17</u>	Picture #:	<u>/</u>	Location:	<u>CLASSROOM #2 PODIUM TOP</u>
Sample #:		Picture #:		Location:	
Sample #:		Picture #:		Location:	
Sample #:		Picture #:		Location:	
Sample #:		Picture #:		Location:	

(Also, please see the sketch of sampling locations.)

1.2 Breathing Zone Air Sampling

Sample #: A1 Employee Sampled: GENERAL AIR SAMPLE
 Sample #: A2 Employee Sampled: GENERAL AIR SAMPLE
A3 FIELD BLANK

2.0 Physical Condition of Facility

2.1 Peeling Paint - Lead

Peeling paint observed (Yes or No): YES

If peeling paint observed, samples were taken as follows:

Sample #: 921 Picture #: ✓ Location: DRILL HALL
 Condition (Good, Average, Poor): AVERAGE Quantity: 4 ft²
 Sample #: Picture #: Location:
 Condition (Good, Average, Poor): Quantity: ft²
 Sample #: Picture #: Location:
 Condition (Good, Average, Poor): Quantity: ft²
 Sample #: Picture #: Location:
 Condition (Good, Average, Poor): Quantity: ft²
 Sample #: Picture #: Location:
 Condition (Good, Average, Poor): Quantity: ft²

2.2 Visual Inspection - Asbestos

WAS TOLD THAT FIELD RANGE WAS REMOVED DUE TO
 ASBESTOS CONTAMINATION
 Suspected asbestos-containing material observed (Yes or No): YES

If suspected asbestos-containing material observed, samples were taken as follows:

Location 1: FIELD RANGE 24x64 (12x12-TILES) Picture #: ✓
 Condition: FAIR Approximate (Square or Linear Feet): 1536 SQUARE FT
 Location 2: FIELD RANGE 150 (24x16-TILES) Picture #: ✓
 Condition: POOR Approximate (Square or Linear Feet): 2400 SQUARE FT
 Location 3: Picture #:
 Condition: Approximate (Square or Linear Feet):
 Location 4: Picture #:
 Condition: Approximate (Square or Linear Feet):
 Location 5: Picture #:
 Condition: Approximate (Square or Linear Feet):

Small TILE →
Large TILE →

2.3 Visual Inspection – Water Damage and MoldWater damage observed (Yes or No): YES

If yes, water damage was observed at the following locations:

Location 1: HHC Supply Picture #: /Location 2: DRILL FLOOR Picture #: Location 3: KITCHEN Picture #: /Location 4: COMPANY C. SUPPLY Picture #: Location 5: HHC ORDERLY ROOM Picture #: /

HHC 1st OFFICE, HHC 2nd OFFICE, COC ORDERLY ROOM, COC 1st OFFICE, FURNISH RANGE
 ROOM, S3 SECTION ROOM, S3 OFFICES, S4 OFFICE, CLASSROOM #1, CLASSROOM
 MOLD observed (Yes or No): YES LOBBY 312

If yes, mold was observed at the following locations:

Location 1: HHC Supply Picture #: /Location 2: C. SUPPLY ROOM Picture #: Location 3: FURNISH RANGE Picture #: /Location 4: Picture #: Location 5: Picture #: **2.4 Visual Inspection - Housekeeping**Housekeeping (good, average, poor): GOOD

Comments (such as no dirt or trash was visible on the floors or the housekeeping was poor in that there was trash and debris on the floors that could lead to a tripping hazard, or there was dust in the vents.):

3.0 Building Concerns**3.1 Ergonomic Concerns**Ergonomic concerns (Yes or No): No

If there are ergonomic concerns at the armory, describe the extent of the problem, such as three employees stated that they perform repetitive motion at the XYZ machine for 6 hours per day, and they stated that they are suffering from symptoms of musculoskeletal disorders (MSDs).

3.2 Indoor Air Quality

IAQ concerns (based on employee interviews)(Yes or No): NO

If yes, what were concerns:

Measurements for carbon dioxide, humidity, and temperature:

Location	CO ₂ (ppm)	Humidity (%)	Temperature (°F)	Occupancy (People in Room)
Outdoors -	331	22.5	58.4	0
1 st Floor -	431	25.5	70.9	1
2nd Floor -	—	—	—	—
3rd Floor -	—	—	—	—
Basement	—	—	—	—

4.0 Safety and Industrial Hygiene Programs

4.1 Confined Spaces

Are confined spaces applicable (Yes or No): NO

If yes, does the program meet minimum standards (Yes or No): —

If no, explain the deficiencies:

4.2 Hearing Conservation

Is hearing conservation applicable (Yes or No): NO

If yes, does the program meet minimum standards (Yes or No): ✓

If no, explain the deficiencies:

4.3 Respiratory Protection

Is respiratory protection applicable (Yes or No): NO

If yes, does the program meet minimum standards (Yes or No): ✓

If no, explain the deficiencies:

4.4 Hazard Communication

Is hazard communication applicable (Yes or No): YES

If yes, does the program meet minimum standards (Yes or No): YES

If no, explain the deficiencies:

4.5 Personal Protective Equipment

Is personal protective equipment applicable (Yes or No): No

If yes, does the program meet minimum standards (Yes or No): Yes

If no, explain the deficiencies:

5.0 Ventilation

5.1 Ventilation System Evaluation

Local exhaust ventilation systems at this armory (Yes or No): No

If yes, results of airflow patterns:

Location 1: _____

Airflow Pattern (acceptable or unacceptable, with reason):

Location 2: _____

Airflow Pattern (acceptable or unacceptable, with reason):

Location 3: _____

Airflow Pattern (acceptable or unacceptable, with reason):

5.2 Contamination of Clean Air Sources

Clean air sources contaminated by contaminated exhaust air (Yes or No): No

If yes, describe:

6.0 Noise Dosimetry

Potential hazardous noise areas (Yes or No): No

If yes, results of noise dosimetry sampling:

Employee sampled: _____
 Results: _____ % Actual _____ % Projected 8-hour TWA _____ Equivalent dBA
 Activity: _____

Employee sampled: _____
 Results: _____ % Actual _____ % Projected 8-hour TWA _____ Equivalent dBA
 Activity: _____

Employee sampled: _____
 Results: _____ % Actual _____ % Projected 8-hour TWA _____ Equivalent dBA
 Activity: _____

7.0 Lighting Evaluation

DIVIDE BY 9

Location	Luminance Range (fc)
KITCHEN	50-100
COC GENERAL ROOM	20-90
COC ISSA OFFICE	60-70
BI STORAGE LABS	20-55
SI OFFICE	40-120
PAL SUPV OFFICE	10-60
BI COB OFFICE	40-110
CSM ROOM	40-100
PAL OFFICE	45-100
BACK HALLWAY / SIDE HALLWAY	10-40
S3 OFFICE	50-110
CLASSROOMS H1 H2	20-70
MEA'S LATRINE	10-90
WOMEN'S LATRINE	5-10

HHC ORDERLY ROOM	10-150
HHC ISEA OFFICE	20-400
FRONT HALLWAY	10-30

8.0 Converted Indoor Firing Ranges

Converted indoor firing range (Yes or No): YES

If yes, locations sampled:

Sample #: N/A Picture #: ✓ Location: Inside any remaining ventilation ductwork

Sample #: N/A Picture #: ✓ Location: Exhaust ventilation system

Sample #: 19 Picture #: ✓ Location: Bullet trap

Sample #: 20 Picture #: ✓ Location: Light fixtures

Sample #: N/A Picture #: ✓ Location: Overhead heaters

Sample #: 21 Picture #: ✓ Location: Stored items

Sample #: 22 Picture #: ✓ Location: Floor

Sample #: 23 Picture #: ✓ Location: Outside the range

9.0 HVAC System

Does the HVAC system have maintenance performed on a regular basis (Yes or No):

YES/NO ONLY MAINTENANCE WHEN THERE IS A PROBLEM

In yes, is the maintenance effective (Yes or No): YES

If no, describe:

10.0 HHIM

Complete HHIM form for facility (Initial as completed): Non-Responsiv

Reproduction Room HHIM Necessary (Yes or No) (Initial if Yes): ✓

Film Developing Room HHIM Necessary (Yes or No) (Initial if Yes): ✓

Maintenance Area HHIM Necessary (Yes or No) (Initial if Yes): ✓

11.0 Additional Items

Non-Responsive

Table 1 (wipe sampling) completed (initial when completed): _____

Table 2 (air sampling) completed (initial when completed): _____

Table 3 (peeling paint), if necessary, completed (initial when completed): _____

Table 3 or 4 (IAQ) completed (initial when completed): _____

Table 4 or 5 (noise), if necessary, completed (initial when completed): _____

Table 5 or 6 (firing ranges), if necessary, completed (initial when completed): _____

Airflow pattern diagram(s) completed (initial when completed): _____

Building layout included (initial when completed): _____

Photographs (initial when completed): _____

Sampling Sheets and Laboratory Analyses (initial when completed): _____

Sampling tracking form completed and faxed to NGB AR _____

within 5 days of date of this survey (initial when completed): _____

(Fax to Ken Forsythe at 410-942-0254)

State Lead Wipes Spreadsheet completed (initial when completed): _____

Three copies of noise exposure notification letter, if necessary (initial when completed): _____

Three copies of contaminant exposure forms for each employee that participated in air sampling (initial when completed): _____

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



Industrial Hygiene Survey
for VAARNG – Lynchburg Readiness Center
168 Constitution Lane
Lynchburg, Virginia 24502

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

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

Industrial Hygiene Survey
for VAARNG – Lynchburg Readiness Center
168 Constitution Lane
Lynchburg, Virginia 24502

Non-Responsive

A large black rectangular redaction box covering several lines of text.

Industrial Hygienist

Non-Responsive

A large black rectangular redaction box covering several lines of text.

Project Manager

Non-Responsive

A black rectangular redaction box covering a line of text.

Northeast District Health & Safety Manager

AECOM Environment
January 2013
Document No.: 60276421/ Lynchburg 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 Lynchburg Readiness Center Facility Layout

Appendix B Lynchburg Readiness Center Photographs

Appendix C Analytical Results

Appendix D References



List of Tables

Table 2-1: Lead Wipe Sample Results 2-1

Table 3-1: Indoor Air Quality Monitoring Results..... 3-2

Table 5-1: Light Survey 5-1



Executive Summary

On October 25, 2012, AECOM Technical Services Northeast, Inc. (AECOM) conducted an Industrial Hygiene (IH) survey of the Lynchburg Readiness Center facility located at 168 Constitution Lane in Lynchburg, Virginia. LTC Non- [REDACTED] was the point of contact for the facility and accompanied AECOM during the survey to provide access and information concerning the Lynchburg Readiness Center operations.

The industrial hygiene survey was conducted in general accordance with the scope of work as described in the "Statement of Work – Industrial Hygiene Services for National Guard Bureau Industrial Hygiene Region North – Baseline Surveys for Readiness Centers and Administrative Buildings", dated March 2009.

The Lynchburg Readiness Center is currently staffed by four personnel. The facility is configured as an administrative area and a drill/assembly hall.

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

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

Lighting levels measured throughout the facility were generally not adequate as per American National Standard Institute/Illuminating Engineering Society of North America (ANSI/IESNA) RP-1-2004, Office Lighting, ANSI/IESNA RP-7-2001, Industrial Lighting, and the IESNA Lighting Handbook, 9th Edition, 11 April 2005.

Wipe samples collected in association with most administrative areas indicated lead levels below the Occupational Safety and Health Administration's (OSHA's) Clarification of "as free as practicable" and lead contamination under 29 Code of Federal Regulations (CFR) 1926.62, The Compliance Directive for the Interim Standard for Lead in Construction, CPL 2-2.58. OSHA recommends the use of the U.S. Department of Housing and Urban Development's (HUD) acceptable decontamination level of 200 micrograms per square foot (ug/ft²) for floors in evaluating the cleanliness of change areas, storage facilities, and lunchrooms/eating areas.

However, wipe samples collected from a storage locker in the former firing range and floor of the vehicle shop indicated levels of lead in excess of 200 ug/ft².

Damaged suspect asbestos containing materials were observed during the evaluation. A sample was collected from acoustic tile and associated mastic in the former firing range and from the exhaust fan filter in the maintenance storage area. Results of the analysis indicated no asbestos detected in the collected samples.

No peeling or damaged lead based paint was observed during the survey.

Water damage was observed in the former firing range area. No visible mold growth was observed in association with the water damage. Water intrusion is a mold growth risk factor.

Vehicle emission LEV ducts do not meet acceptable flow rates.



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

1.0 Facility Description and Operations

The Lynchburg Readiness Center is a single story purpose built masonry structure with brick facade. The section occupied by Readiness Center personnel consists of rooms configured as office space and is finished with; acoustical drop ceilings, and floor tile.

The primary activity at the Lynchburg Readiness Center is routine administrative duties. The Lynchburg Readiness Center is currently staffed by approximately 4 personnel. 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 multiple areas of the facility following the Occupational Safety & Health Administration (OSHA) wipe sampling method and using Ghost Wipes.

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

Table 2-1: Lead Wipe Sample Results

Sample Number	Sample Location	Lead Concentration
LRC-01	North wall drill hall	<110 ug/ft ²
LRC-02	Vending machine drill hall	<110 ug/ft ²
LRC-03	Kitchen top of ice machine	<110 ug/ft ²
LRC-04	Former firing range desk top	<110 ug/ft ²
LRC-05	Maintenance storage/batteries/floor	<110 ug/ft ²
LRC-06	Former firing range floor	<110 ug/ft ²
LRC-07	Former firing range top of light fixture	<110 ug/ft ²
LRC-08	Former firing range access hall	<110 ug/ft ²
LRC-09	Former firing range storage locker	470 ug/ft²
LRC-10	OMS vehicle shop-battery room floor	250 ug/ft²

ug/ft² = Micrograms per square foot.

Wipe samples collected in association with the drill hall and administrative areas indicated lead levels below the Occupational Safety and Health Administration's (OSHA's) Clarification of "as free as practicable" and lead contamination under 29 CFR 1926.62, The Compliance Directive for the Interim Standard for Lead in Construction, CPL 2-2.58. OSHA recommends the use of HUD's acceptable decontamination level of 200 ug/ft² for floors in evaluating the cleanliness of change areas, storage facilities, and lunchrooms/eating areas.

Lead in excess of the action level of 200 micrograms per square foot (ug/ft²) per NG-PAM 420-15 was detected in wipe samples collected from a storage locker in the former range and the floor of the OMS vehicle shop. Laboratory analytical results are presented in Appendix C.

2.1.2 Air Sampling

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

3.0 Physical Condition of Facility and Personnel Concerns

3.1.1 Lead Based Paint

Interior surfaces of walls are coated with paint. The paint on the walls is in serviceable condition. AECOM did not observe damaged or peeling paint during this evaluation.

3.1.2 Suspect Asbestos Containing Materials

AECOM observed damaged, friable suspect asbestos-containing materials (ACM) in readily accessible areas of the Lynchburg Readiness Center during this survey. A sample was collected from the acoustic tile/mastic of the former firing range and the exhaust vent fan in the maintenance storage area. Results of analysis indicated no asbestos detected in the submitted samples.

Typical suspect miscellaneous building materials observed but not sampled include drywall, floor tiles and associated mastic, cove base and associated mastic, ceiling tiles, carpet mastic, and window caulks.

3.1.3 Water Damage/Mold

AECOM observed evidence of water intrusion in the form firing range. No mold or mildew was associated with the observed water staining.

3.1.4 Housekeeping

The Lynchburg 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 Lynchburg Readiness Center staff members. No Indoor Air Quality concerns were noted by the Lynchburg Readiness Center personnel.

Instantaneous real-time reading for carbon monoxide and carbon dioxide (parts per million or ppm), temperature (° Fahrenheit), and relative humidity (as percentage) are presented in the following table. The facility is mechanically air conditioned. All readings were generally within acceptable guidelines. As detailed in the following table multiple temperature readings were slightly above recommended guidelines.

Table 3-1: Indoor Air Quality Monitoring Results

Location	Carbon Monoxide (ppm)	Carbon Dioxide (ppm)	Temp (°F)	Relative Humidity (%)
S3 Operations	0.7	708	76.5	71.5
Mail room	0.1	830	75.4	40.6
Command office	0.0	898	73.3	43.2
VADF office	0.0	820	71.7	39.4
VADF S1 Admin	0.0	825	71.	43.8
Classroom	0.0	792	71.0	47.3
Woman's room	0.0	744	71.7	49.0
Recruiting	0.0	818	72.8	47.6
Echon Co Admin	0.0	889	73.4	49.9
Office	0.0	841	73.3	50.1
Office	0.0	735	72.8	48.6
FMS field shop	0.2	475	75.8	46.7
Production control	0.2	526	76.7	45.4
Office	0.6	593	75.6	40.2
Break room	0.4	533	75.1	41.4
2F office	0.0	795	75.7	43.9
Parts room-2f	0.4	650	76.3	42.7
1F battery storage	0.0	468	76.0	45.1
Drill floor	0.7	553	75.8	48.8
Supply room	0.6	680	76.5	44.4
Kitchen	0.2	770	78.0	47.
"C" Co. supply	0.6	667	78.0	43.0
"C" Co. orderly room	0.1	537	77.5	39.8
Room 14A	0.4	562	75.5	38.3
Hallway (former range area)	0.0	565	75.6	47.3
Former rifle range area	0.1	527	75.0	47.3
Boiler room	0.0	871	79.6	47.5
Storage	0.6	625	78.3	44.0
Locker room	0.5	715	77.1	42.8
G6-funeral honors	0.1	1120	74.8	41.7
War room	0.0	581	76.6	49.7
Battalion storage	0.1	676	78.0	47.8
War room -main	0.1	723	78.9	43.4
SGT Maj. Office	0.2	830	75.1	44.4
Batt. XO	0.3	1100	74.7	41.3
PAC section S1	0.1	929	73.7	41.3
Room 24A	0.0	1030	72.2	43.2
Medical officer	0.1	993	73.4	46.0
Operations S3	0.0	711	73.2	49.2

Location	Carbon Monoxide (ppm)	Carbon Dioxide (ppm)	Temp (°F)	Relative Humidity (%)
Office S3	0.0	651	73.1	50.6

Table 3-1 Guidelines:

Carbon Monoxide: Office/Warehouse Space – 9 ppm based on United States Environmental Protection Agency's National Ambient Air Quality Standard.

OSHA Permissible Exposure Limit (PEL) = 50 ppm. American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit value (TLV) = 25, ppm.

Carbon Dioxide: Office Space -Approximately 700 ppm above background (Derived from American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE) Standard 62.1-2010). Not Applicable to warehouse and vehicle maintenance bays.

Relative Humidity: Mechanically air-conditioned space – Maximum 65% (Derived from ASHRAE Standard 62.1-2010 – 5.10.1).

Temperature: Winter (clothing insulation = 1.0 clo) Relative humidity 30-60% - Temp - 68 – 75°F

Summer Temp - 73 – 79°F. (Derived from ASHRAE Standard 55-2010)

Lynchburg 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 has an operational HVAC system. No dust was observed at diffusers, and site personnel indicated that the system seems to work well. Temperature readings were constant in all areas occupied by readiness center personnel.

4.1.2 HVAC Maintenance

The HVAC system is serviced by a third party contractor. Records were not available for review at the time of this survey.

An active ventilation system is present in the maintenance area.

5.0 Lighting

Lighting levels in all areas were measured utilizing a Cal-Light 400 light meter that displays lighting levels in foot-candles. Lighting levels were generally not adequate in the surveyed areas.

Table 5-1: Light Survey

Location	Results (Foot candles)	Met Standard (Y/N)	Standard*
S3 Operations	52.0	Y	50
Mail room	48.7	Y	30
Command office	20.0	N	50
VADF office	24.5	N	50
VADF S1 Admin	61.2	Y	50
Classroom	28.9	Y	30
Woman's room	27.3	Y	5
Recruiting	46.9	N	50
Echon Co Admin	44.3	N	50
Office	46.2	N	50
Office	30.3	N	50
FMS field shop (garage)	47.0	N	75
Production control	88.6	Y	50
Office	37.2	N	50
Break room	51.8	Y	10
2F office	30.7	N	50
Parts room-2f	30.7	Y	30
1F battery storage	30.5	Y	30
Drill floor	117.2	Y	10
Supply room	32.5	Y	30
Kitchen	81.2	Y	50
"C" Co. supply	24.0	N	30
"C" Co. orderly room	46.2	N	50
Room 14A	54.2	Y	50
Hallway (former range area)	25.3	Y	5
Former rifle range area (storage/simulator)	43.3	Y	30
Boiler room	39.1	Y	30
Storage	61.2	Y	30
Locker room	28.0	Y	7
G6-funeral honors	80.0	Y	50
War room	75.1	Y	30
Battalion storage	40.5	Y	30
War room -main	56.2	Y	50
SGT Maj. Office	44.0	N	50
Batt. XO	51.9	Y	50
PAC section S1	45.2	N	50
Room 24A	36.8	Y	30

Location	Results (Foot candles)	Met Standard (Y/N)	Standard*
Medical officer	77.7	Y	50
Operations S3	41.8	N	50
Office S3	68.1	Y	50
Office Lighting (ANSI/IESNA RP-1-04) and Industrial Lighting Facilities (ANSI/IESNA RP-7-01)			

6.0 Evaluation of Attached Garage

The garage associated with the Lynchburg Readiness Center has three direct connect exhaust fans for vehicle exhaust. Measurements of air velocity indicated that the fans removed 550 CFM, 553 CFM and 570 CFM when operational. Vehicle emission LEV ducts do not meet acceptable flow rates. The garage facility is used for vehicle maintenance. The garage is equipped with lifts, tool boxes, parts storage racks, lockers and a small office area. No permanent petroleum storage tanks were observed inside the facility. At the time of the survey, the garage was staffed by one individual.

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 Lynchburg Readiness Center.

Lighting levels measured throughout the facility were generally not adequate as per American National Standard Institute/Illuminating Engineering Society of North America (ANSI/IESNA) RP-1-2004, Office Lighting, ANSI/IESNA RP-7-2001, Industrial Lighting, and the IESNA Lighting Handbook, 9th Edition, 11 April 2005.

Wipe samples collected in association with the drill hall and administrative areas indicated lead levels below the Occupational Safety and Health Administration's (OSHA's) Clarification of "as free as practicable" and lead contamination under 29 CFR 1926.62, The Compliance Directive for the Interim Standard for Lead in Construction, CPL 2-2.58. OSHA recommends the use of HUD's acceptable decontamination level of 200 ug/ft² for floors in evaluating the cleanliness of change areas, storage facilities, and lunchrooms/eating areas. However, wipe samples collected from a storage locker in the former firing range and floor of the vehicle shop indicated levels of lead in excess of 200 ug/ft².

Damaged suspect asbestos containing materials were observed during the evaluation. A sample was collected from acoustic tile and associated mastic in the former firing range and from the exhaust fan filter in the maintenance storage area. Results of the analysis indicated no asbestos detected in the collected samples.

No peeling or damaged lead based paint was observed during the survey.

Water damage was observed in the former firing range area. No visible mold growth was observed in association with the water damage. Water intrusion is a mold growth risk factor.

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

Vehicle emission LEV ducts do not meet acceptable flow rates.

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

Lynchburg Readiness Center Facility Layout

January 2013



Appendix B

Lynchburg Readiness Center Photographs

Photograph 1



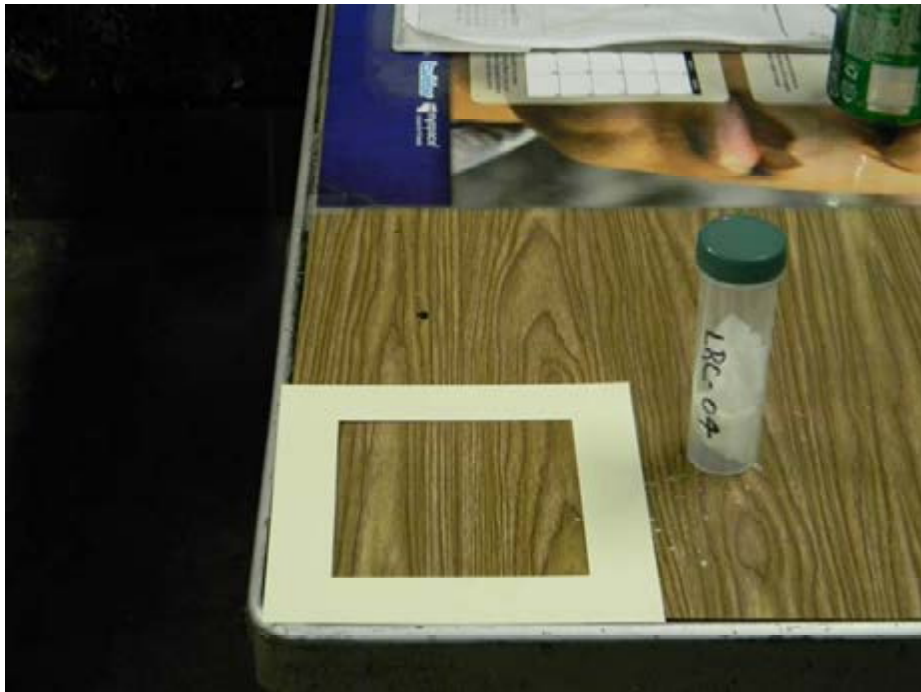
Building

Photograph 2



Former range

Photograph 3



Wipe sample

Photograph 4



Water damage in former range

Photograph 5



Drill hall

Photograph 6



Minor water damage



Appendix C

Analytical Results

AMA Analytical Services, Inc.



A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS



Client:	National Guard Bureau	Job Name:	VA ANG IH Survey	Chain Of Custody:	514745
Address:	301-1H Old Bay Lane, Attn: ARNG-CJG-P, State Military Reservation	Job Location:	Lynchburg RC	Date Submitted:	12/12/2012
	Havre de Grace, Maryland 21078	Job Number:	Not Provided	Person Submitting:	AECOM
		P.O. Number:	W912K6-09-A-0003	Date Analyzed:	12/21/2012
				Report Date:	12/26/2012

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
13023059	LRC-01	Flame	Wipe	****	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13023060	LRC-02	Flame	Wipe	****	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13023061	LRC-03	Flame	Wipe	****	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13023062	LRC-04	Flame	Wipe	****	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13023063	LRC-05	Flame	Wipe	****	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13023064	LRC-06	Flame	Wipe	****	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13023065	LRC-07	Flame	Wipe	****	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13023066	LRC-08	Flame	Wipe	****	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13023067	LRC-09	Flame	Wipe	****	0.111	110 ug/ft ²	53	470 ug/ft ²	
13023068	LRC-10	Flame	Wipe	****	0.111	110 ug/ft ²	28	250 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. 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.

An AIHA (#100470) and NY ELAP (#10920) Accredited Laboratory

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

AMA Analytical Services, Inc.



A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS



LAB #100470

Client: National Guard Bureau	Job Name: VA ANG III Survey	Chain Of Custody: 514745
Address: 301-JH Old Bay Lane, Attn: ARNG-CIG-P, State Military Reservation Havre de Grace, Maryland 21078	Job Location: Lynchburg BC	Date Submitted: 12/12/2012
	Job Number: Not Provided	Person Submitting: AECOM
	P.O. Number: W912K6-09-A-0003	Date Analyzed: 12/21/2012 Report Date: 12/26/2012

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
Analysis Method for Flame: Air, Wipes, Paints, and Soil/Solids: EPA 600/R-93/200(M)-7000B; Water: SM-3111B Analysis Method For Furnace: Air, Wipes, Paints, and Soil/Solids: EPA 600/R-93/200(M)-7010; Water: SM-3113B N/A = Not Applicable mg/Kg = parts per million (ppm) on a dry weight basis mg/L = parts per million (ppm) %Pb = percent lead on a dry weight basis ug = micrograms ug/L = parts per billion (ppb) Note: All samples were received in good condition unless otherwise noted. Note: All results have two significant digits. Any additional digits shown should not be considered when interpreting the result. Air and Wipe results are not corrected for any blank results. Final results for air and wipe samples are based on client supplied information not verified by this laboratory. All results are to be considered preliminary and subject to change unless signed by the Technical Director or Deputy.							See QC Summary for analytical results of quality control samples associated with these samples.		
Analyst: 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.

An AIHA (#100470) and NY ELAP (#10920) Accredited Laboratory

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

AMA Analytical Services, Inc.



A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS

NVLAP®

101143-0

Client: National Guard Bureau Job Name: VA ANGIH Survey Chain Of Custody: 514745
 Address: 301-1H Old Bay Lane, Attn: ARNG-CJG-P, Job Location: Lynchburg RC Date Analyzed: 12/18/2012
 Havre de Grace, Maryland 21078 Job Number: Not Provided Person Submitting: AECOM
 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
13023069	LRC-Ab-01	NAD	--	--	--	--	TR	--	TR	--	--	100	MS	Brown	Homogeneous	SW	
13023070	LRC-Ab-02	NAD	--	--	--	--	20	--	35	--	--	45	CT	Multi	Layered	SW	
13023071	LRC-Ab-03	NAD	--	--	--	--	--	10	50	--	--	40	EXH	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

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.

NVLAP (101143-0) 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.ama-lab.com

AIHA (#100470) NVLAP (#101143-0) NYELAP (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)

514745

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

Submission Information:

- Job Name: VA ANG 1H SURVEY
- Job Location: Lynchburg R.C.
- Job #: P.O. # W912KG-09-A-0003
- Contact Person: Non-Responsive @ phone # Non-Responsive
- Submitted by: AECOM Signature: Non-Responsive

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

AFTER HOURS (must be pre-scheduled)		NORMAL BUSINESS HOURS		REPORT TO:	
<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 COC (Material Safety Data Sheet)	<input type="checkbox"/> Include COC (Material Safety Data Sheet)
<input type="checkbox"/> 24 Hours Time Due: _____	<input type="checkbox"/> Next Day	<input type="checkbox"/> 5 Day+ (Date Due) <u>12/19/12</u>		<input type="checkbox"/> Email <u>Non-Responsive</u>	<input type="checkbox"/> Fax: _____
Comments: _____	<input type="checkbox"/> 2 Day			<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 3 (QTY)

☐ EPA Point Count (QTY)

☐ NY State Pliable 198.1 (QTY)

☐ Grw. Reduction ELAP 198.6 (QTY)

☐ Other (specify) _____ (QTY)

MNC
☐ Vermiculite

☐ Asbestos Soil PLM (QTY) PLM (QTY) PLM/TEM (QTY) PLM/TEM (QTY)

*It is recommended that thick samples be submitted with all air and surface samples

TEM Bulk
☐ ELAP 198.4/Chatfield (QTY)

☐ NY State PLM/TEM (QTY)

☐ Residual Ash (QTY)

TEM Dust*
☐ Quil. (pres/abs) Vacuum/Dust (QTY)

☐ Quin. (s/area) Vacuum D5755-95 (QTY)

☐ Quin. (s/area) Dust D6480-99 (QTY)

TEM Water
☐ Quil. (pres/abs) (QTY)

☐ ELAP 191.2/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) 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)

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												CLIENT CONTACT			
CLIENT ID #	SAMPLE LOCATION/ID	DATE/TIME	VOL (L)	Wipe Area	TEM	PCM	PLM	LEAD	MOLD	AIR	BULK	DUST	WATER	POSSIBLE	TAPE	SWAB	LABORATORY STAFF ONLY
																	Date/Time: _____ Contact: _____ By: _____
																	Date/Time: _____ Contact: _____ By: _____
	SEE ATTACHED FIELD DATA SHEETS																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:
(CUSTODY)

 1. Date/Time RCDV: 12/12/12 @ 1030 Via: Fedex By: Non-Responsive

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

3. Results Reported To: _____ Via: _____ Date: _____ / _____ / _____ Time: _____ Initials: _____

 4. Comments: 1991 0225 9000

Surface Sampling Field Data Sheet

Date Collected: 25 Oct 2012Job Name: VA ANG 1H SURVEYCompany: _____ Page 1 of 1

Job Number: _____

Job Location: Lynchburg Readiness Center

Phone Number: _____

Contact Person: _____

Address: Leesville RoadCollected By: Non-Responsive

COC Number: _____

Sample Number	Sample Location	Surface/Substrate Sampled	Area Wiped (in ² /ft ²)	Collection Media
LRC-01	North Wall - Drill Hall	HVAC Inlet Grill: Metal	16 in ²	Ghostwipes
LRC-02	Vending Machine Top - West Wall - Drill Hall	Metal		
LRC-03	Kitchen - SW Corner - Top of Ice Machine	Metal		
LRC-04	Firing Range - Desktop	Vinyl Paper		
LRC-05	Maintenance Storage / Restrooms - Floor	Concrete		
LRC-06	Firing Range - Floor Down Range	Concrete		
LRC-07	Firing Range - Top of Light Fixture	Metal		
LRC-08	Firing Range Access Hall - Floor	Concrete		
LRC-09	Firing Range - Storage Lockers - Flammable	Metal		
LRC-10	Oms - Vehicle Shop - Battery Room Floor	Concrete		
			✓	✓

Please Return Samples To:

AMA Analytical Services, Inc., 4475 Forbes Blvd., Lanham, MD 20706, (800) 346-0961/(301) 459-2640 Fax, www.amaiah.com, info@amaiah.com

Bulk Sampling Survey Sheet

Date Collected: 25 Oct 2012Job Name: VA AMG LH SURVEYPage 1 of 1

Job Number: _____

Job Location: Lynchburg Readiness Center

Company: _____

Contact Person: _____

Address: 168 Constitution Ave

Phone Number: _____

Collected By: Non-Responsive

COC Number: _____

Sample Number	Homogenous Area ID	Type of Material	Sample Location	Friable	Condition of Material	Accessibility	Photo	Comments
LRC-AB 01	01	Mastic-Brown Firewall Tile	South Wall @ Firing line Firing Range	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input checked="" type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input checked="" type="checkbox"/> Medium <input type="checkbox"/> High	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
LRC-AB 02	02	Acoustic Tile	Same Firing Range	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input checked="" type="checkbox"/> Poor	<input type="checkbox"/> Low <input checked="" type="checkbox"/> Medium <input type="checkbox"/> High	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
LRC-AB 03	03	Exhaust Fan Filter	EXHAUST FAN VENT East Wall of Maintenance Storage	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input checked="" type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input checked="" type="checkbox"/> Medium <input type="checkbox"/> High	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	



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





Appendix D

References

References

1. Title 29, Code of Federal Regulations (CFR), Part 1910, Occupational Safety and Health Administration, current Ed. <http://www.osha.gov/comp-links.html>
2. Department of Defense Instruction (DODI) 6055.1, Department of Defense Occupational Safety and Health (OSH) Program, August 19, 1998. <http://www.dtic.mil/whs/directives/corres/pdf/605501p.pdf>
3. Army Regulation (AR) 11-34, The Army Respiratory Protection Program, 15 February 1990. http://armypubs.army.mil/epubs/pdf/R11_34.PDF
4. AR 40-5, Medical Service, Preventive Medicine, 25 May 2007. http://armypubs.army.mil/epubs/pdf/R40_5.PDF
5. AR 385-10, The Army Safety Program, 23 August 2007; Rapid Action Revision (RAR) issue date: 4 October 2011. http://armypubs.army.mil/epubs/pdf/R385_10.PDF
6. Department of the Army Pamphlet (DA PAM) 40-501, Medical Services, Hearing Conservation Program, 10 December 1998. http://armypubs.army.mil/epubs/pdf/P40_501.pdf
7. DA PAM 40-11, Preventive Medicine, 22 July 2005, RAR issue date: 19 October 2009. http://armypubs.army.mil/epubs/pdf/p40_11.pdf
8. DA PAM 40-503, Medical Services, Industrial Hygiene Program, 30 October 2000. http://armypubs.army.mil/epubs/pdf/P40_503.PDF
9. UFC 3-410-01FA, Heating, Ventilating, and Air Conditioning, 15 May 2003, change 4, January 2010. http://www.wbdg.org/ccb/DOD/UFC/ufc_3_410_01fa.pdf
10. Threshold Limit Values (TLVs) and Biological Exposure Indices (BEIs), American Conference of Governmental Industrial Hygienists (ACGIH), current Ed.
11. Industrial Ventilation – A Manual of Recommended Practice for Design, ACGIH, current Ed.
12. American National Standards Institute (ANSI)/International Safety Equipment Association (ISEA) Z358.1-2009, Emergency Eyewash and Shower Equipment.
13. ANSI/American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. (ASHRAE) 55-2010, Thermal Environmental Conditions for Human Occupancy.
14. ANSI/ASHRAE 62.1-2010, Ventilation for Acceptable Indoor Air Quality.
15. RP-1-2004, Office Lighting, ANSI/IESNA.
16. RP-7-2001, Industrial Lighting, ANSI/IESNA, change 20 July 2004.
17. OSHA Instruction Letter 02-02-058, Lead Exposure in Construction, Office of Health Compliance Assistance, 13 December 1993.
18. OSHA Standard Interpretation, Clarification of “as free as practicable” and lead contamination under 29 CFR 1926.62, dated January 13, 2003.
19. NG PAM 420-15, Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges, 3 November 2006. http://www.ngbpdc.ngb.army.mil/pubs/420/ngpam420_15.pdf

Shaw Environmental, Inc.

312 Directors Drive
Knoxville, TN 37923
865.690.3211
Fax 865.690.3626



**National Guard Armory
Manassas Readiness Center
Manassas, Virginia**

Industrial Hygiene Evaluation

Prepared for:

**National Guard Region North Industrial Hygiene Office
Havre De Grace, Maryland 21078**

Prepared by:

**Shaw Environmental, Inc.
312 Directors Drive
Knoxville, Tennessee 37923**

9 April 2004

**National Guard Armory
Manassas Readiness Center
Manassas, Virginia**

Industrial Hygiene Evaluation

Prepared for:

**National Guard Region North Industrial Hygiene Office
Havre De Grace, Maryland 21078**

Prepared by:

**Shaw Environmental, Inc.
312 Directors Drive
Knoxville, Tennessee 37923**

9 April 2004

Prepared by:

Non-Responsive

Environmental Scientist

Reviewed by:

Non-Responsive

Business Line Manager

Table of Contents

<i>Table of Contents</i>	<i>i</i>
<i>List of Tables</i>	<i>ii</i>
<i>List of Appendices</i>	<i>ii</i>
<i>Executive Summary</i>	<i>E-1</i>
<i>1.0 Introduction</i>	<i>1-1</i>
<i>2.0 Findings, Discussion, and Interpretation of Results</i>	<i>2-1</i>
<i>2.1 Sampling for Lead</i>	<i>2-1</i>
<i>2.1.1 Wipe Sampling</i>	<i>2-1</i>
<i>2.1.2 Air Sampling for Lead</i>	<i>2-2</i>
<i>2.2 Physical Condition of Facility</i>	<i>2-2</i>
<i>2.2.1 Peeling Paint - Lead</i>	<i>2-2</i>
<i>2.2.2 Visual Inspection - Asbestos</i>	<i>2-2</i>
<i>2.2.3 Visual Inspection - Water Damage and Mold</i>	<i>2-3</i>
<i>2.2.4 Visual Inspection - Housekeeping</i>	<i>2-3</i>
<i>2.3 Building Concerns</i>	<i>2-3</i>
<i>2.3.1 Ergonomic Concerns</i>	<i>2-3</i>
<i>2.3.2 Indoor Air Quality</i>	<i>2-4</i>
<i>2.4 Safety and Industrial Hygiene Programs</i>	<i>2-4</i>
<i>2.5 Ventilation</i>	<i>2-4</i>
<i>2.5.1 Ventilation System Evaluation</i>	<i>2-4</i>
<i>2.5.2 Contamination of Clean Air Sources</i>	<i>2-4</i>
<i>2.6 Noise Exposure</i>	<i>2-5</i>
<i>2.7 Lighting</i>	<i>2-5</i>
<i>2.8 Converted Indoor Firing Ranges</i>	<i>2-5</i>
<i>2.9 HVAC Systems</i>	<i>2-6</i>
<i>2.10 HHM</i>	<i>2-6</i>
<i>3.0 Conclusions</i>	<i>3-1</i>
<i>Tables</i>	<i>Follows Section 3.0</i>
<i>Appendices</i>	<i>Follows Tables</i>

List of Tables

Table 1	Wipe Sampling for Lead
Table 2	Air Sampling for Lead
Table 3	Indoor Air Quality Measurements
Table 4	Illumination Readings
Table 5	Indoor Firing Ranges - Wipe Sampling

List of Appendices

Appendix A	IIHIM Data Form
Appendix B	Building Layout
Appendix C	Sampling Sheets and Laboratory Analyses
Appendix D	References
Appendix E	Recommendations for Surface Lead Dust in Armories

Executive Summary

Shaw Environmental, Inc. (Shaw) was contracted to perform an industrial hygiene evaluation for the Manassas Readiness Center in Manassas, Virginia. **Non-Responsive** performed the evaluation on 28 January 2004. The point of contact at the readiness center was SSC **Non-Responsive**.

The following industrial hygiene concerns were evaluated.

- Wipe Sampling for Lead
- Air Sampling for Lead
- Peeling Paint – Lead
- Suspected Asbestos Containing Material
- Water Damage
- Presence of Mold
- Housekeeping
- Ergonomic Concerns
- Indoor Air Quality
- Safety and Industrial Hygiene Programs
- Ventilation System Evaluation
- Contamination of Clean Air Sources
- Noise Exposure
- Lighting
- Converted Indoor Firing Range
- HVAC Systems

The following items were either not applicable to the armory or the evaluation resulted in a conclusion that there were no industrial hygiene concerns.

- Air Sampling for Lead
- Peeling Paint – Lead
- Housekeeping
- Ergonomic Concerns
- Safety and Industrial Hygiene Programs
- Ventilation System Evaluation

- Contamination of Clean Air Sources
- Noise Exposure
- HVAC Systems

Areas where there were industrial hygiene concerns are as follows:

- Wipe sampling for lead revealed a concentration above the recommended level of 200 micrograms per square foot ($\mu\text{g}/\text{ft}^2$) in the drill floor/assembly hall area, supply room 215A, room 116, room 110, room 119, and room 121. It is recommended that these surfaces and the areas immediately around these surfaces be thoroughly cleaned to reduce the lead level. In addition, any other dusty/dirty areas in these areas should be thoroughly cleaned.
- Wipe sampling for lead revealed concentrations above a level of 40 micrograms per square foot ($\mu\text{g}/\text{ft}^2$) in the drill floor/assembly hall area, the converted firing range, and rooms 201, 209, 214, 215A, 220, 105, 109, 113, 116, 110, 106, 118, 119, and 121. Areas with lead concentrations above 40 $\mu\text{g}/\text{ft}^2$ that will be accessible to children should be cleaned. If a special function is held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function.
- Materials (floor tiles and pipe insulation) suspected of containing asbestos were observed. A bulk sample of a floor tile was taken, and the results revealed that the material contains asbestos. An operation and maintenance plan should be followed when performing any activities that may disturb the asbestos-containing materials or suspected asbestos-containing materials.
- Water damage was observed at several locations at the armory. The source of the water damage was likely from a combination of roof and pipe leaks. The source of the water damage should be confirmed and actions taken to eliminate the source in order to prevent the possibility of mold growth that may lead to indoor air quality problems.
- Visual mold was observed in the armory. The areas where the mold is located should be thoroughly cleaned with 0.5% sodium hypochlorite solution (1 part household bleach to nine parts water) or equivalent in order to eliminate the potential mold/indoor air quality problem. In addition, the source of the mold should be identified and actions taken to eliminate the source of the mold.
- Measurements for humidity revealed that levels did not meet the recommended level of 30% in the facility. It is recommended that a humidification system be installed at the facility.

- Lighting measurements were conducted at the armory. The lighting did not meet minimum requirements in some areas; therefore, consideration should be given to providing more lighting in these areas. This may be accomplished by replacing burnt out luminaries, cleaning fixtures, cleaning windows, painting walls with a lighter color, repositioning detailed work to higher illuminated areas, and using supplemental lighting.
- Wipe sampling for lead revealed concentrations above the recommended level of 200 micrograms per square foot ($\mu\text{g}/\text{ft}^2$) in all locations in the converted firing range area. It is strongly recommended that these areas and the stored items in these areas be decontaminated immediately by a thorough cleaning until surface lead concentrations are reduced to below recommended levels. In addition, any other dusty/dirty areas in the converted firing range should be thoroughly cleaned.

1.0 Introduction

Shaw Environmental, Inc. (Shaw) was contracted to perform an industrial hygiene evaluation for the Manassas Readiness Center in Manassas, Virginia. Non-Responsive performed the evaluation on 28 January 2004. The point of contact at the readiness center was SSG Non-Responsive

The findings, discussion, and interpretation of results are provided in Section 2.0. The conclusions are provided in Section 3.0. The HHIM data form for the facility is provided in Appendix A. The building layout is provided in Appendix B. Sampling sheets and laboratory analyses are provided in Appendix C. References are provided in Appendix D. The *Recommendations for Surface Lead Dust in Armories* document is provided in Appendix E.

The statements, opinions, and conclusions contained in this report are based solely upon the services performed by Shaw as described in the report. In performing these services and preparing the report, Shaw Environmental, Inc. relied upon the work and information provided by others, including public agencies, whose information is not guaranteed by Shaw Environmental, Inc.

2.0 Findings, Discussion, and Interpretation of Results

The results, discussion, and interpretation of results are provided in the following sections.

2.1. Sampling for Lead

2.1.1 Wipe Sampling

Wipe samples were collected for lead from the drill floor/assembly area. Also, wipe samples were collected for lead in rooms, hallways, foyers, etc. The sampling in rooms, hallways, foyers, etc. represented approximately 25% of the building. Approximately half of the samples were collected from surfaces in common areas, such as surfaces of a desk. The remaining samples were collected from uncommon surface areas, such as a supply vent or the top of a file cabinet. The samples were collected and analyzed in accordance with the Instructions for *Completing the Sampling of ARMY National Guard Armories* procedure.

The only samples initially submitted for analysis were those from the drill floor/assembly hall. Since there were results above acceptable levels from the drill floor/assembly hall area, the remaining samples were submitted for analysis.

Results of the wipe sampling are provided in Table 1. The results revealed lead at six locations at concentrations above the recommended level of 200 micrograms lead per square foot ($\mu\text{g}/\text{ft}^2$) (See Appendix E). The sample collected from the support beam to the garage door in the drill floor/assembly hall area had a lead concentration of 380 $\mu\text{g}/\text{ft}^2$. The samples collected from supply room 215A, room 116, room 110, room 119, and room 121 had lead concentrations of 450, 540, 270, 540, and 2200 $\mu\text{g}/\text{ft}^2$, respectively. It is recommended that these surface and the immediate areas around these surfaces be thoroughly cleaned to reduce the lead level to below 200 $\mu\text{g}/\text{ft}^2$. For guidance on the proper method of cleaning, please refer to NG PAM 385-15 (*Guidelines and Procedures for Indoor Firing Range (IFR) Rehabilitation, Conversion, and Cleaning*). In addition, any other dusty/dirty areas in these areas should be thoroughly cleaned.

In addition, wipe sampling for lead revealed concentrations above a level of $40 \mu\text{g}/\text{ft}^2$ in the drill floor/assembly hall area, the converted firing range, and rooms 201, 209, 214, 215A, 220, 105, 109, 113, 116, 110, 106, 118, 119, and 121. Please note that the *Recommendations for Surface Lead Dust in Armories* (Appendix E) states that all areas with lead concentrations above $40 \mu\text{g}/\text{ft}^2$ that will be accessible to children should be cleaned. If a special function is held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function.

2.1.2 Air Sampling for Lead

General air sampling was conducted because employees were not available for sampling. The samples were collected and analyzed in accordance with Method 7082 of the National Institute of Occupational Safety and Health (NIOSH) Manual of Analytical Methods.

The results of the sampling are provided in Table 2. The results revealed non-detectable concentrations of lead in air; therefore, no actions are necessary.

2.2 Physical Condition of Facility

2.2.1 Peeling Paint - Lead

Peeling paint was not observed at the armory; therefore, bulk samples for lead in paint were not taken.

2.2.2 Visual Inspection - Asbestos

A visual inspection was made to determine if there was any suspected asbestos-containing material at the armory. Materials (pipe insulation and floor tiles) suspected of containing asbestos were observed. The suspected asbestos-containing materials, with condition and estimated quantity, were at the following locations:

- Offices 103, 105, 107, 109, 111, 113, and 115 -- Good Condition, Approximately 1496 Square Feet
- Offices 106, 108, 110, 112, 114, and 116 -- Average Condition, Approximately 1237 Square Feet
- Offices 200, 201, and 202 -- Average Condition, Approximately 1063 Square Feet

- Pipe Insulation – Good Condition, actual linear feet not known since there could be pipes in hidden locations

A bulk sample of a floor tile was taken, and the results revealed that the material contains 1-3% asbestos. The results of the sampling are provided in Appendix C.

An operation and maintenance plan should be followed when performing any activities that may disturb the asbestos-containing materials or suspected asbestos-containing materials.

2.2.3 Visual Inspection – Water Damage and Mold

A visual inspection was made to determine if there was any water damage or visible mold at the armory. Both visible mold and water damage was observed at the armory. Water damage was observed on the ceilings and some walls in rooms 116, 102, 100, 201, 202, 211, 213, 219, 220A, 118, 105, corridor 1, and the lobby.

The source of the water damage was likely from a mixture of roof and pipe leaks. The source of the water damage should be confirmed and actions taken to eliminate the source in order to prevent the possibility of mold growth that may lead to indoor air quality problems.

Visible mold was observed on the ceilings and walls in room 213. The area where the mold is located should be thoroughly cleaned with 0.5% sodium hypochlorite solution (1 part household bleach to nine parts water) or equivalent in order to eliminate the potential mold/indoor air quality problem. In addition, the source of the mold should be identified and actions taken to eliminate the source of the mold.

2.2.4 Visual Inspection - Housekeeping

The housekeeping was determined to be good.

2.3. Building Concerns

2.3.1 Ergonomic Concerns

Interviews with employees and observation of work activities revealed no ergonomic concerns at the armory.

2.3.2 Indoor Air Quality

Interviews with employees and measurements for carbon dioxide and temperature revealed no indoor air quality concerns at the armory. However, measurements for humidity revealed that levels did not meet the American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE) recommended level of 30% in the facility. It is recommended that a humidification system be installed at the facility.

The results of the measurements for carbon dioxide, humidity, and temperature are provided in Table 3.

2.4. Safety and Industrial Hygiene Programs

An evaluation was performed to determine the applicability of the following programs.

- Confined Spaces
- Hearing Conservation
- Respiratory Protection
- Hazard Communication (HAZCOM)
- Personal Protective Equipment (PPE)

It was determined that the HAZCOM program was the only program listed above that was applicable at the facility. The HAZCOM program was evaluated and it was determined that the program met minimum requirements.

2.5. Ventilation

2.5.1 Ventilation System Evaluation

There were no local exhaust ventilation systems at this armory; therefore, no ventilation studies were performed.

2.5.2 Contamination of Clean Air Sources

Since there were no local exhaust ventilation systems at the armory, there was no possibility that clean air sources could be contaminated by exhaust air.

2.6. Noise Exposure

An evaluation was performed to determine if there were any hazardous noise areas at the armory. It was determined that there were no areas at the armory that would exceed the permissible exposure limit for noise.

2.7. Lighting

Lighting measurements were conducted at the armory. Results of the lighting evaluation are provided in Table 4. As can be seen from the results, the lighting did not meet the minimum requirements in some areas, including offices 200, 201, and 202.

Consideration should be given to providing more lighting to these areas. This may be accomplished by replacing burnt out luminaries, cleaning fixtures, cleaning windows, painting walls with a lighter color, repositioning detailed work to higher illuminated areas, and using supplemental lighting.

2.8. Converted Indoor Firing Ranges

There was a converted indoor firing range at the facility; therefore, wipe samples were taken for lead at various locations in or near the converted range. The space is used as a storage room. The results are provided in Table 5. The results revealed lead, with associated concentrations, at the following locations:

- bullet trap (floor near former bullet trap location) at $6100 \mu\text{g}/\text{ft}^2$;
- light fixtures at $1100 \mu\text{g}/\text{ft}^2$;
- overhead heaters at $860 \mu\text{g}/\text{ft}^2$;
- stored item (desk) at $280 \mu\text{g}/\text{ft}^2$;
- floor (inside the converted firing range) the range at $260 \mu\text{g}/\text{ft}^2$; and
- floor (outside the converted firing range) at $60 \mu\text{g}/\text{ft}^2$

Wipe sampling for lead revealed concentrations at all five locations sampled above the recommended level of $200 \mu\text{g}/\text{ft}^2$, a level recommended in the *Guidelines for Converting Indoor Firing Ranges to Other Uses* document (Department of Army). These areas and stored items in the converted firing range must be decontaminated immediately by a thorough cleaning until surface lead concentrations are reduced to below recommended levels. For guidance on proper cleaning methods, please refer to NG PAM385-15 (*Guidelines and Procedures for Indoor Firing Range*

(IFR) Rehabilitation, Conversion, and Cleaning). In addition, any other dusty/dirty areas in the converted firing range should be thoroughly cleaned.

2.9. HVAC System

The maintenance schedule for the HVAC system was evaluated to verify that maintenance occurs on a regular basis. Also, the condition of the HVAC system was evaluated to determine if the maintenance performed is effective. It was deemed that maintenance occurs on a regular basis, and the maintenance performed is effective.

2.10. IHIM

A Health Hazard Information Module (IHIM) form was completed for the armory. The completed form is provided in Appendix A.

3.0 Conclusions

It is concluded that there were no industrial hygiene concerns at the armory with regards to atmospheric exposure to lead, peeling lead-based paint, housekeeping, ergonomic conditions, safety and industrial hygiene programs, ventilation systems or contamination of clean air sources, noise exposure, and HVAC systems.

There were industrial hygiene concerns at the armory with regards to lead surface contamination, suspected asbestos-containing material, water damage, visual mold, indoor air quality, lighting, and surface lead contamination in the converted firing range. These concerns are discussed in detail in Section 2.0 of this report.

TABLES

Table 1
Wipe Sampling for Lead
National Guard Armory
Manassas, Virginia
Date of Sampling: 28 January 2004

Sample Number	Location	Results, $\mu\text{g}/\text{ft}^2$ ^a
VAMAN028-1	Drill Floor (kitchen service window) See Building Layout -- Appendix B	38
VAMAN028-2	Drill Floor (top surface of heat register) See Building Layout -- Appendix B	83
VAMAN028-3	Drill Floor (top surface of heat register) See Building Layout -- Appendix B	67
VAMAN028-4	Drill Floor (top surface of fire extinguisher) See Building Layout -- Appendix B	100
VAMAN028-5	Drill Floor (support beam to drill floor garage door) See Building Layout -- Appendix B	380
VAMAN028-6	Field Blank	0.95
VAMAN028-7	25% Building (room 201 window sill) See Building Layout -- Appendix B	73
VAMAN028-8	25% Building (room 209 top surface of filing cabinet) See Building Layout -- Appendix B	79
VAMAN028-9	25% Building (room 214 top surface of filing cabinet) See Building Layout -- Appendix B	44
VAMAN028-10	25% Building (room 215A supply room) See Building Layout -- Appendix B	450
VAMAN028-11	Drill Floor (room 220 classroom desktop) See Building Layout -- Appendix B	78
VAMAN028-12	Field Blank	0.61
VAMAN028-13	25% Building (room 105 window sill) See Building Layout -- Appendix B	150
VAMAN028-14	25% Building (room 109 window sill) See Building Layout -- Appendix B	150
VAMAN028-15	25% Building (room 113 window sill) See Building Layout -- Appendix B	110

Table 1 (Continued)
Wipe Sampling for Lead
National Guard Armory
Manassas, Virginia
Date of Sampling: 28 January 2004

VAMAN028-16	25% Building (room 116 window sill) See Building Layout -- Appendix B	540
VAMAN028-17	25% Building (room 110 window sill) See Building Layout -- Appendix B	270
VAMAN028-18	Field Blank	1.3
VAMAN028-19	25% Building (room 106 top surface of refrigerator) See Building Layout -- Appendix B	120
VAMAN028-20	25% Building (corridor A top surface of water fountain) See Building Layout -- Appendix B	7.7
VAMAN028-21	25% Building (room 118 window sill) See Building Layout -- Appendix B	120
VAMAN028-22	25% Building (room 119 top surface of filing cabinet) See Building Layout -- Appendix B	540
VAMAN028-23	25% Building (room 121 top surface of table) See Building Layout -- Appendix B	2200
VAMAN028-24	Field Blank	1.4

^a Micrograms lead per square foot

The samples were taken and analyzed in accordance with the *Instructions for Completing the Sampling of ARMY National Guard Armories* procedure.

In armories that do not contain childcare facilities, the NGB Region North Industrial Hygiene Office recommends cleaning the areas with sample results greater than 200 µg/ft²

Table 3
Indoor Air Quality Measurements for Carbon Dioxide, Humidity, and Temperature
National Guard Armory
Manassas, Virginia
Date of Sampling: 28 January 2004

Location	Occupants In Area	Carbon Dioxide, parts per million parts of air (ppm)	Percent (%) Humidity	Temperature (°F)
1 st Floor	1	316	17.5	68.5
Outdoors	-	295	22.7	43.2

Carbon dioxide, humidity, and temperature measurements were taken with a TSI Q Trak Plus, Model 8554, Indoor Air Quality Meter, calibrated in April 2003.

American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE) recommends that indoor carbon dioxide levels be less than 700 ppm above outdoor levels.

ASHRAE recommends that the relative humidity levels be maintained between 30 to 60 percent.

ASHRAE recommends that the acceptable temperature range be 68 degrees Fahrenheit to 74 degrees Fahrenheit in the winter and 73 degrees Fahrenheit to 79 degrees Fahrenheit in the summer.

Table 4
Illumination Readings
National Guard Armory
Manassas, Virginia
Date of Sampling: 28 January 2004

Location	Luminance (fc) ^a	Standard (fc) ^a	Standard Met
Room 119	22.2-66.6	30	Some Areas
Room 117	11.1-33.3	30	Some Areas
Room 121	88.8-111.1	70	Yes
Room 118	88.8-122.2	70	Yes
Rooms 110, 112, 114, & 116	55.5-77.7	70	Some Areas
Rooms 105, 107, 109, 111, 113, & 115	44.4-83.3	70	Some Areas
Corridor I	44.4-77.7	7.5	Yes
Room 102	11.1-44.4	40	Some Areas
Rooms 200, 201, & 202	22.2-66.6	70	No
Room 217	44.4-111.1	70	Some Areas
Room 220A	33.3-88.8	70	Some Areas
Corridor B	22.2-44.4	7.5	Yes
Room 218	44.4-100	70	Some Areas
Corridor C	11.1-33.3	7.5	Yes

^a fc - Footcandles

The readings were taken with a Weston model 614-60 Lightmeter.

The standards listed above are from ANSI/IES RP-1 and RP-7.

Table 2
Breathing Zone Air Samples for Lead
National Guard Armory
Manassas, Virginia
Date of Sampling: 28 January 2004

Sample Number	Employee	Sampling Information			Results (mg/m ³) ^a
		Time Sampled / Minutes	Flow Rate (lpm) ^b	Volume (liters)	
VAMAN028-A1	General Air Sample	1425-1640/135	1.6179	218.41	< 0.005
VAMAN028-A2	General Air Sample	1430-1645/135	1.6719	225.70	< 0.004
VAMAN028-A3	Field Blank	-	-	-	None Detected

^a Milligrams lead per cubic meter of air.

^b Liters of air per minute.

Method 7082 of the National Institute of Occupational Safety and Health (NIOSH) Manual of Analytical Methods was followed for sampling for lead.

Table 5
Wipe Sampling for Lead – Converted Firing Range
National Guard Armory
Manassas, Virginia
Date of Sampling: 28 January 2004

Sample Number	Location	Results, $\mu\text{g}/\text{ft}^2$ ^a
VAMAN028-25	Bullet Trap (floor near former bullet trap location)	6100
VAMAN028-26	Light Fixtures	1100
VAMAN028-27	Overhead Heaters	860
VAMAN028-28	Stored Item - Desk	280
VAMAN028-29	Floor (inside the converted firing range)	260
VAMAN028-30	Field Blank	0.72
VAMAN028-31	Floor (outside the converted firing range)	60

^a Micrograms lead per square foot

The samples were taken and analyzed in accordance with the Instructions for *Completing the Sampling of ARMY National Guard Armories* procedure.

Appendix A

HHIM Data Form(s)

HEALTH HAZARD INFORMATION MODULE: INDUSTRIAL HYGIENE SURVEY

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

SECTION 1. DEMOGRAPHIC DATA

ARLOC 24255		INSTALLATION APG-EA		BLDG/RM NO. MALASSAS	
LOCATION/CODE ADMINISTRATIVE AREAS / AA			OPERATION/CODE ADMINISTRATIVE OPERATIONS / ADD		
SURVEY DATE 28 JANUARY 2004			EVALUATOR (Initials) Non-Responsive		
MACOM/CODE		SUBMACOM/CODE XX		SUPERVISOR SSA Non-Responsive	
TELEPHONE/DSN NO. (703) 365 8277		UNIT/ORGANIZATION MALASSAS ARMORY		RAC 03	
NO. CIV(S) 2		NO. MIL 10		NO. CONTRACTOR(S) 0	
		NO. LOC(S) 0		NO. OTHER 1	

SECTION 2. FACILITY DATA

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

SECTION 3. SURVEY DATA

CONTROLS PRESENT	EVALUATION	UNIT CODE	CONTROLS REQUIRED	STATUS

PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized)

GLOVES	R	U	RESPIRATOR	NIOSH TC NO.	MANUFACTURER	R	U
ACID			AIRLINE				
COLD SURFACES			ABRASIVE BLASTING HOOD				
HOT SURFACES			DISPOSABLE				
HBC AGENTS			FULL FACE AIR PURIFYING				
OIL			1/2 FACE AIR PURIFYING				
SOLVENTS			POWERED AIR PURIFYING				
SURGICAL GLOVES			1/4 FACE AIR PURIFYING				
			SELF CONTAINED				

EYES/FACE	R	U	HEARING	R	U	BODY	R	U	HEAD/FIT	R	U
CHEMICAL SPLASH			CANAL CAPS			APRONS			COLD WEATHER BOOTS/HATS		
FULL FACE SHIELD			EAR PLUGS			COLD WEATHER CLOTHING			HARD HATS		
CHEMICAL SAFETY			HELMETS			COVERALLS			IMPERMEABLE BOOTS		
SAFETY/IMPACT			MUFFS			FULL BODY SUIT			SAFETY/CONDUCTIVE SHOES		
WELDING HELMET			MUFF/EARPLUG COMBO			HEAT REFLECTIVE VEST/SUIT			SAFETY/NON-CONDUCTIVE SHOES		

Posted to NGB HHS/Reading Room: LIMIT FOIA Requested Record # 15-0085 (VA)

SECTION 4. HAZARD INVENTORY DATA

CAS CODE	HAZARD DESCRIPTION	PAC	EPC
ADUSTXXVY	VIDEO DISPLAY TERMINALS	3-LOW	D - UNCONTROLLED PHYSICAL
7439-92-1	LEAD, INORGANIC DUSTS; FUMES	2 - MODERATE	C - UNCONTROLLED RESPIRATORY
1332-21-4	ASBESTOS	2 - MODERATE	C - UNCONTROLLED RESPIRATORY
124-38-9	CARBON DIOXIDE	2 - MODERATE	C - UNCONTROLLED RESPIRATORY
POLIFTING	HEAVY LIFTING	2 - MODERATE	D - UNCONTROLLED PHYSICAL
PO HEATSTR	HEAT STRESS	3-LOW	D - UNCONTROLLED PHYSICAL

SECTION 5. PERSONNEL DATA

LAST NAME	FIRST NAME	MI	SEX	SSN	CATEGORY
(SEE ATTACHED HUMAN INFORMATION FORM)					

SECTION 6. COMMENTS

☒ No comments
 ☐ See attached sheet

PRIVACY ACT STATEMENT

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

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

attached

Full time soldiers at the Manassas armory:

VADPU/IOSC personnel:

Non-Responsive

1710 Trans Co. personnel:

Non-Responsive

A 1/116 INF personnel:

Non-Responsive

Recruiting, R&R DIV JF HQ-VA personnel:

Non-Responsive

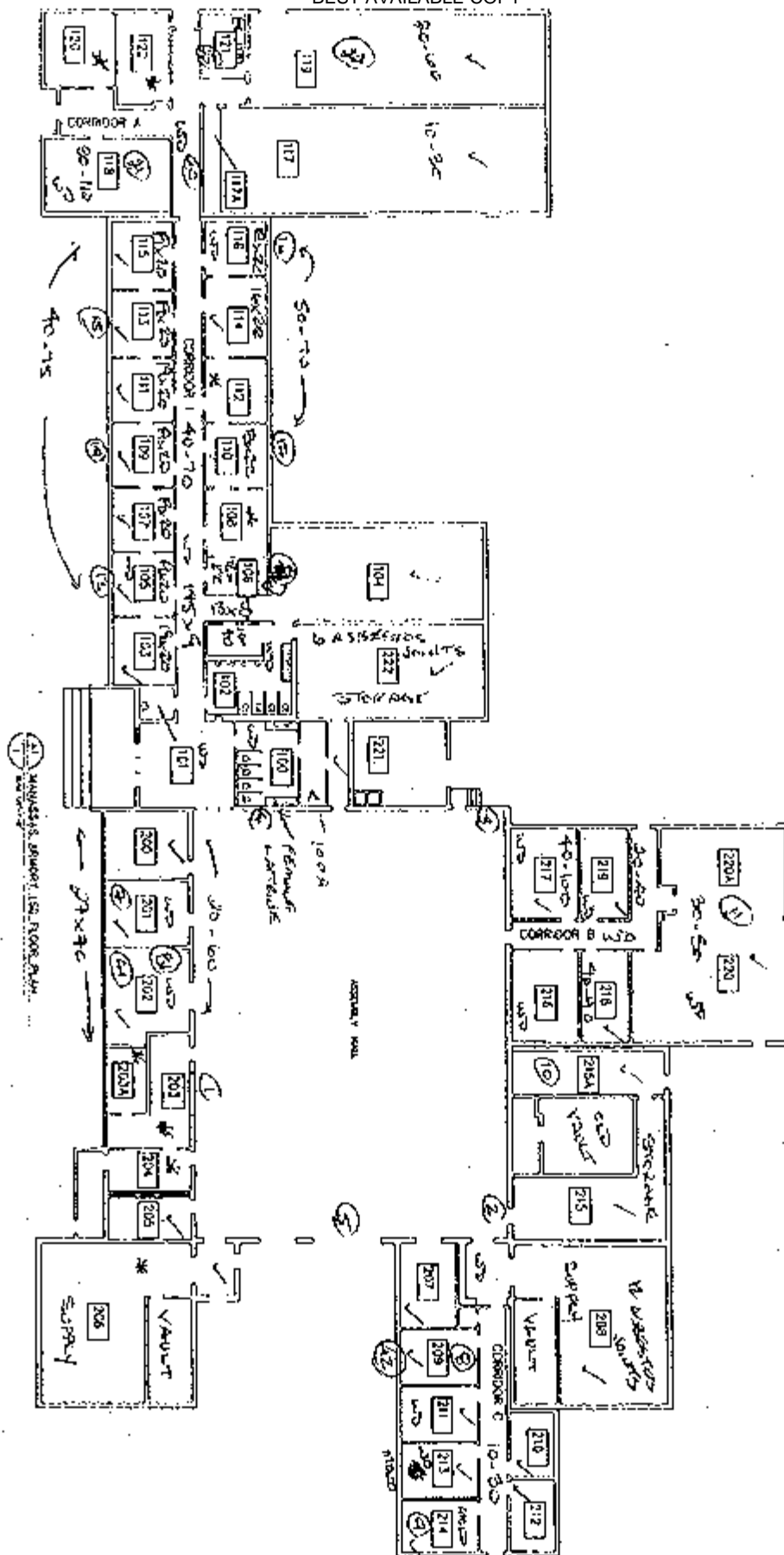
Custodial personnel:

Non-Responsive

Appendix B

Building Layout

BEST AVAILABLE COPY



MANASSAS ARMORY

13241

Posted to NCB FOIA Reading Room
May, 2018

FOIA REQUESTING INFORMATION
DEPARTMENT OF MILITARY AFFAIRS
Released by National Guard Bureau

COMMONWEALTH OF VIRGINIA

Appendix C

Sampling Sheets and Laboratory Analyses

CERTIFICATE OF ANALYSIS

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

Job Name: VA MAN 028
Job Location: Manassas, Virginia

Chain Of Custody: 122665
Date Analyzed: 02/07/2004

Person Submitting: Non
Report Date: 09-Feb-04

Attention: 803 706 8888

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
0422941	VA MAN 028 1	Furnace	Wipe	****	0.111	6.75 ug/ft ²	38 ug/ft ²	
0422942	VA MAN 028 2	Furnace	Wipe	****	0.111	13.50 ug/ft ²	83 ug/ft ²	
0422943	VA MAN 028 3	Furnace	Wipe	****	0.111	6.75 ug/ft ²	67 ug/ft ²	
0422944	VA MAN 028 4	Furnace	Wipe	****	0.111	13.50 ug/ft ²	100 ug/ft ²	
0422945	VA MAN 028 5	Furnace	Wipe	****	0.111	67.51 ug/ft ²	380 ug/ft ²	
0422946	VA MAN 028 6	Furnace	Wipe Blank	****	N/A	0.30 ug	0.95 ug	
0422947	VA MAN 028 25	Flame	Wipe	****	0.111	108.01 ug/ft ²	6100 ug/ft ²	
0422948	VA MAN 028 26	Flame	Wipe	****	0.111	108.01 ug/ft ²	1100 ug/ft ²	
0422949	VA MAN 028 27	Flame	Wipe	****	0.111	108.01 ug/ft ²	860 ug/ft ²	
0422950	VA MAN 028 28	Furnace	Wipe	****	0.111	67.51 ug/ft ²	280 ug/ft ²	
0422951	VA MAN 028 29	Furnace	Wipe	****	0.111	67.51 ug/ft ²	260 ug/ft ²	
0422952	VA MAN 028 30	Furnace	Wipe Blank	****	N/A	0.30 ug	0.72 ug	
0422953	VA MAN 028 31	Furnace	Wipe	****	0.111	6.75 ug/ft ²	60 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

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

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

Job Name: VA MAN 028
Job Location: Manassas, Virginia
Job Numbers: 845702 01000000
P.O. Number: 1103

Chain Of Custody: 122665
Date Analyzed: 02/07/2004
Person Submitting: [Redacted]
Report Date: 09-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 (ft ²)	Reporting Limit	Final Result	Comments
-------------------	----------------------	---------------	-------------	----------------	-------------------------------	-----------------	--------------	----------

Analysis Method for Flame: Air, Wipes, Paints, and Soil/Solids: EPA 800/R-93/200(M)-7420; Water: SM-3111B
Analysis Method For Furnace: Air, Wipes, Paints, and Soil/Solids: EPA 800/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:

Non-Responsive

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 AIHA air samples.

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

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

Job Name: VA MAN 028
Job Location: Manassas, Virginia
Job Number: 845702.010000000
P.O. Number: 1103

Chain Of Custody: 123450
Date Analyzed: 3/26/2004
Person Submitting: Non Respon
Report Date: 26-Mar-04

Attention: 999999

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
0432075	VA MAN 028 7	Furnace	Wipe	****	0.111	13.50 ug/ft²	73 ug/ft²	
0432076	VA MAN 028 8	Furnace	Wipe	****	0.111	33.75 ug/ft²	79 ug/ft²	
0432077	VA MAN 028 9	Furnace	Wipe	****	0.111	13.50 ug/ft²	44 ug/ft²	
0432078	VA MAN 028 10	Flame	Wipe	****	0.111	108.01 ug/ft²	450 ug/ft²	
0432079	VA MAN 028 11	Furnace	Wipe	****	0.111	33.75 ug/ft²	78 ug/ft²	
0432080	VA MAN 028 12	Furnace	Wipe Blank	****	N/A	0.30 ug	0.61 ug	
0432081	VA MAN 028 13	Furnace	Wipe	****	0.111	33.75 ug/ft²	150 ug/ft²	
0432082	VA MAN 028 14	Furnace	Wipe	****	0.111	33.75 ug/ft²	150 ug/ft²	
0432083	VA MAN 028 15	Furnace	Wipe	****	0.111	33.75 ug/ft²	110 ug/ft²	
0432084	VA MAN 028 16	Flame	Wipe	****	0.111	108.01 ug/ft²	540 ug/ft²	
0432085	VA MAN 028 17	Flame	Wipe	****	0.111	108.01 ug/ft²	270 ug/ft²	
0432086	VA MAN 028 18	Furnace	Wipe Blank	****	N/A	0.30 ug	1.3 ug	
0432087	VA MAN 028 19	Furnace	Wipe	****	0.111	33.75 ug/ft²	120 ug/ft²	
0432088	VA MAN 028 20	Furnace	Wipe	****	0.111	2.70 ug/ft²	7.7 ug/ft²	
0432089	VA MAN 028 21	Furnace	Wipe	****	0.111	33.75 ug/ft²	120 ug/ft²	
0432090	VA MAN 028 22	Flame	Wipe	****	0.111	108.01 ug/ft²	540 ug/ft²	
0432091	VA MAN 028 23	Flame	Wipe	****	0.111	108.01 ug/ft²	2200 ug/ft²	
0432092	VA MAN 028 24	Furnace	Wipe Blank	****	N/A	0.30 ug	1.4 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
 4475 Forbes Blvd. • Lanham, MD 20706 • (301) 459-2640 • Toll Free (800) 346-0961 • Fax (301) 459-2643

All rights reserved. AMA Analytical Services, Inc.



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: VA MAN 028
Job Location: Manassas, Virginia
Job Numbers: 845702 010000000
P.O. Number: 1103

Chain Of Custody: 123450
Date Analyzed: 3/26/2004
Person Submitting: [Redacted]
Report Date: 26-Mar-04

Attention: [Redacted]

Summary of Atomic Absorption Analysis for Lead

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

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

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 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



TEST REPORT
Page 1 of 2
2/6/04

Submitted To: **Non-Responsive**

Shaw Environmental, Inc.
5700 Thurston Ave., Suite 116
Virginia Beach, VA 23455

Reference Data:	Lead
Client Sample No.:	VAW00027A1 through VALEE028A3
P.O. No.:	1103
Sample Location:	Virginia
Sample Type:	Filter
Method Reference:	NIOSH 7300
DCL Set ID No.:	04-S-0488
DCL Sample ID No.:	04-02620 through 04-02635
Sample Receipt Date:	2/3/2004
Preparation Date:	02/04/04
Analysis Date:	02/05/04

The samples were prepared and analyzed in accordance with NIOSH method 7300 using a Perkin Elmer 3000XL ICP.

The sample condition upon receipt was acceptable except where noted.

The results are in the enclosed data table. Results relate only to the items tested and are not blank corrected unless indicated in the data table.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Non-Responsive

Analyst

Non-Responsive

Reviewer

CINCINNATI OFFICE
4388 GLENDALE-MILFORD ROAD
CINCINNATI, OHIO 45242-3706
513 733-5336, FAX 513 733-5347

WEST COAST OFFICE
11 SANTA YORMA COURT
NOVATO, CALIFORNIA 94945
800 280-8071, FAX 415 893-9469

Results
Lead

Client #	DCL #	Sample Volume (L)	µg/sample	mg/m ³
VAW00027A1	04-02620	142.00	ND	<0.007
VAW00027A2	04-02621	140.00	ND	<0.007
VAW00027A3	04-02622	0	ND	-
VAFRE029A1	04-02623	277.06	ND	<0.004
VAFRE029A2	04-02624	296.60	ND	<0.003
VAFRE029A3	04-02625	0	ND	-
VAWAR029A1	04-02626	125.75	ND	<0.008
VAWAR029A2	04-02627	123.36	ND	<0.008
VAWAR029A3	04-02628	0	ND	-
VAMAN028A1	04-02629	218.41	ND	<0.005
VAMAN028A2	04-02630	225.70	ND	<0.004
VAMAN028A3	04-02631	0	ND	-
VALEE028A1	04-02633	192.77	ND	<0.005
VALEE028A2	04-02634	195.65	ND	<0.005
VALEE028A3	04-02635	0	ND	-
	Prep Blank		ND	
% Recovery	LCS		118.	
RPL			1.	

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

Non-Responsive

Analyst

Non-Responsive

Reviewer

1/28/2004

135.00

218.41 Liters

135.00

225.70 Liters



2/4/04
Page 1 of 2

SUBMITTED TO:
Non-Responsive

Shaw Environmental, Inc.
5700 Thurston Ave., Suite 116
Virginia Beach, VA 23455

REFERENCE DATA:

Client Sample No.:	VAMAN028B1
P.O. No.:	1103
Sample Location:	Virginia
Sample Type:	Bulk
Method Reference:	EPA-600/R-93/116
DCL Set ID No.:	04-A-0488
DCL Sample ID No.:	04-02632
Sample Receipt Date:	2/3/04
Analysis Date:	2/4/04

We certify that the following samples were prepared and analyzed by Polarized Light Microscopy for asbestos and other fibrous constituents using EPA-600/R-93/116. The samples were acceptable upon receipt except where noted. The samples were examined under a stereomicroscope in a laboratory fume hood for general composition and phase separation. If needed, portions of the sample were removed and ground with a mortar and pestle before being mounted on a glass microscope slide. Mountings of representative portions of the material are prepared in one or more appropriate refractive index liquids (1.550, 1.605, 1.680) and examined by Polarized Light Microscopy*. Estimates of concentration are made on an area basis. The results of the analysis apply only to the materials analyzed and are summarized on the attached bulk asbestos analysis data sheets. DataChem Laboratories will dispose of all bulk samples after 60 days unless other arrangements are made.

Non-Responsive

Analyst

Non-Responsive

Reviewer

*Floor tiles, decorative paints, joint compounds, and cement materials require additional treatment in order to evaluate the concentration of small asbestos fibers bound in the material. Some samples may contain fibers that are not visible by PLM and can only be detected by electron microscopy techniques. Floor tiles are analyzed as homogeneous materials if insufficient mastic is present or if phases have been cross contaminated.

DataChem Laboratories NVLAP Lab ID: 101917. Laboratory accreditation by the National Institute of Standards and Technology does not in any way constitute approval or endorsement by NIST.

CINCINNATI OFFICE
4388 GLENDALE-MILFORD ROAD
CINCINNATI, OHIO 45242-3706
513 733-5336, FAX 513 733-5347

WEST COAST OFFICE
11 SANTA YORBA COURT
NOVATO, CALIFORNIA 94945
800 280-8071, FAX 415 893-9469

2/4/04

**DataChem Laboratories
Polarized Light Microscopy
Asbestos Analytical Report**

Client: Shaw Environmental, Inc.
Location: Virginia
Set ID: 04-A-0488

Client Sample ID:	VAMAN028B1	VAMAN028B1
DCL Sample ID:	04-02632A	04-02632B
Macroscopic Examination		
Accepted/Rejected:	Accepted	Accepted
Homogeneity:	Layered	Layered
Color:	Grey	Black
Texture:	Compact	Resinous
Description:	Tile	Mastic
Analysis:	PLM	PLM
Asbestiform Minerals		
% Chrysotile:	>1≤3	
% Amosite:		
% Crocidolite:		
% Tremolite - Actinolite:		
% Anthophyllite:		
% Total Asbestos:	>1≤3	ND
Other Materials		
% Cellulose:		>3≤5
% Fiberglass:		
% Other Fibers:		
% Resin/Binder:	>10≤20	>70≤80
% Non Fibrous:	>70≤80	>10≤20

ND = None Detected Trace = <1%

Special Prep Procedures: None.

*Notes: P. O. #: 1103.

Non-Responsive

Microscopist

All values are in area percent by visual estimate. The Federal Register Vol. 55 No. 224 Tuesday Nov. 20 1990 Rules and Regulations states "... If the asbestos content is estimated to be less than 10% by a method other than point counting,... (the analysis) be repeated using the point counting technique by PLM." Any of the above samples can be reanalyzed by point counting at the client's request. Wherever possible, separate phases are analyzed and reported individually.

Appendix D

References

References

Title 29, Code of Federal Regulations (CFR), Part 1910, Occupational Safety and Health Administration (current edition)

American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc (ASHRAE) 62-2002, Ventilation for Acceptable Indoor Air Quality

Instructions for Completing the Sampling of Army National Guard Armories, Lead Wipe Sampling Procedure included with the Request for Proposal

Air Sampling for Lead - Method 7082 of the National Institute of Occupational Safety and Health (NIOSH) Manual of Analytical Methods

Design Guide DG-415-2, Logistics Facilities, National Guard Bureau Installation Division, 14 December 1999

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

Army Regulation (AR) 40-5, Medical Service, Preventive Medicine, 15 October 1990

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

Department of the Army Pamphlet (DA PAM) 40-501, Medical Services, Hearing Conservation Program, 10 December 1998

DA PAM 40-503, Medical Services, Industrial Hygiene Program, 30 October 2000

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

Guidelines for Converting Indoor Firing Ranges to Other Uses, Headquarters, Department of the Army and the Air Force, NG PAM (AR) 385-16/ANGPAM 91-101, 31 January 1994

24 CFR, Part 35, Subpart B, Section 35-110, Definition of Lead-Based Paint, Housing and Urban Development, U. S. Department of Housing

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 $0.05 \text{ mg}/\text{m}^3$ averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead dust in this building.

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

NGB-AVS-SI (40-5f)

4 November 2004

MEMORANDUM FOR VAARNG, Manassas Readiness Center, ATTN: SSG [Non-Responsive]
[Non-Responsive] 10628 Dumfries Road, Manassas, VA 22111-2720

SUBJECT: Baseline Survey

1. I have enclosed the industrial hygiene survey report completed by Shaw Environmental, Incorporated.
2. In addition to the attached discussion and recommendations regarding wipe samples for lead, if a special function is held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function.
3. Please contact me at (410) 942-0273 or 1-800-550-6967 if you have any questions regarding the enclosed report.

Encl

[Non-Responsive]

Regional Industrial Hygienist

CF: Organizational Maintenance Officer
Occupational Health Manager

National Guard Armory

Manassas Readiness Center, Manassas, Virginia

Industrial Hygiene Evaluation

Recommendations

- Wipe sampling for lead revealed a concentration above the recommended level of 200 micrograms per square foot ($\mu\text{g}/\text{ft}^2$) in the drill floor/assembly hall area, supply room 215A, room 116, room 110, room 119, and room 121. It is recommended that these surfaces and the areas immediately around these surfaces be thoroughly cleaned to reduce the lead level. In addition, any other dusty/dirty areas in these areas should be thoroughly cleaned. **RAC - 4**
- Wipe sampling for lead revealed concentrations above a level of 40 micrograms per square foot ($\mu\text{g}/\text{ft}^2$) in the drill floor/assembly hall area, the converted firing range, and rooms 201, 209, 214, 215A, 220, 105, 109, 113, 116, 110, 106, 118, 119, and 121. Areas with lead concentrations above $40 \mu\text{g}/\text{ft}^2$ that will be accessible to children should be cleaned. If a special function is held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function. **RAC - 4**
- Materials (floor tiles and pipe insulation) suspected of containing asbestos were observed. A bulk sample of a floor tile was taken, and the results revealed that the material contains asbestos. An operation and maintenance plan should be followed when performing any activities that may disturb the asbestos-containing materials or suspected asbestos-containing materials. **RAC - 5**
- Water damage was observed at several locations at the armory. The source of the water damage was likely from a combination of roof and pipe leaks. The source of the water damage should be confirmed and actions taken to eliminate the source in order to prevent the possibility of mold growth that may lead to indoor air quality problems. **RAC - 5**
- Visual mold was observed in the armory. The areas where the mold is located should be thoroughly cleaned with 0.5% sodium hypochlorite solution (1 part household bleach to nine parts water) or equivalent in order to eliminate the potential mold/indoor air quality problem. In addition, the source of the mold should be identified and actions taken to eliminate the source of the mold. **RAC - 5**
- Measurements for humidity revealed that levels did not meet the recommended level of 30% in the facility. It is recommended that a humidification system be installed at the facility. **RAC - 5**

- Lighting measurements were conducted at the armory. The lighting did not meet minimum requirements in some areas; therefore, consideration should be given to providing more lighting in these areas. This may be accomplished by replacing burnt out luminaries, cleaning fixtures, cleaning windows, painting walls with a lighter color, repositioning detailed work to higher illuminated areas, and using supplemental lighting. **RAC - 5**
- Wipe sampling for lead revealed concentrations above the recommended level of 200 micrograms per square foot ($\mu\text{g}/\text{ft}^2$) in all locations in the converted firing range area. It is **strongly** recommended that these areas and the stored items in these areas be decontaminated **immediately** by a thorough cleaning until surface lead concentrations are reduced to below recommended levels. In addition, any other dusty/dirty areas in the converted firing range should be thoroughly cleaned. **RAC - 3**

Shaw Environmental, Inc.

312 Directors Drive
Knoxville, TN 37923
865.690.3211
Fax 865.690.3626



Shaw Environmental, Inc.

22 April 2004

M **Non-Responsive** CIH
Regional Industrial Hygienist
Region North Industrial Hygiene Office
Attn: NGB-AVS-SI
301-IH Old Bay Lane
Havre De Grace, Maryland 21078

RE: Draft Report for the Industrial Hygiene Evaluation at the Manassas Readiness
Center – Manassas, Virginia

Dear Ms. **Non-Responsive**

Attached is a copy of the referenced report. Also attached is a copy of the field notes,
photographs, and photograph log. Please call me if you have questions.

Sincerely,

Non-Responsive

Project Manager

Survey Date 28/4/04

Rec'd 5/13/04

rev 10/8/04

emailed 10/12/04

rec'd 11/4/04

10/8/04
Make sure rec. ~~at~~
strongly suggest they
clean/decontaminate
thoroughly. High levels
of lead - even on desk.

Manassas Armory Photo Log
National Guard Armory
Manassas, Virginia
Date of Survey: 28 January 2004

Photo	Description
1	Lead Wipe Assembly Room - Kitchen Service Window - Sample 1
2	Lead Wipe Assembly Room - Heat Register - Sample 2
3	Lead Wipe Assembly Room - Heat Register - Sample 3
4	Lead Wipe Assembly Room - Top of Fire Extinguisher - Sample 4
5	Lead Wipe Assembly Room Support Beam to Garage Door - Sample 5
No Photo	25% Building - Room 201 Window Sill - Sample 7
7	25% Building - Room 209 Filing Cabinet - Sample 8
8	25% Building - Room 214 Filing Cabinet - Sample 9
9	25% Building - Room 215A Old Supply Room - Sample 10
10	25% Building - Room 220 Classroom Desktop - Sample 11
11	25% Building - Room 105 Window Sill - Sample 13
12	25% Building - Room 109 Window Sill - Sample 14
13	25% Building - Room 113 Window Sill - Sample 15
14	25% Building - Room 116 Window Sill - Sample 16
15	25% Building - Room 110 Window Sill - Sample 17
16	25% Building - Room 106 Refrigerator - Sample 19
17	25% Building - Hallway Water Fountain - Sample 20
18	25% Building - Room 118 Window Sill - Sample 21
19	25% Building - Room 119 Filing Cabinet - Sample 22
20	25% Building - Room 121 Table - Sample 23
21	Firing Range - Bullet Trap - Sample 25
22	Firing Range - Light Fixtures - Sample 26
23	Firing Range - Overhead Heaters - Sample 27
24	Firing Range - Stored Items - Sample 28
25	Firing Range - Floor Inside the Converted Firing Range - Sample 29
26	Firing Range - Floor Outside the Converted Firing Range - Sample 31
27	Asbestos - Tile Room 201
28	Asbestos - Tile Room 202 - Sample B1
29	Asbestos - Tile Room 200
30	Asbestos - Piping Room 222
31	Asbestos - Piping Room 222
32	Asbestos - Piping Room 208
33	Water Damage - Office
34	Water Damage - Hallway Outside Office 120
35	Water Damage
36	Water Damage
37	Water Damage - Hallway
38	Water Damage - Latrine
39	Water Damage - Lobby
40	Water Damage - Lobby
41	Water Damage - Latrine
42	Water Damage & Mold - Room 213
43	Water Damage & Mold - Room 213

44	Water Damage
----	--------------

Field Notes and Checklist

State: Virginia Location: MANASSAS Date: JANUARY 28, 2004
Contact: SFC Non-Responsive

1.0 Sampling for Lead VA MAJ 028 #10

1.1 Wipe Sampling

Sample #:	<u>1</u>	Picture #:	_____	Location:	<u>KITCHEN SERVICE WINDOW</u>
Sample #:	<u>2</u>	Picture #:	_____	Location:	<u>HEAT REGISTAR TOP</u>
Sample #:	<u>3</u>	Picture #:	_____	Location:	<u>HEAT REGISTAR TOP</u>
Sample #:	<u>4</u>	Picture #:	_____	Location:	<u>TOP OF FIRE EXTINGUISHER</u>
Sample #:	<u>5</u>	Picture #:	_____	Location:	<u>SUPPORT BEAM TO GARAGE DOOR</u>
Sample #:	<u>6, 7, 18, 24, 30</u>	Picture #:	<u>—</u>	Location:	<u>FIELD BLANKS</u>
Sample #:	<u>7</u>	Picture #:	_____	Location:	<u>201 WINDOW SILL</u>
Sample #:	<u>8</u>	Picture #:	_____	Location:	<u>209 TOP OF FILING CABINET</u>
Sample #:	<u>9</u>	Picture #:	_____	Location:	<u>214 TOP OF FILING CABINET</u>
Sample #:	<u>10</u>	Picture #:	_____	Location:	<u>215A OLD SUPPLY ROOM / NOW STORAGE ROOM</u>
Sample #:	<u>11</u>	Picture #:	_____	Location:	<u>220 DESK TOP / CLASSROOM</u>
Sample #:	<u>13</u>	Picture #:	_____	Location:	<u>105 WINDOW SILL</u>
Sample #:	<u>14</u>	Picture #:	_____	Location:	<u>109 WINDOW SILL</u>
Sample #:	<u>15</u>	Picture #:	_____	Location:	<u>113 WINDOW SILL</u>
Sample #:	<u>16</u>	Picture #:	_____	Location:	<u>114 WINDOW SILL</u>
Sample #:	<u>17</u>	Picture #:	_____	Location:	<u>110 WINDOW SILL</u>
Sample #:	<u>19</u>	Picture #:	_____	Location:	<u>106 TOP OF REFRIGERATOR</u>
Sample #:	<u>20</u>	Picture #:	_____	Location:	<u>CORRIDOR A TOP OF WATER FOUNTAIN</u>
Sample #:	<u>21</u>	Picture #:	_____	Location:	<u>118 WINDOW SILL</u>
Sample #:	<u>22</u>	Picture #:	_____	Location:	<u>119 TOP OF FILING CABINET</u>

(Also, please see the sketch of sampling locations.)

1.2 Breathing Zone Air Sampling VA MAJ 028 A #10

Sample #: A1 Employee Sampled: GENERAL AIR SAMPLES
Sample #: A2 Employee Sampled: GENERAL AIR SAMPLES

Field Notes and Checklist

State: VIRGINIA Location: _____ Date: _____
Contact: _____

1.0 Sampling for Lead

1.1 Wipe Sampling

✓ Sample #: 73 Picture #: _____ Location: 121 TOP OF TABLE
Sample #: 84 Picture #: _____ Location: _____
Sample #: _____ Picture #: _____ Location: _____
Sample #: _____ Picture #: _____ Location: _____
Sample #: _____ Picture #: _____ Location: _____
Sample #: _____ Picture #: _____ Location: _____
Sample #: _____ Picture #: _____ Location: _____
Sample #: _____ Picture #: _____ Location: _____
Sample #: _____ Picture #: _____ Location: _____
Sample #: _____ Picture #: _____ Location: _____
Sample #: _____ Picture #: _____ Location: _____
Sample #: _____ Picture #: _____ Location: _____
Sample #: _____ Picture #: _____ Location: _____
Sample #: _____ Picture #: _____ Location: _____
Sample #: _____ Picture #: _____ Location: _____
Sample #: _____ Picture #: _____ Location: _____
Sample #: _____ Picture #: _____ Location: _____
Sample #: _____ Picture #: _____ Location: _____
Sample #: _____ Picture #: _____ Location: _____
Sample #: _____ Picture #: _____ Location: _____

Peeling paint observed (Yes or No): NO

If peeling paint observed, samples were taken as follows:

[illegible]

Suspected asbestos-containing material observed (Yes or No): YES

If suspected asbestos-containing material observed, samples were taken as follows:

Location 1: OFFICES 103, 105, 107, 109, 111, 113, and 115 Picture #:
Condition: AVERAGE Approximate (Square or Linear Feet): 1476.25
Location 2: OFFICES 106, 108, 110, 112, 114, and 116 Picture #:
Condition: AVERAGE Approximate (Square or Linear Feet): 1237.5
Location 3: OFFICES 200, 201, 2002 Picture #:
Condition: AVERAGE Approximate (Square or Linear Feet): 1063.12
Location 4: Picture #:
Condition: Approximate (Square or Linear Feet):
Location 5: Picture #:
Condition: Approximate (Square or Linear Feet):

2.3 Visual Inspection – Water Damage and Mold

Water damage observed (Yes or No): Yes

If yes, water damage was observed at the following locations:

Location 1:	<u>Room 116</u>	Picture #:	<u>/</u>
Location 2:	<u>Corridor 1</u>	Picture #:	<u>/</u>
Location 3:	<u>Room 102</u>	Picture #:	<u>/</u>
Location 4:	<u>Room 100</u>	Picture #:	<u>/</u>
Location 5:	<u>Lobby</u>	Picture #:	<u>/</u>

Room 201, Room 202, Room 211, Room 213, Room 219, Room 220A
Room 118, Room 105

Mold observed (Yes or No): Yes

If yes, mold was observed at the following locations:

Location 1:	<u>Room 018</u>	Picture #:	<u>/</u>
Location 2:		Picture #:	
Location 3:		Picture #:	
Location 4:		Picture #:	
Location 5:		Picture #:	

2.4 Visual Inspection - Housekeeping

Housekeeping (good, average, poor): Good

Comments (such as no dirt or trash was visible on the floors or the housekeeping was poor in that there was trash and debris on the floors that could lead to a tripping hazard, or there was dust in the vents.):

3.0 Building Concerns

3.1 Ergonomic Concerns

Ergonomic concerns (Yes or No): No

If there are ergonomic concerns at the armory, describe the extent of the problem, such as three employees stated that they perform repetitive motion at the XYZ machine for 6 hours per day, and they stated that they are suffering from symptoms of musculoskeletal disorders (MSDs).

3.2 Indoor Air Quality

IAQ concerns (based on employee interviews)(Yes or No): YES

If yes, what were concerns:

RECENTLY TOLD ME OF WATER LEAKS IN OFFICE THAT LEAD TO MOULD PROBLEMS
I SING PEOPLE WHO SAID SHE FEELS BETTER WHEN NOT IN OFFICE

Measurements for carbon dioxide, humidity, and temperature:

Location	CO ₂ (ppm)	Humidity (%)	Temperature (°F)	Occupancy (People in Room)
Outdoors				
1 st Floor -	316	17.5	68.5	1
2nd Floor - OUTDOORS	295	22.7	43.2	0
3rd Floor -				
Basement				

4.0 Safety and Industrial Hygiene Programs

4.1 Confined Spaces

Are confined spaces applicable (Yes or No): NO

If yes, does the program meet minimum standards (Yes or No): _____

If no, explain the deficiencies:

4.2 Hearing Conservation

Is hearing conservation applicable (Yes or No): Yes

If yes, does the program meet minimum standards (Yes or No): Yes

If no, explain the deficiencies:

4.3 Respiratory Protection

Is respiratory protection applicable (Yes or No): No

If yes, does the program meet minimum standards (Yes or No): _____

If no, explain the deficiencies:

4.4 Hazard Communication

Is hazard communication applicable (Yes or No): Yes

If yes, does the program meet minimum standards (Yes or No): Yes

If no, explain the deficiencies:

4.5 Personal Protective Equipment

Is personal protective equipment applicable (Yes or No): no

If yes, does the program meet minimum standards (Yes or No): _____

If no, explain the deficiencies:

5.0 Ventilation

5.1 Ventilation System Evaluation

Local exhaust ventilation systems at this armory (Yes or No): no

If yes, results of airflow patterns:

Location 1: _____

Airflow Pattern (acceptable or unacceptable, with reason):

Location 2: _____

Airflow Pattern (acceptable or unacceptable, with reason):

Location 3: _____

Airflow Pattern (acceptable or unacceptable, with reason):

5.2 Contamination of Clean Air Sources

Clean air sources contaminated by contaminated exhaust air (Yes or No): no

If yes, describe:

6.0 Noise Dosimetry

Potential hazardous noise areas (Yes or No): no

If yes, results of noise dosimetry sampling:

Employee sampled: _____

Results: _____ % Actual _____ % Projected 8-hour TWA _____ Equivalent dBA

Activity: _____

Employee sampled: _____

Results: _____ % Actual _____ % Projected 8-hour TWA _____ Equivalent dBA

Activity: _____

Employee sampled: _____

Results: _____ % Actual _____ % Projected 8-hour TWA _____ Equivalent dBA

Activity: _____

7.0 Lighting Evaluation

DIVIDE BY .9

Location	Luminance Range (fc)
Room 119	20-40
Room 117	10-30
Room 121	20-100
Room 118	20-110
Rooms 110, 112, 114, 116	50-70
Rooms 105, 107, 109, 111, 113, 115	40-45
Corridor 1	40-70
Room 102	10-40
Rooms 209, 201, 202	20-60
Room 217	40-100
Room 200A	30-50
Corridor B	20-40
Room 218	40-90
Corridor C	10-30

8.0 Converted Indoor Firing Ranges

Converted indoor firing range (Yes or No): Yes

If yes, locations sampled:

Sample #: 1/A Picture #: — Location: Inside any remaining ventilation ductwork

Sample #: 1/A Picture #: — Location: Exhaust ventilation system

Sample #: 25 Picture #: / Location: Bullet trap

Sample #: 26 Picture #: / Location: Light fixtures

Sample #: 27 Picture #: / Location: Overhead heaters

Sample #: 28 Picture #: / Location: Stored items

Sample #: 29 Picture #: / Location: Floor

Sample #: 31 Picture #: / Location: Outside the range

9.0 HVAC System

Does the HVAC system have maintenance performed on a regular basis (Yes or No):

Yes

In yes, is the maintenance effective (Yes or No): Yes

If no, describe:

10.0 HHIM

Complete HHIM form for facility (Initial as completed): Non-Responsive

Reproduction Room HHIM Necessary (Yes or No) (Initial if Yes): —

Film Developing Room HHIM Necessary (Yes or No) (Initial if Yes): —

Maintenance Area HHIM Necessary (Yes or No) (Initial if Yes): —

11.0 Additional Items

Table 1 (wipe sampling) completed (initial when completed): _____

Table 2 (air sampling) completed (initial when completed): _____

Table 3 (peeling paint), if necessary, completed (initial when completed): _____

Table 3 or 4 (IAQ) completed (initial when completed): _____

Table 4 or 5 (noise), if necessary, completed (initial when completed): _____

Table 5 or 6 (firing ranges), if necessary, completed (initial when completed): _____

Airflow pattern diagram(s) completed (initial when completed): _____

Building layout included (initial when completed): _____

Photographs (initial when completed): _____

Sampling Sheets and Laboratory Analyses (initial when completed): _____

Sampling tracking form completed and faxed to NGB _____

within 5 days of date of this survey (initial when completed): _____

(Fax to Ken Forsythe at 410-942-0254)

State Lead Wipes Spreadsheet completed (initial when completed): _____

Three copies of noise exposure notification letter, if necessary (initial when completed): _____

Three copies of contaminant exposure forms for each employee that participated in air sampling (initial when completed): _____

Non-Responsive

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



Industrial Hygiene Survey
for VAARNG – Manassas Readiness Center
10628 Dumfries Road
Manassas, Virginia 24506

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

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

Industrial Hygiene Survey
for VAARNG – Manassas Readiness Center
10628 Dumfries Road
Manassas, Virginia 24506

Non-Responsive

Industrial Hygienist

Non-Responsive

Project Manager

Non-Responsive

Northeast District Health & Safety Manager

AECOM Environment
January 2013
Document No.: 60276421/ Manassas 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 Manassas Readiness Center Facility Layout

Appendix B Manassas Readiness Center Photographs

Appendix C Analytical Results

Appendix D References



List of Tables

Table 2-1: Lead Wipe Sample Results 2-1

Table 3-1: Indoor Air Quality Monitoring Results..... 3-2

Table 5-1: Light Survey 5-1



Executive Summary

On November 20, 2012, AECOM Technical Services Northeast, Inc. (AECOM) conducted an Industrial Hygiene (IH) survey of the Manassas Readiness Center facility located at 10628 Dumfries Road in Manassas, Virginia. SFC Non- was the point of contact for the facility and accompanied AECOM during the survey to provide access and information concerning the Manassas Readiness Center operations.

The industrial hygiene survey was conducted in general accordance with the scope of work as described in the "Statement of Work – Industrial Hygiene Services for National Guard Bureau Industrial Hygiene Region North – Baseline Surveys for Readiness Centers and Administrative Buildings", dated March 2009.

The Manassas Readiness Center is currently staffed by multiple units with an unknown number of active personnel. The facility is configured as an administrative area and a drill/assembly hall.

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

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

Lighting levels measured throughout the facility were generally not adequate as per American National Standard Institute/Illuminating Engineering Society of North America (ANSI/IESNA) RP-1-2004, Office Lighting, ANSI/IESNA RP-7-2001, Industrial Lighting, and the IESNA Lighting Handbook, 9th Edition, 11 April 2005.

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

However, a wipe sample collected from the pre-boiler air handler filter indicated levels of lead in excess of 200 ug/ft^2 and detected levels of lead were observed in two wipe samples collected from the former firing range area.

A damaged suspect asbestos containing material was sampled from the acoustic tile in the former firing area. Results of analysis indicated no asbestos detected in the collected sample.

No peeling or damaged paint was observed during the survey

Evidence of roof/condensate leaks were reported by building personnel and water damage was observed in multiple locations of the facility. No visible mold growth was observed during the survey, but a moldy odor was present in Classroom 7. Water intrusion is a mold growth risk factor and classroom

The Heating, Ventilation & Air Conditioning (HVAC) system in the building consists of a boiler room that feeds radiant heaters throughout the building. Air conditioning units are roof mounted and were not accessed as part of this survey. Poor temperature regulation was a frequent comment received by facility staff.

1.0 Facility Description and Operations

The Manassas Readiness Center is a single story masonry block building with brick façade. The structure is approximately 38,000 square feet and was built in 1958. The section occupied by Readiness Center personnel consists of rooms configured as office space and is finished with acoustical drop ceilings and floor tile.

The primary activity at the Manassas Readiness Center is routine administrative duties. The Manassas Readiness Center is currently staffed by approximately several separate units with an unknown number of active 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 multiple areas of the facility following the Occupational Safety & Health Administration (OSHA) wipe sampling method and using Ghost Wipes.

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

Table 2-1: Lead Wipe Sample Results

Sample Number	Sample Location	Lead Concentration
001	Boiler room - pre air handler	950 ug/ft ²
002	Drill hall horizontal surface top of supply vent	<110 ug/ft ²
003	Kitchen top of microwave	<110 ug/ft ²
004	Supply air grill room 201/office	<110 ug/ft ²
005	Office desk room AC-4 (copy room)	<110 ug/ft ²
006	Top of cabinet supply room	<110 ug/ft ²
007	Hallway outside room 103	<110 ug/ft ²
008	Foyer air supply	<110 ug/ft ²
009	Overhead heater in former range area	140 ug/ft ²
010	Stored items in range	<110 ug/ft ²
011	Floor of range	130 ug/ft ²

ug/ft² = Micrograms per square foot.

Wipe samples collected in association with the drill hall and administrative areas indicated lead levels below the Occupational Safety and Health Administration's (OSHA's) Clarification of "as free as practicable" and lead contamination under 29 CFR 1926.62, The Compliance Directive for the Interim Standard for Lead in Construction, CPL 2-2.58. OSHA recommends the use of HUD's acceptable decontamination level of 200 ug/ft² for floors in evaluating the cleanliness of change areas, storage facilities, and lunchrooms/eating areas.

The wipe sample located in the boiler room indicated levels of lead in excess of the action level of 200 micrograms per square foot (ug/ft²) per 29 CFR 1926.62. Laboratory analytical results are presented in Appendix C.

2.1.2 Air Sampling

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

3.0 Physical Condition of Facility and Personnel Concerns

3.1.1 Lead Based Paint

Interior surfaces of walls are coated with paint. The paint on the walls is in serviceable condition. AECOM did not observe damaged or peeling paint during this evaluation.

3.1.2 Suspect Asbestos Containing Materials

AECOM observed damaged acoustic tile in the former firing range, a sample of this potentially friable suspect asbestos-containing material (ACM) was collected and submitted for analysis. Results indicated no asbestos detected.

Typical suspect miscellaneous building materials observed but not sampled include drywall, floor tiles and associated mastic, cove base and associated mastic, ceiling tiles, carpet mastic, and window caulks.

3.1.3 Water Damage/Mold

AECOM observed evidence of water intrusion during this survey. Multiple locations showed evidence of stained ceiling tile. Of particular note was the water damaged ceiling tile and presence of a strong mildew odor in classroom 7.

3.1.4 Housekeeping

The Manassas 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 Manassas Readiness Center staff members. No Indoor Air Quality concerns were noted by the Manassas Readiness Center personnel in these areas. Comments were made concerning the strong mildew odor in classroom 7.

Instantaneous real-time reading for carbon monoxide and carbon dioxide (parts per million or ppm), temperature (° Fahrenheit), and relative humidity (as percentage) are presented in the following table. The facility is mechanically air conditioned. The majority of the readings were within acceptable ranges.

Table 3-1: Indoor Air Quality Monitoring Results

Location	Carbon Monoxide (ppm)	Carbon Dioxide (ppm)	Temp (°F)	Relative Humidity (%)
Office 200	2.8	446	74.1	31.7
Office 202	2.8	434	74.1	27.9
Kitchen 203	2.7	427	73.9	31.6
Kitchen 204	2.9	458	72.6	31.9
Janitor closet	2.4	438	72.2	33.4
Foyer area outside 206	2.4	465	72.4	33.2
Drill floor	1.9	425	73.0	32.5
Boiler room	3.9	413	66.4	32.0
AB-5 Classroom 7	3.2	418	67.2	38.9
AB-6 Classroom	1.3	408	68.6	38.9
Hallway @ AB-1	1.5	442	69.4	37.7
Foyer outside 208	1.3	443	71.4	35.1
Hallway outside AC-1	1.8	483	71.6	34.8
Office AC-1	1.8	467	71.6	34.0
Office AC-3	2.0	461	71.9	35.2
Office AC-5	2.2	509	72.4	35.1
Office AC-2	2.1	496	72.4	40.4
Copy room AC-4	2.4	534	72.4	37.5
Office AC-7	2.4	472	72.9	39.3
Storage 206	1.8	442	70.6	31.7
Supply 208	1.1	440	72.5	34.7
Main foyer	4.8	558	74.0	30.8
Readiness NCO office	2.3	630	76.3	27.6
AAG/Former firing range	2.3	424	75.1	31.4
Office AA1	2.3	456	75.0	27.4
Room AA2	2.1	525	75.1	28.8
Recruiter Entrance	2.2	524	75.4	29.0
Office 115	1.9	431	75.8	26.2
Office 114	2.3	426	75.0	25.8
Office 111	2.3	559	75.0	29.1
Office 108-110	2.1	465	74.9	27.7

Table 3-1 Guidelines:

Carbon Monoxide: Office/Warehouse Space – 9 ppm based on United States Environmental Protection Agency's National Ambient Air Quality Standard.

OSHA Permissible Exposure Limit (PEL) = 50 ppm. American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit value (TLV) = 25, ppm.

Carbon Dioxide: Office Space -Approximately 700 ppm above background (Derived from American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE) Standard 62.1-2010). Not Applicable to warehouse and vehicle maintenance bays.

Relative Humidity: Mechanically air-conditioned space – Maximum 65% (Derived from ASHRAE Standard 62.1-2010 – 5.10.1). Temperature: Winter (clothing insulation = 1.0 clo) Relative humidity 30-60% - Temp - 68 – 75°F Summer Temp - 73 – 79°F. (Derived from ASHRAE Standard 55-2010)

Manassas 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.

Temperature readings were relatively constant in all areas occupied by readiness center personnel.

4.1.2 HVAC Maintenance

The HVAC system is serviced by a third party vendor; records were not available for review as part of this survey.

There was no 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 typically not adequate at the Manassas facility.

Table 5-1: Light Survey

Location	Results (Foot candles)	Met Standard (Y/N)	Standard*
Office 200	21.6	N	50
Office 202	143	Y	50
Kitchen 203	18.3	N	50
Kitchen 204	7.6	N	50
Janitor closet	0.0	N	30
Foyer area outside 206	5.3	N	10
Drill floor	30.3	Y	10
Boiler room	34.3	Y	30
AB-5 Classroom 7	17.3	Y	30
AB-6 Classroom	50.8	Y	30
Hallway @ AB-1	23.9	Y	5
Foyer outside 208	25.2	Y	10
Hallway outside AC-1	18.2	Y	5
Office AC-1	20.8	N	50
Office AC-3	109.9	Y	50
Office AC-5	21.0	N	50
Office AC-2	20.9	N	50
Copy room AC-4	21.8	Y	10
Office AC-7	27.3	N	50
Storage 206	11.3	N	30
Supply 208	65.4	Y	30
Main foyer	14.8	Y	10
Readiness NCO office	29.6	N	50
AAG/Former firing range	35.6	Y	30
Office AA1	22.8	N	50
Room AA2	32.4	N	50
Recruiter Entrance	94.6	Y	10
Office 115	11.2	N	50
Office 114	19.7	N	50
Office 111	26.2	N	50
Office 108-110	29.0	N	50
Office Lighting (ANSI/IESNA RP-1-04) and Industrial Lighting Facilities (ANSI/IESNA RP-7-01)			

6.0 Evaluation of Attached Garage

There is no garage associated with the Manassas 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 Manassas Readiness Center.

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

Wipe samples collected in association with the drill hall and administrative areas indicated lead levels below the Occupational Safety and Health Administration's (OSHA's) Clarification of "as free as practicable" and lead contamination under 29 CFR 1926.62, The Compliance Directive for the Interim Standard for Lead in Construction, CPL 2-2.58. OSHA recommends the use of HUD's acceptable decontamination level of 200 ug/ft² for floors in evaluating the cleanliness of change areas, storage facilities, and lunchrooms/eating areas.

However, a wipe sample collected from the pre-boiler air handler filter indicated levels of lead in excess of 200 ug/ft² and detected levels of lead were observed in tow wipe samples collected from the former firing range area.

A damaged suspect asbestos containing material was sampled from the acoustic tile in the former firing area. Results of analysis indicated no asbestos detected in the collected sample.

No peeling or damaged paint was observed during the survey

Evidence of roof/condensate leaks were reported by building personnel and water damage was observed in multiple locations of the facility. No visible mold growth was observed during the survey but a moldy odor was present in Classroom 7. Water intrusion is a mold growth risk factor.

The Heating, Ventilation & Air Conditioning (HVAC) system in the building consists of a boiler room that feeds radiant heaters throughout the building. Air conditioning units are roof mounted and were not accessed as part of this survey. Poor temperature regulation was a frequent comment received by facility staff.

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

Manassas Readiness Center Facility Layout

MANASSAS ARMORY FLOOR PLAN



Appendix B

Manassas Readiness Center Photographs

Photograph 1



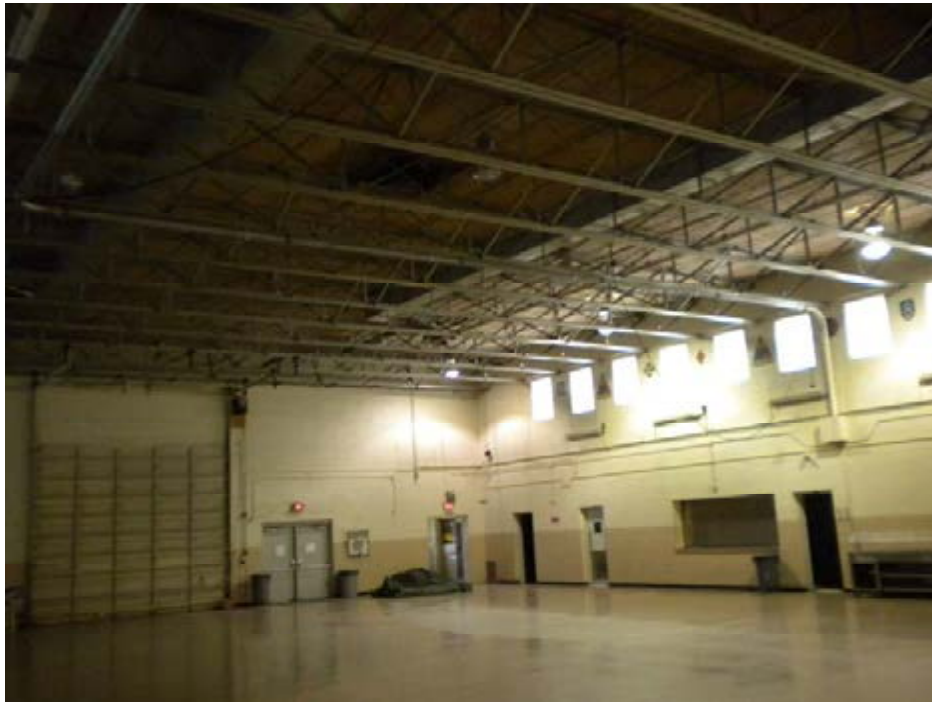
Manassas building

Photograph 2



Boiler room wipe sample

Photograph 3



Drill Hall

Photograph 4



Drill hall wipe sample

Photograph 5



Supply vent room 201

Photograph 6



Desk top wipe sample room AC-3

Photograph 7



Area of former roof leak room AC-3

Photograph 8



Typical hallway

Photograph 9



Foyer supply vent

Photograph 10



Water damaged ceiling tile classroom 7

Photograph 11



Former firing range

Photograph 12



Suspect ACM in former of range

Appendix C

Analytical Results

AMA Analytical Services, Inc.



A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS



Client: National Guard Bureau Job Name: VA ANG IH Survey Chain Of Custody: 514764
 Address: 301-1H Old Bay Lane, Attn: ARNG-CJG-P, Job Location: Manassas Date Submitted: 12/12/2012
 Havre de Grace, Maryland 21078 Job Number: Not Provided Person Submitting: AECOM
 P.O. Number: W912K6-05-A-0093 Date Analyzed: 12/20/2012 Report Date: 12/20/2012

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
13023145	001	Flame	Wipe	****	0.111	110 ug/ft ²	110	950 ug/ft ²	
13023146	002	Flame	Wipe	****	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13023147	003	Flame	Wipe	****	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13023148	004	Flame	Wipe	****	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13023149	005	Flame	Wipe	****	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13023150	006	Flame	Wipe	****	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13023151	007	Flame	Wipe	****	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13023152	008	Flame	Wipe	****	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13023153	009	Flame	Wipe	****	0.111	110 ug/ft ²	16	140 ug/ft ²	
13023154	010	Flame	Wipe	****	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13023155	011	Flame	Wipe	****	0.111	110 ug/ft ²	14	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. 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.

An AIHA (#100470) and NY ELAP (#10920) Accredited Laboratory

4475 Forbes Blvd. • Lanham, MD, 20706 • (301) 459-2640 • Toll Free (800) 346-9961 • Fax (301) 459-2643



CERTIFICATE OF ANALYSIS



Attention: **Non-**

Page 2 of 2

Analyst	Technical Manager	Non-Responsive
---------	-------------------	----------------

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®

101143-0

Client:	National Guard Bureau	Job Name:	VA ANGLH Survey	Chain Of Custody:	514764
Address:	301-1H Old Bay Lane, Attn: ARNG-CJG-P, State Military Reservation Havre de Grace, Maryland 21078	Job Location:	Manassas	Date Analyzed:	12/19/2012
		Job Number:	Not Provided	Person Submitting:	AECOM
		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 Synthetic Percent	Other Percent	Particulate Percent	Sample Type	Sample Color	Homogeneity	Analyst ID	Comments
13023156	012	NAD	--	--	--	--	100	--	--	--	--	IN	Yellow	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.

NVLAP (101143-0) Accredited Laboratory

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



(Please Refer To This
Number For Inquires)

514764

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

13) Job Name: VA ANG 1H SURVEY
14) Job Location: MANASSA
3. Job #: PO #: W912K6-09-A-0003
4. Contact Person: Non-Responsive @ phone #
5. Submitted by: AECOM Streaming Non-Responsive

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

AFTER HOURS (must be pre-scheduled) <input type="checkbox"/> Immediate <input type="checkbox"/> 1 Day <input type="checkbox"/> 2 Hours <input type="checkbox"/> Next Day <input type="checkbox"/> 2 Days				NORMAL BUSINESS HOURS <input type="checkbox"/> 3 Day <input type="checkbox"/> Results Requested By Noon <input type="checkbox"/> 5 Day <input type="checkbox"/> 7 Day 12/9/12				REPORT TO: <input type="checkbox"/> Include Comments <input checked="" type="checkbox"/> Email <input type="checkbox"/> Fax <input type="checkbox"/> Verbal	
Comments:				Non-Responsive					

***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)
P.M. Bulk
☒ EPA 610 - Visual Estimate _____ (QTY)
☐ EPA Point Count _____ (QTY)
☐ NY State Portable 198.1 _____ (QTY)
☐ Grav. Reduction ELAP 198.6 _____ (QTY)
☐ Other (specify) _____ (QTY)

☐ ELAP 1984/Chafield _____ (QTY)
☐ NY State PLM/TEM _____ (QTY)
☐ Residual Ash _____ (QTY)

TEM Dust

☐ Qual. (pre/ab) Vacuum/Dust _____ (QTY)
☐ Quan. (s/area) Vacuum D575-95 _____ (QTY)
☐ Quan. (s/area) Dust D6480-99 _____ (QTY)

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

☐ Pb Paint Chip _____ (QTY)
☒ Pb Dust Wipe (wipe type glove) 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) _____ ☐ Culture ID Cens (Media) _____ (QTY) _____
☐ Surface Tape (QTY) _____ ☐ Culture ID Species (Media) _____ (QTY) _____
☐ Other (Specify) _____ (QTY) _____

☐ Vermiculite
☐ Asbestos Soil PLM (Qual) PLM (Quan) PLMTEM (Qual) PLMTEM (Quan)

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

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

This form must always be submitted with air and surface samples

SAMPLE INFORMATION		ANALYSIS										MATRIX	CLIENT CONTACT					
SAMPLE ID#	SAMPLE LOCATION/ID	DATE/TIME	VOL (L) Wipe Area	ZEM	PCW	DLM	LEAD	MOLD	AIR	BELK	DUST	HIGH CONCENTRATION	SPREADSHEET	LABELED	SWAB	(LABORATORY STAFF ONLY)		
																Date/Time:	Contact:	By:
SEE ATTACHED FIELD DATA SHEETS																Date/Time:	Contact:	By:

LABORATORY
STAFF ONLY:
(CUSTODY)

1 Date Time RCVD: 12/12/12 10:30 AM
 2 Date Time Anal: 12/12/12 10:30 AM
 3 Results Reported: Non-Responsive
 4 Comments: 1991 Old St Yorko

Non-Responsive

Surface Sampling Field Data Sheet

Date Collected: 11/20/12Job Name: MANASSAS NGB IARCompany: MAI Page 1 of 1Job Number: 20120569Job Location: Manassas VA DCPhone Number: 434-847-7796Contact Person: Non-RespAddress: 10688 Dumfries RdCollected By: Non-ResponseManassas VA 221

COC Number: _____

Sample Number	Sample Location	Surface/Substrate Sampled	Area Wiped (in ² /ft ²)	Collection Media
001	Boiler Room for Air Handler			
002	Drill Hall horizontal surface Top of equipment			
003	Kitchen Top of Microwave			
004	Supply Air Grill Room 201/Office			
005	Office Desk Room AC-4 (Copy Room)			
006	Top of cabinet supply room			
007	Hallway outside Room 103			
008	Forger Air Supply			
009	Overhead heater w/ control panel			
010	Storage items Room			
011	Floor Room			

Please Return Samples To:

AMA Analytical Services, Inc., 4475 Forbes Blvd., Lanham, MD 20706, (800) 346-0961/(301) 459-2640 Fax, www.amaab.com, info@amaab.com

Bulk Sampling Survey SheetDate Collected: 11/20/12Job Name: MANASSA NOB IACCompany: H&IPage 1 of 1Job Number: 2012-0564Job Location: MANASSA VA RCPhone Number: 434-847-7796Contact Person: Non-RespAddress: 10628 DUNFORD RDCollected By: Non-ResponMANASSA VA 2211COC Number: 1

Sample Number	Homogenous Area ID	Type of Material	Sample Location	Friable	Condition of Material	Accessibility	Photo	Comments
012		WALL TILES	Acoustic with tile RANGL	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input checked="" type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input checked="" type="checkbox"/> Medium <input type="checkbox"/> High	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	

Please Return Samples To:

AMA Analytical Services, Inc., 4475 Forbes Blvd., Lanham, MD 20706, (800) 345-0961/(301) 459-2640 Fax, www.amalab.com, info@amalab.com

Appendix D

References

References

1. Title 29, Code of Federal Regulations (CFR), Part 1910, Occupational Safety and Health Administration, current Ed. <http://www.osha.gov/comp-links.html>
2. Department of Defense Instruction (DODI) 6055.1, Department of Defense Occupational Safety and Health (OSH) Program, August 19, 1998. <http://www.dtic.mil/whs/directives/corres/pdf/605501p.pdf>
3. Army Regulation (AR) 11-34, The Army Respiratory Protection Program, 15 February 1990. http://armypubs.army.mil/epubs/pdf/R11_34.PDF
4. AR 40-5, Medical Service, Preventive Medicine, 25 May 2007. http://armypubs.army.mil/epubs/pdf/R40_5.PDF
5. AR 385-10, The Army Safety Program, 23 August 2007; Rapid Action Revision (RAR) issue date: 4 October 2011. http://armypubs.army.mil/epubs/pdf/R385_10.PDF
6. Department of the Army Pamphlet (DA PAM) 40-501, Medical Services, Hearing Conservation Program, 10 December 1998. http://armypubs.army.mil/epubs/pdf/P40_501.pdf
7. DA PAM 40-11, Preventive Medicine, 22 July 2005, RAR issue date: 19 October 2009. http://armypubs.army.mil/epubs/pdf/p40_11.pdf
8. DA PAM 40-503, Medical Services, Industrial Hygiene Program, 30 October 2000. http://armypubs.army.mil/epubs/pdf/P40_503.PDF
9. UFC 3-410-01FA, Heating, Ventilating, and Air Conditioning, 15 May 2003, change 4, January 2010. http://www.wbdg.org/ccb/DOD/UFC/ufc_3_410_01fa.pdf
10. Threshold Limit Values (TLVs) and Biological Exposure Indices (BEIs), American Conference of Governmental Industrial Hygienists (ACGIH), current Ed.
11. Industrial Ventilation – A Manual of Recommended Practice for Design, ACGIH, current Ed.
12. American National Standards Institute (ANSI)/International Safety Equipment Association (ISEA) Z358.1-2009, Emergency Eyewash and Shower Equipment.
13. ANSI/American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. (ASHRAE) 55-2010, Thermal Environmental Conditions for Human Occupancy.
14. ANSI/ASHRAE 62.1-2010, Ventilation for Acceptable Indoor Air Quality.
15. RP-1-2004, Office Lighting, ANSI/IESNA.
16. RP-7-2001, Industrial Lighting, ANSI/IESNA, change 20 July 2004.
17. OSHA Instruction Letter 02-02-058, Lead Exposure in Construction, Office of Health Compliance Assistance, 13 December 1993.
18. OSHA Standard Interpretation, Clarification of “as free as practicable” and lead contamination under 29 CFR 1926.62, dated January 13, 2003.
19. NG PAM 420-15, Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges, 3 November 2006. http://www.ngbpdc.ngb.army.mil/pubs/420/ngpam420_15.pdf

Shaw Environmental, Inc.

312 Directors Drive
Knoxville, TN 37923
865.690.3211
Fax 865.690.3626



**National Guard Armory
Norfolk Readiness Center
Norfolk, Virginia**

Industrial Hygiene Evaluation

Prepared for:

**National Guard Region North Industrial Hygiene Office
Havre De Grace, Maryland 21078**

Prepared by:

**Shaw Environmental, Inc.
312 Directors Drive
Knoxville, Tennessee 37923**

29 November 2004

**National Guard Armory
Norfolk Readiness Center
Norfolk, Virginia**

Industrial Hygiene Evaluation

Prepared for:

**National Guard Region North Industrial Hygiene Office
Havre De Grace, Maryland 21078**

Prepared by:

**Shaw Environmental, Inc.
312 Directors Drive
Knoxville, Tennessee 37923**

29 November 2004

Prepared by:

Non-Responsive

Reviewed by:

Non-Responsive

Business Line Manager

Table of Contents

<i>Table of Contents</i>	<i>i</i>
<i>List of Tables</i>	<i>ii</i>
<i>List of Appendices</i>	<i>ii</i>
<i>Executive Summary</i>	<i>E-1</i>
<i>1.0 Introduction</i>	<i>1-1</i>
<i>2.0 Findings, Discussion, and Interpretation of Results</i>	<i>2-1</i>
<i>2.1 Sampling for Lead</i>	<i>2-1</i>
<i>2.1.1 Wipe Sampling</i>	<i>2-1</i>
<i>2.1.2 Air Sampling for Lead</i>	<i>2-2</i>
<i>2.2 Physical Condition of Facility</i>	<i>2-2</i>
<i>2.2.1 Peeling Paint - Lead</i>	<i>2-2</i>
<i>2.2.2 Visual Inspection - Asbestos</i>	<i>2-2</i>
<i>2.2.3 Visual Inspection - Water Damage and Mold</i>	<i>2-3</i>
<i>2.2.4 Visual Inspection - Housekeeping</i>	<i>2-3</i>
<i>2.3 Building Concerns</i>	<i>2-4</i>
<i>2.3.1 Ergonomic Concerns</i>	<i>2-4</i>
<i>2.3.2 Indoor Air Quality</i>	<i>2-4</i>
<i>2.4 Safety and Industrial Hygiene Programs</i>	<i>2-4</i>
<i>2.5 Ventilation</i>	<i>2-4</i>
<i>2.5.1 Ventilation System Evaluation</i>	<i>2-4</i>
<i>2.5.2 Contamination of Clean Air Sources</i>	<i>2-4</i>
<i>2.6 Noise Exposure</i>	<i>2-5</i>
<i>2.7 Lighting</i>	<i>2-5</i>
<i>2.8 Converted Indoor Firing Ranges</i>	<i>2-5</i>
<i>2.9 HVAC Systems</i>	<i>2-6</i>
<i>2.10 IHUM</i>	<i>2-6</i>
<i>3.0 Conclusions</i>	<i>3-1</i>
<i>Tables</i>	<i>Follows Section 3.0</i>
<i>Appendices</i>	<i>Follows Tables</i>

List of Tables

Table 1	Wipe Sampling for Lead
Table 2	Air Sampling for Lead
Table 3	Indoor Air Quality Measurements
Table 4	Illumination Readings
Table 5	Indoor Firing Ranges - Wipe Sampling

List of Appendices

Appendix A	HHIM Data Form
Appendix B	Building Layout
Appendix C	Sampling Sheets and Laboratory Analyses
Appendix D	References
Appendix E	Recommendations for Surface Lead Dust in Armories

Executive Summary

Shaw Environmental, Inc. (Shaw) was contracted to perform an industrial hygiene evaluation for the Norfolk Readiness Center in Norfolk, Virginia. [Non-Responsive] performed the evaluation on 26 November and 30 December 2003. The point of contact at the readiness center was SFC [Non-Responsive].

The following industrial hygiene concerns were evaluated.

- Wipe Sampling for Lead
- Air Sampling for Lead
- Peeling Paint – Lead
- Suspected Asbestos Containing Material
- Water Damage
- Presence of Mold
- Housekeeping
- Ergonomic Concerns
- Indoor Air Quality
- Safety and Industrial Hygiene Programs
- Ventilation System Evaluation
- Contamination of Clean Air Sources
- Noise Exposure
- Lighting
- Converted Indoor Firing Range
- HVAC Systems

The following items were either not applicable to the armory or the evaluation resulted in a conclusion that there were no industrial hygiene concerns.

- Air Sampling for Lead
- Peeling Paint – Lead
- Housekeeping
- Ergonomic Concerns
- Indoor Air Quality
- Safety and Industrial Hygiene Programs

- Ventilation System Evaluation
- Contamination of Clean Air Sources
- Noise Exposure
- HVAC Systems

Areas where there were industrial hygiene concerns are as follows:

- Wipe sampling for lead revealed a concentration above the recommended level of 200 micrograms per square foot ($\mu\text{g}/\text{ft}^2$) in the drill floor/assembly hall area, supply room #46, supply room #44, supply room #39, boiler room, room 50B, and room 51A. It is recommended that these surfaces and the areas immediately around these surfaces be thoroughly cleaned to reduce the lead level. In addition, any other dusty/dirty areas in the assembly area/drill floor, supply room #46, supply room #44, supply room #39, boiler room, room 50B, and room 51A should be thoroughly cleaned.
- Wipe sampling for lead revealed concentrations above a level of 40 micrograms per square foot ($\mu\text{g}/\text{ft}^2$) in the drill floor/assembly hall area, supply room #46, supply room #44, supply room #39, boiler room, room 50B, room 51A, office 35, scullery, room 20, and converted firing range. Areas with lead concentrations above 40 $\mu\text{g}/\text{ft}^2$ that will be accessible to children should be cleaned. If a special function is held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function.
- Materials (floor tiles) suspected of containing asbestos were observed. Sampling revealed that the floor tiles did contain asbestos. An operations and maintenance plan should be followed when performing any activities that may disturb the asbestos-containing materials.
- Water damage was observed at several locations at the armory. The source of the water damage was likely from a combination of roof and pipe leaks. The source of the water damage should be confirmed and actions taken to eliminate the source in order to prevent the possibility of mold growth that may lead to indoor air quality problems.
- Visual mold was observed in the armory. The areas where the mold is located should be thoroughly cleaned with 0.5% sodium hypochlorite solution (1 part household bleach to nine parts water) or equivalent in order to eliminate the potential mold/indoor air quality problem. In addition, the source of the mold should be identified and actions taken to eliminate it.
- Lighting measurements were conducted at the armory. The lighting did not meet minimum requirements in some areas; therefore, consideration should be given to

providing more lighting in these areas. This may be accomplished by replacing burnt out luminaries, cleaning fixtures, cleaning windows, painting walls with a lighter color, repositioning detailed work to higher illuminated areas, and using supplemental lighting.

- Wipe sampling for lead in the converted firing range revealed a concentration above the recommended level in one area. This area (former bullet trap area) must be decontaminated by a thorough cleaning until surface lead concentrations are reduced to below recommended levels.

1.0 Introduction

Shaw Environmental, Inc. (Shaw) was contracted to perform an industrial hygiene evaluation for the Norfolk Readiness Center in Norfolk, Virginia. [Non-Responsive] performed the evaluation on 26 November and 30 December 2003. The point of contact at the readiness center was SFC [Non-Responsive]

The findings, discussion, and interpretation of results are provided in Section 2.0. The conclusions are provided in Section 3.0. The HHIM data form for the facility is provided in Appendix A. The building layout is provided in Appendix B. Sampling sheets and laboratory analyses are provided in Appendix C. References are provided in Appendix D. The *Recommendations for Surface Lead Dust in Armories* document is provided in Appendix E.

The statements, opinions, and conclusions contained in this report are based solely upon the services performed by Shaw as described in the report. In performing these services and preparing the report, Shaw Environmental, Inc. relied upon the work and information provided by others, including public agencies, whose information is not guaranteed by Shaw Environmental, Inc.

2.0 Findings, Discussion, and Interpretation of Results

The results, discussion, and interpretation of results are provided in the following sections.

2.1. Sampling for Lead

2.1.1 Wipe Sampling

Wipe samples were collected for lead from the drill floor/assembly area. Also, wipe samples were collected for lead in rooms, hallways, foyers, etc. The sampling in rooms, hallways, foyers, etc. represented approximately 25% of the building. Approximately half of the samples were collected from surfaces in common areas, such as surfaces of a desk. The remaining samples were collected from uncommon surface areas, such as a supply vent or the top of a file cabinet. The samples were collected and analyzed in accordance with the Instructions for *Completing the Sampling of ARMY National Guard Armories* procedure.

The only samples initially submitted for analysis were those from the drill floor/assembly hall. Since there were results above acceptable levels from the drill floor/assembly hall area, the remaining samples were submitted for analysis.

Results of the wipe sampling are provided in Table 1. The results revealed lead at all locations sampled at concentrations below the recommended level of 200 micrograms lead per square foot ($\mu\text{g}/\text{ft}^2$) (See Appendix E) except at seven locations. The sample collected from the window sill in the drill floor/assembly hall area had a lead concentration of $430 \mu\text{g}/\text{ft}^2$. The samples collected from the supply room #46 safe top, supply room #44 filing cabinet, supply room #39 shelf top, boiler room shelf, room 50B locker top, and room 51A stair stepper base had lead concentrations of 410, 290, 920, 680, 280, and $680 \mu\text{g}/\text{ft}^2$, respectively. It is recommended that these surfaces and the immediate areas around these surfaces be thoroughly cleaned to reduce the lead level to below $200 \mu\text{g}/\text{ft}^2$. For guidance on the proper method of cleaning, please refer to NGBAM 385-15 (*Guidelines and Procedures for Indoor Firing Range (IFR) Rehabilitation, Conversion, and Cleaning*). In addition, any other dusty/dirty areas in the assembly area/drill floor, supply room #46, supply room #44,

supply room #39, boiler room, room 50B, and room 51A should be thoroughly cleaned.

In addition, wipe sampling for lead revealed concentrations above a level of $40 \mu\text{g}/\text{ft}^2$ in the drill floor/assembly hall area, supply room #46, supply room #44, supply room #39, boiler room, room 50B, room 51A, office 35, scullery, room 20, and converted firing range. Please note that the *Recommendations for Surface Lead Dust in Armories* (Appendix E) states that all areas with lead concentrations above $40 \mu\text{g}/\text{ft}^2$ that will be accessible to children should be cleaned. If a special function is held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function.

2.1.2 Air Sampling for Lead

General air sampling was conducted because employees were not available for sampling. The samples were collected and analyzed in accordance with Method 7082 of the National Institute of Occupational Safety and Health (NIOSH) Manual of Analytical Methods.

The results of the sampling are provided in Table 2. The results revealed non-detectable concentrations of lead in air; therefore, no actions are necessary.

2.2 Physical Condition of Facility

2.2.1 Peeling Paint - Lead

Peeling paint was observed in the armory. Bulk samples were not collected at this facility.

2.2.2 Visual Inspection - Asbestos

A visual inspection was made to determine if there was any suspected asbestos-containing material at the armory. Materials (floor tiles) suspected of containing asbestos were observed. Bulk samples were collected at this facility. The results of the sampling (provided in Appendix C) revealed that the tile contained 1-3 % chrysotile asbestos, and the mastic contained 3-5 % chrysotile asbestos. The asbestos-containing materials, with condition and estimated quantity, were at the following locations:

- Offices 19 & 20 - Good Condition, Approximately 409.5 Square Feet
- Offices 21-25 - Good Condition, Approximately 1521 Square Feet
- Offices 27-36 - Good Condition, Approximately 3349 Square Feet
- Offices 7-12 - Average Condition, Approximately 2705 Square Feet
- Offices 13-18A - Average Condition, Approximately 2047 Square Feet
- Offices 1-4 - Good Condition, Approximately 1062 Square Feet
- Museum - Good Condition, Approximately 643.5 Square Feet
- Office 54 - Good Condition, Approximately 210 Square Feet
- (3) Small Hallways - Good Condition, Approximately 295 Square Feet
- Back Hallway - Good Condition, Approximately 1433.25 Square Feet
- Front Hallway - Good Condition, Approximately 1073.25 Square Feet

An operation and maintenance plan should be followed when performing any activities that may disturb the asbestos-containing materials.

2.2.3 Visual Inspection - Water Damage and Mold

A visual inspection was made to determine if there was any water damage or visible mold at the armory. Both visible mold and water damage was observed at the armory. Water damage was observed on the ceilings and some walls in the church room 49, computer tech room 52B, and classroom area.

The source of the water damage was likely from a combination of roof and pipe leaks. The source of the water damage should be confirmed and actions taken to eliminate the source in order to prevent the possibility of mold growth that may lead to indoor air quality problems.

Visible mold was observed on the ceilings and walls in locker room 50B, locker room 50C, and storage room 52A.

The areas where the mold is located should be thoroughly cleaned with 0.5% sodium hypochlorite solution (1 part household bleach to nine parts water) or equivalent in order to eliminate the potential mold/indoor air quality problem. In addition, the source of the mold should be identified and actions taken to eliminate it.

2.2.4 Visual Inspection - Housekeeping

The housekeeping was determined to be good.

2.3. Building Concerns

2.3.1 Ergonomic Concerns

Interviews with employees and observation of work activities revealed no ergonomic concerns at the armory.

2.3.2 Indoor Air Quality

Interviews with employees and measurements for temperature, humidity, and carbon dioxide revealed no indoor air quality concerns at the armory; therefore, no actions are necessary. The results of the measurements for carbon dioxide, humidity, and temperature are provided in Table 3.

2.4. Safety and Industrial Hygiene Programs

An evaluation was performed to determine the applicability of the following programs.

- Confined Spaces
- Hearing Conservation
- Respiratory Protection
- Hazard Communication (HAZCOM)
- Personal Protective Equipment (PPE)

It was determined that none of the programs listed above are applicable at this facility.

2.5. Ventilation

2.5.1 Ventilation System Evaluation

There were no local exhaust ventilation systems at this armory; therefore, no ventilation studies were performed.

2.5.2 Contamination of Clean Air Sources

Since there were no local exhaust ventilation systems at the armory, there was no possibility that clean air sources could be contaminated by exhaust air.

2.6. Noise Exposure

An evaluation was performed to determine if there were any hazardous noise areas at the armory. It was determined that there were no areas at the armory that would exceed the permissible exposure limit for noise.

2.7 Lighting

Lighting measurements were conducted at the armory. Results of the lighting evaluation are provided in Table 4. As can be seen from the results, the lighting did not meet the minimum requirements in some areas, including the EM latrine room 50E and storage room 51A.

Consideration should be given to providing more lighting to these areas. This may be accomplished by replacing burnt out luminaries, cleaning fixtures, cleaning windows, painting walls with a lighter color, repositioning detailed work to higher illuminated areas, and using supplemental lighting.

2.8 Converted Indoor Firing Ranges

There was a converted indoor firing range at the facility; therefore, wipe samples were taken for lead at various locations in or near the converted range. The space is used as storage. The results are provided in Table 5. The results revealed lead, with associated concentrations, at the following locations:

- bullet trap at 690 micrograms lead per square foot ($\mu\text{g}/\text{ft}^2$);
- stored item at $4.5 \mu\text{g}/\text{ft}^2$;
- floor (inside the converted firing range) at $73 \mu\text{g}/\text{ft}^2$; and
- floor (outside the converted firing range) the range at $16 \mu\text{g}/\text{ft}^2$

The lead level at the sample collected from the floor inside the converted firing range was above the recommended level of $200 \mu\text{g}/\text{ft}^2$, a level recommended in the *Guidelines for Converting Indoor Firing Ranges to Other Uses* document (National Guard). This area must be decontaminated by a thorough cleaning until surface lead concentrations are reduced to below recommended levels. For guidance on the proper method of cleaning, please refer to NG PAM 385-15 (*Guidelines and Procedures for Indoor Firing Range (IFR) Rehabilitation, Conversion, and Cleaning*).

2.9. HVAC System

The maintenance schedule for the HVAC system was evaluated to verify that maintenance occurs on a regular basis. Also, the condition of the HVAC system was evaluated to determine if the maintenance performed is effective. It was deemed that maintenance occurs on a regular basis, and the maintenance performed is effective.

2.10. HHIM

A Health Hazard Information Module (HHIM) form was completed for the armory. The completed form is provided in Appendix A.

3.0 Conclusions

It is concluded that there were no industrial hygiene concerns at the armory with regards to atmospheric exposure to lead, peeling lead-based paint, housekeeping, ergonomic conditions, indoor air quality, safety and industrial hygiene programs, ventilation systems or contamination of clean air sources, noise exposure, and HVAC systems.

There were industrial hygiene concerns at the armory with regards to lead surface contamination, suspected asbestos-containing material, water damage, visible mold, surface lead contamination in the converted firing range, and lighting. These concerns are discussed in detail in Section 2.0 of this report.

TABLES

Table 1
Wipe Sampling for Lead
National Guard Armory
Norfolk Armory, Virginia

Date of Sampling: 26 November and 30 December 2003

Sample Number	Location	Results, $\mu\text{g}/\text{ft}^2$ //
VANOR330-1	Drill Floor (window sill) See Building Layout – Appendix B	430
VANOR330-2	Drill Floor (window sill) See Building Layout – Appendix B	14
VANOR330-3	Drill Floor (trash can lid) See Building Layout – Appendix B	140
VANOR330-4	Drill Floor (storage locker top) See Building Layout – Appendix B	110
VANOR330-5	Drill Floor (trash can lid) See Building Layout – Appendix B	10
VANOR330-6	Field Blank	<0.3
VANOR365-11	Drill Floor (office #35 computer monitor top) See Building Layout – Appendix B	69
VANOR365-12	Field Blank	0.46
VANOR365-13	Classroom podium - See Building Layout -- Appendix B	17
VANOR365-14	Kitchen prep food mixer top - See Building Layout -- Appendix B	19
VANOR365-15	Scullery electrical box - See Building Layout – Appendix B	67
VANOR365-16	Supply room #46 safe top - See Building Layout -- Appendix B	410
VANOR365-17	Supply room #44 filing cabinet - See Building Layout -- Appendix B	290
VANOR365-18	Field Blank	<0.3
VANOR365-19	Supply room #39 shelf top - See Building Layout -- Appendix B	920

Table 1 (Continued)
Wipe Sampling for Lead
National Guard Armory
Norfolk Armory, Virginia

Date of Sampling: 26 November and 30 December 2003

VANOR365-20	Boiler room shelf top - See Building Layout - Appendix B	680
VANOR365-21	Room 50B locker top - See Building Layout - Appendix B	280
VANOR365-22	Room 51A stair stepper base - See Building Layout - Appendix B	680
VANOR365-23	Room #18 window sill - See Building Layout - Appendix B	24
VANOR365-24	Field Blank	0.49
VANOR365-25	Room #10 display case top - See Building Layout - Appendix B	14
VANOR365-26	Room #2 window sill - See Building Layout - Appendix B	12
VANOR365-27	Room #29 brookcase - See Building Layout - Appendix B	17
VANOR365-28	Room #20 mailroom shredder - See Building Layout - Appendix B	130
VANOR365-29	Room #24 display case - See Building Layout - Appendix B	27
VANOR365-30	Field Blank	<0.3

^aMicrograms lead per square foot

The samples were taken and analyzed in accordance with the *Instructions for Completing the Sampling of ARMY National Guard Armories* procedure.

Table 2
Breathing Zone Air Samples for Lead
National Guard Armory
Norfolk, Virginia
Date of Sampling: 30 December 2003

Sample Number	Employee	Sampling Information			Results (mg/m ³) ^a
		Time Sampled / Minutes	Flow Rate (lpm) ^b	Volume (liters)	
VANOR365-A1	General Air Sample	0900-1100/120	1.677	201.24	<0.005
VANOR365-A2	General Air Sample	0855-1105/130	1.677	218.03	<0.005
VANOR365-A3	Field Blank	-	-	-	None Detected

^a Milligrams lead per cubic meter of air.

^b Liters of air per minute.

Method 7082 of the National Institute of Occupational Safety and Health (NIOSH) Manual of Analytical Methods was followed for sampling for lead.

Table 3
Indoor Air Quality Measurements for Carbon Dioxide, Humidity, and Temperature
National Guard Armory
Norfolk, Virginia
Date of Sampling: 30 December 2003

Location	Occupants In Area	Carbon Dioxide, parts per million parts of air (ppm)	Percent (%) Humidity	Temperature (°F)
1 st Floor	1	598	39.5	72.0
Outdoors	-	487	51.2	58.3

Carbon dioxide, humidity, and temperature measurements were taken with a TSI Q Trak Plus, Model 8554, Indoor Air Quality Meter, calibrated in April 2003.

American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE) recommends that indoor carbon dioxide levels be less than 700 ppm above outdoor levels.

ASHRAE recommends that the relative humidity levels be maintained between 30 to 60 percent.

ASHRAE recommends that the acceptable temperature range be 68 degrees Fahrenheit to 74 degrees Fahrenheit in the winter and 73 degrees Fahrenheit to 79 degrees Fahrenheit in the summer.

Table 4
Illumination Readings
National Guard Armory
Norfolk, Virginia
Date of Sampling: 30 December 2003

Location	Luminance (fc) ^a	Standard (fc) ^a	Standard Met
Kitchen Prep	39.6-84.7	70	Some Areas
EM Latrine Room 50E	5.7-9.8	40	No
Storage Room 51A	3.9-9.1	30	No
Computer Tech Room 52B	4.9-84.9	70	Some Areas
Office Room 2	49.8-74.6	70	Some Areas
Room 54	48.6-74.6	70	Some Areas
Back Hallway	14.1-52.6	7.5	Yes
Side Hallway	18.3-57.8	7.5	Yes
Room 20	28.3-81.7	70	Some Areas
Office Room 34	63.5-107.6	70	Some Areas
Office Room 24	84.3-103.2	70	Yes

^a fc - Footcandles

The readings were taken with a Weston model 614-60 Lightmeter.

The standards listed above are from ANSI/IES RP-1 and RP-7.

Table 5
Wipe Sampling for Lead – Converted Firing Range
National Guard Armory
Norfolk, Virginia
Date of Sampling: 26 November 2003

Sample Number	Location	Results, $\mu\text{g}/\text{ft}^2$ ^a
VANOR330-8	Bullet Trap (floor near former bullet trap location)	690
VANOR330-9	Stored Item	4.5
VANOR330-7	Floor (inside the converted firing range)	73
VANOR330-10	Floor (outside the converted firing range)	16

^a Micrograms lead per square foot

The samples were taken and analyzed in accordance with the Instructions for *Completing the Sampling of ARMY National Guard Armories* procedure.

Appendix A

HHIM Data Form(s)

HEALTH HAZARD INFORMATION MODULE: INDUSTRIAL HYGIENE SURVEY

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

SECTION 1. DEMOGRAPHIC DATA

ARLOC 24255		INSTALLATION APG-EA		BLDG/RM NO. NORFOLK	
LOCATION/CODE ADMINISTRATIVE AREA /AA			OPERATION/CODE ADMINISTRATIVE OPERATIONS /ADO		
SURVEY DATE 26 NOVEMBER - 30 DECEMBER 2003			EVALUATOR (Initials) Non-Responsive		
MACOM/CODE		SUBMACOM/CODE XX		SUPERVISOR SFC Non-Responsive	
TELEPHONE/DSN NO. (754) 455 0027		UNIT/ORGANIZATION NORFOLK ARMORY		RAC 4	
NO. CIV(S) 0		NO. MIL 19		NO. CONTRACTOR(S) 0	
NO. LOC(S) -		NO. OTHER -		FREQUENCY (hrs/day) 8	

SECTION 2. FACILITY DATA

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

SECTION 3. SURVEY DATA

CONTROLS PRESENT	EVALUATION	UNIT CODE	CONTROLS REQUIRED	STATUS

PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized)

GLOVES	R	U	RESPIRATOR	NIOSH TC NO.	MANUFACTURER	R	U
CID			AIRLINE				
COLD SURFACES			ABRASIVE BLASTING HOOD				
HOT SURFACES			DISPOSABLE				
HC AGENTS			FULL FACE AIR PURIFYING				
XL			1/2 FACE AIR PURIFYING				
OLVENTS			POWERED AIR PURIFYING				
URGICAL GLOVES			1/4 FACE AIR PURIFYING				
			SELF-CONTAINED				

EYES/FACE	R	U	HEARING	R	U	BODY	R	U	HEAD/HIT	R	U
CHEMICAL SPLASH			CANAL CAPS			APRONS			COLD WEATHER BOOTS/HATS		
ULL FACESHIELD			EAR PLUGS			COLD WEATHER CLOTHING			HARD HATS		
CHEMICAL/SAFETY			HELMETS			COVERALLS			IMPERMEABLE BOOTS		
AFETY/IMPACT			MUFFS			FULL BODY SUIT			SAFETY/CONDUCTIVE SHOES		
WELDING HELMET			MUFF/EARPLUG COMBO			HEAT REFLECTIVE VEST/SUIT			SAFETY/NON-CONDUCTIVE SHOES		
			MUFF/EARPLUG W/TIME LIMIT			SAFETY BELT/HARNES					

SECTION 4. HAZARD INVENTORY DATA

CAS CODE	HAZARD DESCRIPTION	PAC	EPC
POVDT XXXX	VIDEO DISPLAY TERMINALS	3-LOW	D- UNCONTROLLED PHYSICAL
7439-29-1	LEAD, HYDRAULIC FLUIDS & DUSTS	2-MODERATE	C- UNCONTROLLED RESPIRATORY
1332-21-4	ASBESTOS	1-HIGH	C- UNCONTROLLED RESPIRATORY
124-38-9	CARBON DIOXIDE	2-MODERATE	C- UNCONTROLLED RESPIRATORY
POLIFTING	HEAVY LIFTING	2-MODERATE	D- UNCONTROLLED PHYSICAL
POHEATSTL	HEAT STRESS	3-LOW	D- UNCONTROLLED PHYSICAL

SECTION 5. PERSONNEL DATA

LAST NAME	FIRST NAME	MI	SEX	SSN	CATEGORY
(SEE ATTACHED HAZARD INFORMATION SHEET)					

SECTION 6. COMMENTS

☒ No comments☐ See attached sheet

PRIVACY ACT STATEMENT

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

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

Non-Responsive

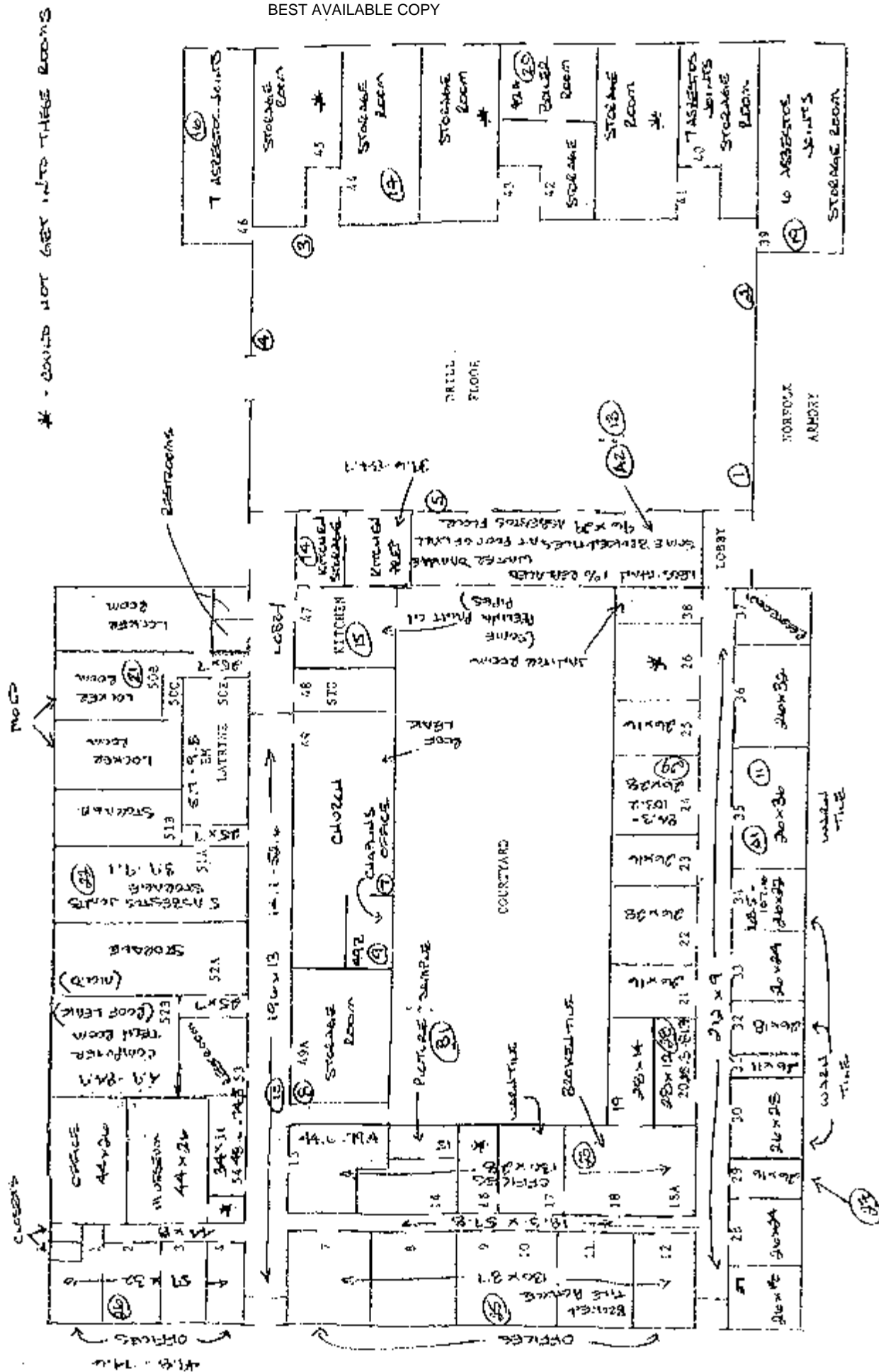
Appendix B

Building Layout

WOLFSON, V. 2011/12
 NATIONAL GUARD BUREAU

BEST AVAILABLE COPY

Building was built in 1961
 Approximately 72 rooms in Building
 25% of rooms in Building = 18 Rooms



Appendix C

Sampling Sheets and Laboratory Analyses

Appendix C

Sampling Sheets and Laboratory Analyses



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

Job Name: VA NOR 330
Job Location: Norfolk, Virginia
Job Number: 845702 01000000
P.O. Number: Not Provided

Chain Of Custody: 121769
Date Analyzed: 1/13/2004
Person Submitting: [Redacted]
Report Date: 13-Jan-04

Non-
Resp
onsiv
e

Attention:

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
0417830	VA NOR 330 1	Furnace	Wipe	****	0.111	67.51 ug/ft²	430 ug/ft²	
0417831	VA NOR 330 2	Furnace	Wipe	****	0.111	2.70 ug/ft²	14 ug/ft²	
0417832	VA NOR 330 3	Furnace	Wipe	****	0.111	33.75 ug/ft²	140 ug/ft²	
0417833	VA NOR 330 4	Furnace	Wipe	****	0.111	13.50 ug/ft²	110 ug/ft²	
0417834	VA NOR 330 5	Furnace	Wipe	****	0.111	2.70 ug/ft²	10 ug/ft²	
0417835	VA NOR 330 6	Furnace	Wipe Blank	****	N/A	0.30 ug	< 0.3 ug	
0417836	VA NOR 330 7	Furnace	Wipe	****	0.111	33.75 ug/ft²	73 ug/ft²	
0417837	VA NOR 330 8	Flame	Wipe	****	0.111	108.01 ug/ft²	690 ug/ft²	
0417838	VA NOR 330 9	Furnace	Wipe	****	0.111	2.70 ug/ft²	4.5 ug/ft²	
0417839	VA NOR 330 10	Furnace	Wipe	****	0.111	2.70 ug/ft²	16 ug/ft²	

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

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

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

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

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

Analyst:

Technical Manager:

Non-
Responsive

Non-
Resp
onsiv
e

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



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

Job Name: VANOR365
Job Location: Norfolk, VA
Job Number: 845702 01000000
P.O. Number: 1103

Chain Of Custody: 122725
Date Analyzed: 2/20/2004
Person Submitting: Non Respon
Report Date: 05-Mar-04

Attention: 903070

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
0424039	VANOR365 11	Furnace	Wipe	****	0.111	33.75 ug/ft²	69 ug/ft²	
0424040	VANOR365 12	Furnace	Wipe Blank	****	N/A	0.30 ug	0.46 ug	
0424041	VANOR365 13	Furnace	Wipe	****	0.111	6.75 ug/ft²	17 ug/ft²	
0424042	VANOR365 14	Furnace	Wipe	****	0.111	13.50 ug/ft²	19 ug/ft²	
0424043	VANOR365 15	Furnace	Wipe	****	0.111	33.75 ug/ft²	67 ug/ft²	
0424044	VANOR365 16	Flame	Wipe	****	0.111	108.01 ug/ft²	410 ug/ft²	
0424045	VANOR365 17	Flame	Wipe	****	0.111	108.01 ug/ft²	290 ug/ft²	
0424046	VANOR365 18	Furnace	Wipe Blank	****	N/A	0.30 ug	< 0.3 ug	
0424047	VANOR365 19	Flame	Wipe	****	0.111	108.01 ug/ft²	920 ug/ft²	
0424048	VANOR365 20	Flame	Wipe	****	0.111	108.01 ug/ft²	680 ug/ft²	
0424049	VANOR365 21	Flame	Wipe	****	0.111	108.01 ug/ft²	280 ug/ft²	
0424050	VANOR365 22	Flame	Wipe	****	0.111	108.01 ug/ft²	680 ug/ft²	
0424051	VANOR365 23	Furnace	Wipe	****	0.111	13.50 ug/ft²	24 ug/ft²	
0424052	VANOR365 24	Furnace	Wipe Blank	****	N/A	0.30 ug	0.49 ug	
0424053	VANOR365 25	Furnace	Wipe	****	0.111	13.50 ug/ft²	14 ug/ft²	
0424054	VANOR365 26	Furnace	Wipe	****	0.111	6.75 ug/ft²	12 ug/ft²	
0424055	VANOR365 27	Furnace	Wipe	****	0.111	13.50 ug/ft²	17 ug/ft²	
0424056	VANOR365 28	Furnace	Wipe	****	0.111	33.75 ug/ft²	130 ug/ft²	
0424057	VANOR365 29	Furnace	Wipe	****	0.111	13.50 ug/ft²	27 ug/ft²	
0424058	VANOR365 30	Furnace	Wipe Blank	****	N/A	0.30 ug	< 0.3 ug	

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of the sample or condition of the sample. 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 (#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



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

Job Name: VANOR365
Job Location: Norfolk, VA

Chain Of Custody: 122725
Date Analyzed: 2/20/2004

Job Number: 845702 01000000
P.O. Number: 1103

Person Submitting: [Redacted]
Report Date: 05-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:

Technical Manager:

Non-Responsive

Non-Responsive

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of the sample or condition of the laboratory. 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 (#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

1/12/04



Submitted To:

Non-Responsive

Shaw Environmental, Inc.
5700 Thurston Avenue; Suite 116
Virginia Beach, VA 23455

Reference Data:

Lead

Client Sample No.:	VANOR365A1 through VARIC364-A3
P.O. No.:	1103
Sample Location:	Virginia
Sample Type:	Filter
Method Reference:	NIOSH 7300
DCL Set ID No.:	04-S-0042
DCL Sample ID No.:	04-00089 through 04-00094
Sample Receipt Date:	1/6/2004
Preparation Date:	01/07/04
Analysis Date:	01/07/04

The samples were prepared and analyzed in accordance with NIOSH method 7300 using a Perkin Elmer 3000XL ICP.

The sample condition upon receipt was acceptable except where noted.

The results are in the enclosed data table. Results relate only to the items tested and are not blank corrected unless indicated in the data table.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Non-Responsive

Analyst

Non-Responsive

Reviewer

CINCINNATI OFFICE
4388 GLENDALE-MILFORD ROAD
CINCINNATI, OHIO 45242-3706
513 733-5336, FAX 513 733-5347

WEST COAST OFFICE
11 SANTA YORMA COURT
NOVATO, CALIFORNIA 94945
800 280-8071, FAX 415 893-9469

Results

Lead

Client #	DCL #	Sample Volume (L)	µg/sample	mg/m ³
VANOR365A1	04-00089	201.24	ND	<0.005
VANOR365A2	04-00090	218.03	ND	<0.005
VANOR365A3	04-00091	0	ND	-
VARIC364-A1	04-00092	164.58	ND	<0.006
VARIC364-A2	04-00093	197.86	ND	<0.005
VARIC364-A3	04-00094	0	ND	-
	Prep Blank		ND	
% Recovery	LCS		102.	
RPL			1.	

ND = not detected at or above the reporting limit (RPL).

LCS = laboratory control sample.

Non-Responsive

Analyst

Non-Responsive

Reviewer

Industrial Hygiene Sampling Calculation Worksheet

National Guard Armory

Location:

Norfolk

Date:

12/31/2003

Sample 1

Sample Number: VANOR365A1

Pump: 647605

Pre Flow Rate Post Flow Rate

1.686 1.667

1.680 1.670

1.682 1.673

1.682 1.676

Average 1.683 1.672

Average Pre and Post 1.6770

Time 1 9:00

Time 2 11:00

Total Time Sampled 2:00

Minutes Sampled 120.00

Volume 201.24 Liters

Sample 2

Sample Number: VANOR365A2

Pump: 648241

Pre Flow Rate Post Flow Rate

1.694 1.663

1.696 1.657

1.705 1.653

1.698 1.651

Average 1.698 1.656

Average Pre and Post 1.6771

Time 1 8:55

Time 2 11:05

Total Time Sampled 2:10

Minutes Sampled 130.00

Volume 218.03 Liters



12/29/03
Page 1 of 2

SUBMITTED TO:

Non-Responsive

Shaw Environmental, Inc.
5700 Thurston Avenue; Suite 116
Virginia Beach, VA 23455-3302

REFERENCE DATA:

Client Sample No.:	VAONA338B1 through VANOR330B1
P.O. No.:	1103
Sample Location:	Virginia
Sample Type:	Bulk
Method Reference:	EPA-600/R-93/116
DCL Set ID No.:	03-A-6249
DCL Sample ID No.:	03-36992 through 03-36993
Sample Receipt Date:	12/23/03
Analysis Date:	12/29/03

We certify that the following samples were prepared and analyzed by Polarized Light Microscopy for asbestos and other fibrous constituents using EPA-600/R-93/116. The samples were acceptable upon receipt except where noted. The samples were examined under a stereomicroscope in a laboratory fume hood for general composition and phase separation. If needed, portions of the sample were removed and ground with a mortar and pestle before being mounted on a glass microscope slide. Mountings of representative portions of the material are prepared in one or more appropriate refractive index liquids (1.550, 1.605, 1.680) and examined by Polarized Light Microscopy*. Estimates of concentration are made on an area basis. The results of the analysis apply only to the materials analyzed and are summarized on the attached bulk asbestos analysis data sheets. DataChem Laboratories will dispose of all bulk samples after 60 days unless other arrangements are made.

Non-Responsive

Analyst

Non-Responsive

Reviewer

*Floor tiles, decorative paints, joint compounds, and cement materials require additional treatment in order to evaluate the concentration of small asbestos fibers bound in the material. Some samples may contain fibers that are not visible by PLM and can only be detected by electron microscopy techniques. Floor tiles are analyzed as homogeneous materials if insufficient mastic is present or if phases have been cross contaminated.

DataChem Laboratories NVLAP Lab ID: 101917. Laboratory accreditation by the National Institute of Standards and Technology does not in any way constitute approval or endorsement by NIST.

CINCINNATI OFFICE
4388 GLENDALE-MILFORD ROAD
CINCINNATI, OHIO 45242-3706
513 733-5336, FAX 513 733-5347

WEST COAST OFFICE
11 SANTA YORMA COURT
NOVATO, CALIFORNIA 94945
800 280-8071, FAX 415 893-9469

12/29/03

**DataChem Laboratories
Polarized Light Microscopy
Asbestos Analytical Report**

Client: Shaw Environmental, Inc.

Location: Virginia

Set ID: 03-A-6249

Client Sample ID:	VAONA338B1	VANOR330B1	VANOR330B1
DCL Sample ID:	03-36992	03-36993A	03-36993B
Macroscopic Examination			
Accepted/Rejected:	Accepted	Accepted	Accepted
Homogeneity:	Homog.	Layered	Layered
Color:	Grey	Brown	Black
Texture:	Crumbly	Compact	Resinous
Description:	Material	Tile	Mastic
Analysis:	PLM	PLM	PLM
Asbestiform Minerals			
% Chrysotile:		>1≤3	>3≤5
% Amosite:			
% Crocidolite:			
% Tremolite - Actinolite:			
% Anthophyllite:			
% Total Asbestos:	ND	>1≤3	>3≤5
Other Materials			
% Cellulose:			
% Fiberglass:			
% Other Fibers:			
% Resin/Binder:		>10≤20	>70≤80
% Non Fibrous:	>90≤100	>70≤80	>10≤20

ND = None Detected Trace = <1%

Special Prep Procedures: None.

*Notes: P. O. #: 1103.

Non-Responsive

Microscopist

All values are in area percent by visual estimate. The Federal Register Vol. 55 No. 224 Tuesday Nov. 20 1990 Rules and Regulations states "... If the asbestos content is estimated to be less than 10% by a method other than point counting,... (the analysis) be repeated using the point counting technique by PLM." Any of the above samples can be reanalyzed by point counting at the client's request. Wherever possible, separate phases are analyzed and reported individually.

Appendix D

References

References

Title 29, Code of Federal Regulations (CFR), Part 1910, Occupational Safety and Health Administration (current edition)

American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc (ASHRAE) 62-2002, Ventilation for Acceptable Indoor Air Quality

Instructions for Completing the Sampling of Army National Guard Armories, Lead Wipe Sampling Procedure included with the Request for Proposal

Air Sampling for Lead - Method 7082 of the National Institute of Occupational Safety and Health (NIOSH) Manual of Analytical Methods

Design Guide DG-415-2, Logistics Facilities, National Guard Bureau Installation Division, 14 December 1999

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

Army Regulation (AR) 40-5, Medical Service, Preventive Medicine, 15 October 1990

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

Department of the Army Pamphlet (DA PAM) 40-501, Medical Services, Hearing Conservation Program, 10 December 1998

DA PAM 40-503, Medical Services, Industrial Hygiene Program, 30 October 2000

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

Guidelines for Converting Indoor Firing Ranges to Other Uses, Headquarters, Department of the Army and the Air Force, NG PAM (AR) 385-16/ANGPAM 91-101, 31 January 1994

24 CFR, Part 35, Subpart B, Section 35-110, Definition of Lead-Based Paint, Housing and Urban Development, U. S. Department of Housing

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 $0.05 \text{ mg}/\text{m}^3$ averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead dust in this building.

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

NGB-AVS-SI (40-5f)

17 December 2004

MEMORANDUM FOR VAARNG, Norfolk Readiness Center, ATTN: SFC
377 Virginia Beach Blvd., Norfolk, VA 23502

Non-
Responsive

SUBJECT: Baseline Survey

1. I have enclosed the industrial hygiene survey report completed by Shaw Environmental, Incorporated.
2. In addition to the attached discussion and recommendations regarding wipe samples for lead, if a special function is held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function.
3. Please contact me at (410) 942-0273 or 1-800-550-6967 if you have any questions regarding the enclosed report.

Non-Responsive

Encl

Regional Industrial Hygienist

CF: Organizational Maintenance Officer
Occupational Health Manager

National Guard Armory

Norfolk Readiness Center, Norfolk, Virginia

Industrial Hygiene Evaluation

Recommendations

- Wipe sampling for lead revealed a concentration above the recommended level of 200 micrograms per square foot ($\mu\text{g}/\text{ft}^2$) in the drill floor/assembly hall area, supply room #46, supply room #44, supply room #39, boiler room, room 50B, and room 51A. It is recommended that these surfaces and the areas immediately around these surfaces be thoroughly cleaned to reduce the lead level. In addition, any other dusty/dirty areas in the assembly area/drill floor, supply room #46, supply room #44, supply room #39, boiler room, room 50B, and room 51A should be thoroughly cleaned. **RAC- 4**
- Wipe sampling for lead revealed concentrations above a level of 40 micrograms per square foot ($\mu\text{g}/\text{ft}^2$) in the drill floor/assembly hall area, supply room #46, supply room #44, supply room #39, boiler room, room 50B, room 51A, office 3S, scullery, room 20, and converted firing range. Areas with lead concentrations above 40 $\mu\text{g}/\text{ft}^2$ that will be accessible to children should be cleaned. If a special function is held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function. **RAC- 4**
- Materials (floor tiles) suspected of containing asbestos were observed. Sampling revealed that the floor tiles did contain asbestos. An operations and maintenance plan should be followed when performing any activities that may disturb the asbestos-containing materials. **RAC- 5**
- Water damage was observed at several locations at the armory. The source of the water damage was likely from a combination of roof and pipe leaks. The source of the water damage should be confirmed and actions taken to eliminate the source in order to prevent the possibility of mold growth that may lead to indoor air quality problems. **RAC- 5**
- Visual mold was observed in the armory. The areas where the mold is located should be thoroughly cleaned with 0.5% sodium hypochlorite solution (1 part household bleach to nine parts water) or equivalent in order to eliminate the potential mold/indoor air quality problem. In addition, the source of the mold should be identified and actions taken to eliminate it. **RAC- 5**
- Lighting measurements were conducted at the armory. The lighting did not meet minimum requirements in some areas; therefore, consideration should be given to providing more lighting in these areas. This may be accomplished by replacing burnt out luminaires, cleaning fixtures, cleaning windows, painting walls with a lighter

color, repositioning detailed work to higher illuminated areas, and using supplemental lighting. **RAC- 5**

- Wipe sampling for lead in the converted firing range revealed a concentration above the recommended level in one area. This area (former bullet trap area) must be decontaminated by a thorough cleaning until surface lead concentrations are reduced to below recommended levels. **RAC- 4**

Shaw Environmental, Inc.

312 Directors Drive
Knoxville, TN 37923
865.690.3211
Fax 865.690.3626



Shaw Environmental, Inc.

06 April 2004

Ms. **Non-Responsive** IH
Regional Industrial Hygienist
Region North Industrial Hygiene Office
Attn: NGB-AVS-SI
301-IH Old Bay Lane
Havre De Grace, Maryland 21078

RE: Draft Report for the Industrial Hygiene Evaluation at the Norfolk Readiness
Center – Norfolk, Virginia

Dear Ms. **Non-Responsive**

Attached is a copy of the referenced report. Also attached is a copy of the field notes,
photographs, and photograph log. Please call me if you have questions.

Sincerely,

Non-Responsive

Project Manager

*Emailed Harry
on 11/19/04 asking
for recommendations.*

*Survey 8/10/03
Rec'd 9 Apr 04*

*rev 11/19/04
Emailed 11/22/04*

Norfolk Armory Photo Log

National Guard Armory

Norfolk, Virginia

Date of Survey: 26 November & 30 December 2003

Photo	Description
1	Lead Wipe Assembly Room - Window Sill - Sample 1
2	Lead Wipe Assembly Room - Window Sill - Sample 2
3	Lead Wipe Assembly Room - Trash Can Lid - Sample 3
4	Lead Wipe Assembly Room - Storage Locker Top - Sample 4
5	Lead Wipe Assembly Room - Trash Can Lid - Sample 5
6	Firing Range - Floor Inside the Converted Firing Range - Sample 7
7	Firing Range - Bullet Trap - Sample 8
8	Firing Range - Stored Item - Sample 9
9	Firing Range - Floor Outside the Converted Firing Range - Sample 10
10	25% Building - Office #35 Computer Monitor - Sample 11
11	25% Building - Classroom Podium - Sample 13
12	25% Building - Kitchen Prep Food Mixer Top - Sample 14
13	25% Building - Scullery Electrical Box - Sample 15
14	25% Building - Supply Room #46 Safe Top - Sample 16
15	25% Building - Supply Room #44 Filing Cabinet Top - Sample 17
16	25% Building - Supply Room #39 Shelf - Sample 19
17	25% Building - Boiler Room Room #42A Shelf - Sample 20
18	25% Building - Room 503 Locker Top - Sample 21
19	25% Building - Room 51A Top of Stair Stepper - Sample 22
20	25% Building - Room #18 Window Sill - Sample 23
21	25% Building - Room #10 Display Case Top - Sample 25
22	25% Building - Room #2 Window Sill - Sample 26
23	25% Building - Room #29 Bookcase Top - Sample 27
24	25% Building - Room #20 Mail Room Shredder - Sample 28
25	25% Building - Room #24 Display Case Top - Sample 29
26	Suspected Asbestos
27	Suspected Asbestos
28	Suspected Asbestos - Hallway
29	Suspected Asbestos
30	Suspected Asbestos
31	Suspected Asbestos
32	Suspected Asbestos
33	Water Damage
34	Water Damage
35	Firing Range - Light Fixtures (no sample was collected due to access)

Field Notes and Checklist

State: Virginia Location: NORFOLK Date: NOVEMBER 26, 2003
Contact: Non-Responsive DECEMBER 30, 2003

1.0 Sampling for Lead

1.1 Wipe Sampling

Sample #: 1 Picture #: / Location: DRILL HALL WINDOW SILL
Sample #: 2 Picture #: / Location: DRILL HALL WINDOW SILL
Sample #: 3 Picture #: / Location: TRASH CAN TOP
Sample #: 4 Picture #: / Location: TOP OF STORAGE LOCKER
Sample #: 5 Picture #: / Location: TRASH CAN TOP
Sample #: 6, 12 Picture #: / Location: FIELD BLANK
Sample #: 18, 24, 30 Picture #: / Location: FILING RACK
Sample #: 7 Picture #: / Location: SEE PAGE # 8
Sample #: 8 Picture #: / Location: SEE PAGE # 8
Sample #: 9 Picture #: / Location: SEE PAGE # 8
Sample #: 10 Picture #: / Location: SEE PAGE # 8
Sample #: 11 Picture #: / Location: OFFICE # 35 TOP OF COMPUTER MONITOR
Sample #: 13 Picture #: / Location: CLASSROOM PODIUM
Sample #: 14 Picture #: / Location: KITCHEN PREP TOP OF FOOD MIXER
Sample #: 15 Picture #: / Location: KITCHEN SCULLERY TOP OF ELECTRICAL BOX
Sample #: 16 Picture #: / Location: SUPPLY ROOM #46 TOP OF SAFE
Sample #: 17 Picture #: / Location: SUPPLY ROOM #44 TOP OF FILING CABINET
Sample #: 19 Picture #: / Location: SUPPLY ROOM #39 SHELF
Sample #: 20 Picture #: / Location: BOILER ROOM ROOM # 42A SHELF
Sample #: 21 Picture #: / Location: ROOM 50B LOCKER TOP
Sample #: 22 Picture #: / Location: ROOM 51A TOP OF STAIR STEPPER

(Also, please see the sketch of sampling locations.)

1.2 Breathing Zone Air Sampling

Sample #: A1 Employee Sampled: GENERAL AIR SAMPLE OFFICE # 35
Sample #: A2 Employee Sampled: GENERAL AIR SAMPLE CLASSROOM
A3 FIELD BLANK

2.0 Physical Condition of Facility

2.1 Peeling Paint - Lead

Peeling paint observed (Yes or No): YESNO SAMPLE COLLECTED

If peeling paint observed, samples were taken as follows:

Sample #: Picture #: ✓ Location: Room # 47 Kitchen
 Condition (Good, Average, Poor): AVERAGE Quantity: 1 to 2 ft²
 Sample #: Picture #: Location:
 Condition (Good, Average, Poor): Quantity: ft²
 Sample #: Picture #: Location:
 Condition (Good, Average, Poor): Quantity: ft²
 Sample #: Picture #: Location:
 Condition (Good, Average, Poor): Quantity: ft²
 Sample #: Picture #: Location:
 Condition (Good, Average, Poor): Quantity: ft²

2.2 Visual Inspection - Asbestos

Suspected asbestos-containing material observed (Yes or No): YES

If suspected asbestos-containing material observed, samples were taken as follows:

Location 1: OFFICES 19-20 (28 x 26) Picture #: ✓
 Condition: GOOD Approximate (Square or Linear Feet): 409.5 SQUARE FT
 Location 2: OFFICES 21-25 (26 x 101) Picture #: ✓
 Condition: GOOD Approximate (Square or Linear Feet): 1521 SQUARE FT
 Location 3: OFFICES 27-30 (20 x 229) Picture #: ✓
 Condition: GOOD Approximate (Square or Linear Feet): 3249 SQUARE FT
 Location 4: OFFICES 7-12 (130 x 37) Picture #: ✓
 Condition: AVERAGE Approximate (Square or Linear Feet): 2705 SQUARE FT
 Location 5: OFFICES 13-18A (130 x 20) Picture #: ✓
 Condition: AVERAGE Approximate (Square or Linear Feet): 2047 SQUARE FT

OFFICES 1-4 (59 x 32) GOOD 1062 SQUARE FT
 MUSEUM (44 x 26) GOOD 643.5 SQUARE FT
 OFFICE 54 (34 x 11) GOOD 210 SQUARE FT
 (3) SMALL HALLWAYS (26 x 21) GOOD 145 SQUARE FT
 BACK HALLWAY (166 x 10) GOOD 1660 SQUARE FT
 FRONT HALLWAY (212 x 9) GOOD 1073.25 SQUARE FT
 (1) SMALL HALLWAY (166 x 10) GOOD 1660 SQUARE FT

2.3 Visual Inspection – Water Damage and Mold

Water damage observed (Yes or No): YES

If yes, water damage was observed at the following locations:

Location 1:	<u>CHURCH - ROOM 49</u>	Picture #:	<u>YES</u>	ROOF LEAKS
Location 2:	<u>COMPUTER TECH ROOM - ROOM 52B</u>	Picture #:	<u>YES</u>	
Location 3:	<u>CLIMBEROOM AREA</u>	Picture #:	<u>YES</u>	WATER DAMAGE
Location 4:	_____	Picture #:	_____	
Location 5:	_____	Picture #:	_____	

Mold observed (Yes or No): YES

If yes, mold was observed at the following locations:

Location 1:	<u>LOCKER ROOMS 60B</u>	Picture #:	_____	MOLD
Location 2:	<u>LOCKER ROOMS 60C</u>	Picture #:	_____	
Location 3:	<u>STORAGE ROOM 52A</u>	Picture #:	_____	
Location 4:	_____	Picture #:	_____	
Location 5:	_____	Picture #:	_____	

2.4 Visual Inspection - Housekeeping

Housekeeping (good, average, poor): GOOD

Comments (such as no dirt or trash was visible on the floors or the housekeeping was poor in that there was trash and debris on the floors that could lead to a tripping hazard, or there was dust in the vents.):

FOR SUCH A LARGE FACILITY THE FACILITY WAS VERY CLEAN

3.0 Building Concerns

3.1 Ergonomic Concerns

Ergonomic concerns (Yes or No): NO

If there are ergonomic concerns at the armory, describe the extent of the problem, such as three employees stated that they perform repetitive motion at the XYZ machine for 6 hours per day, and they stated that they are suffering from symptoms of musculoskeletal disorders (MSDs).

3.2 Indoor Air Quality

IAQ concerns (based on employee interviews)(Yes or No): No

If yes, what were concerns:

Measurements for carbon dioxide, humidity, and temperature:

Location	CO ₂ (ppm)	Humidity (%)	Temperature (°F)	Occupancy (People in Room)
Outdoors -	487	51.2	58.3	0
1 st Floor -	598	39.6	72.0	1
2 nd Floor -	—	—	—	—
3 rd Floor -	—	—	—	—
Basement	—	—	—	—

4.0 Safety and Industrial Hygiene Programs

4.1 Confined Spaces

Are confined spaces applicable (Yes or No): No

If yes, does the program meet minimum standards (Yes or No): —

If no, explain the deficiencies:

4.2 Hearing Conservation

Is hearing conservation applicable (Yes or No): NO

If yes, does the program meet minimum standards (Yes or No): NO

If no, explain the deficiencies:

4.3 Respiratory Protection

Is respiratory protection applicable (Yes or No): NO

If yes, does the program meet minimum standards (Yes or No): NO

If no, explain the deficiencies:

4.4 Hazard Communication

Is hazard communication applicable (Yes or No): NO

If yes, does the program meet minimum standards (Yes or No): NO

If no, explain the deficiencies:

4.5 Personal Protective Equipment

Is personal protective equipment applicable (Yes or No): no

If yes, does the program meet minimum standards (Yes or No): no

If no, explain the deficiencies:

5.0 Ventilation

5.1 Ventilation System Evaluation

Local exhaust ventilation systems at this armory (Yes or No): no

If yes, results of airflow patterns:

Location 1: _____

Airflow Pattern (acceptable or unacceptable, with reason):

Location 2: _____

Airflow Pattern (acceptable or unacceptable, with reason):

Location 3: _____

Airflow Pattern (acceptable or unacceptable, with reason):

5.2 Contamination of Clean Air Sources

Clean air sources contaminated by contaminated exhaust air (Yes or No): no

If yes, describe:

6.0 Noise Dosimetry

Potential hazardous noise areas (Yes or No): no

If yes, results of noise dosimetry sampling:

Employee sampled: _____

Results: _____ % Actual _____ % Projected 8-hour TWA _____ Equivalent dBA

Activity: _____

Employee sampled: _____

Results: _____ % Actual _____ % Projected 8-hour TWA _____ Equivalent dBA

Activity: _____

Employee sampled: _____

Results: _____ % Actual _____ % Projected 8-hour TWA _____ Equivalent dBA

Activity: _____

7.0 Lighting Evaluation

DO NOT DIVIDE BY .9

H'S ALREADY CALCULATED

Location	Illuminance Range (fc)
KITCHEN PREP	39.6 - 84.7
EM LABLINE ROOM 50R	5.7 - 9.8
STORAGE ROOM 51A	3.9 - 9.1
COMPUTER TECH ROOM 52B	4.9 - 84.9
OFFICE ROOM 2	41.8 - 74.6
ROOM 54	48.6 - 74.8
BACK HALLWAY	14.1 - 52.6
SIDE HALLWAY	18.3 - 57.8
ROOM 20	28.3 - 81.7
ROOM 34 - OFFICE	63.5 - 107.6
ROOM 24 - OFFICE	84.3 - 103.2

8.0 Converted Indoor Firing Ranges

Converted indoor firing range (Yes or No): YES

If yes, locations sampled:

Sample #: NA Picture #: / Location: Inside any remaining ventilation ductwork

Sample #: NA Picture #: / Location: Exhaust ventilation system

Sample #: 8 Picture #: YES Location: Bullet trap TAKEN AT DOORWAY (AAA) RESURFACED FLOOR AND THIS WAS ONLY OLD FLOOR EXPOSED

Sample #: NA Picture #: / Location: Light fixtures NA DUE WE COULD NOT GET TO THEM

Sample #: NA Picture #: / Location: Overhead heaters

Sample #: 9 Picture #: YES Location: Stored items END TABLE IN CHAPLAIN'S OFFICE

Sample #: 7 Picture #: YES Location: Floor

Sample #: 10 Picture #: YES Location: Outside the range

9.0 HVAC System

Does the HVAC system have maintenance performed on a regular basis (Yes or No):

YES

In yes, is the maintenance effective (Yes or No): YES

If no, describe:

10.0 HHIM

Complete HHIM form for facility (Initial as completed): Non-Responsiv

Reproduction Room HHIM Necessary (Yes or No) (Initial if Yes): -

Film Developing Room HHIM Necessary (Yes or No) (Initial if Yes): -

Maintenance Area HHIM Necessary (Yes or No) (Initial if Yes): -

11.0 Additional Items

Non-Responsive

Table 1 (wipe sampling) completed (initial when completed): _____

Table 2 (air sampling) completed (initial when completed): _____

Table 3 (peeling paint), if necessary, completed (initial when completed): _____

Table 3 or 4 (IAQ) completed (initial when completed): _____

Table 4 or 5 (noise), if necessary, completed (initial when completed): _____

Table 5 or 6 (firing ranges), if necessary, completed (initial when completed): _____

Airflow pattern diagram(s) completed (initial when completed): _____

Building layout included (initial when completed): _____

Photographs (initial when completed): _____

Sampling Sheets and Laboratory Analyses (initial when completed): _____

Sampling tracking form completed and faxed to NGB within 5 days of date of this survey (initial when completed): _____
(Fax to Ken Forsythe at 410-942-0254)

State Lead Wipes Spreadsheet completed (initial when completed): _____

Three copies of noise exposure notification letter, if necessary (initial when completed): _____

Three copies of contaminant exposure forms for each employee that participated in air sampling (initial when completed): _____

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



Industrial Hygiene Survey
for VAARNG – Norfolk Readiness Center
3777 Virginia Beach BLVD
Norfolk, Virginia 23451

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

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

Industrial Hygiene Survey
for VAARNG – Norfolk Readiness Center
3777 Virginia Beach BLVD
Norfolk, Virginia 23451

Non-Responsive



Industrial Hygienist

Non-Responsive



Project Manager

Non-Responsive



Northeast District Health & Safety Manager

AECOM Environment
January 2013
Document No.: 60276421/ Norfolk 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 Norfolk Readiness Center Facility Layout

Appendix B Norfolk Readiness Center Photographs

Appendix C Analytical Results

Appendix D References



List of Tables

Table 2-1: Lead Wipe Sample Results 2-1

Table 3-1: Indoor Air Quality Monitoring Results..... 3-2

Table 5-1: Light Survey 5-1



Executive Summary

On November 15, 2012, AECOM Technical Services Northeast, Inc. (AECOM) conducted an Industrial Hygiene (IH) survey of the Norfolk Readiness Center facility located at 9797 Braddock Road in Norfolk, Virginia. [REDACTED] was the point of contact for the facility and accompanied AECOM during the survey to provide access and information concerning the Norfolk Readiness Center operations.

The industrial hygiene survey was conducted in general accordance with the scope of work as described in the "Statement of Work – Industrial Hygiene Services for National Guard Bureau Industrial Hygiene Region North – Baseline Surveys for Readiness Centers and Administrative Buildings", dated March 2009.

The Norfolk Readiness Center is currently staffed by an unidentified number of personnel. The facility is configured as an administrative area and a drill/assembly hall.

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

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

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

Wipe samples collected in association with the drill hall and administrative areas indicated lead levels below the Occupational Safety and Health Administration's (OSHA's) Clarification of "as free as practicable" and lead contamination under 29 Code of Federal Regulations (CFR) 1926.62, The Compliance Directive for the Interim Standard for Lead in Construction, CPL 2-2.58. OSHA recommends the use of the U.S. Department of Housing and Urban Development's (HUD) acceptable decontamination level of 200 micrograms per square foot (ug/ft²) for floors in evaluating the cleanliness of change areas, storage facilities, and lunchrooms/eating areas.

A single area of damaged suspect asbestos containing materials was observed during the evaluation. A sample of the material was collected from the exterior window glazing in the SE corner of the drill hall. Results of the analysis indicated less than 1% chrysotile present.

No damaged or peeling paint was observed at the facility.

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

1.0 Facility Description and Operations

The Norfolk Readiness Center is a purpose built single story masonry structure. The section occupied by Readiness Center personnel consists of rooms configured as office space and is finished with acoustical drop ceilings and floor tile.

The primary activity at the Norfolk Readiness Center is routine administrative duties. The Norfolk Readiness Center is currently staffed by an unidentified number of 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 multiple areas of the facility following the Occupational Safety & Health Administration (OSHA) wipe sampling method and using Ghost Wipes.

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

Table 2-1: Lead Wipe Sample Results

Sample Number	Sample Location	Lead Concentration
NF-Pb-01	Kitchen-top of dish sterilizer	<110 ug/ft ²
NF-Pb-02	Drill hall Platform on wall	<110 ug/ft ²
NF-Pb-03	Drill hall face of return grill	<110 ug/ft ²
NF-Pb-04	Drill hall/Rm705 Floor at entrance to room 205	<110 ug/ft ²
NF-Pb-05	Lobby – floor in front of visitors sign	<110 ug/ft ²
NF-Pb-06	Room 141 Former firing range floor	<110 ug/ft ²
NF-Pb-07	Floor outside room 141	<110 ug/ft ²
NF-Pb-08	Room 137 (former firing range) top of water cooler	<110 ug/ft ²
NF-Pb-09	Room 110 top of file cabinet	<110 ug/ft ²
NF-Pb-10	Room 102 Desk top	<110 ug/ft ²
NF-Pb-11	Room 114 supply air vent	<110 ug/ft ²

ug/ft² = Micrograms per square foot.

Wipe samples collected in association with the drill hall and administrative areas indicated lead levels below the Occupational Safety and Health Administration's (OSHA's) Clarification of "as free as practicable" and lead contamination under 29 CFR 1926.62, The Compliance Directive for the Interim Standard for Lead in Construction, CPL 2-2.58. OSHA recommends the use of HUD's acceptable decontamination level of 200 ug/ft² for floors in evaluating the cleanliness of change areas, storage facilities, and lunchrooms/eating areas.

The former indoor firing range (IFR) has been converted into storage. The entire space was remodeled, including replacement of the HVAC system. Former IFR shall be converted in accordance NG-PAM 420-15. The wipe samples did not detect levels of lead in excess of the action level of 200 micrograms per square foot (ug/ft²) per NG-PAM 420-15. Laboratory analytical results are presented in Appendix C.

2.1.2 Air Sampling

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

3.0 Physical Condition of Facility and Personnel Concerns

3.1.1 Lead Based Paint

Interior surfaces of walls are coated with paint. The paint on the walls is in serviceable condition. AECOM did not observe damaged or peeling paint during this evaluation.

3.1.2 Suspect Asbestos Containing Materials

A single area of damaged suspect asbestos containing materials was observed during the evaluation. A sample of the material was collected from the exterior window glazing in the SE corner of the drill hall. Results of the analysis indicated less than 1% chrysotile present.

Typical suspect miscellaneous building materials observed but not sampled include drywall, floor tiles and associated mastic, cove base and associated mastic, ceiling tiles, carpet mastic, and window caulks.

3.1.3 Water Damage/Mold

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

3.1.4 Housekeeping

The Norfolk 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 Norfolk Readiness Center staff members. No Indoor Air Quality concerns were noted by the Norfolk Readiness Center personnel.

Instantaneous real-time reading for carbon monoxide and carbon dioxide (parts per million or ppm), temperature (° Fahrenheit), and relative humidity (as percentage) are presented in the following table. The facility is mechanically air conditioned. All readings were within acceptable guidelines.

Table 3-1: Indoor Air Quality Monitoring Results

Location	Carbon Monoxide (ppm)	Carbon Dioxide (ppm)	Temp (°F)	Relative Humidity (%)
Room 123 conference	0.5	690	71.0	41.8
Room 118 office	0.5	425	71.0	39.3
Room 120 office	0.6	509	71.2	40.4
Room 122 office	0.8	464	71.6	41.2
Room 124 office	1.0	509	70.4	40.3
Room 125 office	0.5	538	71.5	42.7
Room 127 office	0.4	391	72.5	39.1
Room 136 office	0.8	562	71.6	40.6
Room 138 office	0.6	488	70.9	40.6
Room 137 supply	0.6	548	70.3	40.7
Room 142 lockers	0.5	430	71.8	38.5
Men's room	0.2	429	71.4	40.8
Family assistance room 141	0.5	583	71.7	38.2
Room 143 electrical	0.5	582	71.9	41.6
Drill hall	0.5	384	70.2	38.1
Room 145 kitchen	0.5	551	71.9	40.2
Room 145A	0.4	436	71.7	39.5
Room 148 classroom	0.4	381	70.2	41.7
Room 100 mechanical	0.3	426	69.5	48.5
Room 101 Ladies room	0.5	511	68.1	43.8
Room 102 office	0.0	438	68.8	39.2
Room 104 office	0.1	484	68.8	35.5
Room 103 office	0.1	518	69.0	36.8
Room 106 office	0.1	513	69.2	37.7
Room 105 office	0.5	591	68.1	38.2
Room 108 office	0.0	506	69.5	38.4
Room 107 office	0.1	487	69.5	38.5
Room 110 office	0.2	442	70.2	37.0
Room 109 office	0.3	490	70.7	37.1
Room 112 office	0.3	483	71.0	37.0
Room 111 office	0.4	553	71.4	37.0
Room 113 office	0.1	483	73.0	35.7
Room 114 office	0.4	535	77.8	35.9
Room 115 office	0.5	406	71.6	35.6
Room 116 office	0.5	402	71.1	36.6
Room 117 office	0.3	451	70.7	37.3
Room 119 office	0.0	479	71.7	39.0
Room 118 office	0.4	547	70.2	37.3
Room 131 office	0.1	488	70.3	39.3
Room 129 office	0.4	457	70.2	39.3
Room 133 office	0.3	406	70.4	39.8
Room 134 office	0.1	449	70.4	39.3
Room 132 conference	0.1	383	72.5	37.8

Location	Carbon Monoxide (ppm)	Carbon Dioxide (ppm)	Temp (°F)	Relative Humidity (%)
Room 144 Locker room	0.4	427	69.9	41.6
Room 144A locker room	0.5	486	69.9	42.2

Table 3-1 Guidelines:

Carbon Monoxide: Office/Warehouse Space – 9 ppm based on United States Environmental Protection Agency's National Ambient Air Quality Standard.

OSHA Permissible Exposure Limit (PEL) = 50 ppm. American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit value (TLV) = 25, ppm.

Carbon Dioxide: Office Space -Approximately 700 ppm above background (Derived from American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE) Standard 62.1-2010). Not Applicable to warehouse and vehicle maintenance bays.

Relative Humidity: Mechanically air-conditioned space – Maximum 65% (Derived from ASHRAE Standard 62.1-2010 – 5.10.1).

Temperature: Winter (clothing insulation = 1.0 clo) Relative humidity 30-60% - Temp - 68 – 75°F

Summer Temp - 73 – 79°F. (Derived from ASHRAE Standard 55-2010)

Norfolk 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.

No dust was observed at diffusers, and site personnel indicated that the system seems to work well. Temperature readings were constant in all areas occupied by readiness center personnel.

4.1.2 HVAC Maintenance

The HVAC system is serviced by a third party vendor.

There was no 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 not adequate in all of the surveyed areas.

Table 5-1: Light Survey

Location	Results (Foot candles)	Met Standard (Y/N)	Standard*
Room 123 conference	52.8	Y	30
Room 118 office	43.7	N	50
Room 120 office	31.1	N	50
Room 122 office	82.5	Y	50
Room 124 office	25.6	N	50
Room 125 office	34.1	N	50
Room 127 office	32.2	N	50
Room 136 office	37.2	N	50
Room 138 office	13.2	N	50
Room 137 supply	11.5	N	30
Room 142 lockers	12.6	Y	7
Men's room	10.2	Y	5
Family assistance room 141	25.2	N	50
Room 143 electrical	96.6	Y	30
Drill hall	13.2	Y	10
Room 145 kitchen	58.3	Y	50
Room 145A	31.9	Y	30
Room 148 classroom	51.2	Y	30
Room 100 mechanical	39.4	Y	30
Room 101 Ladies room	15.1	Y	5
Room 102 office	107.5	Y	50
Room 104 office	32.3	N	50
Room 103 office	75.4	Y	50
Room 106 office	89.7	Y	50
Room 105 office	49.3	N	50
Room 108 office	131.7	Y	50
Room 107 office	97.6	Y	50
Room 110 office	81.3	Y	50
Room 109 office	77.8	Y	50
Room 112 office	53.4	Y	50
Room 111 office	52.9	Y	50
Room 113 office	46.5	N	50
Room 114 office	109.9	Y	50
Room 115 office	50.4	Y	50
Room 116 office	48.6	N	50
Room 117 office	46.8	N	50
Room 119 office	40.4	N	50
Room 118 office	34.6	N	50
Room 131 office	30.2	N	50

Location	Results (Foot candles)	Met Standard (Y/N)	Standard*
Room 129 office	60.7	Y	50
Room 133 office	47.7	N	50
Room 134 office	58.6	Y	50
Room 132 conference	67.4	Y	30
Locker room 144	6.3	N	7
Locker room 144A	8.3	Y	7
Office Lighting (ANSI/IESNA RP-1-04) and Industrial Lighting Facilities (ANSI/IESNA RP-7-01)			

6.0 Evaluation of Attached Garage

There is no garage associated with the Norfolk 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 Norfolk Readiness Center.

Lighting levels measured throughout the facility were not adequate in many of the surveyed areas as per American National Standard Institute/Illuminating Engineering Society of North America (ANSI/IESNA) RP-1-2004, Office Lighting, ANSI/IESNA RP-7-2001, Industrial Lighting, and the IESNA Lighting Handbook, 9th Edition, 11 April 2005.

Wipe samples collected in association with the drill hall and administrative areas indicated lead levels below the Occupational Safety and Health Administration's (OSHA's) Clarification of "as free as practicable" and lead contamination under 29 CFR 1926.62, The Compliance Directive for the Interim Standard for Lead in Construction, CPL 2-2.58. OSHA recommends the use of HUD's acceptable decontamination level of 200 ug/ft² for floors in evaluating the cleanliness of change areas, storage facilities, and lunchrooms/eating areas.

A single area of damaged suspect asbestos containing materials was observed during the evaluation. A sample of the material was collected from the exterior window glazing in the SE corner of the drill hall. Results of the analysis indicated less than 1% chrysotile present.

No damaged or peeling paint was observed at the facility.

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

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

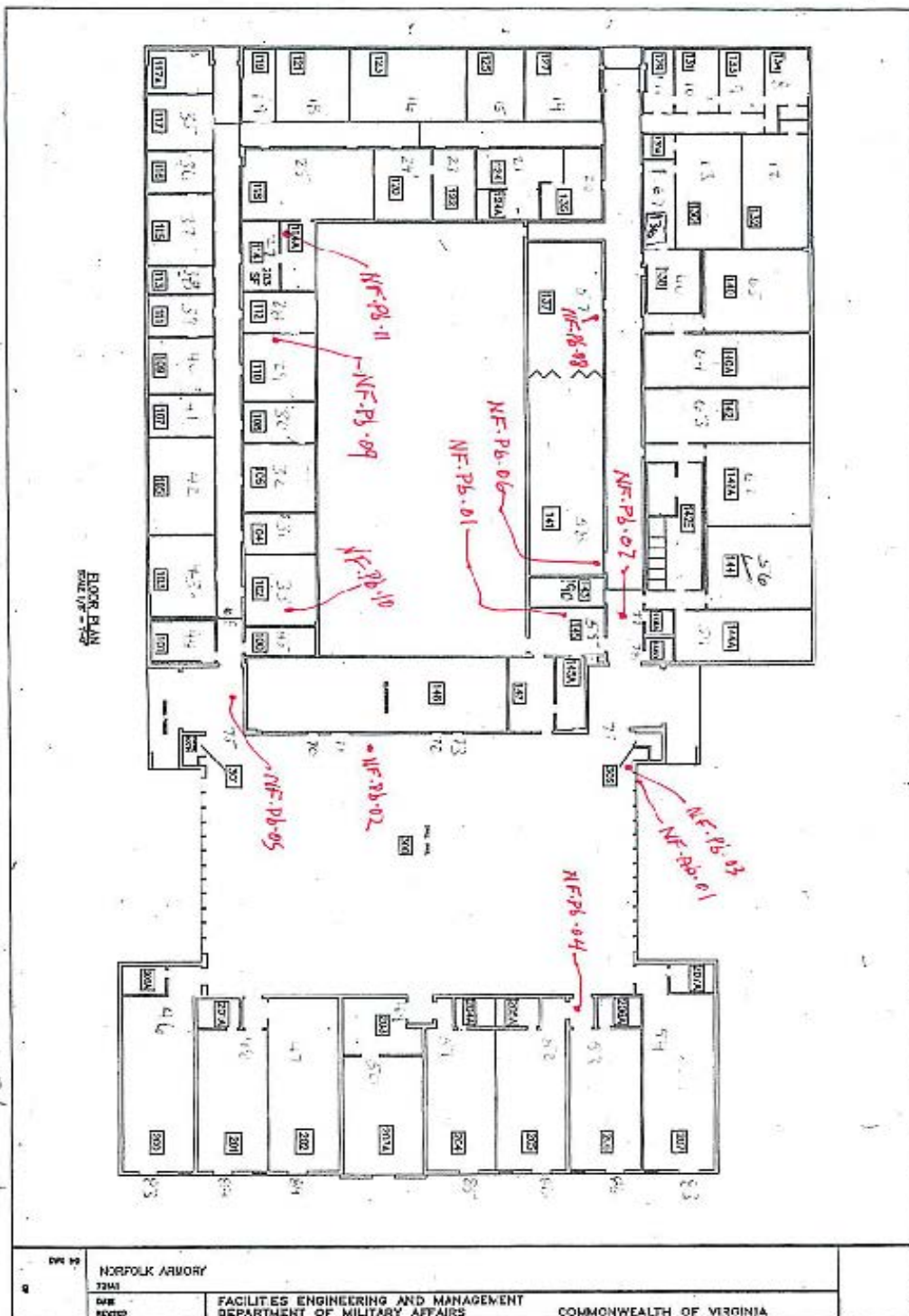
As with all such surveys, the results of the sampling represent conditions found on the date of the survey and may not represent conditions found at other times. Additionally, this survey was limited with respect to the specific parameters indicated above and should not be construed to be a comprehensive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

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



Appendix A

Norfolk Readiness Center Facility Layout





Appendix B

Norfolk Readiness Center Photographs

Photograph 1



Building

Photograph 2



HVAC equipment in room 141

Photograph 3



Mechanical room 42A

Photograph 4



Dish sterilizer sample sit NF-Pb-01

Photograph 5



Drill hall

Photograph 6



Drill hall

Photograph 7



Typical office

Photograph 8



Corridor typical

Photograph 9



Room 137/former range



Appendix C

Analytical Results

AMA Analytical Services, Inc.



A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS



LAB #100470

Client: National Guard Bureau Job Name: YA ANG IH Survey Chain Of Custody: 514765
 Address: 301-IH Old Bay Lane, Attn: ARNG-CJG-P, Job Location: Norfolk RC Date Submitted: 12/12/2012
 State Military Reservation
 Havre de Grace, Maryland 21078 Job Number: Not Provided Person Submitting: AECOM
 P.O. Number: W912K6-09-A-0003 Date Analyzed: 12/19/2012 Report Date: 12/20/2012

Attention: **Non-Responsive**

Summary of Atomic Absorption Analysis for Lead

Page 1 of 2

AMA Sample Number	Client Sample Number	Analysis Type	Sample Type	Air Volume (L)	Area Wiped (ft²)	Reporting Limit	Total ug	Final Result	Comments
13023123	NF-Pb-01	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
13023124	NF-Pb-02	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
13023125	NF-Pb-03	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
13023126	NF-Pb-04	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
13023127	NF-Pb-05	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
13023128	NF-Pb-06	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
13023129	NF-Pb-07	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
13023130	NF-Pb-08	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
13023131	NF-Pb-09	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
13023132	NF-Pb-10	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
13023133	NF-Pb-11	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. 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.

An AIHA (#100470) and NY ELAP (#10920) Accredited Laboratory

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

AMA Analytical Services, Inc.



A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS



LAB #100470

Client: National Guard Bureau Job Name: VA ANG IH Survey Chain Of Custody: 514765
 Address: 301-III Old Bay Lane, Attn: ARNG-CJG-P, Norfolk RC Date Submitted: 12/12/2012
 State Military Reservation
 Havre de Grace, Maryland 21078 Job Number: Not Provided Person Submitting: AECOM
 P.O. Number: W912K6-09-A-0003 Date Analyzed: 12/19/2012 Report Date: 12/20/2012

Attention: Non-

R I

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 800/R-93/200(M)-7000B; Water: SM-3111B

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

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

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

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

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

Air and Wipe results are not corrected for any blank results

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

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

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

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. 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.

An AIHA (#100470) and NY ELAP (#10920) Accredited Laboratory

4475 Forbes Blvd. • Lanham, MD, 20706 • (301) 459-2640 • Toll Free (800) 346-9961 • Fax (301) 459-2643

AMA Analytical Services, Inc.



A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS

NVLAP®

101143-0

Client: National Guard Bureau Job Name: VA ANGH Survey Chain Of Custody: 514765
 Address: 301-1H Old Bay Lane, Attn: ARNG-CJG-P, Job Location: Norfolk RC Date Analyzed: 12/19/2012
 State Military Reservation
 Havre de Grace, Maryland 21078 Job Number: Not Provided Person Submitting: AECOM
 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	Organic Synthetic	Other Particulate	Sample Type	Sample Color	Homogeneity	Analyst ID	Comments
13023134	NF-Ah-01	TR ¹	TR	..	..	..	..	..	..	..	100	WG	Gray	Homogeneous	SW

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

- 1 TEM RECOMMENDATION - Please note, due to resolution limitations with optical microscopy and/or 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

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.

NVLAP (101143-0) Accredited Laboratory

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

AECOM**AMA Analytical Services, Inc.**

Focused on Results www.ama-lab.com

AIHA (#100470) NVLAP (#101143-0) NY ELAP (10920)
 4475 Forbes Blvd. • Lanham, MD 20705
 (301) 459-2640 • (800) 346-0961 • Fax (301) 459-2643

CHAIN OF CUSTODY

(Please Refer To This
 Number For Inquiries)

514765**Mailing/Billing Information:**

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

Submittal Information:

- Job Name: VA ANG 1H SURVEY
- Job Location: NORFOLK RC
- Job #: _____ P.O. #: W012K6-00-A-0003
- Contact Person: Non-Responsive
- Submitted by: AECOM Signature: Non-Responsive

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

WEEKEND HOURS (must be pre-scheduled)		NORM. BUSINESS HOURS		REPORT TO:	
<input type="checkbox"/> Immediate	<input type="checkbox"/> Day	<input type="checkbox"/> Immediate	<input type="checkbox"/> Day	<input type="checkbox"/> Include C	<input type="checkbox"/> Email
<input type="checkbox"/> 24 Hours	<input type="checkbox"/> Next Day	<input type="checkbox"/> Next Day	<input type="checkbox"/> Day	<input type="checkbox"/> Fax	<input type="checkbox"/> Verbal
Comments: _____		Comments: <u>12/19/12</u>		Comments: <u>Non-Responsive</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 Fridge 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)
 *It is recommended that NIOSH samples be submitted with all air and surface samples

TEM Bulk

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

TEM Dust

- ☐ Qual. (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)

***Pb 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 Dist. (QTY) _____
☐ Culturable ID Counts (Media) (QTY) _____
☐ Culturable ID Species (Media) (QTY) _____

CLIENT ID #	SAMPLE INFORMATION		DATE/TIME	VOL. (L)	ANALYSIS										MATRIX	CLIENT CONTACT			
	SAMPLE LOCATION	ID			Wipe Area	TEM	PCM	PLM	LEAD	MOLD	AR	RI/ELK	DUST	WATER		SPC	FUNG	DATE/TIME	CONTACT	BY
	SEE ATTACHED FIELD DATA SHEETS																		

LABORATORY
 STAFF ONLY:
 (CUSTODY)

- Date/Time Received: 12/19/12
- Date/Time Analyzed: 12/19/12
- Results Reported To: Non-Responsive
- Comments: 799 003 8 0030

Non-Responsive

Samples Relinquished to Hunter's Proffitt 19 Nov 2012 @ 1200 Stephen B. Selig

Surface Sampling Field Data Sheet

Date Collected: 19 Nov 2012 Job Name: VA ANGL IH Survey 5
 Job Number: Non-Responsive Job Location: Norfolk Armory
 Contact Person: Non-Responsive Address: 3777 VA Beach Blvd
Norfolk, VA

Company: Hunter's Proffitt Page 1 of 1
 Phone Number: 757-695-1288
 Collected By: Non-Responsive
 COC Number:

Sample Number	Sample Location	Surface/Substrate Sampled	Area Wiped (in ² /ft ²)	Collection Media
NF-Pb-01	Kitchen - Top of Dish Sterilizer	metal	16 in ²	Ghostwipe
NF-Pb-02	Drill Hall - Platform on Stairwell	wood		
NF-Pb-03	Drill Hall - Face of Return Air Grille	metal		
NF-Pb-04	Drill Hall/Rm 205 - Floor @ entrance to Rm 205	concrete		
NF-Pb-05	Lobby - Floor in front of Visitors Sign-in	Vinyl Tile		
NF-Pb-06	Rm 141 - Family Rest./Firearm Range - Floor inside entry door	Vinyl Tile		
NF-Pb-07	Room Floor in Hall outside Rm 141 - Go towards Drill Hall/Sign-in	Vinyl Tile		
NF-Pb-08	Rm 137 Former Firing Range - Front of stored water cooler	Plastic		
NF-Pb-09	Rm 110 - Top of File Cabinet	metal		
NF-Pb-10	Rm 102 - Desk Top	Vinyl Paper on Pressboard		
NF-Pb-11	Rm 114 - Supply Air Vent	metal		

Please Return Samples To:

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



Sample Relinquished to Hunt & Proffitt - 19 Nov. 2012 @ 1200 Representative

Bulk Sampling Survey Sheet

Date Collected: 15 Nov 2012Job Name: VA ANG 14 SurveyCompany: Hunt & Proffitt Page 1 of 1

Job Number:

Job Location: Norfolk ArmoryPhone Number: 757-685-1288

Contact Person:

Non-ResponsiveAddress: 3777 VA Beach BlvdCollected By: **Non-Responsive**Norfolk, VA

COC Number:

Sample Number	Homogenous Area ID	Type of Material	Sample Location	Friable	Condition of Material	Accessibility	Photo	Comments
NF-Ab101	1	Window Glazing	SE corner of Drill Hall - exterior of window above grade	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input checked="" type="checkbox"/> Poor	<input type="checkbox"/> Low <input checked="" type="checkbox"/> Medium <input type="checkbox"/> High	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	

Please Return Samples To:

AMA Analytical Services, Inc., 4475 Forbes Blvd., Lanham, MD 20705, (800) 346-0961/(301) 459-2640 Fax, www.amaab.com, info@amaab.com



Appendix D

References

References

1. Title 29, Code of Federal Regulations (CFR), Part 1910, Occupational Safety and Health Administration, current Ed. <http://www.osha.gov/comp-links.html>
2. Department of Defense Instruction (DODI) 6055.1, Department of Defense Occupational Safety and Health (OSH) Program, August 19, 1998. <http://www.dtic.mil/whs/directives/corres/pdf/605501p.pdf>
3. Army Regulation (AR) 11-34, The Army Respiratory Protection Program, 15 February 1990. http://armypubs.army.mil/epubs/pdf/R11_34.PDF
4. AR 40-5, Medical Service, Preventive Medicine, 25 May 2007. http://armypubs.army.mil/epubs/pdf/R40_5.PDF
5. AR 385-10, The Army Safety Program, 23 August 2007; Rapid Action Revision (RAR) issue date: 4 October 2011. http://armypubs.army.mil/epubs/pdf/R385_10.PDF
6. Department of the Army Pamphlet (DA PAM) 40-501, Medical Services, Hearing Conservation Program, 10 December 1998. http://armypubs.army.mil/epubs/pdf/P40_501.pdf
7. DA PAM 40-11, Preventive Medicine, 22 July 2005, RAR issue date: 19 October 2009. http://armypubs.army.mil/epubs/pdf/p40_11.pdf
8. DA PAM 40-503, Medical Services, Industrial Hygiene Program, 30 October 2000. http://armypubs.army.mil/epubs/pdf/P40_503.PDF
9. UFC 3-410-01FA, Heating, Ventilating, and Air Conditioning, 15 May 2003, change 4, January 2010. http://www.wbdg.org/ccb/DOD/UFC/ufc_3_410_01fa.pdf
10. Threshold Limit Values (TLVs) and Biological Exposure Indices (BEIs), American Conference of Governmental Industrial Hygienists (ACGIH), current Ed.
11. Industrial Ventilation – A Manual of Recommended Practice for Design, ACGIH, current Ed.
12. American National Standards Institute (ANSI)/International Safety Equipment Association (ISEA) Z358.1-2009, Emergency Eyewash and Shower Equipment.
13. ANSI/American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. (ASHRAE) 55-2010, Thermal Environmental Conditions for Human Occupancy.
14. ANSI/ASHRAE 62.1-2010, Ventilation for Acceptable Indoor Air Quality.
15. RP-1-2004, Office Lighting, ANSI/IESNA.
16. RP-7-2001, Industrial Lighting, ANSI/IESNA, change 20 July 2004.
17. OSHA Instruction Letter 02-02-058, Lead Exposure in Construction, Office of Health Compliance Assistance, 13 December 1993.
18. OSHA Standard Interpretation, Clarification of “as free as practicable” and lead contamination under 29 CFR 1926.62, dated January 13, 2003.
19. NG PAM 420-15, Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges, 3 November 2006. http://www.ngbpdc.ngb.army.mil/pubs/420/ngpam420_15.pdf

Shaw Environmental, Inc.

312 Directors Drive
Knoxville, TN 37923
865.690.3211
Fax 865.690.3626



**National Guard Armory
Onancock Readiness Center
Onancock, Virginia**

Industrial Hygiene Evaluation

Prepared for:

**National Guard Region North Industrial Hygiene Office
Havre De Grace, Maryland 21078**

Prepared by:

**Shaw Environmental, Inc.
312 Directors Drive
Knoxville, Tennessee 37923**

26 October 2004

**National Guard Armory
Onancock Readiness Center
Onancock, Virginia**

Industrial Hygiene Evaluation

Prepared for:

**National Guard Region North Industrial Hygiene Office
Havre De Grace, Maryland 21078**

Prepared by:

**Shaw Environmental, Inc.
312 Directors Drive
Knoxville, Tennessee 37923**

26 October 2004

Prepared by:

Non-Responsive

Environmental Scientist

Reviewed by:

Non-Responsive

Business Line Manager

Table of Contents

<i>Table of Contents</i>	<i>i</i>
<i>List of Tables</i>	<i>ii</i>
<i>List of Appendices</i>	<i>ii</i>
<i>Executive Summary</i>	<i>E-1</i>
<i>1.0 Introduction</i>	<i>1-1</i>
<i>2.0 Findings, Discussion, and Interpretation of Results</i>	<i>2-1</i>
<i>2.1 Sampling for Lead</i>	<i>2-1</i>
<i>2.1.1 Wipe Sampling</i>	<i>2-1</i>
<i>2.1.2 Air Sampling for Lead</i>	<i>2-2</i>
<i>2.2 Physical Condition of Facility</i>	<i>2-2</i>
<i>2.2.1 Peeling Paint - Lead</i>	<i>2-2</i>
<i>2.2.2 Visual Inspection - Asbestos</i>	<i>2-2</i>
<i>2.2.3 Visual Inspection - Water Damage and Mold</i>	<i>2-3</i>
<i>2.2.4 Visual Inspection - Housekeeping</i>	<i>2-3</i>
<i>2.3 Building Concerns</i>	<i>2-3</i>
<i>2.3.1 Ergonomic Concerns</i>	<i>2-3</i>
<i>2.3.2 Indoor Air Quality</i>	<i>2-3</i>
<i>2.4 Safety and Industrial Hygiene Programs</i>	<i>2-4</i>
<i>2.5 Ventilation</i>	<i>2-4</i>
<i>2.5.1 Ventilation System Evaluation</i>	<i>2-4</i>
<i>2.5.2 Contamination of Clean Air Sources</i>	<i>2-4</i>
<i>2.6 Noise Exposure</i>	<i>2-4</i>
<i>2.7 Lighting</i>	<i>2-4</i>
<i>2.8 Converted Indoor Firing Ranges</i>	<i>2-5</i>
<i>2.9 HVAC Systems</i>	<i>2-5</i>
<i>2.10 IHIM</i>	<i>2-5</i>
<i>3.0 Conclusions</i>	<i>3-1</i>
<i>Tables</i>	<i>Follows Section 3.0</i>
<i>Appendices</i>	<i>Follows Tables</i>

List of Tables

Table 1	Wipe Sampling for Lead
Table 2	Air Sampling for Lead
Table 3	Indoor Air Quality Measurements
Table 4	Illumination Readings
Table 5	Indoor Firing Ranges -- Wipe Sampling

List of Appendices

Appendix A	HHIM Data Form
Appendix B	Building Layout
Appendix C	Sampling Sheets and Laboratory Analyses
Appendix D	References
Appendix E	Recommendations for Surface Lead Dust in Armories

Executive Summary

Shaw Environmental, Inc. (Shaw) was contracted to perform an industrial hygiene evaluation for the Onancock Readiness Center in Onancock, Virginia. **Non-Responsive** performed the evaluation on 4 December 2003. The point of contact at the readiness center was SSG **Non-Responsive**

The following industrial hygiene concerns were evaluated.

- Wipe Sampling for Lead
- Air Sampling for Lead
- Peeling Paint – Lead
- Suspected Asbestos Containing Material
- Water Damage
- Presence of Mold
- Housekeeping
- Ergonomic Concerns
- Indoor Air Quality
- Safety and Industrial Hygiene Programs
- Ventilation System Evaluation
- Contamination of Clean Air Sources
- Noise Exposure
- Lighting
- Converted Indoor Firing Range
- HVAC Systems

The following items were either not applicable to the armory or the evaluation resulted in a conclusion that there were no industrial hygiene concerns.

- Air Sampling for Lead
- Peeling Paint – Lead
- Presence of Mold
- Housekeeping
- Ergonomic Concerns
- Safety and Industrial Hygiene Programs

- Ventilation System Evaluation
- Contamination of Clean Air Sources
- Noise Exposure
- HVAC Systems

Areas where there were industrial hygiene concerns are as follows:

- Wipe sampling for lead revealed a concentration above the recommended level of 200 micrograms per square foot ($\mu\text{g}/\text{ft}^2$) in the drill floor/assembly hall area. It is recommended that these surfaces and the areas immediately around these surfaces be thoroughly cleaned to reduce the lead level. In addition, any other dusty/dirty areas in the assembly area/drill floor should be thoroughly cleaned.
- Wipe sampling for lead revealed concentrations above a level of 40 micrograms per square foot ($\mu\text{g}/\text{ft}^2$) in the drill floor/assembly hall area, supply room, and converted firing range. Areas with lead concentrations above 40 $\mu\text{g}/\text{ft}^2$ that will be accessible to children should be cleaned. If a special function is held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function.
- Materials (pipe insulation) suspected of containing asbestos were observed. An operation and maintenance plan should be followed when performing any activities that may disturb the suspected asbestos-containing materials.
- Water damage was observed at several locations at the armory. The source of the water damage was likely from a combination of roof and pipe leaks. The source of the water damage should be confirmed and actions taken to eliminate the source in order to prevent the possibility of mold growth that may lead to indoor air quality problems.
- Measurements for temperature revealed that levels did not meet the recommended level of 68° Fahrenheit in the facility. If possible, the heating units should be adjusted so the temperature will fall within the acceptable range. In addition, space heaters could be used to increase the temperature at specific locations.
- Lighting measurements were conducted at the armory. The lighting did not meet minimum requirements in some areas; therefore, consideration should be given to providing more lighting in these areas. This may be accomplished by replacing burnt out luminaires, cleaning fixtures, cleaning windows, painting walls with a lighter color, repositioning detailed work to higher illuminated areas, and using supplemental lighting.

- Wipe sampling for lead revealed a concentration above the recommended level of 200 micrograms per square foot ($\mu\text{g}/\text{ft}^2$) in several locations in the converted firing range area. It is recommended that these areas and the stored items in these areas be decontaminated by a thorough cleaning until surface lead concentrations are reduced to below recommended levels. In addition, any other dusty/dirty areas in the converted firing range should be thoroughly cleaned.

1.0 Introduction

Shaw Environmental, Inc. (Shaw) was contracted to perform an industrial hygiene evaluation for the Onancock Readiness Center in Onancock, Virginia. [Non-Responsive] performed the evaluation on 4 December 2003. The point of contact at the readiness center was SSG [Non-Responsive]

The findings, discussion, and interpretation of results are provided in Section 2.0. The conclusions are provided in Section 3.0. The HHIM data form for the facility is provided in Appendix A. The building layout is provided in Appendix B. Sampling sheets and laboratory analyses are provided in Appendix C. References are provided in Appendix D. The *Recommendations for Surface Lead Dust in Armories* document is provided in Appendix E.

The statements, opinions, and conclusions contained in this report are based solely upon the services performed by Shaw as described in the report. In performing these services and preparing the report, Shaw Environmental, Inc. relied upon the work and information provided by others, including public agencies, whose information is not guaranteed by Shaw Environmental, Inc.

2.0 Findings, Discussion, and Interpretation of Results

The results, discussion, and interpretation of results are provided in the following sections.

2.1. Sampling for Lead

2.1.1 Wipe Sampling

Wipe samples were collected for lead from the drill floor/assembly area. Also, wipe samples were collected for lead in rooms, hallways, foyers, etc. The sampling in rooms, hallways, foyers, etc. represented approximately 25% of the building. Approximately half of the samples were collected from surfaces in common areas, such as surfaces of a desk. The remaining samples were collected from uncommon surface areas, such as a supply vent or the top of a file cabinet. The samples were collected and analyzed in accordance with the Instructions for *Completing the Sampling of ARMY National Guard Armories* procedure.

The only samples initially submitted for analysis were those from the drill floor/assembly hall. Since there were results above acceptable levels from the drill floor/assembly hall area, the remaining samples were submitted for analysis.

Results of the wipe sampling are provided in Table 1. The results revealed lead at all locations sampled at concentrations below the recommended level of 200 micrograms lead per square foot ($\mu\text{g}/\text{ft}^2$) (See Appendix B) except at four locations. The samples collected from the top surface of the storage locker, top surface of table, top surface of basketball score board electrical box, and top surface of soda machine in the drill floor/assembly hall area had a lead concentration of 350, 1400, 320, and 1200 $\mu\text{g}/\text{ft}^2$, respectively. It is recommended that these surfaces and the immediate areas around these surfaces be thoroughly cleaned to reduce the lead level to below 200 $\mu\text{g}/\text{ft}^2$. For guidance on the proper method of cleaning, please refer to NG PAM 385-15 (*Guidelines and Procedures for Indoor Firing Range (IFR) Rehabilitation, Conversion, and Cleaning*). In addition, any other dusty/dirty areas in the assembly area/drill floor should be thoroughly cleaned.

In addition, wipe sampling for lead revealed concentrations above a level of $40 \mu\text{g}/\text{ft}^2$ in the drill floor/assembly hall area, supply room, and converted firing range. Please note that the *Recommendations for Surface Lead Dust in Armories* (Appendix E) states that all areas with lead concentrations above $40 \mu\text{g}/\text{ft}^2$ that will be accessible to children should be cleaned. If a special function is held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function.

2.1.2 Air Sampling for Lead

General air sampling was conducted because employees were not available for sampling. The samples were collected and analyzed in accordance with Method 7082 of the National Institute of Occupational Safety and Health (NIOSH) Manual of Analytical Methods.

The results of the sampling are provided in Table 2. The results revealed non-detectable concentrations of lead in air; therefore, no actions are necessary.

2.2 Physical Condition of Facility

2.2.1 Peeling Paint - Lead

Peeling paint was not observed at the armory; therefore, bulk samples for lead in paint were not taken.

2.2.2 Visual Inspection - Asbestos

A visual inspection was made to determine if there was any suspected asbestos-containing material at the armory. Materials (pipe insulation and ceiling) suspected of containing asbestos were observed. The suspected asbestos-containing materials, with condition and estimated quantity, were at the following locations:

- Boiler Room -- Good Condition, Approximately 8 Linear Feet
- Storage Area Ceiling -- Average Condition, Approximately 255 Square Feet

An operation and maintenance plan should be followed when performing any activities that may disturb the suspected asbestos-containing materials.

A bulk sample of the storage area ceiling material was taken, and the results revealed that the material does not contain asbestos. The results of the sampling are provided in Appendix C.

2.2.3 Visual Inspection – Water Damage and Mold

A visual inspection was made to determine if there was any water damage or visible mold at the armory. Visible mold was not observed, however, water damage was observed at the armory. Water damage was observed on the ceilings and some walls in the training room and kitchen.

The source of the water damage was likely from a combination of roof and pipe leaks. The source of the water damage should be confirmed and actions taken to eliminate the source in order to prevent the possibility of mold growth that may lead to indoor air quality problems.

2.2.4 Visual Inspection - Housekeeping

The housekeeping was determined to be good.

2.3. Building Concerns

2.3.1 Ergonomic Concerns

Interviews with employees and observation of work activities revealed no ergonomic concerns at the armory.

2.3.2 Indoor Air Quality

Interviews with employees and measurements for humidity and carbon dioxide revealed no indoor air quality concerns at the armory. However, measurements for temperature revealed that levels did not meet the recommended level of 68° Fahrenheit in the facility. If possible, the heating units should be adjusted so the temperature will fall within the acceptable range. In addition, space heaters could be used to increase the temperature at specific locations.

The results of the measurements for carbon dioxide, humidity, and temperature are provided in Table 3.

2.4. Safety and Industrial Hygiene Programs

An evaluation was performed to determine the applicability of the following programs.

- Confined Spaces
- Hearing Conservation
- Respiratory Protection
- Hazard Communication (HAZCOM)
- Personal Protective Equipment (PPE)

It was determined that none of the programs were applicable at the armory.

2.5. Ventilation

2.5.1 Ventilation System Evaluation

There were no local exhaust ventilation systems at this armory; therefore, no ventilation studies were performed.

2.5.2 Contamination of Clean Air Sources

Since there were no local exhaust ventilation systems at the armory, there was no possibility that clean air sources could be contaminated by exhaust air.

2.6. Noise Exposure

An evaluation was performed to determine if there were any hazardous noise areas at the armory. It was determined that there were no areas at the armory that would exceed the permissible exposure limit for noise.

2.7. Lighting

Lighting measurements were conducted at the armory. Results of the lighting evaluation are provided in Table 4. As can be seen from the results, the lighting did not meet the minimum requirements in some areas, including the women's latrine.

Consideration should be given to providing more lighting to these areas. This may be accomplished by replacing burnt out luminaries, cleaning fixtures, cleaning windows, painting walls with a lighter color, repositioning detailed work to higher illuminated areas, and using supplemental lighting.

2.8. Converted Indoor Firing Ranges

There was a converted indoor firing range at the facility; therefore, wipe samples were taken for lead at various locations in or near the converted range. The space is used as a storage room. The results are provided in Table 5. The results revealed lead, with associated concentrations, at the following locations:

- bullet trap (floor near former bullet trap location) at 220 $\mu\text{g}/\text{ft}^2$;
- light fixtures at 650 $\mu\text{g}/\text{ft}^2$;
- stored items at 390 $\mu\text{g}/\text{ft}^2$;
- floor (inside the converted firing range) the range at 43 $\mu\text{g}/\text{ft}^2$; and
- floor (outside the converted firing range) at 17 $\mu\text{g}/\text{ft}^2$

Wipe sampling for lead revealed concentrations at three of the locations above the recommended level of 200 $\mu\text{g}/\text{ft}^2$, a level recommended in the *Guidelines for Converting Indoor Firing Ranges to Other Uses* document (Department of Army). These areas and stored items in the converted firing range must be decontaminated by a thorough cleaning until surface lead concentrations are reduced to below recommended levels. For guidance on proper cleaning methods, please refer to NGB PAM385-15 (*Guidelines and Procedures for Indoor Firing Range (IFR) Rehabilitation, Conversion, and Cleaning*). In addition, any other dusty/dirty areas in the converted firing range should be thoroughly cleaned.

2.9. HVAC System

The maintenance schedule for the HVAC system was evaluated to verify that maintenance occurs on a regular basis. Also, the condition of the HVAC system was evaluated to determine if the maintenance performed is effective. It was deemed that maintenance occurs on a regular basis, and the maintenance performed is effective.

2.10. HHIM

A Health Hazard Information Module (HHIM) form was completed for the armory. The completed form is provided in Appendix A.

3.0 Conclusions

It is concluded that there were no industrial hygiene concerns at the armory with regards to atmospheric exposure to lead, peeling lead-based paint, visible mold, housekeeping, ergonomic conditions, safety and industrial hygiene programs, ventilation systems or contamination of clean air sources, noise exposure, and HVAC systems.

There were industrial hygiene concerns at the armory with regards to lead surface contamination, suspected asbestos-containing material, water damage, indoor air quality, lighting, and surface lead contamination in the converted firing range. These concerns are discussed in detail in Section 2.0 of this report.

TABLES

Table 1
Wipe Sampling for Lead
National Guard Armory
Onancock, Virginia
Date of Sampling: 4 December 2003

Sample Number	Location	Results, $\mu\text{g}/\text{ft}^2$ ^a
VAONA338-1	Drill Floor (top surface of storage locker) See Building Layout - Appendix B	350
VAONA338-2	Drill Floor (top surface of table) See Building Layout - Appendix B	29
VAONA338-3	Drill Floor (top surface of table) See Building Layout - Appendix B	1400
VAONA338-4	Drill Floor (top surface of basketball score board electrical box) See Building Layout - Appendix B	320
VAONA338-5	Drill Floor (top surface of soda machine) See Building Layout - Appendix B	1200
VAONA338-6	Field Blank	0.3
VAONA338-7	25% Building (supply room top surface of computer monitor) See Building Layout - Appendix B	110
VAONA338-8	25% Building (kitchen top surface of ice machine) See Building Layout - Appendix B	13
VAONA338-9	25% Building (commander's office top surface of filing cabinet) See Building Layout - Appendix B	28
VAONA338-10	25% Building (classroom window sill) See Building Layout - Appendix B	39

^a Micrograms lead per square foot

The samples were taken and analyzed in accordance with the *Instructions for Completing the Sampling of ARMY National Guard Armories* procedure.

In armories that do not contain childcare facilities, the NGB Region North Industrial Hygiene Office recommends cleaning the areas with sample results greater than $200 \mu\text{g}/\text{ft}^2$

Table 2
Breathing Zone Air Samples for Lead
National Guard Armory
Onancock, Virginia
Date of Sampling: 4 December 2003

Sample Number	Employee	Sampling Information			Results (mg/m ³) ^a
		Time Sampled / Minutes	Flow Rate (lpm) ^b	Volume (liters)	
VAONA338-A1	General Air Sample	1030-1235/125	1.666	208.27	< 0.0048
VAONA338-A2	General Air Sample	1035-1230/115	1.594	183.40	< 0.0055
VAONA338-A3	Field Blank	-	-	-	None Detected

^a Milligrams lead per cubic meter of air.

^b Liters of air per minute.

Method 7082 of the National Institute of Occupational Safety and Health (NIOSH) Manual of Analytical Methods was followed for sampling for lead.

Table 3
Indoor Air Quality Measurements for Carbon Dioxide, Humidity, and Temperature
National Guard Armory
Onancock, Virginia
Date of Sampling: 4 December 2003

Location	Occupants In Area	Carbon Dioxide, parts per million parts of air (ppm)	Percent (%) Humidity	Temperature (°F)
1 st Floor	1	393	30.6	62.1
Outdoors	-	374	27.9	53.4

Carbon dioxide, humidity, and temperature measurements were taken with a TSI Q Trak Plus, Model 8554, Indoor Air Quality Meter, calibrated in April 2003.

American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE) recommends that indoor carbon dioxide levels be less than 700 ppm above outdoor levels.

ASHRAE recommends that the relative humidity levels be maintained between 30 to 60 percent.

ASHRAE recommends that the acceptable temperature range be 68 degrees Fahrenheit to 74 degrees Fahrenheit in the winter and 73 degrees Fahrenheit to 79 degrees Fahrenheit in the summer.

Table 4
Illumination Readings
National Guard Armory
Onancock, Virginia
Date of Sampling: 4 December 2003

Location	Luminance (fc) ^a	Standard (fc) ^a	Standard Met
Training NCO Office	33.3-122.2	70	Some Areas
Lobby	11.1-20	7.5	Yes
Classroom	13.3-108.8	70	Some Areas
Women's Latrine	12.2-35.5	40	No
Men's Latrine	2.2-47.7	40	Some Areas
Kitchen	71.1-102.2	70	Yes
Supply Room	13.3-84.4	30	Some Areas
Storage Room	8.8-40	30	Some Areas

^afc - Footcandles

The readings were taken with a Weston model 614-60 Lightmeter.

The standards listed above are from ANSI/IES RP-1 and RP-7.

Table 5
Wipe Sampling for Lead – Converted Firing Range
National Guard Armory
Onancock, Virginia
Date of Sampling: 4 December 2003

Sample Number	Location	Results, $\mu\text{g}/\text{ft}^2$ ^a
VAONA338-11	Bullet Trap (floor near former bullet trap location)	220
VAONA338-12	Field Blank	0.35
VAONA338-13	Light Fixtures	650
VAONA338-14	Stored Item	390
VAONA338-15	Floor (inside the converted firing range)	43
VAONA338-16	Floor (outside the converted firing range)	17

^aMicrograms lead per square foot

The samples were taken and analyzed in accordance with the Instructions for *Completing the Sampling of ARMY National Guard Armories* procedure.

Appendix A

HHIM Data Form(s)

HEALTH HAZARD INFORMATION MODULE: INDUSTRIAL HYGIENE SURVEY

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

SECTION 1. DEMOGRAPHIC DATA

ARLOC 24255	INSTALLATION APG-EA	BLDG/RM NO. ONANCOCK	
LOCATION/CODE ADMINISTRATIVE AREAS /AA		OPERATION/CODE ADMINISTRATIVE OPERATIONS /ADO	
SURVEY DATE 4 DECEMBER 2003		EVALUATOR (Initials) Non-Responsive	
MACOM/CODE	SUBMACOM/CODE XX	SUPERVISOR SSG Non-Responsive	
TELEPHONE/DSN NO. (757) 787 5802	UNIT/ORGANIZATION ONANCOCK ARMOY	RAC 4	FREQUENCY (hrs/day) 8
NO. CIV(S) 1	NO. MIL 3	NO. CONTRACTOR(S) 0	NO. LOC(S) 1
		NO. OTHER 1	

SECTION 2. FACILITY DATA

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

SECTION 3. SURVEY DATA

CONTROLS PRESENT	EVALUATION	UNIT CODE	CONTROLS REQUIRED	STATUS

PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized)

GLOVES	R	U	RESPIRATOR	NIOSH TC NO.	MANUFACTURER	R	U
ACID			AIRLINE				
COLD SURFACES			ABRASIVE BLASTING HOOD				
HOT SURFACES			DISPOSABLE				
HC AGENTS			FULL FACE AIR PURIFYING				
ML			1/2 FACE AIR PURIFYING				
OLVENTS			POWERED AIR PURIFYING				
SURGICAL GLOVES			1/4 FACE AIR PURIFYING				
			SELF CONTAINED				

EYES/FACE	R	U	HEARING	R	U	BODY	R	U	HEAD/FIT	R	U
CHEMICAL SPLASH			CANAL CAPS			APRONS			COLD WEATHER BOOTS/HATS		
ULL FACESHIELD			EAR PLUGS			COLD WEATHER CLOTHING			HARD HATS		
CHEMICAL/SAFETY			HELMETS			COVERALLS			IMPERMEABLE BOOTS		
SAFETY/IMPACT			MUFFS			FULL BODY SUIT			SAFETY/CONDUCTIVE SHOES		
WELDING HELMET			MUFF/EARPLUG W/TIME LIMIT			HEAT REFLECTIVE VEST(SW)			SAFETY/NON-CONDUCTIVE SHOES		

SECTION 4. HAZARD INVENTORY DATA

CAS CODE	HAZARD DESCRIPTION	PAC	EPC
POVDTXXX	VIDEO DISPLAY TERMINALS	3-LOW	D - UNCONTROLLED PHYSICAL
743992-1	LEAD, INORGANIC FUMES & DUST	2-MODERATE	C - UNCONTROLLED RESPIRATORY
1332-21-4	ASBESTOS	3-LOW	C - UNCONTROLLED RESPIRATORY
184-38-9	CARBON DIOXIDE	2-MODERATE	C - UNCONTROLLED RESPIRATORY
POLIFTING	HEAVY LIFTING	2-MODERATE	D - UNCONTROLLED PHYSICAL
POHEATSTR	HEAT STRESS	3-LOW	D - UNCONTROLLED PHYSICAL

SECTION 5. PERSONNEL DATA

LAST NAME	FIRST NAME	MI	SEX	SSN	CATEGORY
Non-Responsive		E.	m	Non-Responsive	MIL
		L.	m		MIL
		K.	m		MIL
		R.	m		CIV

SECTION 6. COMMENTS

☒ No comments☐ See attached sheet

PRIVACY ACT STATEMENT

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

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

DEPARTMENT OF THE ARMY
C BATTERY 3RD BATTALION 111TH AIR DEFENSE ARTILLERY
VIRGINIA ARMY NATIONAL GUARD
67 Kerr Street
Onancock, Virginia 23417-9998

04 December 2003

MEMORANDUM FOR:

SUBJECT: Full Time Employees/ Users of the facility for the Onancock Armory

1. Listed below are the Full time employees at the Onancock Armory.

<u>NAME</u>	<u>LAST FOUR</u>	<u>JOB TITLE</u>
Non-Responsive		Readiness NCO/Supply Sgt
		Recruiter
		Training NCO
		Custodian

2. Battery C, 3/111 ADA and the Virginia Defense Force are the only Units that drill at this location.

3. POC is the undersigned at (757) 787-5802.

FOR THE COMMANDER:

Non-Responsive

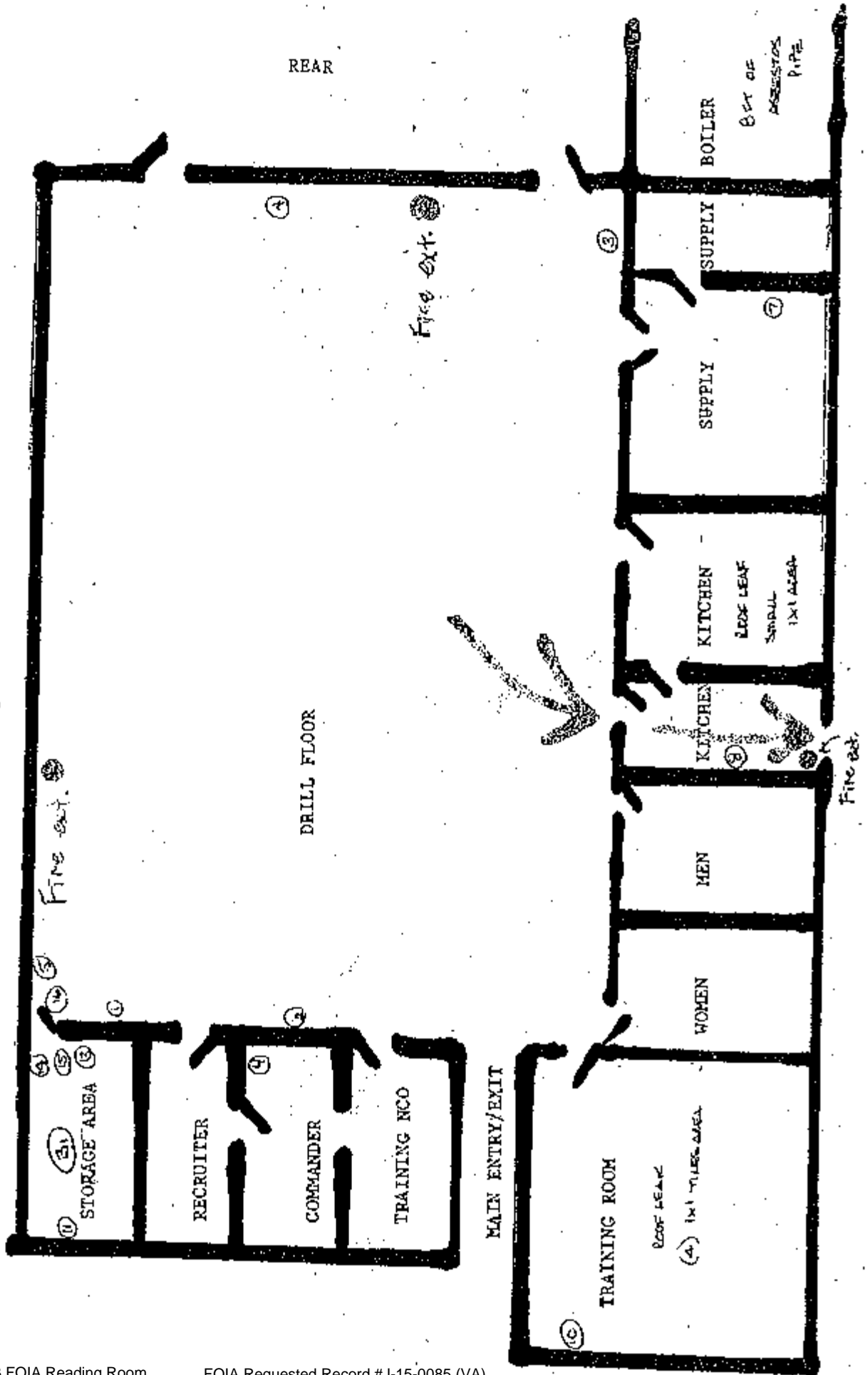
Commanding

Appendix B

Building Layout

BUILDING BOILER IN 1963

EMERGENCY FIRE ESCAPE PLAN



Appendix C

Sampling Sheets and Laboratory Analyses

Client: National Guard Bureau
Address: 301-1H Old Bay Lane, Attn: NGB-AVN-SI,
State Military Reservation
Havre de Grace, Maryland 21078
Job Name: VA ONA 338
Job Location: Onancock, Virginia
Chain Of Custody: 121369
Date Analyzed: 01/07/2004
Person Submitting: **Non Responsive**
Report Date: 07-Jan-04

Attention: **Non Responsive**

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 (ft ²)	Reporting Limit	Final Result	Comments
0416979	VA ONA 338 1	Furnace	Wipe	****	0.111	67.51 ug/ft ²	350 ug/ft ²	
0416980	VA ONA 338 2	Furnace	Wipe	****	0.111	5.40 ug/ft ²	29 ug/ft ²	
0416981	VA ONA 338 3	Flame	Wipe	****	0.111	108.01 ug/ft ²	1400 ug/ft ²	
0416982	VA ONA 338 4	Furnace	Wipe	****	0.111	67.51 ug/ft ²	320 ug/ft ²	
0416983	VA ONA 338 5	Flame	Wipe	****	0.111	108.01 ug/ft ²	1200 ug/ft ²	
0416984	VA ONA 338 6	Furnace	Wipe Blank	****	N/A	0.30 ug	0.3 ug	
0416985	VA ONA 338 11	Furnace	Wipe	****	0.111	67.51 ug/ft ²	220 ug/ft ²	
0416986	VA ONA 338 12	Furnace	Wipe Blank	****	N/A	0.30 ug	0.35 ug	
0416987	VA ONA 338 13	Furnace	Wipe	****	0.111	67.51 ug/ft ²	650 ug/ft ²	
0416988	VA ONA 338 14	Furnace	Wipe	****	0.111	67.51 ug/ft ²	390 ug/ft ²	
0416989	VA ONA 338 15	Furnace	Wipe	****	0.111	5.40 ug/ft ²	43 ug/ft ²	
0416990	VA ONA 338 16	Furnace	Wipe	****	0.111	2.70 ug/ft ²	17 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 ug/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

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 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

Client: National Guard Bureau
 Address: 301-4H Old Bay Lane, Attn: NGB-AVN-SI, State Military Reservation
 Havre de Grace, Maryland 21078
 Job Name: VAONA338
 Job Location: Onancock, VA
 Job Number: 845702 01000000
 P.O. Number: 1103
 Chain Of Custody: 122712
 Date Analyzed: 2/11/2004
 Person Submitting: [Redacted]
 Report Date: 11-Feb-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
0423897	VAONA338 7	Furnace	Wipe	****	0.111	33.75 ug/ft²	110 ug/ft²	
0423898	VAONA338 8	Furnace	Wipe	****	0.111	2.70 ug/ft²	13 ug/ft²	
0423899	VAONA338 9	Furnace	Wipe	****	0.111	6.75 ug/ft²	28 ug/ft²	
0423900	VAONA338 10	Furnace	Wipe	****	0.111	13.50 ug/ft²	39 ug/ft²	

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

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

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

Non-Responsive

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



TEST REPORT
Page 1 of 4
12/30/03

Submitted To: **Non-Responsive**
Shaw Environmental, Inc.
5700 Thurston Avenue; Suite 116
Virginia Beach, VA 23455-3302

Reference Data:	Lead
Client Sample No.:	VASAN344A1 through VABLA353A3
P.O. No.:	1103
Sample Location:	Virginia
Sample Type:	Filter
Method Reference:	NIOSH 7300
DCL Set ID No.:	03-S-6250
DCL Sample ID No.:	03-37000 through 03-37040
Sample Receipt Date:	12/23/2003
Preparation Date:	12/24/2003
Analysis Date:	12/29/2003

The samples were prepared and analyzed in accordance with NIOSH method 7300 using a Thermo Jarrell Ash Trace (ICP) purged spectrometer.

The sample condition upon receipt was acceptable except where noted.

The results are in the enclosed data table. Results relate only to the items tested and are not blank corrected unless indicated in the data table.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Non-Responsive

Analyst

Non-Responsive

Reviewer

CINCINNATI OFFICE
4388 GLENDALE-MILFORD ROAD
CINCINNATI, OHIO 45242-3706
513 733-5336, FAX 513 733-5347

WEST COAST OFFICE
11 SANTA YORMA COURT
NOVATO, CALIFORNIA 94945
800 280-8071, FAX 415 893-9469

Results
Lead

Client #	DCL #	Sample Volume (L)	µg/sample	mg/m ³
VASAN343A3	03-37011	-	ND	-
VASANFR343A1	03-37012	120.41	ND	<0.0083
VASANFR343A2	03-37013	-	ND	-
VAFRA337A1	03-37014	266.08	ND	<0.0038
VAFRA337A2	03-37015	253.87	ND	<0.0039
VAFRA337A3	03-37016	-	ND	-
VASUF337A1	03-37017	207.51	ND	<0.0048
VASUF337A2	03-37018	232.33	ND	<0.0043
VASUF337A3	03-37019	-	ND	-
VAOHA338A1	03-37020	208.27	ND	<0.0048
VAOHA338A2	03-37021	183.40	ND	<0.0055
VAOHA338A3	03-37022	-	ND	-
VAPET350A1	03-37023	208.60	ND	<0.0048
VAPET350A2	03-37024	216.91	ND	<0.0046
VAPET350A3	03-37025	-	ND	-
VAEMP350A1	03-37026	204.88	ND	<0.0049
VAEMP350A2	03-37027	199.47	ND	<0.0050
VAEMP350A3	03-37028	-	ND	-
VAMAR351A1	03-37029	192.20	ND	<0.0052
VAMAR351A2	03-37030	200.52	ND	<0.0050
	Prep Blank 3		ND	
% Recovery	LCS 5		93.	
% Recovery	LCS 6		94.	
RPL			1.0	

ND = not detected at or above the reporting limit (RPL).

LCS = laboratory control sample.

Non-Responsive

Analyst

Non-Responsive

Reviewer

Location: Onancock
Date: 12/4/2003



12/29/03
Page 1 of 2

SUBMITTED TO:**Non-Responsive**

Shaw Environmental, Inc.
5700 Thurston Avenue; Suite 116
Virginia Beach, VA 23455-3302

REFERENCE DATA:

Client Sample No.:	VAONA338B1 through VANOR330B1
P.O. No.:	1103
Sample Location:	Virginia
Sample Type:	Bulk
Method Reference:	EPA-600/R-93/116
DCL Set ID No.:	03-A-6249
DCL Sample ID No.:	03-36992 through 03-36993
Sample Receipt Date:	12/23/03
Analysis Date:	12/29/03

We certify that the following samples were prepared and analyzed by Polarized Light Microscopy for asbestos and other fibrous constituents using EPA-600/R-93/116. The samples were acceptable upon receipt except where noted. The samples were examined under a stereomicroscope in a laboratory fume hood for general composition and phase separation. If needed, portions of the sample were removed and ground with a mortar and pestle before being mounted on a glass microscope slide. Mountings of representative portions of the material are prepared in one or more appropriate refractive index liquids (1.550, 1.605, 1.680) and examined by Polarized Light Microscopy*. Estimates of concentration are made on an area basis. The results of the analysis apply only to the materials analyzed and are summarized on the attached bulk asbestos analysis data sheets. DataChem Laboratories will dispose of all bulk samples after 60 days unless other arrangements are made.

Non-Responsive

Analyst

Non-Responsive

Reviewer

*Floor tiles, decorative paints, joint compounds, and cement materials require additional treatment in order to evaluate the concentration of small asbestos fibers bound in the material. Some samples may contain fibers that are not visible by PLM and can only be detected by electron microscopy techniques. Floor tiles are analyzed as homogeneous materials if insufficient mastic is present or if phases have been cross contaminated.

DataChem Laboratories NVLAP Lab ID: 101917. Laboratory accreditation by the National Institute of Standards and Technology does not in any way constitute approval or endorsement by NIST.

CINCINNATI OFFICE
4388 GLENDALE-MILFORD ROAD
CINCINNATI, OHIO 45242-3706
513 733-5336, FAX 513 733-5347

WEST COAST OFFICE
11 SANTA YORMA COURT
NOVATO, CALIFORNIA 94945
800 280-8071, FAX 415 893-9469

12/29/03

**DataChem Laboratories
Polarized Light Microscopy
Asbestos Analytical Report**

Client: Shaw Environmental, Inc.
Location: Virginia
Set ID: 03-A-6249

Client Sample ID:	VAONA338B1	VANOR330B1	VANOR330B1
DCL Sample ID:	03-36992	03-36993A	03-36993B
Macroscopic Examination			
Accepted/Rejected:	Accepted	Accepted	Accepted
Homogeneity:	Homog.	Layered	Layered
Color:	Grey	Brown	Black
Texture:	Crumbly	Compact	Resinous
Description:	Material	Tile	Mastic
Analysis:	PLM	PLM	PLM
Asbestiform Minerals			
% Chrysotile:		>1≤3	>3≤5
% Amosite:			
% Crocidolite:			
% Tremolite - Actinolite:			
% Anthophyllite:			
% Total Asbestos:	ND	>1≤3	>3≤5
Other Materials			
% Cellulose:			
% Fiberglass:			
% Other Fibers:			
% Resin/Binder:		>10≤20	>70≤80
% Non Fibrous:	>90≤100	>70≤80	>10≤20

ND = None Detected Trace = <1%

Special Prep Procedures: None.

*Notes: P. O. #: 1103.

Non-Responsive

Microscopist

All values are in area percent by visual estimate. The Federal Register Vol. 55 No. 224 Tuesday Nov. 20 1990 Rules and Regulations states "... If the asbestos content is estimated to be less than 10% by a method other than point counting,... (the analysis) be repeated using the point counting technique by PLM." Any of the above samples can be reanalyzed by point counting at the client's request. Wherever possible, separate phases are analyzed and reported individually.

Appendix D

References

References

Title 29, Code of Federal Regulations (CFR), Part 1910, Occupational Safety and Health Administration (current edition)

American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc (ASHRAE) 62-2002, Ventilation for Acceptable Indoor Air Quality

Instructions for Completing the Sampling of Army National Guard Armories, Lead Wipe Sampling Procedure included with the Request for Proposal

Air Sampling for Lead - Method 7082 of the National Institute of Occupational Safety and Health (NIOSH) Manual of Analytical Methods

Design Guide DG-415-2, Logistics Facilities, National Guard Bureau Installation Division, 14 December 1999

Department of Defense Instruction (DODI) 6055.1, Department of Defense Occupational Safety and Health (OSI) Program, August 19, 1998

Army Regulation (AR) 40-5, Medical Service, Preventive Medicine, 15 October 1990

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

Department of the Army Pamphlet (DA PAM) 40-501, Medical Services, Hearing Conservation Program, 10 December 1998

DA PAM 40-503, Medical Services, Industrial Hygiene Program, 30 October 2000

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

Guidelines for Converting Indoor Firing Ranges to Other Uses, Headquarters, Department of the Army and the Air Force, NG PAM (AR) 385-16/ANGPAM 91-101, 31 January 1994

24 CFR, Part 35, Subpart B, Section 35-110, Definition of Lead-Based Paint, Housing and Urban Development, U. S. Department of Housing

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 $0.05 \text{ mg}/\text{m}^3$ averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead dust in this building.

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

NGB-AVS-SI (40-5f)

4 November 2004

MEMORANDUM FOR VAARNG, Onancock Readiness Center, ATTN: SSG [Non-Responsive]
[Non-Responsive] 7 Kerr Street, Onancock, VA 23417-9998

SUBJECT: Baseline Survey

1. I have enclosed the industrial hygiene survey report completed by Shaw Environmental, Incorporated.
2. In addition to the attached discussion and recommendations regarding wipe samples for lead, if a special function is held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function.
3. Please contact me at (410) 942-0273 or 1-800-550-6967 if you have any questions regarding the enclosed report.

Encl

[Non-Responsive]

Regional Industrial Hygienist

CF: Organizational Maintenance Officer
Occupational Health Manager

National Guard Armory Onancock Readiness Center, Onancock, Virginia Industrial Hygiene Evaluation

Recommendations

- Wipe sampling for lead revealed a concentration above the recommended level of 200 micrograms per square foot ($\mu\text{g}/\text{ft}^2$) in the drill floor/assembly hall area. It is recommended that these surfaces and the areas immediately around these surfaces be thoroughly cleaned to reduce the lead level. In addition, any other dusty/dirty areas in the assembly area/drill floor should be thoroughly cleaned. **RAC - 4**
- Wipe sampling for lead revealed concentrations above a level of 40 micrograms per square foot ($\mu\text{g}/\text{ft}^2$) in the drill floor/assembly hall area, supply room, and converted firing range. Areas with lead concentrations above 40 $\mu\text{g}/\text{ft}^2$ that will be accessible to children should be cleaned. If a special function is held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function. **RAC - 4**
- Materials (pipe insulation) suspected of containing asbestos were observed. An operation and maintenance plan should be followed when performing any activities that may disturb the suspected asbestos-containing materials. **RAC - 5**
- Water damage was observed at several locations at the armory. The source of the water damage was likely from a combination of roof and pipe leaks. The source of the water damage should be confirmed and actions taken to eliminate the source in order to prevent the possibility of mold growth that may lead to indoor air quality problems. **RAC - 5**
- Measurements for temperature revealed that levels did not meet the recommended level of 68° Fahrenheit in the facility. If possible, the heating units should be adjusted so the temperature will fall within the acceptable range. In addition, space heaters could be used to increase the temperature at specific locations. **RAC - 5**
- Lighting measurements were conducted at the armory. The lighting did not meet minimum requirements in some areas; therefore, consideration should be given to providing more lighting in these areas. This may be accomplished by replacing burnt out luminaries, cleaning fixtures, cleaning windows, painting walls with a lighter color, repositioning detailed work to higher illuminated areas, and using supplemental lighting. **RAC - 5**
- Wipe sampling for lead revealed a concentration above the recommended level of 200 micrograms per square foot ($\mu\text{g}/\text{ft}^2$) in several locations in the converted firing range

area. It is recommended that these areas and the stored items in these areas be decontaminated by a thorough cleaning until surface lead concentrations are reduced to below recommended levels. In addition, any other dusty/dirty areas in the converted firing range should be thoroughly cleaned. **RAC - 4**

Shaw Environmental, Inc.

312 Directors Drive
Knoxville, TN 37923
865.690.3211
Fax 865.690.3626



Shaw Environmental, Inc.

Survey 4 Dec 03
Rec'd 9 Apr 04

31 March 2004

rev 10/8/04
Emailed 10/12/04

Ms. **Non-Responsive** CIH
Regional Industrial Hygienist
Region North Industrial Hygiene Office
Attn: NGB-AVS-SI
301-IH Old Bay Lane
Havre De Grace, Maryland 21078

RE: Draft Report for the Industrial Hygiene Evaluation at the Onancock Readiness
Center – Onancock, Virginia

Dear Ms. **Non-Responsive**

Attached is a copy of the referenced report. Also attached is a copy of the field notes,
photographs, and photograph log. Please call me if you have questions.

Sincerely,

Non-Responsive

Project Manager

Onancock Armory Photo Log
National Guard Armory
Onancock, Virginia
Date of Survey: 04 December 2003

Photo	Description
1	Lead Wipe Assembly Room - Top Surface of Storage Locker - Sample 1
2	Lead Wipe Assembly Room - Top Surface of Table - Sample 2
3	Lead Wipe Assembly Room - Top Surface of Table - Sample 3
4	Lead Wipe Assembly Room - Top Surface of Basketball Score Board Electrical Box - Sample 4
5	Lead Wipe Assembly Room - Top Surface of Soda Machine - Sample 5
6	25% Building - Supply Room Top Surface of Computer Monitor - Sample 7
7	25% Building - Kitchen Top Surface of Ice Machine - Sample 8
8	25% Building - Commander's Office - Top Surface of Filing Cabinet - Sample 9
9	25% Building - Classroom Window Sill - Sample 10
10	Firing Range - Bullet Trap Floor Near Former Bullet Trap Location - Sample 11
11	Firing Range - Light Fixtures - Sample 13
12	Firing Range - Stored Item - Sample 14
13	Firing Range - Floor Inside the Converted Firing Range - Sample 15
14	Firing Range - Floor Outside the Converted Firing Range - Sample 16
15	Water Damage - Training Room Ceiling
16	Water Damage - Kitchen Ceiling

Field Notes and Checklist

State: VIRGINIA Location: ONALDSON ARMY Date: DECEMBER 4, 2003
Contact: SGT Non-Responsive

1.0 Sampling for Lead

1.1 Wipe Sampling

Sample #:	<u>1</u>	Picture #:	<u>/</u>	Location:	<u>TOP OF STORAGE LOCKER</u>
Sample #:	<u>2</u>	Picture #:	<u>/</u>	Location:	<u>TOP OF TABLE</u>
Sample #:	<u>3</u>	Picture #:	<u>/</u>	Location:	<u>TOP OF TABLE</u>
Sample #:	<u>4</u>	Picture #:	<u>/</u>	Location:	<u>TOP OF BASKETBALL SCORE BOARD ELECTRICAL BOX</u>
Sample #:	<u>5</u>	Picture #:	<u>/</u>	Location:	<u>TOP OF SODA MACHINE</u>
Sample #:	<u>6, 12</u>	Picture #:	<u>N/A</u>	Location:	<u>FIELD BLANK</u>
Sample #:	<u>7</u>	Picture #:	<u>/</u>	Location:	<u>SGT SHREEVES OFFICE / SUPPLY ROOM TOP OF COMPUTER MONITOR</u>
Sample #:	<u>8</u>	Picture #:	<u>/</u>	Location:	<u>TOP OF ICE MACHINE IN KITCHEN</u>
Sample #:	<u>9</u>	Picture #:	<u>/</u>	Location:	<u>TOP OF COMMANDER OFFICE FILING CABINET</u>
Sample #:	<u>10</u>	Picture #:	<u>/</u>	Location:	<u>CLASS ROOM WINDOW SILL</u>
Sample #:		Picture #:		Location:	
Sample #:		Picture #:		Location:	
Sample #:		Picture #:		Location:	
Sample #:		Picture #:		Location:	
Sample #:		Picture #:		Location:	
Sample #:		Picture #:		Location:	
Sample #:		Picture #:		Location:	
Sample #:		Picture #:		Location:	
Sample #:		Picture #:		Location:	
Sample #:		Picture #:		Location:	

(Also, please see the sketch of sampling locations.)

1.2 Breathing Zone Air Sampling

Sample #: A1 Employee Sampled: GENERAL AIR SAMPLE CLASSROOM
Sample #: A2 Employee Sampled: GENERAL AIR SAMPLE SUPPLY ROOM ON SGT SHREEVES DESK
A3 FIELD BLANK

2.0 Physical Condition of Facility

2.1 Peeling Paint - Lead

Peeling paint observed (Yes or No): NO

If peeling paint observed, samples were taken as follows:

Sample #: Picture #: Location:
 Condition (Good, Average, Poor): Quantity: ft²
 Sample #: Picture #: Location:
 Condition (Good, Average, Poor): Quantity: ft²
 Sample #: Picture #: Location:
 Condition (Good, Average, Poor): Quantity: ft²
 Sample #: Picture #: Location:
 Condition (Good, Average, Poor): Quantity: ft²
 Sample #: Picture #: Location:
 Condition (Good, Average, Poor): Quantity: ft²

2.2 Visual Inspection - Asbestos

Suspected asbestos-containing material observed (Yes or No): YES FOUND SOME IN
 OUTSIDE BUILDING
 BUT ENGINEERS WANTED
 ME TO LOOK AT
 (NOT PART OF
 SURVEY)

Location 1: BOILER ROOM Picture #:
 Condition: GOOD Approximate (Square or Linear Feet): 8 LINEAL FEET
 Location 2: STORM AREA CEILING (17x15) Picture #: SAMPLE B1
 Condition: GOOD TO AVERAGE Approximate (Square or Linear Feet): 255 SQUARE FEET
 Location 3: Picture #:
 Condition: Approximate (Square or Linear Feet):
 Location 4: Picture #:
 Condition: Approximate (Square or Linear Feet):
 Location 5: Picture #:
 Condition: Approximate (Square or Linear Feet):

2.3 Visual Inspection – Water Damage and MoldWater damage observed (Yes or No): yes

If yes, water damage was observed at the following locations:

Location 1:	<u>TRAINING ROOM</u>	Picture #:	<u>✓</u>
Location 2:	<u>KITCHEN</u>	Picture #:	<u>✓</u>
Location 3:		Picture #:	
Location 4:		Picture #:	
Location 5:		Picture #:	

Mold observed (Yes or No): no

If yes, mold was observed at the following locations:

Location 1:		Picture #:	
Location 2:		Picture #:	
Location 3:		Picture #:	
Location 4:		Picture #:	
Location 5:		Picture #:	

2.4 Visual Inspection - HousekeepingHousekeeping (good, average, poor): Good

Comments (such as no dirt or trash was visible on the floors or the housekeeping was poor in that there was trash and debris on the floors that could lead to a tripping hazard, or there was dust in the vents.):

3.0 Building Concerns**3.1 Ergonomic Concerns**Ergonomic concerns (Yes or No): NONE

If there are ergonomic concerns at the armory, describe the extent of the problem, such as three employees stated that they perform repetitive motion at the XYZ machine for 6 hours per day, and they stated that they are suffering from symptoms of musculoskeletal disorders (MSDs).

3.2 Indoor Air Quality

IAQ concerns (based on employee interviews)(Yes or No): NO

If yes, what were concerns:

Measurements for carbon dioxide, humidity, and temperature:

Location	CO ₂ (ppm)	Humidity (%)	Temperature (°F)	Occupancy (People in Room)
Outdoors -	374	27.7	53.4	0
1 st Floor -	313	30.6	62.1	1
2nd Floor -	-	-	-	-
3rd Floor -	-	-	-	-
Basement	-	-	-	-

4.0 Safety and Industrial Hygiene Programs

4.1 Confined Spaces

Are confined spaces applicable (Yes or No): NO

If yes, does the program meet minimum standards (Yes or No): —

If no, explain the deficiencies:

4.2 Hearing Conservation

Is hearing conservation applicable (Yes or No): no

If yes, does the program meet minimum standards (Yes or No): yes

If no, explain the deficiencies:

4.3 Respiratory Protection

Is respiratory protection applicable (Yes or No): no

If yes, does the program meet minimum standards (Yes or No): yes

If no, explain the deficiencies:

4.4 Hazard Communication

KEEP OUTSIDE!
IN CONCRETE STORAGE SHED.

Is hazard communication applicable (Yes or No): no

If yes, does the program meet minimum standards (Yes or No): yes

If no, explain the deficiencies:

4.5 Personal Protective Equipment

Is personal protective equipment applicable (Yes or No): no

If yes, does the program meet minimum standards (Yes or No): no

If no, explain the deficiencies:

5.0 Ventilation

5.1 Ventilation System Evaluation

Local exhaust ventilation systems at this armory (Yes or No): no

If yes, results of airflow patterns:

Location 1: _____

Airflow Pattern (acceptable or unacceptable, with reason):

Location 2: _____

Airflow Pattern (acceptable or unacceptable, with reason):

Location 3: _____

Airflow Pattern (acceptable or unacceptable, with reason):

5.2 Contamination of Clean Air Sources

Clean air sources contaminated by contaminated exhaust air (Yes or No): no

If yes, describe:

Potential hazardous noise areas (Yes or No): No

Employee sampled: _____

Activity: _____

Employee sampled: _____

Results: _____ % Actual _____ % Projected 8-hour TWA _____ Equivalent dBA

Activity: _____

Employee sampled: _____

Results: % Actual % Projected 8-hour TWA Equivalent dBA

Activity: _____

प्राप्त ०१.११

7

8.0 Converted Indoor Firing Ranges

Converted indoor firing range (Yes or No): YES

If yes, locations sampled:

Sample #: 14 Picture #: — Location: Inside any remaining ventilation ductwork

Sample #: 14 Picture #: — Location: Exhaust ventilation system

Sample #: 11 Picture #: ✓ Location: Bullet trap

Sample #: 13 Picture #: ✓ Location: Light fixtures

Sample #: 14 Picture #: — Location: Overhead heaters

Sample #: 14 Picture #: ✓ Location: Stored items

Sample #: 15 Picture #: ✓ Location: Floor

Sample #: 16 Picture #: ✓ Location: Outside the range

9.0 HVAC System

Does the HVAC system have maintenance performed on a regular basis (Yes or No):

YES

In yes, is the maintenance effective (Yes or No): YES

If no, describe:

10.0 HHIM

Complete HHIM form for facility (Initial as completed): Non-Responsive

Reproduction Room HHIM Necessary (Yes or No) (Initial if Yes): —

Film Developing Room HHIM Necessary (Yes or No) (Initial if Yes): —

Maintenance Area HHIM Necessary (Yes or No) (Initial if Yes): ✓

11.0 Additional Items

Table 1 (wipe sampling) completed (initial when completed): _____

Table 2 (air sampling) completed (initial when completed): _____

Table 3 (peeling paint), if necessary, completed (initial when completed): _____

Table 3 or 4 (IAQ) completed (initial when completed): _____

Table 4 or 5 (noise), if necessary, completed (initial when completed): _____

Table 5 or 6 (firing ranges), if necessary, completed (initial when completed): _____

Airflow pattern diagram(s) completed (initial when completed): _____

Building layout included (initial when completed): _____

Photographs (initial when completed): _____

Sampling Sheets and Laboratory Analyses (initial when completed): _____

Sampling tracking form completed and faxed to NGB ARNO _____

within 5 days of date of this survey (initial when completed): _____

(Fax to Ken Forsythe at 410-942-0254)

State Lead Wipes Spreadsheet completed (initial when completed): _____

Three copies of noise exposure notification letter, if necessary (initial when completed): _____

Three copies of contaminant exposure forms for each employee that participated in air sampling (initial when completed): _____

Non-Responsive

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



Industrial Hygiene Survey for VAARNG – Onancock Readiness Center 67 Kerr Street Onancock, Virginia 23417

AECOM
January 2013
Document No.: 60275401/ Onancock Readiness Center

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

Industrial Hygiene Survey
for VAARNG – Onancock Readiness Center
67 Kerr Street
Onancock, Virginia 23417

Non-Responsive

A large black rectangular redaction box covering several lines of text.

Industrial Hygienist

Non-Responsive

A large black rectangular redaction box covering several lines of text.

Project Manager

Non-Responsive

A large black rectangular redaction box covering several lines of text.

Northeast District Health & Safety Manager

AECOM Environment
January 2013
Document No.: 60275401/ Onancock 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 Onancock Readiness Center Facility Layout

Appendix B Onancock Readiness Center Photographs

Appendix C Analytical Results

Appendix D References



List of Tables

Table 2-1: Lead Wipe Sample Results 2-1

Table 3-1: Indoor Air Quality Monitoring Results..... 3-2

Table 5-1: Light Survey 5-1



Executive Summary

On November 08, 2012, AECOM Technical Services Northeast, Inc. (AECOM) conducted an Industrial Hygiene (IH) survey of the Onancock Readiness Center facility located at 67 Kerr Street in Onancock, Virginia. Non- [REDACTED] was the point of contact for the facility and accompanied AECOM during the survey to provide access and information concerning the Onancock Readiness Center operations.

The industrial hygiene survey was conducted in general accordance with the scope of work as described in the "Statement of Work – Industrial Hygiene Services for National Guard Bureau Industrial Hygiene Region North – Baseline Surveys for Readiness Centers and Administrative Buildings", dated March 2009.

The Onancock Readiness Center is currently staffed by two personnel. The facility is configured as an administrative area and a drill/assembly hall.

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

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

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

Wipe samples collected in association with most administrative areas indicated lead levels below the Occupational Safety and Health Administration's (OSHA's) Clarification of "as free as practicable" and lead contamination under 29 Code of Federal Regulations (CFR) 1926.62, The Compliance Directive for the Interim Standard for Lead in Construction, CPL 2-2.58. OSHA recommends the use of the U.S. Department of Housing and Urban Development's (HUD) acceptable decontamination level of 200 micrograms per square foot (ug/ft²) for floors in evaluating the cleanliness of change areas, storage facilities, and lunchrooms/eating areas.

However, wipe samples collected from the top of the vending machine in the drill hall and top of a file cabinet in room 201 indicated levels of lead in excess of 200 ug/ft².

Damaged suspect asbestos containing materials were observed during the evaluation. A sample of damaged floor tile in the unattached garage and an area of plaster from the janitors office (ceiling) were collected and submitted for analysis. Asbestos was determined to be present in the floor tile at 5%, the associated mastic and ceiling plaster indicated no asbestos detected in the submitted samples.

No damaged or peeling paint was observed during the survey.

No water damage or visible mold growth was observed during the survey. Water intrusion is a mold growth risk factor.

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

1.0 Facility Description and Operations

The Onancock Readiness Center is a single story masonry structure with brick facade constructed in the 1950's. The section occupied by Readiness Center personnel consists of rooms configured as office space and is finished with acoustical drop ceilings and floor tile.

The primary activity at the Onancock Readiness Center is routine administrative duties. The Onancock Readiness Center is currently staffed by approximately 2 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 multiple areas of the facility following the Occupational Safety & Health Administration (OSHA) wipe sampling method and using Ghost Wipes.

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

Table 2-1: Lead Wipe Sample Results

Sample Number	Sample Location	Lead Concentration
OC-Pb-01	Top of vending machine drill hall	1600 ug/ft²
OC-Pb-02	Drill hall food service cart-east wall	120 ug/ft ²
OC-Pb-03	Drill hall center of roll-up doorway	<110 ug/ft ²
OC-Pb-04	Kitchen	<110 ug/ft ²
OC-Pb-05	Desktop Room 200 classroom	<110 ug/ft ²
OC-Pb-06	Top of file cabinet room 201	370 ug/ft²
OC-Pb-07	Lobby floor at doorway to drill hall	<110 ug/ft ²
OC-Pb-08	Garage classroom A1 top of radiator	<110 ug/ft ²
OC-Pb-09	Garage A6 top of file cabinet	<110 ug/ft ²

ug/ft² = Micrograms per square foot.

Wipe samples collected in association with most administrative areas indicated lead levels below the Occupational Safety and Health Administration's (OSHA's) Clarification of "as free as practicable" and lead contamination under 29 CFR 1926.62, The Compliance Directive for the Interim Standard for Lead in Construction, CPL 2-2.58. OSHA recommends the use of HUD's acceptable decontamination level of 200 ug/ft² for floors in evaluating the cleanliness of change areas, storage facilities, and lunchrooms/eating areas.

Lead in excess of the action level of 200 micrograms per square foot (ug/ft²) per 29 CFR 1926.62 was detected in wipe samples collected from the top of the vending machine in the drill hall and from the top of a file cabinet in room 201. Laboratory analytical results are presented in Appendix C.

2.1.2 Air Sampling

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

3.0 Physical Condition of Facility and Personnel Concerns

3.1.1 Lead Based Paint

Interior surfaces of walls are coated with paint. The paint on the walls is in serviceable condition. AECOM did not observe damaged or peeling paint during this evaluation.

3.1.2 Suspect Asbestos Containing Materials

Damaged suspect asbestos containing materials were observed during the evaluation. A sample of damaged floor tile in the unattached garage and an area of plaster from the janitors office (ceiling) were collected and submitted for analysis. Asbestos was determined to be present in the floor tile at 5%, the associated mastic and ceiling plaster indicated no asbestos detected in the submitted samples

Typical suspect miscellaneous building materials observed but not sampled include drywall, floor tiles and associated mastic, cove base and associated mastic, ceiling tiles, carpet mastic, and window caulks.

3.1.3 Water Damage/Mold

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

3.1.4 Housekeeping

The Onancock 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 Onancock Readiness Center staff members. No Indoor Air Quality concerns were noted by the Onancock Readiness Center personnel.

Instantaneous real-time reading for carbon monoxide and carbon dioxide (parts per million or ppm), temperature (° Fahrenheit), and relative humidity (as percentage) are presented in the following table. The facility is mechanically air conditioned. With the exception of some slightly low recorded temperatures, all readings were within acceptable guidelines.

Table 3-1: Indoor Air Quality Monitoring Results

Location	Carbon Monoxide (ppm)	Carbon Dioxide (ppm)	Temp (°F)	Relative Humidity (%)
Room 200 A	0.5	786	69.5	40.4
Room 200	0.6	824	69.4	36.1
Lobby	1.0	572	68.1	35.8
Drill hall	0.3	436	67.3	36.7
Men's room	0.5	715	67.2	39.1
Kitchen	0.4	517	67.6	35.6
Room 103	0.7	681	66.4	36.3
Room 102 office	0.4	736	66.8	36.1
Room 100 office	0.5	525	67.7	35.5
Room 101 office	0.5	561	68.5	34.7
Supply Room 205	0.5	470	67.8	37.3
Room 204-Kitchen Storage	0.5	454	68.3	35.7
Room A1 (garage)	0.0	408	56.5	45.7
Room A5 (garage)	0.0	385	54.2	26.2
Room A6 office (garage)	0.0	509	54.0	41.7
A-8 Maintenance bay (garage)	0.0	355	52.4	12.8
A-9 (garage)	0.0	447	49.7	14.2

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

Onancock 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 building HVAC system is a boiler fired system for heat and with roof mounted AC units. No dust was observed at diffusers, and site personnel indicated that the system seems to work well. Temperature readings were constant in all areas occupied by readiness center personnel.

4.1.2 HVAC Maintenance

The HVAC system is serviced by a third party vendor. Maintenance is reportedly completed monthly.

There was no 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 not adequate in all of the areas surveyed.

Table 5-1: Light Survey

Location	Results (Foot candles)	Met Standard (Y/N)	Standard*
Room 200 A	152.4	Y	50
Room 200	49.6	N	50
Lobby	11.5	Y	10
Drill hall	35.0	Y	10
Men's room	49.9	Y	5
Kitchen	22.4	N	50
Room 103	31.4	N	50
Room 102 office	89.1	Y	50
Room 100 office	51.0	Y	50
Room 101 office	67.4	Y	50
Supply Room 205	40.3	Y	30
Room 204-Kitchen Storage	35.2	Y	30
Room A1 (garage)	27.4	N	75
Room A5 (garage)	26.2	N	75
Room A6 office (garage)	41.7	N	50
A-8 Maintenance bay (garage)	12.8	N	75
A-9 (garage)	14.2	N	75
Office Lighting (ANSI/IESNA RP-1-04) and Industrial Lighting Facilities (ANSI/IESNA RP-7-01)			

6.0 Evaluation of Attached Garage

There is no garage associated with the Onancock Readiness Center. An unattached garage is associated with the facility and was surveyed for the same parameters as the remainder of the facility. The garage facility supports FMS 5's use. A Transport Company does basic maintenance, ie. tires, light bulbs etc. There is no ventilation system, bay doors are opened to allow for ventilation.

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 Onancock Readiness Center.

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

Wipe samples collected in association with most administrative areas indicated lead levels below the Occupational Safety and Health Administration's (OSHA's) Clarification of "as free as practicable" and lead contamination under 29 CFR 1926.62, The Compliance Directive for the Interim Standard for Lead in Construction, CPL 2-2.58. OSHA recommends the use of HUD's acceptable decontamination level of 200 ug/ft² for floors in evaluating the cleanliness of change areas, storage facilities, and lunchrooms/eating areas.

However, wipe samples collected from the top of the vending machine in the drill hall and top of a file cabinet in room 201 indicated levels of lead in excess of 200 ug/ft².

Damaged suspect asbestos containing materials were observed during the evaluation. A sample of damaged floor tile in the unattached garage and an area of plaster from the janitors office (ceiling) were collected and submitted for analysis. Asbestos was determined to be present in the floor tile at 5%, the associated mastic and ceiling plaster indicated no asbestos detected in the submitted samples

No damaged or peeling paint was observed during the survey.

No water damage or visible mold growth was observed during the survey. Water intrusion is a mold growth risk factor.

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

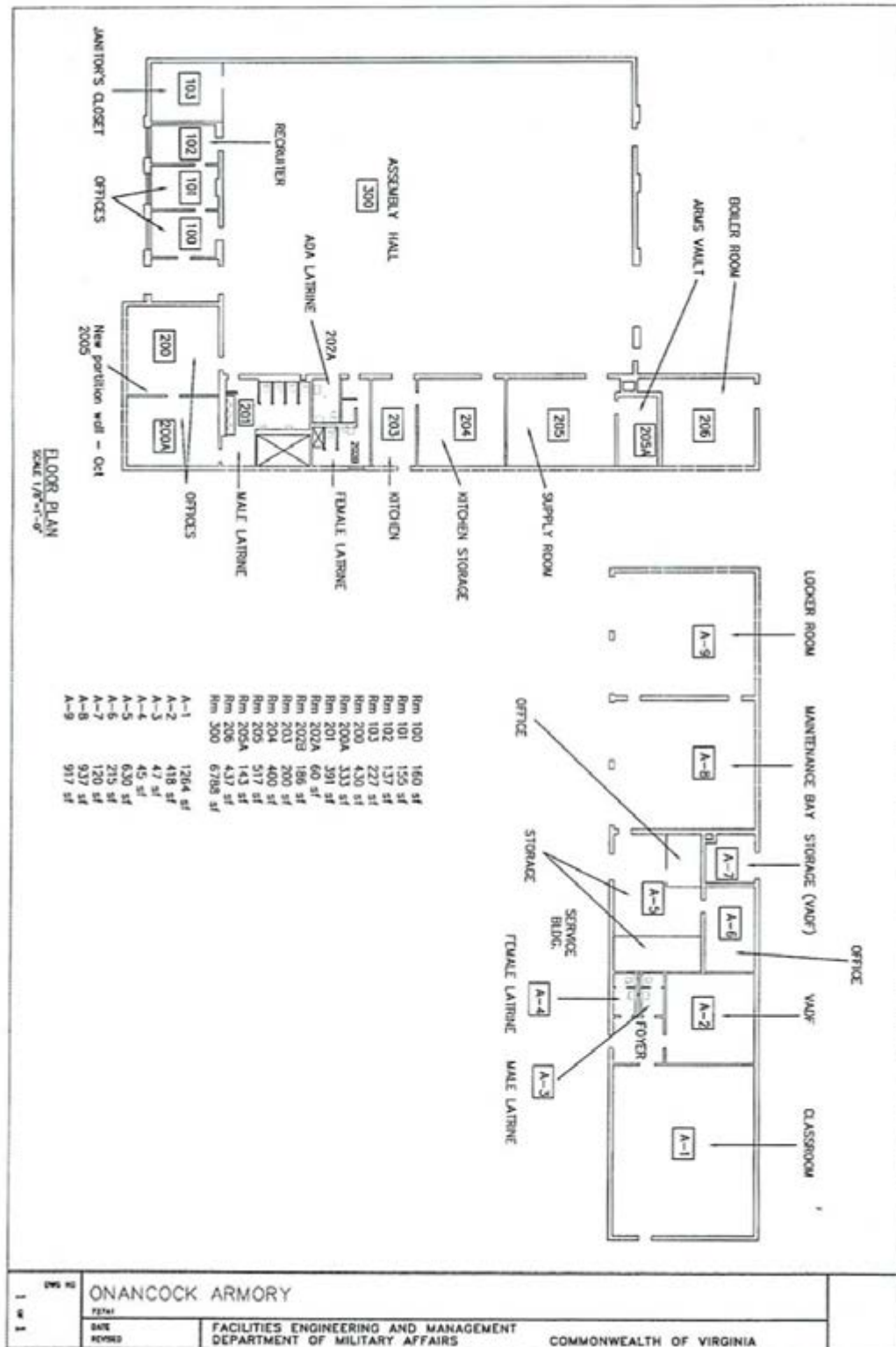
AECOM provided these services consistent with the level and skill ordinarily exercised by members of the profession currently providing similar services under similar circumstances at the time the services were provided. This statement is in lieu of other statements either expressed or implied. This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

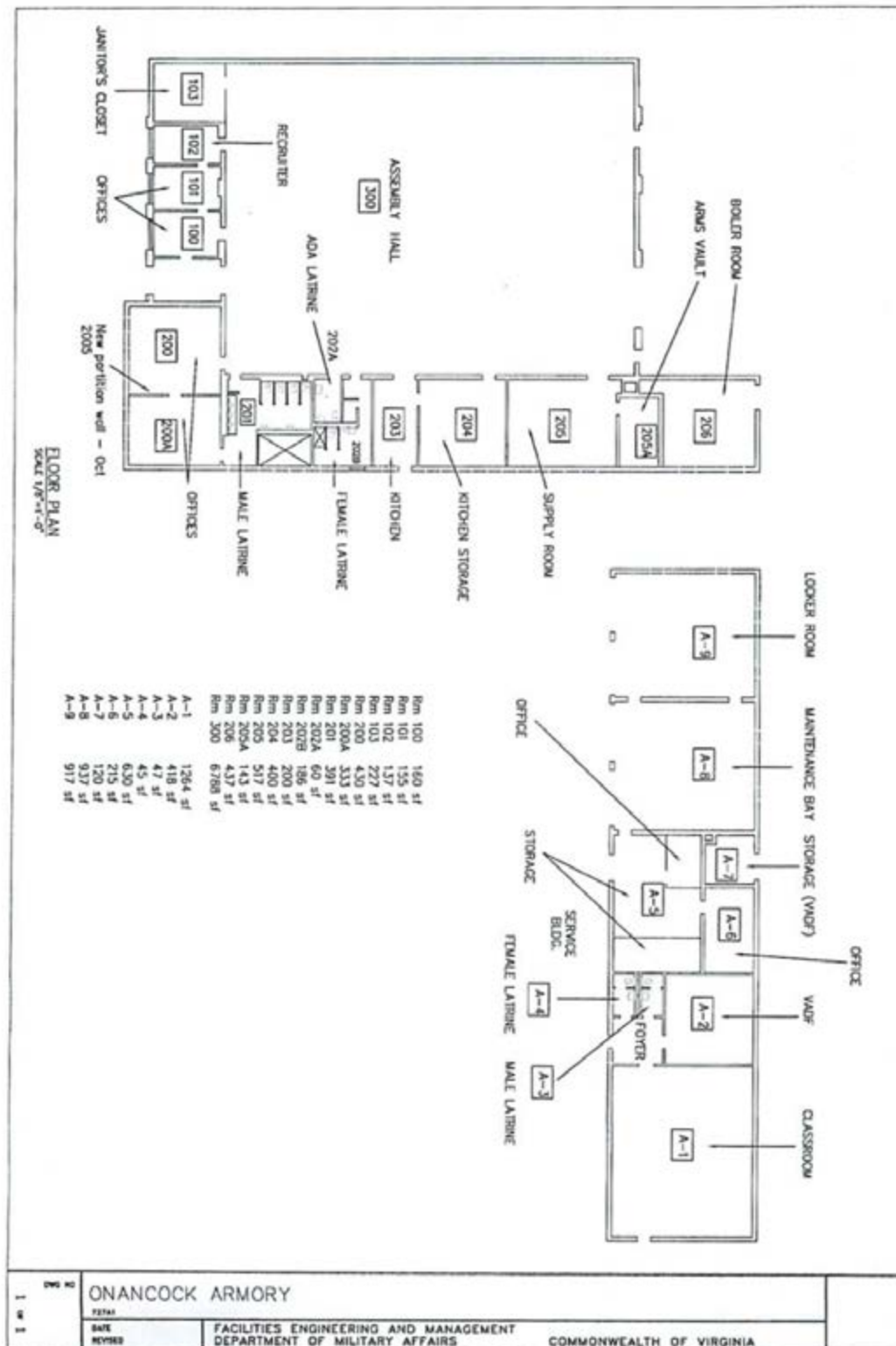
As with all such surveys, the results of the sampling represent conditions found on the date of the survey and may not represent conditions found at other times. Additionally, this survey was limited with respect to the specific parameters indicated above and should not be construed to be a comprehensive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

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

Appendix A

Onancock Readiness Center Facility Layout





Appendix B

Onancock Readiness Center Photographs

Photograph 1



Front of building

Photograph 2



Detached garage area

Photograph 3



Boiler room

Photograph 4



Drill hall

Photograph 5



Wipe sample from food cart in drill hall

Photograph 6



Radiator heating classroom

Photograph 7



9 X 9 floor tile

Photograph 8



Classroom

Photograph 9



Garage bay ceiling

Photograph 10



Damaged ceiling plaster

Photograph 11



Typical office space

Appendix C

Analytical Results

AMA Analytical Services, Inc.



A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS



Client:	National Guard Bureau	Job Name:	VA ANG IH Survey	Chain Of Custody:	514724
Address:	301-IH Old Bay Lane, Attn: ARNG-CJG-P, State Military Reservation Havre de Grace, Maryland 21078	Job Location:	Onancock RC	Date Submitted:	12/12/2012
		Job Number:	Not Provided	Person Submitting:	AECOM
		P.O. Number:	W912K6-09-A-0003	Date Analyzed:	12/20/2012
				Report Date:	12/21/2012

Attention: **Non-Responsive**

Summary of Atomic Absorption Analysis for Lead

Page 1 of 2

AMA Sample Number	Client Sample Number	Analysis Type	Sample Type	Air Volume (L)	Area Wiped (ft²)	Reporting Limit	Total ug	Final Result	Comments
13022976	OC-Pb-01	Flame	Wipe	****	0.111	110 ug/ft²	180	1600 ug/ft²	
13022977	OC-Pb-02	Flame	Wipe	****	0.111	110 ug/ft²	13	120 ug/ft²	
13022978	OC-Pb-03	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
13022979	OC-Pb-04	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
13022980	OC-Pb-05	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
13022981	OC-Pb-06	Flame	Wipe	****	0.111	110 ug/ft²	42	370 ug/ft²	
13022982	OC-Pb-07	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
13022983	OC-Pb-08	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
13022984	OC-Pb-09	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. 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.

An AIHA (#100470) and NY ELAP (#10920) Accredited Laboratory

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



CERTIFICATE OF ANALYSIS



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)-7000B; Water: SM-3111B						See QC Summary for analytical results of quality control samples associated with these samples.			
Analysis Method For Furnace: Air, Wipes, Paints, and Soil/Solids: EPA 600/R-93/200(M)-7010; Water: SM-3113B									
NA = Not Applicable mg/Kg = parts per million (ppm) mg/L = parts per million (ppm)									
%Pb = percent lead on a dry weight basis ug = micrograms ug/L = parts per billion (ppb)									
Note: All samples were received in good condition unless otherwise noted.									
Note: All results have two significant digits. Any additional digits shown should not be considered when interpreting the result.									
Air and Wipe results are not corrected for any blank results									
Final results for air and wipe samples are based on client supplied information not verified by this laboratory.									
All results are to be considered preliminary and subject to change unless signed by the Technical Director or Deputy.									
Analyst:						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.

An AIHA (#100470) and NYELAP (#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



101143-0

Client:	National Guard Bureau	Job Name:	VA ANGIH Survey	Chain Of Custody:	514724
Address:	301-III Old Bay Lane, Attn: ARNG-CJG-P, State Military Reservation	Job Location:	Onancock RC	Date Analyzed:	12/19/2012
	Havre de Grace, Maryland 21078	Job Number:	Not Provided	Person Submitting:	AECOM
		P.O. Number:	W912K6-09-A-9003		

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
13022985	QC-Ab-01 FT	5	5	--	--	--	--	--	--	--	--	95	FT	Gny	Homogeneous	LBP	
13022986	QC-Ab-01 M	NAD	--	--	--	--	--	--	--	--	--	100	MS	Black	Homogeneous	LBP	
13022987	QC-Ab-02 PL	NAD	--	--	--	--	--	--	--	--	--	100	PL	White	Homogeneous	LBP	
13022988	QC-Ab-02 BC	NAD	--	--	--	--	--	--	--	--	--	100	BC	Gny	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.

NVLAP (101143-0) 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[®]

101143-0

Client:	National Guard Bureau	Job Name:	VA ANGIH Survey	Chain Of Custody:	514724
Address:	301-H Old Bay Lane, Attn: ARNG-CJG-P, State Military Reservation	Job Location:	Onancock RC	Date Analyzed:	12/19/2012
	Havre de Grace, Maryland 21078	Job Number:	Not Provided	Person Submitting:	AECOM
		P.O. Number:	W912K6-09-A-4003		

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.

NVLAP (101143-0) 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.amaab.com

AHA (#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)

514724

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: VA ANG-1H SURVEY
- Job Location: ONNICKOCK RC
- Job #: PD # W912K6-09-A-0003
- Contact Person: Non-Responsive @ phone: #
- Submitted by: AECOM Signature: Non-Responsive

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

AFTER HOURS (must be pre-scheduled)		NORMAL BUSINESS HOURS		REPORT TO:
<input type="checkbox"/> Immediate Date/Time:	<input type="checkbox"/> 3 Day	<input type="checkbox"/> Next Day	<input type="checkbox"/> Results Required By Noon	<input type="checkbox"/> Include
<input type="checkbox"/> 24 Hours Date/Time:	<input type="checkbox"/> 2/5 Day +	<input type="checkbox"/> 2 Day	<input type="checkbox"/> Date Due: <u>12/19/12</u>	<input type="checkbox"/> Email
Comments:				<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 2 (QTY)
☐ EPA Point Count (QTY)
☐ NY State Inmate 198.1 (QTY)
☐ Grav. Reduction ELAP 198.6 (QTY)
☐ Other (specify) (QTY)

MISC

- ☐ Vermiculite
☐ Asbestos Soil PLM (Qual) PLM (Quant) PLM/TEM (Qual) PLM/TEM (Quant)
 *It is recommended that blank samples be submitted with all air and surface samples

TEM Bulk

- ☐ ELAP 191.4/Chitfield (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/ELAP 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: 9) (QTY)
☐ Pb Air (QTY)
☐ Pb Soil/Solid (QTY)
☐ Pb TCLP (QTY)
☐ Drinking Water Pb (QTY) Cu (QTY) As (QTY)
☐ Waste Water Pb (QTY) Cu (QTY) As (QTY)
☐ Pb Furnace (Media) (QTY)

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												CLIENT CONTACT		
CLIENT ID #	SAMPLE LOCATION/ID	DATE/TIME	VOL (L/V)	Wipe Area	TEM	PCM	PLM	LEAD	MOLD	AIR	BULK	DUST	MATRIX	DATE/TIME	CONTACT	BY
	SEE ATTACHED FIELD DATA SHEETS															

 LABORATORY
STAFF ONLY:
(CUSTODY)

- Date/Time RCVD: 12/12/12 @ 1030 Via: Fedex By (Print): Non-Responsive
- Date/Time Analyzed: 12/12/12 @ 1030 By (Print): Non-Responsive
- Results Reported To: 1991 0626 9000 Via: Non-Responsive Date: 12/12/12 Time: 1030 Initials: Non-Responsive
- Comments: 1991 0626 9000

Samples Relinquished to Hunt's Property 19 Nov 2012 @ 1200 Stephen Asuley

Surface Sampling Field Data Sheet

Date Collected: 8 Nov 2012 Job Name: VA ANG 1H Surveys
 Job Number: Job Location: Orlan Cock Army
 Contact Person: **Non-Responsive** Address: 67 Kern Street
 Orlan Cock, VA 23417

Company: Hunt's Property Page 1 of 1
 Phone Number: 757 646-1244
 Collected By: **Non-Responsive**
 COC Number:

Sample Number	Sample Location	Surface/Substrate Sampled	Area Wiped (in ² /ft ²)	Collection Media
OC-Pb-01	Top of Vending Mach. in Drill Hall - SW corner	Metal	16 in ²	Ghost Wipe
OC-Pb-02	Drill Hall - East Wall - Food Service Coat	Metal	↓	↓
OC-Pb-03	Drill Hall - Center of Roll-up Doorway - South Wall	Floor Tile		
OC-Pb-04	Kitchen - Top of Microwave Oven	Metal		
OC-Pb-05	Desktop - Rm 200 Classroom	Vinyl Paper Desktop		
OC-Pb-06	Top of File Cabinet - Rm 201	Metal		
OC-Pb-07	Lobby - Floor at doorway to Drill Hall	Ceramic Tile		
OC-Pb-08	Garage Classroom A1 - Radiator Top on North Wall	Metal		
OC-Pb-09	Garage Office - AG - Top of File Cabinet	Metal		



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



Samples Relinquished to Heit and Proffitt 19 Nov 2012 @ 1200 Stephens Bldg

Bulk Sampling Survey Sheet

Date Collected: 9 Nov 2012Job Name: VA ANG 1 H SurveysCompany: Heit Proffitt Page 1 of 1

Job Number:

Job Location: Danforth AermoryPhone Number: 757 685 1288

Contact Person:

Non-ResponsiveAddress: 67 Ken StreetCollected By: **Non-Responsive**Danforth, VA 23417

COC Number:

Sample Number	Homogenous Area ID	Type of Material	Sample Location	Friable	Condition of Material	Accessibility	Photo	Comments
DC-AB 01	1	9"x9" Floor Tile, mastic	SE corner of garage lobby	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input checked="" type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input checked="" type="checkbox"/> High	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
DC-AB 02	2	Plaster textured p/jc	Center of Janitor's office ceiling	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input checked="" type="checkbox"/> Fair <input type="checkbox"/> Poor	<input checked="" type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	



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



Appendix D

References

References

1. Title 29, Code of Federal Regulations (CFR), Part 1910, Occupational Safety and Health Administration, current Ed. <http://www.osha.gov/comp-links.html>
2. Department of Defense Instruction (DODI) 6055.1, Department of Defense Occupational Safety and Health (OSH) Program, August 19, 1998. <http://www.dtic.mil/whs/directives/corres/pdf/605501p.pdf>
3. Army Regulation (AR) 11-34, The Army Respiratory Protection Program, 15 February 1990. http://armypubs.army.mil/epubs/pdf/R11_34.PDF
4. AR 40-5, Medical Service, Preventive Medicine, 25 May 2007. http://armypubs.army.mil/epubs/pdf/R40_5.PDF
5. AR 385-10, The Army Safety Program, 23 August 2007; Rapid Action Revision (RAR) issue date: 4 October 2011. http://armypubs.army.mil/epubs/pdf/R385_10.PDF
6. Department of the Army Pamphlet (DA PAM) 40-501, Medical Services, Hearing Conservation Program, 10 December 1998. http://armypubs.army.mil/epubs/pdf/P40_501.pdf
7. DA PAM 40-11, Preventive Medicine, 22 July 2005, RAR issue date: 19 October 2009. http://armypubs.army.mil/epubs/pdf/p40_11.pdf
8. DA PAM 40-503, Medical Services, Industrial Hygiene Program, 30 October 2000. http://armypubs.army.mil/epubs/pdf/P40_503.PDF
9. UFC 3-410-01FA, Heating, Ventilating, and Air Conditioning, 15 May 2003, change 4, January 2010. http://www.wbdg.org/ccb/DOD/UFC/ufc_3_410_01fa.pdf
10. Threshold Limit Values (TLVs) and Biological Exposure Indices (BEIs), American Conference of Governmental Industrial Hygienists (ACGIH), current Ed.
11. Industrial Ventilation – A Manual of Recommended Practice for Design, ACGIH, current Ed.
12. American National Standards Institute (ANSI)/International Safety Equipment Association (ISEA) Z358.1-2009, Emergency Eyewash and Shower Equipment.
13. ANSI/American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. (ASHRAE) 55-2010, Thermal Environmental Conditions for Human Occupancy.
14. ANSI/ASHRAE 62.1-2010, Ventilation for Acceptable Indoor Air Quality.
15. RP-1-2004, Office Lighting, ANSI/IESNA.
16. RP-7-2001, Industrial Lighting, ANSI/IESNA, change 20 July 2004.
17. OSHA Instruction Letter 02-02-058, Lead Exposure in Construction, Office of Health Compliance Assistance, 13 December 1993.
18. OSHA Standard Interpretation, Clarification of “as free as practicable” and lead contamination under 29 CFR 1926.62, dated January 13, 2003.
19. NG PAM 420-15, Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges, 3 November 2006. http://www.ngbpdc.ngb.army.mil/pubs/420/ngpam420_15.pdf

Shaw Environmental, Inc.

312 Directors Drive
Knoxville, TN 37923
865.690.3211
Fax 865.690.3626



**National Guard Armory
Petersburg Readiness Center
Petersburg, Virginia**

Industrial Hygiene Evaluation

Prepared for:

**National Guard Region North Industrial Hygiene Office
Havre De Grace, Maryland 21078**

Prepared by:

**Shaw Environmental, Inc.
312 Directors Drive
Knoxville, Tennessee 37923**

24 June 2004

**National Guard Armory
Petersburg Readiness Center
Petersburg, Virginia**

Industrial Hygiene Evaluation

Prepared for:

**National Guard Region North Industrial Hygiene Office
Havre De Grace, Maryland 21078**

Prepared by:

**Shaw Environmental, Inc.
312 Directors Drive
Knoxville, Tennessee 37923**

24 June 2004

Prepared by:

Non-Responsive

Environmental Scientist

Reviewed by:

Non-Responsive

Business Line Manager

Table of Contents

<i>Table of Contents</i>	<i>i</i>
<i>List of Tables</i>	<i>ii</i>
<i>List of Appendices</i>	<i>ii</i>
<i>Executive Summary</i>	<i>E-1</i>
<i>1.0 Introduction</i>	<i>1-1</i>
<i>2.0 Findings, Discussion, and Interpretation of Results</i>	<i>2-1</i>
<i>2.1 Sampling for Lead</i>	<i>2-1</i>
<i>2.1.1 Wipe Sampling</i>	<i>2-1</i>
<i>2.1.2 Air Sampling for Lead</i>	<i>2-2</i>
<i>2.2 Physical Condition of Facility</i>	<i>2-2</i>
<i>2.2.1 Peeling Paint - Lead</i>	<i>2-2</i>
<i>2.2.2 Visual Inspection - Asbestos</i>	<i>2-2</i>
<i>2.2.3 Visual Inspection - Water Damage and Mold</i>	<i>2-3</i>
<i>2.2.4 Visual Inspection - Housekeeping</i>	<i>2-3</i>
<i>2.3 Building Concerns</i>	<i>2-3</i>
<i>2.3.1 Ergonomic Concerns</i>	<i>2-3</i>
<i>2.3.2 Indoor Air Quality</i>	<i>2-3</i>
<i>2.4 Safety and Industrial Hygiene Programs</i>	<i>2-4</i>
<i>2.5 Ventilation</i>	<i>2-4</i>
<i>2.5.1 Ventilation System Evaluation</i>	<i>2-4</i>
<i>2.5.2 Contamination of Clean Air Sources</i>	<i>2-4</i>
<i>2.6 Noise Exposure</i>	<i>2-4</i>
<i>2.7 Lighting</i>	<i>2-4</i>
<i>2.8 Converted Indoor Firing Ranges</i>	<i>2-5</i>
<i>2.9 HVAC Systems</i>	<i>2-5</i>
<i>2.10 IHIM</i>	<i>2-6</i>
<i>3.0 Conclusions</i>	<i>3-1</i>
<i>Tables</i>	<i>Follows Section 3.0</i>
<i>Appendices</i>	<i>Follows Tables</i>

List of Tables

Table 1	Wipe Sampling for Lead
Table 2	Air Sampling for Lead
Table 3	Peeling Paint Sampling for Lead
Table 4	Indoor Air Quality Measurements
Table 5	Illumination Readings
Table 6	Indoor Firing Ranges - Wipe Sampling

List of Appendices

Appendix A	HHIM Data Form
Appendix B	Building Layout
Appendix C	Sampling Sheets and Laboratory Analyses
Appendix D	References
Appendix E	Recommendations for Surface Lead Dust in Armories

Executive Summary

Shaw Environmental, Inc. (Shaw) was contracted to perform an industrial hygiene evaluation for the Petersburg Readiness Center in Petersburg, Virginia. [Non-Responsive] performed the evaluation on 16 December 2003. The point of contact at the readiness center was SFC [Non-Responsive].

The following industrial hygiene concerns were evaluated.

- Wipe Sampling for Lead
- Air Sampling for Lead
- Peeling Paint – Lead
- Suspected Asbestos Containing Material
- Water Damage
- Presence of Mold
- Housekeeping
- Ergonomic Concerns
- Indoor Air Quality
- Safety and Industrial Hygiene Programs
- Ventilation System Evaluation
- Contamination of Clean Air Sources
- Noise Exposure
- Lighting
- Converted Indoor Firing Range
- HVAC Systems

The following items were either not applicable to the armory or the evaluation resulted in a conclusion that there were no industrial hygiene concerns.

- Air Sampling for Lead
- Peeling Paint – Lead
- Housekeeping
- Ergonomic Concerns
- Safety and Industrial Hygiene Programs
- Ventilation System Evaluation

- Contamination of Clean Air Sources
- Noise Exposure
- HVAC Systems

Areas where there were industrial hygiene concerns are as follows:

- Wipe sampling for lead revealed concentrations above a level of 40 micrograms per square foot ($\mu\text{g}/\text{ft}^2$) in the drill floor/assembly hall and converted firing range. Areas with lead concentrations above 40 $\mu\text{g}/\text{ft}^2$ that will be accessible to children should be cleaned. If a special function is held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function.
- Materials (pipe insulation and floor tiles) suspected of containing asbestos were observed. An operations and maintenance plan should be followed when performing any activities that may disturb the suspected asbestos-containing materials.
- Water damage was observed at several locations at the armory. The source of the water damage was likely from a combination of roof and pipe leaks. The source of the water damage should be confirmed and actions taken to eliminate the source in order to prevent the possibility of mold growth that may lead to indoor air quality problems.
- Visual mold was observed in the armory. The area where the mold is located should be thoroughly cleaned with 0.5% sodium hypochlorite solution (1 part household bleach to nine parts water) or equivalent in order to eliminate the potential mold/indoor air quality problem. In addition, the cause of the mold should be determined and actions taken to eliminate it.
- Measurements for temperature revealed that levels did not meet the recommended level of 68° F in the facility. If possible, the heating units should be adjusted so the temperature will fall within the acceptable range. In addition, space heaters could be used to increase the temperature at specific locations.
- Lighting measurements were conducted at the armory. The lighting did not meet minimum requirements in some areas; therefore consideration should be given to providing more lighting in these areas. This may be accomplished by replacing burnt out luminaries, cleaning fixtures, cleaning windows, painting walls with a lighter color, repositioning detailed work to higher illuminated areas, and using supplemental lighting.
- The lead level on the floor inside the converted firing range was above the recommended level. This area must be decontaminated by a thorough cleaning along

with re-sampling until surface lead concentrations are reduced to below the recommended level. In addition, employees should not be allowed to work in this area without protective clothing.

1.0 Introduction

Shaw Environmental, Inc. (Shaw) was contracted to perform an industrial hygiene evaluation for the Petersburg Readiness Center in Petersburg, Virginia. [Non-Responsive] performed the evaluation on 16 December 2003. The point of contact at the readiness center was SFC [Non-Responsive]

The findings, discussion, and interpretation of results are provided in Section 2.0. The conclusions are provided in Section 3.0. The HHIM data form for the facility is provided in Appendix A. The building layout is provided in Appendix B. Sampling sheets and laboratory analyses are provided in Appendix C. References are provided in Appendix D. The *Recommendations for Surface Lead Dust in Armories* document is provided in Appendix E.

The statements, opinions, and conclusions contained in this report are based solely upon the services performed by Shaw as described in the report. In performing these services and preparing the report, Shaw Environmental, Inc. relied upon the work and information provided by others, including public agencies, whose information is not guaranteed by Shaw Environmental, Inc.

2.0 Findings, Discussion, and Interpretation of Results

The results, discussion, and interpretation of results are provided in the following sections.

2.1. Sampling for Lead

2.1.1 Wipe Sampling

Wipe samples were collected for lead from the drill floor/assembly area. Also, wipe samples were collected for lead in rooms, hallways, foyers, etc. The sampling in rooms, hallways, foyers, etc. represented approximately 25% of the building. Approximately half of the samples were collected from surfaces in common areas, such as surfaces of a desk. The remaining samples were collected from uncommon surface areas, such as a supply vent or the top of a file cabinet. The samples were collected and analyzed in accordance with the Instructions for *Completing the Sampling of ARMY National Guard Armories* procedure.

The only samples initially submitted for analysis were those from the drill floor/assembly hall. If there were any results above the recommended level from the drill floor/assembly hall, the other samples would have been submitted for analysis.

Results of the wipe sampling are provided in Table I. The results revealed lead at all locations sampled at concentrations below recommended level of 200 micrograms lead per square foot ($\mu\text{g}/\text{ft}^2$) (See Appendix E); therefore, no actions are necessary. Since the levels were below the recommended level, the other samples were not submitted for analysis.

However, wipe sampling for lead revealed concentrations above a level of $40 \mu\text{g}/\text{ft}^2$ in the drill floor/assembly hall area. Please note that the *Recommendations for Surface Lead Dust in Armories* (Appendix E) states that all areas with lead concentrations above $40 \mu\text{g}/\text{ft}^2$ that will be accessible to children should be cleaned. If a special function is held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function.

2.1.2 Air Sampling for Lead

General area air sampling was conducted at the facility. Please note that no employees were available to be monitored. The sample was collected and analyzed in accordance with Method 7082 of the National Institute of Occupational Safety and Health (NIOSH) Manual of Analytical Methods.

The results of the sampling are provided in Table 2. The results revealed non-detectable concentrations of lead in the breathing zone of the employee; therefore, no actions are necessary.

2.2 Physical Condition of Facility

2.2.1 Peeling Paint - Lead

Peeling paint was observed in the armory in the men's latrine. The Department of Housing and Urban Development (HUD) defines lead-based paint as paint or other surface coatings that contain lead equal to or exceeding 0.5 percent by weight. Bulk sampling results revealed that the lead concentration was below 0.5 percent by weight. Since HUD does not consider the paint a lead-based paint, no actions are necessary. The results of the sampling are provided in Table 3.

2.2.2 Visual Inspection - Asbestos

A visual inspection was made to determine if there was any suspected asbestos-containing material at the armory. Materials (pipe insulation and floor tiles) suspected of containing asbestos were observed. The suspected asbestos-containing materials, with condition and estimated quantity, were at the following locations:

- Room 2 – Average Condition, Approximately 10 Linear Feet (Joints & Fittings)
- Room 18 – Average Condition, Approximately 10 Linear Feet (Joints & Fittings)
- Drill Floor/Assembly Hall -- Average Condition, Approximately 7458 Square Feet
- Hallway by Offices - Average Condition, Approximately 445.5 Square Feet
- Lobby -- Average Condition, Approximately 346.5 Square Feet
- Hallway to Room 18 – Average Condition, Approximately 58.5 Square Feet
- Room 19 -- Average Condition, Approximately 3 Linear Feet (Joints & Fittings)

An operation and maintenance plan should be followed when performing any activities that may disturb the suspected asbestos-containing materials.

2.2.3 Visual Inspection – Water Damage and Mold

A visual inspection was made to determine if there was any water damage or visible mold at the armory. Both visible mold and water damage was observed at the armory. Water damage was observed on the ceilings and some walls in rooms 11, 104, 108, 110, 111, 119, and 120.

The source of the water damage was likely from a combination of roof and pipe leaks. The source of the water damage should be confirmed and actions taken to eliminate the source in order to prevent the possibility of mold growth that may lead to indoor air quality problems.

Visible mold was observed on the ceilings and walls in rooms 104, 108, 110, 119 and 120.

The area where the mold is located should be thoroughly cleaned with 0.5% sodium hypochlorite solution (1 part household bleach to nine parts water) or equivalent in order to eliminate the potential mold/indoor air quality problem. In addition, the cause of the mold should be determined and actions taken to eliminate it.

2.2.4 Visual Inspection - Housekeeping

The housekeeping was determined to be good.

2.3. Building Concerns

2.3.1 Ergonomic Concerns

Interviews with employees and observation of work activities revealed no ergonomic concerns at the armory.

2.3.2 Indoor Air Quality

Interviews with employees and measurements for carbon dioxide and humidity revealed no indoor air quality concerns at the armory. However, measurements for temperature revealed that levels did not meet the recommended level of 68° F in the facility. If possible, the heating units should be adjusted so the temperature will fall within the acceptable range. In addition, space heaters could be used to increase the temperature at specific locations.

The results of the measurements for carbon dioxide, humidity, and temperature are provided in Table 4.

2.4. Safety and Industrial Hygiene Programs

An evaluation was performed to determine the applicability of the following programs.

- Confined Spaces
- Hearing Conservation
- Respiratory Protection
- Hazard Communication (HAZCOM)
- Personal Protective Equipment (PPE)

It was determined that the HAZCOM program was the only program listed above that was applicable at the facility. The HAZCOM program was evaluated and it was determined that the program met minimum requirements.

2.5. Ventilation

2.5.1 Ventilation System Evaluation

There were no local exhaust ventilation systems at this armory; therefore, no ventilation studies were performed.

2.5.2 Contamination of Clean Air Sources

Since there were no local exhaust ventilation systems at the armory, there was no possibility that clean air sources could be contaminated by exhaust air.

2.6. Noise Exposure

An evaluation was performed to determine if there were any hazardous noise areas at the armory. It was determined that there were no areas at the armory that would exceed the permissible exposure limit for noise.

2.7 Lighting

Lighting measurements were conducted at the armory. Results of the lighting evaluation are provided in Table 5. As can be seen from the results, the lighting did

not meet the minimum requirements in some areas, including rooms 17, 112, and 108.

Consideration should be given to providing more lighting to these areas. This may be accomplished by replacing burnt out luminaries, cleaning fixtures, cleaning windows, painting walls with a lighter color, repositioning detailed work to higher illuminated areas, and using supplemental lighting.

2.8 Converted Indoor Firing Ranges

There was a converted indoor firing range at the facility; therefore, wipe samples were taken for lead at various locations in or near the converted range. The space is used as storage. The results are provided in Table 6. The results revealed lead, with associated concentrations, at the following locations:

- bullet trap at 110 micrograms lead per square foot ($\mu\text{g}/\text{ft}^2$);
- stored item at 110 $\mu\text{g}/\text{ft}^2$; and
- floor (inside the converted firing range) at 660 $\mu\text{g}/\text{ft}^2$; and
- floor (outside the converted firing range) the range at 27 $\mu\text{g}/\text{ft}^2$

The lead level on the floor inside the converted firing range was above the recommended level of 200 $\mu\text{g}/\text{ft}^2$, a level recommended in the *Guidelines for Converting Indoor Firing Ranges to Other Uses* document (NG PAM 385-15). This area must be decontaminated by a thorough cleaning along with re-sampling until surface lead concentrations are reduced to below the recommended level. In addition, employees should not be allowed to work in this area without protective clothing. Housekeeping should be maintained to insure that lead levels are kept as low as possible.

2.9. HVAC System

The maintenance schedule for the HVAC system was evaluated to verify that maintenance occurs on a regular basis. Also, the condition of the HVAC system was evaluated to determine if the maintenance performed is effective. It was deemed that maintenance occurs on a regular basis, and the maintenance performed is effective.

2.10. HHIM

A Health Hazard Information Module (HHIM) form was completed for the armory. The completed form is provided in Appendix A.

3.0 Conclusions

It is concluded that there were no industrial hygiene concerns at the armory with regards to atmospheric exposure to lead, peeling lead-based paint, housekeeping, ergonomic conditions, safety and industrial hygiene programs, ventilation systems or contamination of clean air sources, noise exposure, and HVAC systems.

There were industrial hygiene concerns at the armory with regards to lead surface contamination, suspected asbestos-containing material, water damage, visible mold, indoor air quality, surface lead contamination in the converted firing range, and lighting. These concerns are discussed in detail in Section 2.0 of this report.

TABLES

Table 1
Wipe Sampling for Lead
National Guard Armory
Petersburg Armory, Virginia
Date of Sampling: 16 December 2003

Sample Number	Location	Results, $\mu\text{g}/\text{ft}^2$ ^a
VAPET350-1	Drill Floor (soda machine top surface) See Building Layout -- Appendix B	160
VAPET350-2	Drill Floor (kitchen service window countertop) See Building Layout -- Appendix B	46
VAPET350-3	Drill Floor (heat register top surface) See Building Layout -- Appendix B	140
VAPET350-4	Drill Floor (heat register top surface) See Building Layout -- Appendix B	120
VAPET350-5	Drill Floor (snack machine top surface) See Building Layout -- Appendix B	58
VAPET350-6	Field Blank	0.56

^a Micrograms lead per square foot

The samples were taken and analyzed in accordance with the *Instructions for Completing the Sampling of ARMY National Guard Armories* procedure.

Table 2
Breathing Zone Air Samples for Lead
National Guard Armory
Petersburg, Virginia
Date of Sampling: 16 December 2003

Sample Number	Employee	Sampling Information			Results (mg/m ³) ^a
		Time Sampled / Minutes	Flow Rate (lpm) ^b	Volume (liters)	
VAPET350-A1	General Air Sample	1325-1535/130	1.604	208.60	<0.0048
VAPET350-A2	General Air Sample	1330-1540/130	1.668	216.91	<0.0046
VAPET350-A3	Field Blank	-	-	-	None Detected

^a Milligrams lead per cubic meter of air.

^b Liters of air per minute.

Method 7082 of the National Institute of Occupational Safety and Health (NIOSH) Manual of Analytical Methods was followed for sampling for lead.

Table 3
Peeling Paint Sampling for Lead
National Guard Armory
Petersburg, Virginia
Date of Sampling: 16 December 2003

Sample Number	Location	Results, % By Weight
VAPET350-PCI	Men's Latrine	0.21

The Department of Housing and Urban Development (HUD) defines lead-based as paint or other surface coatings that contain lead equal to or exceeding 0.5 percent by weight.

Table 4
Indoor Air Quality Measurements for Carbon Dioxide, Humidity, and Temperature
National Guard Armory
Petersburg, Virginia
Date of Sampling: 16 January 2004

Location	Occupants In Area	Carbon Dioxide, parts per million parts of air (ppm)	Percent (%) Humidity	Temperature (°F)
1 st Floor (Office Area)	1	452	39.5	67.5
Outdoors	-	538	45.7	61.9

Carbon dioxide, humidity, and temperature measurements were taken with a TSI Q Trak Plus, Model 8554, Indoor Air Quality Meter, calibrated in April 2003.

American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE) recommends that indoor carbon dioxide levels be less than 700 ppm above outdoor levels.

ASHRAE recommends that the relative humidity levels be maintained between 30 to 60 percent.

ASHRAE recommends that the acceptable temperature range be 68 degrees Fahrenheit to 74 degrees Fahrenheit in the winter and 73 degrees Fahrenheit to 79 degrees Fahrenheit in the summer.

Table 5
Illumination Readings
National Guard Armory
Petersburg, Virginia
Date of Sampling: 16 December 2003

Location	Luminance (fc) ^a	Standard (fc) ^a	Standard Met
Room 117	11.1-72.2	70	Some Areas
Room 112	11.1-55.5	70	No
Hallway	22.2-66.6	7.5	Yes
Room 111	77.7-122.2	70	Yes
Room 104	77.7-122.2	70	Yes
Room 108	44.4-61.1	70	No
Room 107	44.4-133.3	70	Some Areas
Room 119	100-111.1	70	Yes
Room 17	11.1-33.3	70	No
Room 8	44.4-72.2	70	Some Areas
Room 5	55.5-88.8	70	Some Areas
Room 6	55.5-88.8	70	Yes
Room 2	44.4-105.5	70	Some Areas
Room 11	88.8-122.2.1	70	Yes
Room 13	88.8-133.3	70	Yes

^a fc - Footcandles

The readings were taken with a Weston model 614-60 Lightmeter.

The standards listed above are from ANSI/IES RP-1 and RP-7.

Table 6
Wipe Sampling for Lead – Converted Firing Range
National Guard Armory
Petersburg, Virginia
Date of Sampling: 16 December 2003

Sample Number	Location	Results, $\mu\text{g}/\text{ft}^2$ ^a
VAPET350-19	Bullet Trap (floor near former bullet trap location)	110
VAPET350-20	Stored Item	110
VAPET350-21	Floor (inside the converted firing range)	660
VAPET350-22	Floor (outside the converted firing range)	27

^a Micrograms lead per square foot

The samples were taken and analyzed in accordance with the Instructions for *Completing the Sampling of ARMY National Guard Armories* procedure.

Appendix A

HHIM Data Form(s)

HEALTH HAZARD INFORMATION MODULE: INDUSTRIAL HYGIENE SURVEY

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

SECTION 1. DEMOGRAPHIC DATA

ARLOC 24255	INSTALLATION APG-EA	BLDG/RM NO. PETERSBURG		
LOCATION/CODE ADMINISTRATIVE AREA /AA		OPERATION/CODE ADMINISTRATIVE OPERATIONS /ADD		
SURVEY DATE 16 DECEMBER 2003		EVALUATOR (Initials) Non-Responsive		
MACOM/CODE		SUBMACOM/CODE XX		SUPERVISOR SFC Non-Responsive
TELEPHONE/DSN NO. (804) 862 4032	UNIT/ORGANIZATION PETERSBURG ARMORY	RAC 54	FREQUENCY (hrs/day) 8	
NO. CIV(S) 0	NO. MIL 13	NO. CONTRACTOR(S) 0	NO. LOC(S) —	NO. OTHER —

SECTION 2. FACILITY DATA

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

SECTION 3. SURVEY DATA

CONTROLS PRESENT	EVALUATION	UNIT CODE	CONTROLS REQUIRED	STATUS

PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized)

GLOVES	R	U	RESPIRATOR	NIOSH TC NO.	MANUFACTURER	R	U
COLD SURFACES			AIRLINE				
HOT SURFACES			ABRASIVE BLASTING HOOD				
HAZ. AGENTS			DISPOSABLE				
HAZ. LIQ.			FULL FACE AIR PURIFYING				
SOLVENTS			1/2 FACE AIR PURIFYING				
SURGICAL GLOVES			POWERED AIR PURIFYING				
			1/4 FACE AIR PURIFYING				
			SELF CONTAINED				

EYES/FACE	R	U	HEARING	R	U	BODY	R	U	HEAD/FIT	R	U
CHEMICAL SPLASH			CANAL CAPS			APRONS			COLD WEATHER BOOTS/HATS		
FULL FACE SHIELD			EAR PLUGS			COLD WEATHER CLOTHING			HARD HATS		
CHEMICAL/SAFETY			HELMETS			COVERALLS			IMPERMEABLE BOOTS		
SAFETY/IMPACT			MUFFS			FULL BODY SUIT			SAFETY/CONDUCTIVE SHOES		
WELDING HELMET			MUFF/EARPLUG COMBO			HEAT REFLECTIVE VEST/SUIT			SAFETY/NON-CONDUCTIVE SHOES		

Posted to: NGB Form 27018R (Test) 1 Jan 92 (HSPD-711) Page 1196 of 1923

SECTION 4. HAZARD INVENTORY DATA

CAS CODE	HAZARD DESCRIPTION	PAC	EPC
POVDTXXXX	VIDEO DISPLAY TERMINAL	3-LOW	UNCONTROLLED D- PHYSICAL
7439-92-1	LEAD, INORGANIC DUSTS & FUMES	2-MODERATE	UNCONTROLLED C- RESPIRATORY
1332-21-4	ASBESTOS	2-MODERATE	UNCONTROLLED C- RESPIRATORY
124-38-9	CARBON DIOXIDE	2-MODERATE	UNCONTROLLED C- RESPIRATORY
PO LIFTING	HEAVY LIFTING	2-MODERATE	UNCONTROLLED D- PHYSICAL
PO HEAT STR	HEAT STRESS	3-LOW	UNCONTROLLED D- PHYSICAL

SECTION 5. PERSONNEL DATA

LAST NAME	FIRST NAME	MI	SEX	SSN	CATEGORY
(SEE ATTACHED HMM DATA SHEET)					

SECTION 6. COMMENTS
☒ No comments

☐ See attached sheet
PRIVACY ACT STATEMENT

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

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

Headquarters, 2nd Battalion 111th Field Artillery Regiment

Non-Responsive

MAJ
CPT
1LT
WO1
SFC
SFC
SFC
SFC
SGT
SGT

Headquarters and Headquarters Service Battery, 2nd Battalion 111th Field Artillery Regiment

Non-Responsive

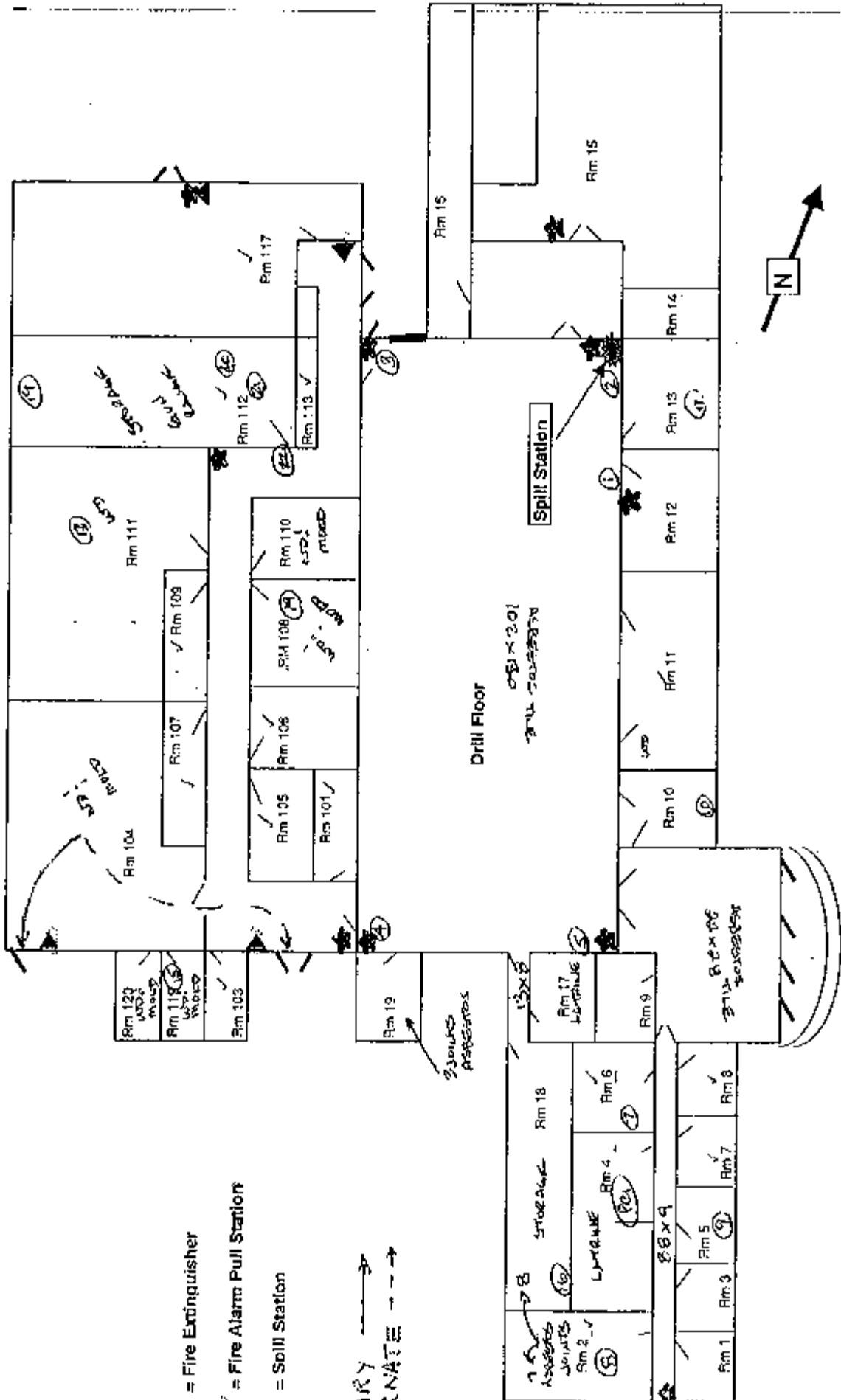
1SG
SGT

Appendix B

Building Layout

Building was built in early 40's with an addition in late 70's early 80's
 contains approximately 36 rooms

PETERSBURG ARMORY



1800 BAYLORS LANE
 PETERSBURG VIRGINIA 23805-1818

Appendix C

Sampling Sheets and Laboratory Analyses



CERTIFICATE OF ANALYSIS

Clients: National Guard Bureau
Address: 301-JH Old Bay Lane, Attn: NGB-AVN-SL, State Military Reservation
 Havre de Grace, Maryland 21078
Job Name: VA PET 350
Job Location: Petersburg, Virginia
Chain of Custody: 121361
Date Analyzed: 01/02/2004
Job Number: 845702-01000000
P.O. Number: 1103
Person Submitting:
Report Date: 02-Jan-04

Attention: **55 88 63 26**
 Page 1 of 1

Non Responsive

Summary of Atomic Absorption Analysis for Lead

AMA Sample Number	Client Sample Number	Analysis Type	Sample Type	Air Volume (L)	Area Wiped (ft²)	Reporting Limit	Final Result	Comments
0416894	VA PET 350 1	Furnace	Wipe	****	0.111	67.51 ug/ft²	160 ug/ft²	
0416895	VA PET 350 2	Furnace	Wipe	****	0.111	13.50 ug/ft²	46 ug/ft²	
0416896	VA PET 350 3	Furnace	Wipe	****	0.111	67.51 ug/ft²	140 ug/ft²	
0416897	VA PET 350 4	Furnace	Wipe	****	0.111	67.51 ug/ft²	120 ug/ft²	
0416898	VA PET 350 5	Furnace	Wipe	****	0.111	33.75 ug/ft²	58 ug/ft²	
0416899	VA PET 350 6	Furnace	Wipe Blank	****	N/A	0.30 ug	0.56 ug	
0416900	VA PET 350 19	Furnace	Wipe	****	0.111	67.51 ug/ft²	110 ug/ft²	
0416901	VA PET 350 20	Furnace	Wipe	****	0.111	67.51 ug/ft²	110 ug/ft²	
0416902	VA PET 350 21	Furnace	Wipe	****	0.111	67.51 ug/ft²	660 ug/ft²	
0416903	VA PET 350 22	Furnace	Wipe	****	0.111	2.70 ug/ft²	27 ug/ft²	

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

Non-Responsive

Non-Responsive

Analyst:

Technical Manager:

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

BEST AVAILABLE COPY

**DATA
CHEM**
LABORATORIES, INC.TEST REPORT
Page 1 of 4
12/30/03

Submitted To: **Non-Responsive**
Shaw Environmental, Inc.
5700 Thurston Avenue; Suite 116
Virginia Beach, VA 23455-3302

Reference Data:	Lead
Client Sample No.:	VASAN344A1 through VABLA353A3
P.O. No.:	1103
Sample Location:	Virginia
Sample Type:	Filter
Method Reference:	NIOSH 7300
DCL Set ID No.:	03-S-6250
DCL Sample ID No.:	03-37000 through 03-37040
Sample Receipt Date:	12/23/2003
Preparation Date:	12/24/2003
Analysis Date:	12/29/2003

The samples were prepared and analyzed in accordance with NIOSH method 7300 using a Thermo Jarrell Ash Trace (ICP) purged spectrometer.

The sample condition upon receipt was acceptable except where noted.

The results are in the enclosed data table. Results relate only to the items tested and are not blank corrected unless indicated in the data table.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Non-Responsive

Analyst

Non-Responsive

Reviewer

CINCINNATI OFFICE
4368 GLENDALE-MILFORD ROAD
CINCINNATI, OHIO 45242-3706
513 733-5336, FAX 513 733-5347

Posted to NGB FOIA Reading Room
May, 2018

FOIA Requested Record #J-15-0085 (VA)
Released by National Guard Bureau
Page 1203 of 1923

WEST COAST OFFICE
11 SANTA YORMA COURT
NOVATO, CALIFORNIA 94945
800 280-8071, FAX 415 893-9460

BEST AVAILABLE COPY

TEST REPORT
Page 3 of 4
03-8-6250

Results Lead

Client #	DCL #	Sample Volume (L)	µg/sample	mg/m ³
VASAN343A3	03-37011	-	ND	-
VASANFR343A1	03-37012	120.41	ND	<0.0083
VASANFR343A2	03-37013	-	ND	-
VAFRA337A1	03-37014	266.08	ND	<0.0038
VAFRA337A2	03-37015	253.87	ND	<0.0039
VAFRA337A3	03-37016	-	ND	-
VASUF337A1	03-37017	207.51	ND	<0.0048
VASUF337A2	03-37018	232.33	ND	<0.0043
VASUF337A3	03-37019	-	ND	-
VAOHA338A1	03-37020	208.27	ND	<0.0048
VAOHA338A2	03-37021	183.40	ND	<0.0055
VAOHA338A3	03-37022	-	ND	-
VAPET350A1	03-37023	208.60	ND	<0.0048
VAPET350A2	03-37024	216.91	ND	<0.0046
VAPET350A3	03-37025	-	ND	-
VAEMP350A1	03-37026	204.88	ND	<0.0049
VAEMP350A2	03-37027	199.47	ND	<0.0050
VAEMP350A3	03-37028	-	ND	-
VAMAR351A1	03-37029	192.20	ND	<0.0052
VAMAR351A2	03-37030	200.52	ND	<0.0050
	Prep Blank 3		ND	
% Recovery	LCS 5		93.	
% Recovery	LCS 6		94.	
RPL			1.0	

ND = not detected at or above the reporting limit (RPL).

LCS = laboratory control sample.

Non-Responsive

Analyst

Non-Responsive

Reviewer

Industrial Hygiene Sampling Calculation Worksheet

National Guard Armory

Location: Petersburg

Date: 12/16/2003

Sample 1

Sample Number: VAPET350A1

Pump: 647633

Pre Flow Rate Post Flow Rate

1.616 1.615

1.586 1.617

1.587 1.611

1.597 1.608

Average 1.597 1.613

Average Pre and Post 1.6046

Time 1 13:25

Time 2 15:35

Total Time Sampled 2:10

Minutes Sampled 130.00

Volume 208.60 Liters

Sample 2

Sample Number: VAPET350A2

Pump: 647605

Pre Flow Rate Post Flow Rate

1.668 1.676

1.665 1.672

1.666 1.676

1.653 1.672

Average 1.663 1.674

Average Pre and Post 1.6685

Time 1 13:30

Time 2 15:40

Total Time Sampled 2:10

Minutes Sampled 130.00

Volume 216.91 Liters

BEST AVAILABLE COPY



TEST REPORT
Page 1 of 2
12/31/03

Submitted To: **Non-Responsive**
Shaw Environmental, Inc.
5700 Thurston Avenue; Suite 116
Virginia Beach, VA 23455-3302

Reference Data:	Lead
Client Sample No.:	VASUF337PC1 through VAROC351PC2
P.O. No.:	1103
Sample Location:	Virginia
Sample Type:	Paint Chip
Method Reference:	3050B/6010B
DCL Set ID No.:	03-S-6249
DCL Sample ID No.:	03-36989 through 03-36999
Sample Receipt Date:	12/23/2003
Preparation Date:	12/30/2003
Analysis Date:	12/30/2003

The samples were prepared in accordance with EPA method 3050B. Sample condition was acceptable upon receipt except where noted. The samples were then analyzed in accordance with EPA method 6010B using a Jarrell Ash Trace ICP.

The results are provided in the enclosed data table. Results relate only to the items tested and are not blank corrected unless indicated in the data table.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Non-Responsive

Analyst

CINCINNATI OFFICE
4388 GLENDALE-MILFORD ROAD
CINCINNATI, OHIO 45242-3706
513 733-5336, FAX 513 733-5347

Posted to NGB FOIA Reading Room
May, 2018

Non-Responsive

Reviewer

WEST COAST OFFICE
11 SANTA YORMA COURT
NOVATO, CALIFORNIA 94946
800 280-8071, FAX 415 893-9469

BEST AVAILABLE COPY

TEST REPORT

Page 2 of 2

03-S-6249

Results

Lead

Client #	DCL #	mg/Kg (ppm)	% by weight
VASUF337PC1	03-36989	64.	0.0064
VASUF337PC2	03-36990	45.	0.0045
VASUF337PC3	03-36991	29.	0.0029
VAPET350PC1	03-36994	2100.	0.21
VAMAR351PC1	03-36995	180.	0.018
VAMAR351PC2	03-36996	180.	0.018
VAMAR351PC3	03-36997	130.	0.013
VAROC351PC1	03-36998	41.	0.0041
VAROC351PC2	03-36999	ND	ND
	Prep Blank	ND	
% Recovery	LCS	85.	
% Recovery	36990 MS	93.	
% Recovery	36990 MSD	94.	
RPL		25.	0.0025

ND = not detected at or above the reporting limit (RPL).

LCS = laboratory control sample.

MS/MSD = matrix spike/matrix spike duplicate.

Non-Responsive



Analyst

Non-Responsive



Reviewer

Appendix D

References

References

Title 29, Code of Federal Regulations (CFR), Part 1910, Occupational Safety and Health Administration (current edition)

American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc (ASHRAE) 62-2002, Ventilation for Acceptable Indoor Air Quality

Instructions for Completing the Sampling of Army National Guard Armories, Lead Wipe Sampling Procedure included with the Request for Proposal

Air Sampling for Lead - Method 7082 of the National Institute of Occupational Safety and Health (NIOSH) Manual of Analytical Methods

Design Guide DG-415-2, Logistics Facilities, National Guard Bureau Installation Division, 14 December 1999

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

Army Regulation (AR) 40-5, Medical Service, Preventive Medicine, 15 October 1990

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

Department of the Army Pamphlet (DA PAM) 40-501, Medical Services, Hearing Conservation Program, 10 December 1998

DA PAM 40-503, Medical Services, Industrial Hygiene Program, 30 October 2000

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

Policy and Responsibilities for Inspection, Evaluation and Operation of Army National Guard Indoor Firing Ranges, Headquarters, Department of the Army, NG PAM (AR) 385-15, 30 December 2002

24 CFR, Part 35, Subpart B, Section 35-110, Definition of Lead-Based Paint, Housing and Urban Development, U. S. Department of Housing

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 $0.05 \text{ mg}/\text{m}^3$ averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead dust in this building.

Shaw Environmental, Inc.

312 Directors Drive
Knoxville, TN 37923
865.690.3211
Fax 865.690.3626



24 June 2004

Ms. **Non-Responsive** CIH
Regional Industrial Hygienist
Region North Industrial Hygiene Office
Attn: NGB-AVS-SI
301-IH Old Bay Lane
Havre De Grace, Maryland 21078

RE: Final Report for the Industrial Hygiene Evaluation at the Petersburg Readiness Center – Petersburg, Virginia

Dear Ms. **Non-Responsive**

Attached are four (4) copies of the referenced report. Please note that a copy of the field notes, photographs, and photograph log were provided with the draft report. Please call me if you have questions.

Sincerely,

Non-Responsive

Project Manager

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

NGB-AVS-SI (40-5f)

9 July 2004

MEMORANDUM FOR VAARNG, Petersburg Readiness Center, ATTN: SFC [Non-Respon]
[Non-Respon] 1800 Baylors Lane, Petersburg, VA 23805
R I

SUBJECT: Baseline Survey

1. I have enclosed the industrial hygiene survey report completed by Shaw Environmental, Incorporated.
2. In addition to the attached discussion and recommendations regarding wipe samples for lead, if a special function is held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function.
3. Please contact me at (410) 942-0273 or 1-800-550-6967 if you have any questions regarding the enclosed report.

Encl

Non-Responsive

Regional Industrial Hygienist

CF: Organizational Maintenance Officer
Occupational Health Manager

National Guard Armory

Petersburg Readiness Center, Petersburg, Virginia

Industrial Hygiene Evaluation

Recommendations

- Wipe sampling for lead revealed concentrations above a level of 40 micrograms per square foot ($\mu\text{g}/\text{ft}^2$) in the drill floor/assembly hall and converted firing range. Areas with lead concentrations above 40 $\mu\text{g}/\text{ft}^2$ that will be accessible to children should be cleaned. If a special function is held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function. **RAC - 5**
- Materials (pipe insulation and floor tiles) suspected of containing asbestos were observed. An operations and maintenance plan should be followed when performing any activities that may disturb the suspected asbestos-containing materials. **RAC - 5**
- Water damage was observed at several locations at the armory. The source of the water damage was likely from a combination of roof and pipe leaks. The source of the water damage should be confirmed and actions taken to eliminate the source in order to prevent the possibility of mold growth that may lead to indoor air quality problems. **RAC - 5**
- Visual mold was observed in the armory. The area where the mold is located should be thoroughly cleaned with 0.5% sodium hypochlorite solution (1 part household bleach to nine parts water) or equivalent in order to eliminate the potential mold/indoor air quality problem. In addition, the cause of the mold should be determined and actions taken to eliminate it. **RAC - 5**
- Measurements for temperature revealed that levels did not meet the recommended level of 68° F in the facility. If possible, the heating units should be adjusted so the temperature will fall within the acceptable range. In addition, space heaters could be used to increase the temperature at specific locations. **RAC - 5**
- Lighting measurements were conducted at the armory. The lighting did not meet minimum requirements in some areas; therefore consideration should be given to providing more lighting in these areas. This may be accomplished by replacing burnt out luminaires, cleaning fixtures, cleaning windows, painting walls with a lighter color, repositioning detailed work to higher illuminated areas, and using supplemental lighting. **RAC - 5**
- The lead level on the floor inside the converted firing range was above the recommended level. This area must be decontaminated by a thorough cleaning along with re-sampling until surface lead concentrations are reduced to below the

recommended level. In addition, employees should not be allowed to work in this area without protective clothing. **RAC - 4**

Shaw Environmental, Inc.

312 Directors Drive
Knoxville, TN 37923
865.690.3211
Fax 865.690.3626



Shaw Environmental, Inc.

Survey 11/Dec/03

Recvd 9 Apr 04

rev 6/11/04

29 March 2004

e-mailed 6-17-04

Ms. **Non-Responsive** CIH
Regional Industrial Hygienist
Region North Industrial Hygiene Office
Attn: NGB-AVS-SI
301-1H Old Bay Lane
Havre De Grace, Maryland 21078

RE: Draft Report for the Industrial Hygiene Evaluation at the Petersburg Readiness Center – Petersburg, Virginia

Dear Ms. **Non-Responsive**

Attached is a copy of the referenced report. Also attached is a copy of the field notes, photographs, and photograph log. Please call me if you have questions.

Sincerely,

Non-Responsive

Project Manager

Field Notes and Checklist

State: VIRGINIA Location: PETERSBURG ARMORY Date: DECEMBER 16, 2003
Contact: SFC [REDACTED] Non-Responsive

1.0 Sampling for Lead

1.1 Wipe Sampling

Sample #: 1 Picture #: / Location: TOP OF SODA MACHINE
Sample #: 2 Picture #: / Location: KITCHEN SERVICE WINDOW COUNTERTOP
Sample #: 3 Picture #: / Location: HEAT REGISTER TOP
Sample #: 4 Picture #: / Location: HEAT REGISTER TOP
Sample #: 5 Picture #: / Location: TOP OF SNACK MACHINE
Sample #: 6, 12, 18 Picture #: N/A Location: FIELD BLANKS
Sample #: 7 Picture #: / Location: ROOM 6 TABLE TOP
Sample #: 8 Picture #: / Location: ROOM 2 MICROWAVE TOP
Sample #: 9 Picture #: / Location: ROOM 5 TOP OF COMPUTER MONITOR
Sample #: 10 Picture #: / Location: ROOM 10 HEAT REGISTER TOP
Sample #: 11 Picture #: / Location: ROOM 13 KITCHEN TOP OF COFFEE MAKER
Sample #: 13 Picture #: / Location: ROOM 111 BOOKCASE SHELF TOP
Sample #: 14 Picture #: / Location: ROOM 108 TOP OF FILING CABINET
Sample #: 15 Picture #: / Location: ROOM 119 WINDOW SILL
Sample #: 16 Picture #: / Location: ROOM 18 TOP OF STORAGE CABINET
Sample #: 17 Picture #: / Location: HALLWAY WATER FOUNTAIN TOP
Sample #: Picture #: Location:
Sample #: Picture #: Location:
Sample #: Picture #: Location:
Sample #: Picture #: Location:

(Also, please see the sketch of sampling locations.)

1.2 Breathing Zone Air Sampling

Sample #: A1 Employee Sampled: GENERAL AIR SAMPLE
Sample #: A2 Employee Sampled: GENERAL AIR SAMPLE
A3 FIELD BLANKS

2.0 Physical Condition of Facility

2.1 Peeling Paint - Lead

Peeling paint observed (Yes or No): YES

If peeling paint observed, samples were taken as follows:

Sample #: 8-1 Picture #: / Location: ROOM 4 LATRINE
 Condition (Good, Average, Poor): AVERAGE Quantity: 5 ft²
 Sample #: 11-1 Picture #: / Location: ROOM 17 LATRINE
 Condition (Good, Average, Poor): AVERAGE Quantity: 4 ft²
 Sample #: Picture #: Location:
 Condition (Good, Average, Poor): Quantity: ft²
 Sample #: Picture #: Location:
 Condition (Good, Average, Poor): Quantity: ft²
 Sample #: Picture #: Location:
 Condition (Good, Average, Poor): Quantity: ft²

2.2 Visual Inspection - Asbestos

Suspected asbestos-containing material observed (Yes or No): YES

If suspected asbestos-containing material observed, samples were taken as follows:

Location 1: Room 3 Picture #: /
 Condition: GOOD Approximate (Square or Linear Feet): @ 10 LF (JOINTS, FITTINGS)
 Location 2: Room 18 Picture #: /
 Condition: GOOD Approximate (Square or Linear Feet): @ 10 LF (JOINTS, FITTINGS)
 Location 3: LOBBY (22x28) TILES Picture #: /
 Condition: GOOD Approximate (Square or Linear Feet): 346.5 SQUARE FT
 Location 4: DRILL FLOOR (102x130) TILES Picture #: /
 Condition: GOOD Approximate (Square or Linear Feet): 7458 SQUARE FT
 Location 5: HALLWAYS BY OFFICES (80x7) TILES Picture #: /
 Condition: GOOD Approximate (Square or Linear Feet): 445.5 SQUARE FT

HALLWAY TO ROOM 18 (13x8) TILES /
GOOD 58.5 SQUARE FT
 Room 19 3 LF (JOINTS, FITTINGS) /
GOOD

2.3 Visual Inspection – Water Damage and Mold

Water damage observed (Yes or No): Yes

If yes, water damage was observed at the following locations:

Location 1:	<u>Room 119</u>	Picture #:	<u>120</u>	<u>/</u>
Location 2:	<u>Room 104</u>	Picture #:	<u>104</u>	<u>/</u>
Location 3:	<u>Room 108</u>	Picture #:	<u>108</u>	<u>/</u>
Location 4:	<u>Room 11</u>	Picture #:	<u>11</u>	<u>/</u>
Location 5:	<u>Room 110</u>	Picture #:	<u>111</u>	<u>/</u>

Mold observed (Yes or No): Yes

If yes, mold was observed at the following locations:

Location 1:	<u>Room 119</u>	Picture #:	<u>119</u>	<u>/</u>
Location 2:	<u>Room 120</u>	Picture #:	<u>120</u>	<u>/</u>
Location 3:	<u>Room 108</u>	Picture #:	<u>108</u>	<u>/</u>
Location 4:	<u>Room 104</u>	Picture #:	<u>104</u>	<u>/</u>
Location 5:	<u>Room 110</u>	Picture #:	<u>110</u>	<u>/</u>

2.4 Visual Inspection - Housekeeping

Housekeeping (good, average, poor): Good

Comments (such as no dirt or trash was visible on the floors or the housekeeping was poor in that there was trash and debris on the floors that could lead to a tripping hazard, or there was dust in the vents.):

3.0 Building Concerns

3.1 Ergonomic Concerns

Ergonomic concerns (Yes or No): No

If there are ergonomic concerns at the armory, describe the extent of the problem, such as three employees stated that they perform repetitive motion at the XYZ machine for 6 hours per day, and they stated that they are suffering from symptoms of musculoskeletal disorders (MSDs).

3.2 Indoor Air Quality

IAQ concerns (based on employee interviews)(Yes or No): NO

If yes, what were concerns:

Measurements for carbon dioxide, humidity, and temperature:

Location	CO ₂ (ppm)	Humidity (%)	Temperature (°F)	Occupancy (People in Room)
Outdoors -	538	45.7	61.9	0
1 st Floor -	452	39.5	67.5	1
2 nd Floor -	-	-	-	-
3 rd Floor -	-	-	-	-
Basement	-	-	-	-

4.0 Safety and Industrial Hygiene Programs

4.1 Confined Spaces

Are confined spaces applicable (Yes or No): NO

If yes, does the program meet minimum standards (Yes or No): NO

If no, explain the deficiencies:

4.2 Hearing Conservation

Is hearing conservation applicable (Yes or No): no

If yes, does the program meet minimum standards (Yes or No): —

If no, explain the deficiencies:

4.3 Respiratory Protection

Is respiratory protection applicable (Yes or No): no

If yes, does the program meet minimum standards (Yes or No): —

If no, explain the deficiencies:

4.4 Hazard Communication

Is hazard communication applicable (Yes or No): yes

If yes, does the program meet minimum standards (Yes or No): yes

If no, explain the deficiencies:

4.5 Personal Protective Equipment

Is personal protective equipment applicable (Yes or No): Yes

If yes, does the program meet minimum standards (Yes or No): Yes

If no, explain the deficiencies:

5.0 Ventilation

5.1 Ventilation System Evaluation

Local exhaust ventilation systems at this armory (Yes or No): No

If yes, results of airflow patterns:

Location 1: _____

Airflow Pattern (acceptable or unacceptable, with reason):

Location 2: _____

Airflow Pattern (acceptable or unacceptable, with reason):

Location 3: _____

Airflow Pattern (acceptable or unacceptable, with reason):

5.2 Contamination of Clean Air Sources

Clean air sources contaminated by contaminated exhaust air (Yes or No): No

If yes, describe:

6.0 Noise Dosimetry

Potential hazardous noise areas (Yes or No): NO

If yes, results of noise dosimetry sampling:

Employee sampled: _____

Results: _____ % Actual _____ % Projected 8-hour TWA _____ Equivalent dBA

Activity: _____

Employee sampled: _____

Results: _____ % Actual _____ % Projected 8-hour TWA _____ Equivalent dBA

Activity: _____

Employee sampled: _____

Results: _____ % Actual _____ % Projected 8-hour TWA _____ Equivalent dBA

Activity: _____

7.0 Lighting Evaluation

DIVIDE BY .9

Location	Luminance Range (fc)
Room 117	10-65
Room 112	10-50
HALLWAY	20-60
Room 111	70-110
Room 109	70-110
Room 108	40-55
Room 107	40-120
Room 119	90-110
Room 17	10-30
Room 8	40-65
Room 5 ¹ / ₂	50-80
Room 2	40-95
Room 11	80-110
Room 13	80-120

CONVERTED TO STORAGE AREA

If yes, locations sampled:

Sample #: AJL Picture #: — Location: Inside any remaining ventilation ductwork

Sample #: 2/2 Picture #: 7 Location: Exhaust ventilation system

Sample #: 19 Picture #: 1 Location: Bullet trap

Sample #: 51A Picture #: 1 Location: Light fixtures COULD NOT GET TO THEM

Sample #: 14 Picture #: 1 Location: Overhead heaters

Sample #: 20 Picture #: ✓ Location: Stored items

Sample #: 2A Picture #: 1 Location: Floor

Sample #: 83 Picture #: ✓ Location: Outside the range

Does the HVAC system have maintenance performed on a regular basis (Yes or No):

..... yes

In yes, is the maintenance effective (Yes or No): YES

If no, describe:

Complete HHIM form for facility (Initial as completed): _____

Reproduction Room HHIM Necessary (Yes or No) (Initial if Yes): _____

Film Developing Room Illum Necessary (Yes or No) (Initial if Yes):

Maintenance Area HHIM Necessary (Yes or No) (Initial if Yes): _____

11.0 Additional Items

- Table 1 (wipe sampling) completed (initial when completed):
- Table 2 (air sampling) completed (initial when completed):
- Table 3 (peeling paint), if necessary, completed (initial when completed):
- Table 3 or 4 (IAQ) completed (initial when completed):
- Table 4 or 5 (noise), if necessary, completed (initial when completed):
- Table 5 or 6 (firing ranges), if necessary, completed (initial when completed):
- Airflow pattern diagram(s) completed (initial when completed):
- Building layout included (initial when completed):
- Photographs (initial when completed):
- Sampling Sheets and Laboratory Analyses (initial when completed):
- Sampling tracking form completed and faxed to NGB ARNG Region North III office
within 5 days of date of this survey (initial when completed):
(Fax to Ken Forsythe at 410-942-0254)
- State Lead Wipes Spreadsheet* completed (initial when completed):
- Three copies of noise exposure notification letter, if necessary (initial when
completed):
- Three copies of contaminant exposure forms for each employee that participated in air
sampling (initial when completed):

Petersburg Armory Photo Log
National Guard Armory
Petersburg, Virginia
Date of Survey: 16 December 2003

Photo	Description
1	Lead Wipe Assembly Room - Soda Machine - Sample 1
2	Lead Wipe Assembly Room - Kitchen Service Window - Sample 2
3	Lead Wipe Assembly Room - Heat Register - Sample 3
4	Lead Wipe Assembly Room - Heat Register - Sample 4
5	Lead Wipe Assembly Room - Snock Machine - Sample 5
6	25% Building - Room 6 Table Top - Sample 7
7	25% Building - Room 2 Microwave Top - Sample 8
8	25% Building - Room 5 Computer Monitor Top - Sample 9
9	25% Building - Room 10 Heat Register - Sample 10
10	25% Building - Room 13 Kitchen Coffee Maker - Sample 11
11	25% Building - Room 111 Bookcase Shelf Top - Sample 13
12	25% Building - Room 108 Filing Cabinet Top - Sample 14
13	25% Building - Room 119 Window Sill - Sample 15
14	25% Building - Room 13 Storage Cabinet Top - Sample 16
15	25% Building - Hallway Water Fountain - Sample 17
16	Firing Range - Bullet Trap - Sample 19
17	Firing Range - Stored Item - Sample 20
18	Firing Range - Floor Inside the Converted Firing Range - Sample 21
19	Firing Range - Floor Outside the Converted Firing Range - Sample 22
20	Asbestos - Room 2 Joints
21	Asbestos - Room 2 Joints
22	Mold
23	Mold - Room 104
24	Water Damage
25	Water Damage
26	Water Damage
27	Water Damage
28	Water Damage
29	Water Damage
30	Peeling Paint - Room 4

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



Industrial Hygiene Survey
for VARNG – Petersburg Readiness Center
1800 Baylors Lane
Petersburg, Virginia 23805

AECOM
January 2013
Document No.: 60275401/ Petersburg Readiness Center

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

Industrial Hygiene Survey
for VARNG – Petersburg Readiness Center
1800 Baylors Lane
Petersburg, Virginia 23805

Non-Responsive

A large black rectangular redaction box covering several lines of text.

Industrial Hygienist

Non-Responsive

A large black rectangular redaction box covering several lines of text.

Project Manager

Non-Responsive

A large black rectangular redaction box covering several lines of text.

Northeast District Health & Safety Manager

AECOM Environment
January 2013
Document No.: 60275401/ Petersburg 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 Petersburg Readiness Center Facility Layout

Appendix B Petersburg Readiness Center Photographs

Appendix C Analytical Results

Appendix D References



List of Tables

Table 2-1: Lead Wipe Sample Results 2-1

Table 3-1: Indoor Air Quality Monitoring Results..... 3-2

Table 5-1: Light Survey 5-1



Executive Summary

On November 13, 2012, AECOM Technical Services Northeast, Inc. (AECOM) conducted an Industrial Hygiene (IH) survey of the Petersburg Readiness Center facility located at 1800 Baylors Lane in Petersburg, Virginia. **Non-** was the point of contact for the facility and accompanied AECOM during the survey to provide access and information concerning the Petersburg Readiness Center operations.

The industrial hygiene survey was conducted in general accordance with the scope of work as described in the "Statement of Work – Industrial Hygiene Services for National Guard Bureau Industrial Hygiene Region North – Baseline Surveys for Readiness Centers and Administrative Buildings," dated March 2009.

The Petersburg Readiness Center is currently staffed by twenty five personnel. The facility is configured as an administrative area and a drill/assembly hall.

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

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

Several lighting levels measured throughout the facility were inadequate as per American National Standard Institute/Illuminating Engineering Society of North America (ANSI/IESNA) RP-1-2004, Office Lighting, ANSI/IESNA RP-7-2001, Industrial Lighting, and the IESNA Lighting Handbook, 9th Edition, 11 April 2005. See Section 5 for a list of areas that did not meet the lighting standard.

Wipe samples collected in association with the administrative areas indicated lead levels below the Occupational Safety and Health Administration's (OSHA's) Clarification of "as free as practicable" and lead contamination under 29 Code of Federal Regulations (CFR) 1926.62, The Compliance Directive for the Interim Standard for Lead in Construction, CPL 2-2.58. OSHA recommends the use of the U.S. Department of Housing and Urban Development's (HUD) acceptable decontamination level of 200 micrograms per square foot (ug/ft²) for floors in evaluating the cleanliness of change areas, storage facilities, and lunchrooms/eating areas.

Damaged suspect asbestos containing materials (ACM) were identified during the evaluation. The 9 X 9 floor tile and associated mastic in the foyer area and white pipe joint insulation in the boiler room were sampled and submitted for analysis. The floor tile and associated mastic was determined to contain concentrations of < 1.0% and 5% total asbestos in the form of Chrysotile. Additionally, the joint insulation was determined to contain 10% total asbestos in the form of Chrysotile.

No damaged or peeling lead-based paint was observed during this survey

No water damage or visible mold growth was observed during the survey. Water intrusion is a mold growth risk factor.

No Indoor Air Quality concerns were noted by the Petersburg Readiness Center personnel. Instantaneous real-time reading for carbon monoxide and carbon dioxide (parts per million or ppm), temperature (° Fahrenheit), and relative humidity (as percentage) are presented in Table 3-1. Readings were generally within acceptable guidelines in those areas occupied by the facility staff.



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

The Heating, Ventilation & Air Conditioning (HVAC) system in the building consist three poorly integrated systems with non-satisfactory levels of performance. There is no HVAC system that provides fresh air from the building exterior in administrative areas.

1.0 Facility Description and Operations

The Petersburg Readiness Center is located is a single story masonry structure. The section occupied by Readiness Center personnel consists of rooms configured as office space.

The primary activity at the Petersburg Readiness Center is routine administrative duties. The Petersburg Readiness Center is currently staffed by approximately 25 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 multiple areas of the facility following the Occupational Safety & Health Administration (OSHA) wipe sampling method and using Ghost Wipes.

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

Table 2-1: Lead Wipe Sample Results

Sample Number	Sample Location	Lead Concentration
PT-Pb-01	Top of vending machine drill hall	<110 ug/ft ²
PT-Pb-02	Bleacher seat rack drill hall	<110 ug/ft ²
PT-Pb-03	Top of concrete box/return vent/drill hall	<110 ug/ft ²
PT-Pb-04	Top of refrigerator kitchen	150 ug/ft ²
PT-Pb-05	Recruiting office near space heater	<110 ug/ft ²
PT-Pb-06	Room 2 top of locker	<110 ug/ft ²
PT-Pb-07	Foyer floor at doorway to drill hall	<110 ug/ft ²
PT-Pb-08	Room 107 desk top	<110 ug/ft ²
PT-Pb-09	Room 112, Top of old file cabinet	120 ug/ft ²
PT-Pb-10	Room 112, threshold to entrance door	<110 ug/ft ²

ug/ft² = Micrograms per square foot.

Wipe samples collected in association with the administrative areas indicated lead levels below the Occupational Safety and Health Administration's (OSHA's) Clarification of "as free as practicable" and lead contamination under 29 CFR 1926.62, The Compliance Directive for the Interim Standard for Lead in Construction, CPL 2-2.58. OSHA recommends the use of HUD's acceptable decontamination level of 200 ug/ft² for floors in evaluating the cleanliness of change areas, storage facilities, and lunchrooms/eating areas.

Laboratory analytical results are presented in Appendix C.

2.1.2 Air Sampling

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

3.0 Physical Condition of Facility and Personnel Concerns

3.1.1 Lead Based Paint

Interior surfaces of walls are coated with paint. The paint on the walls is in serviceable condition. AECOM did not observe damaged or peeling paint during this evaluation.

3.1.2 Suspect Asbestos Containing Materials (ACM)

Damaged suspect asbestos containing materials were identified during the evaluation. The 9" X 9" floor tile and associated mastic in the foyer area and white pipe joint insulation in the boiler room were determined to contain concentrations of < 1.0% and 5% total asbestos in the form of Chrysotile. Additionally, the joint insulation was determined to contain 10% total asbestos in the form of Chrysotile.

3.1.3 Water Damage/Mold

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

3.1.4 Housekeeping

The Petersburg 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 Petersburg Readiness Center staff members. No Indoor Air Quality concerns were noted by the Petersburg Readiness Center personnel with the exception of frequent complaints over the HVAC system ability to provide comfortable temperatures.

Instantaneous real-time reading for carbon monoxide and carbon dioxide (parts per million or ppm), temperature (° Fahrenheit), and relative humidity (as percentage) are presented in the following table. The facility is mechanically air conditioned. Readings were generally within acceptable guidelines.

Table 3-1: Indoor Air Quality Monitoring Results

Location	Carbon Monoxide (ppm)	Carbon Dioxide (ppm)	Temp (°F)	Relative Humidity (%)
Room 2 office	0.7	753	72.0	50.9
Room 1 office	0.9	425	70.9	48.7
Room 3 office	0.5	562	71.0	51.3
Room 4 men's room	0.6	590	70.9	55.5
Room 5 office	0.9	563	69.3	50.5
Room 7 office	0.6	501	68.1	52.1
Room 9 office	0.5	531	67.3	53.6
Room 6 office	0.4	664	67.6	55.1
Lobby	0.5	467	65.5	53.5
Room 18 office	0.0	859	67.9	59.3
Food prep	0.5	568	68.2	52.7
Scullery	0.5	528	67.6	53.5
Room 15 supply	0.0	646	69.0	55.0
Room 116 office	0.2	577	70.5	53.1
Room 111 office	0.3	501	67.9	52.3
Room 110 office	0.0	547	69.3	53.8
Room 108 office	0.5	532	68.7	51.3
Room 107 office	0.3	543	68.4	52.3
Room 106 storage	0.0	457	68.6	52.1
Room 105 computers	0.5	555	71.0	50.4
Room 104 classroom	0.5	462	68.6	49.8
Room 120 office	0.4	579	68.5	54.0
Room 119 office	0.4	580	68.3	51.7
Room 101 office	0.1	623	68.5	68.5
Room 18 office	0.0	763	71.3	71.3
Room 112 storage	0.5	421	66.5	66.5
Room 103 VADF	0.0	597	66.8	66.8
Room 113	0.9	567	68.1	68.1

Table 3-1 Guidelines:

Carbon Monoxide: Office/Warehouse Space – 9 ppm based on United States Environmental Protection Agency's National Ambient Air Quality Standard.

OSHA Permissible Exposure Limit (PEL) = 50 ppm. American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit value (TLV) = 25, ppm.

Carbon Dioxide: Office Space -Approximately 700 ppm above background (Derived from American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE) Standard 62.1-2010). Not Applicable to warehouse and vehicle maintenance bays.

Relative Humidity: Mechanically air-conditioned space – Maximum 65% (Derived from ASHRAE Standard 62.1-2010 – 5.10.1).

Temperature: Winter (clothing insulation = 1.0 clo) Relative humidity 30-60% - Temp - 68 – 75°F

Summer Temp - 73 – 79°F. (Derived from ASHRAE Standard 55-2010)

Petersburg 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 HVAC system consists of three poorly integrated units. The central boiler system was not operating properly at the time of this survey and the system is a frequently mentioned problem among building staff.

4.1.2 HVAC Maintenance

The HVAC system is serviced by third party vendors, maintenance records were not available at the time of this survey

There was no 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 not adequate in many of the surveyed areas.

Table 5-1: Light Survey

Location	Results (Foot candles)	Met Standard (Y/N)	Standard*
Room 2 office	63.4	Y	50
Room 1 office	39.6	N	50
Room 3 office	17.9	N	50
Room 4 men's room	35.8	Y	5
Room 5 office	32.4	N	50
Room 7 office	32.9	N	50
Room 9 office	24.1	N	50
Room 6 office	41.4	N	50
Lobby	27.4	Y	10
Room 18 office	28.7	N	50
Food prep	46.7	N	50
Scullery	71.1	Y	50
Room 15 supply	12.6	N	30
Room 116 office	30.0	N	50
Room 111 office	35.2	N	50
Room 110 office	34.2	N	50
Room 108 office	33.3	N	50
Room 107 office	55.7	Y	50
Room 106 storage	28.9	N	30
Room 105 computers	25.7	N	30
Room 104 classroom	31.2	Y	30
Room 120 office	68.1	Y	50
Room 119 office	35.2	N	50
Room 101 office	48.6	N	50
Room 18 office	50.8	Y	50
Room 112 storage	51.4	Y	30
Room 103 VADF	55.5	Y	50
Room 113	46.9	N	50
Office Lighting (ANSI/IESNA RP-1-04) and Industrial Lighting Facilities (ANSI/IESNA RP-7-01)			

6.0 Evaluation of Attached Garage

There is no garage associated with the Petersburg 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 Petersburg Readiness Center.

Lighting levels measured throughout the facility were generally not adequate as per American National Standard Institute/Illuminating Engineering Society of North America (ANSI/IESNA) RP-1-2004, Office Lighting, ANSI/IESNA RP-7-2001, Industrial Lighting, and the IESNA Lighting Handbook, 9th Edition, 11 April 2005. Areas with inadequate lighting levels shall upgrade lighting or provide additional task lighting as necessary.

Wipe samples collected in association with the administrative areas indicated lead levels below the Occupational Safety and Health Administration's (OSHA's) Clarification of "as free as practicable" and lead contamination under 29 CFR 1926.62, The Compliance Directive for the Interim Standard for Lead in Construction, CPL 2-2.58. OSHA recommends the use of HUD's acceptable decontamination level of 200 ug/ft² for floors in evaluating the cleanliness of change areas, storage facilities, and lunchrooms/eating areas.

Damaged suspect asbestos containing materials were identified during the evaluation. The 9 X 9 floor tile and associated mastic in the foyer area and white pipe joint insulation in the boiler room were each sampled. The floor tile and associated mastic was determined to have concentrations of < 1.0% and 5% total asbestos in the form of Chrysotile. Additionally, the joint insulation was determined to contain 10% total asbestos in the form of Chrysotile. Damaged ACM's shall be removed/repared and a thorough building inspection performed to identify ACM throughout the facility. An asbestos Operations and Maintenance program shall also be implemented.

No damaged or peeling lead-based paint was observed during this survey

No water damage or visible mold growth was observed during the survey. Water intrusion is a mold growth risk factor.

No Indoor Air Quality concerns were noted by the Petersburg Readiness Center personnel. Instantaneous real-time reading for carbon monoxide and carbon dioxide (parts per million or ppm), temperature (° Fahrenheit), and relative humidity (as percentage) are presented in Table 3-1. Readings were generally within acceptable guidelines in those areas occupied by the facility staff.

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

The Heating, Ventilation & Air Conditioning (HVAC) system in the building consist three poorly integrated systems with non-satisfactory levels of performance. There is no HVAC system that provides fresh air from the building exterior in administrative areas.

AECOM provided these services consistent with the level and skill ordinarily exercised by members of the profession currently providing similar services under similar circumstances at the time the services were provided. This statement is in lieu of other statements either expressed or implied. This report is intended for the sole use of National Guard Bureau – Army National Guard. The scope of services performed in execution

of this evaluation may not be appropriate to satisfy the needs of other users, and use or re-use of this document, the findings, conclusions, or recommendations is at the risk of said user.

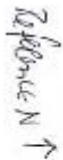
As with all such surveys, the results of the sampling represent conditions found on the date of the survey and may not represent conditions found at other times. Additionally, this survey was limited with respect to the specific parameters indicated above and should not be construed to be a comprehensive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

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



Appendix A

Petersburg Readiness Center Facility Layout





Appendix B

Petersburg Readiness Center Photographs

Photograph 1



Building

Photograph 2



Boiler unit

Photograph 3



Air handler/chiller

Photograph 4



Sample location on top of vending machine/drill hall

Photograph 5



Sample site Pt-Ab-01

Photograph 6



Drill hall

Photograph 7



Typical corridor

Photograph 8



Typical Office



Appendix C

Analytical Results



AMA Analytical Services, Inc.
A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS



Client: National Guard Bureau
Address: 301-H Old Bay Lane, Attn: ARNG-CIG-P,
State Military Reservation
Havre de Grace, Maryland 21078

Job Name: VA ANG IH Survey
Job Location: Petersburg RC
Job Number: Not Provided
P.O. Number: W912K6-09-A-0003

Chain Of Custody: 514729
Date Submitted: 12/12/2012
Person Submitting: AECOM
Date Analyzed: 12/21/2012
Revision Number: 1

Report Date: 12/21/2012
Revised Date: 12/21/2012

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
13022963	Pt-Pb-01	Flame	Wipe	****	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13022964	Pt-Pb-02	Flame	Wipe	****	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13022965	Pt-Pb-03	Flame	Wipe	****	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13022966	Pt-Pb-04	Flame	Wipe	****	0.111	110 ug/ft ²	17	150 ug/ft ²	
13022967	Pt-Pb-05	Flame	Wipe	****	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13022968	Pt-Pb-06	Flame	Wipe	****	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13022969	Pt-Pb-07	Flame	Wipe	****	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13022970	Pt-Pb-08	Flame	Wipe	****	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13022971	Pt-Pb-09	Flame	Wipe	****	0.111	110 ug/ft ²	13	120 ug/ft ²	
13022972	Pt-Pb-10	Flame	Wipe	****	0.111	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 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. 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.

An AIHA (#100470) and NY ELAP (#10920) Accredited Laboratory

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



AMA Analytical Services, Inc.
A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS



Client: National Guard Bureau
Address: 301 JH Old Bay Lane, Attn: ARNG-CQC-P,
State Military Reservation
Havre de Grace, Maryland 21078
Job Name: VA ANG IH Survey
Job Location: Petersburg RC
Job Number: Not Provided
P.O. Number: W912K6-09-A-0003
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
-------------------	----------------------	---------------	-------------	----------------	-------------------------------	-----------------	----------	--------------	----------

Analysis Method for Flame, Air, Wipes, Paints, and Soil/Solids: EPA 600/R-93/200(M)-7000B; Water: SM-3111B
Analysis Method For Furnace: Air, Wipes, Paints, and Soil/Solids : EPA 600/R-93/200(M)-7010; Water: SM-3113B
N/A = Not Applicable mg/Kg = parts per million (ppm) on a dry weight basis mg/L = parts per million (ppm)
%Pb = percent lead on a dry weight basis ug = micrograms ug/L = parts per billion (ppb)

Note: All samples were received in good condition unless otherwise noted.
Note: All results have two significant digits. Any additional digits shown should not be considered when interpreting the result.

Air and Wipe results are not corrected for any blank results
Final results for air and wipe samples are based on client supplied information not verified by this laboratory.

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

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.

An AIHA (#100470) and NY ELAP (#10920) Accredited Laboratory

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



AMA Analytical Services, Inc.



QC Summary

Sample Delivery Group: 24651

Analysis Type: Flame
Sample Type: Wipe
Analysis Date: 12/20/2012

	Result	Percent Recovery	RPD	Comment
Preparation Blank	-0.035 ppm			Acceptable
Report Limit Verification Sample	0.327 ppm	98.1%		Acceptable
Expected Spike Level (ppm)	0.3333			
Duplicate Sample 1	mg/Kg			
Duplicate Sample 2	mg/Kg			Acceptable
Matrix Spike Analysis				
Spiked Sample				Acceptable
Spike Duplicate				Acceptable
Laboratory Control Sample 1	123.030 µg	106.65%		Acceptable
Laboratory Control Sample 2	141.180 µg	105.14%	1.42%	Acceptable

Calibration Information

Correlation of Calibration Curve: 0.999475

All calibration verification samples are within acceptance limits.

Notes:

Samples included in this Sample Delivery Group (SDG)

Chain Of Custody	AMA Sample Number	Client Sample Number
514729	13022963	Pt-Pb-01
514729	13022964	Pt-Pb-02

SDG Number: 24651

Page 1 of 2

Samples included in this Sample Delivery Group (SDG)

Chain Of Custody	AMA Sample Number	Client Sample Number
514729	13022965	Pt-Pb-03
514729	13022966	Pt-Pb-04
514729	13022967	Pt-Pb-05
514729	13022968	Pt-Pb-06
514729	13022969	Pt-Pb-07
514729	13022970	Pt-Pb-08
514744	13023006	GCW-001
514744	13023007	GCW-002
514744	13023008	GCW-003
514744	13023009	GCW-004
514744	13023010	GCW-005
514744	13023011	GCW-006
514744	13023012	GCW-007
514744	13023013	GCW-008
514744	13023014	GCW-009
514744	13023015	GCW-010
514744	13023016	GCW-011
514744	13023017	GCW-012



AMA Analytical Services, Inc.



QC Summary

Sample Delivery Group: 24652

Analysis Type: Flame
Sample Type: Wipe
Analysis Date: 12/21/2012

	Result	Percent Recovery	RPD	Comment
Preparation Blank	-0.031 ppm			Acceptable
Report Limit Verification Sample	0.304 ppm	91.2%		Acceptable
Expected Spike Level (ppm)	0.3333			
Duplicate Sample 1	mg/Kg			
Duplicate Sample 2	mg/Kg			Acceptable
Matrix Spike Analysis				
Spiked Sample				Acceptable
Spike Duplicate				Acceptable
Laboratory Control Sample 1	165.840 µg	102.39%		Acceptable
Laboratory Control Sample 2	128.970 µg	100.93%	1.43%	Acceptable

Calibration Information

Correlation of Calibration Curve: 0.999583

All calibration verification samples are within acceptance limits.

Notes:

Samples Included in this Sample Delivery Group (SDG)

Chain Of Custody	AMA Sample Number	Client Sample Number
514726	13022940	CRC-01
514726	13022941	CRC-02

SDG Number: 24652

Page 1 of 2

**Samples included in this Sample Delivery Group (SDG)**

Chain Of Custody	AMA Sample Number	Client Sample Number
514726	13022942	CRC-03
514726	13022943	CRC-04
514726	13022944	CRC-05
514726	13022945	CRC-06
514726	13022946	CRC-07
514726	13022947	CRC-08
514726	13022948	CRC-09
514726	13022949	CRC-10
514726	13022950	CRC-11
514726	13022951	CRC-12
514729	13022971	Pt-Pb-09
514729	13022972	Pt-Pb-10
214138	13023791	0
214138	13023792	1
214138	13023793	2
214138	13023794	3
214138	13023795	4
214138	13023796	5
214138	13023797	6

SDG Number: 24652

Page 2 of 2



AMA Analytical Services, Inc.

A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS

NVLAP
101143-0

Client:	National Guard Bureau	Job Name:	VA ANG IH Survey
Address:	301 JH Old Bay Lane, Attn: ARNG-CIG-P, State Military Reservation Havre de Grace, Maryland 21078	Job Location:	Petersburg RC
		Job Number:	Not Provided
		P.O. Number:	W912X6-09-A-0003
		Chain Of Custody:	514729
		Date Analyzed:	12/19/2012
		Person Submitting:	AECOM

Attention:

Non-Responsive

Page 1 of 1

Summary of Polarized Light Microscopy

AMA Sample Number	Client Sample #	Total Asbestos Percent	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
13022973	Pr-Ab-01 FT	TR	TR	-	-	-	-	-	-	-	-	100	FT	Multi	Homogeneous	SW	
13022974	Pr-Ab-01 M	S	S	-	-	-	-	-	-	-	-	95	MS	Black	Homogeneous	SW	
13022975	Pr-Ab-02	10	10	-	-	-	-	-	-	-	-	90	PI	Multi	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.

NVLAP (101143-0) Accredited Laboratory

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

Samples Relinquished to Hunt's Property - 19 Nov 2012 @ 1200

Non-Responsive

Surface Sampling Field Data Sheet

Date Collected: 13 Nov, 2012 Job Name: VA ANG - IH Sweep & Company: Hunt's Property Page 1 of 1
 Job Number: Non-Responsive Job Location: Petersburg Army - Petersburg VA Phone Number: 757-685-1208
 Contact Person: Non-Responsive Address: 1800 Baylors Lane Collected By: Non-Responsive
 COC Number: Petersburg, VA 23005

Sample Number	Sample Location	Surface/Substrate Sampled	Area Wiped (in ² /ft ²)	Collection Media
Pt. Pb. 01	Top of Lending Machine in Drill Hall	Metal	16 in ²	Shostwi, PE
Pt. Pb. 02	Blackboard at Rack - Drill Hall	Wood		
Pt. Pb. 03	Top of Concrete Box Containing Return Air Vent - ^{3rd} Floor	Concrete		
Pt. Pb. 04	Top of Refrigerator in Kitchen - ^{Food Prep} Area	Metal		
Pt. Pb. 05	Receiving office - Area in front of Space Heater	Wood		
Pt. Pb. 06	Rm 2 - Top of Locker Cabinet	Metal		
Pt. Pb. 07	Foyer - From Floor at doorways to Drill Hall	Vinyl Tile		
Pt. Pb. 08	Rm 107 - Desk Top First Cubicle by Door	Vinyl Paper on Press Boards		
Pt. Pb. 09	Rm 112 - Top of old File Cabinet	Wood		
Pt. Pb. 10	Rm 112 - At Threshold to Entrance Door	Concrete	V	V



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





Samples Relinquished to Client, Perfect - 12 Nov 2012

Non-Responsive

Bulk Sampling Survey Sheet

Date Collected: 13 November 2012
 Job Number: 2012-01
 Contact Person: Responsible
 Job Name: VA ANG 14 Survey
 Job Location: Petersburg, VA
 Address: 1880 4th St NE
Petersburg, VA 23805

Company: White's Perfect
 Phone Number: 757-486-1200
 Collected By: Responsible
 COC Number: Non-Responsive

Sample Number	Homogeneous Area ID	Type of Material	Sample Location	Friable	Condition of Material	Accessibility	Photo	Comments
Pt. Ab 01	1	9x9 Floor Tile epoxy mastic	Foyer Entrance Door	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input checked="" type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input checked="" type="checkbox"/> High	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Large amounts of 9x9 in this building
Pt. Ab 02	2	white pipe joint insulation	Boiler Rm - Piping to compressor for chilled water plant	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input checked="" type="checkbox"/> Good <input checked="" type="checkbox"/> Fair <input type="checkbox"/> Poor	<input checked="" type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High"/>		



Appendix D

References



References

1. Title 29, Code of Federal Regulations (CFR), Part 1910, Occupational Safety and Health Administration, current Ed. <http://www.osha.gov/comp-links.html>
2. Department of Defense Instruction (DODI) 6055.1, Department of Defense Occupational Safety and Health (OSH) Program, August 19, 1998. <http://www.dtic.mil/whs/directives/corres/pdf/605501p.pdf>
3. Army Regulation (AR) 11-34, The Army Respiratory Protection Program, 15 February 1990. http://armypubs.army.mil/epubs/pdf/R11_34.PDF
4. AR 40-5, Medical Service, Preventive Medicine, 25 May 2007. http://armypubs.army.mil/epubs/pdf/R40_5.PDF
5. AR 385-10, The Army Safety Program, 23 August 2007; Rapid Action Revision (RAR) issue date: 4 October 2011. http://armypubs.army.mil/epubs/pdf/R385_10.PDF
6. Department of the Army Pamphlet (DA PAM) 40-501, Medical Services, Hearing Conservation Program, 10 December 1998. http://armypubs.army.mil/epubs/pdf/P40_501.pdf
7. DA PAM 40-11, Preventive Medicine, 22 July 2005, RAR issue date: 19 October 2009. http://armypubs.army.mil/epubs/pdf/p40_11.pdf
8. DA PAM 40-503, Medical Services, Industrial Hygiene Program, 30 October 2000. http://armypubs.army.mil/epubs/pdf/P40_503.PDF
9. UFC 3-410-01FA, Heating, Ventilating, and Air Conditioning, 15 May 2003, change 4, January 2010. http://www.wbdg.org/ccb/DOD/UFC/ufc_3_410_01fa.pdf
10. Threshold Limit Values (TLVs) and Biological Exposure Indices (BEIs), American Conference of Governmental Industrial Hygienists (ACGIH), current Ed.
11. Industrial Ventilation – A Manual of Recommended Practice for Design, ACGIH, current Ed.
12. American National Standards Institute (ANSI)/International Safety Equipment Association (ISEA) Z358.1-2009, Emergency Eyewash and Shower Equipment.
13. ANSI/American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. (ASHRAE) 55-2010, Thermal Environmental Conditions for Human Occupancy.
14. ANSI/ASHRAE 62.1-2010, Ventilation for Acceptable Indoor Air Quality.
15. RP-1-2004, Office Lighting, ANSI/IESNA.
16. RP-7-2001, Industrial Lighting, ANSI/IESNA, change 20 July 2004.
17. OSHA Instruction Letter 02-02-058, Lead Exposure in Construction, Office of Health Compliance Assistance, 13 December 1993.
18. OSHA Standard Interpretation, Clarification of “as free as practicable” and lead contamination under 29 CFR 1926.62, dated January 13, 2003.
19. NG PAM 420-15, Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges, 3 November 2006. http://www.ngbpdc.ngb.army.mil/pubs/420/ngpam420_15.pdf

Shaw Environmental, Inc.

312 Directors Drive
Knoxville, TN 37923
865.690.3211
Fax 865.690.3626



**National Guard Armory
Radford Readiness Center
Radford, Virginia**

Industrial Hygiene Evaluation

Prepared for:

**National Guard Region North Industrial Hygiene Office
Havre De Grace, Maryland 21078**

Prepared by:

**Shaw Environmental, Inc.
312 Directors Drive
Knoxville, Tennessee 37923**

22 October 2004

**National Guard Armory
Radford Readiness Center
Radford, Virginia**

Industrial Hygiene Evaluation

Prepared for:

**National Guard Region North Industrial Hygiene Office
Havre De Grace, Maryland 21078**

Prepared by:

**Shaw Environmental, Inc.
312 Directors Drive
Knoxville, Tennessee 37923**

22 October 2004

Prepared by:

Non-Responsive

Environmental Scientist

Reviewed by:

Non-Responsive

Business Line Manager

Table of Contents

<i>Table of Contents</i>	<i>i</i>
<i>List of Tables</i>	<i>ii</i>
<i>List of Appendices</i>	<i>ii</i>
<i>Executive Summary</i>	<i>E-1</i>
<i>1.0 Introduction</i>	<i>1-1</i>
<i>2.0 Findings, Discussion, and Interpretation of Results</i>	<i>2-1</i>
<i>2.1 Sampling for Lead</i>	<i>2-1</i>
<i>2.1.1 Wipe Sampling</i>	<i>2-1</i>
<i>2.1.2 Air Sampling for Lead</i>	<i>2-2</i>
<i>2.2 Physical Condition of Facility</i>	<i>2-2</i>
<i>2.2.1 Peeling Paint - Lead</i>	<i>2-2</i>
<i>2.2.2 Visual Inspection - Asbestos</i>	<i>2-2</i>
<i>2.2.3 Visual Inspection - Water Damage and Mold</i>	<i>2-3</i>
<i>2.2.4 Visual Inspection - Housekeeping</i>	<i>2-3</i>
<i>2.3 Building Concerns</i>	<i>2-3</i>
<i>2.3.1 Ergonomic Concerns</i>	<i>2-3</i>
<i>2.3.2 Indoor Air Quality</i>	<i>2-3</i>
<i>2.4 Safety and Industrial Hygiene Programs</i>	<i>2-4</i>
<i>2.5 Ventilation</i>	<i>2-4</i>
<i>2.5.1 Ventilation System Evaluation</i>	<i>2-4</i>
<i>2.5.2 Contamination of Clean Air Sources</i>	<i>2-4</i>
<i>2.6 Noise Exposure</i>	<i>2-4</i>
<i>2.7 Lighting</i>	<i>2-4</i>
<i>2.8 Converted Indoor Firing Ranges</i>	<i>2-5</i>
<i>2.9 HVAC Systems</i>	<i>2-5</i>
<i>2.10 IHIM</i>	<i>2-5</i>
<i>3.0 Conclusions</i>	<i>3-1</i>
<i>Tables</i>	<i>Follows Section 3.0</i>
<i>Appendices</i>	<i>Follows Tables</i>

List of Tables

Table 1	Wipe Sampling for Lead
Table 2	Air Sampling for Lead
Table 3	Indoor Air Quality Measurements
Table 4	Illumination Readings
Table 5	Indoor Firing Ranges – Wipe Sampling

List of Appendices

Appendix A	HHIM Data Form
Appendix B	Building Layout
Appendix C	Sampling Sheets and Laboratory Analyses
Appendix D	References
Appendix E	Recommendations for Surface Lead Dust in Armories

Executive Summary

Shaw Environmental, Inc. (Shaw) was contracted to perform an industrial hygiene evaluation for the Radford Readiness Center in Radford, Virginia. [Non-Responsive] performed the evaluation on 14 January 2004. The point of contact at the readiness center was SGT [Non-Responsive]

The following industrial hygiene concerns were evaluated.

- Wipe Sampling for Lead
- Air Sampling for Lead
- Peeling Paint – Lead
- Suspected Asbestos Containing Material
- Water Damage
- Presence of Mold
- Housekeeping
- Ergonomic Concerns
- Indoor Air Quality
- Safety and Industrial Hygiene Programs
- Ventilation System Evaluation
- Contamination of Clean Air Sources
- Noise Exposure
- Lighting
- Converted Indoor Firing Range
- HVAC Systems

The following items were either not applicable to the armory or the evaluation resulted in a conclusion that there were no industrial hygiene concerns.

- Air Sampling for Lead
- Peeling Paint – Lead
- Presence of Mold
- Housekeeping
- Ergonomic Concerns
- Safety and Industrial Hygiene Programs

- Ventilation System Evaluation
- Contamination of Clean Air Sources
- Converted Indoor Firing Range
- Noise Exposure
- HVAC Systems

Areas where there were industrial hygiene concerns are as follows:

- Wipe sampling for lead revealed a concentration above the recommended level of 200 micrograms per square foot ($\mu\text{g}/\text{ft}^2$) in the drill floor/assembly hall area, supply room, and storage area (former kitchen area). It is recommended that these surfaces and the areas immediately around these surfaces be thoroughly cleaned to reduce the lead level. In addition, any other dusty/dirty areas in the assembly area/drill floor, supply room, and former kitchen area should be thoroughly cleaned.
- Wipe sampling for lead revealed concentrations above a level of 40 micrograms per square foot ($\mu\text{g}/\text{ft}^2$) in the drill floor/assembly hall area, supply room, and storage area (former kitchen area), office, and converted firing range. Areas with lead concentrations above 40 $\mu\text{g}/\text{ft}^2$ that will be accessible to children should be cleaned. If a special function is held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function. It is noted that a high school uses the drill floor area for physical education classes.
- Materials (floor tiles) suspected of containing asbestos were observed. An operations and maintenance plan should be followed when performing any activities that may disturb the suspected asbestos-containing materials.
- Water damage was observed at several locations at the armory. The source of the water damage was likely from a combination of roof and pipe leaks. The source of the water damage should be confirmed and actions taken to eliminate the source in order to prevent the possibility of mold growth that may lead to indoor air quality problems.
- Measurements for humidity revealed that levels did not meet the recommended level of 30% in the facility. It is recommended that a humidification system be installed at the facility.
- Lighting measurements were conducted at the armory. The lighting did not meet minimum requirements in some areas; therefore, consideration should be given to providing more lighting in these areas. This may be accomplished by replacing burnt out luminaires, cleaning fixtures, cleaning windows, painting walls with a lighter

color, repositioning detailed work to higher illuminated areas, and using supplemental lighting.

1.0 Introduction

Shaw Environmental, Inc. (Shaw) was contracted to perform an industrial hygiene evaluation for the Radford Readiness Center in Radford, Virginia. [Non-Responsive] performed the evaluation on 14 January 2004. The point of contact at the readiness center was SGT [Non-Responsive].

The findings, discussion, and interpretation of results are provided in Section 2.0. The conclusions are provided in Section 3.0. The HHIM data form for the facility is provided in Appendix A. The building layout is provided in Appendix B. Sampling sheets and laboratory analyses are provided in Appendix C. References are provided in Appendix D. The *Recommendations for Surface Lead Dust in Armories* document is provided in Appendix E.

The statements, opinions, and conclusions contained in this report are based solely upon the services performed by Shaw as described in the report. In performing these services and preparing the report, Shaw Environmental, Inc. relied upon the work and information provided by others, including public agencies, whose information is not guaranteed by Shaw Environmental, Inc.

2.0 Findings, Discussion, and Interpretation of Results

The results, discussion, and interpretation of results are provided in the following sections.

2.1. Sampling for Lead

2.1.1 Wipe Sampling

Wipe samples were collected for lead from the drill floor/assembly area. Also, wipe samples were collected for lead in rooms, hallways, foyers, etc. The sampling in rooms, hallways, foyers, etc. represented approximately 25% of the building. Approximately half of the samples were collected from surfaces in common areas, such as surfaces of a desk. The remaining samples were collected from uncommon surface areas, such as a supply vent or the top of a file cabinet. The samples were collected and analyzed in accordance with the Instructions for *Completing the Sampling of ARMY National Guard Armories* procedure.

The only samples initially submitted for analysis were those from the drill floor/assembly hall. Since there were results above the recommended level from the drill floor/assembly hall area, the remaining samples were submitted for analysis.

Results of the wipe sampling are provided in Table I. The results revealed lead at all locations sampled at concentrations below recommended level of 200 micrograms lead per square foot ($\mu\text{g}/\text{ft}^2$) (See Appendix E) except at four locations. The two samples collected from the inside surface of the fire hose housing in the drill floor/assembly hall area had a lead concentration of 2900 and 2400 $\mu\text{g}/\text{ft}^2$. The two samples collected from the top surface of a storage locker in the supply room and top surface of a filing cabinet in the storage area (former kitchen area) had lead concentrations of 860 and 1700 $\mu\text{g}/\text{ft}^2$, respectively. It is recommended that these surfaces and the immediate areas around these surfaces be thoroughly cleaned to reduce the lead level to below 200 $\mu\text{g}/\text{ft}^2$. For guidance on the proper method of cleaning, please refer to NGB PAM 385-15 (*Guidelines and Procedures for Indoor Firing Range (IFR) Rehabilitation, Conversion, and Cleaning*). In addition, any other

dusty/dirty areas in the assembly area/drill floor, supply room, and former kitchen area should be thoroughly cleaned.

In addition, wipe sampling for lead revealed concentrations above a level of $40 \mu\text{g}/\text{ft}^2$ in the drill floor/assembly hall area, supply room, storage area (former kitchen area), office, and converted firing range. Please note that the *Recommendations for Surface Lead Dust in Armories* (Appendix E) states that all areas with lead concentrations above $40 \mu\text{g}/\text{ft}^2$ that will be accessible to children should be cleaned. If a special function is held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function. It is noted that a high school uses the drill floor area for physical education classes.

2.1.2 Air Sampling for Lead

General area air sampling was conducted at the facility. Please note that no employees were available to be monitored. The samples were collected and analyzed in accordance with Method 7082 of the National Institute of Occupational Safety and Health (NIOSH) Manual of Analytical Methods.

The results of the sampling are provided in Table 2. The results revealed non-detectable concentrations of lead in the breathing zone of the employees; therefore, no actions are necessary.

2.2 Physical Condition of Facility

2.2.1 Peeling Paint - Lead

Peeling paint was not observed at the armory; therefore, bulk samples for lead in paint were not taken.

2.2.2 Visual Inspection - Asbestos

A visual inspection was made to determine if there was any suspected asbestos-containing material at the armory. Materials (floor tiles) suspected of containing asbestos were observed. The suspected asbestos-containing materials, with condition and estimated quantity, were at the following locations:

- Drill Floor/Assembly Hall – Good Condition, Approximately 5692.5 Square Feet
- Classroom – Good Condition, Approximately 468 Square Feet

- TRN NCO's Office – Good Condition, Approximately 216 Square Feet
- Commanders Office – Good Condition, Approximately 216 Square Feet
- Platoon Leaders Office and Training Room -- Good Condition, Approximately 486 Square Feet

An operation and maintenance plan should be followed when performing any activities that may disturb the suspected asbestos-containing materials.

2.2.3 Visual Inspection – Water Damage and Mold

A visual inspection was made to determine if there was any water damage or visible mold at the armory. Visible mold was not observed, however, water damage was observed at the armory. Water damage was observed on the ceilings and some walls in the supply room, classroom, kitchen, male latrine, female latrine, locker room, TRN NCO's office, commander's office, and drill floor/assembly hall area.

The source of the water damage was likely from a combination of roof and pipe leaks. The source of the water damage should be confirmed and actions taken to eliminate the source in order to prevent the possibility of mold growth that may lead to indoor air quality problems.

2.2.4 Visual Inspection - Housekeeping

The housekeeping was determined to be good.

2.3. Building Concerns

2.3.1 Ergonomic Concerns

Interviews with employees and observation of work activities revealed no ergonomic concerns at the armory.

2.3.2 Indoor Air Quality

Interviews with employees and measurements for carbon dioxide and temperature revealed no indoor air quality concerns at the armory. However, measurements for humidity revealed that levels did not meet the recommended level of 30% in the facility. It is recommended that a humidification system be installed at the facility.

The results of the measurements for carbon dioxide, humidity, and temperature are provided in Table 3.

2.4. Safety and Industrial Hygiene Programs

An evaluation was performed to determine the applicability of the following programs.

- Confined Spaces
- Hearing Conservation
- Respiratory Protection
- Hazard Communication (HAZCOM)
- Personal Protective Equipment (PPE)

It was determined that the HAZCOM program was the only program listed above that was applicable at the facility. The HAZCOM program was evaluated and it was determined that the program met minimum requirements.

2.5. Ventilation

2.5.1 Ventilation System Evaluation

There were no local exhaust ventilation systems at this armory; therefore, no ventilation studies were performed.

2.5.2 Contamination of Clean Air Sources

Since there were no local exhaust ventilation systems at the armory, there was no possibility that clean air sources could be contaminated by exhaust air.

2.6. Noise Exposure

An evaluation was performed to determine if there were any hazardous noise areas at the armory. It was determined that there were no areas at the armory that would exceed the permissible exposure limit for noise.

2.7. Lighting

Lighting measurements were conducted at the armory. Results of the lighting evaluation are provided in Table 4. As can be seen from the results, the lighting did

not meet the minimum requirements in some areas, including the former kitchen area, TRN NCO's office, and platoon leaders office.

Consideration should be given to providing more lighting to these areas. This may be accomplished by replacing burnt out luminaries, cleaning fixtures, cleaning windows, painting walls with a lighter color, repositioning detailed work to higher illuminated areas, and using supplemental lighting.

2. 8. Converted Indoor Firing Ranges

There was a converted indoor firing range at the facility; therefore, wipe samples were taken for lead at various locations in or near the converted range. The space is used as a training room, and has been completely remodeled with new paint, sheet rock, ceiling tiles, carpet, and light fixtures. All remnants of the firing range, including ductwork, had been removed. The former bullet trap area is now the training room. Since all remnants of the firing range had been removed, the only wipe samples that could be taken were from a stored item in the converted range and the floor. The results are provided in Table 5. The results revealed lead, with associated concentrations, at the following locations:

- stored item at 97 $\mu\text{g}/\text{ft}^2$; and
- floor (outside the converted firing range) the range at 27 $\mu\text{g}/\text{ft}^2$.

The lead levels were below the recommended level of 200 $\mu\text{g}/\text{ft}^2$; a level recommended in the *Guidelines for Converting Indoor Firing Ranges to Other Uses* document (Department of Army), therefore, no actions are necessary.

2.9. HVAC System

The maintenance schedule for the HVAC system was evaluated to verify that maintenance occurs on a regular basis. Also, the condition of the HVAC system was evaluated to determine if the maintenance performed is effective. It was deemed that maintenance occurs on a regular basis, and the maintenance performed is effective.

2.10. HHIM

A Health Hazard Information Module (HHIM) form was completed for the armory. The completed form is provided in Appendix A.

3.0 Conclusions

It is concluded that there were no industrial hygiene concerns at the armory with regards to atmospheric exposure to lead, peeling lead-based paint, visible mold, housekeeping, ergonomic conditions, safety and industrial hygiene programs, ventilation systems or contamination of clean air sources, noise exposure, surface lead contamination in the converted firing range, and HVAC systems.

There were industrial hygiene concerns at the armory with regards to lead surface contamination, suspected asbestos-containing material, water damage, indoor air quality, and lighting. These concerns are discussed in detail in Section 2.0 of this report.

TABLES

Table 1
Wipe Sampling for Lead
National Guard Armory
Radford, Virginia
Date of Sampling: 14 January 2004

Sample Number	Location	Results, $\mu\text{g}/\text{ft}^2$ ^a
VARAD014-1	Drill Floor (soda machine top surface) See Building Layout -- Appendix B	160
VARAD014-2	Drill Floor (heater control box top surface) See Building Layout -- Appendix B	26
VARAD014-3	Drill Floor (fire hose housing inside surface) See Building Layout -- Appendix B	2900
VARAD014-4	Drill Floor (fire hose housing inside surface) See Building Layout -- Appendix B	2400
VARAD014-5	Drill Floor (top row of bleachers) See Building Layout -- Appendix B	43
VARAD014-6	Field Blank	0.45
VARAD014-7	25% Building (supply room storage locker top surface) See Building Layout -- Appendix B	860
VARAD014-8	25% Building (former kitchen area filing cabinet top surface) See Building Layout -- Appendix B	1700
VARAD014-9	25% Building (male latrine window sill) See Building Layout -- Appendix B	23
VARAD014-10	25% Building (SFC Vangelos's office window sill) See Building Layout -- Appendix B	28
VARAD014-11	25% Building (Office - bookcase top surface) See Building Layout -- Appendix B	170
VARAD014-12	Field Blank	< 0.3

^aMicrograms lead per square foot

The samples were taken and analyzed in accordance with the *Instructions for Completing the Sampling of ARMY National Guard Armories* procedure.

In armories that do not contain childcare facilities, the NGB Region North Industrial Hygiene Office recommends cleaning the areas with sample results greater than 200 $\mu\text{g}/\text{ft}^2$

Table 2
Breathing Zone Air Samples for Lead
National Guard Armory
Radford, Virginia
Date of Sampling: 14 January 2004

Sample Number	Employee	Sampling Information			Results (mg/m ³) ^a
		Time Sampled / Minutes	Flow Rate (lpm) ^b	Volume (liters)	
VARAD014-A1	General Air Sample	1050-1225/95	1.622	154.11	<0.006
VARAD014-A2	General Air Sample	1055-1230/95	1.685	160.15	<0.006
VARAD014-A3	Field Blank	-	-	-	None Detected

^a Milligrams lead per cubic meter of air.

^b Liters of air per minute.

Method 7082 of the National Institute of Occupational Safety and Health (NIOSH) Manual of Analytical Methods was followed for sampling for lead.

Table 3
Indoor Air Quality Measurements for Carbon Dioxide, Humidity, and Temperature
National Guard Armory
Radford, Virginia
Date of Sampling: 14 January 2004

Location	Occupants In Area	Carbon Dioxide, parts per million parts of air (ppm)	Percent (%) Humidity	Temperature (°F)
Drill Floor/Assembly Area	Varies *	610	27.9	73.0
Outdoors	-	353	22.1	54.3

* Room is used throughout the by the Radford High School Physical Education (PE) Department for gym classes. Approximately 50 people were in the room when the sample was taken.

Carbon dioxide, humidity, and temperature measurements were taken with a TSI Q Trak Plus, Model 8554, Indoor Air Quality Meter, calibrated in April 2003.

American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE) recommends that indoor carbon dioxide levels be less than 700 ppm above outdoor levels.

ASHRAE recommends that the relative humidity levels be maintained between 30 to 60 percent.

ASHRAE recommends that the acceptable temperature range be 68 degrees Fahrenheit to 74 degrees Fahrenheit in the winter and 73 degrees Fahrenheit to 79 degrees Fahrenheit in the summer.

Table 4
Illumination Readings
National Guard Armory
Radford, Virginia
Date of Sampling: 14 January 2004

Location	Luminance (fc) ^a	Standard (fc) ^a	Standard Met
Supply Room	33.3-66.6	30	Yes
Classroom	66.6-111.1	70	Some Areas
Former Kitchen Area	22.2-55.5	70	No
Female Latrine	44.4-77.7	40	Yes
Male Latrine	33.3-83.3	40	Some Areas
Locker Room	22.2-66.6	40	Some Areas
TRN NCO's Office	22.2-66.6	70	No
Commanders Office	66.6-122.2	70	Some Areas
Platoon Leaders Office	22.2-55.5	70	No

^a fc - Footcandles

The readings were taken with a Weston model 614-60 Lightmeter.

The standards listed above are from ANSI/IES RP-1 and RP-7.

Table 5
Wipe Sampling for Lead – Converted Firing Range
National Guard Armory
Radford, Virginia
Date of Sampling: 14 January 2003

Sample Number	Location	Results, $\mu\text{g}/\text{ft}^2$ ^a
VARAD014-13	Stored Item	97
VARAD014-14	Floor (outside the converted firing range area)	27

^a Micrograms lead per square foot

The samples were taken and analyzed in accordance with the Instructions for *Completing the Sampling of ARMY National Guard Armories* procedure.

Appendix A

HHIM Data Form(s)

HEALTH HAZARD INFORMATION MODULE: INDUSTRIAL HYGIENE SURVEY

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

SECTION 1. DEMOGRAPHIC DATA

ARLOC 24255		INSTALLATION APG-EA		BLDG/RM NO. RADFORD	
LOCATION/CODE ADMINISTRATIVE AREAS/AA			OPERATION/CODE ADMINISTRATIVE OPERATIONS/ADO		
SURVEY DATE 14 JANUARY 2004			EVALUATOR (Initials) Non-Responsive		
MACOM/CODE		SUBMACOM/CODE XX		SUPERVISOR SGT Non-Responsive	
TELEPHONE/DSN NO. (540) 881 5935		UNIT/ORGANIZATION RADFORD ARMORY		RAC @3	
FREQUENCY (hrs/day) 8		NO. CIV(S) 0		NO. MIL 2	
NO. CONTRACTOR(S) 0		NO. LOC(S) —		NO. OTHER —	

SECTION 2. FACILITY DATA

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

SECTION 3. SURVEY DATA

CONTROLS PRESENT	EVALUATION	UNIT CODE	CONTROLS REQUIRED	STATUS

PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized)

GLOVES	R	U	RESPIRATOR	NIOSH TC NO.	MANUFACTURER	R	U
ACID			AIRLINE				
COLD SURFACES			ABRASIVE BLASTING HOOD				
HOT SURFACES			DISPOSABLE				
NBC AGENTS			FULL FACE AIR PURIFYING				
OIL			1/2 FACE AIR PURIFYING				
SOLVENTS			POWERED AIR PURIFYING				
SURGICAL GLOVES			1/1 FACE AIR PURIFYING				
			SELF CONTAINED				

EYES/FACE	R	U	HEARING	R	U	BODY	R	U	HEAD/FIT	R	U
CHEMICAL SPLASH			CANAL CAPS			APRONS			COLD WEATHER BOOTS/HATS		
FULL FACE SHIELD			EAR PLUGS			COLD WEATHER CLOTHING			HARD HATS		
CHEMICAL/SAFETY			HELMETS			COVERALLS			IMPERMEABLE BOOTS		
SAFETY/IMPACT			MUFFS			FULL BODY SUIT			SAFETY/CONDUCTIVE SHOES		
WELDING HELMET			MUFF/EARPLUG COMBO			HEAT REFLECTIVE VEST/SUIT			SAFETY/NON-CONDUCTIVE SHOES		
			MUFF/EARPLUG W/TIME LIMIT			SAFETY DATA SHEETS					

SECTION 4. HAZARD INVENTORY DATA

CAS CODE	HAZARD DESCRIPTION	PAC	EPC
POVDTXXXX	VIDEO DISPLAY TERMINAL	3 - LOW	D UNCONTROLLED PHYSICAL
7439-92-1	LEAD, INORGANIC DUSTS, FUMES	2 - MODERATE	C UNCONTROLLED RESPIRATORY
1332-21-4	ASBESTOS	1 - HIGH	C UNCONTROLLED RESPIRATORY
124-38-9	CARBON DIOXIDE	2 - MODERATE	C UNCONTROLLED RESPIRATORY
POLIFTING	HEAVY LIFTING	2 - MODERATE	D UNCONTROLLED PHYSICAL
POHEATSTR	HEAT STRESS	3 - LOW	D UNCONTROLLED PHYSICAL

SECTION 5. PERSONNEL DATA

LAST NAME	FIRST NAME	MI	SEX	SSN	CATEGORY
Non-Responsive		W	M		MIL
		M	M		MIL

SECTION 6. COMMENTS

No comments

See attached sheet

PRIVACY ACT STATEMENT

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

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

Assigned personnel at armory

SSG [REDACTED]
SGT [REDACTED]

Unit assigned to armory

Det 1 Co C 1/116th Inf, 29th (Light Division)

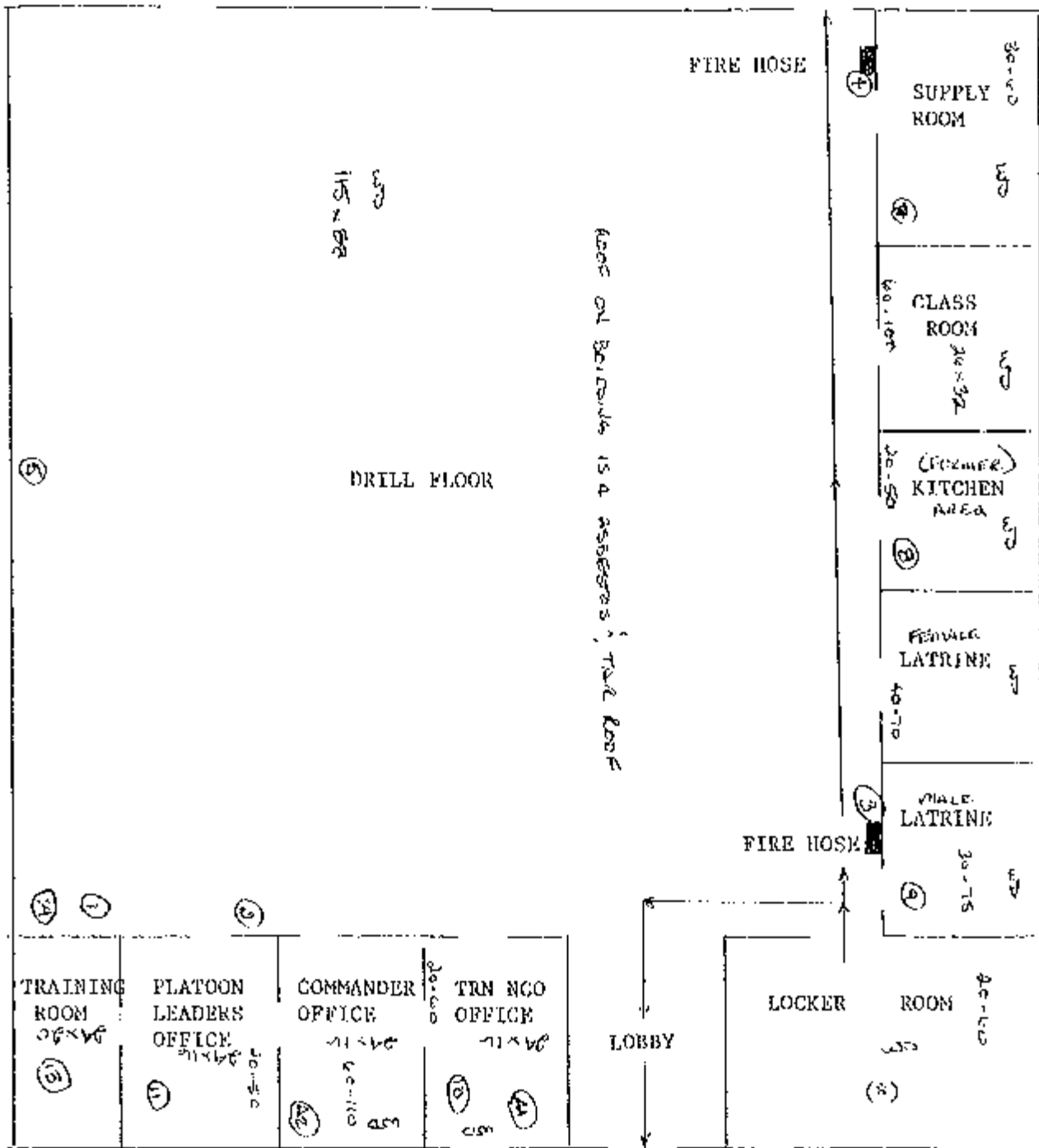
Other organization using the armory

Radford High School

Appendix B

Building Layout

FIRE EVACUATION PLAN



(*) DENOTES YOUR LOCATION

RADFORD FIRE DEPT. 639-3131

Appendix C

Sampling Sheets and Laboratory Analyses

CERTIFICATE OF ANALYSIS

Client: National Guard Bureau
Address: 301-III Old Bay Lane, Attn: NGB-AVN-SI,
State Military Reservation
Havre de Grace, Maryland 21078
Job Name: VA RAD 014
Job Location: Radford, Virginia
Job Number: 845702 01000000
P.O. Number: 1103
Chain Of Custody: 122174
Date Analyzed: 1/30/2004
Person Submitting: **999999**
Report Date: 30-Jan-04

Attention: **999999** 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 (ft ²)	Reporting Limit	Final Result	Comments
0421972	VA RAD 014 1	Furnace	Wipe	****	0.111	33.75 ug/ft ²	160 ug/ft ²	
0421973	VA RAD 014 2	Furnace	Wipe	****	0.111	13.50 ug/ft ²	26 ug/ft ²	
0421974	VA RAD 014 3	Flame	Wipe	****	0.111	108.01 ug/ft ²	2900 ug/ft ²	
0421975	VA RAD 014 4	Flame	Wipe	****	0.111	108.01 ug/ft ²	2400 ug/ft ²	
0421976	VA RAD 014 5	Furnace	Wipe	****	0.111	13.50 ug/ft ²	43 ug/ft ²	
0421977	VA RAD 014 6	Furnace	Wipe	****	N/A	0.30 ug	0.45 ug	
0421978	VA RAD 014 13	Furnace	Wipe	****	0.111	33.75 ug/ft ²	97 ug/ft ²	
0421979	VA RAD 014 14	Furnace	Wipe	****	0.111	13.50 ug/ft ²	27 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 results have two significant digits. Any additional digits shown should not be considered when interpreting the result.

Technical Manager: **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.

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



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

Job Name: VARAD014
Job Location: Radford, VA
Job Number: 845702 01000000
P.O. Number: 1103

Chain Of Custody: 122718
Date Analyzed: 2/13/2004
Person Submitting: [Redacted]
Report Date: 13-Feb-04

Attention: [Redacted]

Summary of Atomic Absorption Analysis for Lead

AMA Sample Number	Client Sample Number	Analysis Type	Sample Type	Air Volume (L)	Area Wiped (ft²)	Reporting Limit	Final Result	Comments
0423930	VARAD014 7	Flame	Wipe	****	0.111	108.01 ug/ft²	860 ug/ft²	
0423931	VARAD014 8	Flame	Wipe	****	0.111	108.01 ug/ft²	1700 ug/ft²	
0423932	VARAD014 9	Furnace	Wipe	****	0.111	6.75 ug/ft²	23 ug/ft²	
0423933	VARAD014 10	Furnace	Wipe	****	0.111	13.50 ug/ft²	28 ug/ft²	
0423934	VARAD014 11	Furnace	Wipe	****	0.111	67.51 ug/ft²	170 ug/ft²	
0423935	VARAD014 12	Furnace	Wipe Blank	****	N/A	0.30 ug	< 0.3 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 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

Non-Responsive

Analyst:

Technical Manager:

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



TEST REPORT
Page 1 of 2
2/6/04

Submitted To: **Non-Responsive**

Shaw Environmental, Inc.
5700 Thurston Ave., Suite 116
Virginia Beach, VA 23455

Reference Data:

Client Sample No.:	Lead
P.O. No.:	VALYN013A1 through VAROA015A3
Sample Location:	1103
Sample Type:	Virginia
Method Reference:	Filter
DCL Set ID No.:	NIOSH 7300
DCL Sample ID No.:	04-S-0356
Sample Receipt Date:	04-01918 through 04-01936
Preparation Date:	1/27/2004
Analysis Date:	01/30/04
	02/05/04

The samples were prepared and analyzed in accordance with NIOSH method 7300 using a Perkin Elmer 3000XL ICP.

The sample condition upon receipt was acceptable except where noted.

The results are in the enclosed data table. Results relate only to the items tested and are not blank corrected unless indicated in the data table.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Non-Responsive

Analyst

Non-Responsive

Reviewer

CINCINNATI OFFICE
4388 GLENDALE-MILFORD ROAD
CINCINNATI, OHIO 45242-3706
513 733-5336, FAX 513 733-5347

Posted to NGB FOIA Reading Room
May, 2018

FOIA Requested Record #J-15-0085 (VA)
Released by National Guard Bureau
Page 1293 of 1923

WEST COAST OFFICE
11 SANTA YORMA COURT
NOVATO, CALIFORNIA 94945
800 280-8071, FAX 415 893-9469

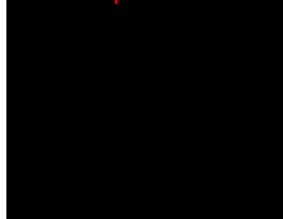
Results
Lead

Client #	DCL #	Sample Volume (L)	µg/sample	mg/m ³
VALYN013A1	04-01918	256.93	ND	<0.004
VALYN013A2	04-01919	256.22	ND	<0.004
VALYN013A3	04-01920	0	ND	-
VABED013A1	04-01922	156.86	ND	<0.006
VABED013A2	04-01923	152.71	ND	<0.007
VABED013A3	04-01924	0	ND	-
VARAD014A1	04-01925	154.11	ND	<0.006
VARAD014A2	04-01926	160.15	ND	<0.006
VARAD014A3	04-01927	0	ND	-
VACHR014A1	04-01928	177.93	ND	<0.006
VACHR014A2	04-01929	183.21	ND	<0.005
VACHR014A3	04-01930	0	ND	-
VAPUL015A1	04-01931	152.90	ND	<0.007
VAPUL015A2	04-01932	158.40	ND	<0.006
VAPUL015A3	04-01933	0	ND	-
VAROA015A1	04-01934	188.74	ND	<0.005
VAROA015A2	04-01935	210.28	ND	<0.005
VAROA015A3	04-01936	0	ND	-
	Prep Blank		ND	
% Recovery	LCS		120.	
RPL			1.	

ND = not detected at or above the reporting limit (RPL).

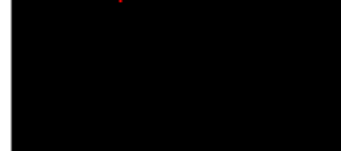
LCS = laboratory control sample.

Non-Responsive



Analyst

Non-Responsive



Reviewer

Industrial Hygiene Sampling Calculation Worksheet

National Guard Armory

Location:

Radford

Date:

1/14/2004

Sample 1

Sample Number: VARAD014A1

Pump: 647633

Pre Flow Rate

Post Flow Rate

1.629

1.608

1.634

1.621

1.627

1.622

1.617

1.620

Average

1.627

1.618

Average Pre and Post

1.6223

Time 1

10:50

Time 2

12:25

Total Time Sampled

1:35

Minutes Sampled

95.00

Volume

154.11 Liters

Sample 2

Sample Number: VARAD014A2

Pump: 647605

Pre Flow Rate

Post Flow Rate

1.692

1.680

1.697

1.674

1.689

1.676

1.687

1.691

Average

1.691

1.680

Average Pre and Post

1.6858

Time 1

10:55

Time 2

12:30

Total Time Sampled

1:35

Minutes Sampled

95.00

Volume

160.15 Liters

Appendix D

References

References

Title 29, Code of Federal Regulations (CFR), Part 1910, Occupational Safety and Health Administration (current edition)

American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc (ASHRAE) 62-2002, Ventilation for Acceptable Indoor Air Quality

Instructions for Completing the Sampling of Army National Guard Armories, Lead Wipe Sampling Procedure included with the Request for Proposal

Air Sampling for Lead - Method 7082 of the National Institute of Occupational Safety and Health (NIOSH) Manual of Analytical Methods

Design Guide DG-415-2, Logistics Facilities, National Guard Bureau Installation Division, 14 December 1999

Department of Defense Instruction (DODI) 6055.1, Department of Defense Occupational Safety and Health (OSHH) Program, August 19, 1998

Army Regulation (AR) 40-5, Medical Service, Preventive Medicine, 15 October 1990

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

Department of the Army Pamphlet (DA PAM) 40-501, Medical Services, Hearing Conservation Program, 10 December 1998

DA PAM 40-503, Medical Services, Industrial Hygiene Program, 30 October 2000

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

Guidelines for Converting Indoor Firing Ranges to Other Uses, Headquarters, Department of the Army and the Air Force, NG PAM (AR) 385-16/ANGPAM 91-101, 31 January 1994

24 CFR, Part 35, Subpart B, Section 35-110, Definition of Lead-Based Paint, Housing and Urban Development, U. S. Department of Housing

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 $0.05 \text{ mg}/\text{m}^3$ averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead dust in this building.

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

NGB-AVS-SI (40-5f)

4 November 2004

MEMORANDUM FOR VAARNG, Radford Readiness Center, ATTN: SGT
Non-Responsive PO Box 3207, Radford, VA 24143

SUBJECT: Baseline Survey

1. I have enclosed the industrial hygiene survey report completed by Shaw Environmental, Incorporated.
2. In addition to the attached discussion and recommendations regarding wipe samples for lead, if a special function is held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function.
3. Please contact me at (410) 942-0273 or 1-800-550-6967 if you have any questions regarding the enclosed report.

Encl

Non-Responsive

Regional Industrial Hygienist

CF: Organizational Maintenance Officer
Occupational Health Manager

**National Guard Armory
Radford Readiness Center, Radford, Virginia
Industrial Hygiene Evaluation**

Recommendations

- Wipe sampling for lead revealed a concentration above the recommended level of 200 micrograms per square foot ($\mu\text{g}/\text{ft}^2$) in the drill floor/assembly hall area, supply room, and storage area (former kitchen area). It is recommended that these surfaces and the areas immediately around these surfaces be thoroughly cleaned to reduce the lead level. In addition, any other dusty/dirty areas in the assembly area/drill floor, supply room, and former kitchen area should be thoroughly cleaned. **RAC - 3**
- Wipe sampling for lead revealed concentrations above a level of 40 micrograms per square foot ($\mu\text{g}/\text{ft}^2$) in the drill floor/assembly hall area, supply room, and storage area (former kitchen area), office, and converted firing range. Areas with lead concentrations above 40 $\mu\text{g}/\text{ft}^2$ that will be accessible to children should be cleaned. If a special function is held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function. It is noted that a high school uses the drill floor area for physical education classes. **RAC - 3**
- Materials (floor tiles) suspected of containing asbestos were observed. An operations and maintenance plan should be followed when performing any activities that may disturb the suspected asbestos-containing materials. **RAC - 5**
- Water damage was observed at several locations at the armory. The source of the water damage was likely from a combination of roof and pipe leaks. The source of the water damage should be confirmed and actions taken to eliminate the source in order to prevent the possibility of mold growth that may lead to indoor air quality problems. **RAC - 5**
- Measurements for humidity revealed that levels did not meet the recommended level of 30% in the facility. It is recommended that a humidification system be installed at the facility. **RAC - 5**
- Lighting measurements were conducted at the armory. The lighting did not meet minimum requirements in some areas; therefore, consideration should be given to providing more lighting in these areas. This may be accomplished by replacing burnt out luminaries, cleaning fixtures, cleaning windows, painting walls with a lighter color, repositioning detailed work to higher illuminated areas, and using supplemental lighting. **RAC - 5**

Shaw Environmental, Inc.

312 Directors Drive
Knoxville, TN 37923
865.690.3211
Fax 865.690.3626



Shaw Environmental, Inc.

29 March 2004

Ms. **Non-Responsive** CIH
Regional Industrial Hygienist
Region North Industrial Hygiene Office
Attn: NGB-AVS-SI
301-IH Old Bay Lane
Havre De Grace, Maryland 21078

RE: Draft Report for the Industrial Hygiene Evaluation at the Radford Readiness
Center – Radford, Virginia

Dear Ms. **Non-Responsive**

Attached is a copy of the referenced report. Also attached is a copy of the field notes, photographs, and photograph log. Please call me if you have questions.

Sincerely,

Non-Responsive

Project Manager

Survey 14 Jan 04
Rec'd 9 Apr 04
rev 10/13/04
emailed 10/13/04
Rec'd 11/4/04

Radford Armory Photo Log

National Guard Armory

Radford, Virginia

Date of Survey: 14 January 2004

Photo	Description
1	Lead Wipe Assembly Room - Soda Machine - Sample 1
2	Lead Wipe Assembly Room - Heater Control Box - Sample 2
3	Lead Wipe Assembly Room - Fire Hose Housing - Sample 3
4	Lead Wipe Assembly Room - Fire Hose Housing - Sample 4
5	Lead Wipe Assembly Room - Top Row of Bleachers - Sample 5
6	25% Building - Supply Room Storage Locker Top - Sample 7
7	25% Building - Former Kitch Area Filing Cabinet - Sample 8
8	25% Building - Male Latrine Paper Towel Dispenser - Sample 9
9	25% Building - SFC Vangelis's Office Window Sill - Sample 10
10	25% Building - Office Bookcase - Sample 11
11	Firing Range - Stored Item - Sample 13
12	Firing Range - Floor Outside the Converted Firing Range - Sample 14
13	Water Damage - Supply Room
14	Water Damage - Classroom
15	Water Damage - Locker Room
16	Water Damage - Latrines
17	Water Damage - Latrines
18	Water Damage - Latrines
19	Water Damage - Latrines
20	Water Damage - Latrines
21	Water Damage - Office
22	Water Damage - Office
23	Water Damage - Office
24	Water Damage - Office
25	Water Damage - Drill Hall
26	Water Damage - Drill Hall

Field Notes and Checklist

State: VIRGINIA Location: RADFORD ARMORY Date: JANUARY 14, 2004
 Contact: SFC Non-Responsive

1.0 Sampling for Lead

1.1 Wipe Sampling

Sample #:	<u>1</u>	Picture #:	<u>/</u>	Location:	<u>SODA MACHINE TOP</u>
Sample #:	<u>2</u>	Picture #:	<u>/</u>	Location:	<u>HEATER CONTROL BOX TOP</u>
Sample #:	<u>3</u>	Picture #:	<u>/</u>	Location:	<u>FIRE HOSE HOUSING</u>
Sample #:	<u>4</u>	Picture #:	<u>/</u>	Location:	<u>FIRE HOSE HOUSING</u>
Sample #:	<u>5</u>	Picture #:	<u>/</u>	Location:	<u>BLEACHER TOP</u>
Sample #:	<u>6, 12</u>	Picture #:	<u>N/A</u>	Location:	<u>FIELD BLANK</u>
Sample #:	<u>7</u>	Picture #:	<u>/</u>	Location:	<u>SUPPLY ROOM STORAGE LOCKER TOP</u>
Sample #:	<u>8</u>	Picture #:	<u>/</u>	Location:	<u>FORMER KITCHEN AREA TOP OF FILING CABINET</u>
Sample #:	<u>9</u>	Picture #:	<u>/</u>	Location:	<u>MALE LATRINE WINDOW SILL</u>
Sample #:	<u>10</u>	Picture #:	<u>/</u>	Location:	<u>SFC VARGHESE'S OFFICE WINDOW SILL</u>
Sample #:	<u>11</u>	Picture #:	<u>/</u>	Location:	<u>OFFICE BOOKCASE TOP</u>
Sample #:	_____	Picture #:	_____	Location:	_____
Sample #:	_____	Picture #:	_____	Location:	_____
Sample #:	_____	Picture #:	_____	Location:	_____
Sample #:	_____	Picture #:	_____	Location:	_____
Sample #:	_____	Picture #:	_____	Location:	_____
Sample #:	_____	Picture #:	_____	Location:	_____
Sample #:	_____	Picture #:	_____	Location:	_____
Sample #:	_____	Picture #:	_____	Location:	_____

(Also, please see the sketch of sampling locations.)

1.2 Breathing Zone Air Sampling

Sample #: A1 Employee Sampled: GENERAL AIR SAMPLE Non-Responsive OFFICE
 Sample #: A2 Employee Sampled: GENERAL AIR SAMPLE RECRUITERS OFFICE
A3 FIELD BLANK

2.3 Visual Inspection – Water Damage and Mold

Water damage observed (Yes or No): Yes

If yes, water damage was observed at the following locations:

Location 1: SUPPLY ROOM Picture #: ✓
 Location 2: CL. 0502000 Picture #: ✓
 Location 3: KITCHEN Picture #: ✓
 Location 4: MALE & FEMALE LATRINES Picture #: ✓
 Location 5: LOCKER ROOM Picture #: ✓

TRN AGO OFFICE, COMMANDER OFFICE, 1st DECK FLOOR
 Mold observed (Yes or No): NO

If yes, mold was observed at the following locations:

Location 1: _____ Picture #: _____
 Location 2: _____ Picture #: _____
 Location 3: _____ Picture #: _____
 Location 4: _____ Picture #: _____
 Location 5: _____ Picture #: _____

2.4 Visual Inspection - Housekeeping

Housekeeping (good, average, poor): GOOD

Comments (such as no dirt or trash was visible on the floors or the housekeeping was poor in that there was trash and debris on the floors that could lead to a tripping hazard, or there was dust in the vents.):

3.0 Building Concerns

3.1 Ergonomic Concerns

Ergonomic concerns (Yes or No): No

If there are ergonomic concerns at the armory, describe the extent of the problem, such as three employees stated that they perform repetitive motion at the XYZ machine for 6 hours per day, and they stated that they are suffering from symptoms of musculoskeletal disorders (MSDs).

3.2 Indoor Air Quality

IAQ concerns (based on employee interviews)(Yes or No): NO

If yes, what were concerns:

Measurements for carbon dioxide, humidity, and temperature:

Location	CO ₂ (ppm)	Humidity (%)	Temperature (°F)	Occupancy (People in Room)
Outdoors -	353	22.1	54.3	0
1 st Floor -	410	27.9	73.0	VARIES
2 nd Floor -	—	—	—	—
3 rd Floor -	—	—	—	—
Basement	—	—	—	—

4.0 Safety and Industrial Hygiene Programs

4.1 Confined Spaces

Are confined spaces applicable (Yes or No): NO

If yes, does the program meet minimum standards (Yes or No): —

If no, explain the deficiencies:

ROOM IS USED THROUGHOUT THE DAY BY RADFORD HIGH SCHOOL PECLASSE

4.2 Hearing Conservation

Is hearing conservation applicable (Yes or No): No

If yes, does the program meet minimum standards (Yes or No): Yes

If no, explain the deficiencies:

4.3 Respiratory Protection

Is respiratory protection applicable (Yes or No): No

If yes, does the program meet minimum standards (Yes or No): Yes

If no, explain the deficiencies:

4.4 Hazard Communication

Is hazard communication applicable (Yes or No): Yes

If yes, does the program meet minimum standards (Yes or No): Yes

If no, explain the deficiencies:

4.5 Personal Protective Equipment

Is personal protective equipment applicable (Yes or No): NO

If yes, does the program meet minimum standards (Yes or No): —

If no, explain the deficiencies:

5.0 Ventilation

5.1 Ventilation System Evaluation

Local exhaust ventilation systems at this armory (Yes or No): NO

If yes, results of airflow patterns:

Location 1: _____

Airflow Pattern (acceptable or unacceptable, with reason):

Location 2: _____

Airflow Pattern (acceptable or unacceptable, with reason):

Location 3: _____

Airflow Pattern (acceptable or unacceptable, with reason):

5.2 Contamination of Clean Air Sources

Clean air sources contaminated by contaminated exhaust air (Yes or No): NO

If yes, describe:

Employee sampled: _____

Results:	% Actual	% Projected 8-hour TMA	Empirical 8-hour TMA
----------	----------	------------------------	----------------------

Activity: _____ % Projected 8-hour TWA _____ Equivalent dBA

Employer name Last _____

Employee sampled: _____

Results: _____% Actual _____% Projected 8-hour TWA _____ Equivalent dBA

Activity: _____

Employee sampled: _____

Results: % Actual % Projected 8-hour TWA Equivalent dBA

Activity:

Weighted Average Cost of Capital

_____ DIVISION 81.9 _____

Location	Luminance Range (fc)
OPPLY ROOM	30-60
ASS. ROOM	60-100
ATTENED (FORMER)	20-50
FEMALE LATRINE	40-70
MALE LATRINE	30-75
LOCKER ROOM	20-40
EN. HCO OFFICE	20-40
COMMUNICATIONS OFFICE	60-110
PLATOON LEADER'S OFFICE	20-50

8.8 Converted Indoor Firing Ranges

Converted indoor firing range (Yes or No): YES

If yes, locations sampled:

Sample #: N/A Picture #: - Location: Inside any remaining ventilation ductwork

Sample #: N/A Picture #: - Location: Exhaust ventilation system

Sample #: N/A Picture #: - Location: Bullet trap

Sample #: N/A Picture #: - Location: Light fixtures

Sample #: N/A Picture #: - Location: Overhead heaters

Sample #: 13 Picture #: / Location: Stored items

Sample #: N/A Picture #: - Location: Floor

Sample #: 14 Picture #: / Location: Outside the range

EVERYTHING HAS BEEN REPAINTED

ROOM HAS BEEN EXTENSIVELY REMODELED

NEW CEILING

NEW CARPETED FLOOR

NEW LIGHTS

9.0 HVAC System

Does the HVAC system have maintenance performed on a regular basis (Yes or No):

YES

In yes, is the maintenance effective (Yes or No): YES

If no, describe:

10.0 HHIM

Complete HHIM form for facility (Initial as completed): Non-Responsive

Reproduction Room HHIM Necessary (Yes or No) (Initial if Yes): -

Film Developing Room HHIM Necessary (Yes or No) (Initial if Yes): -

Maintenance Area HHIM Necessary (Yes or No) (Initial if Yes): -

11.0 Additional Items

Table 1 (wipe sampling) completed (initial when completed): _____

Table 2 (air sampling) completed (initial when completed): _____

Table 3 (peeling paint), if necessary, completed (initial when completed): _____

Table 3 or 4 (IAQ) completed (initial when completed): _____

Table 4 or 5 (noise), if necessary, completed (initial when completed): _____

Table 5 or 6 (firing ranges), if necessary, completed (initial when completed): _____

Airflow pattern diagram(s) completed (initial when completed): _____

Building layout included (initial when completed): _____

Photographs (initial when completed): _____

Sampling Sheets and Laboratory Analyses (initial when completed): _____

Sampling tracking form completed and faxed to NGB A _____
within 5 days of date of this survey (initial when completed): _____
(Fax to Ken Forsythe at 410-942-0254)

State Lead Wipes Spreadsheet completed (initial when completed): _____

Three copies of noise exposure notification letter, if necessary (initial when completed): _____

Three copies of contaminant exposure forms for each employee that participated in air sampling (initial when completed): _____

Non-Responsive

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



Industrial Hygiene Survey for VARNG – Radford Readiness Center 6th & Scott Street Radford, Virginia 24143

AECOM
January 2013
Document No.: 60275401/ Radford Readiness Center

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

Industrial Hygiene Survey for VARNG – Radford Readiness Center 6th and Scott Street Radford, Virginia 24143

Non-Responsive



Industrial Hygienist

Non-Responsive



Project Manager

Non-Responsive



Northeast District Health & Safety Manager

AECOM Environment
January 2013
Document No.: 60275401/ Radford 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 Radford Readiness Center Facility Layout

Appendix B Radford Readiness Center Photographs

Appendix C Analytical Results

Appendix D References



List of Tables

Table 2-1: Lead Wipe Sample Results 2-1

Table 3-1: Indoor Air Quality Monitoring Results..... 3-2

Table 5-1: Light Survey 5-1



Executive Summary

On November 06, 2012, AECOM Technical Services Northeast, Inc. (AECOM) conducted an Industrial Hygiene (IH) survey of the Radford Readiness Center facility located at 6th & Scott Street in Radford, Virginia. SGT Non- [REDACTED] was the point of contact for the facility and accompanied AECOM during the survey to provide access and information concerning the Radford Readiness Center operations.

The industrial hygiene survey was conducted in general accordance with the scope of work as described in the "Statement of Work – Industrial Hygiene Services for National Guard Bureau Industrial Hygiene Region North – Baseline Surveys for Readiness Centers and Administrative Buildings," dated March 2009.

The Radford Readiness Center is currently staffed by multiple personnel. The facility is configured as an administrative area and a drill/assembly hall.

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

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

Lighting levels measured throughout the facility were not adequate as per American National Standard Institute/Illuminating Engineering Society of North America (ANSI/IESNA) RP-1-2004, Office Lighting, ANSI/IESNA RP-7-2001, Industrial Lighting, and the IESNA Lighting Handbook, 9th Edition, 11 April 2005. See Section 5 for a list of areas that did not meet the lighting standard.

Wipe samples collected in association with most administrative areas indicated lead levels below the Occupational Safety and Health Administration's (OSHA's) Clarification of "as free as practicable" and lead contamination under 29 Code of Federal Regulations (CFR) 1926.62, The Compliance Directive for the Interim Standard for Lead in Construction, CPL 2-2.58. OSHA recommends the use of the U.S. Department of Housing and Urban Development's (HUD) acceptable decontamination level of 200 micrograms per square foot (ug/ft²) for floors in evaluating the cleanliness of change areas, storage facilities, and lunchrooms/eating areas.

However, a wipe sample collected from the top of a file cabinet in the supply room indicated levels of lead in excess of 200 ug/ft².

No Indoor Air Quality concerns were noted by the Radford Readiness Center personnel. Instantaneous real-time reading for carbon monoxide and carbon dioxide (parts per million or ppm), temperature (° Fahrenheit), and relative humidity (as percentage) are presented in Table 3-1. Readings were generally within acceptable guidelines in those areas occupied by the facility staff.

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

Damaged suspect asbestos containing materials were observed during the evaluation. Damaged floor tile, ceiling skim coat and plaster were sampled from the supply room and a sample of plaster was also collected from the boiler room. The floor tile and mastic indicated respective concentrations of 4% and 5% Chrysotile. The skim coat and plaster samples indicated no asbestos detected in the submitted samples.



Damaged and peeling paint was observed on the ceiling of the boiler room. A sample of the damaged paint was analyzed and determined to contain 0.015% lead.

Evidence of roof leaks were observed in multiple areas of the facility, although no significant water damage nor visible mold growth was observed during the survey. Water intrusion is a mold growth risk factor.

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

1.0 Facility Description and Operations

The Radford Readiness Center is a purpose built single story, masonry block structure with brick façade. The section occupied by Readiness Center personnel consists of rooms configured as office space and is finished with acoustical drop ceilings and floor tile.

The primary activity at the Radford Readiness Center is routine administrative duties. The Radford Readiness Center is currently staffed by approximately 4 personnel. No vehicle maintenance activities are undertaken at the facility.

2.0 Sampling in Readiness Centers

2.1.1 Wipe Sampling

Wipe sampling for lead was conducted in multiple areas of the facility following the Occupational Safety & Health Administration (OSHA) wipe sampling method and using Ghost Wipes.

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

Table 2-1: Lead Wipe Sample Results

Sample Number	Sample Location	Lead Concentration
RW-001	Drill hall supply side	<110 ug/ft ²
RW-002	Drill hall filter side	<110 ug/ft ²
RW-003	Drill hall center floor	<110 ug/ft ²
RW-004	Drill hall top of Pepsi machine	<110 ug/ft ²
RW-005	Office-old supply room	<110 ug/ft ²
RW-006	Supply room – top of file cabinet	400 ug/ft²
RW-007	Foyer –front	<110 ug/ft ²
RW-008	Foyer- supply vent	<110 ug/ft ²

ug/ft² = Micrograms per square foot.

Wipe samples collected in association with most administrative areas indicated lead levels below the Occupational Safety and Health Administration's (OSHA's) Clarification of "as free as practicable" and lead contamination under 29 CFR 1926.62, The Compliance Directive for the Interim Standard for Lead in Construction, CPL 2-2.58. OSHA recommends the use of HUD's acceptable decontamination level of 200 ug/ft² for floors in evaluating the cleanliness of change areas, storage facilities, and lunchrooms/eating areas.

Lead in excess of the action level of 200 micrograms per square foot (ug/ft²) per HUD was detected in a wipe sample collected on a file cabinet in the supply room. Laboratory analytical results are presented in Appendix C.

2.1.2 Air Sampling

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

3.0 Physical Condition of Facility and Personnel Concerns

3.1.1 Lead Based Paint

Interior surfaces of walls are coated with paint. The paint on the walls is in serviceable condition. A sample of peeling paint was collected from the ceiling of the boiler room. Analysis of the sample indicated a lead concentration of 0.015%.

Sample Number	Sample Location	Lead Concentration	Standard (40 CFR Part 745)
RLC-001	Boiler Room ceiling	0.015%	.5% Pb

3.1.2 Suspect Asbestos Containing Materials

Damaged suspect asbestos containing materials were observed during the evaluation. Damaged floor tile, ceiling skim coat and plaster were sampled from the supply room and a sample of plaster was also collected from the boiler room. The floor tile and mastic indicated respective concentrations of 4% and 5% Chrysotile. The skim coat and plaster samples indicated no asbestos detected in the submitted samples.

3.1.3 Water Damage/Mold

Evidence of roof leaks were observed in multiple areas of the facility, although no significant water damage nor visible mold growth was observed during the survey. Water intrusion is a mold growth risk factor.

3.1.4 Housekeeping

The Radford 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 Radford Readiness Center staff members. No Indoor Air Quality concerns were noted by the Radford Readiness Center personnel.

Instantaneous real-time reading for carbon monoxide and carbon dioxide (parts per million or ppm), temperature (° Fahrenheit), and relative humidity (as percentage) are presented in the following table. The facility is not centrally air conditioned. Some readings were generally outside the accepted guidelines; however no specific complaints were noted warranting additional action.

Table 3-1: Indoor Air Quality Monitoring Results

Location	Carbon Monoxide (ppm)	Carbon Dioxide (ppm)	Temp (°F)	Relative Humidity (%)
Drill hall front	0.6	503	63.7	36.4
Drill hall middle	0.4	499	63.0	35.1
Drill hall back	0.3	501	63.2	36.0
Supply room	0.7	617	64.5	33.0
Safe area	0.1	576	66.4	31.0
Woman's restroom	0.4	601	66.1	33.2
Men's restroom	0.5	603	66.3	33.0
Front foyer	0.6	513	66.7	25.0
Handicap bath	0.1	546	6.8	28.4
Old storage/wrestling	0.2	417	66.2	37.9
Boiler room	0.4	720	60.6	33.5
Classroom	0.7	810	68.0	36.1

Table 3-1 Guidelines:

Carbon Monoxide: Office/Warehouse Space – 9 ppm based on United States Environmental Protection Agency's National Ambient Air Quality Standard.

OSHA Permissible Exposure Limit (PEL) = 50 ppm. American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit value (TLV) = 25, ppm.

Carbon Dioxide: Office Space -Approximately 700 ppm above background (Derived from American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE) Standard 62.1-2010). Not Applicable to warehouse and vehicle maintenance bays.

Relative Humidity: Mechanically air-conditioned space – Maximum 65% (Derived from ASHRAE Standard 62.1-2010 – 5.10.1).

Temperature: Winter (clothing insulation = 1.0 clo) Relative humidity 30-60% - Temp - 68 – 75°F

Summer Temp - 73 – 79°F. (Derived from ASHRAE Standard 55-2010)

Radford 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 facility operates on a boiler system for heat. No dust was observed at diffusers, and site personnel indicated that the system seems to work well. Temperature readings were constant in all areas occupied by readiness center personnel.

4.1.2 HVAC Maintenance

The HVAC system is serviced by a third party, personnel indicated the system is maintained monthly.

There was no 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 not adequate.

Table 5-1: Light Survey

Location	Results (Foot candles)	Met Standard (Y/N)	Standard*
Drill hall front	26.8	Y	10
Drill hall middle	27.0	Y	10
Drill hall back	27.2	Y	10
Supply room	15.4	Y	30
Safe area	21.7	N	50
Woman's restroom	33.5	Y	5
Men's restroom	33.7	Y	5
Front foyer	28.8	Y	10
Handicap bath	23.6	Y	5
Old storage/wrestling	21.0	N	30
Boiler room	13.0	N	30
Classroom	25.2	N	30
Office Lighting (ANSI/IESNA RP-1-04) and Industrial Lighting Facilities (ANSI/IESNA RP-7-01)			

6.0 Evaluation of Attached Garage

There is no garage associated with the Radford 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 Radford Readiness Center.

Lighting levels measured throughout the facility were not adequate as per American National Standard Institute/Illuminating Engineering Society of North America (ANSI/IESNA) RP-1-2004, Office Lighting, ANSI/IESNA RP-7-2001, Industrial Lighting, and the IESNA Lighting Handbook, 9th Edition, 11 April 2005. Areas with inadequate lighting levels shall upgrade lighting or provide additional task lighting as necessary.

Wipe samples collected in association with most administrative areas indicated lead levels below the Occupational Safety and Health Administration's (OSHA's) Clarification of "as free as practicable" and lead contamination under 29 CFR 1926.62, The Compliance Directive for the Interim Standard for Lead in Construction, CPL 2-2.58. OSHA recommends the use of HUD's acceptable decontamination level of 200 ug/ft² for floors in evaluating the cleanliness of change areas, storage facilities, and lunchrooms/eating areas.

However, a wipe sample collected from the top of a file cabinet in the supply room indicated levels of lead in excess of 200 ug/ft². Personnel trained in accordance with the OSHA Lead Standard should clean the areas where lead was detected in quantities greater than 200 ug/ft² in accordance with HUD.

Damaged suspect asbestos containing materials were observed during the evaluation. Damaged floor tile, ceiling skim coat and plaster were sampled from the supply room and a sample of plaster was also collected from the boiler room. The floor tile and mastic indicated respective concentrations of 4% and 5% Chrysotile. The skim coat and plaster samples indicated no asbestos detected in the submitted samples. Damaged ACM shall be removed/repared and a thorough building inspection performed to identify ACM. An asbestos Operations & Maintenance program shall be implemented.

Damaged and peeling paint was observed on the ceiling of the boiler room. A sample of the damaged paint was analyzed and determined to contain lead below the threshold of .5% Pb.

Evidence of roof leaks were observed in multiple areas of the facility, although no significant water damage nor visible mold growth was observed during the survey. Water intrusion is a mold growth risk factor.

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

No Indoor Air Quality concerns were noted by the Radford Readiness Center personnel. Instantaneous real-time reading for carbon monoxide and carbon dioxide (parts per million or ppm), temperature (° Fahrenheit), and relative humidity (as percentage) are presented in Table 3-1. Readings were generally within acceptable guidelines in those areas occupied by the facility staff.

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

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.

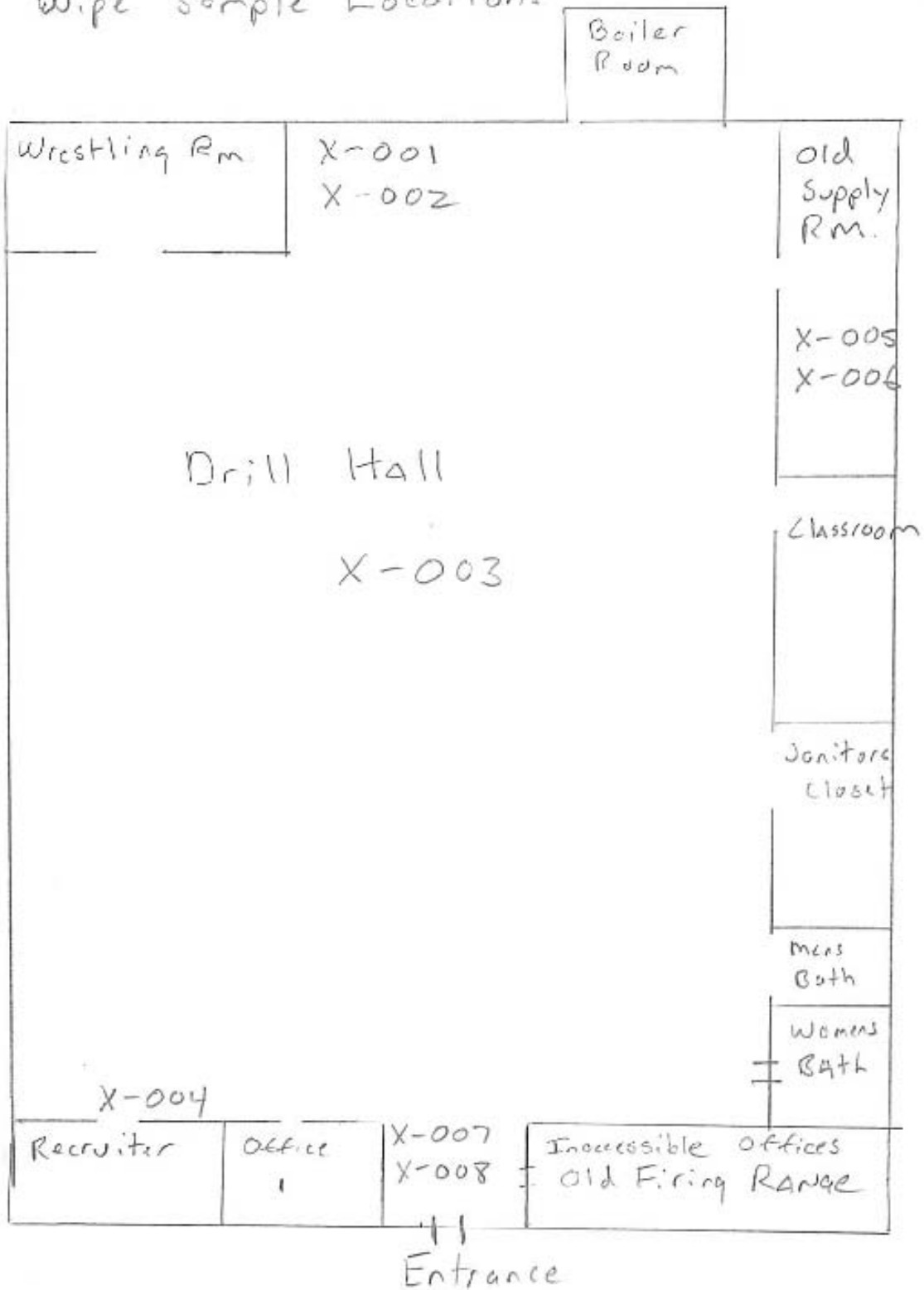
As with all such surveys, the results of the sampling represent conditions found on the date of the survey and may not represent conditions found at other times. Additionally, this survey was limited with respect to the specific parameters indicated above and should not be construed to be a comprehensive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

Radford Readiness Center Facility Layout

Radford NG Armory Wipe Sample Locations



January 2013

Appendix B

Radford Readiness Center Photographs

Photograph 1



Building

Photograph 2



Typical construction

Photograph 3



Drill hall

Photograph 4



Wipe sample location

Photograph 5



Drill hall damaged paint

Photograph 6



Drill hall spots on ceiling

Photograph 7



9 X 9 burgundy floor tile

Photograph 8



Ceiling plaster supply room

Photograph 9



Possible ACM debris-supply room

Photograph 10



Drill hall piping

Photograph 11



Foyer area water damaged ceiling tile

Photograph 12



Drill hall floor

Appendix C

Analytical Results

AMA Analytical Services, Inc.



A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS



101143-0

Client:	National Guard Bureau	Job Name:	VA ANGLH Survey	Chain Of Custody:	514755
Address:	301-1H Old Bay Lane, Attn: ARNG-CJG-P, State Military Reservation Havre de Grace, Maryland 21078	Job Location:	Radford NG Armory	Date Analyzed:	12/18/2012
		Job Number:	Not Provided	Person Submitting:	AECOM
		P.O. Number:	W912K6-09-A-4003		

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
13023081	RA-1 FT	5	5	--	--	--	--	--	--	--	--	95	FT	Black	Homogeneous	SW	
13023082	RA-1 M	4	4	--	--	--	--	--	--	--	--	96	MS	Brown	Homogeneous	SW	
13023083	RA-2	NAD	--	--	--	--	--	--	--	--	--	100	SKC	White	Homogeneous	SW	
13023084	RA-3	NAD	--	--	--	--	--	--	--	--	--	100	PL	Gray	Homogeneous	SW	
13023085	RA-4	NAD	--	--	--	--	--	--	--	--	--	100	PL	Brown	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.

NVLAP (101143-0) 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®

101143-0

Client:	National Guard Bureau	Job Name:	VA ANGIH Survey	Chain Of Custody:	514755
Address:	301-H Old Bay Lane, Attn: ARNG-CJG-P, State Military Reservation	Job Location:	Radford NG Armory	Date Analyzed:	12/18/2012
	Havre de Grace, Maryland 21078	Job Number:	Not Provided	Person Submitting:	AECOM
		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/T-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.

NVLAP (101143-0) 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



LAB #100470

Client: National Guard Bureau Job Name: VA ANG III Survey Chain Of Custody: 514755
 Address: 301-JH Old Bay Lane, Attn: ARNG-CJG-P, State Military Reservation Job Location: Radford NG Armory Date Submitted: 12/12/2012
 Havre de Grace, Maryland 21078 Job Number: Not Provided Person Submitting: AECOM
 P.O. Number: W912K6-09-A-0003 Date Analyzed: 12/20/2012 Report Date: 12/20/2012

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
13023072	RW-001	Flame	Wipe	****	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13023073	RW-002	Flame	Wipe	****	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13023074	RW-003	Flame	Wipe	****	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13023075	RW-004	Flame	Wipe	****	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13023076	RW-005	Flame	Wipe	****	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13023077	RW-006	Flame	Wipe	****	0.111	110 ug/ft ²	45	400 ug/ft ²	
13023078	RW-007	Flame	Wipe	****	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13023079	RW-008	Flame	Wipe	****	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13023080	RLC-001	Flame	Paint Chip	****	N/A	0.0098 %Pb		0.015 %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.

An AIHA (#100470) and NY ELAP (#10920) Accredited Laboratory

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

AMA Analytical Services, Inc.



A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS



Client: National Guard Bureau Job Name: VA ANG II: Survey Chain Of Custody: 514755
 Address: 301-III Old Bay Lane, Attn: ARNG-CJG-P, Job Location: Radford NG Armory Date Submitted: 12/12/2012
 Harre de Grace, Maryland 21078 Job Number: Not Provided Person Submitting: AECUM
 P.O. Number: W912K6-09-A-0003 Date Analyzed: 12/20/2012 Report Date: 12/20/2012

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
Analysis Method for Flame: Air, Wipes, Paints, and Soil/Solids: EPA 800/R-93/200(M)-7000B; Water: SM-3111B Analysis Method for Furnace: Air, Wipes, Paints, and Soil/Solids: EPA 600/R-93/200(M)-7010; Water: SM-3113B N/A = Not Applicable mg/Kg = parts per million (ppm) on a dry weight basis mg/L = parts per million (ppm) %Pb = percent lead on a dry weight basis ug = micrograms ug/L = parts per billion (ppb) Note: All samples were received in good condition unless otherwise noted. Note: All results have two significant digits. Any additional digits shown should not be considered when interpreting the result. Air and Wipe results are not corrected for any blank results Final results for air and wipe samples are based on client supplied information not verified by this laboratory. All results are to be considered preliminary and subject to change unless signed by the Technical Director or Deputy.							See QC Summary for analytical results of quality control samples associated with these samples.		
Analyst:							Technical Manager:		

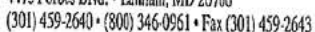
Non-Responsive

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.

An AIHA (#100470) and NY ELAP (#10920) Accredited Laboratory

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



(Please Refer To This
Number For Inquires)

514755

5. Submitted by: AFCEM

△ chain

[illegible]

Bulk Sampling Survey Sheet

Date Collected: 11/6/12

Job Name:

Radford NG Armory

Company: NGB Page 1 of 1

Job Number:

Job Location:

Radford, VA

Phone Number:

410-942-0273

Contact Person:

Non-Responsive

Address:

6th & Scott St.
Radford, VA 24143

Collected By:

Non-Responsive

COC Number:

Sample Number	Homogenous Area ID	Type of Material	Sample Location	Friable	Condition of Material	Accessibility	Photo	Comments
RA-1	1	Fl. Tile		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input checked="" type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input checked="" type="checkbox"/> High	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
RA-2	2	Skim Coat Ceiling	Supply Room	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input checked="" type="checkbox"/> Poor	<input type="checkbox"/> Low <input checked="" type="checkbox"/> Medium <input type="checkbox"/> High	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
RA-3	3	Plaster	Supply Room	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input checked="" type="checkbox"/> Poor	<input type="checkbox"/> Low <input checked="" type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
RA-4	4	Plaster	Boiler Room	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input checked="" type="checkbox"/> Poor	<input type="checkbox"/> Low <input checked="" type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	



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



Surface Sampling Field Data Sheet

Date Collected: 11/6/12

Job Name: Radford NG Armory

Company: NGB Page 1 of 1

Job Number:

Job Location:

Phone Number:

Contact Person:

Non-Responsive

Radford, VA
6th & Scott Street
Radford, VA 24183

410-947-0222

Collected By:

Non-Responsive

COC Number:

Sample Number	Sample Location	Surface/Substrate Sampled	Area Wiped (in ² /ft ²)	Collection Media
RW-001	Drill Hall - HVAC Supply Side	Metal	4 in. x 4 in.	Wipe
RW-002	Drill Hall - Filter Side	Metal		
RW-003	Drill Hall - Center Floor	Rubber		
RW-004	Drill Hall - Top Pepsi Machine	Plastic		
RW-005	Office - Old Supply Rm	Metal		
RW-006	Supply Rm - Top File Cabinet	Metal		
RW-007	Foyer - Front	Tile		
RW-008	Foyer - Supply Vent			

Please Return Samples To:

AMA Analytical Services, Inc., 4475 Forbes Blvd., Lanham, MD 20706, (800) 346-0961/(301) 439-2640 Fax, www.amalab.com, info@amalab.com

Date Collected: 11/6/12 Job Name: Radford NG Armory Company: NGB Page 1 of 1
Job Number: Non-Responsive Job Location: Radford, VA 24143 Phone Number: 410-942-0273
Contact Person: Non-Responsive Address: 6th & Scott St. Collected By: Non-Responsive
Radford, VA 24143 COC Number: 1

[illegible]

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



Appendix D

References

References

1. Title 29, Code of Federal Regulations (CFR), Part 1910, Occupational Safety and Health Administration, current Ed. <http://www.osha.gov/comp-links.html>
2. Department of Defense Instruction (DODI) 6055.1, Department of Defense Occupational Safety and Health (OSH) Program, August 19, 1998. <http://www.dtic.mil/whs/directives/corres/pdf/605501p.pdf>
3. Army Regulation (AR) 11-34, The Army Respiratory Protection Program, 15 February 1990. http://armypubs.army.mil/epubs/pdf/R11_34.PDF
4. AR 40-5, Medical Service, Preventive Medicine, 25 May 2007. http://armypubs.army.mil/epubs/pdf/R40_5.PDF
5. AR 385-10, The Army Safety Program, 23 August 2007; Rapid Action Revision (RAR) issue date: 4 October 2011. http://armypubs.army.mil/epubs/pdf/R385_10.PDF
6. Department of the Army Pamphlet (DA PAM) 40-501, Medical Services, Hearing Conservation Program, 10 December 1998. http://armypubs.army.mil/epubs/pdf/P40_501.pdf
7. DA PAM 40-11, Preventive Medicine, 22 July 2005, RAR issue date: 19 October 2009. http://armypubs.army.mil/epubs/pdf/p40_11.pdf
8. DA PAM 40-503, Medical Services, Industrial Hygiene Program, 30 October 2000. http://armypubs.army.mil/epubs/pdf/P40_503.PDF
9. UFC 3-410-01FA, Heating, Ventilating, and Air Conditioning, 15 May 2003, change 4, January 2010. http://www.wbdg.org/ccb/DOD/UFC/ufc_3_410_01fa.pdf
10. Threshold Limit Values (TLVs) and Biological Exposure Indices (BEIs), American Conference of Governmental Industrial Hygienists (ACGIH), current Ed.
11. Industrial Ventilation – A Manual of Recommended Practice for Design, ACGIH, current Ed.
12. American National Standards Institute (ANSI)/International Safety Equipment Association (ISEA) Z358.1-2009, Emergency Eyewash and Shower Equipment.
13. ANSI/American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. (ASHRAE) 55-2010, Thermal Environmental Conditions for Human Occupancy.
14. ANSI/ASHRAE 62.1-2010, Ventilation for Acceptable Indoor Air Quality.
15. RP-1-2004, Office Lighting, ANSI/IESNA.
16. RP-7-2001, Industrial Lighting, ANSI/IESNA, change 20 July 2004.
17. OSHA Instruction Letter 02-02-058, Lead Exposure in Construction, Office of Health Compliance Assistance, 13 December 1993.
18. OSHA Standard Interpretation, Clarification of “as free as practicable” and lead contamination under 29 CFR 1926.62, dated January 13, 2003.
19. NG PAM 420-15, Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges, 3 November 2006. http://www.ngbpdn.ngb.army.mil/pubs/420/ngpam420_15.pdf

Shaw Environmental, Inc.

312 Directors Drive
Knoxville, TN 37923
865.690.3211
Fax 865.690.3626



**National Guard Armory
Roanoke Readiness Center
Roanoke, Virginia**

Industrial Hygiene Evaluation

Prepared for:

**National Guard Region North Industrial Hygiene Office
Havre De Grace, Maryland 21078**

Prepared by:

**Shaw Environmental, Inc.
312 Directors Drive
Knoxville, Tennessee 37923**

13 December 2004

**National Guard Armory
Roanoke Readiness Center
Roanoke, Virginia**

Industrial Hygiene Evaluation

Prepared for:

**National Guard Region North Industrial Hygiene Office
Havre De Grace, Maryland 21078**

Prepared by:

**Shaw Environmental, Inc.
312 Directors Drive
Knoxville, Tennessee 37923**

13 December 2004

Prepared by:

Non-Responsive

Reviewed by:

Non-Responsive

Business Line Manager

Table of Contents

<i>Table of Contents</i>	<i>i</i>
<i>List of Tables</i>	<i>ii</i>
<i>List of Appendices</i>	<i>ii</i>
<i>Executive Summary</i>	<i>E-1</i>
<i>1.0 Introduction</i>	<i>1-1</i>
<i>2.0 Findings, Discussion, and Interpretation of Results</i>	<i>2-1</i>
<i>2.1 Sampling for Lead</i>	<i>2-1</i>
<i>2.1.1 Wipe Sampling</i>	<i>2-1</i>
<i>2.1.2 Air Sampling for Lead</i>	<i>2-2</i>
<i>2.2 Physical Condition of Facility</i>	<i>2-2</i>
<i>2.2.1 Peeling Paint - Lead</i>	<i>2-2</i>
<i>2.2.2 Visual Inspection - Asbestos</i>	<i>2-2</i>
<i>2.2.3 Visual Inspection - Water Damage and Mold</i>	<i>2-3</i>
<i>2.2.4 Visual Inspection - Housekeeping</i>	<i>2-3</i>
<i>2.3 Building Concerns</i>	<i>2-4</i>
<i>2.3.1 Ergonomic Concerns</i>	<i>2-4</i>
<i>2.3.2 Indoor Air Quality</i>	<i>2-4</i>
<i>2.4 Safety and Industrial Hygiene Programs</i>	<i>2-4</i>
<i>2.5 Ventilation</i>	<i>2-5</i>
<i>2.5.1 Ventilation System Evaluation</i>	<i>2-5</i>
<i>2.5.2 Contamination of Clean Air Sources</i>	<i>2-5</i>
<i>2.6 Noise Exposure</i>	<i>2-5</i>
<i>2.7 Lighting</i>	<i>2-5</i>
<i>2.8 Converted Indoor Firing Ranges</i>	<i>2-5</i>
<i>2.9 HVAC Systems</i>	<i>2-6</i>
<i>2.10 HHIM</i>	<i>2-6</i>
<i>3.0 Conclusions</i>	<i>3-1</i>
<i>Tables</i>	<i>Follows Section 3.0</i>
<i>Appendices</i>	<i>Follows Tables</i>

List of Tables

Table 1	Wipe Sampling for Lead
Table 2	Air Sampling for Lead
Table 3	Indoor Air Quality Measurements
Table 4	Illumination Readings
Table 5	Indoor Firing Ranges – Wipe Sampling

List of Appendices

Appendix A	HHIM Data Form
Appendix B	Building Layout
Appendix C	Sampling Sheets and Laboratory Analyses
Appendix D	References
Appendix E	Recommendations for Surface Lead Dust in Armories

Executive Summary

Shaw Environmental, Inc.(Shaw) was contracted to perform an industrial hygiene evaluation for the Roanoke Readiness Center in Roanoke, Virginia. **Non-Responsive** performed the evaluation on 15 January 2004. The point of contact at the readiness center was SFC **Non-Responsive**

The following industrial hygiene concerns were evaluated.

- Wipe Sampling for Lead
- Air Sampling for Lead
- Peeling Paint – Lead
- Suspected Asbestos Containing Material
- Water Damage
- Presence of Mold
- Housekeeping
- Ergonomic Concerns
- Indoor Air Quality
- Safety and Industrial Hygiene Programs
- Ventilation System Evaluation
- Contamination of Clean Air Sources
- Noise Exposure
- Lighting
- Converted Indoor Firing Range
- HVAC Systems

The following items were either not applicable to the armory or the evaluation resulted in a conclusion that there were no industrial hygiene concerns.

- Air Sampling for Lead
- Peeling Paint – Lead
- Housekeeping
- Ergonomic Concerns
- Safety and Industrial Hygiene Programs
- Ventilation System Evaluation

- Contamination of Clean Air Sources
- Noise Exposure
- HVAC Systems

Areas where there were industrial hygiene concerns are as follows:

- Wipe sampling for lead revealed a concentration above the recommended level of 200 micrograms per square foot ($\mu\text{g}/\text{ft}^2$) in the drill floor/assembly hall area, Chem Co supply office, HHC orderly room, Co C commander's table, 229th Chen Co supply room, and XO desktop. It is recommended that these areas and the stored items in these areas must be decontaminated by a thorough cleaning until surface lead concentrations are reduced to below recommended levels. In addition, any other dusty/dirty areas in the assembly area/drill floor, Chem Co supply office, HHC orderly room, Co C commander's table, 229th Chen Co supply room, and XO desktop should be thoroughly cleaned.
- Wipe sampling for lead revealed concentrations above a level of 40 micrograms per square foot ($\mu\text{g}/\text{ft}^2$) in the drill floor/assembly hall area, Chem Co supply office, HHC orderly room, Co C commander's table, 229th Chen Co supply room, XO desktop, BN-S4 window, PAC SEC window, classroom # 2, 29th ID band orderly room, and converted firing range. Areas with lead concentrations above 40 $\mu\text{g}/\text{ft}^2$ that will be accessible to children should be cleaned. If a special function is held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function.
- Materials (floor tiles) suspected of containing asbestos were observed. An operations and maintenance plan should be followed when performing any activities that may disturb the suspected asbestos-containing materials.
- Water damage was observed at several locations at the armory. The source of the water damage was likely from a combination of roof and pipe leaks. The source of the water damage should be confirmed and actions taken to eliminate the source in order to prevent the possibility of mold growth that may lead to indoor air quality problems.
- Visual mold was observed in the armory. The areas where the mold is located should be thoroughly cleaned with 0.5% sodium hypochlorite solution (1 part household bleach to nine parts water) or equivalent in order to eliminate the potential mold/indoor air quality problem. In addition, the source of the mold should be identified and actions taken to eliminate it.

- Measurements for temperature revealed that levels exceeded the recommended level of 74° Fahrenheit in the facility. If possible, the heating units should be adjusted so the temperature will fall within the acceptable range. In addition, fans could be used to decrease the temperature at specific locations.
- Measurements for humidity revealed that levels did not meet the recommended level of 30% humidity in the facility. It is recommended that a humidification system be installed at the facility.
- Lighting measurements were conducted at the armory. The lighting did not meet minimum requirements in some areas; therefore, consideration should be given to providing more lighting in these areas. This may be accomplished by replacing burnt out luminaries, cleaning fixtures, cleaning windows, painting walls with a lighter color, repositioning detailed work to higher illuminated areas, and using supplemental lighting.
- Wipe sampling for lead in the converted firing range revealed concentrations above the recommended level in several areas. These areas and the stored items in these areas must be decontaminated by a thorough cleaning until surface lead concentrations are reduced to below recommended levels. In addition, employees should not be allowed to work in these areas without protective clothing until the areas and the stored items in these areas have been cleaned and re-sampled.

1.0 Introduction

Shaw Environmental, Inc. (Shaw) was contracted to perform an industrial hygiene evaluation for the Roanoke Readiness Center in Roanoke, Virginia. Non-Responsive performed the evaluation on 15 January 2004. The point of contact at the readiness center was SFC Non-Responsive

The findings, discussion, and interpretation of results are provided in Section 2.0. The conclusions are provided in Section 3.0. The HHIM data form for the facility is provided in Appendix A. The building layout is provided in Appendix B. Sampling sheets and laboratory analyses are provided in Appendix C. References are provided in Appendix D. The *Recommendations for Surface Lead Dust in Armories* document is provided in Appendix E.

The statements, opinions, and conclusions contained in this report are based solely upon the services performed by Shaw as described in the report. In performing these services and preparing the report, Shaw Environmental, Inc. relied upon the work and information provided by others, including public agencies, whose information is not guaranteed by Shaw Environmental, Inc.

2.0 Findings, Discussion, and Interpretation of Results

The results, discussion, and interpretation of results are provided in the following sections.

2.1. Sampling for Lead

2.1.1 Wipe Sampling

Wipe samples were collected for lead from the drill floor/assembly area. Also, wipe samples were collected for lead in rooms, hallways, foyers, etc. The sampling in rooms, hallways, foyers, etc. represented approximately 25% of the building. Approximately half of the samples were collected from surfaces in common areas, such as surfaces of a desk. The remaining samples were collected from uncommon surface areas, such as a supply vent or the top of a file cabinet. The samples were collected and analyzed in accordance with the Instructions for *Completing the Sampling of ARMY National Guard Armories* procedure.

The only samples initially submitted for analysis were those from the drill floor/assembly hall. Since there were results above acceptable levels from the drill floor/assembly hall area, the remaining samples were submitted for analysis.

Results of the wipe sampling are provided in Table 1. The results revealed lead at all locations sampled at concentrations above the recommended level of 200 micrograms lead per square foot ($\mu\text{g}/\text{ft}^2$) (See Appendix E) in the drill floor/assembly area. The samples collected from the fire hose housing, exit door ledge, two support pieces to the building I beams, and fire hose housing had lead concentrations of 230, 440, 490, 3900, and 12000 $\mu\text{g}/\text{ft}^2$, respectively. The results of the remaining building samples revealed lead at all locations sampled at concentrations below recommended level of 200 micrograms lead per square foot ($\mu\text{g}/\text{ft}^2$) (See Appendix E) except at five location in the facility. The samples collected from the 229th Chem Co supply office window sill, HHC orderly room safe, Co C commander's table, 229th Chen Co supply room filing cabinet, and XO desktop had lead concentrations of 1200, 260, 640, 3700, and 370 $\mu\text{g}/\text{ft}^2$, respectively. It is recommended that these surfaces and the immediate areas around these surfaces be thoroughly cleaned to reduce the lead level to below

200 $\mu\text{g}/\text{ft}^2$. For guidance on the proper method of cleaning, please refer to NG PAM 385-15 (*Guidelines and Procedures for Indoor Firing Range (IFR) Rehabilitation, Conversion, and Cleaning*). In addition, any other dusty/dirty areas in the assembly area/drill floor, Chem Co supply office, HHC orderly room, Co C commander's table, 229th Chem Co supply room, and XO desktop should be thoroughly cleaned.

In addition, wipe sampling for lead revealed concentrations above a level of 40 $\mu\text{g}/\text{ft}^2$ in the drill floor/assembly hall area, Chem Co supply office, HHC orderly room, Co C commander's table, 229th Chem Co supply room, XO desktop, BN-S4 window, PAC SEC window, classroom # 2, 29th ID band orderly room, and converted firing range. Please note that the *Recommendations for Surface Lead Dust in Armories* (Appendix E) states that all areas with lead concentrations above 40 $\mu\text{g}/\text{ft}^2$ that will be accessible to children should be cleaned. If a special function is held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function.

2.1.2 Air Sampling for Lead

General air sampling was conducted because employees were not available for sampling. The samples were collected and analyzed in accordance with Method 7082 of the National Institute of Occupational Safety and Health (NIOSH) Manual of Analytical Methods.

The results of the sampling are provided in Table 2. The results revealed non-detectable concentrations of lead in air; therefore, no actions are necessary.

2.2 Physical Condition of Facility

2.2.1 Peeling Paint - Lead

Peeling paint was observed in the armory. Bulk samples were not collected at this facility.

2.2.2 Visual Inspection - Asbestos

A visual inspection was made to determine if there was any suspected asbestos-containing material at the armory. Materials (floor tiles) suspected of containing asbestos were observed. The suspected asbestos-containing materials, with condition and estimated quantity, were at the following locations:

- Op Center – Good Condition, Approximately 621 Square Feet
- Hallway to Op Center – Good Condition, Approximately 130.5 Square Feet
- Right Side of Hall Offices – Good Condition, Approximately 999 Square Feet
- Left Side of Hall Offices – Good Condition, Approximately 535.5 Square Feet
- Stairwell – Good Condition, Approximately 45 Square Feet
- 2nd Floor Hallway – Good Condition, Approximately 387 Square Feet

An operation and maintenance plan should be followed when performing any activities that may disturb the suspected asbestos-containing materials.

2.2.3 Visual Inspection – Water Damage and Mold

A visual inspection was made to determine if there was any water damage or visible mold at the armory. Both visible mold and water damage was observed at the armory. Water damage was observed on the ceilings and some walls in the both 229th Chem Co supply rooms, BN supply room, 229th kitchen, 29th ID band orderly room, Co C supply room, hallway, and side entrance hallway.

The source of the water damage was likely from a combination of roof and pipe leaks. The source of the water damage should be confirmed and actions taken to eliminate the source in order to prevent the possibility of mold growth that may lead to indoor air quality problems.

Visible mold was observed on the ceilings and walls in the 229th Chem Co supply room, BN supply room and 229th kitchen. The areas where the mold is located should be thoroughly cleaned with 0.5% sodium hypochlorite solution (1 part household bleach to nine parts water) or equivalent in order to eliminate the potential mold/indoor air quality problem. In addition, the source of the mold should be identified and actions taken to eliminate it.

2.2.4 Visual Inspection - Housekeeping

The housekeeping was determined to be good.

2.3. Building Concerns

2.3.1 Ergonomic Concerns

Interviews with employees and observation of work activities revealed no ergonomic concerns at the armory.

2.3.2 Indoor Air Quality

Interviews with employees and measurements for carbon dioxide revealed no indoor air quality concerns at the armory. However, measurements for temperature revealed that levels exceeded the recommended level of 74° Fahrenheit in the facility. If possible, the heating units should be adjusted so the temperature will fall within the acceptable range. In addition, fans could be used to decrease the temperature at specific locations.

In addition, measurements for humidity revealed that levels did not meet the recommended level of 30% humidity in the facility. It is recommended that a humidification system be installed at the facility.

The results of the measurements for carbon dioxide, humidity, and temperature are provided in Table 3.

2.4. Safety and Industrial Hygiene Programs

An evaluation was performed to determine the applicability of the following programs.

- Confined Spaces
- Hearing Conservation
- Respiratory Protection
- Hazard Communication (HAZCOM)
- Personal Protective Equipment (PPE)

It was determined that the HAZCOM program was the only program listed above that was applicable at the facility. The HAZCOM program was evaluated and it was determined that the program met minimum requirements.

2.5. Ventilation

2.5.1 Ventilation System Evaluation

There were no local exhaust ventilation systems at this armory; therefore, no ventilation studies were performed.

2.5.2 Contamination of Clean Air Sources

Since there were no local exhaust ventilation systems at the armory, there was no possibility that clean air sources could be contaminated by exhaust air.

2.6. Noise Exposure

An evaluation was performed to determine if there were any hazardous noise areas at the armory. It was determined that there were no areas at the armory that would exceed the permissible exposure limit for noise.

2.7 Lighting

Lighting measurements were conducted at the armory. Results of the lighting evaluation are provided in Table 4. As can be seen from the results, the lighting did not meet the minimum requirements in some areas, including the men's latrine HHC kitchen, 229th kitchen, women's latrine, classroom 1, classrooms 2 & 3, Co C orderly office, BN-HQ office, and BN commander's office.

Consideration should be given to providing more lighting to these areas. This may be accomplished by replacing burnt out luminaires, cleaning fixtures, cleaning windows, painting walls with a lighter color, repositioning detailed work to higher illuminated areas, and using supplemental lighting.

2.8 Converted Indoor Firing Ranges

There was a converted indoor firing range at the facility; therefore, wipe samples were taken for lead at various locations in or near the converted range. The space is used as storage. The results are provided in Table 5. The results revealed lead, with associated concentrations, at the following locations:

- exhaust ventilation system at 420 micrograms lead per square foot ($\mu\text{g}/\text{ft}^2$);
- bullet trap at $85000 \mu\text{g}/\text{ft}^2$;
- stored item at $900\mu\text{g}/\text{ft}^2$;

- floor (inside the converted firing range) at 530 $\mu\text{g}/\text{ft}^2$; and
- floor (outside the converted firing range) the range at 37 $\mu\text{g}/\text{ft}^2$

The lead levels at four of these locations were above the recommended level of 200 $\mu\text{g}/\text{ft}^2$, a level recommended in the *Guidelines for Converting Indoor Firing Ranges to Other Uses* document (Department of Army). These areas and the stored items in the converted firing range must be decontaminated by a thorough cleaning until surface lead concentrations are reduced to below recommended levels. For guidance on the proper method of cleaning, please refer to NG PAM 385-15 (*Guidelines and Procedures for Indoor Firing Range (IFR) Rehabilitation, Conversion, and Cleaning*). In addition, employees should not be allowed to work in these areas without protective clothing until the areas and items have been cleaned and re-sampled.

2.9. HVAC System

The maintenance schedule for the HVAC system was evaluated to verify that maintenance occurs on a regular basis. Also, the condition of the HVAC system was evaluated to determine if the maintenance performed is effective. It was deemed that maintenance occurs on a regular basis, and the maintenance performed is effective.

2.10. HHIM

A Health Hazard Information Module (HHIM) form was completed for the armory. The completed form is provided in Appendix A.

3.0 Conclusions

It is concluded that there were no industrial hygiene concerns at the armory with regards to atmospheric exposure to lead, peeling lead-based paint, housekeeping, ergonomic conditions, safety and industrial hygiene programs, ventilation systems or contamination of clean air sources, noise exposure, and HVAC systems.

There were industrial hygiene concerns at the armory with regards to lead surface contamination, suspected asbestos-containing material, water damage, visible mold, indoor air quality, surface lead contamination in the converted firing range, and lighting. These concerns are discussed in detail in Section 2.0 of this report.

TABLES

Table 1
Wipe Sampling for Lead
National Guard Armory
Roanoke Armory, Virginia
Date of Sampling: 15 January 2004

Sample Number	Location	Results, $\mu\text{g}/\text{ft}^2$
VAROA015-1	Drill Floor (fire extinguisher housing) See Building Layout – Appendix B	230
VAROA015-2	Drill Floor (exit door ledge) See Building Layout – Appendix B	440
VAROA015-3	Drill Floor (support piece to building I beam) See Building Layout – Appendix B	3900
VAROA015-4	Drill Floor (fire hose housing) See Building Layout – Appendix B	490
VAROA015-5	Drill Floor (support piece to building I beam) See Building Layout – Appendix B	12000
VAROA015-6	Field Blank	1.8
VAROA015-7	Kitchen microwave- See Building Layout – Appendix B	17
VAROA015-8	229 th Chem Co supply office window sill - See Building Layout – Appendix B	1200
VAROA015-9	Classroom #2 window sill - See Building Layout – Appendix B	78
VAROA015-10	HHC orderly room safe top - See Building Layout – Appendix B	260
VAROA015-11	Co C commander's table - See Building Layout – Appendix B	640
VAROA015-12	Field Blank	0.33
VAROA015-13	Side entrance hallway candy machine - See Building Layout – Appendix B	30
VAROA015-14	229 th Chem Co supply room filing cabinet - See Building Layout – Appendix B	3700
VAROA015-15	29 th ID band orderly room computer monitor - See Building Layout – Appendix B	130

Table 1 (Continued)
Wipe Sampling for Lead
National Guard Armory
Roanoke Armory, Virginia
Date of Sampling: 15 January 2004

VAROA015-16	Op center window sill - See Building Layout – Appendix B	23
VAROA015-17	XO desktop - See Building Layout – Appendix B	370
VAROA015-18	Field Blank	0.38
VAROA015-19	BN-S4 window sill - See Building Layout – Appendix B	58
VAROA015-20	PAC SEC window sill - See Building Layout – Appendix B	140

^a Micrograms lead per square foot

The samples were taken and analyzed in accordance with the *Instructions for Completing the Sampling of ARMY National Guard Armories* procedure.

Table 2
Breathing Zone Air Samples for Lead
National Guard Armory
Roanoke, Virginia
Date of Sampling: 15 January 2004

Sample Number	Employee	Sampling Information			Results (mg/m ³) ^a
		Time Sampled / Minutes	Flow Rate (lpm) ^b	Volume (liters)	
VAROA015-A1	General Air Sample	1330-1525/115	1.641	188.74	<0.005
VAROA015-A2	General Air Sample	1335-1540/125	1.682	210.28	<0.005
VAROA015-A3	Field Blank	-	-	-	None Detected

^a Milligrams lead per cubic meter of air.

^b Liters of air per minute.

Method 7082 of the National Institute of Occupational Safety and Health (NIOSH) Manual of Analytical Methods was followed for sampling for lead.

Table 3
Indoor Air Quality Measurements for Carbon Dioxide, Humidity, and Temperature
National Guard Armory
Roanoke, Virginia
Date of Sampling: 15 January 2004

Location	Occupants In Area	Carbon Dioxide, parts per million parts of air (ppm)	Percent (%) Humidity	Temperature (°F)
Outdoors	-	331	13.0	43.2
1 st Floor	1	379	24.1	75.6
2 nd Floor	1	565	29.6	70.5

Carbon dioxide, humidity, and temperature measurements were taken with a TSI Q Trak Plus, Model 8554, Indoor Air Quality Meter, calibrated in April 2003.

American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE) recommends that indoor carbon dioxide levels be less than 700 ppm above outdoor levels.

ASHRAE recommends that the relative humidity levels be maintained between 30 to 60 percent.

ASHRAE recommends that the acceptable temperature range be 68 degrees Fahrenheit to 74 degrees Fahrenheit in the winter and 73 degrees Fahrenheit to 79 degrees Fahrenheit in the summer.

Table 4
Illumination Readings
National Guard Armory
Roanoke, Virginia
Date of Sampling: 15 January 2004

Location	Luminance (fc) ^a	Standard (fc) ^a	Standard Met
Kitchen	66.6-122.2	70	Some Areas
HHC Kitchen	22.2-66.6	40	Some Areas
229 th Kitchen	22.2-66.6	30	Some Areas
29 th ID Band Supply	22.2-66.6	30	Some Areas
Men's Latrine	22.2-33.3	40	No
Co C Supply	33.3-72.2	30	Yes
Women's Latrine	22.2-33.3	40	No
Front & Back Hallways	5.5-16.6	7.5	Some Areas
Classroom #1	22.2-55.5	70	No
Classroom # 2 & 3	33.3-44.4	70	No
Co C Commanders Office	22.2-88.8	70	Some Areas
Co C Orderly Office	22.2-66.6	70	No
HHC Supply Office	33.3-88.8	70	Some Areas
BN-S4 Office	55.5-100	70	Some Areas
BN-HQ Office	44.4-66.6	70	No
BN Commander's Office	22.2-55.5	70	No
PAC SEC Office	33.3-77.7	70	Some Areas

^a fc - Footcandles

The readings were taken with a Weston model 614-60 Lightmeter.

The standards listed above are from ANSI/IES RP-1 and RP-7.

Table 5
Wipe Sampling for Lead – Converted Firing Range
National Guard Armory
Roanoke, Virginia
Date of Sampling: 15 January 2004

Sample Number	Location	Results, $\mu\text{g}/\text{ft}^2$ ^a
VAROA015-21	Exhaust Ventilation System	420
VAROA015-22	Bullet Trap (floor near former bullet trap location)	85000
VAROA015-23	Stored Item	900
VAROA015-24	Field Blank	0.42
VAROA015-25	Floor (Inside the Converted Firing Range)	530
VAROA015-26	Floor (Outside the Converted Firing Range)	37

^a Micrograms lead per square foot

The samples were taken and analyzed in accordance with the Instructions for *Completing the Sampling of ARMY National Guard Armories* procedure.

Appendix A

HHIM Data Form(s)

SECTION 1. DEMOGRAPHIC DATA

SECTION 1. DEMOGRAPHIC DATA

SECTION 2. FACILITY DATA		
LAB HOODS	VAPOR DEGREASERS	SPRAY BOOTHS
MAINTENANCE BAYS	OPEN SURFACE TANKS	VENTILATION UNITS

SECTION 3: SURVEY DATA

[illegible]

PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized)

GLOVES	R	U	RESPIRATOR	NIOSH TC NO.	MANUFACTURER	R	U
ACID			AIRLINE				
COLD SURFACES			ABRASIVE BLASTING HOOD				
HOT SURFACES			DISPOSABLE				
B/C AGENTS			FULL FACE AIR PURIFYING				
HL			1/2 FACE AIR PURIFYING				
SOLVENTS			POWERED AIR PURIFYING				
SURGICAL GLOVES			1/4 FACE AIR PURIFYING				
			SELF CONTAINED				

EYES/FACE	R	U	HEARING	R	U	BODY	R	U	HEAD/FIT	R	U
CHEMICAL SPLASH			CANAL CAPS			APRONS			COLD WEATHER BOOTS/HATS		
FULL FACE SHIELD			EAR PLUGS			COLD WEATHER CLOTHING			HARD HATS		
CHEMICAL SAFETY			HELMETS			COVERALLS			IMPERMEABLE BOOTS		
SAFETY IMPACT			MUFFS			FULL BODY SUIT			SAFETY/CONDUCTIVE SHOES		
WELDING HELMET			MUFF/EARPLUG COMBO			HEAT REFLECTIVE VEST/SUIT			SAFETY/NON-CONDUCTIVE SHOES		

SECTION 4. HAZARD INVENTORY DATA

CAS CODE	HAZARD DESCRIPTION	PAC	EPC
POVDT XXXX	VIDEO DISPLAY TERMINAL	3-LOW	D - UNCONTROLLED PHYSICAL
7439-29-1	LEAD, INORGANIC FUMES, DUST	2-MODERATE	C - UNCONTROLLED RESPIRATORY
1332-21-4	ASBESTOS	2-MODERATE	C - UNCONTROLLED RESPIRATORY
121-38-9	CARBON DIOXIDE	2-MODERATE	C - UNCONTROLLED RESPIRATORY
POLYETHYLENE	HEAVY LIFTING	2-MODERATE	D - UNCONTROLLED PHYSICAL
POHEATSE	HEAT STRESS	3-LOW	D - UNCONTROLLED PHYSICAL

SECTION 5. PERSONNEL DATA

LAST NAME	FIRST NAME	MI	SEX	SSN	CATEGORY
(SEE ATTACHED)	Uniform Information Sheet				

SECTION 6. COMMENTS

☒ No comments

☐ See attached sheet

PRIVACY ACT STATEMENT

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

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

FULL TIME EMPLOYEES ROSTER

LOCATION: 32 Reserve Avenue, Roanoke, Virginia

HHC 1-116 Inf, 29th ID (L)

Non-Responsive

A large black rectangular redaction box covering the content of the HHC 1-116 Inf, 29th ID (L) section.

CO C 1-116 Inf, 29th ID (L)

Non-Responsive

A black rectangular redaction box covering the content of the CO C 1-116 Inf, 29th ID (L) section.

29th DIV Band, 29th ID (L)

Non-Responsive

A black rectangular redaction box covering the content of the 29th DIV Band, 29th ID (L) section.

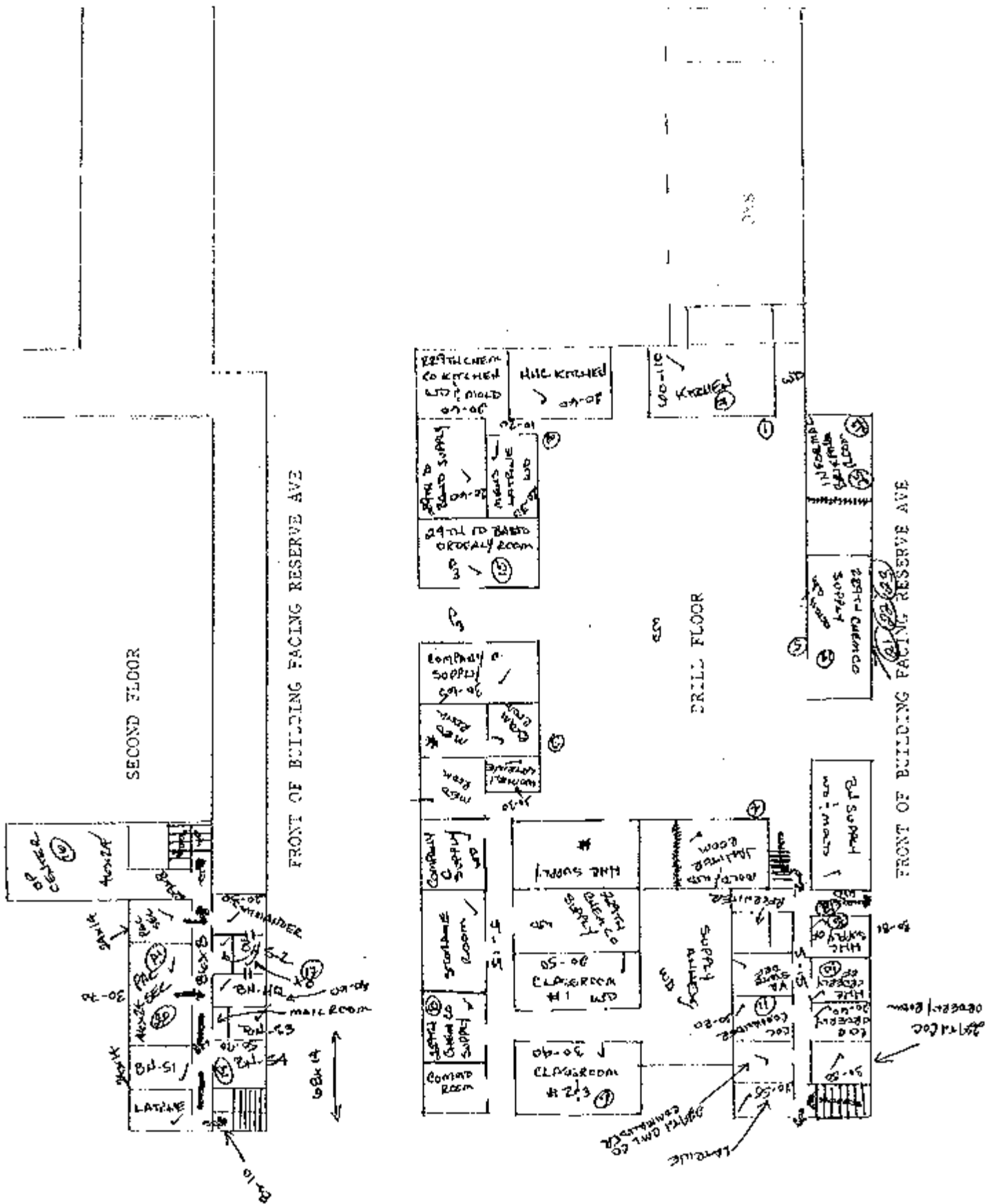
229 CHEMICAL COMPANY

Non-Responsive

A black rectangular redaction box covering the content of the 229 CHEMICAL COMPANY section.

Appendix B

Building Layout



Appendix C

Sampling Sheets and Laboratory Analyses

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

Job Name: VA ROA 015
Job Location: Roanoke, Virginia
Job Number: 845702 01000000
P.O. Number: 1103

Chain Of Custody: 122177
Date Analyzed: 1/30/2004
Person Submitting: **0820192**
Report Date: 30-Jan-04

Attention: **Non-Responsive**

Summary of Atomic Absorption Analysis for Lead

AMA Sample Number	Client Sample Number	Analysis Type	Sample Type	Air Volume (L)	Area Wiped (ft²)	Reporting Limit	Final Result	Comments
0421980	VA ROA 015 1	Furnace	Wipe	****	0.111	67.51 ug/ft²	230 ug/ft²	
0421981	VA ROA 015 2	Flame	Wipe	****	0.111	108.01 ug/ft²	440 ug/ft²	
0421982	VA ROA 015 3	Flame	Wipe	****	0.111	108.01 ug/ft²	3900 ug/ft²	
0421983	VA ROA 015 4	Flame	Wipe	****	0.111	108.01 ug/ft²	490 ug/ft²	
0421984	VA ROA 015 5	Flame	Wipe	****	0.111	108.01 ug/ft²	12000 ug/ft²	
0421985	VA ROA 015 6	Furnace	Wipe Blank	****	N/A	0.30 ug	1.8 ug	
0421986	VA ROA 015 21	Flame	Wipe	****	0.111	108.01 ug/ft²	420 ug/ft²	
0421987	VA ROA 015 22	Flame	Wipe	****	0.111	108.01 ug/ft²	85000 ug/ft²	
0421988	VA ROA 015 23	Flame	Wipe	****	0.111	108.01 ug/ft²	900 ug/ft²	
0421989	VA ROA 015 24	Furnace	Wipe Blank	****	N/A	0.30 ug	0.42 ug	
0421990	VA ROA 015 25	Flame	Wipe	****	0.111	108.01 ug/ft²	530 ug/ft²	
0421991	VA ROA 015 26	Furnace	Wipe	****	0.111	13.50 ug/ft²	37 ug/ft²	

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

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

Analyst:

Technical Manager:

Non-Responsive

No n-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.

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

All rights reserved. AMA Analytical Services, Inc.



Client: National Guard Bureau
301-TH Old Bay Lane, Attn: NGB-AVN-S1,
State Military Reservation
Havre de Grace, Maryland 21078

Job Name: VAROA015
Job Location: Roanoke, VA
Job Number: 845702 01000000
P.O. Number: 1103

Chain Of Custody: 122722
Date Analyzed: 2/13/2004
Person Submitting: [Redacted]
Report Date: 13-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 (ft²)	Reporting Limit	Final Result	Comments
0423954	VAROA015 7	Furnace	Wipe	****	0.111	13.50 ug/ft²	17 ug/ft²	
0423955	VAROA015 8	Flame	Wipe	****	0.111	108.01 ug/ft²	1200 ug/ft²	
0423956	VAROA015 9	Furnace	Wipe	****	0.111	33.75 ug/ft²	78 ug/ft²	
0423957	VAROA015 10	Furnace	Wipe	****	0.111	67.51 ug/ft²	260 ug/ft²	
0423958	VAROA015 11	Flame	Wipe	****	0.111	108.01 ug/ft²	640 ug/ft²	
0423959	VAROA015 12	Furnace	Wipe Blank	****	N/A	0.30 ug	0.33 ug	
0423960	VAROA015 13	Furnace	Wipe	****	0.111	13.50 ug/ft²	30 ug/ft²	
0423961	VAROA015 14	Flame	Wipe	****	0.111	108.01 ug/ft²	3700 ug/ft²	
0423962	VAROA015 15	Furnace	Wipe	****	0.111	67.51 ug/ft²	130 ug/ft²	
0423963	VAROA015 16	Furnace	Wipe	****	0.111	13.50 ug/ft²	23 ug/ft²	
0423964	VAROA015 17	Flame	Wipe	****	0.111	108.01 ug/ft²	370 ug/ft²	
0423965	VAROA015 18	Furnace	Wipe Blank	****	N/A	0.30 ug	0.38 ug	
0423966	VAROA015 19	Furnace	Wipe	****	0.111	33.75 ug/ft²	58 ug/ft²	
0423967	VAROA015 20	Furnace	Wipe	****	0.111	67.51 ug/ft²	140 ug/ft²	

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

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

All rights reserved. AMA Analytical Services, Inc.



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

Job Name: VAROA015
Job Location: Roanoke, VA
Job Number: 845702 01000000
P.O. Number: 1103

Chain Of Custody: 122722
Date Analyzed: 2/13/2004
Person Submitting: [Redacted]
Report Date: 13-Feb-04

Attention:

Non-Responsive

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 ug/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:

Non-Responsive

Non-Responsive

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

All rights reserved. AMA Analytical Services, Inc.

AMA Analytical Services, Inc. (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



TEST REPORT
Page 1 of 2
2/6/04

Submitted To:

Non-Responsive

Shaw Environmental, Inc.
5700 Thurston Ave., Suite 116
Virginia Beach, VA 23455

Reference Data:

Client Sample No.:	Lead
P.O. No.:	VALYN013A1 through VAROA015A3
Sample Location:	1103
Sample Type:	Virginia
Method Reference:	Filter
DCL Set ID No.:	NIOSH 7300
DCL Sample ID No.:	04-S-0356
Sample Receipt Date:	04-01918 through 04-01936
Preparation Date:	1/27/2004
Analysis Date:	01/30/04
	02/05/04

The samples were prepared and analyzed in accordance with NIOSH method 7300 using a Perkin Elmer 3000XL ICP.

The sample condition upon receipt was acceptable except where noted.

The results are in the enclosed data table. Results relate only to the items tested and are not blank corrected unless indicated in the data table.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Non-Responsive

Analyst

Non-Responsive

Reviewer

CINCINNATI OFFICE
4388 GLENDALE-MILFORD ROAD
CINCINNATI, OHIO 45242-3706
513 733-5336, FAX 513 733-5347

WEST COAST OFFICE
11 SANTA YORMA COURT
NOVATO, CALIFORNIA 94945
800 280-8071, FAX 415 893-9469

Results
Lead

Client #	DCL #	Sample Volume (L)	µg/sample	mg/m ³
VALYN013A1	04-01918	256.93	ND	<0.004
VALYN013A2	04-01919	256.22	ND	<0.004
VALYN013A3	04-01920	0	ND	-
VABED013A1	04-01922	156.86	ND	<0.006
VABED013A2	04-01923	152.71	ND	<0.007
VABED013A3	04-01924	0	ND	-
VARAD014A1	04-01925	154.11	ND	<0.006
VARAD014A2	04-01926	160.15	ND	<0.006
VARAD014A3	04-01927	0	ND	-
VACHR014A1	04-01928	177.93	ND	<0.006
VACHR014A2	04-01929	183.21	ND	<0.005
VACHR014A3	04-01930	0	ND	-
VAPUL015A1	04-01931	152.90	ND	<0.007
VAPUL015A2	04-01932	158.40	ND	<0.006
VAPUL015A3	04-01933	0	ND	-
VAROA015A1	04-01934	188.74	ND	<0.005
VAROA015A2	04-01935	210.28	ND	<0.005
VAROA015A3	04-01936	0	ND	-
	Prep Blank		ND	
% Recovery	LCS		120.	
RPL			1.	

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

Non-Responsive

Analyst

Non-Responsive

Reviewer

Industrial Hygiene Sampling Calculation Worksheet

National Guard Armory Location: Roanoke
 Date: 1/15/2004

Sample 1

Sample Number: VAROA015A1

Pump: 647633

	Pre Flow Rate	Post Flow Rate
	1.69	1.648
	1.627	1.619
	1.676	1.621
	1.618	1.631
Average	1.653	1.630

Average Pre and Post 1.6413

Time 1 1:30

Time 2 3:25

Total Time Sampled 1:55

Minutes Sampled 115.00

Volume 188.74 Liters

Sample 2

Sample Number: VAROA015A2

Pump: 647605

	Pre Flow Rate	Post Flow Rate
	1.698	1.672
	1.697	1.678
	1.694	1.666
	1.689	1.664
Average	1.695	1.670

Average Pre and Post 1.6823

Time 1 1:35

Time 2 3:40

Total Time Sampled 2:05

Minutes Sampled 125.00

Volume 210.28 Liters

Appendix D

References

References

Title 29, Code of Federal Regulations CFR), Part 1910, Occupational Safety and Health Administration (current edition)

American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc (ASHRAE) 62-2002, Ventilation for Acceptable Indoor Air Quality

Instructions for Completing the Sampling of Army National Guard Armories, Lead Wipe Sampling Procedure included with the Request for Proposal

Air Sampling for Lead - Method 7082 of the National Institute of Occupational Safety and Health (NIOSH) Manual of Analytical Methods

Design Guide DG-415-2, Logistics Facilities, National Guard Bureau Installation Division, 14 December 1999

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

Army Regulation (AR) 40-5, Medical Service, Preventive Medicine, 15 October 1990

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

Department of the Army Pamphlet (DA PAM) 40-501, Medical Services, Hearing Conservation Program, 10 December 1998

DA PAM 40-503, Medical Services, Industrial Hygiene Program, 30 October 2000

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

Guidelines for Converting Indoor Firing Ranges to Other Uses, Headquarters, Department of the Army and the Air Force, NG PAM (AR) 385-16/ANGPAM 91-101, 31 January 1994

24 CFR, Part 35, Subpart B, Section 35-110, Definition of Lead-Based Paint, Housing and Urban Development, U. S. Department of Housing

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 $0.05 \text{ mg}/\text{m}^3$ averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead dust in this building.

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

NGB-AVS-SI (40-5f)

17 December 2004

MEMORANDUM FOR VAARNG, Roanoke Readiness Center, ATTN: SFC [Non-Respon]
[Non-Respon] 32 Reserve Avenue, SW, Roanoke, VA 24016

SUBJECT: Baseline Survey

1. I have enclosed the industrial hygiene survey report completed by Shaw Environmental, Incorporated.
2. In addition to the attached discussion and recommendations regarding wipe samples for lead, if a special function is held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function.
3. Please contact me at (410) 942-0273 or 1-800-550-6967 if you have any questions regarding the enclosed report.

Encl

Non-Responsive

Regional Industrial Hygienist

CF: Organizational Maintenance Officer
Occupational Health Manager

National Guard Armory

Roanoke Readiness Center, Roanoke, Virginia

Industrial Hygiene Evaluation

Recommendations

- Wipe sampling for lead revealed a concentration above the recommended level of 200 micrograms per square foot ($\mu\text{g}/\text{ft}^2$) in the drill floor/assembly hall area, Chem Co supply office, HHC orderly room, Co C commander's table, 229th Chen Co supply room, and XO desktop. It is recommended that these areas and the stored items in these areas must be decontaminated by a thorough cleaning until surface lead concentrations are reduced to below recommended levels. In addition, any other dusty/dirty areas in the assembly area/drill floor, Chem Co supply office, HHC orderly room, Co C commander's table, 229th Chen Co supply room, and XO desktop should be thoroughly cleaned. **RAC - 4**
- Wipe sampling for lead revealed concentrations above a level of 40 micrograms per square foot ($\mu\text{g}/\text{ft}^2$) in the drill floor/assembly hall area, Chem Co supply office, HHC orderly room, Co C commander's table, 229th Chen Co supply room, XO desktop, BN-S4 window, PAC SEC window, classroom # 2, 29th ID band orderly room, and converted firing range. Areas with lead concentrations above 40 $\mu\text{g}/\text{ft}^2$ that will be accessible to children should be cleaned. If a special function is held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function. **RAC - 4**
- Materials (floor tiles) suspected of containing asbestos were observed. An operations and maintenance plan should be followed when performing any activities that may disturb the suspected asbestos-containing materials. **RAC - 5**
- Water damage was observed at several locations at the armory. The source of the water damage was likely from a combination of roof and pipe leaks. The source of the water damage should be confirmed and actions taken to eliminate the source in order to prevent the possibility of mold growth that may lead to indoor air quality problems. **RAC - 5**
- Visual mold was observed in the armory. The areas where the mold is located should be thoroughly cleaned with 0.5% sodium hypochlorite solution (1 part household bleach to nine parts water) or equivalent in order to eliminate the potential mold/indoor air quality problem. In addition, the source of the mold should be identified and actions taken to eliminate it. **RAC - 5**
- Measurements for temperature revealed that levels exceeded the recommended level of 74° Fahrenheit in the facility. If possible, the heating units should be adjusted so

the temperature will fall within the acceptable range. In addition, fans could be used to decrease the temperature at specific locations. **RAC - 5**

- Measurements for humidity revealed that levels did not meet the recommended level of 30% humidity in the facility. It is recommended that a humidification system be installed at the facility. **RAC - 5**
- Lighting measurements were conducted at the armory. The lighting did not meet minimum requirements in some areas; therefore, consideration should be given to providing more lighting in these areas. This may be accomplished by replacing burnt out luminaries, cleaning fixtures, cleaning windows, painting walls with a lighter color, repositioning detailed work to higher illuminated areas, and using supplemental lighting. **RAC - 5**
- Wipe sampling for lead in the converted firing range revealed concentrations above the recommended level in several areas. These areas and the stored items in these areas must be decontaminated by a thorough cleaning until surface lead concentrations are reduced to below recommended levels. In addition, employees should not be allowed to work in these areas without protective clothing until the areas and the stored items in these areas have been cleaned and re-sampled. **RAC - 4**

Shaw Environmental, Inc.

312 Directors Drive
Knoxville, TN 37923
865.690.3211
Fax 865.690.3626



Shaw Environmental, Inc.

Survey 15 Jan 04
Rec'd 9 Apr 04
RW 12/1/04

05 April 2004

Ms. **Non-Responsive** CIH
Regional Industrial Hygienist
Region North Industrial Hygiene Office
Attn: NGB-AVS-SI
301-IH Old Bay Lane
Havre De Grace, Maryland 21078

RE: Draft Report for the Industrial Hygiene Evaluation at the Roanoke Readiness
Center – Roanoke, Virginia

Dear Ms. **Non-Responsive**

Attached is a copy of the referenced report. Also attached is a copy of the field notes,
photographs, and photograph log,. Please call me if you have questions.

Sincerely,

Non-Responsive

Project Manager

Roanoke Armory Photo Log
National Guard Armory
Roanoke, Virginia
Date of Survey: 15 January 2004

Photo	Description
1	Lead Wipe Assembly Room - Fire Extinguisher Housing - Sample 1
2	Lead Wipe Assembly Room - Exit Door Ledge - Sample 2
3	Lead Wipe Assembly Room - Support Piece to Building I Beam - Sample 3
4	Lead Wipe Assembly Room - Fire Hose Housing - Sample 4
5	Lead Wipe Assembly Room - Support Piece to Building I Beam - Sample 5
6	25% Building - Kitchen Microwave - Sample 7
7	25% Building - 229th Chem Co Supply Office Window Sill - Sample 8
8	25% Building - Classroom #2 Window Sill - Sample 9
9	25% Building - HHC Orderly Room Safe Top - Sample 10
10	25% Building - Co C Commander Table Top - Sample 11
11	25% Building - Side Entrance Hallway Candy Machine - Sample 13
12	25% Building - 229th Chem Co Supply Room Filing Cabinet - Sample 14
13	25% Building - 29th ID Band Orderly Room Computer Monitor Top - Sample 15
14	25% Building - Op Center Window Sill - Sample 16
15	25% Building - XO Desktop - Sample 17
16	25% Building - BN-S4 Window Sill - Sample 19
17	25% Building - PAC SEC Window Sill - Sample 20
18	Water Damage - 29th ID Band Orderly Room
19	Water Damage - 29th ID Band Orderly Room
20	Water Damage & Mold - 229th Chem Co Supply Room
21	Firing Range - Ventilation System - Sample 21
22	Firing Range - Stored Item - Sample 23
23	Firing Range - Floor Inside the Converted Firing Range - Sample 25
24	Firing Range - Floor Outside the Converted Firing Range - Sample 26
25	Firing Range - Bullet Trap - Sample 22
26	Water Damage & Mold - BN Supply Room
27	Water Damage - Informal Briefing Room
28	Water Damage - Rear Entrance Hallway
29	Water Damage
30	Water Damage
31	Water Damage & Mold

Field Notes and Checklist

State: VIRGINIA Location: LOOPSIDE ARMORY Date: JANUARY 15, 2004
 Contact: SFC [REDACTED] Non-Responsive

1.0 Sampling for Lead

1.1 Wipe Sampling

Sample #:	<u>1</u>	Picture #:	<u>/</u>	Location:	<u>FIRE HOSE HOUSING</u>
Sample #:	<u>2</u>	Picture #:	<u>/</u>	Location:	<u>TOP OF EXIT DOOR</u>
Sample #:	<u>3</u>	Picture #:	<u>/</u>	Location:	<u>SUPPORT PIECE TO BUILDING 1 BEAM</u>
Sample #:	<u>4</u>	Picture #:	<u>/</u>	Location:	<u>FIRE HOSE HOUSING</u>
Sample #:	<u>5</u>	Picture #:	<u>/</u>	Location:	<u>SUPPORT PIECE TO BUILDING 1 BEAM</u>
Sample #:	<u>6, 12, 13</u>	Picture #:	<u>-</u>	Location:	<u>FIELD BLANK</u>
Sample #:	<u>7</u>	Picture #:	<u>/</u>	Location:	<u>KITCHEN TOP OF MICROWAVE</u>
Sample #:	<u>8</u>	Picture #:	<u>/</u>	Location:	<u>29TH CHEM CO SUPPLY OFFICE WINDOW SILL</u>
Sample #:	<u>9</u>	Picture #:	<u>/</u>	Location:	<u>CLASSROOM #2 WINDOW SILL</u>
Sample #:	<u>10</u>	Picture #:	<u>/</u>	Location:	<u>HHC ORDERLY ROOM TOP OF SAFE</u>
Sample #:	<u>11</u>	Picture #:	<u>/</u>	Location:	<u>COC COMMANDER TABLE TOP</u>
Sample #:	<u>13</u>	Picture #:	<u>/</u>	Location:	<u>EDGE ENTRANCE HALL TOP OF CANDY MACHINE</u>
Sample #:	<u>14</u>	Picture #:	<u>/</u>	Location:	<u>29TH CHEM CO SUPPLY ROOM TOP OF FILING CABINET</u>
Sample #:	<u>15</u>	Picture #:	<u>/</u>	Location:	<u>29TH CHEM CO ORDERLY ROOM TOP OF COMPUTER MONITOR</u>
Sample #:	<u>16</u>	Picture #:	<u>/</u>	Location:	<u>OP CENTER WINDOW SILL</u>
Sample #:	<u>17</u>	Picture #:	<u>/</u>	Location:	<u>XO DESKTOP</u>
Sample #:	<u>19</u>	Picture #:	<u>/</u>	Location:	<u>BA-54 WINDOW SILL</u>
Sample #:	<u>20</u>	Picture #:	<u>/</u>	Location:	<u>PAL SEL WINDOW SILL</u>
Sample #:	<u> </u>	Picture #:	<u> </u>	Location:	<u> </u>
Sample #:	<u> </u>	Picture #:	<u> </u>	Location:	<u> </u>

(Also, please see the sketch of sampling locations.)

1.2 Breathing Zone Air Sampling

Sample #: A1 Employee Sampled: GENERAL AIR SAMPLE
 Sample #: A2 Employee Sampled: GENERAL AIR SAMPLE
A3 FIELD BLANK

2.0 Physical Condition of Facility

2.1 Peeling Paint - Lead

Peeling paint observed (Yes or No): No

If peeling paint observed, samples were taken as follows:

Sample #: Picture #: Location:
 Condition (Good, Average, Poor): Quantity: ft²
 Sample #: Picture #: Location:
 Condition (Good, Average, Poor): Quantity: ft²
 Sample #: Picture #: Location:
 Condition (Good, Average, Poor): Quantity: ft²
 Sample #: Picture #: Location:
 Condition (Good, Average, Poor): Quantity: ft²
 Sample #: Picture #: Location:
 Condition (Good, Average, Poor): Quantity: ft²

2.2 Visual Inspection - Asbestos

Suspected asbestos-containing material observed (Yes or No): YES

If suspected asbestos-containing material observed, samples were taken as follows:

Location 1: OP CENTER (10x21) Picture #:
 Condition: GOOD Approximate (Square or Linear Feet): 621 SQUARE FT
 Location 2: HALLWAY TO OP CENTER (29x9) Picture #:
 Condition: GOOD Approximate (Square or Linear Feet): 130.5 SQUARE FT
 Location 3: RIGHT SIDE OF HALL OFFICES (74x24) Picture #:
 Condition: GOOD Approximate (Square or Linear Feet): 999 SQUARE FT
 Location 4: LEFT SIDE OF HALL OFFICES (68x14) Picture #:
 Condition: GOOD Approximate (Square or Linear Feet): 538.5 SQUARE FT
 Location 5: STAR WELL (8x10) Picture #:
 Condition: GOOD Approximate (Square or Linear Feet): 45 SQUARE FT
2ND FLOOR HALLWAY (810x9) GOOD 3907 SQUARE FT

2.3 Visual Inspection - Water Damage and Mold

Water damage observed (Yes or No): YES

If yes, water damage was observed at the following locations:

Location 1: 229TH CHEM CO SUPPLY Picture #: /
 Location 2: BAL SUPPLY Picture #: /
 Location 3: 229TH KITCHEN Picture #: /
 Location 4: 229TH BLDG DECK Picture #: /
 Location 5: COMPAN C SUPPLY Picture #: /

HALLWAY
STAIRWELL HALLWAY
 Mold observed (Yes or No): YES

If yes, mold was observed at the following locations:

Location 1: 229TH CHEM CO SUPPLY Picture #: /
 Location 2: BAL SUPPLY Picture #: /
 Location 3: 229TH KITCHEN Picture #: /
 Location 4: _____ Picture #: _____
 Location 5: _____ Picture #: _____

2.4 Visual Inspection - Housekeeping

Housekeeping (good, average, poor): Average

Comments (such as no dirt or trash was visible on the floors or the housekeeping was poor in that there was trash and debris on the floors that could lead to a tripping hazard, or there was dust in the vents.):

3.0 Building Concerns

3.1 Ergonomic Concerns

Ergonomic concerns (Yes or No): No

If there are ergonomic concerns at the armory, describe the extent of the problem, such as three employees stated that they perform repetitive motion at the XYZ machine for 6 hours per day, and they stated that they are suffering from symptoms of musculoskeletal disorders (MSDs).

3.2 Indoor Air Quality

IAQ concerns (based on employee interviews)(Yes or No): No

If yes, what were concerns:

Measurements for carbon dioxide, humidity, and temperature:

Location	CO ₂ (ppm)	Humidity (%)	Temperature (°F)	Occupancy (People in Room)
Outdoors -	331	13.0	43.2	0
1 st Floor -	377	24.1	75.6	0
2 nd Floor -	565	29.6	70.5	0
3 rd Floor -	—	—	—	—
Basement	—	—	—	—

4.0 Safety and Industrial Hygiene Programs

4.1 Confined Spaces

Are confined spaces applicable (Yes or No): No

If yes, does the program meet minimum standards (Yes or No): —

If no, explain the deficiencies:

4.2 Hearing Conservation

Is hearing conservation applicable (Yes or No): NO

If yes, does the program meet minimum standards (Yes or No):

If no, explain the deficiencies:

4.3 Respiratory Protection

Is respiratory protection applicable (Yes or No): NO

If yes, does the program meet minimum standards (Yes or No):

If no, explain the deficiencies:

4.4 Hazard Communication

Is hazard communication applicable (Yes or No): YES

If yes, does the program meet minimum standards (Yes or No): YES

If no, explain the deficiencies:

4.5 Personal Protective Equipment

Is personal protective equipment applicable (Yes or No): NO

If yes, does the program meet minimum standards (Yes or No): YES

If no, explain the deficiencies:

5.0 Ventilation

5.1 Ventilation System Evaluation

Local exhaust ventilation systems at this armory (Yes or No): NO

If yes, results of airflow patterns:

Location 1: -----

Airflow Pattern (acceptable or unacceptable, with reason):

Location 2: -----

Airflow Pattern (acceptable or unacceptable, with reason):

Location 3: -----

Airflow Pattern (acceptable or unacceptable, with reason):

5.2 Contamination of Clean Air Sources

Clean air sources contaminated by contaminated exhaust air (Yes or No): NO

If yes, describe:

6.0 Noise Dosimetry

Potential hazardous noise areas (Yes or No): No

If yes, results of noise dosimetry sampling:

Employee sampled: _____
 Results: _____ % Actual _____ % Projected 8-hour TWA _____ Equivalent dBA
 Activity: _____

Employee sampled: _____
 Results: _____ % Actual _____ % Projected 8-hour TWA _____ Equivalent dBA
 Activity: _____

Employee sampled: _____
 Results: _____ % Actual _____ % Projected 8-hour TWA _____ Equivalent dBA
 Activity: _____

7.0 Lighting Evaluation

DIVISION B1.9

Location	Luminance Range (fc)
KITCHEN	100-110
HAC KITCHEN	20-60
229TH KITCHEN	20-60
29TH TO BATH SUPPLY	20-60
MENS LATRINE	20-30
CO. C SUPPLY	30-65
WOMENS LATRINE	20-30
FRONT & BACK HALLWAY	5-15
CLASSROOM #1	20-50
CLASSROOMS 2 & 3	30-40
CO. C. COMMANDER OFFICE	20-80
CO. C. PROPERTY OFFICE	20-60
HAC SUPPLY OFFICE	30-80
BH-54	50-70
BH. HQ 40.60, BH. COMMANDER OFFICE	20-30

8.0 Converted Indoor Firing Ranges

Converted indoor firing range (Yes or No): YES

If yes, locations sampled:

Sample #: NA Picture #: - Location: Inside any remaining ventilation ductwork

Sample #: 21 Picture #: / Location: Exhaust ventilation system

Sample #: 22 Picture #: / Location: Bullet trap

Sample #: NA Picture #: - Location: Light fixtures COULD NOT REACH THEM

Sample #: NA Picture #: - Location: Overhead heaters

Sample #: 23 Picture #: / Location: Stored items

Sample #: 25 Picture #: / Location: Floor

Sample #: 26 Picture #: / Location: Outside the range

9.0 HVAC System

Does the HVAC system have maintenance performed on a regular basis (Yes or No):

YES

SYSTEM IS OLD, IS CONSTANTLY BEING FIXED

In yes, is the maintenance effective (Yes or No): YES WHEN SYSTEM IS FIXED

If no, describe:

SYSTEM BREAKS DOWN QUICKLY

10.0 HHIM

Complete HHIM form for facility (Initial as completed): Non-Response

Reproduction Room HHIM Necessary (Yes or No) (Initial if Yes): -

Film Developing Room HHIM Necessary (Yes or No) (Initial if Yes): -

Maintenance Area HHIM Necessary (Yes or No) (Initial if Yes): -

11.0 Additional Items

Table 1 (wipe sampling) completed (initial when completed): _____

Table 2 (air sampling) completed (initial when completed): _____

Table 3 (peeling paint), if necessary, completed (initial when completed): _____

Table 3 or 4 (IAQ) completed (initial when completed): _____

Table 4 or 5 (noise), if necessary, completed (initial when completed): _____

Table 5 or 6 (firing ranges), if necessary, completed (initial when completed): _____

Airflow pattern diagram(s) completed (initial when completed): _____

Building layout included (initial when completed): _____

Photographs (initial when completed): _____

Sampling Sheets and Laboratory Analyses (initial when completed): _____

Sampling tracking form completed and faxed to NGB within 5 days of date of this survey (initial when completed): _____
(Fax to Ken Forsythe at 410-942-0254)

State Lead Wipes Spreadsheet completed (initial when completed): _____

Three copies of noise exposure notification letter, if necessary (initial when completed): _____

Three copies of contaminant exposure forms for each employee that participated in air sampling (initial when completed): _____

Non-Responsive

Shaw Environmental, Inc.

312 Directors Drive
Knoxville, TN 37923
865.690.3211
Fax 865.690.3626



**National Guard Armory
South Boston Readiness Center
South Boston, Virginia**

Industrial Hygiene Evaluation

Prepared for:

**National Guard Region North Industrial Hygiene Office
Havre De Grace, Maryland 21078**

Prepared by:

**Shaw Environmental, Inc.
312 Directors Drive
Knoxville, Tennessee 37923**

24 June 2004

**National Guard Armory
South Boston Readiness Center
South Boston, Virginia**

Industrial Hygiene Evaluation

Prepared for:

**National Guard Region North Industrial Hygiene Office
Havre De Grace, Maryland 21078**

Prepared by:

**Shaw Environmental, Inc.
312 Directors Drive
Knoxville, Tennessee 37923**

24 June 2004

Prepared by:

Non-Responsive

Environmental Scientist

Reviewed by:

Non-Responsive

Business Line Manager

Table of Contents

<i>Table of Contents</i>	<i>i</i>
<i>List of Tables</i>	<i>ii</i>
<i>List of Appendices</i>	<i>ii</i>
<i>Executive Summary</i>	<i>E-1</i>
<i>1.0 Introduction</i>	<i>1-1</i>
<i>2.0 Findings, Discussion, and Interpretation of Results</i>	<i>2-1</i>
<i>2.1 Sampling for Lead</i>	<i>2-1</i>
<i>2.1.1 Wipe Sampling</i>	<i>2-1</i>
<i>2.1.2 Air Sampling for Lead</i>	<i>2-2</i>
<i>2.2 Physical Condition of Facility</i>	<i>2-2</i>
<i>2.2.1 Peeling Paint - Lead</i>	<i>2-2</i>
<i>2.2.2 Visual Inspection - Asbestos</i>	<i>2-2</i>
<i>2.2.3 Visual Inspection -- Water Damage and Mold</i>	<i>2-2</i>
<i>2.2.4 Visual Inspection - Housekeeping</i>	<i>2-3</i>
<i>2.3 Building Concerns</i>	<i>2-3</i>
<i>2.3.1 Ergonomic Concerns</i>	<i>2-3</i>
<i>2.3.2 Indoor Air Quality</i>	<i>2-3</i>
<i>2.4 Safety and Industrial Hygiene Programs</i>	<i>2-3</i>
<i>2.5 Ventilation</i>	<i>2-4</i>
<i>2.5.1 Ventilation System Evaluation</i>	<i>2-4</i>
<i>2.5.2 Contamination of Clean Air Sources</i>	<i>2-4</i>
<i>2.6 Noise Exposure</i>	<i>2-4</i>
<i>2.7 Lighting</i>	<i>2-4</i>
<i>2.8 Converted Indoor Firing Ranges</i>	<i>2-4</i>
<i>2.9 HVAC Systems</i>	<i>2-5</i>
<i>2.10 HHM</i>	<i>2-5</i>
<i>3.0 Conclusions</i>	<i>3-1</i>
<i>Tables</i>	<i>Follows Section 3.0</i>
<i>Appendices</i>	<i>Follows Tables</i>

List of Tables

Table 1	Wipe Sampling for Lead
Table 2	Air Sampling for Lead
Table 3	Indoor Air Quality Measurements
Table 4	Illumination Readings
Table 5	Indoor Firing Ranges – Wipe Sampling

List of Appendices

Appendix A	HHIM Data Form
Appendix B	Building Layout
Appendix C	Sampling Sheets and Laboratory Analyses
Appendix D	References
Appendix E	Recommendations for Surface Lead Dust in Armories

Executive Summary

Shaw Environmental, Inc. (Shaw) was contracted to perform an industrial hygiene evaluation for the South Boston Readiness Center in South Boston, Virginia. Non-Respons performed the evaluation on 21 January 2004. The point of contact at the readiness center was SSG Non-Responsive.

The following industrial hygiene concerns were evaluated.

- Wipe Sampling for Lead
- Air Sampling for Lead
- Peeling Paint – Lead
- Suspected Asbestos Containing Material
- Water Damage
- Presence of Mold
- Housekeeping
- Ergonomic Concerns
- Indoor Air Quality
- Safety and Industrial Hygiene Programs
- Ventilation System Evaluation
- Contamination of Clean Air Sources
- Noise Exposure
- Lighting
- Converted Indoor Firing Range
- HVAC Systems

The following items were either not applicable to the armory or the evaluation resulted in a conclusion that there were no industrial hygiene concerns.

- Air Sampling for Lead
- Peeling Paint – Lead
- Suspected Asbestos Containing Material
- Presence of Mold
- Housekeeping
- Ergonomic Concerns

- Safety and Industrial Hygiene Programs
- Ventilation System Evaluation
- Contamination of Clean Air Sources
- Noise Exposure
- HVAC Systems

Areas where there were industrial hygiene concerns are as follows:

- Wipe sampling for lead revealed concentrations above the recommended level of 200 micrograms per square foot ($\mu\text{g}/\text{ft}^2$) in the drill floor/assembly hall area. It is recommended that these surfaces and the areas immediately around these surfaces be thoroughly cleaned to reduce the lead level. In addition, any other dusty/dirty areas in the assembly area/drill floor should be thoroughly cleaned.
- Wipe sampling for lead revealed concentrations above a level of 40 micrograms per square foot ($\mu\text{g}/\text{ft}^2$) in the drill floor/assembly hall area, Room 207, storage room, Room 101, and converted firing range. Areas with lead concentrations above 40 $\mu\text{g}/\text{ft}^2$ that will be accessible to children should be cleaned. If a special function is held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function.
- Water damage was observed at several locations at the armory. The source of the water damage was likely from a combination of roof and pipe leaks. The source of the water damage should be confirmed and actions taken to eliminate the source in order to prevent the possibility of mold growth that may lead to indoor air quality problems.
- Measurements for humidity revealed that levels did not meet the recommended level of 30% in the facility. It is recommended that a humidification system be installed at the facility.
- Lighting measurements were conducted at the armory. The lighting did not meet minimum requirements in some areas; therefore consideration should be given to providing more lighting in these areas. This may be accomplished by replacing burnt out luminaries, cleaning fixtures, cleaning windows, painting walls with a lighter color, repositioning detailed work to higher illuminated areas, and using supplemental lighting.
- Wipe sampling for lead in the converted firing range revealed concentrations above the recommended level. These areas must be decontaminated by a thorough cleaning until surface lead concentrations are reduced to below recommended levels. It may be appropriate to remove the heater(s) due to the high lead levels. In addition, stored

items should be wet-wiped before being removed from the area. Access to the area should be limited, and employees should not be allowed to work in this area without protective clothing until the area and items have been cleaned and re-sampled. Housekeeping should be maintained to insure that lead levels are kept as low as possible.

1.0 Introduction

Shaw Environmental, Inc. (Shaw) was contracted to perform an industrial hygiene evaluation for the South Boston Readiness Center in South Boston, Virginia. Non-Respo
Non-Responsiv performed the evaluation on 21 January 2004. The point of contact at the readiness center was SSG Non-Responsive

The findings, discussion, and interpretation of results are provided in Section 2.0. The conclusions are provided in Section 3.0. The HHIM data form for the facility is provided in Appendix A. The building layout is provided in Appendix B. Sampling sheets and laboratory analyses are provided in Appendix C. References are provided in Appendix D. The *Recommendations for Surface Lead Dust in Armories* document is provided in Appendix E.

The statements, opinions, and conclusions contained in this report are based solely upon the services performed by Shaw as described in the report. In performing these services and preparing the report, Shaw Environmental, Inc. relied upon the work and information provided by others, including public agencies, whose information is not guaranteed by Shaw Environmental, Inc.

2.0 Findings, Discussion, and Interpretation of Results

The results, discussion, and interpretation of results are provided in the following sections.

2.1. Sampling for Lead

2.1.1 Wipe Sampling

Wipe samples were collected for lead from the drill floor/assembly area. Also, wipe samples were collected for lead in rooms, hallways, foyers, etc. The sampling in rooms, hallways, foyers, etc. represented approximately 25% of the building. Approximately half of the samples were collected from surfaces in common areas, such as surfaces of a desk. The remaining samples were collected from uncommon surface areas, such as a supply vent or the top of a file cabinet. The samples were collected and analyzed in accordance with the Instructions for *Completing the Sampling of ARMY National Guard Armories* procedure.

The only samples initially submitted for analysis were those from the drill floor/assembly hall. Since there were results above the recommended level from the drill floor/assembly hall area, the remaining samples were submitted for analysis.

Results of the wipe sampling are provided in Table 1. The results revealed lead at all locations sampled at concentrations below recommended level of 200 micrograms lead per square foot ($\mu\text{g}/\text{ft}^2$) (See Appendix E) except at two locations in the drill floor/assembly hall area. The two samples collected from the electrical control box and the fire extinguisher housing inside shelf had lead concentrations of 250 and 270 $\mu\text{g}/\text{ft}^2$, respectively. It is recommended that these surfaces and the immediate areas around these surfaces be thoroughly cleaned to reduce the lead level to below 200 $\mu\text{g}/\text{ft}^2$. For guidance on the proper method of cleaning, please refer to Appendix E of NG PAM 385-15 (*Guidelines and Procedures for Indoor Firing Range (IFR) Rehabilitation, Conversion, and Cleaning*). In addition, any other dusty/dirty areas in the assembly area/drill floor should be thoroughly cleaned.

In addition, wipe sampling for lead revealed concentrations above a level of 40 $\mu\text{g}/\text{ft}^2$ in the drill floor/assembly hall area, Room 207, storage room, Room 101, and converted firing range. Please note that the *Recommendations for Surface Lead Dust in Armories* (Appendix E) states that all areas with lead concentrations above 40 $\mu\text{g}/\text{ft}^2$ that will be accessible to children should be cleaned. If a special function is held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function.

2.1.2 Air Sampling for Lead

General area air sampling was conducted at the facility. Please note that no employees were available to be monitored. The samples were collected and analyzed in accordance with Method 7082 of the National Institute of Occupational Safety and Health (NIOSH) Manual of Analytical Methods.

The results of the sampling are provided in Table 2. The results revealed non-detectable concentrations of lead; therefore, no actions are necessary.

2.2 Physical Condition of Facility

2.2.1 Peeling Paint - Lead

Peeling paint was not observed at the armory; therefore, bulk samples for lead in paint were not taken.

2.2.2 Visual Inspection - Asbestos

A visual inspection was made to determine if there was any suspected asbestos-containing material at the armory. The inspection did not reveal any materials suspected of containing asbestos.

2.2.3 Visual Inspection - Water Damage and Mold

A visual inspection was made to determine if there was any water damage or visible mold at the armory. Visible mold was not observed, however, water damage was observed at the armory. The water damage was observed in room 203, room 204, upstairs hallway, stairwell, room 102, room 101, and room 101A.

The source of the water damage was likely from a combination of roof and pipe leaks. The source of the water damage should be confirmed and actions taken to eliminate

the source in order to prevent the possibility of mold growth that may lead to indoor air quality problems.

2.2.4 Visual Inspection - Housekeeping

The housekeeping was determined to be good.

2.3. Building Concerns

2.3.1 Ergonomic Concerns

Interviews with employees and observation of work activities revealed no ergonomic concerns at the armory.

2.3.2 Indoor Air Quality

Interviews with employees and measurements for carbon dioxide and temperature revealed no indoor air quality concerns at the armory. However, measurements for humidity revealed that levels did not meet the recommended level of 30% in the facility. It is recommended that a humidification system be installed at the facility.

The results of the measurements for carbon dioxide, humidity, and temperature are provided in Table 3.

2.4. Safety and Industrial Hygiene Programs

An evaluation was performed to determine the applicability of the following programs.

- Confined Spaces
- Hearing Conservation
- Respiratory Protection
- Hazard Communication (HAZCOM)
- Personal Protective Equipment (PPE)

It was determined that the HAZCOM program was the only program listed above that was applicable at the facility. The HAZCOM program was evaluated and it was determined that the program met minimum requirements.

2.5. Ventilation

2.5.1 Ventilation System Evaluation

There were no local exhaust ventilation systems at this armory; therefore, no ventilation studies were performed.

2.5.2 Contamination of Clean Air Sources

Since there were no local exhaust ventilation systems at the armory, there was no possibility that clean air sources could be contaminated by exhaust air.

2.6. Noise Exposure

An evaluation was performed to determine if there were any hazardous noise areas at the armory. It was determined that there were no areas at the armory that would exceed the permissible exposure limit for noise.

2.7. Lighting

Lighting measurements were conducted at the armory. Results of the lighting evaluation are provided in Table 4. As can be seen from the results, the lighting did not meet the minimum requirements in some areas, including room 101, room 102, men's latrine, scullery, and room 103.

Consideration should be given to providing more lighting to these areas. This may be accomplished by replacing burnt out luminaries, cleaning fixtures, cleaning windows, painting walls with a lighter color, repositioning detailed work to higher illuminated areas, and using supplemental lighting.

2.8. Converted Indoor Firing Ranges

There was a converted indoor firing range at the facility; therefore, wipe samples were taken for lead at various locations in or near the converted range. The space is used as a storage room. The results are provided in Table 5. The results revealed lead, with associated concentrations, at the following locations:

- exhaust ventilation system at 190 $\mu\text{g}/\text{ft}^2$;
- bullet trap (floor near former bullet trap location) at 170 $\mu\text{g}/\text{ft}^2$;
- light fixtures at 82 $\mu\text{g}/\text{ft}^2$;
- overhead heaters at 1100 $\mu\text{g}/\text{ft}^2$;

- stored items at 780 $\mu\text{g}/\text{ft}^2$;
- floor (outside the converted firing range) the range at 40 $\mu\text{g}/\text{ft}^2$; and
- floor (inside the converted firing range) at 300 $\mu\text{g}/\text{ft}^2$

The lead levels at three of these locations were above the recommended level of 200 $\mu\text{g}/\text{ft}^2$, a level recommended in *Guidelines and Procedures for Indoor Firing Range (IFR) Rehabilitation, Conversion, and Cleaning* (NG PAM 385-15). These areas and the stored items in the converted firing range must be decontaminated by a thorough cleaning until surface lead concentrations are reduced to below recommended levels. For guidance on the proper method of cleaning, please refer to NG PAM 385-15 (*Guidelines and Procedures for Indoor Firing Range (IFR) Rehabilitation, Conversion, and Cleaning*). It may be appropriate to remove the hearer(s) due to the high lead levels. In addition, stored items should be wet-wiped before being removed from the area. Access to the area should be limited, and employees should not be allowed to work in this area without protective clothing until the area and items have been cleaned and re-sampled. Housekeeping should be maintained to insure that lead levels are kept as low as possible.

2.9. HVAC System

The maintenance schedule for the HVAC system was evaluated to verify that maintenance occurs on a regular basis. Also, the condition of the HVAC system was evaluated to determine if the maintenance performed is effective. It was deemed that maintenance occurs on a regular basis, and the maintenance performed is effective.

2.10. HHIM

A Health Hazard Information Module (HHIM) form was completed for the armory. The completed form is provided in Appendix A.

3.0 Conclusions

It is concluded that there were no industrial hygiene concerns at the armory with regards to atmospheric exposure to lead, peeling lead-based paint, suspected asbestos-containing material, visible mold, housekeeping, ergonomic conditions, safety and industrial hygiene programs, ventilation systems or contamination of clean air sources, noise exposure, and HVAC systems.

There were industrial hygiene concerns at the armory with regards to lead surface contamination, water damage, indoor air quality, lighting, and surface lead contamination in the converted firing range. These concerns are discussed in detail in Section 2.0 of this report.

TABLES

Table 1
Wipe Sampling for Lead
National Guard Armory
South Boston, Virginia
Date of Sampling: 21 January 2004

Sample Number	Location	Results, $\mu\text{g}/\text{ft}^2$ ^a
VASOU021-1	Drill Floor (electrical control box top surface) See Building Layout -- Appendix B	250
VASOU021-2	Drill Floor (water fountain top surface) See Building Layout -- Appendix B	51
VASOU021-3	Drill Floor (scullery window counter top) See Building Layout -- Appendix B	48
VASOU021-4	Drill Floor (soda machine top surface) See Building Layout -- Appendix B	120
VASOU021-5	Drill Floor (fire extinguisher housing inside shelf) See Building Layout -- Appendix B	270
VASOU021-6	Field Blank	0.3 μg
VASOU021-7	25% Building (room 207 top of television) See Building Layout -- Appendix B	58
VASOU021-8	25% Building (room 203 podium top surface) See Building Layout -- Appendix B	14
VASOU021-9	25% Building (storage room top surface of locker) See Building Layout -- Appendix B	91
VASOU021-10	25% Building (kitchen top surface of refrigerator) See Building Layout -- Appendix B	13
VASOU021-11	25% Building (room 101 top surface of copy machine) See Building Layout -- Appendix B	160
VASOU021-12	Field Blank	0.36 μg

^a Micrograms lead per square foot

The samples were taken and analyzed in accordance with the *Instructions for Completing the Sampling of ARMY National Guard Armories* procedure.

In armories that do not contain childcare facilities, the NGB Region North Industrial Hygiene Office recommends cleaning the areas with sample results greater than 200 $\mu\text{g}/\text{ft}^2$

Table 2
Breathing Zone Air Samples for Lead
National Guard Armory
South Boston, Virginia
Date of Sampling: 21 January 2004

Sample Number	Employee	Sampling Information			Results (mg/m ³) ^a
		Time Sampled / Minutes	Flow Rate (lpm) ^b	Volume (liters)	
VASOU021-A1	General Air Sample	1105-1305/120	1.719	206.31	0.005
VASOU021-A2	General Air Sample	1100-1300/120	1.652	198.26	0.005
VASOU021-A3	Field Blank	-	-	-	None Detected

^a Milligrams lead per cubic meter of air.

^b Liters of air per minute.

Method 7082 of the National Institute of Occupational Safety and Health (NIOSH) Manual of Analytical Methods was followed for sampling for lead.

Table 3
Indoor Air Quality Measurements for Carbon Dioxide, Humidity, and Temperature
National Guard Armory
South Boston, Virginia
Date of Sampling: 21 January 2004

Location	Occupants In Area	Carbon Dioxide, parts per million parts of air (ppm)	Percent (%) Humidity	Temperature (°F)
2 nd Floor (Room 204)	1	395	16.8	70.6
1 st Floor (Office Area)	1	417	18.6	70.0
Outdoors	-	377	10.1	63.2

* Room is used throughout the by the Radford High School Physical Education (PE) Department for gym classes.

Carbon dioxide, humidity, and temperature measurements were taken with a TSI Q Trak Plus, Model 8554, Indoor Air Quality Meter, calibrated in April 2003.

American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE) recommends that indoor carbon dioxide levels be less than 700 ppm above outdoor levels.

ASHRAE recommends that the relative humidity levels be maintained between 30 to 60 percent.

ASHRAE recommends that the acceptable temperature range be 68 degrees Fahrenheit to 74 degrees Fahrenheit in the winter and 73 degrees Fahrenheit to 79 degrees Fahrenheit in the summer.

Table 4
Illumination Readings
National Guard Armory
South Boston, Virginia
Date of Sampling: 21 January 2004

Location	Luminance (fc) ^a	Standard (fc) ^a	Standard Met
Room 102	44.4-55.5	70	No
Room 101	44.4-66.6	70	No
Storage Room	22.2-33.3	30	Some Areas
Men's Latrine	22.2-33.3	40	No
Kitchen	66.6-88.8	70	Some Areas
Scullery	44.4-55.5	70	No
Room 103	11.1-33.3	70	No
Room 202	66.6-144.4	70	Some Areas
Room 204	66.6-144.4	70	Some Areas
Room 203	66.6-144.4	40	Some Areas
Room 201	61.1-144.4	70	Some Areas
Upstairs Hallway	22.2-88.8	7.5	Yes
Stair Well	11.1-44.4	7.5	Yes

^a fc - Footcandles

The readings were taken with a Weston model 614-60 Lightmeter.

The standards listed above are from ANSI/IES RP-1 and RP-7.

Table 5
Wipe Sampling for Lead – Converted Firing Range
National Guard Armory
South Boston, Virginia
Date of Sampling: 21 January 2004

Sample Number	Location	Results, $\mu\text{g}/\text{ft}^2$ ^a
VASOU021-13	Exhaust Ventilation System	190
VASOU021-14	Bullet Trap (floor near former bullet trap location)	170
VASOU021-15	Light Fixtures	82
VASOU021-16	Overhead Heaters	1100
VASOU021-17	Stored Item	780
VASOU021-18	Field Blank	< 0.3 μg
VASOU021-19	Floor (inside the converted firing range area)	300
VASOU021-20	Floor (outside the converted firing range area)	40

^a Micrograms lead per square foot

The samples were taken and analyzed in accordance with the Instructions for *Completing the Sampling of ARMY National Guard Armories* procedure.

Appendix A

HHIM Data Form(s)

HEALTH HAZARD INFORMATION MODULE: INDUSTRIAL HYGIENE SURVEY

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

SECTION 1. DEMOGRAPHIC DATA

ARLOC 24255		INSTALLATION APG-EA		BLDG/RM NO. South Boston	
LOCATION/CODE ADMINISTRATIVE AREAS / AA			OPERATION/CODE ADMINISTRATIVE OPERATIONS / ADO		
SURVEY DATE 21 JANUARY 2004			EVALUATOR (Initials) Non-Responsive		
MACOM/CODE		SUBMACOM/CODE XX		SUPERVISOR 556 Non-Responsive	
TELEPHONE/DSN NO. (434) 572 4200		UNIT/ORGANIZATION South Boston Armory		RAC A	
FREQUENCY (hrs/day) 8					
NO. CIV(S) 0	NO. MIL 4	NO. CONTRACTOR(S) 0	NO. LOC(S) —	NO. OTHER —	

SECTION 2. FACILITY DATA

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

SECTION 3. SURVEY DATA

CONTROLS PRESENT	EVALUATION	UNIT CODE	CONTROLS REQUIRED	STATUS

PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized)

GLOVES	R	U	RESPIRATOR	NOS/TC NO.	MANUFACTURER	R	U
ACID			AIRLINE				
COLD SURFACES			ABRASIVE BLASTING HOOD				
HOT SURFACES			DISPOSABLE				
NBC AGENTS			FULL FACE AIR PURIFYING				
OIL			1/2 FACE AIR PURIFYING				
SOLVENTS			POWERED AIR PURIFYING				
SURGICAL GLOVES			1/4 FACE AIR PURIFYING				
			SELF CONTAINED				

EYES/FACE	R	U	HEARING	R	U	BODY	R	U	HEAD/FIT	R	U
CHEMICAL SPLASH			CANAL CAPS			APRONS			COLD WEATHER BOOTS/HATS		
FULL FACE SHIELD			EAR PLUGS			COLD WEATHER CLOTHING			HARD HATS		
CHEMICAL/SAFETY			HELMETS			COVERALLS			IMPERMEABLE BOOTS		
SAFETY/IMPACT			MUFFS			FULL BODY SUIT			SAFETY/CONDUCTIVE SHOES		
WELDING HELMET			MUFF/EARPLUG COMBO			HEAT REFLECTIVE VEST/SUIT			SAFETY/NON-CONDUCTIVE SHOES		

Posted to NGB FOWNIR and DOWTIME LIMIT FOIA Request Received 10/08/2005 (VA)

SECTION 4. HAZARD INVENTORY DATA

CAS CODE	HAZARD DESCRIPTION	PAC	EPC
POVDTXXX	VIDEO DISPLAY TERMINAL	3-LOW	D UNCONTROLLED PHYSICAL
7439-92-1	LEAD, INORGANIC DUSTS, FUMES	2-MODERATE	C UNCONTROLLED RESPIRATORY
1332-21-4	ASBESTOS	3-LOW	C UNCONTROLLED RESPIRATORY
124-38-9	CARBON DIOXIDE	2-MODERATE	C UNCONTROLLED RESPIRATORY
POLIFTING	HEAVY LIFTING	2-MODERATE	D UNCONTROLLED PHYSICAL
POHEATSTR	HEAT STRESS	3-LOW	D UNCONTROLLED PHYSICAL

SECTION 5. PERSONNEL DATA

LAST NAME	FIRST NAME	MI	SEX	SSN	CATEGORY
Non-Responsive		D.	M		MIL
		T.	M		MIL
		J.	M		MIL
		R.	M		MIL

SECTION 6. COMMENTS

☒ No comments

☐ See attached sheet

PRIVACY ACT STATEMENT

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

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

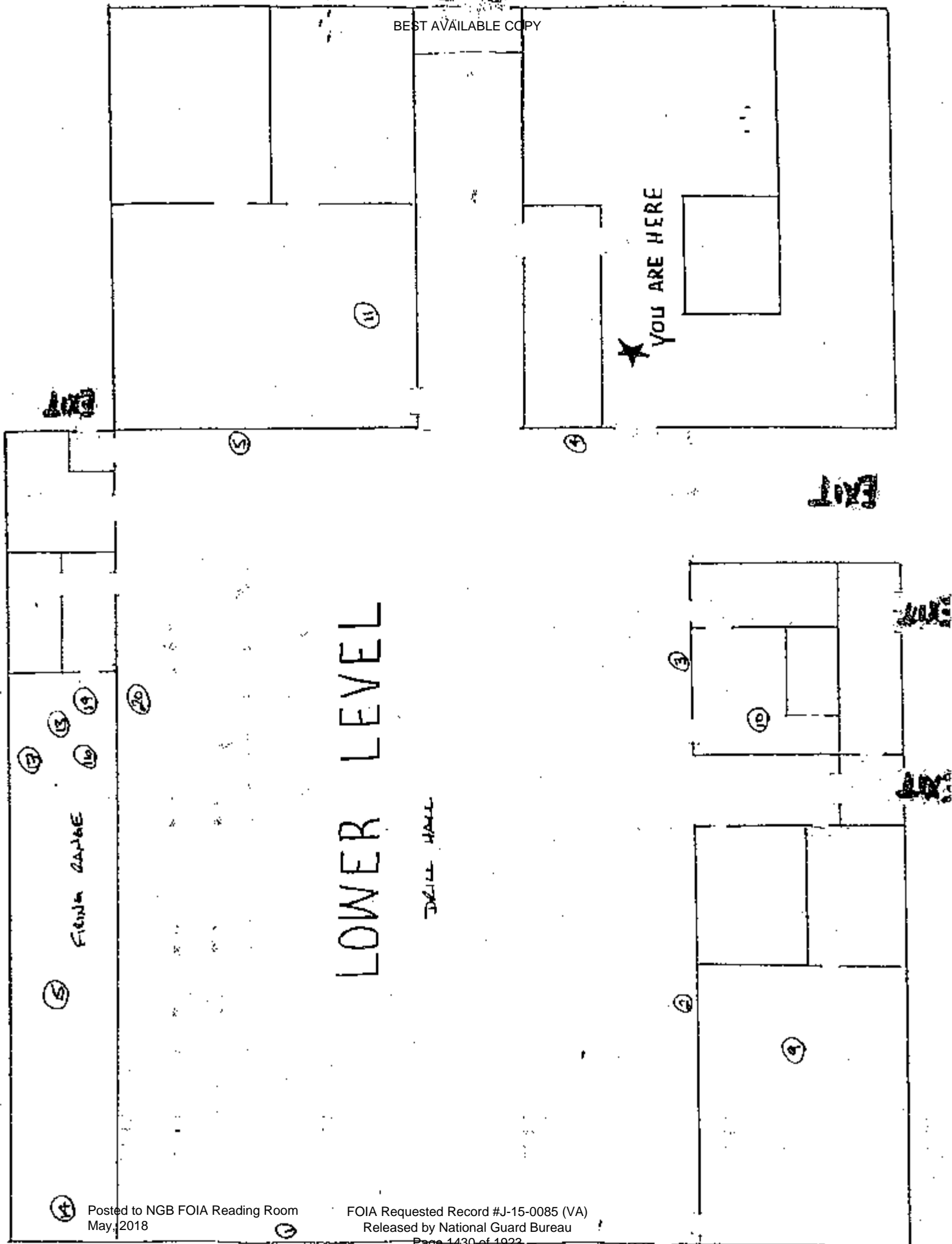
Non-Responsive



C-BTRY 1/246 FA

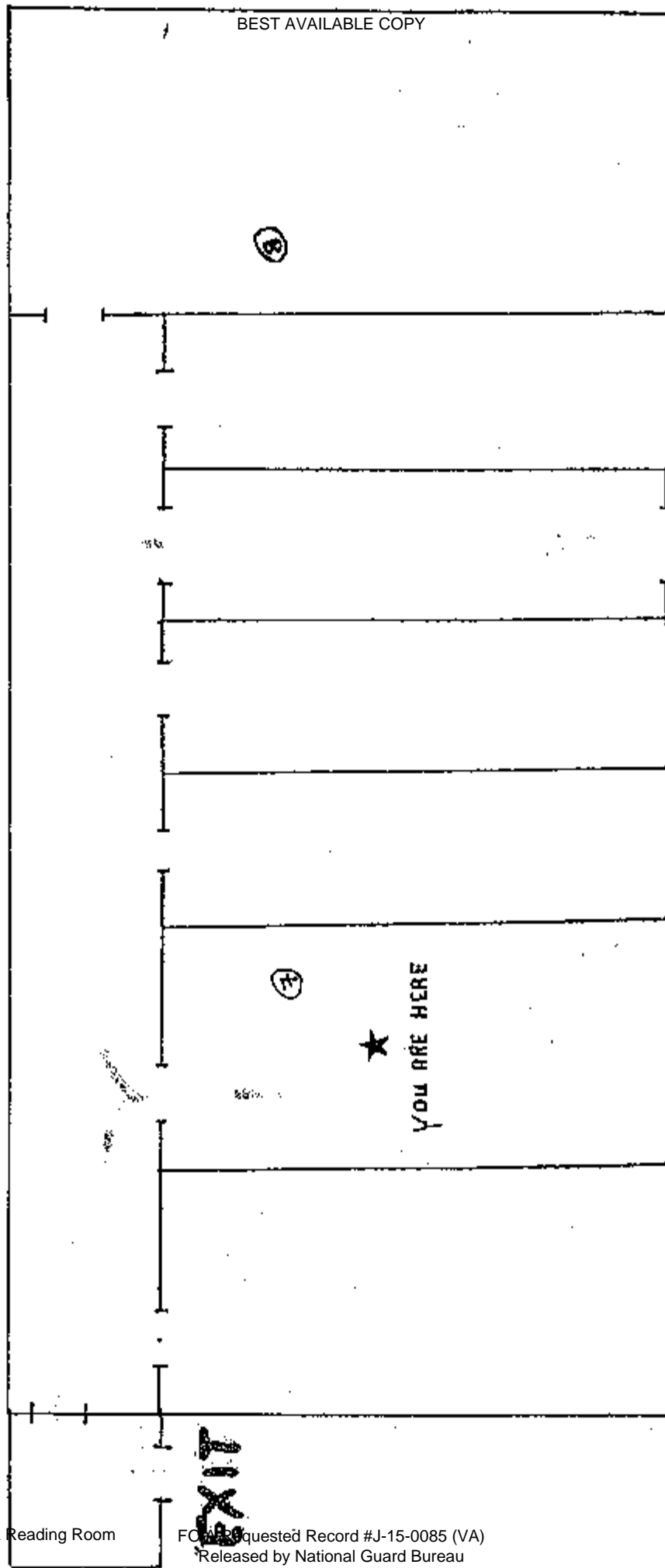
Appendix B

Building Layout



FIRE EXITS

UPPER LEVEL



Appendix C

Sampling Sheets and Laboratory Analyses

CERTIFICATE OF ANALYSIS

Client: National Guard Bureau
 Address: 301-H Old Bay Lane, Attn: NGB-AVN-SI, State Military Reservation
 Havre de Grace, Maryland 21078
 Chain Of Custody: 122245
 Date Analyzed: 2/2/2004
 Job Name: VA SOU 021
 Job Location: South Boston, Virginia
 Job Number: 845702 01000000
 P.O. Number: 1103
 Person Submitting: **Non Respon**
 Report Date: 02-Feb-04

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
0422011	VASOU 021 1	Furnace	Wipe	****	0.111	67.51 ug/ft²	250 ug/ft²	
0422012	VASOU 021 2	Furnace	Wipe	****	0.111	5.40 ug/ft²	51 ug/ft²	
0422013	VASOU 021 3	Furnace	Wipe	****	0.111	5.40 ug/ft²	48 ug/ft²	
0422014	VASOU 021 4	Furnace	Wipe	****	0.111	13.50 ug/ft²	120 ug/ft²	
0422015	VASOU 021 5	Furnace	Wipe	****	0.111	67.51 ug/ft²	270 ug/ft²	
0422016	VASOU 021 6	Furnace	Wipe Blank	****	N/A	0.30 ug	0.3 ug	
0422017	VASOU 021 8	Furnace	Wipe Blank	****	N/A	0.30 ug	< 0.3 ug	
0422018	VASOU 021 13	Furnace	Wipe	****	0.111	33.75 ug/ft²	190 ug/ft²	
0422019	VASOU 021 14	Furnace	Wipe	****	0.111	33.75 ug/ft²	170 ug/ft²	
0422020	VASOU 021 15	Furnace	Wipe	****	0.111	13.50 ug/ft²	82 ug/ft²	
0422021	VASOU 021 16	Flame	Wipe	****	0.111	108.01 ug/ft²	1100 ug/ft²	
0422022	VASOU 021 17	Flame	Wipe	****	0.111	108.01 ug/ft²	780 ug/ft²	
0422023	VASOU 021 19	Furnace	Wipe	****	0.111	67.51 ug/ft²	300 ug/ft²	
0422024	VASOU 021 20	Furnace	Wipe	****	0.111	5.40 ug/ft²	40 ug/ft²	

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

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

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

Job Name: VA SOU 021
Job Location: South Boston, Virginia
Job Number: 845702 01000000
P.O. Number: 1103

Chain Of Custody: 122245
Date Analyzed: 2/2/2004
Person Submitting: [Redacted]
Report Date: 02-Feb-04

Attention:

Non-Responsive

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-31113B
 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.

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 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: National Guard Bureau
Address: 301-IH Old Bay Lane, Attn: NGB-AVN-SI, State Military Reservation
Havre de Grace, Maryland 21078
Job Name: VASOU021
Job Location: South Boston, VA
Chain Of Custody: 122719
Date Analyzed: 2/13/2004
Job Number: 845702 01000000
P.O. Number: 1103
Person Submitting: [Redacted]
Report Date: 13-Feb-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
0423936	VASOU021 7	Furnace	Wipe	***	0.111	13.50 ug/ft²	58 ug/ft²	
0423937	VASOU021 8	Furnace	Wipe	***	0.111	2.70 ug/ft²	14 ug/ft²	
0423938	VASOU021 9	Furnace	Wipe	***	0.111	13.50 ug/ft²	91 ug/ft²	
0423939	VASOU021 10	Furnace	Wipe	***	0.111	6.75 ug/ft²	13 ug/ft²	
0423940	VASOU021 11	Furnace	Wipe	***	0.111	67.51 ug/ft²	160 ug/ft²	
0423941	VASOU021 12	Furnace	Wipe Blank	***	N/A	0.30 ug	0.36 ug	

Analysis Method for Flame: Air, Wipes, Paints, and Soil/Solids: EPA 600/R-93/200(M)-7420; Water: SM-311B

Analysis Method For Furnace: Air, Wipes, Paints, and Soil/Solids: EPA 600/R-93/200(M)-7421; Water: SM-311B

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

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 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



TEST REPORT
Page 1 of 2
1/30/04

Submitted To: **Non-Responsive**

Shaw Environmental, Inc.
5700 Thurston Ave., Suite 116
Virginia Beach, VA 23455

Reference Data:

Client Sample No.:	Lead
P.O. No.:	VASOU021A1 through VACHA020A3
Sample Location:	1103
Sample Type:	Virginia
Method Reference:	Filter
DCL Set ID No.:	NIOSH 7300
DCL Sample ID No.:	04-S-0351
Sample Receipt Date:	04-01896 through 04-01904
Preparation Date:	1/27/2004
Analysis Date:	01/29/04

The samples were prepared and analyzed in accordance with NIOSH method 7300 using a Perkin Elmer 3000XL ICP.

The sample condition upon receipt was acceptable except where noted.

The results are in the enclosed data table. Results relate only to the items tested and are not blank corrected unless indicated in the data table.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Non-Responsive

Analyst

Non-Responsive

Reviewer

CINCINNATI OFFICE
4388 GLENDALE-MILFORD ROAD
CINCINNATI, OHIO 45242-3706
513 733-5336, FAX 513 733-5347

WEST COAST OFFICE
11 SANTA YORMA COURT
NOVATO, CALIFORNIA 94945
800 280-8071, FAX 415 893-9469

Results
Lead

Client #	DCL #	Sample Volume (L)	µg/sample	mg/m ³
VASOU021A1	04-01896	206.31	ND	<0.005
VASOU021A2	04-01897	198.26	ND	<0.005
VASOU021A3	04-01898	0	ND	-
VADAN020A1	04-01899	257.14	ND	<0.004
VADAN020A2	04-01900	269.56	ND	<0.004
VADAN020A3	04-01901	0	ND	-
VACHA020A1	04-01902	123.50	ND	<0.008
VACHA020A2	04-01903	127.27	ND	<0.008
VACHA020A3	04-01904	0	ND	-
	Prep Blank		ND	
% Recovery	LCS		110.	
RPL			1.	

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

Non-Responsive

Analyst

Non-Responsive

Reviewer

1/21/2004

Appendix D

References

References

Title 29, Code of Federal Regulations CFR), Part 1910, Occupational Safety and Health Administration (current edition)

American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc (ASHRAE) 62-2002, Ventilation for Acceptable Indoor Air Quality

Instructions for Completing the Sampling of Army National Guard Armories, Lead Wipe Sampling Procedure included with the Request for Proposal

Air Sampling for Lead - Method 7082 of the National Institute of Occupational Safety and Health (NIOSH) Manual of Analytical Methods

Design Guide DG-415-2, Logistics Facilities, National Guard Bureau Installation Division, 14 December 1999

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

Army Regulation (AR) 40-5, Medical Service, Preventive Medicine, 15 October 1990

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

Department of the Army Pamphlet (DA PAM) 40-501, Medical Services, Hearing Conservation Program, 10 December 1998

DA PAM 40-503, Medical Services, Industrial Hygiene Program, 30 October 2000

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

Guidelines for Converting Indoor Firing Ranges to Other Uses, Headquarters, Department of the Army and the Air Force, NG PAM (AR) 385-16/ANGPAM 91-101, 31 January 1994

24 CFR, Part 35, Subpart B, Section 35-110, Definition of Lead-Based Paint, Housing and Urban Development, U. S. Department of Housing

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 $0.05 \text{ mg}/\text{m}^3$ averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead dust in this building.

**NATIONAL GUARD BUREAU
ARMY NATIONAL GUARD
REGION NORTH INDUSTRIAL HYGIENE OFFICE
ATTN: NGB-AVS-SI
301-IH OLD BAY LANE
HAYRE DE GRACE, MD 21078-4094**

NGB-AVS-SI (40-5f)

9 July 2004

MEMORANDUM FOR VAARNG, South Boston Readiness Center, ATTN: SSG
Non-Responsive P.O. Box 794, 701 Hamilton Blvd., South Boston, VA 24592

SUBJECT: Baseline Survey

1. I have enclosed the industrial hygiene survey report completed by Shaw Environmental, Incorporated.
2. In addition to the attached discussion and recommendations regarding wipe samples for lead, if a special function is held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function.
3. Please contact me at (410) 942-0273 or 1-800-550-6967 if you have any questions regarding the enclosed report.

Non-Responsive

Encl

Regional Industrial Hygienist

**CF: Organizational Maintenance Officer
Occupational Health Manager**

**National Guard Armory
South Boston Readiness Center
South Boston, Virginia
Industrial Hygiene Evaluation**

Recommendations

- Wipe sampling for lead revealed concentrations above the recommended level of 200 micrograms per square foot ($\mu\text{g}/\text{ft}^2$) in the drill floor/assembly hall area. It is recommended that these surfaces and the areas immediately around these surfaces be thoroughly cleaned to reduce the lead level. In addition, any other dusty/dirty areas in the assembly area/drill floor should be thoroughly cleaned. **RAC - 4**
- Wipe sampling for lead revealed concentrations above a level of 40 micrograms per square foot ($\mu\text{g}/\text{ft}^2$) in the drill floor/assembly hall area, Room 207, storage room, Room 101, and converted firing range. Areas with lead concentrations above 40 $\mu\text{g}/\text{ft}^2$ that will be accessible to children should be cleaned. If a special function is held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function. **RAC - 4**
- Water damage was observed at several locations at the armory. The source of the water damage was likely from a combination of roof and pipe leaks. The source of the water damage should be confirmed and actions taken to eliminate the source in order to prevent the possibility of mold growth that may lead to indoor air quality problems. **RAC - 5**
- Measurements for humidity revealed that levels did not meet the recommended level of 30% in the facility. It is recommended that a humidification system be installed at the facility. **RAC - 5**
- Lighting measurements were conducted at the armory. The lighting did not meet minimum requirements in some areas; therefore consideration should be given to providing more lighting in these areas. This may be accomplished by replacing burnt out luminaries, cleaning fixtures, cleaning windows, painting walls with a lighter color, repositioning detailed work to higher illuminated areas, and using supplemental lighting. **RAC - 5**
- Wipe sampling for lead in the converted firing range revealed concentrations above the recommended level. These areas must be decontaminated by a thorough cleaning until surface lead concentrations are reduced to below recommended levels. It may be appropriate to remove the heater(s) due to the high lead levels. In addition, stored items should be wet-wiped before being removed from the area. Access to the area

should be limited, and employees should not be allowed to work in this area without protective clothing until the area and items have been cleaned and re-sampled. Housekeeping should be maintained to insure that lead levels are kept as low as possible. **RAC - 4**

Shaw Environmental, Inc.

312 Directors Drive
Knoxville, TN 37923
865.690.3211
Fax 865.690.3626



Shaw Environmental, Inc.

30 March 2004

Ms **Non-Responsive** CIH
Regional Industrial Hygienist
Region North Industrial Hygiene Office
Attn: NGB-AVS-SI
301-IH Old Bay Lane
Havre De Grace, Maryland 21078

RE: Draft Report for the Industrial Hygiene Evaluation at the South Boston Readiness
Center – South Boston, Virginia

Dear Ms **Non-Responsive**

Attached is a copy of the referenced report. Also attached is a copy of the field notes,
photographs, and photograph log. Please call me if you have questions.

Sincerely,

Non-Responsive

Project Manager

*Survey 21 Jan 04
Rec'd 9 Apr 04
rev # 6/11/04
e-mailed 6-17-04*

South Boston Armory Photo Log
National Guard Armory
South Boston, Virginia
Date of Survey: 21 January 2004

Photo	Description
1	Lead Wipe Assembly Room - Electrical Control Box - Sample 1
2	Lead Wipe Assembly Room - Water Fountain - Sample 2
3	Lead Wipe Assembly Room - Scullery Countertop - Sample 3
4	Lead Wipe Assembly Room - Soda Machine - Sample 4
5	Lead Wipe Assembly Room - Fire Extinguisher Housing - Sample 5
6	25% Building - Room 204 Television - Sample 7
7	25% Building - Room 203 Podium - Sample 8
8	25% Building - Storage Room Storage Locker - Sample 9
9	25% Building - Kitchen Refrigerator - Sample 10
10	25% Building - Room 101 Copy Machine - Sample 11
11	Firing Range - Exhaust System - Sample 13
12	Firing Range - Overhead Heaters - Sample 16
13	Firing Range - Light Fixtures - Sample 15
14	Firing Range - Stored Item - Sample 17
15	Firing Range - Floor Inside the Converted Firing Range - Sample 19
16	Firing Range - Floor Outside the Converted Firing Range - Sample 20
17	Firing Range - Bullet Trap - Sample 14
18	Water Damage
19	Water Damage
20	Water Damage
21	Water Damage
22	Water Damage
23	Water Damage - Office
24	Water Damage - Administrative Office

Field Notes and Checklist

State: Virginia Location: SOUTH BOSTON Date: JANUARY 21, 2004
 Contact: SFC Non-Responsi

1.0 Sampling for Lead

1.1 Wipe Sampling

Sample #:	<u>1</u>	Picture #:	<u>/</u>	Location:	<u>ELECTRICAL CONTROL BOX</u>
Sample #:	<u>2</u>	Picture #:	<u>/</u>	Location:	<u>TOP OF WATER FOUNTAIN</u>
Sample #:	<u>3</u>	Picture #:	<u>/</u>	Location:	<u>CUTLERY COUNTER</u>
Sample #:	<u>4</u>	Picture #:	<u>/</u>	Location:	<u>SODA MACHINE TOP</u>
Sample #:	<u>5</u>	Picture #:	<u>/</u>	Location:	<u>FIRE EXTINGUISHER HOUSING</u>
Sample #:	<u>6</u>	Picture #:	<u>N/A</u>	Location:	<u>FIELD BLANK</u>
Sample #:	<u>7</u>	Picture #:	<u>/</u>	Location:	<u>ROOM 204 TOP OF TV</u>
Sample #:	<u>8</u>	Picture #:	<u>/</u>	Location:	<u>ROOM 203 AUDIUM TOP</u>
Sample #:	<u>9</u>	Picture #:	<u>/</u>	Location:	<u>STORAGE ROOM TOP OF LOCKER</u>
Sample #:	<u>10</u>	Picture #:	<u>/</u>	Location:	<u>KITCHEN TOP OF REFRIGERATOR</u>
Sample #:	<u>11</u>	Picture #:	<u>/</u>	Location:	<u>ROOM 101 TOP OF COPY MACHINE</u>
Sample #:	_____	Picture #:	_____	Location:	_____
Sample #:	_____	Picture #:	_____	Location:	_____
Sample #:	_____	Picture #:	_____	Location:	_____
Sample #:	_____	Picture #:	_____	Location:	_____
Sample #:	_____	Picture #:	_____	Location:	_____
Sample #:	_____	Picture #:	_____	Location:	_____
Sample #:	_____	Picture #:	_____	Location:	_____
Sample #:	_____	Picture #:	_____	Location:	_____
Sample #:	_____	Picture #:	_____	Location:	_____

(Also, please see the sketch of sampling locations.)

1.2 Breathing Zone Air Sampling

Sample #: A1 Employee Sampled: GENERAL AIR SAMPLE (ROOM 101)
 Sample #: A2 Employee Sampled: GENERAL AIR SAMPLE (ROOM 201)
A3 FIELD BLANK

2.0 Physical Condition of Facility

2.1 Peeling Paint - Lead

Peeling paint observed (Yes or No): NO

If peeling paint observed, samples were taken as follows:

Sample #: _____ Picture #: _____ Location: _____
 Condition (Good, Average, Poor): _____ Quantity: _____ ft²
 Sample #: _____ Picture #: _____ Location: _____
 Condition (Good, Average, Poor): _____ Quantity: _____ ft²
 Sample #: _____ Picture #: _____ Location: _____
 Condition (Good, Average, Poor): _____ Quantity: _____ ft²
 Sample #: _____ Picture #: _____ Location: _____
 Condition (Good, Average, Poor): _____ Quantity: _____ ft²
 Sample #: _____ Picture #: _____ Location: _____
 Condition (Good, Average, Poor): _____ Quantity: _____ ft²

2.2 Visual Inspection - Asbestos

Suspected asbestos-containing material observed (Yes or No): NO

If suspected asbestos-containing material observed, samples were taken as follows:

Location 1: _____ Picture #: _____
 Condition: _____ Approximate (Square or Linear Feet): _____
 Location 2: _____ Picture #: _____
 Condition: _____ Approximate (Square or Linear Feet): _____
 Location 3: _____ Picture #: _____
 Condition: _____ Approximate (Square or Linear Feet): _____
 Location 4: _____ Picture #: _____
 Condition: _____ Approximate (Square or Linear Feet): _____
 Location 5: _____ Picture #: _____
 Condition: _____ Approximate (Square or Linear Feet): _____

2.3 Visual Inspection – Water Damage and Mold

Water damage observed (Yes or No): YES

If yes, water damage was observed at the following locations:

Location 1: <u>Room 101, 2nd</u>	Picture #: <u>/</u>
Location 2: <u>UPPER LEVEL HALLWAY</u>	Picture #: <u>/</u>
Location 3: <u>STAIR WEL</u>	Picture #: <u>/</u>
Location 4: <u>Room 102</u>	Picture #: <u>/</u>
Location 5: <u>Room 101, 101A</u>	Picture #: <u>/</u>

Mold observed (Yes or No): NO

If yes, mold was observed at the following locations:

Location 1: _____	Picture #: _____
Location 2: _____	Picture #: _____
Location 3: _____	Picture #: _____
Location 4: _____	Picture #: _____
Location 5: _____	Picture #: _____

2.4 Visual Inspection - Housekeeping

Housekeeping (good, average, poor): poor

Comments (such as no dirt or trash was visible on the floors or the housekeeping was poor in that there was trash and debris on the floors that could lead to a tripping hazard, or there was dust in the vents.):

3.0 Building Concerns

3.1 Ergonomic Concerns

Ergonomic concerns (Yes or No): NO

If there are ergonomic concerns at the armory, describe the extent of the problem, such as three employees stated that they perform repetitive motion at the XYZ machine for 6 hours per day, and they stated that they are suffering from symptoms of musculoskeletal disorders (MSDs).

3.2 Indoor Air Quality

IAQ concerns (based on employee interviews)(Yes or No): No

If yes, what were concerns:

Measurements for carbon dioxide, humidity, and temperature:

Location	CO ₂ (ppm)	Humidity (%)	Temperature (°F)	Occupancy (People in Room)
Outdoors -	377	10.1	63.2	0
1 st Floor -	419	18.6	70.0	1
2 nd Floor -	395	16.8	70.6	1
3 rd Floor -	—	—	—	—
Basement	—	—	—	—

4.0 Safety and Industrial Hygiene Programs

4.1 Confined Spaces

Are confined spaces applicable (Yes or No): No

If yes, does the program meet minimum standards (Yes or No): —

If no, explain the deficiencies:

4.2 Hearing Conservation

Is hearing conservation applicable (Yes or No): No

If yes, does the program meet minimum standards (Yes or No): Yes

If no, explain the deficiencies:

4.3 Respiratory Protection

Is respiratory protection applicable (Yes or No): No

If yes, does the program meet minimum standards (Yes or No): Yes

If no, explain the deficiencies:

4.4 Hazard Communication

Is hazard communication applicable (Yes or No): Yes

If yes, does the program meet minimum standards (Yes or No): Yes

If no, explain the deficiencies:

4.5 Personal Protective Equipment

Is personal protective equipment applicable (Yes or No): Yes

If yes, does the program meet minimum standards (Yes or No): Yes

If no, explain the deficiencies:

5.0 Ventilation

5.1 Ventilation System Evaluation

Local exhaust ventilation systems at this armory (Yes or No): Yes

If yes, results of airflow patterns:

Location 1: _____

Airflow Pattern (acceptable or unacceptable, with reason):

Location 2: _____

Airflow Pattern (acceptable or unacceptable, with reason):

Location 3: _____

Airflow Pattern (acceptable or unacceptable, with reason):

5.2 Contamination of Clean Air Sources

Clean air sources contaminated by contaminated exhaust air (Yes or No): Yes

If yes, describe:

6.0 Noise Dosimetry

Potential hazardous noise areas (Yes or No): No

If yes, results of noise dosimetry sampling:

Employee sampled: _____
 Results: _____ % Actual _____ % Projected 8-hour TWA _____ Equivalent dBA

Activity: _____

Employee sampled: _____

Results: _____ % Actual _____ % Projected 8-hour TWA _____ Equivalent dBA

Activity: _____

Employee sampled: _____

Results: _____ % Actual _____ % Projected 8-hour TWA _____ Equivalent dBA

Activity: _____

7.0 Lighting Evaluation

DIVIDE 341.9

Location	Luminance Range (fc)
<u>Room 102</u>	<u>40-50</u>
<u>Room 101</u>	<u>40-60</u>
<u>STORAGE ROOM</u>	<u>20-30</u>
<u>MEATS & BUTCH</u>	<u>20-30</u>
<u>KITCHEN</u>	<u>60-80</u>
<u>SCULLERY</u>	<u>40-50</u>
<u>Room 103</u>	<u>10-30</u>
<u>Room 204 & 202</u>	<u>60-130</u>
<u>Room 203</u>	<u>60-130</u>
<u>Room 201</u>	<u>55-130</u>
<u>UP STAIR HALLWAY</u>	<u>20-80</u>
<u>STAIR W.C.</u>	<u>10-40</u>

8.6 Converted Indoor Firing Ranges

Converted indoor firing range (Yes or No): YES

If yes, locations sampled:

Sample #: 13A Picture #: - Location: Inside any remaining ventilation ductwork

Sample #: 13 Picture #: ✓ Location: Exhaust ventilation system

Sample #: 14 Picture #: ✓ Location: Bullet trap

Sample #: 15 Picture #: ✓ Location: Light fixtures

Sample #: 16 Picture #: ✓ Location: Overhead heaters

Sample #: 17 Picture #: ✓ Location: Stored items

Sample #: 19 Picture #: ✓ Location: Floor

Sample #: 20 Picture #: ✓ Location: Outside the range

9.0 HVAC System

Does the HVAC system have maintenance performed on a regular basis (Yes or No):

YES

In yes, is the maintenance effective (Yes or No): YES

If no, describe:

10.0 HHIM

Complete HHIM form for facility (Initial as completed): Non-Responsi

Reproduction Room HHIM Necessary (Yes or No) (Initial if Yes): -

Film Developing Room HHIM Necessary (Yes or No) (Initial if Yes): -

Maintenance Area HHIM Necessary (Yes or No) (Initial if Yes): -

11.0 Additional Items

Non-Responsive

Table 1 (wipe sampling) completed (initial when completed): _____

Table 2 (air sampling) completed (initial when completed): _____

Table 3 (peeling paint), if necessary, completed (initial when completed): _____

Table 3 or 4 (IAQ) completed (initial when completed): _____

Table 4 or 5 (noise), if necessary, completed (initial when completed): _____

Table 5 or 6 (firing ranges), if necessary, completed (initial when completed): _____

Airflow pattern diagram(s) completed (initial when completed): _____

Building layout included (initial when completed): _____

Photographs (initial when completed): _____

Sampling Sheets and Laboratory Analyses (initial when completed): _____

Sampling tracking form completed and faxed to NGB AR _____

within 5 days of date of this survey (initial when completed): _____

(Fax to Ken Forsythe at 410-942-0254)

State Lead Wipes Spreadsheet completed) (initial when completed): _____

Three copies of noise exposure notification letter, if necessary (initial when completed): _____

Three copies of contaminant exposure forms for each employee that participated in air sampling (initial when completed): _____

Shaw Environmental, Inc.

312 Directors Drive
Knoxville, TN 37923
865.690.3211
Fax 865.690.3626



24 June 2004

Ms. Vanessa Franchere, CHH
Regional Industrial Hygienist
Region North Industrial Hygiene Office
Attn: NGB-AVS-SI
301-III Old Bay Lane
Havre De Grace, Maryland 21078

RE: Final Report for the Industrial Hygiene Evaluation at the South Boston Readiness
Center -- South Boston, Virginia

Dear Ms. Franchere:

Attached are four (4) copies of the referenced report. Please note that a copy of the field notes, photographs, and photograph log were provided with the draft report. Please call me if you have questions.

Sincerely,

Harry A. Pullum, CHH, CSP, CIAQP
Project Manager

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



Industrial Hygiene Survey
for VARNG – South Boston Readiness Center
701 Hamilton BLVD
South Boston, Virginia 24592

AECOM
January 2013
Document No.: 60275401/ South Boston Readiness Center

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

Industrial Hygiene Survey
for VARNG – South Boston Readiness Center
701 Hamilton BLVD
South Boston, Virginia 24592

Non-Responsive

A large black rectangular redaction box covering several lines of text.

Industrial Hygienist

Non-Responsive

A large black rectangular redaction box covering several lines of text.

Project Manager

Non-Responsive

A large black rectangular redaction box covering several lines of text.

Northeast District Health & Safety Manager

AECOM Environment
January 2013
Document No.: 60275401/ South Boston 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 South Boston Readiness Center Facility Layout

Appendix B South Boston Readiness Center Photographs

Appendix C Analytical Results

Appendix D References



List of Tables

Table 2-1: Lead Wipe Sample Results	2-1
Table 3-1: Lead Paint Chip Sample Results	2-1
Table 3-2: Suspect Asbestos Containing Material Sample Results	2-1
Table 3-3: Indoor Air Quality Monitoring Results.....	3-2
Table 5-1: Light Survey	5-1



Executive Summary

On November 29, 2012, AECOM Technical Services Northeast, Inc. (AECOM) conducted an Industrial Hygiene (IH) survey of the South Boston Readiness Center facility located at 701 Hamilton BLVD in South Boston, Virginia. SFC **Non-** was the point of contact for the facility and accompanied AECOM during the survey to provide access and information concerning the South Boston Readiness Center operations.

The industrial hygiene survey was conducted in general accordance with the scope of work as described in the "Statement of Work – Industrial Hygiene Services for National Guard Bureau Industrial Hygiene Region North – Baseline Surveys for Readiness Centers and Administrative Buildings," dated March 2009.

The South Boston Readiness Center is currently staffed by three personnel. The facility is configured as an administrative area and a drill/assembly hall.

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

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

Lighting levels measured throughout the facility were only partially adequate as per American National Standard Institute/Illuminating Engineering Society of North America (ANSI/IESNA) RP-1-2004, Office Lighting, ANSI/IESNA RP-7-2001, Industrial Lighting, and the IESNA Lighting Handbook, 9th Edition, 11 April 2005. Section 5 for a list of areas that did not meet the lighting standard.

Wipe samples collected in association with most administrative areas indicated lead levels below the Occupational Safety and Health Administration's (OSHA's) Clarification of "as free as practicable" and lead contamination under 29 Code of Federal Regulations (CFR) 1926.62, The Compliance Directive for the Interim Standard for Lead in Construction, CPL 2-2.58. OSHA recommends the use of the U.S. Department of Housing and Urban Development's (HUD) acceptable decontamination level of 200 micrograms per square foot (ug/ft²) for floors in evaluating the cleanliness of change areas, storage facilities and lunchrooms/eating areas.

However, wipe samples collected from an office file cabinet, former firing range light fixture and a sample from the floor just outside the former firing range indicated levels of lead in excess of 200 ug/ft² per NG-PAM 420-15.

No Indoor Air Quality concerns were noted by the South Boston Readiness Center personnel. Instantaneous real-time reading for carbon monoxide and carbon dioxide (parts per million or ppm), temperature (° Fahrenheit), and relative humidity (as percentage) are presented in Table 3-1. Readings were generally within acceptable guidelines in those areas occupied by the facility staff.

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

Suspect asbestos containing materials were observed during the evaluation. A sample was collected from the tile and associated mastic in the drill hall. Results indicated no asbestos in the analyzed samples.



Suspect lead-based paint (LBP) was observed to be peeling and was sampled from the second floor door casings and the drill hall garage floor. Results of the analysis indicated lead concentrations below the reporting limit.

Neither water damage nor visible mold growth was observed during the survey. Water intrusion is a mold growth risk factor.

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

1.0 Facility Description and Operations

The South Boston Readiness Center is a two story masonry block brick façade structure purpose built as a National Guard Readiness Center. The section occupied by Readiness Center personnel consists of rooms configured as office space and is finished with acoustical drop ceilings and floor tile. A former indoor firing range (IFR) has been converted to a storage area.

The primary activity at the South Boston Readiness Center is routine administrative duties. The South Boston Readiness Center is currently staffed by approximately 3 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 multiple areas of the facility following the Occupational Safety & Health Administration (OSHA) wipe sampling method and using Ghost Wipes. Dust was observed and noted in several areas of the facility including administrative areas.

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
SBL-001	Drill hall front	<110 ug/ft ²
SBL-002	Drill hall back	<110 ug/ft ²
SBL-003	Drill hall Pepsi machine	<110 ug/ft ²
SBL-004	Kitchen	<110 ug/ft ²
SBL-005	Supply air grill office	<110 ug/ft ²
SBL-006	Office desk	<110 ug/ft ²
SBL-007	Office top of file cabinet	550 ug/ft²
SBL-008	Hallway corridor second floor	<110 ug/ft ²
SBL-009	Entrance foyer air vent	<110 ug/ft ²
SBL-010	Storage (Former firing range inside vent duct)	<110 ug/ft ²
SBL-011	Storage (Former firing range light fixture)	300 ug/ft²
SBL-012	Storage (Former firing range floor)	900 ug/ft²
SBL-013	Storage floor (outside former firing range)	400 ug/ft²

ug/ft² = Micrograms per square foot.

Wipe samples collected in association with most administrative areas indicated lead levels below the Occupational Safety and Health Administration's (OSHA's) Clarification of "as free as practicable" and lead contamination under 29 CFR 1926.62, The Compliance Directive for the Interim Standard for Lead in Construction, CPL 2-2.58. OSHA recommends the use of HUD's acceptable decontamination level of 200 ug/ft² for floors in evaluating the cleanliness of change areas, storage facilities and lunchrooms/eating areas.

Several wipe samples collected in converted IFR areas were in excess of the action level of 200 micrograms per square foot (ug/ft²) per NG-PAM 420-15 and a single sample collected from the top of a filing cabinet. Laboratory analytical results are presented in Appendix C.

2.1.2 Air Sampling

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

3.0 Physical Condition of Facility and Personnel Concerns

3.1.1 Lead Based Paint

Interior surfaces of walls are coated with paint. The paint on the walls is in serviceable condition. Two areas of damaged paint were observed on door casings on the second floor and on the drill hall floor near the garage door. Results are provided in the following table.

Table 3-1: Lead Paint Chip Sample Results

Sample Number	Sample Location	Lead Concentration
SBC-001	Door casings second floor	<0.01% Pb
SBC-002	Drill hall garage floor	<0.031% Pb

3.1.2 Suspect Asbestos Containing Materials

AECOM observed damaged, friable suspect asbestos-containing materials (ACM) in readily accessible areas of the South Boston Readiness Center during this survey. Results are provided in the following table.

Table 3-2: Suspect ACM Sample Results

Sample Number	Sample Location	Results
SBA-001	Drill hall floor tile	NAD
SBA-002	Drill hall floor tile mastic	NAD

NAD = no asbestos detected

Typical suspect miscellaneous building materials observed but not sampled include drywall, floor tiles and associated mastic, cove base and associated mastic, ceiling tiles, carpet mastic, and window caulks.

3.1.3 Water Damage/Mold

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

3.1.4 Housekeeping

The South Boston Readiness Center was observed to be generally clean and orderly during this assessment. AECOM did 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 South Boston Readiness Center staff members. No Indoor Air Quality concerns were noted by the South Boston Readiness Center personnel.

Instantaneous real-time reading for carbon monoxide and carbon dioxide (parts per million or ppm), temperature (° Fahrenheit), and relative humidity (as percentage) are presented in the following table. The facility is mechanically air conditioned. All readings were generally within acceptable guidelines with the exception of a few RH readings which were below the recommended range. No complaints by facility personnel at this time to warrant recommending any additional action.

Table 3-2: Indoor Air Quality Monitoring Results

Location	Carbon Monoxide (ppm)	Carbon Dioxide (ppm)	Temp (°F)	Relative Humidity (%)
Front foyer	0.5	576	67.6	30.7
Front drill hall	0.2	492	67.5	30.2
Middle drill hall	0.2	462	67.4	29.3
Back drill hall	0.4	488	67.4	31.1
Kitchen	0.2	547	67.8	31.5
Kitchen storage	0.1	492	68.3	28.3
Male toilet	0.0	483	69.5	29.9
Boiler room	0.1	664	69.2	27.4
Female toilet	0.2	517	69.5	29.6
Locker room	0.1	515	68.2	30.2
Room 101	0.5	697	68.8	30.3
Office 101B	0.7	590	69.4	30.1
Office 101A	0.1	595	70.2	27.8
Stairwell	0.1	447	68.8	28.4
Stairwell middle	0.1	678	66.6	33.2
Stairwell top	0.1	588	67.6	32.0
2 nd floor hall	0.2	526	68.1	30.6
Office 204	0.2	432	68.9	28.9
Room 203	0.2	577	69.5	25.5
Room 203 back	0.1	565	69.5	25.6
2 nd floor foyer	0.2	481	69.6	26.4
Old firing range	0.2	448	68.9	26.9

Table 3-1 Guidelines:

Carbon Monoxide: Office/Warehouse Space – 9 ppm based on United States Environmental Protection Agency's National Ambient Air Quality Standard.

OSHA Permissible Exposure Limit (PEL) = 50 ppm. American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit value (TLV) = 25, ppm.

Carbon Dioxide: Office Space -Approximately 700 ppm above background (Derived from American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE) Standard 62.1-2010). Not Applicable to warehouse and vehicle maintenance bays.

Relative Humidity: Mechanically air-conditioned space – Maximum 65% (Derived from ASHRAE Standard 62.1-2010 – 5.10.1).

Temperature: Winter (clothing insulation = 1.0 clo) Relative humidity 30-60% - Temp - 68 – 75°F

Summer Temp - 73 – 79°F. (Derived from ASHRAE Standard 55-2010)

South Boston 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 building has a new HVAC system. No dust was observed at diffusers, and site personnel indicated that the system seems to work well. Temperature readings were constant in all areas occupied by readiness center personnel.

4.1.2 HVAC Maintenance

The HVAC system is brand new and has been in operation for approximately one month, maintenance is not yet required. Building personnel were unable to verify whether or not a maintenance schedule is in place.

There was no 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. Several lighting levels were sub-adequate in the measured areas.

Table 5-1: Light Survey

Location	Results (Foot candles)	Met Standard (Y/N)	Standard*
Front foyer	117	Y	10
Front drill hall	24.4	Y	10
Middle drill hall	27.3	Y	10
Back drill hall	26.7	Y	10
Kitchen	61.3	Y	50
Kitchen storage	20.7	Y	5
Male toilet	59.8	Y	5
Boiler room	5.8	N	30
Female toilet	58.7	Y	5
Locker room	26.7	Y	7
Room 101	55.7	Y	50
Office 101B	30	N	50
Office 101A	31.3	N	50
Stairwell	13	Y	5
Stairwell middle	4.2	Y	5
Stairwell top	20.9	Y	5
2 nd floor hall	22.9	Y	5
Office 204	104	Y	50
Room 203	103.7	Y	50
Room 203 back	103	Y	50
2 nd floor foyer	64.9	Y	10
Old firing range	23.4	N	30
Office Lighting (ANSI/IESNA RP-1-04) and Industrial Lighting Facilities (ANSI/IESNA RP-7-01)			

6.0 Evaluation of Attached Garage

There is no garage associated with the South Boston 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 South Boston Readiness Center.

Lighting levels measured throughout the facility were not adequate in several of the measured areas as per American National Standard Institute/Illuminating Engineering Society of North America (ANSI/IESNA) RP-1-2004, Office Lighting, ANSI/IESNA RP-7-2001, Industrial Lighting, and the IESNA Lighting Handbook, 9th Edition, 11 April 2005. Areas with inadequate lighting levels shall upgrade lighting or provide additional task lighting as necessary.

Wipe samples collected in association with most administrative areas indicated lead levels below the Occupational Safety and Health Administration's (OSHA's) Clarification of "as free as practicable" and lead contamination under 29 CFR 1926.62, The Compliance Directive for the Interim Standard for Lead in Construction, CPL 2-2.58. OSHA recommends the use of HUD's acceptable decontamination level of 200 ug/ft² for floors in evaluating the cleanliness of change areas, storage facilities and lunchrooms/eating areas.

However, wipe samples collected from an office file cabinet, former firing range light fixture and a sample from the floor just outside the former firing range indicated levels of lead in excess of 200 ug/ft². Personnel trained in accordance with the OSHA Lead Standard should clean the areas where lead was detected in quantities greater than 200 ug/ft² in accordance with NG PAM 420-15.

Suspect asbestos containing materials were observed during the evaluation. A sample was collected from the tile and associated mastic in the drill hall. Results indicated no asbestos detected in the analyzed samples.

Suspect LBP was observed to be peeling and was sampled from the second floor door casings and the drill hall garage floor. Results of the analysis indicated lead concentrations below the reporting limit.

Neither water damage nor visible mold growth was observed during the survey. Water intrusion is a mold growth risk factor.

No Indoor Air Quality concerns were noted by the South Boston Readiness Center personnel. Instantaneous real-time reading for carbon monoxide and carbon dioxide (parts per million or ppm), temperature (° Fahrenheit), and relative humidity (as percentage) are presented in Table 3-1. Readings were generally within acceptable guidelines in those areas occupied by the facility staff.

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

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

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.

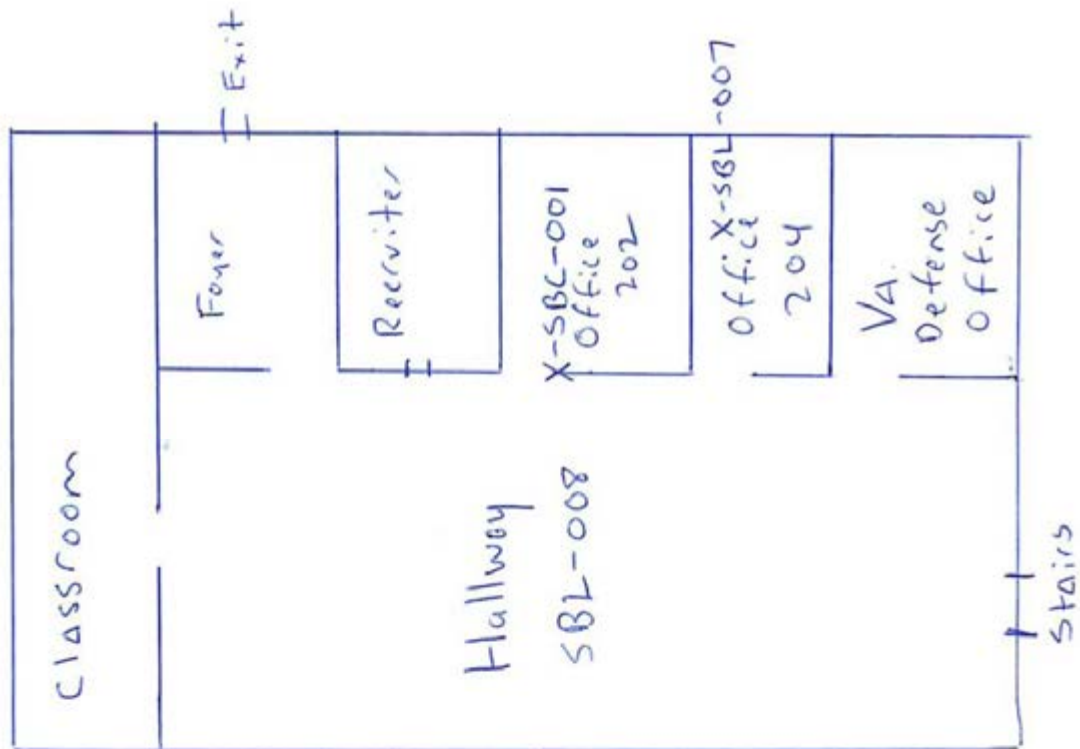
As with all such surveys, the results of the sampling represent conditions found on the date of the survey and may not represent conditions found at other times. Additionally, this survey was limited with respect to the specific parameters indicated above and should not be construed to be a comprehensive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

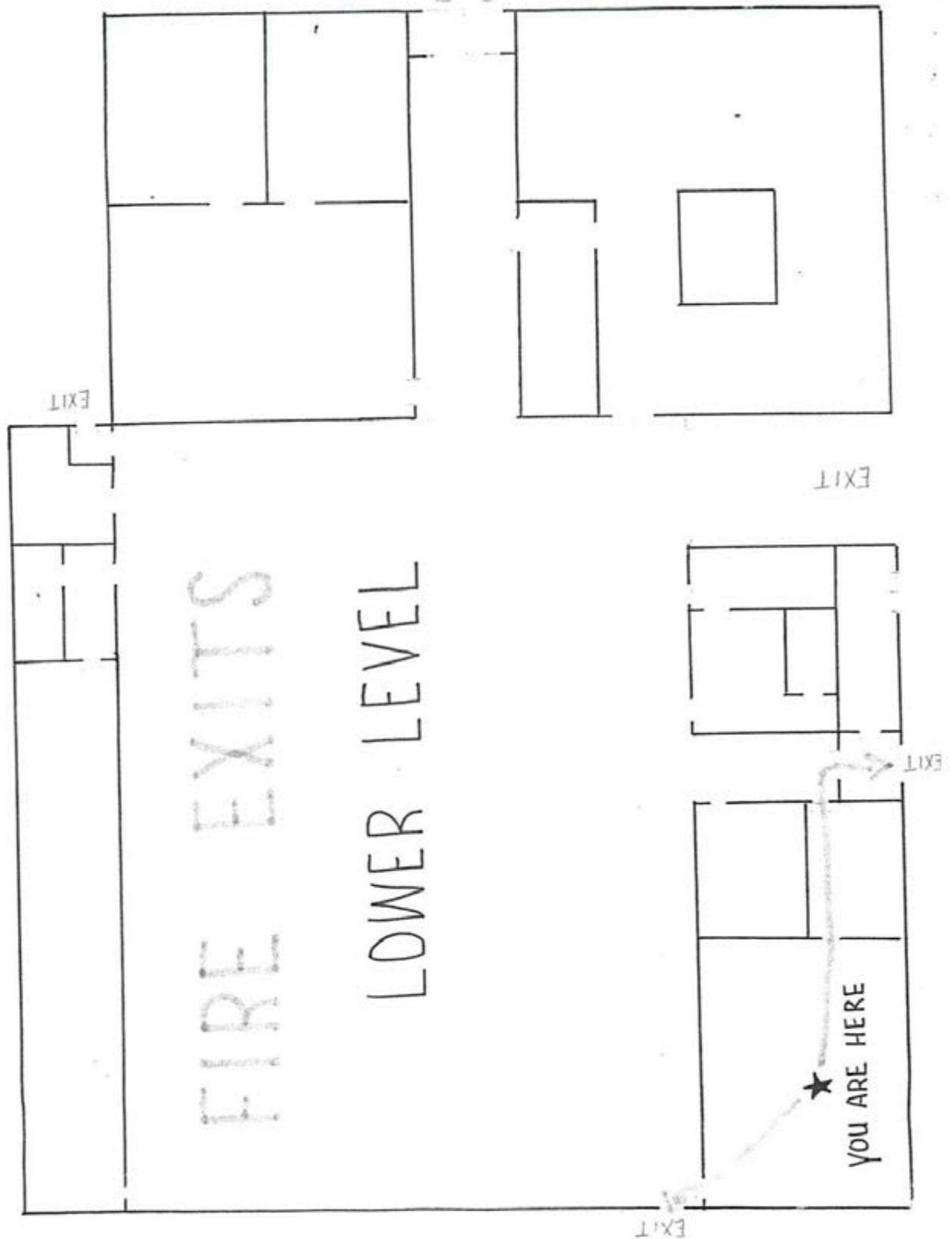
The Client recognizes and agrees that all testing and remediation methods have reliability limitations, no method nor number of sampling locations can guarantee that a condition will be discovered within the performance of the services as authorized by the Client. Additionally, the passage of time may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

South Boston Readiness Center Facility Layout

South Boston - 2nd Floor
Wipe and Paint Chip Locations





Appendix B

South Boston Readiness Center Photographs

Photograph 1

Building

Photograph 2

Monument

Photograph 3



Typical construction

Photograph 4



Former firing range area

Photograph 5



Drill hall upper level

Photograph 6



Drill hall sample location

Photograph 7



Damaged paint second floor door casing

Photograph 8



Damaged paint drill hall floor

Appendix C

Analytical Results



CERTIFICATE OF ANALYSIS



Client:	National Guard Bureau	Job Name:	VA ANG III Survey	Chain Of Custody:	514751
Address:	301-1H Old Bay Lane, Attn: ARNG-CJG-P, State Military Reservation	Job Location:	South Boston RC	Date Submitted:	12/12/2012
	Harro de Grace, Maryland 21078	Job Number:	Not Provided	Person Submitting:	AECUM
		P.O. Number:	W912K6-09-A-0063	Date Analyzed:	12/21/2012
				Report Date:	12/26/2012

Attention: **Non-Responsive**

Page 1 of 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 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. This report must not be used to claim, and does not imply product certification, approval, or endorsement by NY ELAP, AMLA, or any agency of the Federal Government. All rights reserved. AMIA Analytical Services, Inc.

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®
101143-0

Client:	National Guard Bureau	Job Name:	VA ANGIH Survey	Chain Of Custody:	514751
Address:	301-1H Old Bay Lane, Attn: ARNG-CJG-P, State Military Reservation	Job Location:	South Boston RC	Date Analyzed:	12/19/2012
	Havre de Grace, Maryland 21078	Job Number:	Not Provided	Person Submitting:	AECOM
		P.O. Number:	W912K6-09-A-9003		

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
13023004	SBA-001	NAD	--	--	--	--	--	--	--	--	--	100	FT	White	Homogeneous	LBP	
13023005	SBA-002	NAD	--	--	--	--	--	--	--	--	TR	100	MS	Black	Homogeneous	LBP	

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

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

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

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

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

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

Technical Director

Non-Responsive

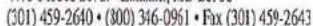
Analyst(s)

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.

NVLAP (101143-0) Accredited Laboratory

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



514751

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

12/13/71

Surface Sampling Field Data Sheet

Date Collected: 11/29/12

Job Name: South Boston N6 Armory

Page 1 of 1

Job Number:

Job Location: South Boston, VA

Contact Person:

Non-Responsive

Address: 701 Hamilton Blvd.

South Boston, VA

Company:

Phone Number:

Non-Responsive

Collected By:

COC Number:

Sample Number	Sample Location	Surface/Substrate Sampled	Area Wiped (in ² /ft ²)	Collection Media
SBL-001	Drill Hall - Front	Floor	4x4	Wipe
SBL-002	Drill Hall - Back	Floor		
SBL-003	Drill Hall Pepsi Machine	metal		
SBL-004	Kitchen	Kitchen Counter		
SBL-005	Supply Air Grille Office	metal		
SBL-006	Office Desk	wood		
SBL-007	Office Top of File Cabinet	metal		
SBL-008	Hallway Corridor - 2nd Floor	Floor		
SBL-009	Entrance Foyer - Air Vent	metal		
SBL-010	Firing Range - Inside Vent Duct	metal		
SBL-011	Firing Range Light Fixture	metal		
SBL-012	Firing Range Floor	Floor		
SBL-013	Floor - Outside Range	Floor		

Please Return Samples To:

AMA Analytical Services, Inc., 4475 Forbes Blvd., Lanham, MD 20705, (800) 346-0961/(301) 459-2640 Fax, www.amaab.com, info@amaab.com

Date Collected: 11/29/12 Job Name: South Boston NG Armory
Job Number: Job Location: South Boston, VA
Contact Person: Non-Responsive Address: 701 Hamilton Blvd
South Boston, VA
Company: Page 1 of 1
Phone Number:
Collected By: Non-Responsive
COC Number:

[illegible]

AMA Analytical Services, Inc., 4473 Forbes Blvd., Lanham, MD 20706, (800) 346-0961/(301) 459-2640 Fax, www.amalab.com, info@amalab.com

Bulk Sampling Survey Sheet

Date Collected: 1/29/12Job Name: South Boston NGB ArmoryPage 1 of 1Job Number: Non-ResponsiveJob Location: 701 Hamilton Blvd

Company: _____

Contact Person: _____

Address: South Boston, VA

Phone Number: _____

Collected By: _____

COC Number: _____

Sample Number	Homogenous Area ID	Type of Material	Sample Location	Friable	Condition of Material	Accessibility	Photo	Comments
SBA-001	1	Floor Tile	Drill Hall	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input checked="" type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input checked="" type="checkbox"/> Medium <input type="checkbox"/> High	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
SBA-002	2	Mastic	Drill Hall	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input checked="" type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input checked="" type="checkbox"/> Medium <input type="checkbox"/> High	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	

Please Return Samples To:

AMA Analytical Services, Inc., 4475 Forbes Blvd., Lanham, MD 20706, (800) 346-0961/(301) 459-2640 Fax, www.amaab.com, info@amaab.com

Appendix D References

References

1. Title 29, Code of Federal Regulations (CFR), Part 1910, Occupational Safety and Health Administration, current Ed. <http://www.osha.gov/comp-links.html>
2. Department of Defense Instruction (DODI) 6055.1, Department of Defense Occupational Safety and Health (OSH) Program, August 19, 1998. <http://www.dtic.mil/whs/directives/corres/pdf/605501p.pdf>
3. Army Regulation (AR) 11-34, The Army Respiratory Protection Program, 15 February 1990. http://armypubs.army.mil/epubs/pdf/R11_34.PDF
4. AR 40-5, Medical Service, Preventive Medicine, 25 May 2007. http://armypubs.army.mil/epubs/pdf/R40_5.PDF
5. AR 385-10, The Army Safety Program, 23 August 2007; Rapid Action Revision (RAR) issue date: 4 October 2011. http://armypubs.army.mil/epubs/pdf/R385_10.PDF
6. Department of the Army Pamphlet (DA PAM) 40-501, Medical Services, Hearing Conservation Program, 10 December 1998. http://armypubs.army.mil/epubs/pdf/P40_501.pdf
7. DA PAM 40-11, Preventive Medicine, 22 July 2005, RAR issue date: 19 October 2009. http://armypubs.army.mil/epubs/pdf/p40_11.pdf
8. DA PAM 40-503, Medical Services, Industrial Hygiene Program, 30 October 2000. http://armypubs.army.mil/epubs/pdf/P40_503.PDF
9. UFC 3-410-01FA, Heating, Ventilating, and Air Conditioning, 15 May 2003, change 4, January 2010. http://www.wbdg.org/ccb/DOD/UFC/ufc_3_410_01fa.pdf
10. Threshold Limit Values (TLVs) and Biological Exposure Indices (BEIs), American Conference of Governmental Industrial Hygienists (ACGIH), current Ed.
11. Industrial Ventilation – A Manual of Recommended Practice for Design, ACGIH, current Ed.
12. American National Standards Institute (ANSI)/International Safety Equipment Association (ISEA) Z358.1-2009, Emergency Eyewash and Shower Equipment.
13. ANSI/American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. (ASHRAE) 55-2010, Thermal Environmental Conditions for Human Occupancy.
14. ANSI/ASHRAE 62.1-2010, Ventilation for Acceptable Indoor Air Quality.
15. RP-1-2004, Office Lighting, ANSI/IESNA.
16. RP-7-2001, Industrial Lighting, ANSI/IESNA, change 20 July 2004.
17. OSHA Instruction Letter 02-02-058, Lead Exposure in Construction, Office of Health Compliance Assistance, 13 December 1993.
18. OSHA Standard Interpretation, Clarification of “as free as practicable” and lead contamination under 29 CFR 1926.62, dated January 13, 2003.
19. NG PAM 420-15, Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges, 3 November 2006. http://www.ngbpdc.ngb.army.mil/pubs/420/ngpam420_15.pdf

Shaw Environmental, Inc.

312 Directors Drive
Knoxville, TN 37923
865.690.3211
Fax 865.690.3626



Shaw Environmental, Inc.

**National Guard Armory
Sandston (Beulah Road) Readiness Center
Sandston, Virginia**

Industrial Hygiene Evaluation

Prepared for:

**National Guard Region North Industrial Hygiene Office
Havre De Grace, Maryland 21078**

Prepared by:

**Shaw Environmental, Inc.
312 Directors Drive
Knoxville, Tennessee 37923**

24 June 2004

**National Guard Armory
Sandston (Beulah Road) Readiness Center
Sandston, Virginia**

Industrial Hygiene Evaluation

Prepared for:

**National Guard Region North Industrial Hygiene Office
Havre De Grace, Maryland 21078**

Prepared by:

**Shaw Environmental, Inc.
312 Directors Drive
Knoxville, Tennessee 37923**

24 June 2004

Prepared by:

Non-Responsive

Environmental Scientist

Reviewed by:

Non-Responsive

Business Line Manager

Table of Contents

<i>Table of Contents</i>	<i>i</i>
<i>List of Tables</i>	<i>ii</i>
<i>List of Appendices</i>	<i>ii</i>
<i>Executive Summary</i>	<i>E-1</i>
<i>1.0 Introduction</i>	<i>1-1</i>
<i>2.0 Findings, Discussion, and Interpretation of Results</i>	<i>2-1</i>
<i>2.1 Sampling for Lead</i>	<i>2-1</i>
<i>2.1.1 Wipe Sampling</i>	<i>2-1</i>
<i>2.1.2 Air Sampling for Lead</i>	<i>2-2</i>
<i>2.2 Physical Condition of Facility</i>	<i>2-2</i>
<i>2.2.1 Peeling Paint - Lead</i>	<i>2-2</i>
<i>2.2.2 Visual Inspection - Asbestos</i>	<i>2-2</i>
<i>2.2.3 Visual Inspection - Water Damage and Mold</i>	<i>2-2</i>
<i>2.2.4 Visual Inspection - Housekeeping</i>	<i>2-3</i>
<i>2.3 Building Concerns</i>	<i>2-3</i>
<i>2.3.1 Ergonomic Concerns</i>	<i>2-3</i>
<i>2.3.2 Indoor Air Quality</i>	<i>2-3</i>
<i>2.4 Safety and Industrial Hygiene Programs</i>	<i>2-3</i>
<i>2.5 Ventilation</i>	<i>2-4</i>
<i>2.5.1 Ventilation System Evaluation</i>	<i>2-4</i>
<i>2.5.2 Contamination of Clean Air Sources</i>	<i>2-4</i>
<i>2.6 Noise Exposure</i>	<i>2-4</i>
<i>2.7 Lighting</i>	<i>2-4</i>
<i>2.8 Converted Indoor Firing Ranges</i>	<i>2-4</i>
<i>2.9 HVAC Systems</i>	<i>2-5</i>
<i>2.10 HUM</i>	<i>2-5</i>
<i>3.0 Conclusions</i>	<i>3-1</i>
<i>Tables</i>	<i>Follows Section 3.0</i>
<i>Appendices</i>	<i>Follows Tables</i>

List of Tables

Table 1	Wipe Sampling for Lead
Table 2	Air Sampling for Lead
Table 3	Indoor Air Quality Measurements
Table 4	Illumination Readings
Table 5	Indoor Firing Ranges -- Wipe Sampling

List of Appendices

Appendix A	IIIM Data Form
Appendix B	Building Layout
Appendix C	Sampling Sheets and Laboratory Analyses
Appendix D	References
Appendix E	Recommendations for Surface Lead Dust in Armories

Executive Summary

Shaw Environmental, Inc. (Shaw) was contracted to perform an industrial hygiene evaluation for the Sandston (Beulah Road) Readiness Center in Sandston, Virginia. Non-Respons performed the evaluation on 9 December 2003. The point of contact at the readiness center was CAPT Non-Responsive.

The following industrial hygiene concerns were evaluated.

- Wipe Sampling for Lead
- Air Sampling for Lead
- Peeling Paint -- Lead
- Suspected Asbestos Containing Material
- Water Damage
- Presence of Mold
- Housekeeping
- Ergonomic Concerns
- Indoor Air Quality
- Safety and Industrial Hygiene Programs
- Ventilation System Evaluation
- Contamination of Clean Air Sources
- Noise Exposure
- Lighting
- Converted Indoor Firing Range
- HVAC Systems

The following items were either not applicable to the armory or the evaluation resulted in a conclusion that there were no industrial hygiene concerns.

- Air Sampling for Lead
- Peeling Paint – Lead
- Suspected Asbestos Containing Material
- Presence of Mold
- Housekeeping
- Ergonomic Concerns

- Safety and Industrial Hygiene Programs
- Ventilation System Evaluation
- Contamination of Clean Air Sources
- Noise Exposure
- Converted Indoor Firing Range

Areas where there were industrial hygiene concerns are as follows:

- Wipe sampling for lead revealed concentrations above a level of 40 micrograms per square foot ($\mu\text{g}/\text{ft}^2$) in the drill floor/assembly hall and converted firing range. Areas with lead concentrations above 40 $\mu\text{g}/\text{ft}^2$ that will be accessible to children should be cleaned. If a special function is held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function.
- Water damage was observed at several locations at the armory. The source of the water damage was likely from a combination of roof and pipe leaks. The source of the water damage should be confirmed and actions taken to eliminate the source in order to prevent the possibility of mold growth that may lead to indoor air quality problems.
- During interviews with employees, two to three staff members indicated an indoor air quality problem in that they have developed respiratory illnesses or allergies due to poor ventilation and dust in the building. A more thorough indoor air quality evaluation should be performed to determine if there is a ventilation and/or dust problem.
- Lighting measurements were conducted at the armory. The lighting did not meet minimum requirements in some areas; therefore, consideration should be given to providing more lighting in these areas. This may be accomplished by replacing burnt out luminaires, cleaning fixtures, cleaning windows, painting walls with a lighter color, repositioning detailed work to higher illuminated areas, and using supplemental lighting.
- The evaluation revealed that the condition of the HVAC system was poor in that the system does not heat and cool the facility properly. The HVAC system should be evaluated and appropriate repairs made.

1.0 Introduction

Shaw Environmental, Inc. (Shaw) was contracted to perform an industrial hygiene evaluation for the Sandston (Beulah Road) Readiness Center in Sandston, Virginia. Non-Responsive performed the evaluation on 9 December 2003. The point of contact at the readiness center was CAPT Non-Responsive.

The findings, discussion, and interpretation of results are provided in Section 2.0. The conclusions are provided in Section 3.0. The HHIM data form for the facility is provided in Appendix A. The building layout is provided in Appendix B. Sampling sheets and laboratory analyses are provided in Appendix C. References are provided in Appendix D. The *Recommendations for Surface Lead Dust in Armories* document is provided in Appendix E.

The statements, opinions, and conclusions contained in this report are based solely upon the services performed by Shaw as described in the report. In performing these services and preparing the report, Shaw Environmental, Inc. relied upon the work and information provided by others, including public agencies, whose information is not guaranteed by Shaw Environmental, Inc.

2.0 Findings, Discussion, and Interpretation of Results

The results, discussion, and interpretation of results are provided in the following sections.

2.1. Sampling for Lead

2.1.1 Wipe Sampling

Wipe samples were collected for lead from the drill floor/assembly area. Also, wipe samples were collected for lead in rooms, hallways, foyers, etc. The sampling in rooms, hallways, foyers, etc. represented approximately 25% of the building. Approximately half of the samples were collected from surfaces in common areas, such as surfaces of a desk. The remaining samples were collected from uncommon surface areas, such as a supply vent or the top of a file cabinet. The samples were collected and analyzed in accordance with the Instructions for *Completing the Sampling of ARMY National Guard Armories* procedure.

The only samples initially submitted for analysis were those from the drill floor/assembly hall. If there were any results above the recommended level from the drill floor/assembly hall, the other samples would have been submitted for analysis.

Results of the wipe sampling are provided in Table 1. The results revealed lead at all locations sampled at concentrations below recommended level of 200 micrograms lead per square foot ($\mu\text{g}/\text{ft}^2$) (See Appendix E); therefore, no actions are necessary. Since the levels were below the recommended level, the other samples were not submitted for analysis.

However, wipe sampling for lead revealed concentrations above a level of $40 \mu\text{g}/\text{ft}^2$ in the drill floor/assembly hall area and converted firing range. Please note that the *Recommendations for Surface Lead Dust in Armories* (Appendix E) states that all areas with lead concentrations above $40 \mu\text{g}/\text{ft}^2$ that will be accessible to children should be cleaned. If a special function is held in which children will be present in

this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function.

2.1.2 Air Sampling for Lead

Breathing zone air sampling was conducted on two (2) full-time building occupants. (Please note that no state employees were monitored.) The sample was collected and analyzed in accordance with Method 7082 of the National Institute of Occupational Safety and Health (NIOSH) Manual of Analytical Methods.

The results of the sampling are provided in Table 2. The results revealed non-detectable concentrations of lead in the breathing zone of the employee; therefore, no actions are necessary.

2.2 Physical Condition of Facility

2.2.1 Peeling Paint - Lead

Peeling paint was not observed at the armory; therefore, bulk samples for lead in paint were not taken.

2.2.2 Visual Inspection - Asbestos

A visual inspection was made to determine if there was any suspected asbestos-containing material at the armory. The inspection did not reveal any materials suspected of containing asbestos.

2.2.3 Visual Inspection - Water Damage and Mold

A visual inspection was made to determine if there was any water damage or visible mold at the armory. Visible mold was not observed, however, water damage was observed at the armory. The water damage was observed in the lobby, mail room, XO conference room, logistics conference room, 129 FAD locker room, and hallway outside E-111 office.

The source of the water damage was likely from a combination of roof and pipe leaks. The source of the water damage should be identified and actions taken to eliminate the source in order to prevent the possibility of mold growth that may lead to indoor air quality problems.

2.2.4 Visual Inspection - Housekeeping

The housekeeping was determined to be good.

2.3. Building Concerns

2.3.1 Ergonomic Concerns

Interviews with employees and observation of work activities revealed no ergonomic concerns at the armory.

2.3.2 Indoor Air Quality

Measurements for carbon dioxide, humidity, and temperature revealed that there are no indoor air quality concerns at the armory. However, during interviews with employees, two to three staff members indicated that they have developed respiratory illnesses or allergies due to poor ventilation and dust in the building. A more thorough indoor air quality evaluation should be performed to determine if there is a ventilation and/or dust problem. The results of the measurements for carbon dioxide, humidity, and temperature are provided in Table 3.

2.4. Safety and Industrial Hygiene Programs

An evaluation was performed to determine the applicability of the following programs.

- Confined Spaces
- Hearing Conservation
- Respiratory Protection
- Hazard Communication (HAZCOM)
- Personal Protective Equipment (PPE)

It was determined that the HAZCOM program was the only program listed above that was applicable at the facility. The HAZCOM program was evaluated and it was determined that the program met minimum requirements.

2.5. Ventilation

2.5.1 Ventilation System Evaluation

There were no local exhaust ventilation systems at this armory; therefore, no ventilation studies were performed.

2.5.2 Contamination of Clean Air Sources

Since there were no local exhaust ventilation systems at the armory, there was no possibility that clean air sources could be contaminated by exhaust air.

2.6. Noise Exposure

An evaluation was performed to determine if there were any hazardous noise areas at the armory. It was determined that there were no areas at the armory that would exceed the permissible exposure limit for noise.

2.7 Lighting

Lighting measurements were conducted at the armory. Results of the lighting evaluation are provided in Table 4. As can be seen from the results, the lighting did not meet the minimum requirements in some areas, including the HHB battery offices, supply room, and kitchen prep room.

Consideration should be given to providing more lighting to these areas. This may be accomplished by replacing burnt out luminaries, cleaning fixtures, cleaning windows, painting walls with a lighter color, repositioning detailed work to higher illuminated areas, and using supplemental lighting.

2.8 Converted Indoor Firing Ranges

There was a converted indoor firing range at the facility; therefore, wipe samples were taken for lead at various locations in or near the converted range. The space is used as storage. The results are provided in Table 5. The results revealed lead, with associated concentrations, at the following locations:

- bullet trap at 61 micrograms lead per square foot ($\mu\text{g}/\text{ft}^2$);
- light fixtures at 12 $\mu\text{g}/\text{ft}^2$;
- overhead heaters at 77 $\mu\text{g}/\text{ft}^2$;
- stored item at 74 $\mu\text{g}/\text{ft}^2$;

- floor (inside the converted firing range) at $69 \mu\text{g}/\text{ft}^2$; and
- floor (outside the converted firing range) the range at $6.6 \mu\text{g}/\text{ft}^2$

The lead levels were below the recommended level of $200 \mu\text{g}/\text{ft}^2$; a level recommended in the *Guidelines for Converting Indoor Firing Ranges to Other Uses* document (NG PAM 385-15); therefore, no actions are necessary.

2.9. HVAC System

The maintenance schedule for the HVAC system was evaluated to verify that maintenance occurs on a regular basis. Also, the condition of the HVAC system was evaluated to determine if the maintenance performed is effective. Maintenance does occur on a regular basis. The evaluation revealed that the condition of the HVAC system was poor in that the system does not heat and cool the facility properly. The HVAC system should be evaluated and appropriate repairs made.

2.10. HHIM

A Health Hazard Information Module (HHIM) form was completed for the armory. The completed form is provided in Appendix A.

3.0 Conclusions

It is concluded that there were no industrial hygiene concerns at the armory with regards to atmospheric exposure to lead, peeling lead-based paint, suspected asbestos-containing material, visible mold, housekeeping, ergonomic conditions, safety and industrial hygiene programs, ventilation systems or contamination of clean air sources, noise exposure, and surface lead contamination in the converted firing range.

There were industrial hygiene concerns at the armory with regards to lead surface contamination, water damage, indoor air quality, lighting, and HVAC system. These concerns are discussed in detail in Section 2.0 of this report.

TABLES

Table 1
Wipe Sampling for Lead
National Guard Armory
Sandston (Beulah Road) Armory, Virginia
Date of Sampling: 9 December 2003

Sample Number	Location	Results, $\mu\text{g}/\text{ft}^2$ ^a
VASAN343-1	Drill Floor (flood light fixture top surface) See Building Layout - Appendix B	91
VASAN343-2	Drill Floor (fire extinguisher case top surface) See Building Layout - Appendix B	130
VASAN343-3	Drill Floor (kitchen service window countertop) See Building Layout - Appendix B	17
VASAN343-4	Drill Floor (soda machine top surface) See Building Layout - Appendix B	27
VASAN343-5	Drill Floor (fire extinguisher case top surface) See Building Layout - Appendix B	69
VASAN343-6	Field Blank	0.37

^a Micrograms lead per square foot

The samples were taken and analyzed in accordance with the *Instructions for Completing the Sampling of ARMY National Guard Armories* procedure.

Table 2
Breathing Zone Air Samples for Lead
National Guard Armory
Sandston (Beulah Road), Virginia
Date of Sampling: 9 December 2003

Sample Number	Employee	Sampling Information			Results (mg/m ³) ^a
		Time Sampled / Minutes	Flow Rate (lpm) ^b	Volume (liters)	
VASAN343-A1	Non-Responsive	1215-1440/145	1.634	237.00	<0.0042
VASAN343-A2		1230-1445/135	1.560	210.67	<0.0047
VASAN343-A3	Field Blank	-	-	-	None Detected

^a Milligrams lead per cubic meter of air.

^b Liters of air per minute.

Method 7082 of the National Institute of Occupational Safety and Health (NIOSH) Manual of Analytical Methods was followed for sampling for lead.

Table 3
Indoor Air Quality Measurements for Carbon Dioxide, Humidity, and Temperature
National Guard Armory
Sandston (Beulah Road), Virginia
Date of Sampling: 9 January 2003

Location	Occupants In Area	Carbon Dioxide, parts per million parts of air (ppm)	Percent (%) Humidity	Temperature ("F)
1 st Floor (Office Area)	1	471	30.8	69.1
Outdoors	-	380	35.4	56.8

Carbon dioxide, humidity, and temperature measurements were taken with a TSI Q Trak Plus, Model 8554, Indoor Air Quality Meter, calibrated in April 2003.

American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE) recommends that indoor carbon dioxide levels be less than 700 ppm above outdoor levels.

ASHRAE recommends that the relative humidity levels be maintained between 30 to 60 percent.

ASHRAE recommends that the acceptable temperature range be 68 degrees Fahrenheit to 74 degrees Fahrenheit in the winter and 73 degrees Fahrenheit to 79 degrees Fahrenheit in the summer.

Table 4
Illumination Readings
National Guard Armory
Sandston (Beulah Road), Virginia
Date of Sampling: 9 December 2003

Location	Luminance (fc) ^a	Standard (fc) ^a	Standard Met
Recruiters Office	66.6-144.4	70	Some Areas
HHB Battery Office	22.2-100	70	Some Areas
HHB Battery Office	27.7-50	70	No
HHB Battery Meeting Room	27.7-95.5	70	Some Areas
HHB Battery Office	88.8-113.3	70	Yes
Storage Room	42.2-84.4	30	Yes
Logistics Offices	55.5-72.2	70	Some Areas
Operations Offices	55.5-88.8	70	Some Areas
Hallways	11.1-77.7	7.5	Yes
Break Room	38.8-88.8	70	Some Areas
Classroom	33.3-88.8	70	Some Areas
Supply Room	11.1-22.2	30	No
E-111 Conference Room	11.1-80	70	Some Areas
E-111 Office	64.4-115.5	70	Some Areas
Counter Drug Office	66.6-104.4	70	Some Areas
Counter Drug Conference Room	22.2-100	70	Some Areas
Kitchen	80-117.7	70	Yes
Kitchen Prep Room	33.3-68.8	70	No

^a fc - Footcandles

The readings were taken with a Weston model 614-60 Lightmeter.

The standards listed above are from ANSI/IES RP-1 and RP-7.

Table 5
Wipe Sampling for Lead – Converted Firing Range
National Guard Armory
Sandston (Beulah Road), Virginia
Date of Sampling: 9 December 2003

Sample Number	Location	Results, $\mu\text{g}/\text{ft}^2$ ^a
VASAN343-31	Bullet Trap (floor near former bullet trap location)	61
VASAN343-32	Light Fixtures	12
VASAN343-33	Overhead Heaters	77
VASAN343-34	Stored Item	74
VASAN343-35	Floor (inside the converted firing range)	69
VASAN343-36	Field Blank	0.47
VASAN343-37	Floor (outside the converted firing range)	6.6

^a Micrograms lead per square foot

The samples were taken and analyzed in accordance with the Instructions for *Completing the Sampling of ARMY National Guard Armories* procedure.

Appendix A

HHIM Data Form(s)

HEALTH HAZARD INFORMATION MODULE: INDUSTRIAL HYGIENE SURVEY

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

SECTION 1. DEMOGRAPHIC DATA

ARLOC 24255		INSTALLATION APG-EA		BLDG/RM NO. SANDSTON	
LOCATION/CODE ADMINISTRATIVE AREA /AA			OPERATION/CODE ADMINISTRATIVE OPERATIONS /ADD		
SURVEY DATE 9 DECEMBER 2003			EVALUATOR (Initials) Non-Responsive		
MACOM/CODE		SUBMACOM/CODE XX		SUPERVISOR CAPT Non-Responsive	
TELEPHONE/DSN NO. (540) 332-7741		UNIT/ORGANIZATION SANDSTON (BEALUM ROAD) ARMORY		RAC S	
NO. CIV(S) 0		NO. MIL 15		NO. CONTRACTOR(S) 0	
		NO. LOC(S) —		NO. OTHER —	

SECTION 2. FACILITY DATA

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

SECTION 3. SURVEY DATA

CONTROLS PRESENT	EVALUATION	UNIT CODE	CONTROLS REQUIRED	STATUS

PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized)

GLOVES	R	U	RESPIRATOR	NIOSH TC NO.	MANUFACTURER	R	U
ICID			AIRLINE				
COLD SURFACES			ABRASIVE BLASTING HOOD				
HOT SURFACES			DISPOSABLE				
HC AGENTS			FULL FACE AIR PURIFYING				
HAZ			1/2 FACE AIR PURIFYING				
SOLVENTS			POWERED AIR PURIFYING				
SURGICAL GLOVES			1/4 FACE AIR PURIFYING				
			SELF CONTAINED				

EYES/FACE	R	U	HEARING	R	U	BODY	R	U	HEAD/FIT	R	U
CHEMICAL SPLASH			CANAL CAPS			APRONS			COLD WEATHER BOOTS/HATS		
FULL FACE SHIELD			EAR PLUGS			COLD WEATHER CLOTHING			HARD HATS		
CHEMICAL/SAFETY			HELMETS			COVERALLS			IMPERMEABLE BOOTS		
SAFETY/IMPACT			MUFFS			FULL BODY SUIT			SAFETY/CONDUCTIVE SHOES		
WELDING HELMET			MUFF/EARPLUG COMBO			HEAT REFLECTIVE VEST/SUIT			SAFETY/NON-CONDUCTIVE SHOES		

Posted to NGB FOIA Requested by NGB
May 2018FOIA Requested by NGB
Released by National Guard Bureau

SECTION 4. HAZARD INVENTORY DATA

CAS CODE	HAZARD DESCRIPTION	PAC	EPC
POVDTXXXX	VIDEO DISPLAY TERMINAL	3-LOW	D- UNCONTROLLED PHYSICAL
7439-92-1	LEAD, INORGANIC DUSTS - FUMES	2-MODERATE	C- UNCONTROLLED RESPIRATORY
1332-21-4	ASBESTOS	3-LOW	C- UNCONTROLLED RESPIRATORY
124-38-9	CARBON DIOXIDE	2-MODERATE	C- UNCONTROLLED RESPIRATORY
PO LIFTING	HEAVY LIFTING	2-MODERATE	D- UNCONTROLLED PHYSICAL
PO HEAT STR	HEAT STRESS	3-LOW	D- UNCONTROLLED PHYSICAL

SECTION 5. PERSONNEL DATA

LAST NAME	FIRST NAME	MI	SEX	SSN	CATEGORY
(SEE ATTACHED HUM DATA SHEET)					

SECTION 6. COMMENTS
☒ No comments

☐ See attached sheet
PRIVACY ACT STATEMENT

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

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

804-328-3011 *810

12/9/2003

CPT **Non-Responsive**

Sandston Armory

5901 Beulah Rd, Sandston VA 23150

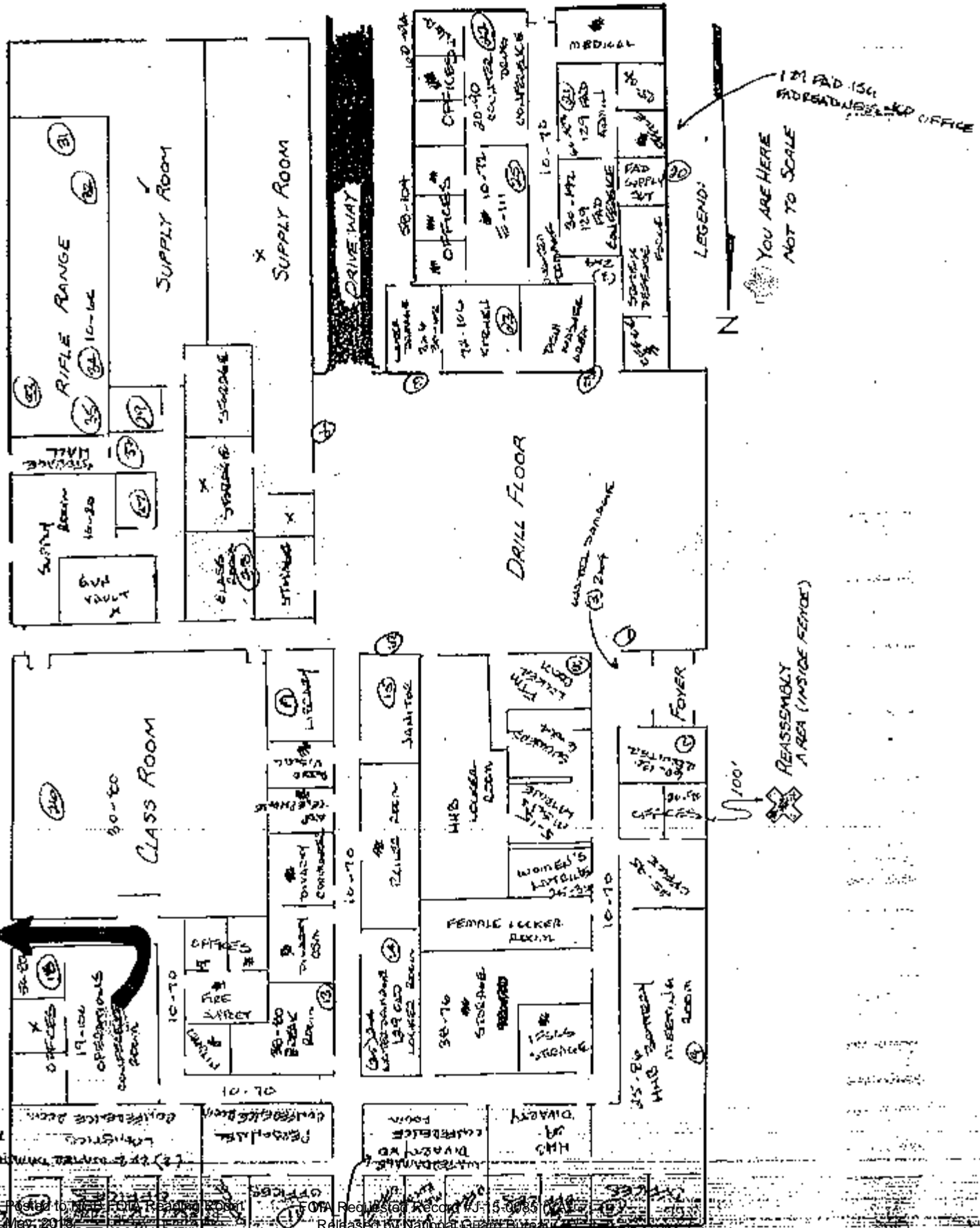
<u>Last</u>	<u>First</u>	<u>Rank</u>
HHB 29th DIVARTY		
Non-Responsive		SFC SSG
129th FAD		
Non-Responsive		SFC SSG
E111th FA		
Non-Responsive		SFC SPC SSG
S1 Section		
Non-Responsive		SFC WO2
S3 Section		
Non-Responsive		1SG LTC SFC
S4 Section		
Non-Responsive		CPT SFC WO4

Appendix B

Building Layout

Building contains 80 room ⁽³⁾

FIRE & EVACUATION PLAN, SANDSTON, VA 23150 25% OF BUILDINGS IS 20 ROOMS



Appendix C

Sampling Sheets and Laboratory Analyses



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: VA SAN 343
Job Location: Snadston, Virginia
Job Number: 845702 01000000
P.O. Number: 1103

Chain Of Custody: 121366
Date Analyzed: 1/6/2004
Person Submitting: [Redacted]
Report Date: 06-Jan-04

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
0416931	VA SAN 343 1	Furnace	Wipe	****	0.1111	13.50 ug/ft²	91 ug/ft²	
0416932	VA SAN 343 2	Furnace	Wipe	****	0.1111	33.75 ug/ft²	130 ug/ft²	
0416933	VA SAN 343 3	Furnace	Wipe	****	0.1111	2.70 ug/ft²	17 ug/ft²	
0416934	VA SAN 343 4	Furnace	Wipe	****	0.1111	2.70 ug/ft²	27 ug/ft²	
0416935	VA SAN 343 5	Furnace	Wipe	****	0.1111	13.50 ug/ft²	69 ug/ft²	
0416936	VA SAN 343 6	Furnace	Wipe Blank	****	N/A	0.30 ug	0.37 ug	
0416937	VA SAN 343 31	Furnace	Wipe	****	0.1111	13.50 ug/ft²	61 ug/ft²	
0416938	VA SAN 343 32	Furnace	Wipe	****	0.1111	2.70 ug/ft²	12 ug/ft²	
0416939	VA SAN 343 33	Furnace	Wipe	****	0.1111	13.50 ug/ft²	77 ug/ft²	
0416940	VA SAN 343 34	Furnace	Wipe	****	0.1111	13.50 ug/ft²	74 ug/ft²	
0416941	VA SAN 343 35	Furnace	Wipe	****	0.1111	13.50 ug/ft²	69 ug/ft²	
0416942	VA SAN 343 36	Furnace	Wipe Blank	****	N/A	0.30 ug	0.47 ug	
0416943	VA SAN 343 37	Furnace	Wipe	****	0.1111	2.70 ug/ft²	6.6 ug/ft²	

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

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

Job Name: VA SAN 343
Job Location: Snadston, Virginia
Job Number: 845702 01000000
P.O. Number: 1103

Chain Of Custody: 121366
Date Analyzed: 1/6/2004
Person Submitting: [Redacted]
Report Date: 06-Jan-04

Attention:

[Redacted]

Summary of Atomic Absorption Analysis for Lead

AMA Sample Number	Client Sample Number	Analysis Type	Sample Type	Air Volume (L)	Area Wiped (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.

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

All rights reserved. AMA Analytical Services, Inc.



TEST REPORT
Page 1 of 4
12/30/03

Submitted To: **Non-Responsive**

Shaw Environmental, Inc.
5700 Thurston Avenue; Suite 116
Virginia Beach, VA 23455-3302

Reference Data:	Lead
Client Sample No.:	VASAN344A1 through VABLA353A3
P.O. No.:	1103
Sample Location:	Virginia
Sample Type:	Filter
Method Reference:	NIOSH 7300
DCL Set ID No.:	03-S-6250
DCL Sample ID No.:	03-37000 through 03-37040
Sample Receipt Date:	12/23/2003
Preparation Date:	12/24/2003
Analysis Date:	12/29/2003

The samples were prepared and analyzed in accordance with NIOSH method 7300 using a Thermo Jarrell Ash Trace (ICP) purged spectrometer.

The sample condition upon receipt was acceptable except where noted.

The results are in the enclosed data table. Results relate only to the items tested and are not blank corrected unless indicated in the data table.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Non-Responsive

Analyst

Non-Responsive

Reviewer

TEST REPORT
Page 2 of 4
03-S-6250

Results Lead

Client #	DCL #	Sample Volume (L)	µg/sample	mg/m ³
VASAN344A1	03-37000	220.79	ND	<0.0045
VASAN344A2	03-37001	217.93	ND	<0.0046
VASAN344A3	03-37002	-	ND	-
VAPOW345A1	03-37003	215.77	ND	<0.0046
VAPOW345A2	03-37004	225.12	ND	<0.0044
VAPOW345A3	03-37005	-	ND	-
VARIC345A1	03-37006	196.83	ND	<0.0051
VARIC345A2	03-37007	201.23	ND	<0.0050
VARIC345A3	03-37008	-	ND	-
VASAN343A1	03-37009	237.00	ND	<0.0042
VASAN343A2	03-37010	210.67	ND	<0.0047
	Prep Blank 2		ND	
% Recovery	LCS 3		100.	
% Recovery	LCS 4		99.	
RPL			1.0	

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

Non-Responsive



Analyst

Non-Responsive



Reviewer

Results
Lead

Client #	DCL #	Sample Volume (L)	µg/sample	mg/m ³
VASAN343A3	03-37011	-	ND	-
VASANFR343A1	03-37012	120.41	ND	<0.0083
VASANFR343A2	03-37013	-	ND	-
VAFRA337A1	03-37014	266.08	ND	<0.0038
VAFRA337A2	03-37015	253.87	ND	<0.0039
VAFRA337A3	03-37016	-	ND	-
VASUF337A1	03-37017	207.51	ND	<0.0048
VASUF337A2	03-37018	232.33	ND	<0.0043
VASUF337A3	03-37019	-	ND	-
VAOHA338A1	03-37020	208.27	ND	<0.0048
VAOHA338A2	03-37021	183.40	ND	<0.0055
VAOHA338A3	03-37022	-	ND	-
VAPET350A1	03-37023	208.60	ND	<0.0048
VAPET350A2	03-37024	216.91	ND	<0.0046
VAPET350A3	03-37025	-	ND	-
VAEMP350A1	03-37026	204.88	ND	<0.0049
VAEMP350A2	03-37027	199.47	ND	<0.0050
VAEMP350A3	03-37028	-	ND	-
VAMAR351A1	03-37029	192.20	ND	<0.0052
VAMAR351A2	03-37030	200.52	ND	<0.0050
	Prep Blank 3		ND	
% Recovery	LCS 5		93.	
% Recovery	LCS 6		94.	
RPL			1.0	

ND = not detected at or above the reporting limit (RPL).

LCS = laboratory control sample.

Non-Responsive

Non-Responsive

Reviewer

National Guard Armory

Location: Sandston
Date: 12/9/2003

Sample 1

Sample Number: VASAN343A1

Pump: 647605

Pre Flow Rate	Post Flow Rate
---------------	----------------

1.620 1.633

1.638 1.644

1.636 1.629

1.634 1.642

Average	1.632	1.637
---------	-------	-------

Average Pre and Post	1.6345
----------------------	--------

Time 1 12:15

Time 2 14:40

Total Time Sampled 2:25

Minutes Sampled	145.00
-----------------	--------

Volume 237.00 Liters

Sample 2

Sample Number: VASAN343A2

Pump: 647633

Pre Flow Rate	Post Flow Rate
---------------	----------------

1.566 1.562

1.564 1.558

1.565 1.554

1.560	1.555
-------	-------

Average	1.564	1.557
---------	-------	-------

Average Pre and Post	1.5605
----------------------	--------

Time 1 12:30

Time 2 14:45

Total Time Sampled 2:15

Minutes Sampled	135.00
-----------------	--------

Volume 210.67 Liters

Appendix D

References

References

Title 29, Code of Federal Regulations (CFR), Part 1910, Occupational Safety and Health Administration (current edition)

American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc (ASHRAE) 62-2002, Ventilation for Acceptable Indoor Air Quality

Instructions for Completing the Sampling of Army National Guard Armories, Lead Wipe Sampling Procedure included with the Request for Proposal

Air Sampling for Lead - Method 7082 of the National Institute of Occupational Safety and Health (NIOSH) Manual of Analytical Methods

Design Guide DG-415-2, Logistics Facilities, National Guard Bureau Installation Division, 14 December 1999

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

Army Regulation (AR) 40-5, Medical Service, Preventive Medicine, 15 October 1990

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

Department of the Army Pamphlet (DA PAM) 40-501, Medical Services, Hearing Conservation Program, 10 December 1998

DA PAM 40-503, Medical Services, Industrial Hygiene Program, 30 October 2000

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

Policy and Responsibilities for Inspection, Evaluation and Operation of Army National Guard Indoor Firing Ranges, Headquarters, Department of the Army, NG PAM (AR) 385-15, 30 December 2002

24 CFR, Part 35, Subpart B, Section 35-110, Definition of Lead-Based Paint, Housing and Urban Development, U. S. Department of Housing

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 $0.05 \text{ mg}/\text{m}^3$ averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead dust in this building.

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

NGB-AVS-SI (40-5f)

9 July 2004

MEMORANDUM FOR VAARNG, Sandston Readiness Center, ATTN: CPT [Redacted]
[Redacted] 5901 Beulah Road, Sandston, VA 23150

SUBJECT: Baseline Survey

1. I have enclosed the industrial hygiene survey report completed by Shaw Environmental, Incorporated.
2. In addition to the attached discussion and recommendations regarding wipe samples for lead, if a special function is held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function.
3. Please contact me at (410) 942-0273 or 1-800-550-6967 if you have any questions regarding the enclosed report.

Encl

Non-Responsive

Regional Industrial Hygienist

CF: Organizational Maintenance Officer
Occupational Health Manager

**National Guard Armory
Sandston (Beulah Road) Readiness Center
Sandston, Virginia
Industrial Hygiene Evaluation**

Recommendations

- Wipe sampling for lead revealed concentrations above a level of 40 micrograms per square foot ($\mu\text{g}/\text{ft}^2$) in the drill floor/assembly hall and converted firing range. Areas with lead concentrations above 40 $\mu\text{g}/\text{ft}^2$ that will be accessible to children should be cleaned. If a special function is held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function. **RAC - 5**
- Water damage was observed at several locations at the armory. The source of the water damage was likely from a combination of roof and pipe leaks. The source of the water damage should be confirmed and actions taken to eliminate the source in order to prevent the possibility of mold growth that may lead to indoor air quality problems. **RAC - 5**
- During interviews with employees, two to three staff members indicated an indoor air quality problem in that they have developed respiratory illnesses or allergies due to poor ventilation and dust in the building. A more thorough indoor air quality evaluation should be performed to determine if there is a ventilation and/or dust problem. **RAC - 5**
- Lighting measurements were conducted at the armory. The lighting did not meet minimum requirements in some areas; therefore, consideration should be given to providing more lighting in these areas. This may be accomplished by replacing burnt out luminaries, cleaning fixtures, cleaning windows, painting walls with a lighter color, repositioning detailed work to higher illuminated areas, and using supplemental lighting. **RAC - 5**
- The evaluation revealed that the condition of the HVAC system was poor in that the system does not heat and cool the facility properly. The HVAC system should be evaluated and appropriate repairs made. **RAC - 5**

MEDICAL RECORD – SUPPLEMENTAL MEDICAL DATA
 For use of this form, see AR 40-66; the proponent agency is the Office of The Surgeon General.

REPORT TITLE

OTSG APPROVED (Date)

WORKERS' OCCUPATIONAL WORKSITE SAMPLING DATA RECORD

DIRECTORATE Sandston (Beulah Road) Armory

BLDG/ROOM Sandston (Beulah Road)

SPECIAL STUDY/REPORT NUMBER Virginia National Guard Study

JOB DESCRIPTION/SERIES Military/Administrative Operations

SAMPLING DATE December 9, 2003

EXPOSURE MONITORED	TYPE SAMPLE*	PERMISSIBLE EXPOSURE LIMIT	SAMPLING RESULT	CALCULATED TWA	EXPOSURE CATEGORY**
1. Lead	P	0.05 mg/m ³	<0.0047	<0.0047	1
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					

*TYPE OF SAMPLE: G=General Area Sample
 P=Personal Sample Collected in the Breathing Zone of the Worker.
 R=Personal Sample Collected on another worker, but representative of expected exposure for this worker.

****EXPOSURE CATEGORY**

1. Measured Exposure levels are below permissible exposure limit.
2. Measured Exposure levels are close to permissible exposure limits: See Comments.
3. Measured Exposure levels are above permissible exposure limits: See Comments.

COMMENTS:

NOTE: REFER TO THE SPECIAL STUDY OR REPORT REFERENCED FOR DETAILS OF SAMPLING AND RESULTS.

(Continue on reverse)

PREPARED BY (Signature & Title) Non-Responsive Environmental Scientist	DEPARTMENT/SERVICE/CLINIC INDUSTRIAL HYGIENE SECTION	DATE 12/9/2003
PATIENT'S IDENTIFICATION (For typed or written entries give: Name --last, first, Middle; grade; date; hospital or medical facility) NAME: Non-Responsive APT: 12/9/2003	HISTORY/PHYSICAL	FLOW CHART
SSN: Non-Responsive (last four)	OTHER EXAMINATION OR EVALUATION	OTHER (SPECIFY)
UNIT PHONE NO: 540-332-7741	DIAGNOSTIC STUDIES	TREATMENT

DA FORM 4700

1 MAY 78

HSXR-APG-Z OP 32 1 Jan 90
 Posted to NGB FOIA Reading Room
 May, 2018

MEDICAL RECORD – SUPPLEMENTAL MEDICAL DATA

For use of this form, see AR 40-66; the proponent agency is the Office of The Surgeon General.

REPORT TITLE

OTSG APPROVED (Date)

WORKERS' OCCUPATIONAL WORKSITE SAMPLING DATA RECORD

DIRECTORATE Sandston (Beulah Road) Armory

BLDG/ROOM Sandston (Beulah Road)

SPECIAL STUDY/REPORT NUMBER Virginia National Guard Study

JOB DESCRIPTION/SERIES Military/Administrative Operations

SAMPLING DATE December 9, 2003

EXPOSURE MONITORED	TYPE SAMPLE*	PERMISSIBLE EXPOSURE LIMIT	SAMPLING RESULT	CALCULATED TWA	EXPOSURE CATEGORY**
1. Lead	P	0.05 mg/m ³	<0.0042	<0.0042	1
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					

*TYPE OF SAMPLE: G=General Area Sample

P=Personal Sample Collected in the Breathing Zone of the Worker.

R=Personal Sample Collected on another worker, but representative of expected exposure for this worker.

**EXPOSURE CATEGORY

1. Measured Exposure levels are below permissible exposure limit.
2. Measured Exposure levels are close to permissible exposure limits: See Comments.
3. Measured Exposure levels are above permissible exposure limits: See Comments.

COMMENTS:

NOTE: REFER TO THE SPECIAL STUDY OR REPORT REFERENCED FOR DETAILS OF SAMPLING AND RESULTS.

(Continue on reverse)

PREPARED BY (Signature & Title)	DEPARTMENT/SERVICE/CLINIC	DATE
Non-Responsive Environmental Scientist	INDUSTRIAL HYGIENE SECTION	12/9/2003
PATIENT'S IDENTIFICATION (For typed or written entries give: Name --last, first, Middle; grade; date; hospital or medical facility)		
NAME Non-Responsive	HISTORY/PHYSICAL	FLOW CHART
SSN: Non-Responsive (last four)	OTHER EXAMINATION OR EVALUATION	OTHER (SPECIFY)
UNIT PHONE NO: 540-332-7741	DIAGNOSTIC STUDIES	TREATMENT

DA FORM 4700
1 MAY 78

HSXR-APG-Z OP 32 1 Jan 90

Posted to NGB FOIA Reading Room
May, 2018FOIA Requested Record #J-15-0085 (VA)
Released by National Guard Bureau
Page 1534 of 1923

Shaw Environmental, Inc.

312 Directors Drive
Knoxville, TN 37923
865.690.3211
Fax 865.690.3626



24 June 2004

Ms. **Non-Responsive** CIH
Regional Industrial Hygienist
Region North Industrial Hygiene Office
Attn: NGB-AVS-SI
301-IH Old Bay Lane
Havre De Grace, Maryland 21078

RE: Final Report for the Industrial Hygiene Evaluation at the Sandston (Beulah Road)
Readiness Center – Sandston, Virginia

Dear Ms. **Non-Responsive**

Attached are four (4) copies of the referenced report. Please note that a copy of the field notes, photographs and photograph log, and the completed contaminant exposure forms (three copies of each employee sampled) were provided with the draft report. Please call me if you have questions.

Sincerely,

Non-Responsive

Project Manager

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



Industrial Hygiene Survey
for VARNG – Sandston Readiness Center
5901 Beulah Road
Sandston, Virginia 23139

AECOM
January 2013
Document No.: 60275401/ Sandston Readiness Center

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

**Industrial Hygiene Survey
for VARNG – Sandston Readiness Center
5901 Beulah Road
Sandston, Virginia 23139**

Non-Responsive

A large black rectangular redaction box covering the name and contact information of the Industrial Hygienist.

Industrial Hygienist

Non-Responsive

A large black rectangular redaction box covering the name and contact information of the Project Manager.

Project Manager

Non-Responsive

A large black rectangular redaction box covering the name and contact information of the Northeast District Health & Safety Manager.

Northeast District Health & Safety Manager

AECOM Environment
January 2013
Document No.: 60275401/ Sandston 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 Sandstone Readiness Center Facility Layout

Appendix B Sandstone Readiness Center Photographs

Appendix C Analytical Results

Appendix D References



List of Tables

Table 2-1: Lead Wipe Sample Results 2-1

Table 3-1: Indoor Air Quality Monitoring Results..... 3-2

Table 5-1: Light Survey 5-1



Executive Summary

On November 15, 2012, AECOM Technical Services Northeast, Inc. (AECOM) conducted an Industrial Hygiene (IH) survey of the Sandston Readiness Center facility located at 5901 Buelah Road in Sandston, Virginia. Major **Non-** was the point of contact for the facility and accompanied AECOM during the survey to provide access and information concerning the Sandston Readiness Center operations.

The industrial hygiene survey was conducted in general accordance with the scope of work as described in the "Statement of Work – Industrial Hygiene Services for National Guard Bureau Industrial Hygiene Region North – Baseline Surveys for Readiness Centers and Administrative Buildings," dated March 2009.

The Sandston Readiness Center is currently staffed by 104 personnel. The facility is configured as an administrative area and a drill/assembly hall.

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

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

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

All wipe samples collected in association with most administrative areas indicated lead levels below the Occupational Safety and Health Administration's (OSHA's) Clarification of "as free as practicable" and lead contamination under 29 Code of Federal Regulations (CFR) 1926.62, The Compliance Directive for the Interim Standard for Lead in Construction, CPL 2-2.58. OSHA recommends the use of the U.S. Department of Housing and Urban Development's (HUD) acceptable decontamination level of 200 micrograms per square foot (ug/ft²) for floors in evaluating the cleanliness of change areas, storage facilities, and lunchrooms/eating areas.

No Indoor Air Quality concerns were noted by the Sandston Readiness Center personnel. Instantaneous real-time reading for carbon monoxide and carbon dioxide (parts per million or ppm), temperature (° Fahrenheit), and relative humidity (as percentage) are presented in Table 3-1. Readings were generally within acceptable guidelines in those areas occupied by the facility staff.

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

No damaged suspect asbestos containing materials were observed during the evaluation.

No damaged or peeling paint was observed during the evaluation.

The Heating, Ventilation & Air Conditioning (HVAC) system in the building consists of a boiler room that feeds radiant heaters throughout the building. The cooling system is comprised of roof mounted units with limited potential to introduce contaminated air into administrative areas.

1.0 Facility Description and Operations

The Sandston Readiness Center is a single story masonry building with brick façade constructed in 1992. The majority of the facility is configured as office space and is finished with drywall; acoustical drop ceilings, carpet, and floor tile.

The former firing range constructed as part of the original building has been completely remodeled for upper level administrative offices.

The primary activity at the Sandston Readiness Center is routine administrative duties. The Sandston Readiness Center is currently staffed by approximately 104 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 several locations throughout the facility following the Occupational Safety & Health Administration (OSHA) wipe sampling method and using Ghost Wipes. The following table presents the results of the lead wipe sampling conducted at the facility.

Table 2-1: Lead Wipe Sample Results

Sample Number	Sample Location	Lead Concentration
001	Top of locker in drill floor area	<110 ug/ft ²
002	Top of electrical box in kitchen	<110 ug/ft ²
003	Supply air grill kitchen office	<110 ug/ft ²
004	Office desk admin room #9	<110 ug/ft ²
005	Room 3 top of file cabinet	<110 ug/ft ²
006	Hallway at front of building	<110 ug/ft ²
007	Foyer vent opposite guard desk	<110 ug/ft ²

ug/ft² = Micrograms per square foot.

Wipe samples collected in association with most administrative areas indicated lead levels below the Occupational Safety and Health Administration's (OSHA's) Clarification of "as free as practicable" and lead contamination under 29 CFR 1926.62, The Compliance Directive for the Interim Standard for Lead in Construction, CPL 2-2.58. OSHA recommends the use of HUD's acceptable decontamination level of 200 ug/ft² for floors in evaluating the cleanliness of change areas, storage facilities, and lunchrooms/eating areas.

The wipe samples were below the action level of 200 micrograms per square foot (ug/ft²) per HUD. Laboratory analytical results are presented in Appendix C.

2.1.2 Air Sampling

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

3.0 Physical Condition of Facility and Personnel Concerns

3.1.1 Lead Based Paint

Interior surfaces of walls are coated with paint. The paint on the walls is in serviceable condition. AECOM did not observe damaged or peeling paint during this evaluation.

3.1.2 Suspect Asbestos Containing Materials

AECOM did not observe damaged, friable suspect asbestos-containing materials (ACM) in readily accessible areas of the Sandston Readiness Center during this survey.

3.1.3 Water Damage/Mold

AECOM did not observe evidence of water intrusion during this survey. A new roof was being installed at the time of this survey.

3.1.4 Housekeeping

The Sandston 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. Activities associated with the roof installation have reportedly caused more dust to be present that would be encountered otherwise.

3.1.5 Indoor Air Quality/ Ergonomics

The administration section contains general office space. The administration section is generally utilized by all of the Sandston Readiness Center staff members. No Indoor Air Quality concerns were noted by the Sandston Readiness Center personnel with the exception of the above mentioned increase in dust levels as a result of installing the new roof.

Instantaneous real-time reading for carbon monoxide and carbon dioxide (parts per million or ppm), temperature (° Fahrenheit), and relative humidity (as percentage) are presented in the following table. Some readings were slightly outside of the referenced guidelines, however, no IAQ complaints were noted warranting additional action.

Table 3-1: Indoor Air Quality Monitoring Results

Location	Carbon Monoxide (ppm)	Carbon Dioxide (ppm)	Temp (°F)	Relative Humidity (%)
STS office	2.0	815	69.5	37.1
Office 11	1.8	527	70.0	33.7
Office 11B	2.0	499	69.7	31.9
Conference J3	2.1	485	69.5	32.3
FU Ops conference	2.0	548	69.8	33.4
13A	2.0	609	69.7	31.8
Joint Operation Center	2.0	600	70.7	32.8
Classroom	2.2	541	70.4	31.7
Hallway at room 38	2.4	550	70.9	32.5
Storage J3	2.4	489	70.0	33.1
Storage 46	2.1	529	71.3	36.0
Adjunct General Office	2.3	646	72.3	39.4
Office in Adjunct General Area	2.4	776	72.4	40.5
Command group recon	2.8	785	72.2	40.7
Office 38	1.9	636	74.1	33.0
Office 30	2.1	511	71.5	28.3
Drill Floor	2.0	481	75.9	28.5
Office 50	2.0	531	63.0	27.3
Conference 53	2.9	678	73.0	28.7
Office 53B	2.9	570	72.1	28.6
Office 51	2.4	567	71.6	29.9
Office 51B	2.1	661	71.2	29.9
Office 55	1.8	579	70.7	30.2
Office 55A	1.8	580	70.2	30.8
Office 57	1.8	581	70.3	31.3
Office 57A	1.8	554	69.3	31.1
Office 57 C	1.3	572	71.4	31.5
Office 59	1.3	546	70.5	29.7
Foyer	1.9	579	72.0	33.0
Office 1	1.3	742	71.7	31.0
Men's room	1.8	715	72.6	33.5
Locker room 28	1.8	563	72.6	31.6
Woman's room	1.8	724	72.7	33.8
Woman's locker room 6	1.9	698	73.4	30.7
Office 3A	2.4	719	72.8	30.8
Office 3B	2.4	702	72.4	30.7
Office 3C	2.1	710	72.2	31.1
Office 3D	2.3	680	71.8	31.3
Copy room 8	1.9	640	72.0	31.8
Room 5	1.8	815	72.1	33.0
Office 5B	1.8	803	72.1	33.4
Office 7/7A	1.8	726	71.7	31.9
Office 7/7C	1.8	740	71.4	32.6

Location	Carbon Monoxide (ppm)	Carbon Dioxide (ppm)	Temp (°F)	Relative Humidity (%)
Conference 8	1.8	654	71.3	32.3
Office 12	1.8	677	71.4	33.0
Office 56	1.7	702	71.5	33.9
Center hallway	1.3	669	72.6	30.6
Office 14	1.7	662	72.2	30.9
Office 14 A-1	2.0	616	72.0	30.7
Office 16	2.0	591	71.4	31.6
Office 18	1.9	561	71.0	31.2
Boiler	1.5	600	72.5	31.3
Service room	2.4	483	70.6	30.1
Office SPP	1.8	509	70.0	31.2
55/57	1.3	616	72.0	31.8
Office 55	1.2	673	72.7	32.9
Scullery	1.2	486	74.3	29.6
Kitchen 50A	1.5	503	75.3	29.0

Table 3-1 Guidelines:

Carbon Monoxide: Office/Warehouse Space – 9 ppm based on United States Environmental Protection Agency's National Ambient Air Quality Standard.

OSHA Permissible Exposure Limit (PEL) = 50 ppm. American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit value (TLV) = 25, ppm.

Carbon Dioxide: Office Space -Approximately 700 ppm above background (Derived from American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE) Standard 62.1-2010). Not Applicable to warehouse and vehicle maintenance bays.

Relative Humidity: Mechanically air-conditioned space – Maximum 65% (Derived from ASHRAE Standard 62.1-2010 – 5.10.1).

Temperature: Winter (clothing insulation = 1.0 clo) Relative humidity 30-60% - Temp - 68 – 75°F

Summer Temp - 73 – 79°F. (Derived from ASHRAE Standard 55-2010)

Sandston 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.

Temperature variances and an increase in the amount of observed dust are likely attributable to the ongoing roof installation and will be remedied upon completion. In general, site personnel indicated that the system seems to work well. Temperature readings were reasonably consistent in all areas occupied by readiness center personnel.

4.1.2 HVAC Maintenance

HVAC maintenance is performed by a third party vendor. Records were not available for review.

There was no 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 varied with as shown in the following table;

Table 5-1: Light Survey

Location	Results (Foot candles)	Met Standard (Y/N)	Standard*
STS office	33.8	N	50
Office 11	22.2	N	50
Office 11B	34.4	N	50
Conference J3	47.3	Y	30
FU Ops conference	25.9	Y	30
13A	28.9	N	50
Joint Operation Center	46.5	N	50
Classroom	49.2	Y	30
Hallway at room 38	24.6	Y	5
Storage J3	11.2	Y	30
Storage 46	19.0	Y	30
Adjunct General Office	78.6	Y	50
Office in Adjunct General Area	77.4	Y	50
Command group recon	71.6	Y	50
Office 38	44.2	N	50
Office 30	17.1	N	50
Drill Floor	23.1	Y	10
Office 50	62.7	Y	50
Conference 53	42.0	Y	30
Office 53B	55.9	Y	50
Office 51	47.3	N	50
Office 51B	46.6	N	50
Office 55	49.5	Y	50
Office 55A	43.3	N	50
Office 57	26.4	N	50
Office 57A	38.8	N	50
Office 57 C	47.3	N	50
Office 59	24.9	N	50
Foyer	12.7	Y	10
Office 1	23.7	N	50
Men's room	14.8	Y	5
Locker room 28	10.7	Y	7
Woman's room	9.9	Y	5
Woman's locker room 6	17.9	Y	7
Office 3A	45.3	N	50
Office 3B	64.8	Y	50
Office 3C	38.5	N	50
Office 3D	41.8	N	50
Copy room 8	27.4	Y	10

Location	Results (Foot candles)	Met Standard (Y/N)	Standard*
Room 5	37.9	N	50
Office 5B	29.4	N	50
Office 7/7A	31.6	N	50
Office 7/7C	34.7	N	50
Conference 8	52.1	Y	30
Office 12	37.1	N	50
Office 56	42.4	N	50
Center hallway	17.8	Y	5
Office 14	43.2	N	50
Office 14 A-1	115.8	Y	50
Office 16	44.3	N	50
Office 18	39.8	N	50
Boiler	8.6	N	30
Service room	17.2	N	50
Office SPP	44.9	N	50
55/57	212.6	Y	50
Office 55	91.6	Y	50
Scullery	27.5	N	50
Kitchen 50A	20.8	N	50
Office Lighting (ANSI/IESNA RP-1-04) and Industrial Lighting Facilities (ANSI/IESNA RP-7-01)			

6.0 Evaluation of Attached Garage

There is no garage associated with the Sandston 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 Sandston Readiness Center.

Lighting levels measured throughout the facility were generally sub-adequate as per American National Standard Institute/Illuminating Engineering Society of North America (ANSI/IESNA) RP-1-2004, Office Lighting, ANSI/IESNA RP-7-2001, Industrial Lighting, and the IESNA Lighting Handbook, 9th Edition, 11 April 2005. Areas with inadequate lighting levels shall upgrade lighting or provide additional task lighting as necessary.

All wipe samples collected in association with administrative areas were below the Occupational Safety and Health Administration's (OSHA's) Clarification of "as free as practicable" and lead contamination under 29 CFR 1926.62, The Compliance Directive for the Interim Standard for Lead in Construction, CPL 2-2.58. OSHA recommends the use of HUD's acceptable decontamination level of 200 ug/ft² for floors in evaluating the cleanliness of change areas, storage facilities, and lunchrooms/eating areas.

No damaged suspect asbestos containing materials were observed during the evaluation.

No damaged or peeling paint was observed during the evaluation.

No Indoor Air Quality concerns were noted by the Sandston Readiness Center personnel. Instantaneous real-time reading for carbon monoxide and carbon dioxide (parts per million or ppm), temperature (° Fahrenheit), and relative humidity (as percentage) are presented in Table 3-1. Readings were generally within acceptable guidelines in those areas occupied by the facility staff.

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

The Heating, Ventilation & Air Conditioning (HVAC) system in the building consists of a boiler room that feeds radiant heaters throughout the building. The cooling system is comprised of roof mounted units with limited potential to introduce contaminated air into administrative areas.

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

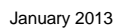
As with all such surveys, the results of the sampling represent conditions found on the date of the survey and may not represent conditions found at other times. Additionally, this survey was limited with respect to the specific parameters indicated above and should not be construed to be a comprehensive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

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



Appendix A

Sandston Readiness Center Facility Layout



Appendix B

Sandston Readiness Center Photographs

Photograph 1



Sandston Facility

Photograph 2



Drill Floor

Photograph 3



Drill floor wipe sample from top of locker

Photograph 4



Water damaged tile in conference room

Photograph 5



Kitchen wipe sample from top of electric box

Photograph 6



Kitchen vent wipe sample location

Photograph 7



Cabinet wipe sample from room 3

Photograph 8



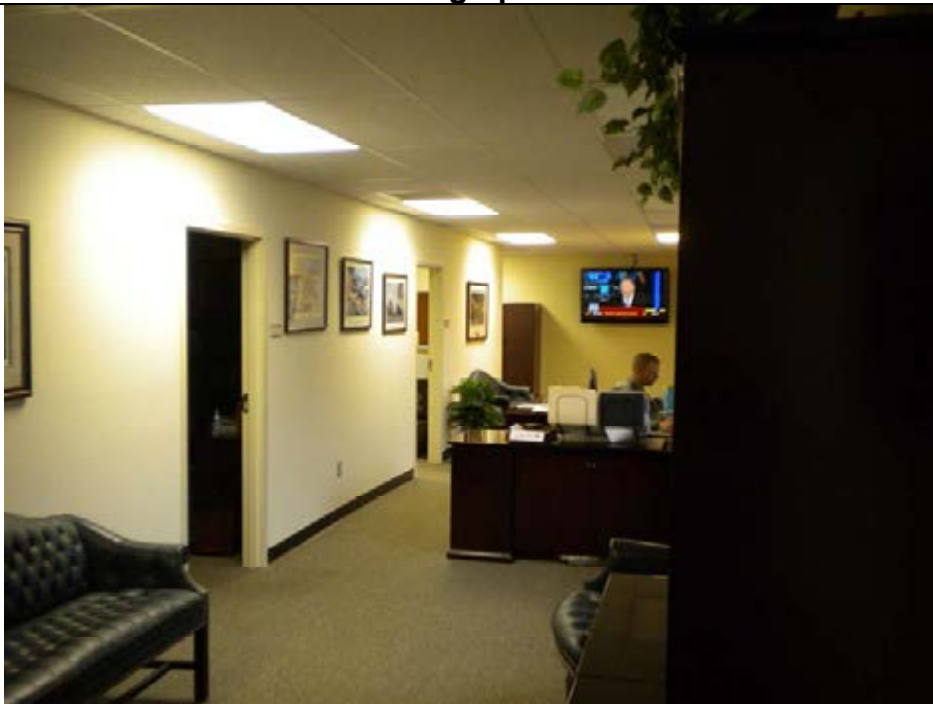
Hallway wipe sample outside room 1

Photograph 9



Foyer supply vent

Photograph 10



Converted firing range

Photograph 11



Backside of building

Photograph 12



Note former range vent on roof



Appendix C

Analytical Results

AMA Analytical Services, Inc.



A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS



Client: National Guard Bureau Job Name: VA ANG TH Survey Chain Of Custody: 514743
 Address: 301-1H Old Bay Lane, Attn: ARNG-CJG-P, Job Location: Sandston RC Date Submitted: 12/12/2012
 Harre de Grace, Maryland 21078 Job Number: Not Provided Person Submitting: AECOM
 P.O. Number: W912K6-09-A-0003 Date Analyzed: 12/18/2012 Report Date: 12/18/2012

Attention:

Non-Responsive

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	Total ug	Final Result	Comments
13021735	001	Flame	Wipe	****	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13021736	002	Flame	Wipe	****	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13021737	003	Flame	Wipe	****	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13021738	004	Flame	Wipe	****	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13021739	005	Flame	Wipe	****	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13021740	006	Flame	Wipe	****	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13021741	007	Flame	Wipe	****	0.111	110 ug/ft ²	<12	<110 ug/ft ²	

Analysis Method for Flame: Air, Wipes, Paints, and Soil/Solids: EPA 800/R-93/200(M)-7000B; Water: SM-3111B

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

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

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

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

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

Air and Wipe results are not corrected for any blank results

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

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

Non-Responsive

Analyst

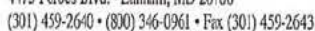
Non-Responsive

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.

An AIHA (#100470) and NY ELAP (#10920) Accredited Laboratory

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



(Please Refer To This
Number For Inquires)

514743

Submittal Information:

1. Client Name: National Guard Bureau
2. Address 1: 301-H Old Bay Lane
3. Address 2: Attn: NGB-AVN-SI, State Military Reservation
4. Address 3: Havre de Grace, Maryland 21078
5. Phone #: (410) 942-0273 Fax #: (410) 942-0254
- (1) Job Name: VA ANG IH SURVEY
(2) Job Location: SARDIS RE
3. Job #: PD #: W912KG-09-A-0003
4. Contact Person: Non-Responsive @ phone #
5. Submitted by: AECOM Signature Non-Responsive

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

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>12/9/12</u> <input type="checkbox"/> Results Required By: Noon		REPORT TO: <input checked="" type="checkbox"/> Include COC Field Data Sheets in Report <input checked="" type="checkbox"/> Email Non-Responsive <input type="checkbox"/> Fax <input type="checkbox"/> Verbal
---	--	---	--	---

TEM Bulk

(LABORATORY STAFF ONLY)

CLIENT ID #	SAMPLE LOCATION/ID	DATE/TIME	VOL (L)	Wipe Area	TECH	PCMI	PLM	LEAD	MOI	AIR	BUL	DLSS	WATER	WIND	TEMP	TRAFFIC	ICAP	SWAY	(LABORATORY STAFF ONLY)			
																				Date/Time:	Contact:	By:
	SEE ATTACHED FIELD DATA SHEETS																					

LABORATORY STAFF ONLY: (CUSTODY)

1: Date/Time RCVD: 12/12/12 @ 1000 Via: FDUK By: (initials)

2: Date/Time Analyzed: / / @ By: (initials) Sign: /

3: Results Reported To: Via: Date: / / Time: Initials:

4: Comments: 7991 0625 9000

Non-Responsive

Surface Sampling Field Data Sheet

Date Collected: 11/15/12

Job Name: SANDY/ NGB JADA

Company: M2P Page 1 of 1

Job Number: 2012-0569

Job Location: Sandston VA

Phone Number: 434-911-6000

Contact Person: Non-Respon

Address: 5901 Bulfinch Rd

Collected By: Non-Respon

Sandston VA

COC Number:

Sample Number	Sample Location	Surface/Substrate Sampled	Area Wiped (in ² /ft ²)	Collection Media
001	Horizontal Surface Drill Floor	TOP OF FLOOR	16 ² in	wip
002	Dusty Horizontal Surface Kitchen	TOP OF ELECTRICAL BOX	16 ² in	wip
003	Supply Air Grill office Kitchen	metal grill	16 ² in	wip
004	office DESK Admin Room 9	Desktop	16 ² in	wip
005	Room 3 Top of Fil. Cabinet	Fil. Cabinet	16 ² in	wip
006	HALLWAY AT front of Bldg, just inside	Tile	16 ² in	wip
007	Foyer opposite Guard Duty	Metal	16 ² in	wip
008	Exterior Wall of Bldg	X X X X	X X X X	X X X X



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





Appendix D

References

References

1. Title 29, Code of Federal Regulations (CFR), Part 1910, Occupational Safety and Health Administration, current Ed. <http://www.osha.gov/comp-links.html>
2. Department of Defense Instruction (DODI) 6055.1, Department of Defense Occupational Safety and Health (OSH) Program, August 19, 1998. <http://www.dtic.mil/whs/directives/corres/pdf/605501p.pdf>
3. Army Regulation (AR) 11-34, The Army Respiratory Protection Program, 15 February 1990. http://armypubs.army.mil/epubs/pdf/R11_34.PDF
4. AR 40-5, Medical Service, Preventive Medicine, 25 May 2007. http://armypubs.army.mil/epubs/pdf/R40_5.PDF
5. AR 385-10, The Army Safety Program, 23 August 2007; Rapid Action Revision (RAR) issue date: 4 October 2011. http://armypubs.army.mil/epubs/pdf/R385_10.PDF
6. Department of the Army Pamphlet (DA PAM) 40-501, Medical Services, Hearing Conservation Program, 10 December 1998. http://armypubs.army.mil/epubs/pdf/P40_501.pdf
7. DA PAM 40-11, Preventive Medicine, 22 July 2005, RAR issue date: 19 October 2009. http://armypubs.army.mil/epubs/pdf/p40_11.pdf
8. DA PAM 40-503, Medical Services, Industrial Hygiene Program, 30 October 2000. http://armypubs.army.mil/epubs/pdf/P40_503.PDF
9. UFC 3-410-01FA, Heating, Ventilating, and Air Conditioning, 15 May 2003, change 4, January 2010. http://www.wbdg.org/ccb/DOD/UFC/ufc_3_410_01fa.pdf
10. Threshold Limit Values (TLVs) and Biological Exposure Indices (BEIs), American Conference of Governmental Industrial Hygienists (ACGIH), current Ed.
11. Industrial Ventilation – A Manual of Recommended Practice for Design, ACGIH, current Ed.
12. American National Standards Institute (ANSI)/International Safety Equipment Association (ISEA) Z358.1-2009, Emergency Eyewash and Shower Equipment.
13. ANSI/American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. (ASHRAE) 55-2010, Thermal Environmental Conditions for Human Occupancy.
14. ANSI/ASHRAE 62.1-2010, Ventilation for Acceptable Indoor Air Quality.
15. RP-1-2004, Office Lighting, ANSI/IESNA.
16. RP-7-2001, Industrial Lighting, ANSI/IESNA, change 20 July 2004.
17. OSHA Instruction Letter 02-02-058, Lead Exposure in Construction, Office of Health Compliance Assistance, 13 December 1993.
18. OSHA Standard Interpretation, Clarification of “as free as practicable” and lead contamination under 29 CFR 1926.62, dated January 13, 2003.
19. NG PAM 420-15, Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges, 3 November 2006. http://www.ngbpdc.ngb.army.mil/pubs/420/ngpam420_15.pdf

Shaw Environmental, Inc.

312 Directors Drive
Knoxville, TN 37923
865.690.3211
Fax 865.690.3626



Shaw Environmental, Inc.

**National Guard Armory
Staunton Readiness Center
Staunton, Virginia**

Industrial Hygiene Evaluation

Prepared for:

**National Guard Region North Industrial Hygiene Office
Havre De Grace, Maryland 21078**

Prepared by:

**Shaw Environmental, Inc.
312 Directors Drive
Knoxville, Tennessee 37923**

13 December 2004

**National Guard Armory
Staunton Readiness Center
Staunton, Virginia**

Industrial Hygiene Evaluation

Prepared for:

**National Guard Region North Industrial Hygiene Office
Havre De Grace, Maryland 21078**

Prepared by:

**Shaw Environmental, Inc.
312 Directors Drive
Knoxville, Tennessee 37923**

13 December 2004

Prepared by:

Non-Responsive

Environmental Scientist

Reviewed by:

Non-Responsive

Business Line Manager

Table of Contents

<i>Table of Contents</i>	<i>i</i>
<i>List of Tables</i>	<i>ii</i>
<i>List of Appendices</i>	<i>ii</i>
<i>Executive Summary</i>	<i>E-1</i>
<i>1.0 Introduction</i>	<i>1-1</i>
<i>2.0 Findings, Discussion, and Interpretation of Results</i>	<i>2-1</i>
<i>2.1 Sampling for Lead</i>	<i>2-1</i>
<i>2.1.1 Wipe Sampling</i>	<i>2-1</i>
<i>2.1.2 Air Sampling for Lead</i>	<i>2-2</i>
<i>2.2 Physical Condition of Facility</i>	<i>2-2</i>
<i>2.2.1 Peeling Paint - Lead</i>	<i>2-2</i>
<i>2.2.2 Visual Inspection - Asbestos</i>	<i>2-2</i>
<i>2.2.3 Visual Inspection - Water Damage and Mold</i>	<i>2-3</i>
<i>2.2.4 Visual Inspection - Housekeeping</i>	<i>2-3</i>
<i>2.3 Building Concerns</i>	<i>2-4</i>
<i>2.3.1 Ergonomic Concerns</i>	<i>2-4</i>
<i>2.3.2 Indoor Air Quality</i>	<i>2-4</i>
<i>2.4 Safety and Industrial Hygiene Programs</i>	<i>2-4</i>
<i>2.5 Ventilation</i>	<i>2-5</i>
<i>2.5.1 Ventilation System Evaluation</i>	<i>2-5</i>
<i>2.5.2 Contamination of Clean Air Sources</i>	<i>2-5</i>
<i>2.6 Noise Exposure</i>	<i>2-5</i>
<i>2.7 Lighting</i>	<i>2-5</i>
<i>2.8 Converted Indoor Firing Ranges</i>	<i>2-5</i>
<i>2.9 HVAC Systems</i>	<i>2-6</i>
<i>2.10 HHIM</i>	<i>2-6</i>
<i>3.0 Conclusions</i>	<i>3-1</i>
<i>Tables</i>	<i>Follows Section 3.0</i>
<i>Appendices</i>	<i>Follows Tables</i>

List of Tables

Table 1	Wipe Sampling for Lead
Table 2	Air Sampling for Lead
Table 3	Indoor Air Quality Measurements
Table 4	Illumination Readings
Table 5	Indoor Firing Ranges – Wipe Sampling

List of Appendices

Appendix A	HHIM Data Form
Appendix B	Building Layout
Appendix C	Sampling Sheets and Laboratory Analyses
Appendix D	References
Appendix E	Recommendations for Surface Lead Dust in Armories

Executive Summary

Shaw Environmental, Inc. (Shaw) was contracted to perform an industrial hygiene evaluation for the Staunton Readiness Center in Staunton, Virginia. **Non-Responsive** performed the evaluation on 23 January 2004. The point of contact at the readiness center was MSC **Non-Responsive**

The following industrial hygiene concerns were evaluated.

- Wipe Sampling for Lead
- Air Sampling for Lead
- Peeling Paint – Lead
- Suspected Asbestos Containing Material
- Water Damage
- Presence of Mold
- Housekeeping
- Ergonomic Concerns
- Indoor Air Quality
- Safety and Industrial Hygiene Programs
- Ventilation System Evaluation
- Contamination of Clean Air Sources
- Noise Exposure
- Lighting
- Converted Indoor Firing Range
- HVAC Systems

The following items were either not applicable to the armory or the evaluation resulted in a conclusion that there were no industrial hygiene concerns.

- Air Sampling for Lead
- Peeling Paint – Lead
- Housekeeping
- Ergonomic Concerns
- Safety and Industrial Hygiene Programs
- Ventilation System Evaluation

- Contamination of Clean Air Sources
- Noise Exposure
- HVAC Systems

Areas where there were industrial hygiene concerns are as follows:

- Wipe sampling for lead revealed a concentration above the recommended level of 200 micrograms per square foot ($\mu\text{g}/\text{ft}^2$) in the drill floor/assembly hall area, recruiter's office, the HHC 1/29th ID storage room, and the electrical box area. It is recommended that these surfaces and the areas immediately around these surfaces be thoroughly cleaned to reduce the lead level. The sample collected from the drill floor/kitchen service window had a lead concentration of 170 $\mu\text{g}/\text{ft}^2$, which approaches the limit of 200 $\mu\text{g}/\text{ft}^2$. It is recommended that this area be cleaned also. In addition, any other dusty/dirty areas in the assembly area/drill floor, recruiter's office, the HHC 1/29th ID storage room, and the electrical box area should be thoroughly cleaned.
- Wipe sampling for lead revealed concentrations above a level of 40 micrograms per square foot ($\mu\text{g}/\text{ft}^2$) in the drill floor/assembly hall area, the HHC 1/29th ID storage room, the electrical box area, HSC/429 FSB office, HHC office, lobby, battalion S-1 area, battalion S 2/3 area, HHC staff SEC supply room, brigade XO office, and converted firing range. Areas with lead concentrations above 40 $\mu\text{g}/\text{ft}^2$ that will be accessible to children should be cleaned. If a special function is held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function.
- Materials (floor tiles and pipe insulation) suspected of containing asbestos were observed. An operation and maintenance plan should be followed when performing any activities that may disturb the suspected asbestos-containing materials.
- Water damage was observed at several locations at the armory. The source of the water damage was likely from a combination of roof and pipe leaks. The source of the water damage should be confirmed and actions taken to eliminate the source in order to prevent the possibility of mold growth that may lead to indoor air quality problems.
- Visible mold was observed at several locations at the armory. The areas where the mold is located should be thoroughly cleaned with 0.5% sodium hypochlorite solution (1 part household bleach to nine parts water) or equivalent in order to eliminate the

potential mold/indoor air quality problem. In addition, the source of the mold should be identified and actions taken to eliminate it.

- Measurements for humidity revealed that levels did not meet the recommended level of 30% humidity in the facility. It is recommended that a humidification system be installed at the facility.
- Measurements for carbon dioxide in the basement revealed that levels were above the recommended level of approximately 1050 parts carbon dioxide per million parts of air (ppm). This indicates that there is a lack of fresh make-up air being introduced into the basement. If applicable, the HVAC system should be evaluated to determine if the fresh air dampers are sufficiently open, and adjustments made to the system to introduce more fresh air into the basement, if possible. If fresh air cannot be introduced by means of the HVAC system, other means should be investigated to lower the carbon dioxide levels.
- Lighting measurements were conducted at the armory. The lighting did not meet minimum requirements in some areas; therefore, consideration should be given to providing more lighting in these areas. This may be accomplished by replacing burnt out luminaries, cleaning fixtures, cleaning windows, painting walls with a lighter color, repositioning detailed work to higher illuminated areas, and using supplemental lighting.
- Wipe sampling for lead in the converted firing range revealed a concentration above the recommended level. This area must be decontaminated by a thorough cleaning until surface lead concentrations are reduced to below recommended levels.

1.0 Introduction

Shaw Environmental, Inc. (Shaw) was contracted to perform an industrial hygiene evaluation for the Staunton Readiness Center in Staunton, Virginia. [Non-Responsive] performed the evaluation on 23 January 2004. The point of contact at the readiness center was MSG [Non-Responsive].

The findings, discussion, and interpretation of results are provided in Section 2.0. The conclusions are provided in Section 3.0. The HHIM data form for the facility is provided in Appendix A. The building layout is provided in Appendix B. Sampling sheets and laboratory analyses are provided in Appendix C. References are provided in Appendix D. The *Recommendations for Surface Lead Dust in Armories* document is provided in Appendix E.

The statements, opinions, and conclusions contained in this report are based solely upon the services performed by Shaw as described in the report. In performing these services and preparing the report, Shaw Environmental, Inc. relied upon the work and information provided by others, including public agencies, whose information is not guaranteed by Shaw Environmental, Inc.

2.0 Findings, Discussion, and Interpretation of Results

The results, discussion, and interpretation of results are provided in the following sections.

2.1. Sampling for Lead

2.1.1 Wipe Sampling

Wipe samples were collected for lead from the drill floor/assembly area. Also, wipe samples were collected for lead in rooms, hallways, foyers, etc. The sampling in rooms, hallways, foyers, etc. represented approximately 25% of the building. Approximately half of the samples were collected from surfaces in common areas, such as surfaces of a desk. The remaining samples were collected from uncommon surface areas, such as a supply vent or the top of a file cabinet. The samples were collected and analyzed in accordance with the Instructions for *Completing the Sampling of ARMY National Guard Armories* procedure.

The only samples initially submitted for analysis were those from the drill floor/assembly hall. Since there were results above acceptable levels from the drill floor/assembly hall area, the remaining samples were submitted for analysis.

Results of the wipe sampling are provided in Table 1. The results revealed lead at all locations sampled at concentrations below recommended level of 200 micrograms lead per square foot ($\mu\text{g}/\text{ft}^2$) (See Appendix B) except at four locations. The samples collected from the fire hose housing inside shelf in the drill floor/assembly hall area, the recruiter's office window sill, the HHC 1/29th ID storage room heat register, and an electrical box had lead concentrations of 2000, 3100, 480, and 670 $\mu\text{g}/\text{ft}^2$, respectively. It is recommended that these surfaces and the immediate areas around these surfaces be thoroughly cleaned to reduce the lead level to below 200 $\mu\text{g}/\text{ft}^2$. In addition, the sample collected from the drill floor/kitchen service window had a lead concentration of 170 $\mu\text{g}/\text{ft}^2$, which approaches the limit of 200 $\mu\text{g}/\text{ft}^2$. It is recommended that this area be cleaned also. For guidance on the proper method of cleaning, please refer to NG PAM 385-15 (*Guidelines and Procedures for Indoor Firing Range (IFR) Rehabilitation, Conversion, and Cleaning*). In addition, any other

dusty/dirty areas in the assembly area/drill floor, recruiter's office, the HHC 1/29th ID storage room, and the electrical box area should be thoroughly cleaned.

In addition, wipe sampling for lead revealed concentrations above a level of 40 µg/ft² in the drill floor/assembly hall area, the HHC 1/29th ID storage room, the electrical box area, HSC/429 FSB office, HHC office, lobby, battalion S-1 area, battalion S 2/3 area, HHC staff SEC supply room, brigade XO office, and converted firing range. Please note that the *Recommendations for Surface Lead Dust in Armories* (Appendix E) states that all areas with lead concentrations above 40 µg/ft² that will be accessible to children should be cleaned. If a special function is held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function.

2.1.2 Air Sampling for Lead

General air sampling was conducted because employees were not available for sampling. The samples were collected and analyzed in accordance with Method 7082 of the National Institute of Occupational Safety and Health (NIOSH) Manual of Analytical Methods.

The results of the sampling are provided in Table 2. The results revealed non-detectable concentrations of lead in air; therefore, no actions are necessary.

2.2 Physical Condition of Facility

2.2.1 Peeling Paint - Lead

Peeling paint was not observed at the armory; therefore, bulk samples for lead in paint were not taken.

2.2.2 Visual Inspection - Asbestos

A visual inspection was made to determine if there was any suspected asbestos-containing material at the armory. Materials (floor tiles and pipe insulation) suspected of containing asbestos were observed. The suspected asbestos-containing materials, with condition and estimated quantity, were at the following locations:

- Battalion S2/3 – Good Condition, Approximately 378 Square Feet
- Battalion S4 – Good Condition, Approximately 229.5 Square Feet

- Battalion XO – Good Condition, Approximately 108 Square Feet
- Personnel Admin Center – Good Condition, Approximately 283.5 Square Feet
- Support Operations Office – Good Condition, Approximately 222.75 Square Feet
- Battalion XO Office – Good Condition, Approximately 222.75 Square Feet
- Boiler Room – Good Condition, Approximately 8 Linear Feet

An operation and maintenance plan should be followed when performing any activities that may disturb the suspected asbestos-containing materials.

2.2.3 Visual Inspection – Water Damage and Mold

A visual inspection was made to determine if there was any water damage or visible mold at the armory. Both visible mold and water damage was observed at the armory. Water damage was observed on the ceilings and some walls in the FSB supply room, scullery, DET 1 Co B 20116 area, recruiter's offices, drill hall, HHC storage room, HHC office, men's latrine, FSB admin office, retention NCO office, hallway by classrooms, S4 office, chaplain's office, room 206, room 201, room 203, room 208, FSB HSC supply office, and converted firing range.

The source of the water damage was likely from a combination of roof and pipe leaks. The source of the water damage should be confirmed and actions taken to eliminate the source in order to prevent the possibility of mold growth that may lead to indoor air quality problems.

Visible mold was observed on the ceilings and walls in the men's latrine and converted firing range.

The area where the mold is located should be thoroughly cleaned with 0.5% sodium hypochlorite solution (1 part household bleach to nine parts water) or equivalent in order to eliminate the potential mold/indoor air quality problem. In addition, the source of the mold should be identified and actions taken to eliminate it.

2.2.4 Visual Inspection - Housekeeping

The housekeeping was determined to be good.

2.3. Building Concerns

2.3.1 Ergonomic Concerns

Interviews with employees and observation of work activities revealed no ergonomic concerns at the armory.

2.3.2 Indoor Air Quality

Interviews with employees and measurements for temperature revealed no indoor air quality concerns at the armory. However, measurements for humidity revealed that levels did not meet the recommended American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE) level of 30% humidity in the facility. It is recommended that a humidification system be installed at the facility.

In addition, the carbon dioxide levels in the basement were above the ASHRAE recommended level of approximately 1050 parts carbon dioxide per million parts of air (ppm). This indicates that there is a lack of fresh make-up air being introduced into the basement. If applicable, the HVAC system should be evaluated to determine if the fresh air dampers are sufficiently open, and adjustments made to the system to introduce more fresh air into the basement, if possible. If fresh air cannot be introduced by means of the HVAC system, other means should be investigated to lower the carbon dioxide levels.

The results of the measurements for carbon dioxide, humidity, and temperature are provided in Table 3.

2.4. Safety and Industrial Hygiene Programs

An evaluation was performed to determine the applicability of the following programs.

- Confined Spaces
- Hearing Conservation
- Respiratory Protection
- Hazard Communication (HAZCOM)
- Personal Protective Equipment (PPE)

It was determined that the HAZCOM program was the only program listed above that was applicable at the facility. The HAZCOM program was evaluated and it was determined that the program met minimum requirements.

2.5. Ventilation

2.5.1 Ventilation System Evaluation

There were no local exhaust ventilation systems at this armory; therefore, no ventilation studies were performed.

2.5.2 Contamination of Clean Air Sources

Since there were no local exhaust ventilation systems at the armory, there was no possibility that clean air sources could be contaminated by exhaust air.

2.6. Noise Exposure

An evaluation was performed to determine if there were any hazardous noise areas at the armory. It was determined that there were no areas at the armory that would exceed the permissible exposure limit for noise.

2.7. Lighting

Lighting measurements were conducted at the armory. Results of the lighting evaluation are provided in Table 4. As can be seen from the results, the lighting did not meet the minimum requirements in some areas, including the support operations office, classroom #1, classroom #2, and room 205.

Consideration should be given to providing more lighting to these areas. This may be accomplished by replacing burnt out luminaries, cleaning fixtures, cleaning windows, painting walls with a lighter color, repositioning detailed work to higher illuminated areas, and using supplemental lighting.

2.8. Converted Indoor Firing Ranges

There was a converted indoor firing range at the facility; therefore, wipe samples were taken for lead at various locations in or near the converted range. The space is used as an exercise room. The results are provided in Table 5. The results revealed lead, with associated concentrations, at the following locations:

- bullet trap (floor near former bullet trap location) at 37 $\mu\text{g}/\text{ft}^2$;
- light fixtures at 34 $\mu\text{g}/\text{ft}^2$;
- overhead heaters at 320 $\mu\text{g}/\text{ft}^2$;
- stored items at 81 $\mu\text{g}/\text{ft}^2$;
- floor (inside the converted firing range) the range at 47 $\mu\text{g}/\text{ft}^2$; and
- floor (outside the converted firing range) at 150 $\mu\text{g}/\text{ft}^2$

The lead levels at one of these locations was above the recommended level of 200 $\mu\text{g}/\text{ft}^2$, a level recommended in the *Guidelines for Converting Indoor Firing Ranges to Other Uses* document (Department of Army). This area must be decontaminated by a thorough cleaning until surface lead concentrations are reduced to below recommended levels. For guidance on the proper method of cleaning, please refer to NG PAM 385-15 (*Guidelines and Procedures for Indoor Firing Range (IFR) Rehabilitation, Conversion, and Cleaning*).

2.9. HVAC System

The maintenance schedule for the HVAC system was evaluated to verify that maintenance occurs on a regular basis. Also, the condition of the HVAC system was evaluated to determine if the maintenance performed is effective. It was deemed that maintenance occurs on a regular basis, and the maintenance performed is effective.

2.10. HHIM

A Health Hazard Information Module (HHIM) form was completed for the armory. The completed form is provided in Appendix A.

3.0 Conclusions

It is concluded that there were no industrial hygiene concerns at the armory with regards to atmospheric exposure to lead, peeling lead-based paint, housekeeping, ergonomic conditions, safety and industrial hygiene programs, ventilation systems or contamination of clean air sources, noise exposure, and HVAC systems.

There were industrial hygiene concerns at the armory with regards to lead surface contamination, suspected asbestos-containing material, water damage, visible mold, indoor air quality, lighting, and surface lead contamination in the converted firing range. These concerns are discussed in detail in Section 2.0 of this report.

TABLES

Table 1
Wipe Sampling for Lead
National Guard Armory
Staunton, Virginia
Date of Sampling: 23 January 2004

Sample Number	Location	Results, $\mu\text{g}/\text{ft}^2$ ^a
VASTA023-1	Drill Floor (trophy case) See Building Layout – Appendix B	130
VASTA023-2	Drill Floor (kitchen service window) See Building Layout – Appendix B	170
VASTA023-3	Drill Floor (fire hose housing inside shelf) See Building Layout – Appendix B	2000
VASTA023-4	Drill Floor (vending machine) See Building Layout – Appendix B	45
VASTA023-5	Drill Floor (heat register) See Building Layout – Appendix B	32
VASTA023-6	Field Blank	<0.3
VASTA023-7	25% Building (recruiter's office window sill) See Building Layout – Appendix B	3100
VASTA023-8	25% Building (kitchen ice machine) See Building Layout – Appendix B	5.5
VASTA023-9	25% Building (HSC/ 429 FSB office window sill) See Building Layout – Appendix B	130
VASTA023-10	25% Building (HHC office window sill) See Building Layout – Appendix B	63
VASTA023-11	Drill Floor (lobby display case) See Building Layout – Appendix B	40
VASTA023-12	Field Blank	<0.3
VASTA023-13	Drill Floor (support operations office filing cabinet) See Building Layout – Appendix B	19
VASTA023-14	Drill Floor (battalion S-1 window sill) See Building Layout – Appendix B	160
VASTA023-15	Drill Floor (battalion S 2/3 desktop) See Building Layout – Appendix B	65

Wipe Sampling for Lead

National Guard Armory

Staunton, Virginia

Date of Sampling: 23 January 2004

VASTA023-16	25% Building (front hallway coffee machine) See Building Layout – Appendix B	3.2
VASTA023-17	25% Building (room 114 window sill) See Building Layout – Appendix B	21
VASTA023-18	Field Blank	0.74
VASTA023-19	25% Building (room 108 filing cabinet) See Building Layout – Appendix B	12
VASTA023-20	Drill Floor (HHC staff SEC supply room shelf) See Building Layout – Appendix B	190
VASTA023-21	Drill Floor (classroom #1 podium) See Building Layout – Appendix B	21
VASTA023-22	Drill Floor (room 107 bookcase) See Building Layout – Appendix B	8
VASTA023-23	Drill Floor (brigade XO office 208 window sill) See Building Layout – Appendix B	79
VASTA023-24	Field Blank	<0.3
VASTA023-25	25% Building (room 204 bookcase) See Building Layout – Appendix B	16
VASTA023-26	25% Building (room 201 conference room bookcase) See Building Layout – Appendix B	13
VASTA023-27	25% Building (room 205 locker room microwave) See Building Layout – Appendix B	15
VASTA023-28	25% Building (HHC 1/29 th ID storage heat register) See Building Layout – Appendix B	480
VASTA023-29	25% Building (electrical box) See Building Layout – Appendix B	670
VASTA023-30	Field Blank	0.61

^a Micrograms lead per square foot

The samples were taken and analyzed in accordance with the *Instructions for Completing the Sampling of ARMY National Guard Armories* procedure.

In armories that do not contain childcare facilities, the NGB Region North Industrial Hygiene Office recommends cleaning the areas with sample results greater than 200 µg/ft²

Table 2
Breathing Zone Air Samples for Lead
National Guard Armory
Staunton, Virginia
Date of Sampling: 23 January 2004

Sample Number	Employee	Sampling Information			Results (mg/m ³) ^a
		Time Sampled / Minutes	Flow Rate (lpm) ^b	Volume (liters)	
VASTA023-A1	General Air Sample	1020-1340/200	1.635	327.08	< 0.003
VASTA023-A2	General Air Sample	1025-1315/170	1.652	280.95	< 0.004
VASTA023-A3	Field Blank	-	-	-	None Detected

^a Milligrams lead per cubic meter of air.

^b Liters of air per minute.

Method 7082 of the National Institute of Occupational Safety and Health (NIOSH) Manual of Analytical Methods was followed for sampling for lead.

Table 3
Indoor Air Quality Measurements for Carbon Dioxide, Humidity, and Temperature
National Guard Armory
Staunton, Virginia
Date of Sampling: 23 January 2004

Location	Occupants In Area	Carbon Dioxide, parts per million parts of air (ppm)	Percent (%) Humidity	Temperature (°F)
Outdoors	-	352	21.7	52.6
1 st Floor	1	435	11.5	68.7
2 nd Floor	1	393	17.1	72.1
Basement	1	1312	36.3	68.2

Carbon dioxide, humidity, and temperature measurements were taken with a TSI Q Trak Plus, Model 8554, Indoor Air Quality Meter, calibrated in April 2003.

American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE) recommends that indoor carbon dioxide levels be less than 700 ppm above outdoor levels.

ASHRAE recommends that the relative humidity levels be maintained between 30 to 60 percent.

ASHRAE recommends that the acceptable temperature range be 68 degrees Fahrenheit to 74 degrees Fahrenheit in the winter and 73 degrees Fahrenheit to 79 degrees Fahrenheit in the summer.

Table 4
Illumination Readings
National Guard Armory
Staunton, Virginia
Date of Sampling: 23 January 2004

Location	Luminance (fc) ^a	Standard (fc) ^a	Standard Met
Kitchen	44.4-88.8	70	Some Areas
HHC Orderly Room	55.5-88.8	70	Some Areas
HSC Orderly Room	55.5-88.8	70	Some Areas
Support Operations Office	44.4-55.5	70	No
Battalion S-4 Office	77.7-88.8	70	Yes
Personnel Administration Center	66.6-111.1	70	Some Areas
Room 112 & 114	77.7-111.1	70	Yes
Back Hallway	11.1-44.4	7.5	Yes
Room 107	44.4-77.7	70	Some Areas
Classrooms 1 & 2	22.2-55.5	70	No
Room 207	44.4-100	70	Some Areas
Room 206	33.3-133.3	70	Some Areas
Room 204	44.4-122.2	70	Some Areas
Room 201	33.3-77.7	70	Some Areas
Room 205	22.2-66.6	70	No
Converted Firing Range	22.2-133.3	70	Some Areas

^a fc - Footcandles

The readings were taken with a Weston model 614-60 Lightmeter.

The standards listed above are from ANSI/IES RP-1 and RP-7.

Table 5
Wipe Sampling for Lead – Converted Firing Range
National Guard Armory
Staunton, Virginia
Date of Sampling: 23 January 2004

Sample Number	Location	Results, $\mu\text{g}/\text{ft}^2$ ^a
VASTA023-31	Bullet Trap (floor near former bullet trap location)	37
VASTA023-32	Light Fixtures	34
VASTA023-33	Overhead Heaters	320
VASTA023-34	Stored Item	81
VASTA023-35	Floor (inside the converted firing range)	47
VASTA023-36	Field Blank	0.41
VASTA023-37	Floor (outside the converted firing range)	150

^a Micrograms lead per square foot

The samples were taken and analyzed in accordance with the Instructions for *Completing the Sampling of ARMY National Guard Armories* procedure.

Appendix A

HHIM Data Form(s)

HEALTH HAZARD INFORMATION MODULE: INDUSTRIAL HYGIENE SURVEY

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

SECTION 1. DEMOGRAPHIC DATA

ARLOC 24255	INSTALLATION APG-EA	BLDG/RM NO. STAUNTON
LOCATION/CODE ADMINISTRATIVE AREA /AA	OPERATION/CODE ADMINISTRATIVE OPERATIONS /ADO	
SURVEY DATE 23 JANUARY 2004	EVALUATOR (Initials) Non-Responsive	
MACOM/CODE	SUBMACOM/CODE XX	SUPERVISOR MSA Non-Responsive
TELEPHONE/DSN NO. (540) 332-7741	UNIT/ORGANIZATION STAUNTON ARMOY	RAC A
NO. CIV(S) 3	NO. MIL 22	NO. CONTRACTOR(S) 0
	NO. LOC(S) -	NO. OTHER -
FREQUENCY (hrs/day) 8		

SECTION 2. FACILITY DATA

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

SECTION 3. SURVEY DATA

CONTROLS PRESENT	EVALUATION	UNIT CODE	CONTROLS REQUIRED	STATUS

PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized)

GLOVES	R	U	RESPIRATOR	NIOSH TC NO.	MANUFACTURER	R	U
COLD SURFACES			AIRLINE				
WET SURFACES			ABRASIVE BLASTING HOOD				
AC AGENTS			DISPOSABLE				
OLVENTS			FULL FACE AIR PURIFYING				
URGICAL GLOVES			1/2 FACE AIR PURIFYING				
			POWERED AIR PURIFYING				
			1/4 FACE AIR PURIFYING				
			SELF CONTAINED				

EYES/FACE	R	U	HEARING	R	U	BODY	R	U	HEAD/FEET	R	U
CHEMICAL SPLASH			CANAL CAPS			APRONS			COLD WEATHER BOOTS/HATS		
ULL FACE SHIELD			EAR PLUGS			COLD WEATHER CLOTHING			HARD HATS		
CHEMICAL SAFETY			HELMETS			COVERALLS			IMPERMEABLE BOOTS		
AFETY/IMPACT			MUFFS			FULL BODY SUIT			SAFETY/CONDUCTIVE SHOES		
WELDING HELMET			MUFF/EARPLUG COMBO			HEAT REFLECTIVE VEST/SUIT			SAFETY/NON CONDUCTIVE SHOES		

Posted to NGB FOIA Reading Room

May 2018

FOIA Requested Record #15-0085 (VA)

Released by National Guard Bureau

(HSHB-MA) Page 1591 of 1923

SECTION 4. HAZARD INVENTORY DATA

CAS CODE	HAZARD DESCRIPTION	PAC	EPC
POVDTXXXX	VIDEO DISPLAY TERMINALS	3-LOW	D- UNCONTROLLED PHYSICAL
7439-29-1	LEAD, INORGANIC DUSTS & FUMES	2-MODERATE	C- UNCONTROLLED RESPIRATORY
1332-21-4	ASBESTOS	3-LOW	C- UNCONTROLLED RESPIRATORY
124-38-9	CARBON DIOXIDE	2-MODERATE	C- UNCONTROLLED RESPIRATORY
POLIFITING	HEAVY LIFTING	2-MODERATE	D- UNCONTROLLED PHYSICAL
PO HEATSTR	HEAT STRESS	3-LOW	D- UNCONTROLLED PHYSICAL

SECTION 5. PERSONNEL DATA

LAST NAME	FIRST NAME	MI	SEX	SSN	CATEGORY
/ SEE ATTACHED HMIM INFORMATION SHEET					

SECTION 6. COMMENTS

☐ No comments☐ See attached sheet

PRIVACY ACT STATEMENT

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

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

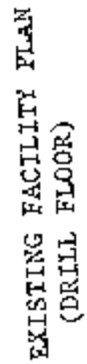
Staunton, Virginia Armory Full Time Employees

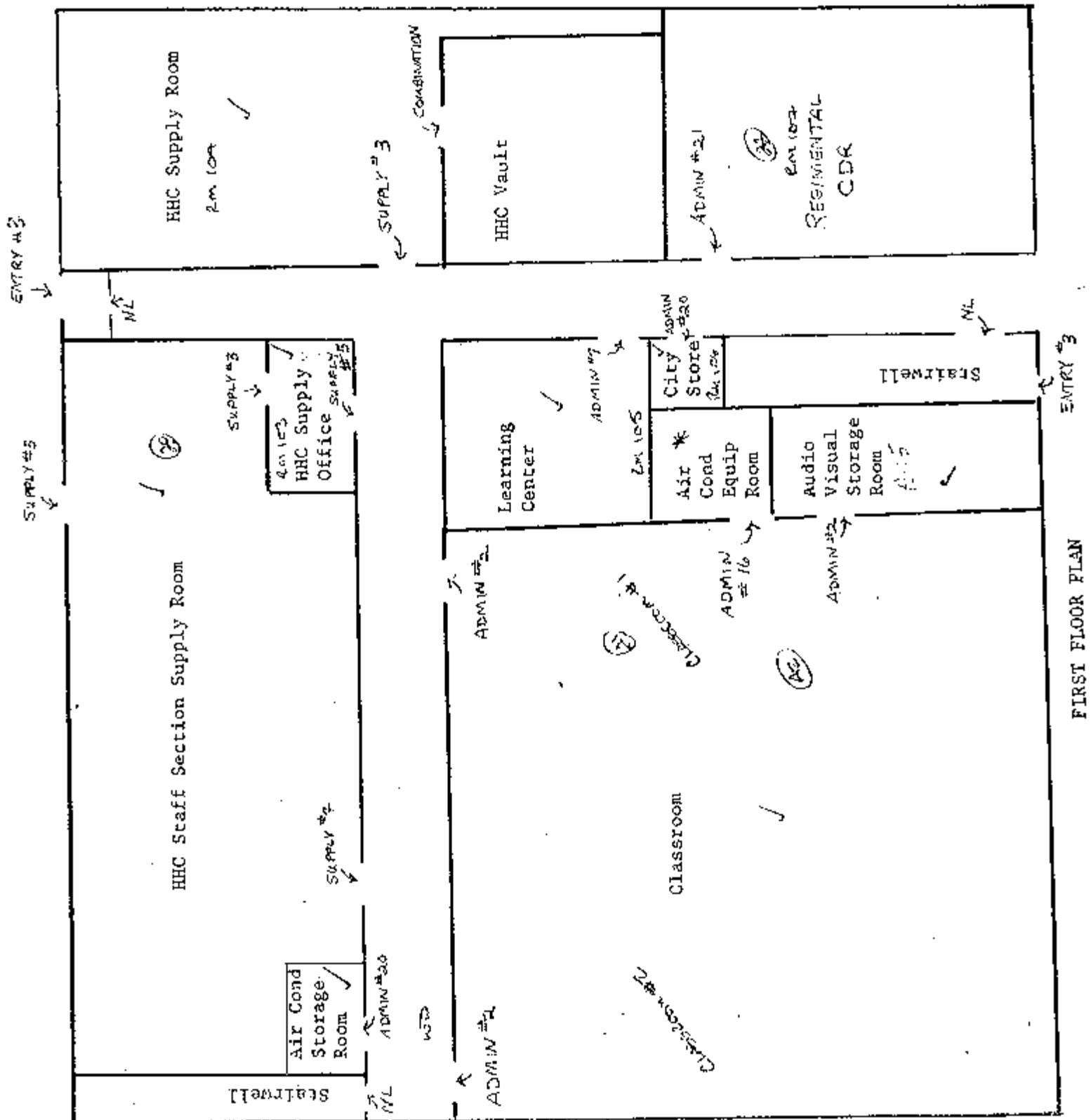
NAME	RANK	UNIT	PHONE NUMBER
Non-Responsive	LTC	HHC 1/29 ID (L)	(540) 332-7735
	CPT	HHC 1/29 ID (L)	(540) 332-7735
	SFC	HHC 1/29 ID (L)	(540) 332-7735
	MAJ	HHC 1/29 ID (L)	(540) 332-7741
	MSG	HHC 1/29 ID (L)	(540) 332-7741
	SGM	HHC 1/29 ID (L)	(540) 332-7737
	SSG	HHC 1/29 ID (L)	(540) 332-7737
	SFC	HHC 1/29 ID (L)	(540) 332-8936
	SSG	HHC 1/29 ID (L)	(540) 332-8936
	MAJ	HSC 429 Spt Bn	(540) 332-8939
	MSG	HSC 429 Spt Bn	(540) 332-8939
	SFC	HSC 429 Spt Bn	(540) 332-8939
	SFC	HSC 429 Spt Bn	(540) 332-8939
	SPC	HSC 429 Spt Bn	(540) 332-8939
	SSG	HSC 429 Spt Bn	(540) 332-8939
	SFC	HSC 429 Spt Bn	(540) 332-8916
	SSG	HSC 429 Spt Bn	(540) 332-8916
	SSG	222 QM Det	(540) 332-8916
	CPT	Recruiting CMD	(540) 332-7743
	SFC	Recruiting CMD	(540) 332-7743
	SSG	Recruiting CMD	(540) 332-7743
	SFC	R & R Automation	(540) 332-9214
		Caretaker	(540) 332-7741
	Caretaker	(540) 332-7741	
	FRG- MSC Rep	(540) 332-7859	
Outside Users of Facility	City of Staunton	(540) 332-3945	

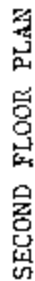
Appendix B

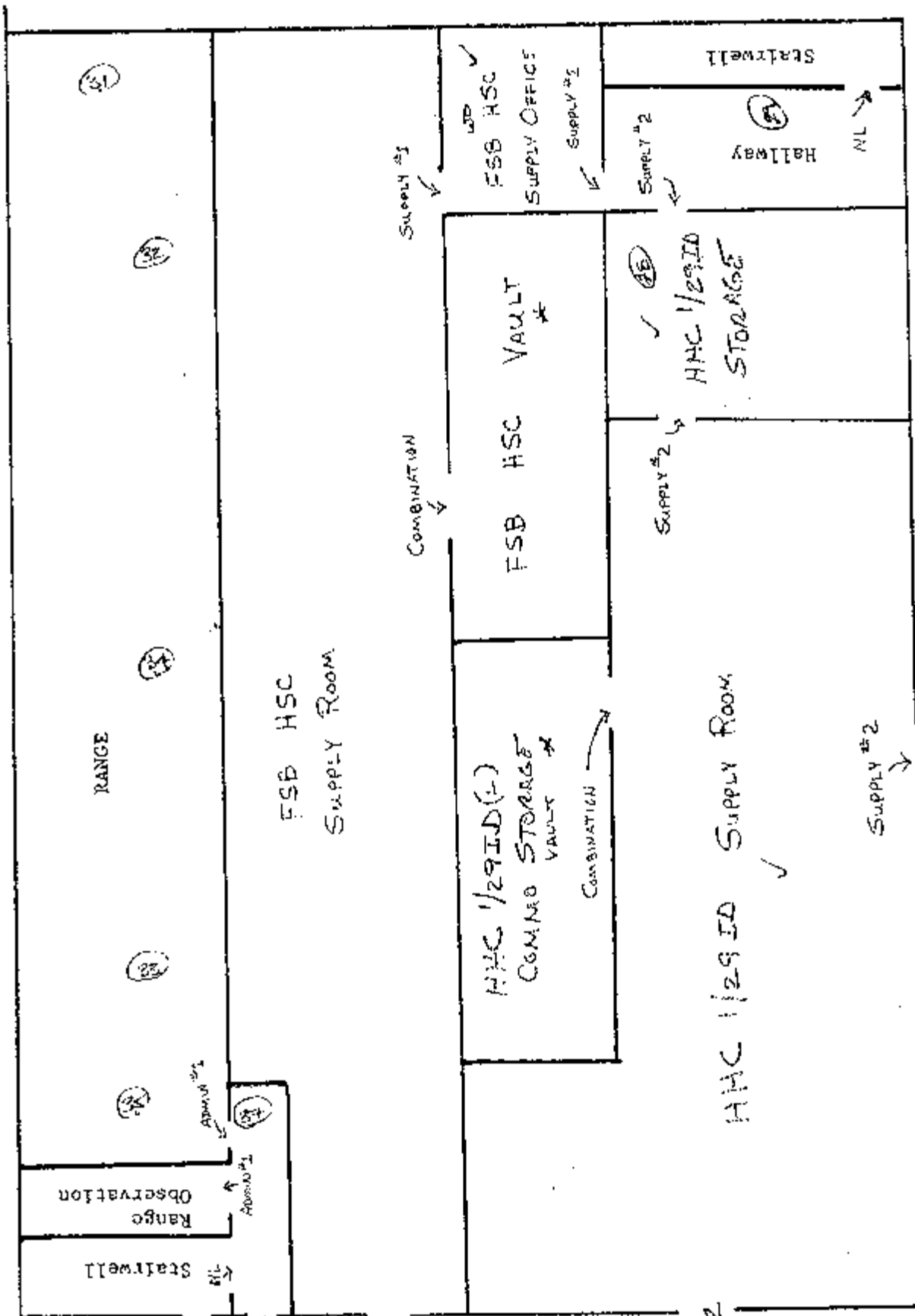
Building Layout

600 PARK COLUMBIA BOULEVARD
NEW YORK 17 CITY









BASEMENT FLOOR PLAN

Appendix C

Sampling Sheets and Laboratory Analyses



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: VA STA 023
Job Location: Staunton, Virginia

Chain Of Custody: 122246
Date Analyzed: 2/2/2004

Job Number: 845702 01000000
P.O. Number: 1103

Person Submitting: **Non Responsive**
Report Date: 02-FEB-04

Attention: **020923**

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
0421992	VA STA 023 1	Furnace	Wipe	****	0.111	33.75 ug/ft²	130 ug/ft²	
0421993	VA STA 023 2	Furnace	Wipe	****	0.111	33.75 ug/ft²	170 ug/ft²	
0421994	VA STA 023 3	Flame	Wipe	****	0.111	108.01 ug/ft²	2000 ug/ft²	
0421995	VA STA 023 4	Furnace	Wipe	****	0.111	5.40 ug/ft²	45 ug/ft²	
0421996	VA STA 023 5	Furnace	Wipe	****	0.111	5.40 ug/ft²	32 ug/ft²	
0421997	VA STA 023 6	Furnace	Wipe Blank	****	N/A	0.30 ug	< 0.3 ug	
0421998	VA STA 023 31	Furnace	Wipe	****	0.111	5.40 ug/ft²	37 ug/ft²	
0421999	VA STA 023 32	Furnace	Wipe	****	0.111	5.40 ug/ft²	34 ug/ft²	
0422000	VA STA 023 33	Flame	Wipe	****	0.111	108.01 ug/ft²	320 ug/ft²	
0422001	VA STA 023 34	Furnace	Wipe	****	0.111	13.50 ug/ft²	81 ug/ft²	
0422002	VA STA 023 35	Furnace	Wipe	****	0.111	5.40 ug/ft²	47 ug/ft²	
0422003	VA STA 023 36	Furnace	Wipe Blank	****	N/A	0.30 ug	0.41 ug	
0422004	VA STA 023 37	Furnace	Wipe	****	0.111	33.75 ug/ft²	150 ug/ft²	

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

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: National Guard Bureau
Address: 301-H Old Bay Lane, Attn: NGB-AVN-SI,
State Military Reservation
Havre de Grace, Maryland 21078
Job Name: VA STA 023
Job Location: Staunton, Virginia
Chain Of Custody: 122246
Date Analyzed: 2/2/2004
Job Number: 845702 01000000
P.O. Number: 1103
Person Submitting: [Redacted]
Report Date: 02-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
-------------------	----------------------	---------------	-------------	----------------	------------------	-----------------	--------------	----------

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 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]
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.

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

Job Name: VASTA023
Job Location: Stanton, VA

Chain Of Custody: 122726
Date Analyzed: 2/20/2004

Job Number: 845702 01000000
P.O. Number: 1103

Person Submitting: [Redacted]
Report Date: 20-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
0424059	VASTA023 7	Flame	Wipe	****	0.111	108.01 ug/ft ²	3100 ug/ft ²	
0424060	VASTA023 8	Furnace	Wipe	****	0.111	2.70 ug/ft ²	5.5 ug/ft ²	
0424061	VASTA023 9	Furnace	Wipe	****	0.111	33.75 ug/ft ²	130 ug/ft ²	
0424062	VASTA023 10	Furnace	Wipe	****	0.111	33.75 ug/ft ²	63 ug/ft ²	
0424063	VASTA023 11	Furnace	Wipe	****	0.111	6.75 ug/ft ²	40 ug/ft ²	
0424064	VASTA023 12	Furnace	Wipe Blank	****	N/A	0.30 ug	< ug	
0424065	VASTA023 13	Furnace	Wipe	****	0.111	2.70 ug/ft ²	19 ug/ft ²	
0424066	VASTA023 14	Furnace	Wipe	****	0.111	33.75 ug/ft ²	160 ug/ft ²	
0424067	VASTA023 15	Furnace	Wipe	****	0.111	33.75 ug/ft ²	65 ug/ft ²	
0424068	VASTA023 16	Furnace	Wipe	****	0.111	2.70 ug/ft ²	3.2 ug/ft ²	
0424069	VASTA023 17	Furnace	Wipe	****	0.111	2.70 ug/ft ²	21 ug/ft ²	
0424070	VASTA023 18	Furnace	Wipe Blank	****	N/A	0.30 ug	0.74 ug	
0424071	VASTA023 19	Furnace	Wipe	****	0.111	2.70 ug/ft ²	12 ug/ft ²	
0424072	VASTA023 20	Furnace	Wipe	****	0.111	33.75 ug/ft ²	190 ug/ft ²	
0424073	VASTA023 21	Furnace	Wipe	****	0.111	2.70 ug/ft ²	21 ug/ft ²	
0424074	VASTA023 22	Furnace	Wipe	****	0.111	2.70 ug/ft ²	8 ug/ft ²	
0424075	VASTA023 23	Furnace	Wipe	****	0.111	13.50 ug/ft ²	79 ug/ft ²	
0424076	VASTA023 24	Furnace	Wipe Blank	****	N/A	0.30 ug	< ug	
0424077	VASTA023 25	Furnace	Wipe	****	0.111	2.70 ug/ft ²	16 ug/ft ²	
0424078	VASTA023 26	Furnace	Wipe	****	0.111	2.70 ug/ft ²	13 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.

AMA Analytical Services, Inc.
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

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

Job Name: VASTA023
Job Location: Stanton, VA

Chain Of Custody: 122726
Date Analyzed: 2/20/2004

Job Number: 845702 01000000
P.O. Number: 1103

Person Submitting: No
Report Date: 20-Feb-04

Attention: 958070

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
0424079	VASTA023 27	Furnace	Wipe	****	0.111	2.70 ug/ft²	15 ug/ft²	
0424080	VASTA023 28	Furnace	Wipe	****	0.111	67.51 ug/ft²	480 ug/ft²	
0424081	VASTA023 29	Flame	Wipe	****	0.111	108.01 ug/ft²	670 ug/ft²	
0424082	VASTA023 30	Furnace	Wipe Blank	****	N/A	0.30 ug	0.61 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:

Non-Responsive

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 archived 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



TEST REPORT
Page 1 of 2
1/30/04

Submitted To: **Non-Responsive**

Shaw Environmental, Inc.
5700 Thurston Ave., Suite 116
Virginia Beach, VA 23455

Reference Data:	Lead
Client Sample No.:	VAHAR023A1 through VALEX022A3
P.O. No.:	1103
Sample Location:	Virginia
Sample Type:	Filter
Method Reference:	NIOSH 7300
DCL Set ID No.:	04-S-0355
DCL Sample ID No.:	04-01909 through 04-01917
Sample Receipt Date:	1/27/2004
Preparation Date:	01/29/04
Analysis Date:	01/29/04

The samples were prepared and analyzed in accordance with NIOSH method 7300 using a Perkin Elmer 3000XL ICP.

The sample condition upon receipt was acceptable except where noted.

The results are in the enclosed data table. Results relate only to the items tested and are not blank corrected unless indicated in the data table.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Non-Responsive

Analyst

Non-Responsive

Reviewer

Results

Lead

Client #	DCL #	Sample Volume (L)	µg/sample	mg/m ³
VAHAR023A1	04-01909	193.39	ND	<0.005
VAHAR023A2	04-01910	187.12	ND	<0.005
VAHAR023A3	04-01911	0	ND	-
VASTA023A1	04-01912	327.08	ND	<0.003
VASTA023A2	04-01913	280.95	ND	<0.004
VASTA023A3	04-01914	0	ND	-
VALEX022A1	04-01915	182.92	ND	<0.005
VALEX022A2	04-01916	162.81	ND	<0.006
VALEX022A3	04-01917	0	ND	-
	Prep Blank		ND	
% Recovery	LCS		105.	
RPL			1.	

ND = not detected at or above the reporting limit (RPL).

LCS = laboratory control sample.

Non-Responsive

Analyst

Non-Responsive

Reviewer

Industrial Hygiene Sampling Calculation Worksheet

National Guard Armory

Location:

Staunton

Date:

1/23/2004

Sample 1

Sample Number: VASTA023A1

Pump: 647633

Pre Flow Rate

Post Flow Rate

1.645

1.629

1.660

1.601

1.665

1.614

1.663

1.606

Average

1.658

1.613

Average Pre and Post

1.6354

Time 1

10:20

Time 2

13:40

Total Time Sampled

3:20

Minutes Sampled

200.00

Volume

327.08 Liters

Sample 2

Sample Number: VASTA023A2

Pump: 647605

Pre Flow Rate

Post Flow Rate

1.654

1.647

1.671

1.643

1.668

1.638

1.664

1.636

Average

1.664

1.641

Average Pre and Post

1.6526

Time 1

10:25

Time 2

13:15

Total Time Sampled

2:50

Minutes Sampled

170.00

Volume

280.95 Liters

Appendix D

References

References

Title 29, Code of Federal Regulations CFR), Part 1910, Occupational Safety and Health Administration (current edition)

American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc (ASHRAE) 62-2002, Ventilation for Acceptable Indoor Air Quality

Instructions for Completing the Sampling of Army National Guard Armories, Lead Wipe Sampling Procedure included with the Request for Proposal

Air Sampling for Lead - Method 7082 of the National Institute of Occupational Safety and Health (NIOSH) Manual of Analytical Methods

Design Guide DG-415-2, Logistics Facilities, National Guard Bureau Installation Division, 14 December 1999

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

Army Regulation (AR) 40-5, Medical Service, Preventive Medicine, 15 October 1990

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

Department of the Army Pamphlet (DA PAM) 40-501, Medical Services, Hearing Conservation Program, 10 December 1998

DA PAM 40-503, Medical Services, Industrial Hygiene Program, 30 October 2000

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

Guidelines for Converting Indoor Firing Ranges to Other Uses, Headquarters, Department of the Army and the Air Force, NG PAM (AR) 385-16/ANGPAM 91-101, 31 January 1994

24 CFR, Part 35, Subpart B, Section 35-110, Definition of Lead-Based Paint, Housing and Urban Development, U. S. Department of Housing

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 $0.05 \text{ mg}/\text{m}^3$ averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead dust in this building.

**NATIONAL GUARD BUREAU
ARMY NATIONAL GUARD
REGION NORTH INDUSTRIAL HYGIENE OFFICE
ATTN: NGB-AVS-SI
301-IH OLD BAY LANE
HAYRE DE GRACE, MD 21078-4094**

NGB-AVS-SI (40-5f)

17 December 2004

MEMORANDUM FOR VAARNG, Staunton Readiness Center, ATTN: MAJ [Non-Responsive]
500 Thornrose Avenue, Staunton VA 22401-0500

SUBJECT: Baseline Survey

1. I have enclosed the industrial hygiene survey report completed by Shaw Environmental, Incorporated.
2. In addition to the attached discussion and recommendations regarding wipe samples for lead, if a special function is held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function.
3. Please contact me at (410) 942-0273 or 1-800-550-6967 if you have any questions regarding the enclosed report.

Encl

[Non-Responsive]

Regional Industrial Hygienist

CF: Organizational Maintenance Officer
Occupational Health Manager

National Guard Armory

Staunton Readiness Center, Staunton, Virginia

Industrial Hygiene Evaluation

Recommendations

- Wipe sampling for lead revealed a concentration above the recommended level of 200 micrograms per square foot ($\mu\text{g}/\text{ft}^2$) in the drill floor/assembly hall area, recruiter's office, the HHC 1/29th ID storage room, and the electrical box area. It is recommended that these surfaces and the areas immediately around these surfaces be thoroughly cleaned to reduce the lead level. The sample collected from the drill floor/kitchen service window had a lead concentration of 170 $\mu\text{g}/\text{ft}^2$, which approaches the limit of 200 $\mu\text{g}/\text{ft}^2$. It is recommended that this area be cleaned also. In addition, any other dusty/dirty areas in the assembly area/drill floor, recruiter's office, the HHC 1/29th ID storage room, and the electrical box area should be thoroughly cleaned. **RAC - 4**
- Wipe sampling for lead revealed concentrations above a level of 40 micrograms per square foot ($\mu\text{g}/\text{ft}^2$) in the drill floor/assembly hall area, the HHC 1/29th ID storage room, the electrical box area, HSC/429 FSB office, HHC office, lobby, battalion S-1 area, battalion S 2/3 area, HHC staff SEC supply room, brigade XO office, and converted firing range. Areas with lead concentrations above 40 $\mu\text{g}/\text{ft}^2$ that will be accessible to children should be cleaned. If a special function is held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function. **RAC - 4**
- Materials (floor tiles and pipe insulation) suspected of containing asbestos were observed. An operation and maintenance plan should be followed when performing any activities that may disturb the suspected asbestos-containing materials. **RAC - 5**
- Water damage was observed at several locations at the armory. The source of the water damage was likely from a combination of roof and pipe leaks. The source of the water damage should be confirmed and actions taken to eliminate the source in order to prevent the possibility of mold growth that may lead to indoor air quality problems. **RAC - 5**
- Visible mold was observed at several locations at the armory. The areas where the mold is located should be thoroughly cleaned with 0.5% sodium hypochlorite solution (1 part household bleach to nine parts water) or equivalent in order to eliminate the potential mold/indoor air quality problem. In addition, the source of the mold should be identified and actions taken to eliminate it. **RAC - 5**

- Measurements for humidity revealed that levels did not meet the recommended level of 30% humidity in the facility. It is recommended that a humidification system be installed at the facility. **RAC - 5**
- Measurements for carbon dioxide in the basement revealed that levels were above the recommended level of approximately 1050 parts carbon dioxide per million parts of air (ppm). This indicates that there is a lack of fresh make-up air being introduced into the basement. If applicable, the HVAC system should be evaluated to determine if the fresh air dampers are sufficiently open, and adjustments made to the system to introduce more fresh air into the basement, if possible. If fresh air cannot be introduced by means of the HVAC system, other means should be investigated to lower the carbon dioxide levels. **RAC - 5**
- Lighting measurements were conducted at the armory. The lighting did not meet minimum requirements in some areas; therefore, consideration should be given to providing more lighting in these areas. This may be accomplished by replacing burnt out luminaries, cleaning fixtures, cleaning windows, painting walls with a lighter color, repositioning detailed work to higher illuminated areas, and using supplemental lighting. **RAC - 5**
- Wipe sampling for lead in the converted firing range revealed a concentration above the recommended level. This area must be decontaminated by a thorough cleaning until surface lead concentrations are reduced to below recommended levels. **RAC - 4**

Shaw Environmental, Inc.

312 Directors Drive
Knoxville, TN 37923
865.690.3211
Fax 865.690.3626



Shaw Environmental, Inc.

*Received 23 Jan 04
Rec'd 9 Apr 04
rev 12/1/04*

05 April 2004

Ms **Non-Responsive** CIH
Regional Industrial Hygienist
Region North Industrial Hygiene Office
Attn: NGB-AVS-SI
301-IH Old Bay Lane
Havre De Grace, Maryland 21078

RE: Draft Report for the Industrial Hygiene Evaluation at the Staunton Readiness
Center – Staunton, Virginia

Dear Ms **Non-Responsive**

Attached is a copy of the referenced report. Also attached is a copy of the field notes,
photographs, and photograph log,. Please call me if you have questions.

Sincerely,

Non-Responsive

Project Manager

Staunton Armory Photo Log
National Guard Armory
Staunton, Virginia
Date of Survey: 23 January 2004

Photo	Description
1	Lead Wipe Assembly Room - Trophy Case - Sample 1
2	Lead Wipe Assembly Room - Kitchen Service Window - Sample 2
3	Lead Wipe Assembly Room - Fire Hose Housing Inside Shelf - Sample 3
4	Lead Wipe Assembly Room - Vending Machine - Sample 4
5	Lead Wipe Assembly Room - Heat Register - Sample 5
6	25% Building - Recruiter's Office Window Sill - Sample 7
7	25% Building - Kitchen Ice Machine - Sample 8
8	25% Building - HSC/129 FSB Office Window Sill - Sample 9
9	25% Building - HHC Office Window Sill - Sample 10
10	25% Building - Lobby Display Case - Sample 11
11	25% Building - Support Operations Office Filing Cabinet - Sample 13
12	25% Building - Battalion S-1 Window Sill - Sample 14
13	25% Building - Battalion 2/3 Desktop - Sample 15
14	25% Building - Front Hallway Coffee Machine - Sample 16
15	25% Building - Room 114 Window Sill - Sample 17
16	25% Building - Room 108 Filing Cabinet - Sample 19
17	25% Building - HHC Staff SEC Supply Room Shelf - Sample 20
18	25% Building - Classroom #1 Podium - Sample 21
19	25% Building - Room 107 Bookcase - Sample 22
20	25% Building - Brigade XO Office 208 Window Sill - Sample 23
21	25% Building - Room 204 Bookcase - Sample 25
22	25% Building - Room 201 Conference Room Bookcase - Sample 26
23	25% Building - Room 205 Locker Room Microwave - Sample 27
24	25% Building - HHC 1/29th ID Storage Heat Register - Sample 28
25	25% Building - Electrical Box - Sample 29
26	Firing Range - Bullet Trap - Sample 31
27	Firing Range - Light Fixtures - Sample 32
28	Firing Range - Overhead Heaters - Sample 33
29	Firing Range - Stored Item - Sample 34
30	Firing Range - Floor Inside the Converted Firing Range - Sample 35
31	Firing Range - Floor Outside the Converted Firing Range - Sample 36
32	Water Damage - Office
33	Water Damage - Office
34	Water Damage - Latrine
35	Water Damage - Latrine
36	Mold - Latrine
37	Suspected Asbestos - Boiler Room
38	Water Damage - Hallway
39	Water Damage - Room 208 Commander's Office
40	Water Damage - Room 206 Brigade S-1 Admin Office
41	Water Damage - Conference Room
42	Water Damage - Operations Center & Museum
43	Water Damage & Mold - Converted Firing Range Area

44	Water Damage & Mold - Converted Firing Range Area
45	Water Damage & Mold - Converted Firing Range Area
46	Water Damage - Hallway

Field Notes and Checklist

State: VIRGINIA Location: STANTON ARMORY Date: JANUARY 23, 2004
 Contact: SFC [REDACTED] Non-Responsive

1.0 Sampling for Lead

1.1 Wipe Sampling

Sample #:	<u>1</u>	Picture #:	<u>/</u>	Location:	<u>TROPHY CASE</u>
Sample #:	<u>2</u>	Picture #:	<u>/</u>	Location:	<u>KITCHEN SERVICE WINDOW</u>
Sample #:	<u>3</u>	Picture #:	<u>/</u>	Location:	<u>FIRE HOSE HOUSING</u>
Sample #:	<u>4</u>	Picture #:	<u>/</u>	Location:	<u>VENDING MACHINE</u>
Sample #:	<u>5</u>	Picture #:	<u>/</u>	Location:	<u>HEAT REGISTER</u>
Sample #:	<u>6, 12, 13</u>	Picture #:	<u>-</u>	Location:	<u>FIELD BLANK</u>
Sample #:	<u>7, 24, 30, 31</u>	Picture #:	<u>/</u>	Location:	<u>RECEIVERS OFFICE WINDOW SILL</u>
Sample #:	<u>8</u>	Picture #:	<u>/</u>	Location:	<u>KITCHEN TOP OF ICE MACHINE</u>
Sample #:	<u>9</u>	Picture #:	<u>/</u>	Location:	<u>HSC/129 FSB OFFICE WINDOW SILL</u>
Sample #:	<u>10</u>	Picture #:	<u>/</u>	Location:	<u>HHC OFFICE WINDOW SILL</u>
Sample #:	<u>11</u>	Picture #:	<u>/</u>	Location:	<u>LOBBY DISPLAY CASE TOP</u>
Sample #:	<u>13</u>	Picture #:	<u>/</u>	Location:	<u>SUPPORT OPERATIONS TOP OF FILING CABINET</u>
Sample #:	<u>14</u>	Picture #:	<u>/</u>	Location:	<u>BATTALION 5-1 WINDOW SILL</u>
Sample #:	<u>15</u>	Picture #:	<u>/</u>	Location:	<u>BATTALION 5 2/3 DESK TOP</u>
Sample #:	<u>16</u>	Picture #:	<u>/</u>	Location:	<u>FRONT HALLWAY COFFEE MACHINE TOP</u>
Sample #:	<u>17</u>	Picture #:	<u>/</u>	Location:	<u>ROOM 114 WINDOW SILL</u>
Sample #:	<u>19</u>	Picture #:	<u>/</u>	Location:	<u>ROOM 103 TOP OF FILING CABINET</u>
Sample #:	<u>20</u>	Picture #:	<u>/</u>	Location:	<u>HHC STAFF SEC SUPPLY RM SHELF</u>
Sample #:	<u>21</u>	Picture #:	<u>/</u>	Location:	<u>CLASSROOM #11 PODIUM</u>
Sample #:	<u>22</u>	Picture #:	<u>/</u>	Location:	<u>ROOM 107 BOOKCASE</u>

(Also, please see the sketch of sampling locations.)

1.2 Breathing Zone Air Sampling

Sample #: A1 Employee Sampled: GENERAL AIR SAMPLES
 Sample #: A2 Employee Sampled: GENERAL AIR SAMPLES
A3 FIELD BLANK

Field Notes and Checklist

State: VIRGINIA Location: STANTON ARMOY Date: JANUARY 23, 2004
 Contact: SFC Non-Responsive

1.0 Sampling for Lead

1.1 Wipe Sampling

Sample #:	<u>23</u>	Picture #:	<u>/</u>	Location:	<u>BRIGADE XO OFFICE 208 WINDOW SILL</u>
Sample #:	<u>25</u>	Picture #:	<u>/</u>	Location:	<u>Room 204 TOP OF BOOKCASE</u>
Sample #:	<u>24</u>	Picture #:	<u>/</u>	Location:	<u>Room 201 CONFERENCE RM TOP OF BOOKCASE</u>
Sample #:	<u>27</u>	Picture #:	<u>/</u>	Location:	<u>Room 205 LOCKER RM TOP OF MICROWAVE</u>
Sample #:	<u>28</u>	Picture #:	<u>/</u>	Location:	<u>HHC 129TH ID STORAGE HEAT REGISTAR</u>
Sample #:	<u>29</u>	Picture #:	<u>/</u>	Location:	<u>ELECTRICAL BOX</u>
Sample #:	_____	Picture #:	_____	Location:	_____
Sample #:	_____	Picture #:	_____	Location:	_____
Sample #:	_____	Picture #:	_____	Location:	_____
Sample #:	_____	Picture #:	_____	Location:	_____
Sample #:	_____	Picture #:	_____	Location:	_____
Sample #:	_____	Picture #:	_____	Location:	_____
Sample #:	_____	Picture #:	_____	Location:	_____
Sample #:	_____	Picture #:	_____	Location:	_____
Sample #:	_____	Picture #:	_____	Location:	_____
Sample #:	_____	Picture #:	_____	Location:	_____
Sample #:	_____	Picture #:	_____	Location:	_____
Sample #:	_____	Picture #:	_____	Location:	_____
Sample #:	_____	Picture #:	_____	Location:	_____

2.0 Physical Condition of Facility

2.1 Peeling Paint - Lead

Peeling paint observed (Yes or No): No

If peeling paint observed, samples were taken as follows:

Sample #: _____ Picture #: _____ Location: _____
 Condition (Good, Average, Poor): _____ Quantity: _____ ft²
 Sample #: _____ Picture #: _____ Location: _____
 Condition (Good, Average, Poor): _____ Quantity: _____ ft²
 Sample #: _____ Picture #: _____ Location: _____
 Condition (Good, Average, Poor): _____ Quantity: _____ ft²
 Sample #: _____ Picture #: _____ Location: _____
 Condition (Good, Average, Poor): _____ Quantity: _____ ft²
 Sample #: _____ Picture #: _____ Location: _____
 Condition (Good, Average, Poor): _____ Quantity: _____ ft²

2.2 Visual Inspection - Asbestos

Suspected asbestos-containing material observed (Yes or No): YesOLDER PART OF BUILDING

If suspected asbestos-containing material observed, samples were taken as follows:

Location 1: BAT 'S 2/3 OFFICE (28x24) Picture #: _____
 Condition: GOOD Approximate (Square or Linear Feet): 378 SQUARE FT
 Location 2: BA 'S 1/3 OFFICE (17x24) Picture #: _____
 Condition: GOOD Approximate (Square or Linear Feet): 229.5 SQUARE FT
 Location 3: BAT XO (18x24) Picture #: _____
 Condition: GOOD Approximate (Square or Linear Feet): 108 SQUARE FT
 Location 4: PERSONNEL ADMIN CENTER (22x18) Picture #: _____
 Condition: GOOD Approximate (Square or Linear Feet): 283.5 SQUARE FT
 Location 5: SUPPORT OPERATIONS OFFICE (22x18) Picture #: _____
 Condition: GOOD Approximate (Square or Linear Feet): 282.75 SQUARE FT
BAT XO OFFICE (22x18) GOOD 282.75 SQUARE FT
BOILER ROOM 8 JOINTS (8 LINEAL FEET) GOOD

2.3 Visual Inspection - Water Damage and Mold

Water damage observed (Yes or No): YES

If yes, water damage was observed at the following locations:

Location 1: FSB Supply Room Picture #: ✓
 Location 2: SECURITY Picture #: ✓
 Location 3: DET 1 CO'S 2-11K AREA Picture #: ✓
 Location 4: REQUIREMENTS OFFICES Picture #: ✓
 Location 5: DRILL HALL Picture #: ✓

Mold observed (Yes or No): YES
HUC STORAGE ROOM, HUC OFFICE, MEN'S LATRINE, FSB ADMIN OFFICE, RETENTION HCD OFFICE, HALLWAY BY CLASSROOMS, SA OFFICE, CHAPLAIN OFFICE, ROOM 200, ROOM 201, ROOM 203, ROOM 208, FSB HSC SUPPLY OFFICE, FIREARM RANGE

If yes, mold was observed at the following locations:

Location 1: MEN'S LATRINE Picture #: ✓
 Location 2: FIREARM RANGE Picture #: ✓
 Location 3: _____ Picture #: _____
 Location 4: _____ Picture #: _____
 Location 5: _____ Picture #: _____

2.4 Visual Inspection - Housekeeping

Housekeeping (good, average, poor): GOOD

Comments (such as no dirt or trash was visible on the floors or the housekeeping was poor in that there was trash and debris on the floors that could lead to a tripping hazard, or there was dust in the vents.):

3.0 Building Concerns

3.1 Ergonomic Concerns

Ergonomic concerns (Yes or No): NO

If there are ergonomic concerns at the armory, describe the extent of the problem, such as three employees stated that they perform repetitive motion at the XYZ machine for 6 hours per day, and they stated that they are suffering from symptoms of musculoskeletal disorders (MSDs).

3.2 Indoor Air Quality

IAQ concerns (based on employee interviews)(Yes or No): No

If yes, what were concerns:

Measurements for carbon dioxide, humidity, and temperature:

Location	CO ₂ (ppm)	Humidity (%)	Temperature (°F)	Occupancy (People in Room)
Outdoors -	352	21.7	52.6	0
1 st Floor -	485	11.5	68.7	1
2 nd Floor -	373	17.1	72.1	1
3 rd Floor -	—	—	—	—
Basement	1312	36.3	68.2	1

4.0 Safety and Industrial Hygiene Programs

4.1 Confined Spaces

Are confined spaces applicable (Yes or No): No

If yes, does the program meet minimum standards (Yes or No): —

If no, explain the deficiencies:

4.2 Hearing Conservation

Is hearing conservation applicable (Yes or No): NO

If yes, does the program meet minimum standards (Yes or No):

If no, explain the deficiencies:

4.3 Respiratory Protection

Is respiratory protection applicable (Yes or No): NO

If yes, does the program meet minimum standards (Yes or No):

If no, explain the deficiencies:

4.4 Hazard Communication

Is hazard communication applicable (Yes or No): Yes

If yes, does the program meet minimum standards (Yes or No): Yes

If no, explain the deficiencies:

4.5 Personal Protective Equipment

Is personal protective equipment applicable (Yes or No): No

If yes, does the program meet minimum standards (Yes or No):

If no, explain the deficiencies:

5.0 Ventilation

5.1 Ventilation System Evaluation

Local exhaust ventilation systems at this armory (Yes or No): No

If yes, results of airflow patterns:

Location 1: _____

Airflow Pattern (acceptable or unacceptable, with reason):

Location 2: _____

Airflow Pattern (acceptable or unacceptable, with reason):

Location 3: _____

Airflow Pattern (acceptable or unacceptable, with reason):

5.2 Contamination of Clean Air Sources

Clean air sources contaminated by contaminated exhaust air (Yes or No): No

If yes, describe:

6.0 Noise Dosimetry

Potential hazardous noise areas (Yes or No): No

If yes, results of noise dosimetry sampling:

Employee sampled: _____

Results: _____ % Actual _____ % Projected 8-hour TWA _____ Equivalent dBA

Activity: _____

Employee sampled: _____

Results: _____ % Actual _____ % Projected 8-hour TWA _____ Equivalent dBA

Activity: _____

Employee sampled: _____

Results: _____ % Actual _____ % Projected 8-hour TWA _____ Equivalent dBA

Activity: _____

7.0 Lighting Evaluation

DIVIDE BY 9

Location	Luminance Range (fc)
KITCHEN	40-80
HHC ORATORY RM	50-80
HSC ORATORY RM	50-80
SUPPORT OPERATIONS	40-50
BATTALIST 24	70-80
PERSONNEL ADMIN CENTER	60-100
ROOM 112-114	70-100
HALLWAY (BLACK)	10-40
Room 107	40-70
CLERKWORK 1-2	20-50
Room 207	40-90
Room 208	30-120
Room 209	40-110

Room 201	30-70
Room 202 x	20-100
Fireplace R.A.D.E.	20-100

8.0 Converted Indoor Firing Ranges

Converted indoor firing range (Yes or No): YES

If yes, locations sampled:

Sample #: N/A Picture #: — Location: Inside any remaining ventilation ductwork

Sample #: N/A Picture #: — Location: Exhaust ventilation system

Sample #: 31 Picture #: / Location: Bullet trap

Sample #: 32 Picture #: / Location: Light fixtures

Sample #: 33 Picture #: / Location: Overhead heaters

Sample #: 34 Picture #: / Location: Stored items EXERCISE EQUIPMENT

Sample #: 36 Picture #: / Location: Floor

Sample #: 37 Picture #: / Location: Outside the range PICTURE NOT #

9.0 HVAC System

Does the HVAC system have maintenance performed on a regular basis (Yes or No):

YES

In yes, is the maintenance effective (Yes or No): YES

If no, describe:

10.0 HHIM

Complete HHIM form for facility (Initial as completed): Non-Respons

Reproduction Room HHIM Necessary (Yes or No) (Initial if Yes): —

Film Developing Room HHIM Necessary (Yes or No) (Initial if Yes): —

Maintenance Area HHIM Necessary (Yes or No) (Initial if Yes): —

11.0 Additional Items

Non-Responsive

Table 1 (wipe sampling) completed (initial when completed): _____

Table 2 (air sampling) completed (initial when completed): _____

Table 3 (peeling paint), if necessary, completed (initial when completed): _____

Table 3 or 4 (IAQ) completed (initial when completed): _____

Table 4 or 5 (noise), if necessary, completed (initial when completed): _____

Table 5 or 6 (firing ranges), if necessary, completed (initial when completed): _____

Airflow pattern diagram(s) completed (initial when completed): _____

Building layout included (initial when completed): _____

Photographs (initial when completed): _____

Sampling Sheets and Laboratory Analyses (initial when completed): _____

Sampling tracking form completed and faxed to NGB ARN _____

within 5 days of date of this survey (initial when completed): _____

(Fax to Ken Forsythe at 410-942-0254)

State Lead Wipes Spreadsheet completed) (initial when completed): _____

Three copies of noise exposure notification letter, if necessary (initial when completed): _____

Three copies of contaminant exposure forms for each employee that participated in air sampling (initial when completed): _____

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



Industrial Hygiene Survey for VARNG – Staunton Readiness Center 500 Thornross Avenue Staunton, Virginia 22401

AECOM
January 2013
Document No.: 60275401/ Staunton Readiness Center

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

Industrial Hygiene Survey for VARNG – Staunton Readiness Center 500 Thornross Avenue Staunton, Virginia 22401

Non-Responsive



Industrial Hygienist

Non-Responsive



Project Manager

Non-Responsive



Northeast District Health & Safety Manager

AECOM Environment
January 2013
Document No.: 60275401/ Staunton 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 Staunton Readiness Center Facility Layout

Appendix B Staunton Readiness Center Photographs

Appendix C Analytical Results

Appendix D References



List of Tables

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



Executive Summary

On November 11, 2012, AECOM Technical Services Northeast, Inc. (AECOM) conducted an Industrial Hygiene (IH) survey of the Staunton Readiness Center facility located at 500 Thornross Avenue in Staunton, Virginia. First Sargent [REDACTED] was the point of contact for the facility and accompanied AECOM during the survey to provide access and information concerning the Staunton Readiness Center operations.

The industrial hygiene survey was conducted in general accordance with the scope of work as described in the "Statement of Work – Industrial Hygiene Services for National Guard Bureau Industrial Hygiene Region North – Baseline Surveys for Readiness Centers and Administrative Buildings," dated March 2009.

The Staunton Readiness Center is currently staffed by 30 personnel. The facility is configured as an administrative area and a drill/assembly hall.

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

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

Lighting levels measured throughout the facility were generally not adequate per American National Standard Institute/Illuminating Engineering Society of North America (ANSI/IESNA) RP-1-2004, Office Lighting, ANSI/IESNA RP-7-2001, Industrial Lighting, and the IESNA Lighting Handbook, 9th Edition, 11 April 2005. See Section 5 for a list of areas that did not meet the lighting standard.

Wipe samples collected in association with most administrative areas indicated lead levels below the Occupational Safety and Health Administration's (OSHA's) Clarification of "as free as practicable" and lead contamination under 29 Code of Federal Regulations (CFR) 1926.62, The Compliance Directive for the Interim Standard for Lead in Construction, CPL 2-2.58. OSHA recommends the use of the U.S. Department of Housing and Urban Development's (HUD) acceptable decontamination level of 200 micrograms per square foot (ug/ft²) for floors in evaluating the cleanliness of change areas, storage facilities, and lunchrooms/eating areas. Indoor firing ranges shall be converted in accordance with NG PAM 240-15.

No Indoor Air Quality concerns were noted by the Staunton Readiness Center personnel. Instantaneous real-time reading for carbon monoxide and carbon dioxide (parts per million or ppm), temperature (° Fahrenheit), and relative humidity (as percentage) are presented in Table 3-1. Readings were generally within acceptable guidelines in those areas occupied by the facility staff.

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

No damaged suspect asbestos containing materials were observed during the evaluation.

A single paint chip sample was collected from the wall in the drill hall and did not indicate lead levels above the reporting limit of 0.0083% lead.

Limited water damage with no visible mold growth was observed during the survey. Water intrusion is a mold growth risk factor.



The Heating, Ventilation & Air Conditioning (HVAC) system in the building consists of a boiler room that feeds radiant heaters throughout the building. The air conditioning units in operation at the facility are roof mounted and were not accessed as part of this survey.

1.0 Facility Description and Operations

The Staunton Readiness Center was originally constructed in 1957. Two additions have been added since that time, one in mid 1970's and one in the mid 1980's. The existing facility is approximately 25,000 square feet of masonry block construction with brick façade. The sections occupied by Readiness Center personnel consists of three rooms configured as office space and is finished with; acoustical drop ceilings, and floor tile.

The primary activity at the Staunton Readiness Center is routine administrative duties. The Staunton Readiness Center is currently staffed by approximately 30 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 multiple areas of the facility following the Occupational Safety & Health Administration (OSHA) wipe sampling method and using Ghost Wipes.

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

Table 2-1: Lead Wipe Sample Results

Sample Number	Sample Location	Lead Concentration
001	Post fan air intake in boiler room	<110 ug/ft ²
002	Top of air duct in boiler room	<110 ug/ft ²
003	Top of Pepsi machine drill floor	<110 ug/ft ²
004	Top of roll up window in kitchen	<110 ug/ft ²
005	Air supply in orderly room 82	<110 ug/ft ²
006	Desk surface from drill floor	<110 ug/ft ²
007	Top of cabinet room 350	<110 ug/ft ²
008	Inside foyer hallway floor	<110 ug/ft ²
009	Foyer floor level vent	<110 ug/ft ²
010	Vent duct former range	<110 ug/ft ²
011	Overhead heater former range	<110 ug/ft ²
012	Bullet trap	<110 ug/ft ²
013	Storage shelf former firing range	<110 ug/ft ²
014	Floor former range	<110 ug/ft ²
015	Floor outside former range	<110 ug/ft ²

ug/ft² = Micrograms per square foot.

Wipe samples collected in association with most administrative areas indicated lead levels below the Occupational Safety and Health Administration's (OSHA's) Clarification of "as free as practicable" and lead contamination under 29 CFR 1926.62, The Compliance Directive for the Interim Standard for Lead in Construction, CPL 2-2.58. OSHA recommends the use of HUD's acceptable decontamination level of 200 ug/ft² for floors in evaluating the cleanliness of change areas, storage facilities, and lunchrooms/eating areas.

Wipe samples collected in converted indoor firing range (IFR) were all below the action level of 200 micrograms per square foot (ug/ft²) per NG-PAM 420-15. Laboratory analytical results are presented in Appendix C.

2.1.2 Air Sampling

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

3.0 Physical Condition of Facility and Personnel Concerns

3.1.1 Lead Based Paint

Interior surfaces of walls are coated with paint. The paint on the walls was observed to be peeling on the drill floor walls in small quarter size patches. A sample of this paint was collected and determined to be below the detectable concentration of 0.0083% lead..

3.1.2 Suspect Asbestos Containing Materials

AECOM did not observe damaged, friable suspect asbestos-containing materials (ACM) in readily accessible areas of the Staunton Readiness Center during this survey.

Typical suspect miscellaneous building materials observed but not sampled include drywall, floor tiles and associated mastic, cove base and associated mastic, ceiling tiles, carpet mastic, and window caulks.

3.1.3 Water Damage/Mold

AECOM observed evidence of water intrusion during this survey. There was visible staining in the basement storage area of the facility. The extent was limited but could prove problematic if not remedied.

3.1.4 Housekeeping

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

Instantaneous real-time reading for carbon monoxide and carbon dioxide (parts per million or ppm), temperature (° Fahrenheit), and relative humidity (as percentage) are presented in the following table. The facility is mechanically air conditioned. With the exception of some low relative humidity measurements and a few slightly elevated carbon dioxide measurements all readings were within acceptable guidelines. Site personnel have no complaints regarding IAQ at this time to warrant further investigations associated with the readings outside established parameters.

Table 3-1: Indoor Air Quality Monitoring Results

Location	Carbon Monoxide (ppm)	Carbon Dioxide (ppm)	Temp (°F)	Relative Humidity (%)
1 Sc's office	3.0	639	70.3	27.4
Orderly room	3.0	596	71.1	27.0
Office 350	2.7	647	72.0	23.4
Storage 140	2.5	709	72.4	27.9
Table storage 430	3.3	485	69.2	26.8
Office 213	2.4	770	69.9	26.1
Office 210	3.5	619	70.2	27.2
Office 213	2.4	720	70.2	23.8
Office 196A	2.4	691	70.0	26.6
Office 196B	2.2	696	69.8	22.6
Office 196C	2.4	542	70.3	24.9
Storage 173	2.3	505	70.2	28.6
Kitchen 314	2.4	525	70.0	21.4
Kitchen 201	2.4	458	68.9	19.9
Kitchen storage	2.3	874	68.9	21.2
Storage 712	1.8	646	69.6	27.9
Drill floor	2.0	464	70.3	20.0
Boiler room	1.9	537	64.1	19.9
Computer room	2.0	501	63.9	33.5
Woman restroom	0.8	578	68.5	33.2
Men restroom	1.3	767	69.0	66.5
Foyer	2.4	812	71.3	32.8
Office 286	2.5	671	72.0	30.9
Office 262	2.4	703	71.6	26.9
Office 253	2.8	651	70.9	27.0
Office 281	3.3	788	71.2	27.7
Office 378	2.4	700	71.4	27.3
Office 425	2.4	581	71.8	27.9
Office 191	2.4	731	71.8	26.9
Office 221	2.4	611	71.9	26.1
Office 200A	2.4	591	71.4	26.0
Office 200B	2.4	637	70.9	26.8
Office 171	2.4	681	69.8	27.7
Office 353	2.3	527	69.9	26.2
Office 197B	1.9	643	70.2	29.4
Office 197C	2.5	603	71.2	27.1
Hallway	2.4	618	70.9	26.8
Office 398	2.2	701	71.2	24.6
Storage	1.8	662	71.5	25.2
Office	1.8	654	70.5	20.8
Classroom	2.4	585	69.9	26.3
Storage	2.4	496	68.0	28.8

Location	Carbon Monoxide (ppm)	Carbon Dioxide (ppm)	Temp (°F)	Relative Humidity (%)
Stairwell	1.5	592	67.9	21.1
Conference 1204	1.7	814	69.3	17.8
Office 337	1.8	888	69.5	23.9
Office 183B	1.8	730	69.5	24.1
Office	1.8	750	69.6	23.6
Office 122	1.8	708	69.6	23.2
Classroom 16	2.1	536	68.2	18.3
Office 124B	1.9	593	68.3	23.5
Office 245	1.6	772	69.7	21.3
Office 263	2.6	624	69.6	19.0
Office 333	1.8	748	70.3	20.8
Office 341	1.8	686	70.5	18.3
Office 428	1.8	570	70.5	17.1
Latrine 162	2.1	840	70.7	34.3
Office 829	2.1	654	70.5	21.8
Office 158	1.8	564	70.6	39.7
Stairwell	1.9	571	70.6	20.6
Storage 183	2.1	578	69.9	33.6
Basement 1465	2.0	576	68.4	32.6
Basement 165	1.5	427	68.2	32.0
Basement 192	1.7	426	67.8	29.9
Basement	1.9	425	65.6	31.8
<p>Table 3-1 Guidelines:</p> <p>Carbon Monoxide: Office/Warehouse Space – 9 ppm based on United States Environmental Protection Agency's National Ambient Air Quality Standard.</p> <p>OSHA Permissible Exposure Limit (PEL) = 50 ppm. American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit value (TLV) = 25, ppm.</p> <p>Carbon Dioxide: Office Space -Approximately 700 ppm above background (Derived from American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE) Standard 62.1-2010). Not Applicable to warehouse and vehicle maintenance bays.</p> <p>Relative Humidity: Mechanically air-conditioned space – Maximum 65% (Derived from ASHRAE Standard 62.1-2010 – 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 55-2010)</p>				

Staunton 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.

Temperature readings were constant in all areas occupied by readiness center personnel.

4.1.2 HVAC Maintenance

The HVAC system is serviced by a third party vendor and records were not available during this survey.

There was no 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 typically inadequate in measured areas.

Table 5-1: Light Survey

Location	Results (Foot candles)	Met Standard (Y/N)	Standard*
1 Sc's office	36.7	N	50
Orderly room	61.1	Y	50
Office 350	42.5	N	50
Storage 140	6.2	N	30
Table storage 430	3.0	N	30
Office 213	51.9	Y	50
Office 210	42.0	N	50
Office 213	33.9	N	50
Office 196A	26.0	N	50
Office 196B	26.9	N	50
Office 196C	24.1	N	50
Storage 173	4.5	N	30
Kitchen 314	32.6	N	50
Kitchen 201	8.0	N	50
Kitchen storage	20.6	Y	5
Storage 712	29.9	N	30
Drill floor	36.6	Y	10
Boiler room	1.6	N	30
Computer room	69.4	Y	50
Woman restroom	30.2	Y	5
Men restroom	17.9	Y	5
Foyer	18.6	Y	10
Office 286	33.7	N	50
Office 262	23.7	N	50
Office 253	17.1	N	50
Office 281	28.2	N	50
Office 378	28.5	N	50
Office 425	31.0	N	50
Office 191	22.1	N	50
Office 221	24.3	N	50
Office 200A	22.0	N	50
Office 200B	31.0	N	50
Office 171	11.7	N	50
Office 353	17.5	N	50
Office 197B	56.3	Y	50
Office 197C	37.0	N	50
Hallway	20.7	Y	5
Office 398	50.5	Y	50
Storage	19.6	N	30

Location	Results (Foot candles)	Met Standard (Y/N)	Standard*
Office	20.6	N	50
Classroom	26.6	N	30
Storage	6.0	N	30
Stairwell	132.4	Y	5
Conference 1204	23.4	N	30
Office 337	29.9	N	50
Office 183B	42.1	N	50
Office	28.0	N	50
Office 122	56.3	Y	50
Classroom 16	21.4	N	30
Office 124B	31.9	N	50
Office 245	54.9	Y	50
Office 263	29.3	N	50
Office 333	37.4	N	50
Office 341	40.1	N	50
Office 428	17.5	N	50
Latrine 162	22.2	Y	5
Office 829	15.1	N	50
Office 158	18.9	N	50
Stairwell	25.4	Y	5
Storage 183	27.1	N	30
Basement 1465	6.3	N	50
Basement 165	62.0	N	50
Basement 192	13.3	N	50
Basement	17.9	N	50
Office Lighting (ANSI/IESNA RP-1-04) and Industrial Lighting Facilities (ANSI/IESNA RP-7-01)			

6.0 Evaluation of Attached Garage

There is no garage associated with the Staunton 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 Staunton Readiness Center.

Lighting levels measured throughout the facility were generally not adequate as per American National Standard Institute/Illuminating Engineering Society of North America (ANSI/IESNA) RP-1-2004, Office Lighting, ANSI/IESNA RP-7-2001, Industrial Lighting, and the IESNA Lighting Handbook, 9th Edition, 11 April 2005. Areas with inadequate lighting levels shall upgrade lighting or provide additional task lighting as necessary.

Wipe samples collected in association with most administrative areas indicated lead levels below the Occupational Safety and Health Administration's (OSHA's) Clarification of "as free as practicable" and lead contamination under 29 CFR 1926.62, The Compliance Directive for the Interim Standard for Lead in Construction, CPL 2-2.58. OSHA recommends the use of HUD's acceptable decontamination level of 200 ug/ft² for floors in evaluating the cleanliness of change areas, storage facilities, and lunchrooms/eating areas. Indoor firing ranges shall be converted in accordance with NG PAM 240-15.

No damaged suspect asbestos containing materials were observed during the evaluation.

A single paint chip sample was collected from the wall in the drill hall and did not indicate lead levels above the reporting limit of 0.0083% lead.

No Indoor Air Quality concerns were noted by the Staunton Readiness Center personnel. Instantaneous real-time reading for carbon monoxide and carbon dioxide (parts per million or ppm), temperature (° Fahrenheit), and relative humidity (as percentage) are presented in Table 3-1. Readings were generally within acceptable guidelines in those areas occupied by the facility staff.

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

Limited water damage with no visible mold growth was observed during the survey. Water intrusion is a mold growth risk factor. Water leaks shall be identified and repaired, water stained ceiling tiles should be replaced.

The Heating, Ventilation & Air Conditioning (HVAC) system in the building consists of a boiler room that feeds radiant heaters throughout the building. The air conditioning units in operation at the facility are roof mounted and were not accessed as part of this survey.

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.

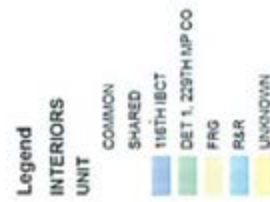
Appendix A

Staunton Readiness Center Facility Layout

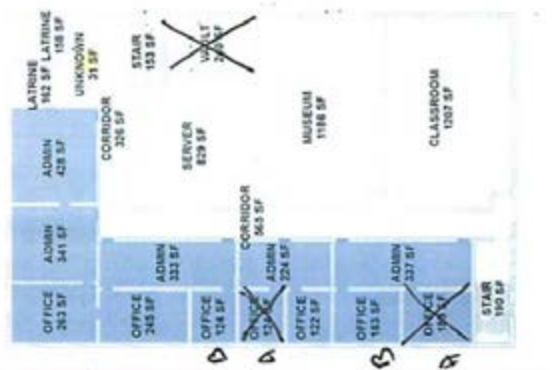
STAUNTON ARMORY, BASEMENT FLOOR



<https://vko.va.ngb.army.mil/gstaff/va/fm/Documents/20-9-20Plans/20and/20Programming/GIS/ARMORIES,%20USAGE%20...> 11/8/2012



<https://s.ko.va.ngb.army.mil/gstaff/vafm/Documents%20-%20Plans%20and%20Programming/GIS/ARMORIES,%20USAGE%...> 11/8/2012



Legend
INTERIORS
UNIT

COMMON	116TH IBC
SHARED	DET 1, 225TH MP CO
	FRG
	R&R
	UNKNOWN

<https://eko.va.ngb.army.mil/gstaff/vafm/Documents%20-%20Plans%20and%20Programming/GIS/ARMORIES,%20USAGE%...> 11/8/2012

Appendix B

Staunton Readiness Center Photographs

Photograph 1



Staunton building

Photograph 2



Moisture intrusion SE wall basement storage

Photograph 3



Drill floor

Photograph 4



Wipe sample location from drill floor

Photograph 5



Kitchen wipe sample from top of roll-up

Photograph 6



Typical

hallway/wipe sample just off main foyer

Photograph 7



Foyer

Photograph 8



Damaged 9X9 tile in drill hall

Photograph 9



Peeling paint in drill floor area

Photograph 10



Boiler room wipe location

Photograph 11



Boiler room wipe sample location

Photograph 12



Boiler room

Photograph 13



Vent former range

Appendix C

Analytical Results

AMA Analytical Services, Inc.



A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS



Client:	National Guard Bureau	Job Name:	VA ANG III Survey	Chain Of Custody:	514722
Address:	301-1H Old Bay Lane, Attn: ARNG-CIG-P, State Military Reservation Havre de Grace, Maryland 21078	Job Location:	Staunton RC	Date Submitted:	12/12/2012
		Job Number:	Not Provided	Person Submitting:	AECOM
		P.O. Number:	W912K6-09-A-0003	Date Analyzed:	12/18/2012
				Report Date:	12/19/2012

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
13021926	001	Flame	Wipe	****	0.111	110 ug/ft ²	25	220 ug/ft ²	
13021927	002	Flame	Wipe	****	0.111	110 ug/ft ²	120	1100 ug/ft ²	
13021928	003	Flame	Wipe	****	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13021929	004	Flame	Wipe	****	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13021930	005	Flame	Wipe	****	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13021931	006	Flame	Wipe	****	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13021932	007	Flame	Wipe	****	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13021933	008	Flame	Wipe	****	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13021934	009	Flame	Wipe	****	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13021935	010	Flame	Wipe	****	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13021936	011	Flame	Wipe	****	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13021937	012	Flame	Wipe	****	0.111	110 ug/ft ²	57	510 ug/ft ²	
13021938	013	Flame	Wipe	****	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13021939	014	Flame	Wipe	****	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13021940	015	Flame	Wipe	****	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13021941	016	Flame	Paint Chip	****	N/A	0.0083 %Pb		<0.0083 %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.

An AIHA (#100470) and NY ELAP (#10920) Accredited Laboratory

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

AMA Analytical Services, Inc.

A Specialized Environmental Laboratory
CERTIFICATE OF ANALYSIS


LAB #100476

Client:	National Guard Bureau	Job Name:	VA ANG IH Survey	Chain Of Custody:	514722
Address:	301-1H Old Bay Lane, Attn: ARNG-CJG-P, State Military Reservation	Job Location:	Stamton RC	Date Submitted:	12/12/2012
	Havre de Grace, Maryland 21078	Job Number:	Not Provided	Person Submitting:	AECOM
		P.O. Number:	W912K6-09-A-0003	Date Analyzed:	12/18/2012
				Report Date:	12/19/2012

Attention:

**Non-
R I**
Summary of Atomic Absorption Analysis for Lead

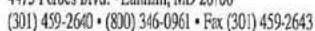
Page 2 of 2

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)-7000B; Water: SM-3111B Analysis Method For Furnace: Air, Wipes, Paints, and Soil/Solids : EPA 600/R-93/200(M)-7010; Water: SM-3113B N/A = Not Applicable mg/Kg = parts per million (ppm) on a dry weight basis mg/L = parts per million (ppm) %Pb = percent lead on a dry weight basis ug = micrograms ug/L = parts per billion (ppb) Note: All samples were received in good condition unless otherwise noted. Note: All results have two significant digits. Any additional digits shown should not be considered when interpreting the result. Air and Wipe results are not corrected for any blank results Final results for air and wipe samples are based on client supplied information not verified by this laboratory. All results are to be considered preliminary and subject to change unless signed by the Technical Director or Deputy.							See QC Summary for analytical results of quality control samples associated with these samples.		
Analyst: 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.

An AIHA (#100470) and NY ELAP (#10920) Accredited Laboratory

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



514722

Signature: **Non-Responsive**

LABORATORY
STAFF ONLY:
(CUSTODY)

Surface Sampling Field Data Sheet

Date Collected: 11/08/12

Job Name: STANLEY PC

Company: H&B Page 1 of 1

Job Number: 2012-0569

Job Location: STANTON VA

Phone Number: 434-964-6082

Contact Person: Non-Respon

Address: 501 Thimble Ridge Avenue

Collected By: Non-Respon

STANTON VA 22401

COC Number:

Sample Number	Sample Location	Surface/Substrate Sampled	Area Wiped (in ² /ft ²)	Collection Media
001	Post fan intake air unit in Boiler Room			
002	Top of air duct Boiler Room	Metal	16 in ²	Wipe
003	Top of post machine Drill Floor	Metal		
004	Top of Roll up Window see photo #5	Metal		
005	Air Handler Unit in ordery Room Area	Metal		
006	Drill Surface corner of Drill Floor	Drill		
007	Top of cabinet "Office 350"	Fil. Cabinet Top		
008	Inside Foyer Hallway Floor	Tile		
009	Foyer Floor Level Unit	Metal		
010	Unit Door firing Range	Metal		
011	Overhead - Hunter	Metal		
012	BULLET TRAP	Metal		
013	Storage Shelf Firing Range	Metal		
014	Floor Firing Range	Tile		
015	Floor outside Range door	Tile		
016	Lead paint chip from wall in Drill hall	Paint chip		Paint chip

Please Return Samples To:

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

Appendix D

References

References

1. Title 29, Code of Federal Regulations (CFR), Part 1910, Occupational Safety and Health Administration, current Ed. <http://www.osha.gov/comp-links.html>
2. Department of Defense Instruction (DODI) 6055.1, Department of Defense Occupational Safety and Health (OSH) Program, August 19, 1998. <http://www.dtic.mil/whs/directives/corres/pdf/605501p.pdf>
3. Army Regulation (AR) 11-34, The Army Respiratory Protection Program, 15 February 1990. http://armypubs.army.mil/epubs/pdf/R11_34.PDF
4. AR 40-5, Medical Service, Preventive Medicine, 25 May 2007. http://armypubs.army.mil/epubs/pdf/R40_5.PDF
5. AR 385-10, The Army Safety Program, 23 August 2007; Rapid Action Revision (RAR) issue date: 4 October 2011. http://armypubs.army.mil/epubs/pdf/R385_10.PDF
6. Department of the Army Pamphlet (DA PAM) 40-501, Medical Services, Hearing Conservation Program, 10 December 1998. http://armypubs.army.mil/epubs/pdf/P40_501.pdf
7. DA PAM 40-11, Preventive Medicine, 22 July 2005, RAR issue date: 19 October 2009. http://armypubs.army.mil/epubs/pdf/p40_11.pdf
8. DA PAM 40-503, Medical Services, Industrial Hygiene Program, 30 October 2000. http://armypubs.army.mil/epubs/pdf/P40_503.PDF
9. UFC 3-410-01FA, Heating, Ventilating, and Air Conditioning, 15 May 2003, change 4, January 2010. http://www.wbdg.org/ccb/DOD/UFC/ufc_3_410_01fa.pdf
10. Threshold Limit Values (TLVs) and Biological Exposure Indices (BEIs), American Conference of Governmental Industrial Hygienists (ACGIH), current Ed.
11. Industrial Ventilation – A Manual of Recommended Practice for Design, ACGIH, current Ed.
12. American National Standards Institute (ANSI)/International Safety Equipment Association (ISEA) Z358.1-2009, Emergency Eyewash and Shower Equipment.
13. ANSI/American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. (ASHRAE) 55-2010, Thermal Environmental Conditions for Human Occupancy.
14. ANSI/ASHRAE 62.1-2010, Ventilation for Acceptable Indoor Air Quality.
15. RP-1-2004, Office Lighting, ANSI/IESNA.
16. RP-7-2001, Industrial Lighting, ANSI/IESNA, change 20 July 2004.
17. OSHA Instruction Letter 02-02-058, Lead Exposure in Construction, Office of Health Compliance Assistance, 13 December 1993.
18. OSHA Standard Interpretation, Clarification of “as free as practicable” and lead contamination under 29 CFR 1926.62, dated January 13, 2003.
19. NG PAM 420-15, Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges, 3 November 2006. http://www.ngbpdcc.ngb.army.mil/pubs/420/ngpam420_15.pdf

Shaw Environmental, Inc.

312 Directors Drive
Knoxville, TN 37923
865.690.3211
Fax 865.690.3626



**National Guard Armory
Warrenton Readiness Center
Warrenton, Virginia**

Industrial Hygiene Evaluation

Prepared for:

**National Guard Region North Industrial Hygiene Office
Havre De Grace, Maryland 21078**

Prepared by:

**Shaw Environmental, Inc.
312 Directors Drive
Knoxville, Tennessee 37923**

24 June 2004

**National Guard Armory
Warrenton Readiness Center
Warrenton, Virginia**

Industrial Hygiene Evaluation

Prepared for:

**National Guard Region North Industrial Hygiene Office
Havre De Grace, Maryland 21078**

Prepared by:

**Shaw Environmental, Inc.
312 Directors Drive
Knoxville, Tennessee 37923**

24 June 2004

Prepared by:

Non-Responsive

Reviewed by:

Non-Responsive

Business Line Manager

Table of Contents

<i>Table of Contents</i>	<i>i</i>
<i>List of Tables</i>	<i>ii</i>
<i>List of Appendices</i>	<i>ii</i>
<i>Executive Summary</i>	<i>E-1</i>
<i>1.0 Introduction</i>	<i>1-1</i>
<i>2.0 Findings, Discussion, and Interpretation of Results</i>	<i>2-1</i>
<i>2.1 Sampling for Lead</i>	<i>2-1</i>
<i>2.1.1 Wipe Sampling</i>	<i>2-1</i>
<i>2.1.2 Air Sampling for Lead</i>	<i>2-2</i>
<i>2.2 Physical Condition of Facility</i>	<i>2-2</i>
<i>2.2.1 Peeling Paint - Lead</i>	<i>2-2</i>
<i>2.2.2 Visual Inspection - Asbestos</i>	<i>2-2</i>
<i>2.2.3 Visual Inspection - Water Damage and Mold</i>	<i>2-2</i>
<i>2.2.4 Visual Inspection - Housekeeping</i>	<i>2-3</i>
<i>2.3 Building Concerns</i>	<i>2-3</i>
<i>2.3.1 Ergonomic Concerns</i>	<i>2-3</i>
<i>2.3.2 Indoor Air Quality</i>	<i>2-3</i>
<i>2.4 Safety and Industrial Hygiene Programs</i>	<i>2-3</i>
<i>2.5 Ventilation</i>	<i>2-3</i>
<i>2.5.1 Ventilation System Evaluation</i>	<i>2-3</i>
<i>2.5.2 Contamination of Clean Air Sources</i>	<i>2-4</i>
<i>2.6 Noise Exposure</i>	<i>2-4</i>
<i>2.7 Lighting</i>	<i>2-4</i>
<i>2.8 Converted Indoor Firing Ranges</i>	<i>2-4</i>
<i>2.9 HVAC Systems</i>	<i>2-5</i>
<i>2.10 IHIM</i>	<i>2-5</i>
<i>3.0 Conclusions</i>	<i>3-1</i>
<i>Tables</i>	<i>Follows Section 3.0</i>
<i>Appendices</i>	<i>Follows Tables</i>

List of Tables

Table 1	Wipe Sampling for Lead
Table 2	Air Sampling for Lead
Table 3	Indoor Air Quality Measurements
Table 4	Illumination Readings
Table 5	Indoor Firing Ranges – Wipe Sampling

List of Appendices

Appendix A	IIIM Data Form
Appendix B	Building Layout
Appendix C	Sampling Sheets and Laboratory Analyses
Appendix D	References
Appendix E	Recommendations for Surface Lead Dust in Armories

Executive Summary

Shaw Environmental, Inc. (Shaw) was contracted to perform an industrial hygiene evaluation for the Warrenton Readiness Center in Warrenton, Virginia. [Non-Responsive] performed the evaluation on 29 January 2004. The point of contact at the readiness center was SFC [Non-Responsive]
R

The following industrial hygiene concerns were evaluated.

- Wipe Sampling for Lead
- Air Sampling for Lead
- Peeling Paint -- Lead
- Suspected Asbestos Containing Material
- Water Damage
- Presence of Mold
- Housekeeping
- Ergonomic Concerns
- Indoor Air Quality
- Safety and Industrial Hygiene Programs
- Ventilation System Evaluation
- Contamination of Clean Air Sources
- Noise Exposure
- Lighting
- Converted Indoor Firing Range
- HVAC Systems

The following items were either not applicable to the armory or the evaluation resulted in a conclusion that there were no industrial hygiene concerns.

- Air Sampling for Lead
- Peeling Paint -- Lead
- Suspected Asbestos Containing Material
- Presence of Mold
- Housekeeping
- Ergonomic Concerns

- Safety and Industrial Hygiene Programs
- Ventilation System Evaluation
- Contamination of Clean Air Sources
- Noise Exposure
- HVAC Systems

Areas where there were industrial hygiene concerns are as follows:

- Wipe sampling for lead revealed concentrations above a level of 40 micrograms per square foot ($\mu\text{g}/\text{ft}^2$) in the drill floor/assembly hall area and the converted firing range. Areas with lead concentrations above 40 $\mu\text{g}/\text{ft}^2$ that will be accessible to children should be cleaned. If a special function is held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function.
- Water damage was observed at several locations at the armory. The source of the water damage was likely from a combination of roof and pipe leaks. The source of the water damage should be confirmed and actions taken to eliminate the source in order to prevent the possibility of mold growth that may lead to indoor air quality problems.
- Measurements for humidity revealed that levels did not meet the recommended level of 30% in the facility. It is recommended that a humidification system be installed at the facility.
- Lighting measurements were conducted at the armory. The lighting did not meet minimum requirements in some areas; therefore consideration should be given to providing more lighting in these areas. This may be accomplished by replacing burnt out luminaires, cleaning fixtures, cleaning windows, painting walls with a lighter color, repositioning detailed work to higher illuminated areas, and using supplemental lighting.
- Wipe sampling for lead in the converted firing range revealed concentrations above the recommended level. These areas must be decontaminated by a thorough cleaning until surface lead concentrations are reduced to below recommended levels. Housekeeping should be maintained to insure that lead levels are kept as low as possible.

1.0 Introduction

Shaw Environmental, Inc. (Shaw) was contracted to perform an industrial hygiene evaluation for the Warrenton Readiness Center in Warrenton, Virginia. Non-Responsive performed the evaluation on 29 January 2004. The point of contact at the readiness center was SFC Non-Respon

The findings, discussion, and interpretation of results are provided in Section 2.0. The conclusions are provided in Section 3.0. The HHIM data form for the facility is provided in Appendix A. The building layout is provided in Appendix B. Sampling sheets and laboratory analyses are provided in Appendix C. References are provided in Appendix D. The *Recommendations for Surface Lead Dust in Armories* document is provided in Appendix E.

The statements, opinions, and conclusions contained in this report are based solely upon the services performed by Shaw as described in the report. In performing these services and preparing the report, Shaw Environmental, Inc. relied upon the work and information provided by others, including public agencies, whose information is not guaranteed by Shaw Environmental, Inc.

2.0 Findings, Discussion, and Interpretation of Results

The results, discussion, and interpretation of results are provided in the following sections.

2.1. Sampling for Lead

2.1.1 Wipe Sampling

Wipe samples were collected for lead from the drill floor/assembly area. Also, wipe samples were collected for lead in rooms, hallways, foyers, etc. The sampling in rooms, hallways, foyers, etc. represented approximately 25% of the building.

Approximately half of the samples were collected from surfaces in common areas, such as surfaces of a desk. The remaining samples were collected from uncommon surface areas, such as a supply vent or the top of a file cabinet. The samples were collected and analyzed in accordance with the Instructions for *Completing the Sampling of ARMY National Guard Armories* procedure.

The only samples initially submitted for analysis were those from the drill floor/assembly hall. If there were any results above the recommended level from the drill floor/assembly hall, the other samples would have been submitted for analysis.

Results of the wipe sampling are provided in Table 1. The results revealed lead at all locations sampled at concentrations below recommended level of 200 micrograms lead per square foot ($\mu\text{g}/\text{ft}^2$) (See Appendix E); therefore, no actions are necessary. Since the levels were below the recommended level, the other samples were not submitted for analysis.

However, wipe sampling for lead revealed concentrations above a level of $40 \mu\text{g}/\text{ft}^2$ in the drill floor/assembly hall area and the converted firing range. Please note that the *Recommendations for Surface Lead Dust in Armories* (Appendix E) states that all areas with lead concentrations above $40 \mu\text{g}/\text{ft}^2$ that will be accessible to children should be cleaned. If a special function is held in which children will be present in

this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function.

2.1.2 Air Sampling for Lead

General area air sampling was conducted at the facility. Please note that no employees were available to be monitored. The samples were collected and analyzed in accordance with Method 7082 of the National Institute of Occupational Safety and Health (NIOSH) Manual of Analytical Methods.

The results of the sampling are provided in Table 2. The results revealed non-detectable concentrations of lead; therefore, no actions are necessary.

2.2 Physical Condition of Facility

2.2.1 Peeling Paint - Lead

Peeling paint was not observed at the armory; therefore, bulk samples for lead in paint were not taken.

2.2.2 Visual Inspection - Asbestos

A visual inspection was made to determine if there was any suspected asbestos-containing material at the armory. The inspection did not reveal any materials suspected of containing asbestos.

2.2.3 Visual Inspection – Water Damage and Mold

A visual inspection was made to determine if there was any water damage or visible mold at the armory. Visible mold was not observed, however, water damage was observed at the armory. The water damage was observed in the supply SGT office, PLT classrooms 1-3, Virginia defense force office, CDR's office, readiness NCO office, and the scullery.

The source of the water damage was likely from a combination of roof and pipe leaks. The source of the water damage should be confirmed and actions taken to eliminate the source in order to prevent the possibility of mold growth that may lead to indoor air quality problems.

2.2.4 Visual Inspection - Housekeeping

The housekeeping was determined to be good.

2.3. Building Concerns

2.3.1 Ergonomic Concerns

Interviews with employees and observation of work activities revealed no ergonomic concerns at the armory.

2.3.2 Indoor Air Quality

Interviews with employees and measurements for carbon dioxide and temperature revealed no indoor air quality concerns at the armory. However, measurements for humidity revealed that levels did not meet the recommended level of 30% in the facility. It is recommended that a humidification system be installed at the facility.

The results of the measurements for carbon dioxide, humidity, and temperature are provided in Table 3.

2.4. Safety and Industrial Hygiene Programs

An evaluation was performed to determine the applicability of the following programs.

- Confined Spaces
- Hearing Conservation
- Respiratory Protection
- Hazard Communication (HAZCOM)
- Personal Protective Equipment (PPE)

It was determined that none of the programs were applicable at the armory.

2.5. Ventilation

2.5.1 Ventilation System Evaluation

There were no local exhaust ventilation systems at this armory; therefore, no ventilation studies were performed.

2.5.2 Contamination of Clean Air Sources

Since there were no local exhaust ventilation systems at the armory, there was no possibility that clean air sources could be contaminated by exhaust air.

2.6. Noise Exposure

An evaluation was performed to determine if there were any hazardous noise areas at the armory. It was determined that there were no areas at the armory that would exceed the permissible exposure limit for noise.

2.7. Lighting

Lighting measurements were conducted at the armory. Results of the lighting evaluation are provided in Table 4. As can be seen from the results, the lighting did not meet the minimum requirements in some areas, including the Virginia defense force office, PLT classroom 1, PLT classroom 3, converted firing range, CDR's office, and lobby.

Consideration should be given to providing more lighting to these areas. This may be accomplished by replacing burnt out luminaries, cleaning fixtures, cleaning windows, painting walls with a lighter color, repositioning detailed work to higher illuminated areas, and using supplemental lighting.

2.8. Converted Indoor Firing Ranges

There was a converted indoor firing range at the facility; therefore, wipe samples were taken for lead at various locations in or near the converted range. The space is used as a meeting place for weight watchers, Pauquier church, and other business in the city of Warrenton. The results are provided in Table 5. The results revealed lead, with associated concentrations, at the following locations:

- exhaust ventilation system at 400 micrograms lead per square foot ($\mu\text{g}/\text{ft}^2$);
- bullet trap at 22 $\mu\text{g}/\text{ft}^2$;
- light fixtures at 330 $\mu\text{g}/\text{ft}^2$;
- stored item at 14 $\mu\text{g}/\text{ft}^2$;
- floor (inside the converted firing range) at 14 $\mu\text{g}/\text{ft}^2$; and
- floor (outside the converted firing range) at 12 $\mu\text{g}/\text{ft}^2$

The lead levels at two of these locations were above the recommended level of 200 $\mu\text{g}/\text{ft}^2$, a level recommended in the *Guidelines for Converting Indoor Firing Ranges to Other Uses* document (NG PAM 385-15). These areas must be decontaminated by a thorough cleaning until surface lead concentrations are reduced to below recommended levels. Housekeeping should be maintained to insure that lead levels are kept as low as possible. For guidance on the proper method of cleaning, please refer to NG PAM 385-15 (*Guidelines and Procedures for Indoor Firing Range (IFR) Rehabilitation, Conversion, and Cleaning*).

2.9. HVAC System

The maintenance schedule for the HVAC system was evaluated to verify that maintenance occurs on a regular basis. Also, the condition of the HVAC system was evaluated to determine if the maintenance performed is effective. It was deemed that maintenance occurs on a regular basis, and the maintenance performed is effective.

2.10. HHIM

A Health Hazard Information Module (HHIM) form was completed for the armory. The completed form is provided in Appendix A.

3.0 Conclusions

It is concluded that there were no industrial hygiene concerns at the armory with regards to atmospheric exposure to lead, peeling lead-based paint, suspected asbestos-containing material, visible mold, housekeeping, ergonomic conditions, safety and industrial hygiene programs, ventilation systems or contamination of clean air sources, noise exposure, and HVAC systems.

There were industrial hygiene concerns at the armory with regards to lead surface contamination, water damage, indoor air quality, surface lead contamination in the converted firing range, and lighting. These concerns are discussed in detail in Section 2.0 of this report.

TABLES

Table 1
Wipe Sampling for Lead
National Guard Armory
Warrenton, Virginia
Date of Sampling: 29 January 2004

Sample Number	Location	Results, $\mu\text{g}/\text{ft}^2$ ^a
VAWAR029-1	Drill Floor (kitchen service window) See Building Layout - Appendix B	57
VAWAR029-2	Drill Floor (vending machine top surface) See Building Layout - Appendix B	150
VAWAR029-3	Drill Floor (heat register top surface) See Building Layout - Appendix B	79
VAWAR029-4	Drill Floor (cable box to basketball net) See Building Layout - Appendix B	58
VAWAR029-5	Drill Floor (heat register top surface) See Building Layout - Appendix B	190
VAWAR029-6	Field Blank	0.82

^a Micrograms lead per square foot

The samples were taken and analyzed in accordance with the *Instructions for Completing the Sampling of ARMY National Guard Armories* procedure.

In armories that do not contain childcare facilities, the NGB Region North Industrial Hygiene Office recommends cleaning the areas with sample results greater than $200 \mu\text{g}/\text{ft}^2$

Table 2
Breathing Zone Air Samples for Lead
National Guard Armory
Warrenton, Virginia
Date of Sampling: 29 January 2004

Sample Number	Employee	Sampling Information			Results (mg/m ³) ^a
		Time Sampled / Minutes	Flow Rate (lpm) ^b	Volume (liters)	
VAWAR029-A1	General Air Sample	1530-1645/75	1.676	125.75	<0.008
VAWAR029-A2	General Air Sample	1535-1650/75	1.644	123.36	<0.008
VAWAR029-A3	Field Blank	-	-	-	None Detected

^a Milligrams lead per cubic meter of air.

^b Liters of air per minute.

Method 7082 of the National Institute of Occupational Safety and Health (NIOSH) Manual of Analytical Methods was followed for sampling for lead.

Table 3
Indoor Air Quality Measurements for Carbon Dioxide, Humidity, and Temperature
National Guard Armory
Warrenton, Virginia
Date of Sampling: 29 January 2004

Location	Occupants In Area	Carbon Dioxide, parts per million parts of air (ppm)	Percent (%) Humidity	Temperature (°F)
1 st Floor	1	322	20.7	68.2
Outdoors	-	253	20.3	49.3

Carbon dioxide, humidity, and temperature measurements were taken with a TSI Q Trak Plus, Model 8554, Indoor Air Quality Meter, calibrated in April 2003.

American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE) recommends that indoor carbon dioxide levels be less than 700 ppm above outdoor levels.

ASHRAE recommends that the relative humidity levels be maintained between 30 to 60 percent.

ASHRAE recommends that the acceptable temperature range be 68 degrees Fahrenheit to 74 degrees Fahrenheit in the winter and 73 degrees Fahrenheit to 79 degrees Fahrenheit in the summer.

Table 4
Illumination Readings
National Guard Armory
Warrenton, Virginia
Date of Sampling: 29 January 2004

Location	Luminance (fc) ^a	Standard (fc) ^a	Standard Met
Readiness NCO Office	66.6-88.8	70	Some Areas
Supply SGT Office	33.3-88.8	70	Some Areas
Men's Latrine	22.2-50	40	Some Areas
Women's Latrine	22.2-61.1	40	Some Areas
Virginia Defense Force Office	33.3-66.6	70	No
PLT Classroom 1	27.7-44.4	70	No
PLT Classroom 3	27.7-55.5	70	No
Converted Firing Range	33.3-61.1	70	No
Main Classroom	77.7-133.3	70	Yes
CDR's Office	27.7-55.5	70	No
Lobby	33.3-66.6	40	Some Areas
Hallways	27.7-66.6	7.5	Yes

^a fc - Footcandles

The readings were taken with a Weston model 614-60 Lightmeter.

The standards listed above are from ANSI/IES RP-1 and RP-7.

Table 5
Wipe Sampling for Lead – Converted Firing Range
National Guard Armory
Warrenton, Virginia
Date of Sampling: 29 January 2004

Sample Number	Location	Results, $\mu\text{g}/\text{ft}^2$ ^a
VAWAR029-15	Exhaust Ventilation System	400
VAWAR029-16	Bullet Trap	22
VAWAR029-17	Light Fixtures	330
VAWAR029-18	Field Blank	0.46
VAWAR029-19	Stored Item	14
VAWAR029-20	Floor (inside the converted firing range)	14
VAWAR029-21	Floor (outside the converted firing range)	12

^a Micrograms lead per square foot

The samples were taken and analyzed in accordance with the instructions for *Completing the Sampling of ARMY National Guard Armories* procedure.

Appendix A

HHIM Data Form(s)

HEALTH HAZARD INFORMATION MODULE: INDUSTRIAL HYGIENE SURVEY

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

SECTION 1. DEMOGRAPHIC DATA

ARLOC 24255	INSTALLATION APG-EA	BLDG/RM NO. WARRENTON
LOCATION/CODE ADMINISTRATIVE AREAS / AA	OPERATION/CODE ADMINISTRATIVE OPERATIONS / ADO	
SURVEY DATE 29 JANUARY 2004	EVALUATOR (Initials) Non-Responsive	
MACOM/CODE	SUBMACOM/CODE XX	SUPERVISOR SEC Non-Responsive
TELEPHONE/DSN NO. (540) 347 6362	UNIT/ORGANIZATION WARRENTON ARMORY	RAC 84
NO. CIV(S) 0	NO. MIL 1	NO. CONTRACTOR(S) 0
	NO. LOC(S) -	NO. OTHER -
FREQUENCY (hrs/day) 8		

SECTION 2. FACILITY DATA

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

SECTION 3. SURVEY DATA

CONTROLS PRESENT	EVALUATION	UNIT CODE	CONTROLS REQUIRED	STATUS

PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized)

GLOVES	R	U	RESPIRATOR	NIOSH TC NO.	MANUFACTURER	R	U
ACID			AIRLINE				
COLD SURFACES			ABRASIVE BLASTING HOOD				
HOT SURFACES			DISPOSABLE				
ABC AGENTS			FULL FACE AIR PURIFYING				
HL			1/2 FACE AIR PURIFYING				
SOLVENTS			POWERED AIR PURIFYING				
SURGICAL GLOVES			1/4 FACE AIR PURIFYING				
			SELF CONTAINED				

EYES/FACE	R	U	HEARING	R	U	BODY	R	U	HEAD/FIT	R	U
CHEMICAL SPLASH			CANAL CAPS			APRONS			COLD WEATHER BOOTS/HATS		
FULL FACE SHIELD			EAR PLUGS			COLD WEATHER CLOTHING			HARD HATS		
CHEMICAL/SAFETY			HELMETS			COVERALLS			IMPERMEABLE BOOTS		
SAFETY/IMPACT			MUFFS			FULL BODY SUIT			SAFETY/CONDUCTIVE SHOES		
WELDING HELMET			MUFF/EARPLUG COMBO			HEAT REFLECTIVE VEST/SUIT			SAFETY/NON-CONDUCTIVE SHOES		
			MUFF/EARPLUG W/TIME LIMIT			SAFETY BELT/HARNES					

SECTION 4. HAZARD INVENTORY DATA

CAS CODE	HAZARD DESCRIPTION	PAC	EPC
POVOT XXXX	VIDEO DISPLAY TERMINALS	3-LOW	D- UNCONTROLLED PHYSICAL
7439-92-1	LEAD, INORGANIC DUSTS & FUMES	2-MODERATE	C- UNCONTROLLED RESPIRATORY
1332-21-4	ASBESTOS	3-LOW	C- UNCONTROLLED RESPIRATORY
124-38-9	CARBON DIOXIDE	2-MODERATE	C- UNCONTROLLED RESPIRATORY
PO LIFTING	HEAVY LIFTING	2-MODERATE	D- UNCONTROLLED PHYSICAL
PO HEAT STR	HEAT STRESS	3-LOW	D- UNCONTROLLED PHYSICAL

SECTION 5. PERSONNEL DATA

LAST NAME	FIRST NAME	MI	SEX	SSN	CATEGORY
BEHOFF	ANDREW	J	M	—	MIL

SECTION 6. COMMENTS

No comments

See attached sheet

PRIVACY ACT STATEMENT

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

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

Det 1 Co. B 3/116th Infantry
Warrenton, Virginia

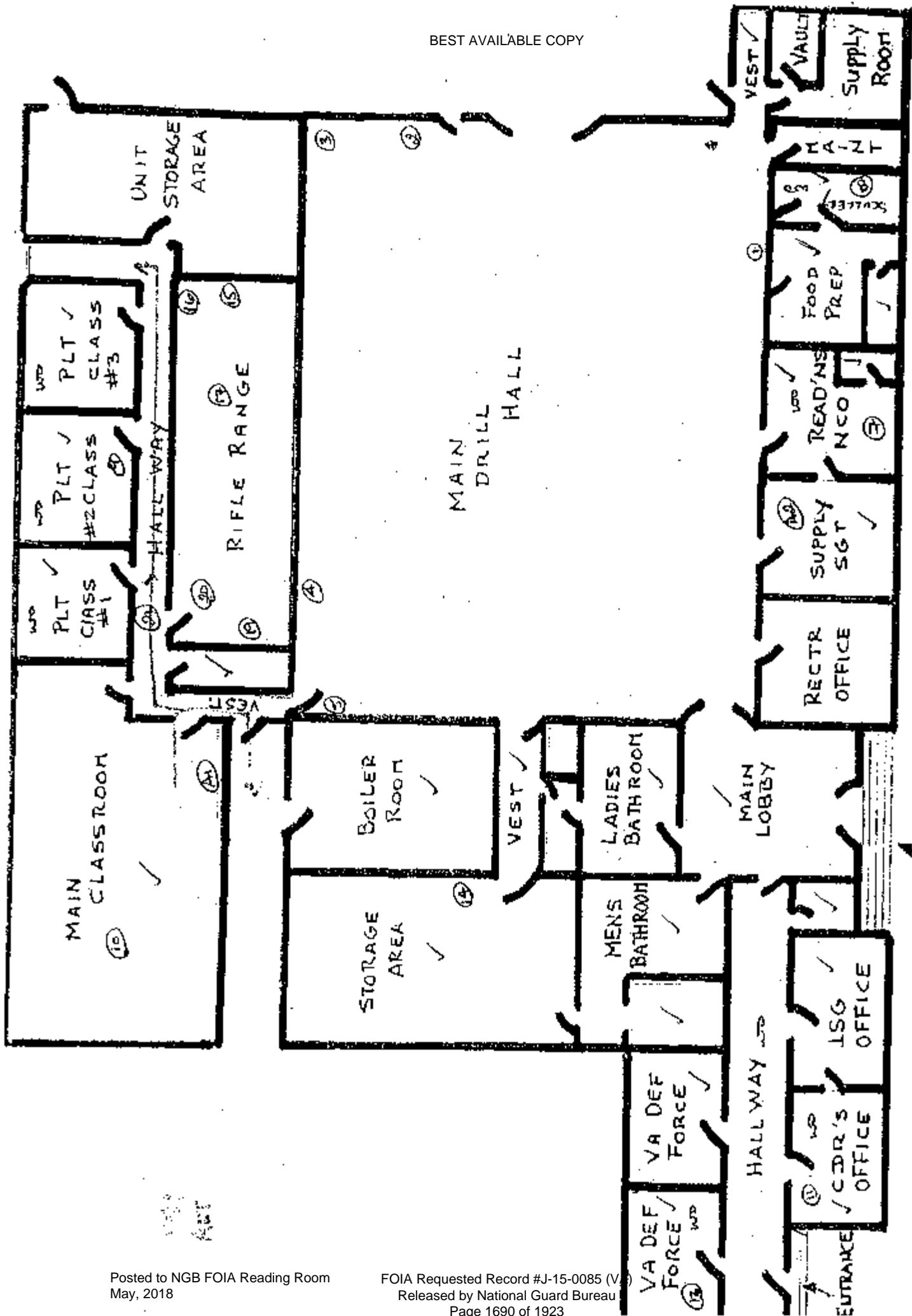
Non-Responsive

Recruiter

City of Warrenton
Weight Watchers
Fauquier Church

Appendix B

Building Layout



"FIRE EVACUATION PLAN"

Appendix C

Sampling Sheets and Laboratory Analyses

CERTIFICATE OF ANALYSIS

Client: National Guard Bureau
Address: 301-JH Old Bay Lane, Attn: NGB-AVN-SL, State Military Reservation
Havre de Grace, Maryland 21078
Job Name: VA WAR 029
Job Location: Warrenton, Virginia
Chain Of Custody: 122661
Date Analyzed: 02/07/2004
Person Submitting: **Responsible**
Report Date: 09-Feb-04

Attention: **Non Responsive**

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
0422954	VA WAR 029 1	Furnace	Wipe	****	0.111	6.75 ug/ft ²	57 ug/ft ²	
0422955	VA WAR 029 2	Furnace	Wipe	****	0.111	33.75 ug/ft ²	150 ug/ft ²	
0422956	VA WAR 029 3	Furnace	Wipe	****	0.111	13.50 ug/ft ²	79 ug/ft ²	
0422957	VA WAR 029 4	Furnace	Wipe	****	0.111	6.75 ug/ft ²	58 ug/ft ²	
0422958	VA WAR 029 5	Furnace	Wipe	****	0.111	33.75 ug/ft ²	190 ug/ft ²	
0422959	VA WAR 029 6	Furnace	Wipe Blank	****	N/A	0.30 ug	0.82 ug	
0422960	VA WAR 029 15	Furnace	Wipe	****	0.111	67.51 ug/ft ²	400 ug/ft ²	
0422961	VA WAR 029 16	Furnace	Wipe	****	0.111	2.70 ug/ft ²	22 ug/ft ²	
0422962	VA WAR 029 17	Furnace	Wipe	****	0.111	67.51 ug/ft ²	330 ug/ft ²	
0422963	VA WAR 029 18	Furnace	Wipe Blank	****	N/A	0.30 ug	0.46 ug	
0422964	VA WAR 029 19	Furnace	Wipe	****	0.111	2.70 ug/ft ²	14 ug/ft ²	
0422965	VA WAR 029 20	Furnace	Wipe	****	0.111	2.70 ug/ft ²	14 ug/ft ²	
0422966	VA WAR 029 21	Furnace	Wipe	****	0.111	2.70 ug/ft ²	12 ug/ft ²	

BEST AVAILABLE COPY

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.

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

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

Job Name: VA WAR 029
Job Location: Warrenton, Virginia
Job Number: 845702 01000000
P.O. Number: 1103

Chain Of Custody: 122661
Date Analyzed: 02/07/2004
Person Submitting: **Non Responsive**
Report Date: 09-Feb-04

Attention: **Non Responsive**

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 ug/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:

Non-Responsive

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.

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

BEST AVAILABLE COPY



TEST REPORT
Page 1 of 2
2/6/04

Submitted To:

Non-Responsive

Shaw Environmental, Inc.
5700 Thurston Ave., Suite 116
Virginia Beach, VA 23455

Reference Data:

Lead

Client Sample No.:	VAW00027A1 through VALEE028A3
P.O. No.:	1103
Sample Location:	Virginia
Sample Type:	Filter
Method Reference:	NIOSH 7300
DCL Set ID No.:	04-S-0488
DCL Sample ID No.:	04-02620 through 04-02635
Sample Receipt Date:	2/3/2004
Preparation Date:	02/04/04
Analysis Date:	02/05/04

The samples were prepared and analyzed in accordance with NIOSH method 7300 using a Perkin Elmer 3000XL ICP.

The sample condition upon receipt was acceptable except where noted.

The results are in the enclosed data table. Results relate only to the items tested and are not blank corrected unless indicated in the data table.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Non-Responsive

Analyst

Non-Responsive

Reviewer

CINCINNATI OFFICE
4385 GLENDALE-MILFORD ROAD
CINCINNATI, OHIO 45242-3708
513 733-5336, FAX 513 733-5347

Posted to NGB FOIA Reading Room
May, 2018

FOIA Requested Record #J-15-0085 (VA)
Released by National Guard Bureau
Page 1694 of 1923

WEST COAST OFFICE
11 SANTA YORMA COURT
NOVATO, CALIFORNIA 94945
800 280-8071, FAX 415 893-9468

BEST AVAILABLE COPY

TEST REPORT
Page 2 of 2
04-S-0488Results
Lead

Client #	DCL #	Sample Volume (L)	µg/sample	mg/m ³
VAW00027A1	04-02620	142.00	ND	<0.007
VAW00027A2	04-02621	140.00	ND	<0.007
VAW00027A3	04-02622	0	ND	-
VAFRE029A1	04-02623	277.06	ND	<0.004
VAFRE029A2	04-02624	296.60	ND	<0.003
VAFRE029A3	04-02625	0	ND	-
VAWAR029A1	04-02626	125.75	ND	<0.008
VAWAR029A2	04-02627	123.36	ND	<0.008
VAWAR029A3	04-02628	0	ND	-
VAMAN028A1	04-02629	218.41	ND	<0.005
VAMAN028A2	04-02630	225.70	ND	<0.004
VAMAN028A3	04-02631	0	ND	-
VALEE028A1	04-02633	192.77	ND	<0.005
VALEE028A2	04-02634	195.65	ND	<0.005
VALEE028A3	04-02635	0	ND	-
	Prep Blank		ND	
% Recovery	LCS		118.	
RPL			1.	

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

Non-Responsive

Analyst

Non-Responsive

Reviewer

1/29/2004

125.75 Liters

123,36 Liters

Appendix D

References

References

Title 29, Code of Federal Regulations CFR), Part 1910, Occupational Safety and Health Administration (current edition)

American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc (ASHRAE) 62-2002, Ventilation for Acceptable Indoor Air Quality

Instructions for Completing the Sampling of Army National Guard Armories, Lead Wipe Sampling Procedure included with the Request for Proposal

Air Sampling for Lead - Method 7082 of the National Institute of Occupational Safety and Health (NIOSH) Manual of Analytical Methods

Design Guide DG-415-2, Logistics Facilities, National Guard Bureau Installation Division, 14 December 1999

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

Army Regulation (AR) 40-5, Medical Service, Preventive Medicine, 15 October 1990

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

Department of the Army Pamphlet (DA PAM) 40-501, Medical Services, Hearing Conservation Program, 10 December 1998

DA PAM 40-503, Medical Services, Industrial Hygiene Program, 30 October 2000

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

Policy and Responsibilities for Inspection, Evaluation and Operation of Army National Guard Indoor Firing Ranges, Headquarters, Department of the Army, NG PAM (AR) 385-15, 30 December 2002

24 CFR, Part 35, Subpart B, Section 35-110, Definition of Lead-Based Paint, Housing and Urban Development, U. S. Department of Housing

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 $0.05 \text{ mg}/\text{m}^3$ averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead dust in this building.

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

NGB-AVS-SI (40-5f)

9 July 2004

MEMORANDUM FOR VAARNG, Warrenton Readiness Center, ATTN: SFC [Redacted] Non-Responsive
629 Waterloo Road, Warrenton, VA 22186

SUBJECT: Baseline Survey

1. I have enclosed the industrial hygiene survey report completed by Shaw Environmental, Incorporated.
2. In addition to the attached discussion and recommendations regarding wipe samples for lead, if a special function is held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function.
3. Please contact me at (410) 942-0273 or 1-800-550-6967 if you have any questions regarding the enclosed report.

Encl

[Redacted] Non-Responsive

Regional Industrial Hygienist

CF: Organizational Maintenance Officer
Occupational Health Manager

National Guard Armory
Warrenton Readiness Center, Warrenton, Virginia
Industrial Hygiene Evaluation

Recommendations

- Wipe sampling for lead revealed concentrations above a level of 40 micrograms per square foot ($\mu\text{g}/\text{ft}^2$) in the drill floor/assembly hall area and the converted firing range. Areas with lead concentrations above 40 $\mu\text{g}/\text{ft}^2$ that will be accessible to children should be cleaned. If a special function is held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function. **RAC - 5**
- Water damage was observed at several locations at the armory. The source of the water damage was likely from a combination of roof and pipe leaks. The source of the water damage should be confirmed and actions taken to eliminate the source in order to prevent the possibility of mold growth that may lead to indoor air quality problems. **RAC - 5**
- Measurements for humidity revealed that levels did not meet the recommended level of 30% in the facility. It is recommended that a humidification system be installed at the facility. **RAC - 5**
- Lighting measurements were conducted at the armory. The lighting did not meet minimum requirements in some areas; therefore consideration should be given to providing more lighting in these areas. This may be accomplished by replacing burnt out luminaires, cleaning fixtures, cleaning windows, painting walls with a lighter color, repositioning detailed work to higher illuminated areas, and using supplemental lighting. **RAC - 5**
- Wipe sampling for lead in the converted firing range revealed concentrations above the recommended level. These areas must be decontaminated by a thorough cleaning until surface lead concentrations are reduced to below recommended levels. Housekeeping should be maintained to insure that lead levels are kept as low as possible. **RAC - 4**

Shaw Environmental, Inc.

312 Directors Drive
Knoxville, TN 37923
865.690.3211
Fax 865.690.3626



Shaw Environmental, Inc.

*Survey 29 Jan 04
Revd 9 Apr 04
rev 6/11/04*

30 March 2004

Ms. **Non-Responsive** CIH
Regional Industrial Hygienist
Region North Industrial Hygiene Office
Attn: NGB-AVS-SI
301-IH Old Bay Lane
Havre De Grace, Maryland 21078

e-Mailed 6-17-04

RE: Draft Report for the Industrial Hygiene Evaluation at the Warrenton Readiness Center – Warrenton, Virginia

Dear Ms. **Non-Responsive**

Attached is a copy of the referenced report. Also attached is a copy of the field notes, photographs, and photograph log. Please call me if you have questions.

Sincerely,

Non-Responsive

Project Manager

Warrenton Armory Photo Log
National Guard Armory
Warrenton, Virginia
Date of Survey: 29 January 2004

Photo	Description
1	Lead Wipe Assembly Room - Kitchen Service Window - Sample 1
2	Lead Wipe Assembly Room - Vending Machine - Sample 2
3	Lead Wipe Assembly Room - Heat Register - Sample 3
4	Lead Wipe Assembly Room - Cable Box to Basketball Net - Sample 4
5	Lead Wipe Assembly Room - Heat Register - Sample 5
6	25% Building - Supply Sgt Office Window Sill - Sample 7
7	25% Building - Scullery Dishwasher - Sample 8
8	25% Building - PLT Classroom #2 Television - Sample 9
9	25% Building - Main Classroom Window Sill - Sample 10
10	25% Building - CDR Office Window Sill - Sample 11
11	25% Building - Va Defense Office Window Sill - Sample 13
12	25% Building - Locker Room Locker Top - Sample 14
13	Water Damage - Readiness NCO Office
14	Water Damage - Scullery
15	Water Damage - Va Defense Force Office
16	Water Damage - PLT Classroom
17	Water Damage - Main Classroom
18	Water Damage - PLT Classroom
19	Water Damage - PLT Classroom
20	Water Damage - PLT Classroom
21	Water Damage
22	Water Damage - CDR Office
23	Firing Range - Bullet Trap - Sample 16
24	Firing Range - Exhaust System - Sample 18
25	Firing Range - Light Fixtures - Sample 17
26	Firing Range - Stored Item - Sample 19
27	Firing Range - Floor Inside the Converted Firing Range - Sample 20
28	Firing Range - Floor Outside the Converted Firing Range - Sample 21

Field Notes and Checklist

State: VIRGINIA Location: WARRENTON ARMORY Date: JANUARY 29, 2004
 Contact: SFL Non-Responsive

1.0 Sampling for Lead

1.1 Wipe Sampling

Sample #:	<u>1</u>	Picture #:	<u>/</u>	Location:	<u>KITCHEN SERVICE WINDOW</u>
Sample #:	<u>2</u>	Picture #:	<u>/</u>	Location:	<u>VENDING MACHINE TOP</u>
Sample #:	<u>3</u>	Picture #:	<u>/</u>	Location:	<u>HEAT REGISTER TOP</u>
Sample #:	<u>4</u>	Picture #:	<u>/</u>	Location:	<u>CABLE BOX TO BASKETBALL NET</u>
Sample #:	<u>5</u>	Picture #:	<u>/</u>	Location:	<u>HEAT REGISTER TOP</u>
Sample #:	<u>6, 12</u>	Picture #:	<u>N/A</u>	Location:	<u>FIELD BLANK</u>
Sample #:	<u>7</u>	Picture #:	<u>/</u>	Location:	<u>SUPPLY SGT OFFICE WINDOW SILL</u>
Sample #:	<u>8</u>	Picture #:	<u>/</u>	Location:	<u>SCULLERY TOP OF DISHWASHER</u>
Sample #:	<u>9</u>	Picture #:	<u>/</u>	Location:	<u>PLT CLASSROOM 2 TOP OF TV</u>
Sample #:	<u>10</u>	Picture #:	<u>/</u>	Location:	<u>MAIN CLASSROOM WINDOW SILL</u>
Sample #:	<u>11</u>	Picture #:	<u>/</u>	Location:	<u>COR OFFICE WINDOW SILL</u>
Sample #:	<u>13</u>	Picture #:	<u>/</u>	Location:	<u>VA DEFENSE OFFICE WINDOW SILL</u>
Sample #:	<u>14</u>	Picture #:	<u>/</u>	Location:	<u>LOCKER ROOM TOP OF LOCKER</u>
Sample #:	_____	Picture #:	_____	Location:	_____
Sample #:	_____	Picture #:	_____	Location:	_____
Sample #:	_____	Picture #:	_____	Location:	_____
Sample #:	_____	Picture #:	_____	Location:	_____
Sample #:	_____	Picture #:	_____	Location:	_____
Sample #:	_____	Picture #:	_____	Location:	_____
Sample #:	_____	Picture #:	_____	Location:	_____

(Also, please see the sketch of sampling locations.)

1.2 Breathing Zone Air Sampling

Sample #: A1 Employee Sampled: GENERAL AIR SAMPLE
 Sample #: A2 Employee Sampled: GENERAL AIR SAMPLE
A3 FIELD BLANK

2.3 Visual Inspection - Water Damage and Mold

Water damage observed (Yes or No): YES

If yes, water damage was observed at the following locations:

Location 1:	<u>SUPPLY SMT OFFICE</u>	Picture #:	<u>/</u>
Location 2:	<u>ACT CLASSROOMS 1-3</u>	Picture #:	<u>/</u>
Location 3:	<u>VA DEFENSE FORCE OFFICE</u>	Picture #:	<u>/</u>
Location 4:	<u>CDR'S OFFICE</u>	Picture #:	<u>/</u>
Location 5:	<u>READINESS HCO OFFICE</u> <u>SCULLERY</u>	Picture #:	<u>/</u>

Mold observed (Yes or No): NO

If yes, mold was observed at the following locations:

Location 1:	_____	Picture #:	_____
Location 2:	_____	Picture #:	_____
Location 3:	_____	Picture #:	_____
Location 4:	_____	Picture #:	_____
Location 5:	_____	Picture #:	_____

2.4 Visual Inspection - Housekeeping

Housekeeping (good, average, poor): GOOD

Comments (such as no dirt or trash was visible on the floors or the housekeeping was poor in that there was trash and debris on the floors that could lead to a tripping hazard, or there was dust in the vents.):

3.0 Building Concerns

3.1 Ergonomic Concerns

Ergonomic concerns (Yes or No): NO

If there are ergonomic concerns at the armory, describe the extent of the problem, such as three employees stated that they perform repetitive motion at the XYZ machine for 6 hours per day, and they stated that they are suffering from symptoms of musculoskeletal disorders (MSDs).

3.2 Indoor Air Quality

IAQ concerns (based on employee interviews)(Yes or No): No

If yes, what were concerns:

Measurements for carbon dioxide, humidity, and temperature:

Location	CO ₂ (ppm)	Humidity (%)	Temperature (°F)	Occupancy (People in Room)
Outdoors -	253	20.3	49.3	0
1 st Floor -	322	20.7	68.2	1
2 nd Floor -				
3 rd Floor -				
Basement				

4.0 Safety and Industrial Hygiene Programs

4.1 Confined Spaces

Are confined spaces applicable (Yes or No): No

If yes, does the program meet minimum standards (Yes or No): --

If no, explain the deficiencies:

4.2 Hearing Conservation

Is hearing conservation applicable (Yes or No): no

If yes, does the program meet minimum standards (Yes or No): no

If no, explain the deficiencies:

4.3 Respiratory Protection

Is respiratory protection applicable (Yes or No): no

If yes, does the program meet minimum standards (Yes or No): no

If no, explain the deficiencies:

4.4 Hazard Communication

Not applicable in this situation

Is hazard communication applicable (Yes or No): no

If yes, does the program meet minimum standards (Yes or No): no

If no, explain the deficiencies:

4.5 Personal Protective Equipment

Is personal protective equipment applicable (Yes or No): no

If yes, does the program meet minimum standards (Yes or No): —

If no, explain the deficiencies:

5.0 Ventilation

5.1 Ventilation System Evaluation

Local exhaust ventilation systems at this armory (Yes or No): no

If yes, results of airflow patterns:

Location 1: _____

Airflow Pattern (acceptable or unacceptable, with reason):

Location 2: _____

Airflow Pattern (acceptable or unacceptable, with reason):

Location 3: _____

Airflow Pattern (acceptable or unacceptable, with reason):

5.2 Contamination of Clean Air Sources

Clean air sources contaminated by contaminated exhaust air (Yes or No): no

If yes, describe:

6.0 Noise Dosimetry

Potential hazardous noise areas (Yes or No): NO

If yes, results of noise dosimetry sampling:

Employee sampled: _____
 Results: _____ % Actual _____ % Projected 8-hour TWA _____ Equivalent dBA

Activity: _____
 Employee sampled: _____

Results: _____ % Actual _____ % Projected 8-hour TWA _____ Equivalent dBA
 Activity: _____

Employee sampled: _____
 Results: _____ % Actual _____ % Projected 8-hour TWA _____ Equivalent dBA

Activity: _____

7.0 Lighting Evaluation

DIVIDE 24.9

Location	Luminance Range (fc)
READING'S HCO OFFICE	60-80
SUPPLY SGT OFFICE	30-80
MAN'S LATRINE	20-45
WOMEN'S LATRINE	20-55
VA DEFENSE FORCE OFFICE	30-60
PLT CLASSROOM 1	25-40
PLT CLASSROOM 3	25-50
CONVERTED FIRING RANGE	30-55
MAIN CLASSROOM	70-120
CDR'S OFFICE	25-50
LOBBY	30-60
HALLWAY	25-60

Converted indoor firing range (Yes or No): Yes
 CONVERTED TO A MEETING ROOM

Sample #: 14 Picture #: — Location: Inside any remaining ventilation ductwork
 Sample #: 15 Picture #: ✓ Location: Exhaust ventilation system
 Sample #: 16 Picture #: ✓ Location: Bullet trap
 Sample #: 17 Picture #: ✓ Location: Light fixtures
 Sample #: 18 Picture #: — Location: Overhead heaters
 Sample #: 19 Picture #: ✓ Location: Stored items
 Sample #: 20 Picture #: ✓ Location: Floor
 Sample #: 21 Picture #: ✓ Location: Outside the range

Does the HVAC system have maintenance performed on a regular basis (Yes or No):
 .. Yes ..

If no, describe:

Complete HHIM form for facility (Initial as completed): _____

Reproduction Room HHIM Necessary (Yes or No) (Initial if Yes): _____

Film Developing Room HHIM Necessary (Yes or No) (Initial if Yes): _____

Maintenance Area HHIM Necessary (Yes or No) (Initial if Yes): _____

11.0 Additional Items

- Table 1 (wipe sampling) completed (initial when completed): _____
- Table 2 (air sampling) completed (initial when completed): _____
- Table 3 (peeling paint), if necessary, completed (initial when completed): _____
- Table 3 or 4 (IAQ) completed (initial when completed): _____
- Table 4 or 5 (noise), if necessary, completed (initial when completed): _____
- Table 5 or 6 (firing ranges), if necessary, completed (initial when completed): _____
- Airflow pattern diagram(s) completed (initial when completed): _____
- Building layout included (initial when completed): _____
- Photographs (initial when completed): _____
- Sampling Sheets and Laboratory Analyses (initial when completed): _____
- Sampling tracking form completed and faxed to NGB ARNG Region North IH office
within 5 days of date of this survey (initial when completed): _____
- (Fax to **Non-Responsive** at 410-942-0254)
- State Lead Wipes Spreadsheet* completed (initial when completed): _____
- Three copies of noise exposure notification letter, if necessary (initial when
completed): _____
- Three copies of contaminant exposure forms for each employee that participated in air
sampling (initial when completed): _____

Shaw Environmental, Inc.

312 Directors Drive
Knoxville, TN 37923
865.690.3211
Fax 865.690.3626



24 June 2004

Ms. Vanessa Franchere, CHH
Regional Industrial Hygienist
Region North Industrial Hygiene Office
Attn: NGB-AVS-S1
301-III Old Bay Lane
Havre De Grace, Maryland 21078

RE: Final Report for the Industrial Hygiene Evaluation at the Warrenton Readiness
Center – Warrenton, Virginia

Dear Ms. Franchere:

Attached are four (4) copies of the referenced report. Please note that a copy of the field notes, photographs, and photograph log were provided with the draft report. Please call me if you have questions.

Sincerely,

A handwritten signature in cursive script that reads "Harry A. Pullum".

Harry A. Pullum, CHH, CSP, CIAQP
Project Manager

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



Industrial Hygiene Survey
for VARNG – Warrenton Readiness Center
629 Waterloo Road
Warrenton, Virginia 22186

AECOM
January 2013
Document No.: 60275401/ Warrenton Readiness Center

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

Industrial Hygiene Survey
for VARNG – Warrenton Readiness Center
629 Waterloo Road
Warrenton, Virginia 22186

Non-Responsive



Industrial Hygienist

Non-Responsive



Project Manager

Non-Responsive



Northeast District Health & Safety Manager

AECOM Environment
January 2013
Document No.: 60275401/ Warrenton 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 Warrenton Readiness Center Facility Layout

Appendix B Warrenton Readiness Center Photographs

Appendix C Analytical Results

Appendix D References



List of Tables

Table 2-1: Lead Wipe Sample Results 2-1

Table 3-1: Indoor Air Quality Monitoring Results..... 3-2

Table 5-1: Light Survey 5-1



Executive Summary

On November 13, 2012, AECOM Technical Services Northeast, Inc. (AECOM) conducted an Industrial Hygiene (IH) survey of the Warrenton Readiness Center facility located at 629 Waterloo Road in Warrenton, Virginia. SFC Non- was the point of contact for the facility and accompanied AECOM during the survey to provide access and information concerning the Warrenton Readiness Center operations.

The industrial hygiene survey was conducted in general accordance with the scope of work as described in the "Statement of Work – Industrial Hygiene Services for National Guard Bureau Industrial Hygiene Region North – Baseline Surveys for Readiness Centers and Administrative Buildings," dated March 2009.

The Warrenton Readiness Center is currently staffed by five personnel. The facility is configured as an administrative area and a drill/assembly hall.

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

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

Lighting levels measured throughout the facility were generally not adequate as per American National Standard Institute/Illuminating Engineering Society of North America (ANSI/IESNA) RP-1-2004, Office Lighting, ANSI/IESNA RP-7-2001, Industrial Lighting, and the IESNA Lighting Handbook, 9th Edition, 11 April 2005. See Section 5 for a list of areas that did not meet the lighting standard.

All of the wipe samples collected in association with administrative areas indicated lead levels below the Occupational Safety and Health Administration's (OSHA's) Clarification of "as free as practicable" and lead contamination under 29 Code of Federal Regulations (CFR) 1926.62, The Compliance Directive for the Interim Standard for Lead in Construction, CPL 2-2.58. OSHA recommends the use of the U.S. Department of Housing and Urban Development's (HUD) acceptable decontamination level of 200 micrograms per square foot (ug/ft²) for floors in evaluating the cleanliness of change areas, storage facilities, and lunchrooms/eating areas. Former indoor firing ranges (IFR) shall be converted in accordance with NG PAM 420-15.

No Indoor Air Quality concerns were noted by the Warrenton Readiness Center personnel. Instantaneous real-time reading for carbon monoxide and carbon dioxide (parts per million or ppm), temperature (° Fahrenheit), and relative humidity (as percentage) are presented in Table 3-1. Readings were generally within acceptable guidelines in those areas occupied by the facility staff.

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

A sample of damaged acoustic tile was collected from the former firing range and analyzed as a suspected asbestos containing material. Results indicated no asbestos detected in the sample.

Peeling or chipping paint was not observed at the Warrenton facility.

A new roof was installed at the facility in 2012. Prior to the new roof it was indicated that water intrusion and leaks were a constant problem. Neither water damage nor visible mold growth was observed during the survey. Water intrusion is a mold growth risk factor.



The Heating, Ventilation & Air Conditioning (HVAC) system in the building consists of a boiler room that feeds radiant heaters throughout the building. Air conditioning units are roof mounted and not accessed as part of this survey.

1.0 Facility Description and Operations

The Warrenton Readiness Center is a single story masonry building of approximately 25,000 square feet. The section occupied by Readiness Center personnel consists of three rooms configured as office space and is finished with drywall; acoustical drop ceilings, carpet, and floor tile.

The facility had an indoor firing range (IFR) which has been converted into a chapel.

The primary activity at the Warrenton Readiness Center is routine administrative duties. The Warrenton Readiness Center is currently staffed by approximately 5 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 multiple areas of the facility following the Occupational Safety & Health Administration (OSHA) wipe sampling method and using Ghost Wipes. The following table presents the results of the lead wipe sampling conducted at the facility.

Table 2-1: Lead Wipe Sample Results

Sample Number	Sample Location	Lead Concentration
001	Drill hall under HVAC unit	<110 ug/ft ²
002	Kitchen/top of refrigerator	<110 ug/ft ²
003	Drill hall vent	<110 ug/ft ²
004	Fire support office desk top	<110 ug/ft ²
005	Locker room/top of locker #7	<110 ug/ft ²
006	Hallway main foyer floor	<110 ug/ft ²
007	Foyer supply vent	<110 ug/ft ²
008	Former firing range exterior exhaust	<110 ug/ft ²
009	Former range heater	<110 ug/ft ²
010	Former range floor	<110 ug/ft ²
011	Outside of range floor	<110 ug/ft ²

ug/ft² = Micrograms per square foot.

Wipe samples collected in association with most administrative areas indicated lead levels below the Occupational Safety and Health Administration's (OSHA's) Clarification of "as free as practicable" and lead contamination under 29 CFR 1926.62, The Compliance Directive for the Interim Standard for Lead in Construction, CPL 2-2.58. OSHA recommends the use of HUD's acceptable decontamination level of 200 ug/ft² for floors in evaluating the cleanliness of change areas, storage facilities, and lunchrooms/eating areas.

No wipe samples collected in the converted IFR areas were above the action level of 200 micrograms per square foot (ug/ft²) per NG-PAM 420-15. Laboratory analytical results are presented in Appendix C.

2.1.2 Air Sampling

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

3.0 Physical Condition of Facility and Personnel Concerns

3.1.1 Lead Based Paint

Interior surfaces of walls are coated with paint. The paint on the walls is in serviceable condition. AECOM did not observe damaged or peeling paint during this evaluation.

3.1.2 Suspect Asbestos Containing Materials

AECOM observed damaged, friable suspect asbestos-containing materials (ACM) in readily accessible areas of the Warrenton Readiness Center during this survey. A sample was collected from the acoustic tile in the former firing range and determined to be non-asbestos containing material

Typical suspect miscellaneous building materials observed but not sampled include drywall, floor tiles and associated mastic, cove base and associated mastic, ceiling tiles, carpet mastic, and window caulks.

3.1.3 Water Damage/Mold

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

3.1.4 Housekeeping

The Warrenton 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 Warrenton Readiness Center staff members. No Indoor Air Quality concerns were noted by the Warrenton Readiness Center personnel.

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

Table 3-1: Indoor Air Quality Monitoring Results

Location	Carbon Monoxide (ppm)	Carbon Dioxide (ppm)	Temp (°F)	Relative Humidity (%)
Office 1A	2.3	402	69.1	38.3
Office 1B	2.3	427	69.7	38.6
Office 1C	2.0	408	69.4	39.0
Kitchen 1	1.8	398	71.0	31.8
Kitchen 2	2.0	407	71.3	32.0
Custodial	2.2	405	71.5	34.7
Supply room	2.5	392	67.3	35.2
Storage	1.3	458	71.2	44.1
Conference room	2.0	403	71.5	37.5
Former range/conference room	2.4	516	71.0	46.2
Office 1A1	2.0	424	70.7	31.4
Old supply	2.4	522	69.9	41.9
Hallway	1.8	638	69.6	43.6
Boiler room	1.7	508	66.7	44.3
Locker room/storage	1.3	434	66.7	34.0
Men's room	1.3	484	66.7	34.0
Recruiters office	1.3	432	68.7	39.9
Fire support	1.8	505	69.2	41.3
Drill floor	1.5	404	72.6	30.9
Foyer	1.5	407	72.9	32.8
<p>Table 3-1 Guidelines:</p> <p>Carbon Monoxide: Office/Warehouse Space – 9 ppm based on United States Environmental Protection Agency's National Ambient Air Quality Standard.</p> <p>OSHA Permissible Exposure Limit (PEL) = 50 ppm. American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit value (TLV) = 25, ppm.</p> <p>Carbon Dioxide: Office Space -Approximately 700 ppm above background (Derived from American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE) Standard 62.1-2010). Not Applicable to warehouse and vehicle maintenance bays.</p> <p>Relative Humidity: Mechanically air-conditioned space – Maximum 65% (Derived from ASHRAE Standard 62.1-2010 – 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 55-2010)</p>				

Warrenton 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 building is heated with a boiler system and cooled by roof mounted air conditioning units. No dust was observed at diffusers, and site personnel indicated that the system seems to work well. Temperature readings were within acceptable ranges in all areas occupied by readiness center personnel.

4.1.2 HVAC Maintenance

HVAC maintenance is performed by a third party vendor and records were not available for review.

There was no 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 typically inadequate.

Table 5-1: Light Survey

Location	Results (Foot candles)	Met Standard (Y/N)	Standard*
Office 1A	23.3	N	50
Office 1B	26.2	N	50
Office 1C	25.8	N	50
Kitchen 1	16.5	N	50
Kitchen 2	27.8	N	50
Custodial	11.5	N	50
Supply room	7.2	N	30
Storage	11.7	N	30
Conference room	30.2	Y	30
Former range/conference room	37.2	Y	30
Office 1A1	31.5	N	50
Old supply	12.8	N	30
Hallway	18.5	Y	5
Boiler room	2.9	N	30
Locker room/storage	19.8	Y	7
Men's room	6.8	Y	5
Recruiters office	53.5	Y	50
Fire support	30.8	N	50
Drill floor	17.3	Y	10
Foyer	45.7	Y	10
Office Lighting (ANSI/IESNA RP-1-04) and Industrial Lighting Facilities (ANSI/IESNA RP-7-01)			

6.0 Evaluation of Attached Garage

There is no garage associated with the Warrenton 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 Warrenton Readiness Center.

Lighting levels measured throughout the facility were generally sub-adequate as per American National Standard Institute/Illuminating Engineering Society of North America (ANSI/IESNA) RP-1-2004, Office Lighting, ANSI/IESNA RP-7-2001, Industrial Lighting, and the IESNA Lighting Handbook, 9th Edition, 11 April 2005. Areas with inadequate lighting levels shall upgrade lighting or provide additional task lighting as necessary.

Wipe samples collected in association with most administrative areas indicated lead levels below the Occupational Safety and Health Administration's (OSHA's) Clarification of "as free as practicable" and lead contamination under 29 CFR 1926.62, The Compliance Directive for the Interim Standard for Lead in Construction, CPL 2-2.58. OSHA recommends the use of HUD's acceptable decontamination level of 200 ug/ft² for floors in evaluating the cleanliness of change areas, storage facilities, and lunchrooms/eating areas. IFR shall be converted in accordance with NG – PAM 420-15.

A sample of damaged acoustic tile was collected from the former firing range and analyzed as a suspected asbestos containing material. The collected material indicated no asbestos detected.

Peeling or chipping paint was not observed at the Warrenton facility.

A new roof was installed at the facility in 2012. Prior to the new roof it was indicated that water intrusion and leaks were a constant problem. Neither water damage nor visible mold growth was observed during the survey. Water intrusion is a mold growth risk factor.

The Heating, Ventilation & Air Conditioning (HVAC) system in the building consists of a boiler room that feeds radiant heaters throughout the building. Air conditioning units are roof mounted and not accessed as part of this survey.

No Indoor Air Quality concerns were noted by the Warrenton Readiness Center personnel. Instantaneous real-time reading for carbon monoxide and carbon dioxide (parts per million or ppm), temperature (° Fahrenheit), and relative humidity (as percentage) are presented in Table 3-1. Readings were generally within acceptable guidelines in those areas occupied by the facility staff.

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

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.

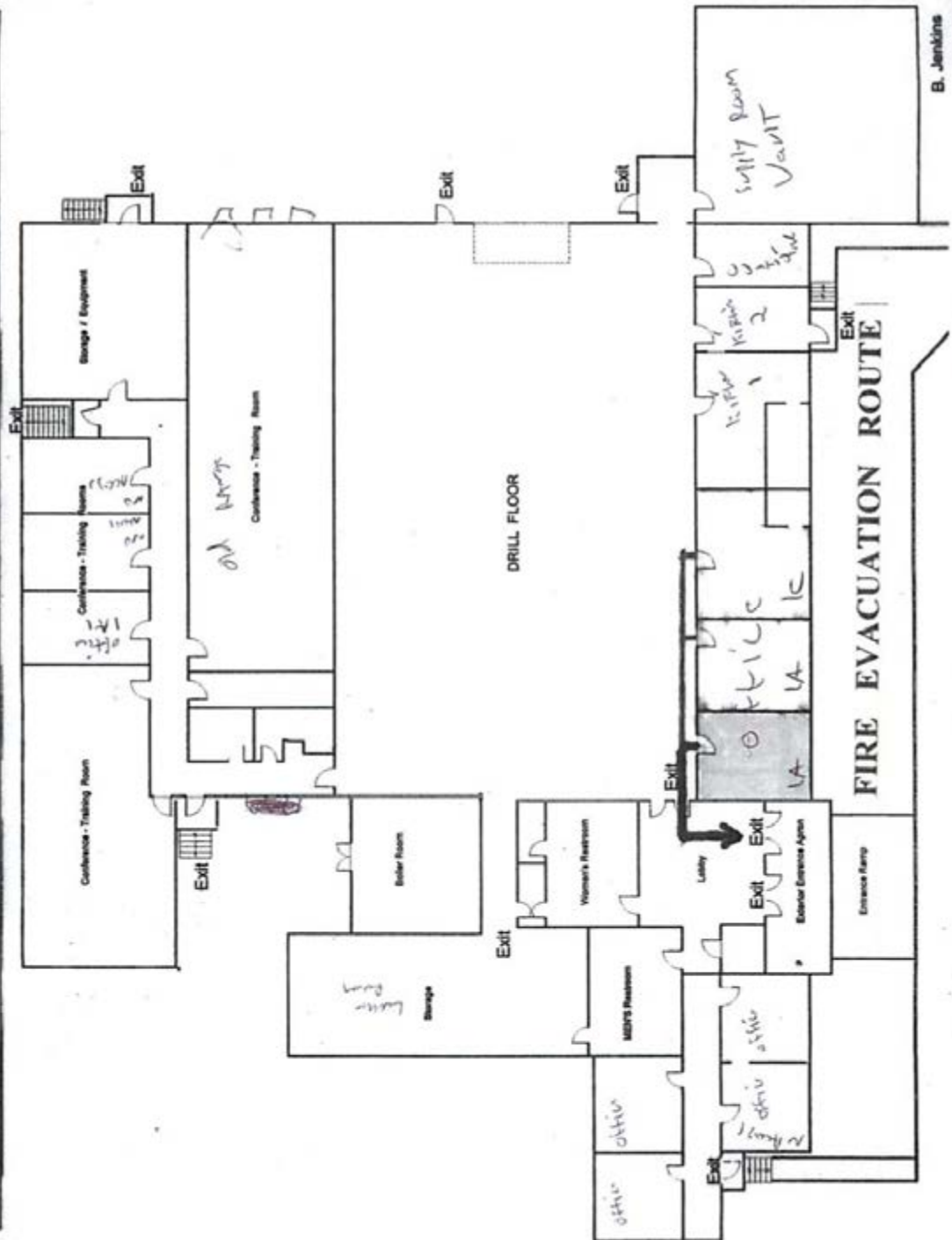
As with all such surveys, the results of the sampling represent conditions found on the date of the survey and may not represent conditions found at other times. Additionally, this survey was limited with respect to the specific parameters indicated above and should not be construed to be a comprehensive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

Warrenton Readiness Center Facility Layout

HARVEY L. PEARSON ARMY NATIONAL GUARD ARMORY
692 WATERLOO ROAD
WARRENTON, VIRGINIA 20186



Appendix B

Warrenton Readiness Center Photographs

Photograph 1



Warrenton building

Photograph 2



Drill floor/wipe sample location

Photograph 3



Drill floor

Photograph 4



Office area

Photograph 5



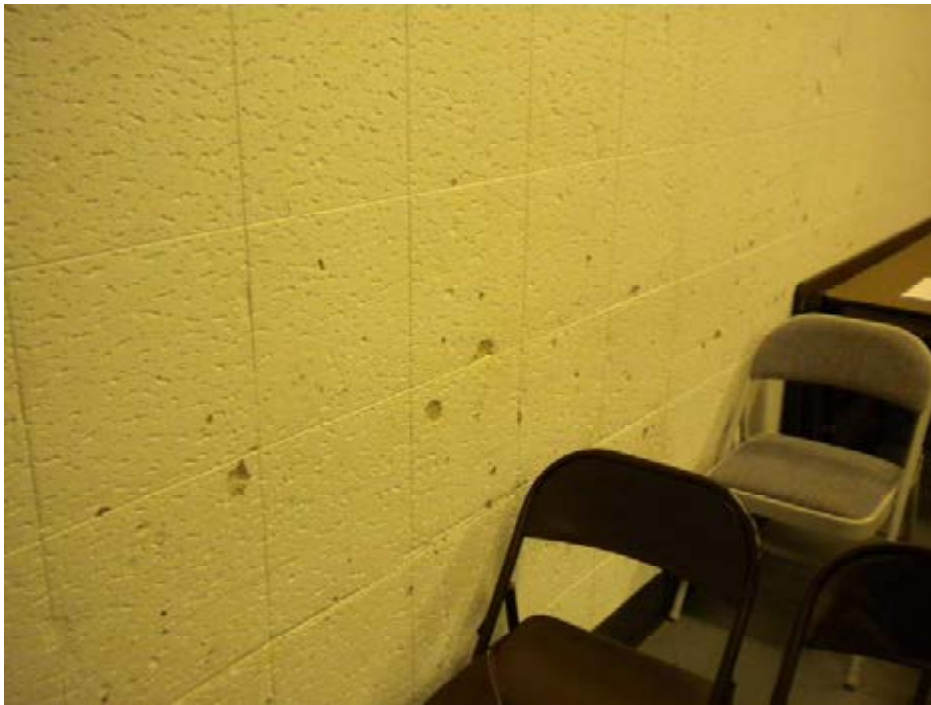
Kitchen

Photograph 6



Former range

Photograph 7



Suspect ACM in former range

Photograph 8



Foyer area

Photograph 9



Restroom

Photograph 10



Former range exhaust vents

Appendix C

Analytical Results

AMA Analytical Services, Inc.



A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS



LAB #100470

Client: National Guard Bureau Job Name: VA ANG IH Survey Chain Of Custody: 514766
 Address: 301-IH Old Bay Lane, Attn: ARNG-CJG-P, Job Location: Warrenton RC Date Submitted: 12/12/2012
 State Military Reservation
 Havre de Grace, Maryland 21078 Job Number: Not Provided Person Submitting: AECOM
 P.O. Number: W912K6-09-A-0003 Date Analyzed: 12/19/2012 Report Date: 12/19/2012

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
13023157	001	Flame	Wipe	****	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13023158	002	Flame	Wipe	****	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13023159	003	Flame	Wipe	****	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13023160	004	Flame	Wipe	****	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13023161	005	Flame	Wipe	****	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13023162	006	Flame	Wipe	****	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13023163	007	Flame	Wipe	****	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13023164	008	Flame	Wipe	****	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13023165	009	Flame	Wipe	****	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13023166	010	Flame	Wipe	****	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13023167	011	Flame	Wipe	****	0.111	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. 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.

An AIHA (#100470) and NY ELAP (#10920) Accredited Laboratory

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

AMA Analytical Services, Inc.



A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS



Client: National Guard Bureau Job Name: VA ANG IH Survey Chain Of Custody: 514766
 Address: 301-TH Old Bay Lane, Attn: ARNG-CIG-P, State Military Reservation Job Location: Warrenton RC Date Submitted: 12/12/2012
 Havre de Grace, Maryland 21078 Job Number: Not Provided Person Submitting: AECOM
 P.O. Number: W912K6-09-A-0003 Date Analyzed: 12/19/2012 Report Date: 12/19/2012

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
-------------------	----------------------	---------------	-------------	----------------	-------------------------------	-----------------	----------	--------------	----------

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

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

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

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

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

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

Air and Wipe results are not corrected for any blank results

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

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

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. 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.

An AIHA (#100470) and NY ELAP (#10920) Accredited Laboratory

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

AMA Analytical Services, Inc.



A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS

NVLAP®

101143-0

Client:	National Guard Bureau	Job Name:	VA ANGIH Survey	Chain Of Custody:	514766
Address:	301-4H Old Bay Lane, Attn: ARNG-CJG-P, State Military Reservation	Job Location:	Warrenton RC	Date Analyzed:	12/19/2012
	Havre de Grace, Maryland 21078	Job Number:	Not Provided	Person Submitting:	AECOM
		P.O. Number:	W912K6-09-A-9003		

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 Synthetic Percent	Other Percent	Particulate Percent	Sample Type	Sample Color	Homogeneity	Analyst ID	Comments
13023168	012	NAD	--	--	--	--	20	--	35	--	--	45	CT	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

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.

NVLAP (101143-0) 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.ama-lab.com
 AIHA (#108470) 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)

514766

Mailing/Billing Information:

- Client Name: National Guard Bureau
- Address 1: 301-H Old Bay Lane
- Address 2: Attn: NGB-AMN-SI, State Military Reservation
- Address 3: Havre de Grace, Maryland 21078
- Phone #: (410) 942-0273 Fax #: (410) 942-0264

Submittal Information:

- ① (Job Name) VA ANG 1H SURVEY
- ② (Job Location) Wilmington, DE
- Job #: W912K6-09-A-0003
- Contact Person: Non-Responsive @ phone # Non-Responsive
- Submitted by: AECOM Signature: Non-Responsive

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

EXPER HOURS (must be pre-arranged)		NORMAL BUSINESS HOURS		REPORT TO:	
Immediate Date Due	Signature	Signature	Signature	Signature	Signature
24 Hours Time Due	Signature	Signature	Signature	Signature	Signature
Comments	Signature	Signature	Signature	Signature	Signature

Analysis

- *PCM Air - Phase Indicate Filter Type:
- ☐ NIOSH 7400 (QTY)
 - ☐ Fiberglass (QTY)
- TEM Air* - Phase Indicate Filter Type:
- ☐ AHERA (QTY)
 - ☐ NIOSH 7402 (QTY)
 - ☐ Other (specify) (QTY)
- PLM Bulk
- ☒ EPA 600 - Visual Estimate (QTY)
 - ☐ EPA Point Count (QTY)
 - ☐ NY State Friable 198.1 (QTY)
 - ☐ Grav. Reduction ELAP 198.6 (QTY)
 - ☐ Other (specify) (QTY)
- MISC
- ☐ Vermiculite
 - ☐ Asbestos Soil PLM (Qual) PLM (Quant) PLM/TEM (Qual) PLM/TEM (Quant) If field data sheets are submitted, there is no need to complete bottom section.

TEM Bulk

- ☐ ELAP 198.4/Chafield (QTY)
 - ☐ NY State PLM/TEM (QTY)
 - ☐ Residual Ash (QTY)
- TEM Dust*
- ☐ Qual. (presabs) Vacuum/Dust (QTY)
 - ☐ Quan. (s/area) Vacuum D5755-95 (QTY)
 - ☐ Quan. (s/area) Dust D6480-99 (QTY)
- TEM Water
- ☐ Qual. (presabs) (QTY)
 - ☐ ELAP 198.2/EPA 100.2 (QTY)
 - ☐ EPA 100.1 (QTY)

Weight Analysis

- ☐ Pb Paint Chip (QTY)
 - ☒ Pb Dust Wipe (wipe type: Paint) (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-Trip (QTY)
 - ☐ Surface Vacuum Dust (QTY)
 - ☐ Surface Swab (QTY)
 - ☐ Culture ID Genus (Media) (QTY)
 - ☐ Surface Tape (QTY)
 - ☐ Culture ID Species (Media) (QTY)
 - ☐ Other (Specify) (QTY)

SAMPLE INFORMATION																		ANALYSIS										MATRIX										CLIENT CONTACT		
CLIENT ID #	SAMPLE LOCATION ID		DATE/TIME	VOL (L)	Wipe Area	TEMP	PCMA	PLMA	LEAD	MOLD	AIR	BUZK	DJEST	WATER	SPR	TAP	SWAB	(LABORATORY STAFF ONLY)																						
																			Date/Time:	Contact:	By:																			
	SEE ATTACHED FIELD DATA SHEETS																		Date/Time:	Contact:	By:																			
																			Date/Time:	Contact:	By:																			
																			Date/Time:	Contact:	By:																			

LABORATORY STAFF ONLY (CUSTODY)

1. Date/Time Received: 12/12/12 By: Non-Responsive

2. Date/Time Analyzed: 12/19/12 By: Non-Responsive

3. Results Reported to: Non-Responsive

4. Comments: 799 0038 4080

Surface Sampling Field Data Sheet

Date Collected: 11/13/12Job Name: Warrenton NGB IADCompany: H&I Page 1 of 1Job Number: 2012-0569Job Location: Warrenton VAPhone Number: 434-847-7746Contact Person: Non-RespoAddress: 629 Warrenton RdCollected By: Non-ResponWarrenton VA 22180

COC Number: _____

Sample Number	Sample Location	Surface/Substrate Sampled	Area Wiped (in ² /ft ²)	Collection Media
001	Drill Hall under Hume unit	Flr tile	16 in ²	Wipe
002	Kitchen / Top of refrigerator	Stainless Steel		
003	Drill Hall Unit	Steel		
004	Fire Support office drill top	desk		
005	Locker Room top of locker #7	Steel		
006	Hallway off main foyer floor	tile		
007	Foyer Supply Unit	metal		
008	Old Range Exhaust (exterior)	metal		
009	Former Range heater	metal		
010	Former Range Floor	Tile		
011	Old Range Floor	tile	↓	↓

Please Return Samples To:

AMA Analytical Services, Inc, 4475 Forbes Blvd., Lanham, MD 20706, (800) 346-0961/(301) 459-2640 Fax, www.amaab.com, info@amaab.com

Bulk Sampling Survey Sheet

Date Collected: 11/13/12Job Name: Warrington MCB IADCompany: itac Page 1 of 1Job Number: 20120569Job Location: Warrington VA N6 RCPhone Number: 703-847-7796Contact Person: Non-RespoAddress: 629 Waterloo RdCollected By: Non-RespoWarrington VA 22180

COC Number: _____

Sample Number	Homogeneous Area ID	Type of Material	Sample Location	Friable	Condition of Material	Accessibility	Photo	Comments
012		Acoustic Tile	Foster Finely Range	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Potentially	<input type="checkbox"/> Good <input checked="" type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input checked="" type="checkbox"/> Medium <input type="checkbox"/> High	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Potentially	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	

Please Return Samples To:

AMA Analytical Services, Inc., 4475 Fortes Blvd., Lanham, MD 20706, (800) 346-0961/(301) 459-2640 Fax, www.amalab.com, info@amalab.com

Appendix D

References

References

1. Title 29, Code of Federal Regulations (CFR), Part 1910, Occupational Safety and Health Administration, current Ed. <http://www.osha.gov/comp-links.html>
2. Department of Defense Instruction (DODI) 6055.1, Department of Defense Occupational Safety and Health (OSH) Program, August 19, 1998. <http://www.dtic.mil/whs/directives/corres/pdf/605501p.pdf>
3. Army Regulation (AR) 11-34, The Army Respiratory Protection Program, 15 February 1990. http://armypubs.army.mil/epubs/pdf/R11_34.PDF
4. AR 40-5, Medical Service, Preventive Medicine, 25 May 2007. http://armypubs.army.mil/epubs/pdf/R40_5.PDF
5. AR 385-10, The Army Safety Program, 23 August 2007; Rapid Action Revision (RAR) issue date: 4 October 2011. http://armypubs.army.mil/epubs/pdf/R385_10.PDF
6. Department of the Army Pamphlet (DA PAM) 40-501, Medical Services, Hearing Conservation Program, 10 December 1998. http://armypubs.army.mil/epubs/pdf/P40_501.pdf
7. DA PAM 40-11, Preventive Medicine, 22 July 2005, RAR issue date: 19 October 2009. http://armypubs.army.mil/epubs/pdf/p40_11.pdf
8. DA PAM 40-503, Medical Services, Industrial Hygiene Program, 30 October 2000. http://armypubs.army.mil/epubs/pdf/P40_503.PDF
9. UFC 3-410-01FA, Heating, Ventilating, and Air Conditioning, 15 May 2003, change 4, January 2010. http://www.wbdg.org/ccb/DOD/UFC/ufc_3_410_01fa.pdf
10. Threshold Limit Values (TLVs) and Biological Exposure Indices (BEIs), American Conference of Governmental Industrial Hygienists (ACGIH), current Ed.
11. Industrial Ventilation – A Manual of Recommended Practice for Design, ACGIH, current Ed.
12. American National Standards Institute (ANSI)/International Safety Equipment Association (ISEA) Z358.1-2009, Emergency Eyewash and Shower Equipment.
13. ANSI/American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. (ASHRAE) 55-2010, Thermal Environmental Conditions for Human Occupancy.
14. ANSI/ASHRAE 62.1-2010, Ventilation for Acceptable Indoor Air Quality.
15. RP-1-2004, Office Lighting, ANSI/IESNA.
16. RP-7-2001, Industrial Lighting, ANSI/IESNA, change 20 July 2004.
17. OSHA Instruction Letter 02-02-058, Lead Exposure in Construction, Office of Health Compliance Assistance, 13 December 1993.
18. OSHA Standard Interpretation, Clarification of “as free as practicable” and lead contamination under 29 CFR 1926.62, dated January 13, 2003.
19. NG PAM 420-15, Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges, 3 November 2006. http://www.ngbpdc.ngb.army.mil/pubs/420/ngpam420_15.pdf

Shaw Environmental, Inc.

312 Directors Drive
Knoxville, TN 37923
865.690.3211
Fax 865.690.3626



**National Guard Armory
Winchester Readiness Center – Winchester, Virginia**

Industrial Hygiene Evaluation

Prepared for:

**National Guard Region North Industrial Hygiene Office
Havre De Grace, Maryland 21078**

Prepared by:

**Shaw Environmental, Inc.
312 Directors Drive
Knoxville, Tennessee 37923**

07 June 2004

**National Guard Armory
Winchester Readiness Center – Winchester, Virginia**

Industrial Hygiene Evaluation

Prepared for:

**National Guard Region North Industrial Hygiene Office
Havre De Grace, Maryland 21078**

Prepared by:

**Shaw Environmental, Inc.
312 Directors Drive
Knoxville, Tennessee 37923**

07 June 2004

Prepared by:

Non-Responsive

Industrial Hygienist

Reviewed by:

Non-Responsive

Business Line Manager

Table of Contents

<i>Table of Contents</i>	<i>i</i>
<i>List of Tables</i>	<i>ii</i>
<i>List of Appendices</i>	<i>ii</i>
<i>Executive Summary</i>	<i>E-1</i>
<i>1.0 Introduction</i>	<i>1-1</i>
<i>2.0 Findings, Discussion, and Interpretation of Results</i>	<i>2-1</i>
<i>2.1 Sampling for Lead</i>	<i>2-1</i>
<i>2.1.1 Wipe Sampling</i>	<i>2-1</i>
<i>2.1.2 Air Sampling for Lead</i>	<i>2-2</i>
<i>2.2 Physical Condition of Facility</i>	<i>2-2</i>
<i>2.2.1 Peeling Paint - Lead</i>	<i>2-2</i>
<i>2.2.2 Visual Inspection - Asbestos</i>	<i>2-2</i>
<i>2.2.3 Visual Inspection - Water Damage and Mold</i>	<i>2-3</i>
<i>2.2.4 Visual Inspection - Housekeeping</i>	<i>2-3</i>
<i>2.3 Building Concerns</i>	<i>2-3</i>
<i>2.3.1 Ergonomic Concerns</i>	<i>2-3</i>
<i>2.3.2 Indoor Air Quality</i>	<i>2-4</i>
<i>2.4 Safety and Industrial Hygiene Programs</i>	<i>2-4</i>
<i>2.5 Ventilation</i>	<i>2-4</i>
<i>2.5.1 Ventilation System Evaluation</i>	<i>2-4</i>
<i>2.5.2 Contamination of Clean Air Sources</i>	<i>2-5</i>
<i>2.6 Noise Exposure</i>	<i>2-5</i>
<i>2.7 Lighting</i>	<i>2-5</i>
<i>2.8 Converted Indoor Firing Ranges</i>	<i>2-5</i>
<i>2.9 HVAC Systems</i>	<i>2-6</i>
<i>2.10 HHIM</i>	<i>2-6</i>
<i>3.0 Conclusions</i>	<i>3-1</i>
<i>Tables</i>	<i>Follows Section 3.0</i>
<i>Appendices</i>	<i>Follows Tables</i>

List of Tables

Table 1	Wipe Sampling for Lead
Table 2	Air Sampling for Lead
Table 3	Peeling Paint Sampling for Lead
Table 4	Indoor Air Quality Measurements
Table 5	Illumination Readings
Table 6	Indoor Firing Ranges – Wipe Sampling

List of Appendices

Appendix A	HHIM Data Form
Appendix B	Building Layout
Appendix C	Sampling Sheets and Laboratory Analyses
Appendix D	References
Appendix E	Recommendations for Surface Lead Dust in Armories

Executive Summary

Shaw Environmental, Inc. (Shaw) was contracted to perform an industrial hygiene evaluation for the Winchester Readiness Center in Winchester, Virginia Non-Responsive performed the evaluation on 03 February 2004. The point of contact at the readiness center was MSC Non-Responsive

The following industrial hygiene concerns were evaluated.

- Wipe Sampling for Lead
- Air Sampling for Lead
- Peeling Paint – Lead
- Suspected Asbestos Containing Material
- Water Damage
- Presence of Mold
- Housekeeping
- Ergonomic Concerns
- Indoor Air Quality
- Safety and Industrial Hygiene Programs
- Ventilation System Evaluation
- Contamination of Clean Air Sources
- Noise Exposure
- Lighting
- Converted Indoor Firing Range
- HVAC Systems

The following items were either not applicable to the armory or the evaluation resulted in a conclusion that there were no industrial hygiene concerns.

- Air Sampling for Lead
- Peeling Paint – Lead
- Housekeeping
- Ergonomic Concerns
- Safety and Industrial Hygiene Programs
- Ventilation System Evaluation

- Contamination of Clean Air Sources
- Noise Exposure
- Converted Indoor Firing Range
- HVAC Systems

Areas where there were industrial hygiene concerns are as follows:

- Wipe sampling for lead revealed concentrations above a level of 40 micrograms per square foot ($\mu\text{g}/\text{ft}^2$) in the assembly hall and converted firing range. Areas with lead concentrations above 40 $\mu\text{g}/\text{ft}^2$ that will be accessible to children should be cleaned. If a special function is held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function.
- Materials (pipe insulation and floor tiles) suspected of containing asbestos were observed. An operations and maintenance plan should be followed when performing any activities that may disturb the asbestos-containing materials or suspected asbestos-containing materials.
- Water damage was observed at the armory. The source of the water damage was likely from roof leaks. The source of the water damage should be confirmed and actions taken to eliminate the source in order to prevent the possibility of mold growth that may lead to indoor air quality problems.
- Visual mold was observed in the armory. The area where the mold is located should be thoroughly cleaned with 0.5% sodium hypochlorite solution (1 part household bleach to nine parts water) or equivalent in order to eliminate the potential mold/indoor air quality problem. In addition, the cause of the mold should be determined and actions taken to eliminate it.
- Measurements for humidity revealed levels that did not meet the American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE) recommended level of 30% on the 1st floor in the facility. It is recommended that a humidification system be installed on the 1st floor at the facility. In addition, measurements for temperature revealed that levels did not meet the ASHRAE recommended level of 68 degrees Fahrenheit on the 2nd floor in the facility. It is recommended that the heating units be adjusted so the temperature will be maintained at the recommended level.
- Lighting measurements were conducted at the armory. The lighting did not meet minimum requirements in most of the areas measured; therefore, consideration should be given to providing more lighting in these areas. This may be accomplished by replacing burnt out luminaires, cleaning fixtures, cleaning windows, painting walls

with a lighter color, repositioning detailed work to higher illuminated areas, and using supplemental lighting.

1.0 Introduction

Shaw Environmental, Inc. (Shaw) was contracted to perform an industrial hygiene evaluation for the Winchester Readiness Center in Winchester, Virginia Non-Responsive performed the evaluation on 03 February 2004. The point of contact at the readiness center was MSG Non-Responsive

The findings, discussion, and interpretation of results are provided in Section 2.0. The conclusions are provided in Section 3.0. The HHIM data form for the facility is provided in Appendix A. The building layout is provided in Appendix B. Sampling sheets and laboratory analyses are provided in Appendix C. References are provided in Appendix D. The *Recommendations for Surface Lead Dust in Armories* document is provided in Appendix E.

The statements, opinions, and conclusions contained in this report are based solely upon the services performed by Shaw as described in the report. In performing these services and preparing the report, Shaw Environmental, Inc. relied upon the work and information provided by others, including public agencies, whose information is not guaranteed by Shaw Environmental, Inc.

2.0 Findings, Discussion, and Interpretation of Results

The results, discussion, and interpretation of results are provided in the following sections.

2.1. Sampling for Lead

2.1.1 Wipe Sampling

Wipe samples were collected for lead from the drill/assembly hall. Also, wipe samples were collected for lead in rooms, hallways, foyers, etc. The sampling in rooms, hallways, foyers, etc. represented approximately 25% of the building. Approximately half of the samples were collected from surfaces in common areas, such as surfaces of a desk. The remaining samples were collected from uncommon surface areas, such as a supply vent or the top of a file cabinet. The samples were collected and analyzed in accordance with the Instructions for *Completing the Sampling of ARMY National Guard Armories* procedure.

The only samples initially submitted for analysis were those from the drill/assembly hall. If there were any results above recommended levels from the drill/assembly hall, the other samples would be submitted for analysis.

Results of the wipe sampling are provided in Table 1. The results revealed lead at all locations sampled at concentrations below recommended level of 200 micrograms lead per square foot ($\mu\text{g}/\text{ft}^2$) (See Appendix F); therefore, no actions are necessary. Since there were not any results above recommended levels from the drill/assembly hall, the other samples were not submitted for analysis.

However, wipe sampling for lead revealed concentrations above a level of $40 \mu\text{g}/\text{ft}^2$ in the assembly hall and converted firing range. Please note that the *Recommendations for Surface Lead Dust in Armories* (Appendix E) states that all areas with lead concentrations above $40 \mu\text{g}/\text{ft}^2$ that will be accessible to children should be cleaned. If a special function is held in which children will be present in

this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function.

2.1.2 Air Sampling for Lead

Breathing zone air sampling was conducted on two (2) full-time building occupants. (Please note that no state employees were monitored.) The samples were collected and analyzed in accordance with Method 7082 of the National Institute of Occupational Safety and Health (NIOSH) Manual of Analytical Methods.

The results of the sampling are provided in Table 2. The results revealed non-detectable concentrations of lead in the breathing zone of the employees; therefore, no actions are necessary.

2.2 Physical Condition of Facility

2.2.1 Peeling Paint - Lead

Peeling paint was observed in the armory on the wall in the S2/S3 office, window frame in the third floor hallway, and ceilings of the new addition lobby and recruiter's office. The Department of Housing and Urban Development (HUD) defines lead-based paint as paint or other surface coatings that contain lead equal to or 0.5 percent by weight. Bulk sampling results revealed that the lead concentration at the location was below 0.5 percent by weight. Since HUD does not consider the paint a lead-based paint, no actions are necessary. The results of the sampling are provided in Table 3.

2.2.2 Visual Inspection - Asbestos

A visual inspection was made to determine if there was any suspected asbestos-containing material at the armory. Materials suspected of containing asbestos were observed. The suspected asbestos-containing materials were pipe insulation and floor tiles. Pipe insulation was observed in the boiler room in approximately twenty-two pipe joints or elbows and on three pipes (approximately 13.75 linear feet). The condition of the pipe insulation materials was considered good (no rips, tears, or other damage). Please note that the pipe insulation in the boiler room was labeled as asbestos containing. Floor tiles (approximately 720 square feet) were observed in the S2/S3 office. The condition of the tiles was considered average since the desk chair areas are worn.

An operation and maintenance plan should be followed when performing any activities that may disturb the asbestos-containing materials or suspected asbestos-containing materials.

2.2.3 Visual Inspection – Water Damage and Mold

A visual inspection was made to determine if there was any water damage or visible mold at the armory. The inspection revealed water damage and possible mold on the ceiling/walls of S2/S3 office and S3 office. The mold is most likely active during the summer months. Water damage was observed on the wall of the supply room, ceiling of the new addition lobby, and as stained ceiling tiles in the women's latrine and orderly/administrative room.

The source of the water damage in the S2/S3 office, S-3 office and women's latrine was likely from roof leaks. Damage observed in the orderly room/administrative office was likely from a persistent roof leak that occurred between the seam of the new addition and old building. The source of water damage in the supply room was likely due to concrete moisture or a roof leak. The sources of the water damage should be confirmed and actions taken to eliminate the source in order to prevent the possibility of mold growth that may lead to indoor air quality problems.

The area where the mold is located should be thoroughly cleaned with 0.5% sodium hypochlorite solution (1 part household bleach to nine parts water) or equivalent in order to eliminate the potential mold/indoor air quality problem. In addition, the cause of the mold should be determined and actions taken to eliminate it.

2.2.4 Visual Inspection - Housekeeping

The housekeeping was determined to be good.

2.3. Building Concerns

2.3.1 Ergonomic Concerns

Interviews with employees and observation of work activities revealed no ergonomic concerns at the armory.

2.3.2 Indoor Air Quality

Interviews with employees and measurements for carbon dioxide revealed no indoor air quality concerns at the armory. However, measurements for humidity revealed that levels did not meet the American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE) recommended level of 30% on the 1st floor in the facility. It is recommended that a humidification system be installed on the 1st floor at the facility.

In addition, measurements for temperature revealed that levels did not meet the ASHRAE recommended level of 68 degrees Fahrenheit on the 2nd floor in the facility. It is recommended that the heating units be adjusted so the temperature will be maintained at the recommended level.

The results of the measurements for carbon dioxide, humidity, and temperature are provided in Table 4.

2.4. Safety and Industrial Hygiene Programs

An evaluation was performed to determine the applicability of the following programs.

- Confined Spaces
- Hearing Conservation
- Respiratory Protection
- Hazard Communication (HAZCOM)
- Personal Protective Equipment (PPE)

It was determined that the HAZCOM program was the only program listed above that was applicable at the facility. The HAZCOM program was evaluated and it was determined that the program met minimum requirements.

2.5. Ventilation

2.5.1 Ventilation System Evaluation

There were no local exhaust ventilation systems at this armory; therefore, no ventilation studies were performed.

2.5.2 Contamination of Clean Air Sources

Since there were no local exhaust ventilation systems at the armory, there was no possibility that clean air sources could be contaminated by exhaust air.

2.6. Noise Exposure

An evaluation was performed to determine if there were any hazardous noise areas at the armory. It was determined that there were no areas at the armory that would exceed the permissible exposure limit for noise.

2.7 Lighting

Lighting measurements were conducted at the armory. Results of the lighting evaluation are provided in Table 5. As can be seen from the results, the lighting did not meet the minimum requirements in some areas, including the HHC common room, supply room (office area), S3 office, S4 office and women's latrine.

Consideration should be given to providing more lighting to the areas listed above. This may be accomplished by replacing burnt out luminaries, cleaning fixtures, cleaning windows, painting walls with a lighter color, repositioning detailed work to higher illuminated areas, and using supplemental lighting.

2.8 Converted Indoor Firing Ranges

There was a converted indoor firing range at the facility; therefore, wipe samples were taken for lead at various locations in or near the converted range. The range was converted into the HHC common room and medical rooms. The results are provided in Table 6. The results revealed lead, with associated concentrations, at the following locations:

- stored item (HHC common room - television top surface) at 7.9 micrograms lead per square foot ($\mu\text{g}/\text{ft}^2$);
- light fixture at 93 $\mu\text{g}/\text{ft}^2$;
- stored item (medical room - desktop) at 18 $\mu\text{g}/\text{ft}^2$;
- floor at 110 $\mu\text{g}/\text{ft}^2$; and
- floor outside the range at 70 $\mu\text{g}/\text{ft}^2$.

The lead levels in the converted firing range were below the recommended level of 200 $\mu\text{g}/\text{ft}^2$, a level recommended in the *Guidelines for Converting Indoor Firing*

Ranges to Other Uses document (Department of Army); therefore, no actions are necessary.

2.9. HVAC System

There was not a HVAC system at the armory.

2.10. HHIM

A Health Hazard Information Module (HHIM) form was completed for the armory.

The completed form is provided in Appendix A.

3.0 Conclusions

It is concluded that there were no industrial hygiene concerns at the armory with regards to atmospheric exposure to lead, peeling lead-based paint, housekeeping, ergonomic concerns, safety and industrial hygiene programs, ventilation systems or contamination of clean air sources, noise exposure, surface lead contamination in the converted firing range, and HVAC systems.

There were industrial hygiene concerns at the armory with regards to lead surface contamination, suspected asbestos-containing material, water damage, visible mold, indoor air quality, and lighting. These concerns are discussed in detail in Section 2.0 of this report.

TABLES

Table 1
Wipe Sampling for Lead
National Guard Armory
Winchester, Virginia
Date of Sampling: 03 February 2004

Sample Number	Location	Results $\mu\text{g}/\text{ft}^2$ ^a
VAWIN034-1	Assembly room – bleacher (adjacent kitchen) top surface (See Building Layout – Appendix B)	12
VAWIN034-2	Assembly room – kitchen serving counter top surface (See Building Layout – Appendix B)	7.1
VAWIN034-3	Assembly room – basketball hoop control box top surface (See Building Layout – Appendix B)	70
VAWIN034-4	Assembly room – fire extinguisher top surface (See Building Layout – Appendix B)	94
VAWIN034-5	Assembly room – basketball hoop control box top surface (See Building Layout – Appendix B)	53
VAWIN034-6	Field Blank	< 0.3 μg

^a Micrograms lead per square foot

The samples were taken and analyzed in accordance with the Instructions for *Completing the Sampling of Army National Guard Armories* procedure.

In armories that do not contain childcare facilities, the NGB Region North Industrial Hygiene Office recommends cleaning the areas with lead concentrations greater than 200 $\mu\text{g}/\text{ft}^2$.

Table 2
Breathing Air Samples for Lead
National Guard Armory
Winchester, Virginia
Date of Sampling: 03 February 2004

Sample Number	Employee	Sampling Information			Results (mg/m ³) ^a
		Time Sampled / Minutes	Flow Rate (lpm) ^b	Volume (liters)	
VAWIN034-A1	Non-Responsive	0800-1010/130	2.4280	315.64	<0.003
VAWIN034-A2		0807-1009/122	2.4694	301.26	<0.003
VAWIN034-A3	Field Blank	-	-	-	None Detected

^a Milligrams lead per cubic meter of air.

^b Liters of air per minute.

Method 7082 of the National Institute of Occupational Safety and Health (NIOSH) Manual of Analytical Methods was followed for sampling for lead.

Table 3
Peeling Paint Sampling for Lead
National Guard Armory
Winchester, Virginia
Date of Sampling: 03 February 2004

Sample Number	Location	Results, % By Weight
VAWIN034-PC1	Office S2/S3 - wall	ND
VAWIN034-PC2	3 rd Floor Hallway – window frame	0.10
VAWIN034-PC3	Lobby (new addition) - ceiling	0.0031
VAWIN034-PC4	Recruiter's office - ceiling	0.015

The Department of Housing and Urban Development (HUD) defines lead-based as paint or other surface coatings that contain lead equal to or exceeding 0.5 percent by weight.

Table 4

**Indoor Air Quality Measurements for Carbon Dioxide, Humidity, and Temperature
National Guard Armory
Winchester, Virginia
Date of Sampling: 03 February 2004**

Location	Occupants in Area	Carbon Dioxide, parts per million parts of air (ppm)	Percent (%) Humidity	Temperature (°F)
1 st Floor - Orderly Room/Administrative Office	1	659	23.9	70.0
2 nd Floor - Readiness Room	3	801	40.3	64.2
3 rd Floor - S3/S2 Office	2	881	31.1	71.4
Outdoors	-	564	47.9	38.8

Carbon dioxide, humidity, and temperature measurements were taken with a TSI Q Trak Plus, Model 8554, Indoor Air Quality Meter, calibrated in April 2003.

American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE) recommends that indoor carbon dioxide levels be less than 700 ppm above outdoor levels.

ASHRAE recommends that the relative humidity levels be maintained between 30 to 60 percent.

ASHRAE recommends that the acceptable temperature range be 68 degrees Fahrenheit to 74 degrees Fahrenheit in the winter and 73 degrees Fahrenheit to 79 degrees Fahrenheit in the summer.

Table 5
Illumination Readings
National Guard Armory
Winchester, Virginia
Date of Sampling: 03 February 2004

Location	Luminance (fc)^a	Standard (fc)^a	Standard Met
First Floor -- Kitchen	91.2-125.3	70	Yes
First Floor -- HHC Common Room (Conference Room/Classroom)	19.1-53.6	70	No
First Floor -- Supply Room (office area)	25.2-43.6	70	No
First Floor -- Supply Room (supply area)	28.2-45.7	30	Some Areas
First Floor -- Orderly Room/Administrative Office	36.1-88.1	70	Some Areas
Third Floor -- S2/S3 Office	39.8-85.6	70	Some Areas
Third Floor -- S3 Office	28.1-43.7	70	No
Third Floor -- S4 Office	20.1-53.6	70	No
Second Floor -- Readiness Room (office)	54.3-75.7	70	Some Areas
Second Floor -- Women's Latrine	0.9-17.8	40	No

^a fc - Footcandles

The readings were taken with a Cooke Corporation cal-LIGHT 400 Calibrated Precision Lightmeter, calibrated on 19 Aug 2002.

The standards listed above are from ANSI/IES RP-1 and RP-7.

Table 6
Wipe Sampling for Lead – Converted Firing Range
National Guard Armory
Winchester, Virginia
Date of Sampling: 03 February 2004

Sample Number	Location	Results, $\mu\text{g}/\text{ft}^2$ ^a
VAWIN034-10	Stored Item (IHC Commo Room - television top)	7.9
VAWIN034-18	Field Blank	0.36 μg
VAWIN034-19	Light Fixture	93
VAWIN034-20	Stored Item (Medical Room - desktop)	18
VAWIN034-21	Floor	110
VAWIN034-22	Outside of Range	70

^a Micrograms lead per square foot

The samples were taken and analyzed in accordance with the instructions for *Completing the Sampling of ARMY National Guard Armories* procedure.

Appendix A

HHIM Data Form(s)

HEALTH HAZARD INFORMATION MODULE: INDUSTRIAL HYGIENE SURVEY

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

SECTION 1. DEMOGRAPHIC DATA

RLOC	INSTALLATION Winchester Army Virginia, ARUG	BLDG/RM NO. Winchester
LOCATION/CODE Administrative Areas/ AA	OPERATION/CODE Administrative Operations	
SURVEY DATE 03 February 2004	EVALUATOR (Initials) Non-Responsive	
MACOM/CODE Army National Guard	SUBMACOM/CODE XX	SI Non-Responsive H86 MAJ
TELEPHONE/DSN NO. 540 722 3407	UNIT/ORGANIZATION HHC 3BN 116 INF	RAC 5
NO. CIV(S) 1	NO. MIL 8	NO. CONTRACTOR(S) 0
		NO. LOC(S) 0
		NO. OTHER 0
FREQUENCY (hrs/day) 8		

SECTION 2. FACILITY DATA

AB HOODS 0	VAPOR DEGREASERS 0	SPRAY BOOTHS 0
MAINTENANCE BAYS 0 - One - shop attached / not surveyed	OPEN SURFACE TANKS 0	VENTILATION UNITS 0

SECTION 3. SURVEY DATA

CONTROLS PRESENT	EVALUATION	UNIT CODE	CONTROLS REQUIRED	STATUS

PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized)

GLOVES	R	U	RESPIRATOR	NOSH TC NO.	MANUFACTURER	R	U
ACID			AIRLINE				
COLD SURFACES			ABRASIVE BLASTING HOOD				
HOT SURFACES			DISPOSABLE				
NBC AGENTS			FULL FACE AIR PURIFYING				
OIL			1/2 FACE AIR PURIFYING				
SOLVENTS			POWERED AIR PURIFYING				
SURGICAL GLOVES			1/4 FACE AIR PURIFYING				
			SELF CONTAINED				

EYES/FACE	R	U	HEARING	R	U	BODY	R	U	HEAD/FIT	R	U
CHEMICAL SPLASH			CANAL CAPS			APRONS			COLD WEATHER BOOTS/HATS		
FULL FACE SHIELD			EAR PLUGS			COLD WEATHER CLOTHING			HARD HATS		
CHEMICAL/SAFETY			HELMETS			COVERALLS			IMPERMEABLE BOOTS		
SAFETY/IMPACT			MUFFS			FULL BODY SUIT			SAFETY/CONDUCTIVE SHOES		
WELDING HELMET			MUFF/EARPLUG COMBO			HEAT REFLECTIVE VEST/SUIT			SAFETY/NON-CONDUCTIVE SHOES		
			MUFF/EARPLUG W/TIME LIMIT			SAFETY BELT/HARNES					

SECTION 4. HAZARD INVENTORY DATA

CAS CODE	HAZARD DESCRIPTION	PAC	EPC
POVDTXXX	Video Display Terminal	3-low	D-Uncontrolled Physical
1332-21-4	Asbestos (Other)	2-moderate	C-Uncontrolled Respiratory
7439-92-1	Lead, inorganic dust, fumes, sp. Pb	3-low	↓

SECTION 5. PERSONNEL DATA

LAST NAME	FIRST NAME	MI	SEX	SSN	CATEGORY
Non-Responsive			M	Non-Responsive	MIL
			↓		↓
		F			
		J			
			↓		↓

SECTION 6. COMMENTS

Survey conducted by **Non-Responsive** See attached sheet Building compounds 8 military emp. and military contractors (workers with down) military staff perform mainly administrative functions. He also note that possible mold was observed in the facility.

PRIVACY ACT STATEMENT

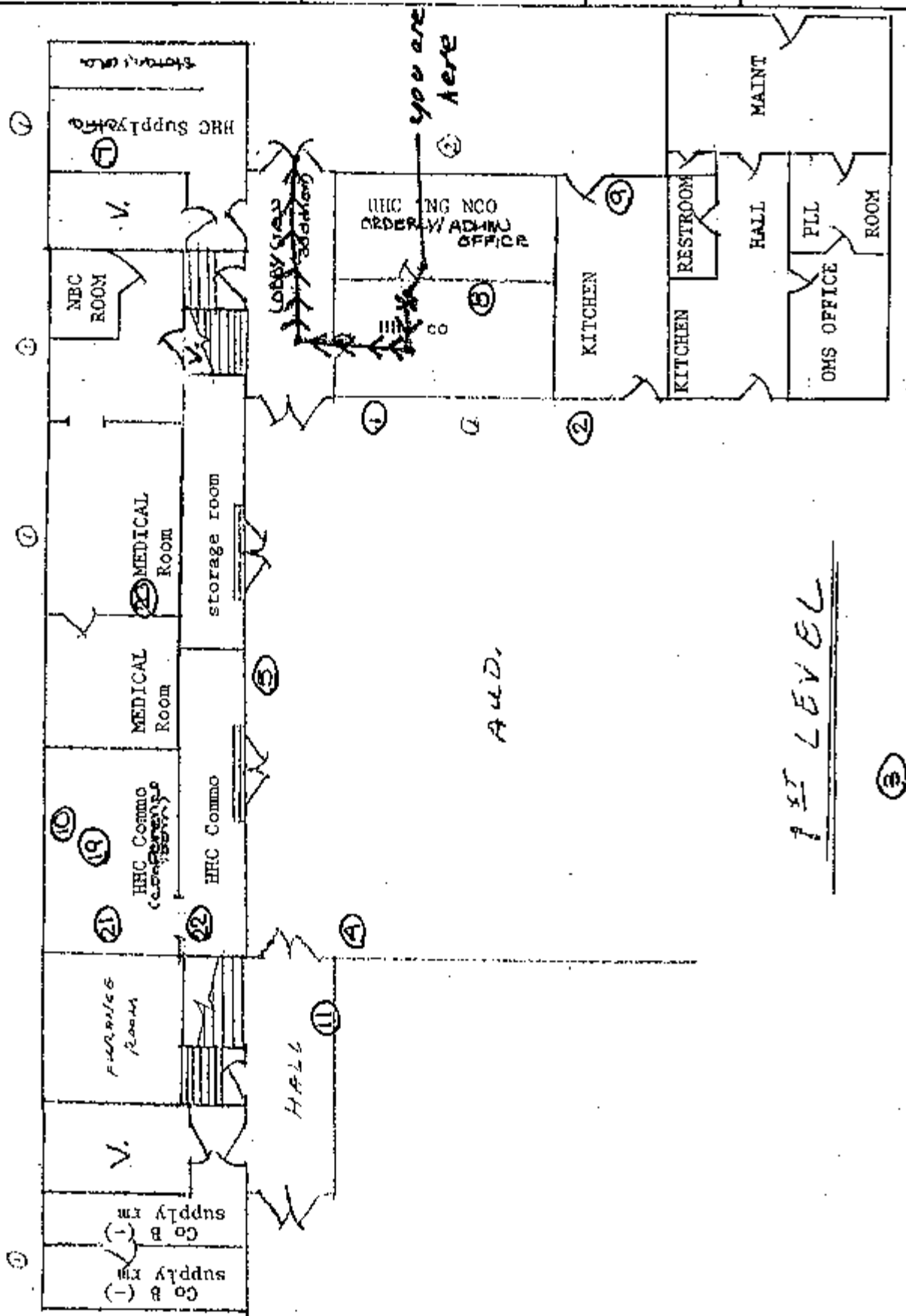
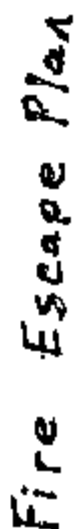
Title 5 US Code, Section 301; Executive Order 9397 authorizes the use of your Social Security Number as an identification number. The purpose of this information is to identify and monitor data relating each DA civilian and military employee exposed to a hazardous workplace or operation. The use of this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

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

Appendix B

Building Layout

SUBJECT VANG WINCHESTER, VA.		BEST AVAILABLE COPY COMPUTED BY: <i>[Signature]</i>	DATE: JUL 90	FILE NO.
		CHECKED BY:	DATE:	SHEET NO. 7

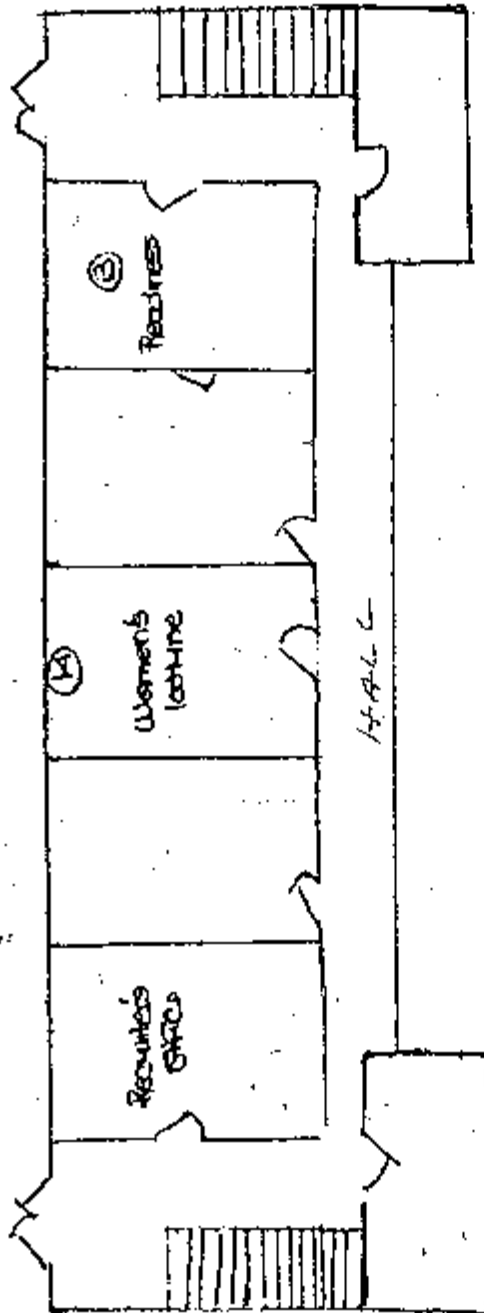


73A37
131

CALCULATION SHEET

BEST AVAILABLE COPY

SUBJECT	COMPILED BY:	DATE:	FILE NO.
	CHECKED BY:	DATE:	SHEET NO.



2ND LEVEL

CALCULATION SHEET

BEST AVAILABLE COPY

SUBJECT

YANC
WINCHESTER, VA.

COMPILED BY:

10/1/85

DATE:

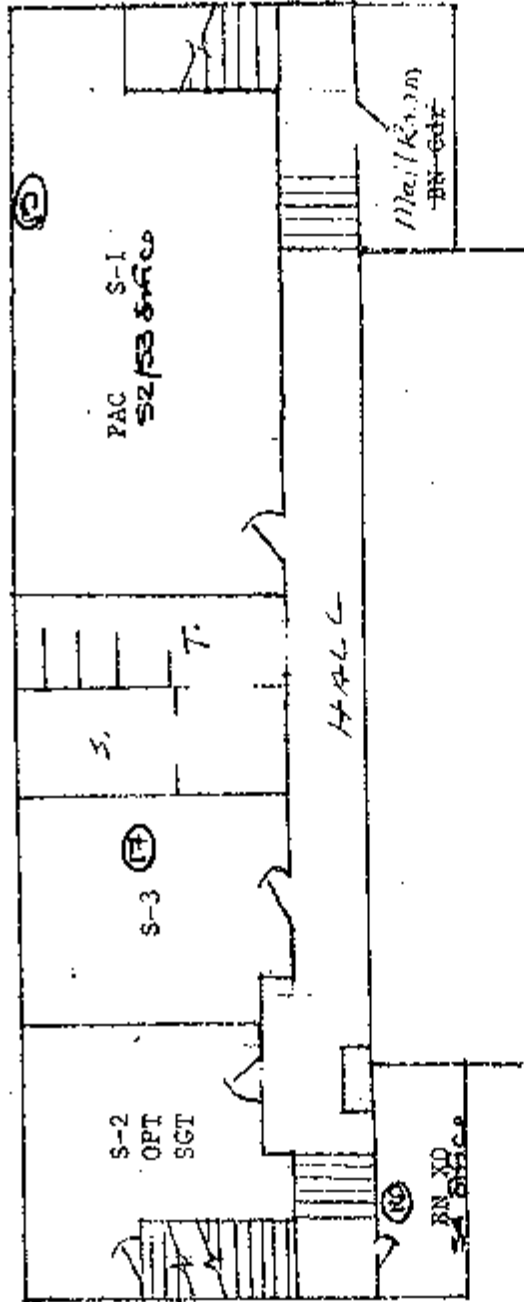
JUL 85

FILE NO.

CHECKED BY:

DATE:

SHEET NO. 3



3RD LEVEL

Co C - 2 photos
S4 - 2 photos
PAC - 3
S-1 - 1

Appendix C

Sampling Sheets and Laboratory Analyses



CERTIFICATE OF ANALYSIS

NVLAP
NY ELAP
AIHA

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

Job Name: VAWIN034
Job Location: Winchester, VA

Chain Of Custody: 122728
Date Analyzed: 3/1/2004

Person Submitting: [Redacted]
Report Date: 01-Mar-04

Attention: [Redacted] **Non-Responsive** **Technical Manager:** [Redacted] **Analyst:** [Redacted] **Non-Responsive**

Summary of Atomic Absorption Analysis for Lead

AMA Sample Number	Client Sample Number	Analysis Type	Sample Type	Air Volume (L)	Area Wiped (ft²)	Reporting Limit	Final Result	Comments
0424113	WAWIN034-1	Furnace	Wipe	****	0.111	2.70 ug/ft²	12 ug/ft²	
0424114	WAWIN034-2	Furnace	Wipe	****	0.111	2.70 ug/ft²	7.1 ug/ft²	
0424115	WAWIN034-3	Furnace	Wipe	****	0.111	13.50 ug/ft²	70 ug/ft²	
0424116	WAWIN034-4	Furnace	Wipe	****	0.111	13.50 ug/ft²	94 ug/ft²	
0424117	WAWIN034-5	Furnace	Wipe	****	0.111	6.75 ug/ft²	53 ug/ft²	
0424118	WAWIN034-6	Furnace	Wipe Blank	****	N/A	0.30 ug	< 0.3 ug	
0424119	WAWIN034-10	Furnace	Wipe	****	0.111	2.70 ug/ft²	7.9 ug/ft²	
0424120	WAWIN034-19	Furnace	Wipe	****	0.111	13.50 ug/ft²	93 ug/ft²	
0424121	WAWIN034-20	Furnace	Wipe	****	0.131	2.70 ug/ft²	18 ug/ft²	
0424122	WAWIN034-21	Furnace	Wipe	****	0.131	11.25 ug/ft²	110 ug/ft²	
0424123	WAWIN034-22	Furnace	Wipe	****	0.131	11.25 ug/ft²	70 ug/ft²	
0424124	WAWIN034-18	Furnace	Wipe Blank	****	N/A	0.30 ug	0.36 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 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.

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of the product. 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 (#5863), 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

All rights reserved. AMA Analytical Services, Inc.



Submitted To: **Non-Responsive**
Shaw Environmental, Inc.
101 Field One St. Ave., 4th Floor
Edison, NJ 08837

Reference Data:	Lead
Client Sample No.:	VAWIN034-PC1 through VAWIN034-PC4
P.O. No.:	1103
Sample Location:	Winchester VA / Martinsburg WV
Sample Type:	Paint Chip
Method Reference:	3050B/6010B
DCL Set ID No.:	04-S-0541
DCL Sample ID No.:	04-02966 through 04-02969
Sample Receipt Date:	2/5/2004
Preparation Date:	2/5/2004
Analysis Date:	2/6/2004

The samples were prepared in accordance with EPA method 3050B. Sample condition was acceptable upon receipt except where noted. The samples were then analyzed in accordance with EPA method 6010B using a Jarrell Ash 61E ICP.

The results are provided in the enclosed data table. Results relate only to the items tested and are not blank corrected unless indicated in the data table.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Non-Responsive

Analyst

CINCINNATI OFFICE
4388 GLENDALE-MILFORD ROAD
CINCINNATI, OHIO 45242-3708
513 733-5336, FAX 513 733-5347

Non-Responsive

Reviewer

WEST COAST OFFICE
11 SANTA YORMA COURT
NOVATO, CALIFORNIA 94945
800 280-8071, FAX 415 893-9469

Results

Lead

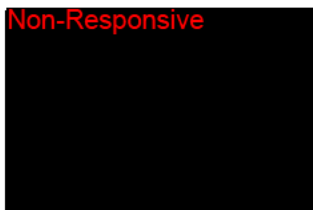
Client #	DCL #	mg/Kg (ppm)	% by weight
VAWIN034-PC1	04-02966	ND	ND
VAWIN034-PC2	04-02967	1000.	0.10
VAWIN034-PC3	04-02968	31.	0.0031
VAWIN034-PC4	04-02969	150.	0.015
	Prep Blank	ND	
% Recovery	LCS	92.	
% Recovery	02839MS	102.	
% Recovery	02839MSD	90.	
RPL		25.	0.0025

ND = not detected at or above the reporting limit (RPL).

LCS = laboratory control sample.

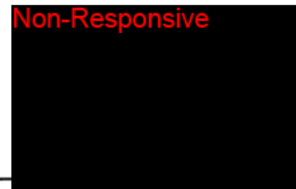
MS/MSD = matrix spike/matrix spike duplicate.

Non-Responsive



Analyst

Non-Responsive



Reviewer



Submitted To: **Non-Responsive**

Shaw Environmental, Inc.
101 Field One St. Ave., 4th Floor
Edison, NJ 08837

Reference Data:	Lead
Client Sample No.:	VAWIN034-A1 through WVMAR034-A3
P.O. No.:	1103
Sample Location:	Winchester VA / Martinsburg WV
Sample Type:	Filter
Method Reference:	NIOSH 7300
DCL Set ID No.:	04-S-0541
DCL Sample ID No.:	04-02963 through 04-02972
Sample Receipt Date:	2/5/2004
Preparation Date:	02/06/04
Analysis Date:	02/06/04

The samples were prepared and analyzed in accordance with NIOSH method 7300 using a Perkin Elmer 3000XL ICP.

The sample condition upon receipt was acceptable except where noted.

The results are in the enclosed data table. Results relate only to the items tested and are not blank corrected unless indicated in the data table.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Non-Responsive

Analyst

Non-Responsive

Reviewer

CINCINNATI OFFICE
4388 GLENDALE-MILFORD ROAD
CINCINNATI, OHIO 45242-3706
513 733-5336, FAX 513 733-5347

WEST COAST OFFICE
11 SANTA YORMA COURT
NOVATO, CALIFORNIA 94945
800 280-8071, FAX 415 893-9469

Results

Lead

Client #	DCL #	Sample Volume (L)	µg/sample	mg/m ³
VAWIN034-A1	04-02963	315.64	ND	<0.003
VAWIN034-A2	04-02964	301.26	ND	<0.003
VAWIN034-A3	04-02965	0	ND	-
WVMAR034-A1	04-02970	315.44	ND	<0.003
WVMAR034-A2	04-02971	311.00	ND	<0.003
WVMAR034-A3	04-02972	0	ND	-
	Prep Blank		ND	
% Recovery	LCS		103.	
RPL			1.	

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

Non-Responsive

Analyst

Non-Responsive

Reviewer

BEST AVAILABLE COPY
Industrial Hygiene Sampling Calculation Worksheet

National Guard Armory
Date: 02/03/2004

Location: Winchester

Sample 1

Sample Number: VAWIN034-A1

Pump: 648339

	Pre Flow Rate	Post Flow Rate
	2.441	2.424
	2.433	2.412
	2.430	2.432
	2.432	2.420
Average	2.434	2.422

Average Pre and Post 2.4280

Time 1 8:00

Time 2 10:10

Total Time Sampled 2:10

Minutes Sampled 130.00

Volume 315.64 Liters

Sample 2

Sample Number: VAWIN034-A2

Pump: 647615

	Pre Flow Rate	Post Flow Rate
	2.493	2.441
	2.510	2.439
	2.502	2.434
	2.502	2.434
Average	2.502	2.437

Average Pre and Post 2.4694

Time 1 8:07

Time 2 10:09

Total Time Sampled 2:02

Minutes Sampled 122.00

Volume 301.26 Liters

VAWIN034

BEST AVAILABLE COPY
Industrial Hygiene Sampling Calculation Worksheet

National Guard Armory

Location: Winchester

Date: 2/3/04

Sample 1

Sample Number: ~~WV~~WIN 034-A1

Pump: 648339

Pre Flow Rate Post Flow Rate

2441 2424

24433 2412

Average

2430 2432

Average Pre and Post

2432 2420

2434 2422

Time 1 0800

Time 2 1010

Total Time Sampled

Minutes Sampled

Volume

Liters

Sample 2

Sample Number: ~~WV~~WIN 034-A2

Pump: 647615

Pre Flow Rate Post Flow Rate

2493 2441

2510 2439

Average

2502 2434

Average Pre and Post

2502 2434

2502 2437

Time 1 0807

Time 2 1009

Total Time Sampled

Minutes Sampled

Volume

Liters

Appendix D

References

References

Title 29, Code of Federal Regulations (CFR), Part 1910, Occupational Safety and Health Administration (current edition)

American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc (ASHRAE) 62-2002, Ventilation for Acceptable Indoor Air Quality

Instructions for Completing the Sampling of Army National Guard Armories, Lead Wipe Sampling Procedure included with the Request for Proposal

Air Sampling for Lead - Method 7082 of the National Institute of Occupational Safety and Health (NIOSH) Manual of Analytical Methods

Design Guide DG-415-2, Logistics Facilities, National Guard Bureau Installation Division, 14 December 1999

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

Army Regulation (AR) 40-5, Medical Service, Preventive Medicine, 15 October 1990

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

Department of the Army Pamphlet (DA PAM) 40-501, Medical Services, Hearing Conservation Program, 10 December 1998

DA PAM 40-503, Medical Services, Industrial Hygiene Program, 30 October 2000

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

Guidelines for Converting Indoor Firing Ranges to Other Uses, Headquarters, Department of the Army and the Air Force, NG PAM (AR) 385-16/ANGPAM 91-101, 31 January 1994

24 CFR, Part 35, Subpart B, Section 35-110, Definition of Lead-Based Paint, Housing and Urban Development, U. S. Department of Housing

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 annory 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.

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

NGB-AVS-SI (40-5f)

23 June 2004

MEMORANDUM FOR VAARNG, Winchester RC, ATTN: MSC
P.O. Box 2078, Winchester, VA 22601-1278

Non-Responsive

SUBJECT: Baseline Survey Report

1. I have enclosed the industrial hygiene survey report completed by Shaw Environmental Inc.
2. In addition to the attached discussion and recommendations regarding wipe samples for lead, if a special function is held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function.
3. Please contact me at (410) 942-0273 or 1-800-550-6967 if you have any questions regarding the enclosed report.

Non-Responsive

Encl

Regional Industrial Hygienist

CF: SOHM, CPT

Non-Responsive

National Guard Armory

Winchester Readiness Center, Winchester, Virginia

Industrial Hygiene Evaluation

Recommendations

- Wipe sampling for lead revealed concentrations above a level of 40 micrograms per square foot ($\mu\text{g}/\text{ft}^2$) in the assembly hall and converted firing range. Areas with lead concentrations above 40 $\mu\text{g}/\text{ft}^2$ that will be accessible to children should be cleaned. If a special function is held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function.

RAC - 4

- Materials (pipe insulation and floor tiles) suspected of containing asbestos were observed. An operations and maintenance plan should be followed when performing any activities that may disturb the asbestos-containing materials or suspected asbestos-containing materials. **RAC - 5**
- Water damage was observed at the armory. The source of the water damage was likely from roof leaks. The source of the water damage should be confirmed and actions taken to eliminate the source in order to prevent the possibility of mold growth that may lead to indoor air quality problems. **RAC - 5**
- Visual mold was observed in the armory. The area where the mold is located should be thoroughly cleaned with 0.5% sodium hypochlorite solution (1 part household bleach to nine parts water) or equivalent in order to eliminate the potential mold/indoor air quality problem. In addition, the cause of the mold should be determined and actions taken to eliminate it. **RAC - 5**
- Measurements for humidity revealed levels that did not meet the American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE) recommended level of 30% on the 1st floor in the facility. It is recommended that a humidification system be installed on the 1st floor at the facility. In addition, measurements for temperature revealed that levels did not meet the ASHRAE recommended level of 68 degrees Fahrenheit on the 2nd floor in the facility. It is recommended that the heating units be adjusted so the temperature will be maintained at the recommended level.

RAC - 5

- Lighting measurements were conducted at the armory. The lighting did not meet minimum requirements in most of the areas measured; therefore, consideration should be given to providing more lighting in these areas. This may be accomplished by replacing burnt out luminaires, cleaning fixtures, cleaning windows, painting walls

with a lighter color, repositioning detailed work to higher illuminated areas, and using supplemental lighting. **RAC - 5**

MEDICAL RECORD – SUPPLEMENTAL MEDICAL DATA

For use of this form, see AR 40-66; the proponent agency is the Office of The Surgeon General.

REPORT TITLE

OTSG APPROVED (Date)

WORKERS' OCCUPATIONAL WORKSITE SAMPLING DATA RECORD

DIRECTORATE Winchester Armory

BLDG/ROOM Winchester

SPECIAL STUDY/REPORT NUMBER Virginia National Guard Study

JOB DESCRIPTION/SERIES Military/Administrative Operations

SAMPLING DATE February 03, 2004

EXPOSURE MONITORED	TYPE SAMPLE*	PERMISSIBLE EXPOSURE LIMIT	SAMPLING RESULT	CALCULATED TWA	EXPOSURE CATEGORY**
1. Lead	P	0.05 mg/m ³	<0.003	<0.003	1
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					

*TYPE OF SAMPLE: G=General Area Sample

P=Personal Sample Collected in the Breathing Zone of the Worker.

R=Personal Sample Collected on another worker, but representative of expected exposure for this worker.

**EXPOSURE CATEGORY

1. Measured Exposure levels are below permissible exposure limit.
2. Measured Exposure levels are close to permissible exposure limits: See Comments.
3. Measured Exposure levels are above permissible exposure limits: See Comments.

COMMENTS:

NOTE: REFER TO THE SPECIAL STUDY OR REPORT REFERENCED FOR DETAILS OF SAMPLING AND RESULTS.

(Continue on reverse)

PREPARED BY (Signature & Title)

DEPARTMENT/SERVICE/CLINIC

DATE

Non-Responsive Industrial Hygienist

INDUSTRIAL HYGIENE SECTION

2/25/2004

PATIENT IDENTIFICATION (For typed or written entries give: Name --last, first, Middle; grade; date; hospital or medical facility)

NAME: Non-Responsive SSG: 02/03/2004

HISTORY/PHYSICAL

FLOW CHART

SSN: (Last Four # Non-Responsive)

OTHER EXAMINATION OR EVALUATION

OTHER (SPECIFY)

UNIT PHONE NO: 540-722-3435

DIAGNOSTIC STUDIES

TREATMENT

DA FORM 4700
1 MAY 78

HSXR-APG-Z OP 32 1 Jan 90

MEDICAL RECORD – SUPPLEMENTAL MEDICAL DATA

For use of this form, see AR 40-56; the proponent agency is the Office of The Surgeon General.

REPORT TITLE

OTSG APPROVED (Date)

WORKERS' OCCUPATIONAL WORKSITE SAMPLING DATA RECORD

DIRECTORATE Winchester Armory

BLDG/ROOM Winchester

SPECIAL STUDY/REPORT NUMBER Virginia National Guard Study

JOB DESCRIPTION/SERIES Military/Administrative Operations

SAMPLING DATE February 03, 2004

EXPOSURE MONITORED	TYPE SAMPLE*	PERMISSIBLE EXPOSURE LIMIT	SAMPLING RESULT	CALCULATED TWA	EXPOSURE CATEGORY**
1. Lead	P	0.05 mg/m ³	<0.003	<0.003	1
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					

*TYPE OF SAMPLE: G=General Area Sample

P=Personal Sample Collected in the Breathing Zone of the Worker.

R=Personal Sample Collected on another worker, but representative of expected exposure for this worker.

**EXPOSURE CATEGORY

1. Measured Exposure levels are below permissible exposure limit.
2. Measured Exposure levels are close to permissible exposure limits: See Comments.
3. Measured Exposure levels are above permissible exposure limits: See Comments.

COMMENTS:

NOTE: REFER TO THE SPECIAL STUDY OR REPORT REFERENCED FOR DETAILS OF SAMPLING AND RESULTS.

(Continue on reverse)

PREPARED BY (Signature & Title)	DEPARTMENT/SERVICE/CLINIC	DATE
Non- Responsive Industrial Hygienist	INDUSTRIAL HYGIENE SECTION	2/25/2004
PATIENT'S IDENTIFICATION (For typed or written entries give: Name --last, first, Middle; grade; date; hospital or medical facility)		
NAME: Non-Responsive SGT: 02/03/2004	HISTORY/PHYSICAL	FLOW CHART
SSN: (Last Four # Non-Responsive)	OTHER EXAMINATION OR EVALUATION	OTHER (SPECIFY)
UNIT PHONE NO: 540-722-3435	DIAGNOSTIC STUDIES	TREATMENT

DA FORM 4700
1 MAY 78

HSXR-APG-Z OP 32 1 Jan 90

Shaw Environmental, Inc.

312 Directors Drive
Knoxville, TN 37923
865.690.3211
Fax 865.690.3626



Shaw Environmental, Inc.

Feb 3 - 04

Rec'd 3/17/04
rev 5/24/04
e-mailed 6-1-04

12 March 2004

Ms. **Non-Responsive** CIH
Regional Industrial Hygienist
Region North Industrial Hygiene Office
Attn: NGB-AVS-SI
301-IH Old Bay Lane
Havre De Grace, Maryland 21078

RE: Draft Report for the Industrial Hygiene Evaluation at the Winchester Readiness Center -- Winchester, Virginia

Dear Ms. **Non-Responsive**

Attached is a copy of the referenced report. Also attached is a copy of the field notes, photographs and photograph log, and the completed contaminant exposure forms (three copies of each employee sampled). Please call me if you have questions.

Sincerely,

Non-Responsive

Project Manager

Field Notes and Checklist

State: West Virginia Location: Winchester Date: 2/03/04
 Contact: Non-Responsive

1.0 Sampling for Lead

1.1 Wipe Sampling

UAWIN034

Sample #:	<u>1</u>	Picture #:	_____	Location:	<u>assembly hall - bleacher (adj. kitchen)</u>
Sample #:	<u>2</u>	Picture #:	_____	Location:	<u>kitchen serving counter top surface</u>
Sample #:	<u>3</u>	Picture #:	_____	Location:	<u>basketball hoop control box top</u>
Sample #:	<u>4</u>	Picture #:	_____	Location:	<u>file cabinet top surface</u>
Sample #:	<u>5</u>	Picture #:	_____	Location:	<u>basketball hoop control top</u>
Sample #:	<u>6, 12, 18</u>	Picture #:	_____	Location:	<u>blanks</u>
Sample #:	<u>7</u>	Picture #:	_____	Location:	<u>25% bldg 1st floor - supply computer top</u>
Sample #:	<u>8</u>	Picture #:	_____	Location:	<u>ordinance room - table top</u>
Sample #:	<u>9</u>	Picture #:	_____	Location:	<u>kitchen - dough mixer top</u>
Sample #:	<u>10</u>	Picture #:	_____	Location:	<u>HHC Comm. room (room) tv top</u>
Sample #:	<u>13</u>	Picture #:	_____	Location:	<u>25% bldg 2nd floor - Readiness desk top</u>
Sample #:	<u>14</u>	Picture #:	_____	Location:	<u>women's latrine - window sill</u>
Sample #:	<u>11</u>	Picture #:	_____	Location:	<u>25% bldg 3rd floor - soda machine top</u>
Sample #:	<u>15</u>	Picture #:	_____	Location:	<u>25% bldg 3rd floor - 52/53 - stereo top surface</u>
Sample #:	<u>16</u>	Picture #:	_____	Location:	<u>S4 office - hard drive top</u>
Sample #:	<u>17</u>	Picture #:	_____	Location:	<u>S3 office - cabinet top</u>
Sample #:	<u>19-22</u>	Picture #:	_____	Location:	<u>convert. filing range see pg. 8</u>
Sample #:	_____	Picture #:	_____	Location:	_____
Sample #:	_____	Picture #:	_____	Location:	_____
Sample #:	_____	Picture #:	_____	Location:	_____

(Also, please see the sketch of sampling locations.)

1.2 Breathing Zone Air Sampling

Sample #: A1 Employee Sampled: SST Non-Responsive
 Sample #: A2 Employee Sampled: SS

2.0 Physical Condition of Facility

2.1 Peeling Paint - Lead

Peeling paint observed (Yes or No): Yes

If peeling paint observed, samples were taken as follows:

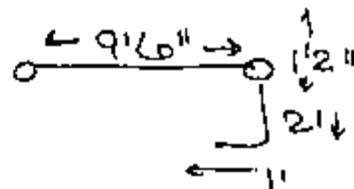
Sample # PC-1 Picture #: ✓ Location: SE/S3 wall (duct work)
 Condition (Good, Average, Poor): avg. Quantity: 2 ft^2
 Sample # PC-2 Picture #: Location: window frames
 Condition (Good, Average, Poor): poor Quantity: 2 frames ft^2
 Sample # PC-3 Picture #: Location: lobby-reward - ceiling
 Condition (Good, Average, Poor): poor Quantity: 6 ft^2
 Sample # PC-4 Picture #: Location: Recreation's Room
 Condition (Good, Average, Poor): avg. Quantity: 3 ft^2
 Sample #: Picture #: Location:
 Condition (Good, Average, Poor): Quantity: ft^2

2.2 Visual Inspection - Asbestos

Suspected asbestos-containing material observed (Yes or No): Yes

If suspected asbestos-containing material observed, samples were taken as follows:

Location 1: boiler pipe insulation Picture #:
 Condition: good Approximate (Square or Linear Feet): 20 joints/elbow
 Location 2: pipe Picture #:
 Condition: good Approximate (Square or Linear Feet): 13'8" linear
 Location 3: SE/S3 office floor tiles Picture #:
 Condition: avg - worn as dust area Approximate (Square or Linear Feet): $(45 \times 9'') \times (26 \times 9'') = 658$
 Location 4: Picture #:
 Condition: Approximate (Square or Linear Feet): $+ (11 \times 9'') \times 10 \times 9'') = 62$
 Location 5: Picture #:
 Condition: Approximate (Square or Linear Feet): 720



If there are ergonomic concerns at the armory, describe the extent of the problem, such as three employees stated that they perform repetitive motion at the XYZ machine for 6 hours per day, and they stated that they are suffering from symptoms of musculoskeletal disorders (MSDs).

BA

3.2 Indoor Air Quality

IAQ concerns (based on employee interviews)(Yes or No): NO

If yes, what were concerns:

BA

Measurements for carbon dioxide, humidity, and temperature:

Location	CO ₂ (ppm)	Humidity (%)	Temperature (°F)	Occupancy (People in Room)
Outdoors - 2nd floor door	504	47.9	38.8	0
1 st Floor - ORDERLY ROOM/Admin	659	23.9	70.0	1
2 nd Floor - READINESS	801	40.3	64.2	3
3 rd Floor - SB/S2 office	881	31.3	71.4	2
Basement				

4.0 Safety and Industrial Hygiene Programs

4.1 Confined Spaces

Are confined spaces applicable (Yes or No): NO

If yes, does the program meet minimum standards (Yes or No): BA

If no, explain the deficiencies:

BA

4.2 Hearing ConservationIs hearing conservation applicable (Yes or No): NOIf yes, does the program meet minimum standards (Yes or No): NA

If no, explain the deficiencies:

NA

4.3 Respiratory ProtectionIs respiratory protection applicable (Yes or No): NOIf yes, does the program meet minimum standards (Yes or No): NA

If no, explain the deficiencies:

NA

4.4 Hazard CommunicationIs hazard communication applicable (Yes or No): YesIf yes, does the program meet minimum standards (Yes or No): Yes

If no, explain the deficiencies:

NA

4.5 Personal Protective Equipment

Is personal protective equipment applicable (Yes or No): Yes

If yes, does the program meet minimum standards (Yes or No): Yes

If no, explain the deficiencies:

5.0 Ventilation**5.1 Ventilation System Evaluation**

Local exhaust ventilation systems at this armory (Yes or No): Yes

If yes, results of airflow patterns:

Location 1: _____

Airflow Pattern (acceptable or unacceptable, with reason):

Location 2: _____

Airflow Pattern (acceptable or unacceptable, with reason):

Location 3: _____

Airflow Pattern (acceptable or unacceptable, with reason):

5.2 Contamination of Clean Air Sources

Clean air sources contaminated by contaminated exhaust air (Yes or No): Yes

If yes, describe:

6.0 Noise Dosimetry

Potential hazardous noise areas (Yes or No): NO

If yes, results of noise dosimetry sampling:

Employee sampled: DA
 Results: _____ % Actual _____ % Projected 8-hour TWA _____ Equivalent dBA
 Activity: _____
 Employee sampled: _____
 Results: _____ % Actual _____ % Projected 8-hour TWA _____ Equivalent dBA
 Activity: _____
 Employee sampled: _____
 Results: _____ % Actual _____ % Projected 8-hour TWA _____ Equivalent dBA
 Activity: _____

7.0 Lighting Evaluation

Location	Luminance Range (fc)
1st Kitchen	91.2-125.3
HHC Commo Room (conference)	19.1-53.6
Supply (office area)	23.2-43.6
Supply (storage area)	28.2-45.7
↓ orderly/admin	36.1-88.1
2nd S2, S3 Office	39.8-85.6
S3 Office	28.1-43.7
↓ S4 Office	20.1-53.6
2nd Readiness Room (Office)	54.3-75.7
↓ women's latrine	09-17.8

8.0 Converted Indoor Firing Ranges

Converted indoor firing range (Yes or No):

~~No~~ yes - location of
medical room/
HHC Commo
etc.

If yes, locations sampled:

Sample #: 10 Picture #: 10 Location: Inside any remaining ventilation ductwork
 Sample #: 11 Picture #: 11 Location: Exhaust ventilation system
 Sample #: 12 Picture #: 12 Location: Bullet trap
 Sample #: 13 Picture #: 13 Location: Light fixtures - 19
 Sample #: 14 Picture #: 14 Location: Overhead heaters BA
 Sample #: 15 Picture #: 15 Location: Stored items - 20 - Medical Room -
 Sample #: 16 Picture #: 16 Location: Floor - 21 desktop
 Sample #: 17 Picture #: 17 Location: Outside the range - 22

9.0 HVAC System

Does the HVAC system have maintenance performed on a regular basis (Yes or No):

No

In yes, is the maintenance effective (Yes or No):

BA

If no, describe:

BA

10.0 HHIM

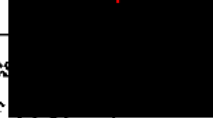
Complete HHIM form for facility (Initial as completed):

Reproduction Room HHIM Necessary (Yes or No) (Initial if Yes)

Film Developing Room HHIM Necessary (Yes or No) (Initial if Yes)

Maintenance Area HHIM Necessary (Yes or No) (Initial if Yes):

Non-Responsive

BA

11.0 Additional Items

Table 1 (wipe sampling) completed (initial when completed): _____
 Table 2 (air sampling) completed (initial when completed): _____
 Table 3 (peeling paint), if necessary, completed (initial when completed): _____
 Table 3 or 4 (IAQ) completed (initial when completed): _____
 Table 4 or 5 (noise), if necessary, completed (initial when completed): _____
 Table 5 or 6 (firing ranges), if necessary, completed (initial when completed): _____
 Airflow pattern diagram(s) completed (initial when completed): _____
 Building layout included (initial when completed): _____
 Photographs (initial when completed): _____
 Sampling Sheets and Laboratory Analyses (initial when completed): _____
 Sampling tracking form completed and faxed to NGB ARNG Region North IH office
 within 5 days of date of this survey (initial when completed): _____
 (Fax to **Non-Responsive** at 410-942-0254)
 State Lead Wipes Spreadsheet completed (initial when completed): _____
 Three copies of noise exposure notification letter, if necessary (initial when
 completed): **Non-Responsive**
 Three copies of contaminant exposure forms for each employee that participated in air
 sampling (initial when completed): _____

Winchester Armory Photo Log
National Guard Armory
Winchester, Virginia
Date of Survey: 03 February 2004

Photo	Description
1	Lead Wipe Assembly Room-bleacher surface (adjacent to kitchen) Sample 1
2	Lead Wipe Assembly Room-Kitchen serving counter top surface Sample 2
3	Lead Wipe Assembly Room-basketball hoop control box top surface Sample 3
4	Lead Wipe Assembly Room-fire extinguisher top surface Sample 4
5	Lead Wipe Assembly Room-basketball hoop control box top surface Sample 5
6	Lead Wipe Converted Firing Range Stored Item, (HHC Commo Room), television top surface Sample 10
Not Available	Lead Wipe Converted Firing Range Light Fixture Sample 19
7	Lead Wipe Converted Firing Range Stored Item (Medical Room), desktop Sample 20
8	Lead Wipe Converted Firing Range Floor Sample 21
9	Lead Wipe Converted Firing Range Outside the Range Floor Sample 22
10	Peeling Paint/Water Damage/Possible Mold - S2/S3 Office, wall location of Sample PC-1
11/12	Water Damage - S2/S3 Office, examples
13	Peeling Paint - Third Floor Hallway, window frame location of Sample PC-2
14	Peeling Paint/Water Damage - Lobby (new addition), ceiling location of Sample PC-3
Not Available	Peeling Paint - Recruiter's Office, ceiling location of Sample PC-4
15	Water Damage/Possible Mold - S3 Office, ceiling/wall example
16	Water Damage - Orderly Room, stained ceiling tiles example
17	Water Damage - Women's Latrine, stained ceiling tiles example
18	Water Damage - Supply Room, stained wall example
19/20	Suspected Asbestos Containing Material - Boiler Room, pipe insulation examples
21	Suspected Asbestos Containing Material - S2/S3 Office, floor tiles average condition (worn at desk chair area) example

Shaw Environmental, Inc.

312 Directors Drive
Knoxville, TN 37923
865.690.3211
Fax 865.690.3626



Shaw Shaw Environmental, Inc.

07 June 2004

Ms. Vanessa Franchere, CHH
Regional Industrial Hygienist
Region North Industrial Hygiene Office
Attn: NGB-AVS-SI
301-III Old Bay Lane
Havre De Grace, Maryland 21078

RE: Final Report for the Industrial Hygiene Evaluation at the Winchester Readiness
Center - Winchester, Virginia

Dear Ms. Franchere:

Attached are four (4) copies of the referenced report. Please note that a copy of the field notes, photographs and photograph log, and the completed contaminant exposure forms (three copies of each employee sampled) were provided with the draft report. Please call me if you have questions.

Sincerely,

Harry A. Pullum, CHH, CSP, CIAQP
Project Manager

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



Industrial Hygiene Survey
for VARNG – Winchester Readiness Center
181 Pendleton Drive
Winchester, Virginia 22602

AECOM
January 2013
Document No.: 60275401/ Winchester Readiness Center

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

Industrial Hygiene Survey
for VARNG – Winchester Readiness Center
181 Pendleton Drive
Winchester, Virginia 22602

Non-Responsive

A large black rectangular redaction box covering several lines of text.

Industrial Hygienist

Non-Responsive

A large black rectangular redaction box covering several lines of text.

Project Manager

Non-Responsive

A black rectangular redaction box covering a line of text.

Northeast District Health & Safety Manager

AECOM Environment
January 2013
Document No.: 60275401/ Winchester 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 Winchester Readiness Center Facility Layout

Appendix B Winchester Readiness Center Photographs

Appendix C Analytical Results

Appendix D References



List of Tables

Table 2-1: Lead Wipe Sample Results 2-1

Table 3-1: Indoor Air Quality Monitoring Results..... 3-2

Table 5-1: Light Survey 5-1



Executive Summary

On November 7, 2012, AECOM Technical Services Northeast, Inc. (AECOM) conducted an Industrial Hygiene (IH) survey of the Winchester Readiness Center facility located at 181 Pendleton Drive in Winchester, Virginia. SFC Non- was the point of contact for the facility and accompanied AECOM during the survey to provide access and information concerning the Winchester Readiness Center operations.

The industrial hygiene survey was conducted in general accordance with the scope of work as described in the "Statement of Work – Industrial Hygiene Services for National Guard Bureau Industrial Hygiene Region North – Baseline Surveys for Readiness Centers and Administrative Buildings," dated March 2009.

The Winchester Readiness Center is currently staffed by 20 personnel. The facility is configured as an administrative area and a drill/assembly hall.

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

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

Lighting levels measured throughout the facility were generally adequate as per American National Standard Institute/Illuminating Engineering Society of North America (ANSI/IESNA) RP-1-2004, Office Lighting, ANSI/IESNA RP-7-2001, Industrial Lighting, and the IESNA Lighting Handbook, 9th Edition, 11 April 2005. See Section 5 for a list of areas that did not meet the lighting standard.

Wipe samples collected in association with most administrative areas indicated lead levels below the Occupational Safety and Health Administration's (OSHA's) Clarification of "as free as practicable" and lead contamination under 29 Code of Federal Regulations (CFR) 1926.62, The Compliance Directive for the Interim Standard for Lead in Construction, CPL 2-2.58. OSHA recommends the use of the U.S. Department of Housing and Urban Development's (HUD) acceptable decontamination level of 200 micrograms per square foot (ug/ft²) for floors in evaluating the cleanliness of change areas, storage facilities, and lunchrooms/eating areas.

No Indoor Air Quality concerns were noted by the Winchester Readiness Center personnel. Instantaneous real-time reading for carbon monoxide and carbon dioxide (parts per million or ppm), temperature (° Fahrenheit), and relative humidity (as percentage) are presented in Table 3-1. Readings were generally within acceptable guidelines in those areas occupied by the facility staff.

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

No damaged suspect asbestos containing materials or areas of damaged/peeling paint were observed during the evaluation.

Roof leaks were reported throughout the facility and appear to be related to the contact between the roof and walls of the newly constructed facility. Continued moisture intrusion could lead to mold and mildew problems.



The Heating, Ventilation & Air Conditioning (HVAC) system in the building consists of a boiler room that feeds radiant heaters throughout the building. The air conditioning and fresh air intakes are reportedly located on the roof of the structure and were not accessible as part of this survey.

1.0 Facility Description and Operations

The Winchester Readiness Center is a two story masonry building of 54,000 square feet and was constructed in 2009. The section occupied by on a consistent basis by Readiness Center personnel consists is configured as office space and is finished with drywall; acoustical drop ceilings, and floor tile. There is no current indoor firing range.

The primary activity at the Winchester Readiness Center is routine administrative duties. The Winchester Readiness Center is currently staffed by approximately 20 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 multiple locations throughout the facility following the Occupational Safety & Health Administration (OSHA) wipe sampling method and using Ghost Wipes. The facility was recently constructed (2009) and did not contain a former firing range area. 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
001	Drill hall/floor in NW corner	<110 ug/ft ²
002	Kitchen cabinet on west wall	<110 ug/ft ²
003	Heater in storage room located beside classroom C	<110 ug/ft ²
004	Desk in orderly office	<110 ug/ft ²
005	Hallway floor tile to left of main foyer	<110 ug/ft ²
006	Top of locker #86 in men's locker room	<110 ug/ft ²
007	HVAC filter beside classroom C	<110 ug/ft ²

ug/ft² = Micrograms per square foot.

Wipe samples collected in association with most administrative areas indicated lead levels below the Occupational Safety and Health Administration's (OSHA's) Clarification of "as free as practicable" and lead contamination under 29 CFR 1926.62, The Compliance Directive for the Interim Standard for Lead in Construction, CPL 2-2.58. OSHA recommends the use of HUD's acceptable decontamination level of 200 ug/ft² for floors in evaluating the cleanliness of change areas, storage facilities, and lunchrooms/eating areas.

Laboratory analytical results are presented in Appendix C.

2.1.2 Air Sampling

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

3.0 Physical Condition of Facility and Personnel Concerns

3.1.1 Lead Based Paint

Interior surfaces of walls are coated with paint. The paint on the walls is new. 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 Winchester Readiness Center during this survey.

Typical suspect miscellaneous building materials observed but not sampled include drywall, floor tiles and associated mastic, cove base and associated mastic, ceiling tiles, carpet mastic, and window caulks.

3.1.3 Water Damage/Mold

AECOM did observe evidence of water intrusion during this survey. The roof is leaking at the building/roof interface and is being addressed by the building contractor.

3.1.4 Housekeeping

The Winchester 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 Winchester Readiness Center staff members. No Indoor Air Quality concerns were noted by the Winchester Readiness Center personnel.

Instantaneous real-time reading for carbon monoxide and carbon dioxide (parts per million or ppm), temperature (° Fahrenheit), and relative humidity (as percentage) are presented in the following table. The facility is mechanically air conditioned. Several temperature and relative humidity readings were below accepted standards as measured during the survey.

Table 3-1: Indoor Air Quality Monitoring Results

Location	Carbon Monoxide (ppm)	Carbon Dioxide (ppm)	Temp (°F)	Relative Humidity (%)
Break room	3.0	615	66.9	27.5
Copy room	2.7	765	67.0	29.5
Office space S-1	2.5	647	67.8	27.8
Office space S-4	2.9	737	68.1	25.1
Office S-2/S-3	2.9	514	67.3	25.1
Conference room	2.4	438	66.3	25.1
Exec office	2.1	464	67.3	25.7
East stairwell	2.4	481	65.8	24.8
Boiler room	1.9	491	65.3	29.0
Men's room	2.8	534	66.6	26.8
Gym	2.2	447	65.5	25.6
Drill floor	1.9	459	65.6	24.9
Kitchen	2.0	426	63.4	23.7
Kitchen cooks office	2.3	425	61.7	25.7
Classroom A,B,C	1.3	578	64.2	27.4
Operations center	1.6	458	65.2	27.9
Main foyer	1.9	466	65.2	25.8

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

Winchester 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 building is recently completed and as such has a new HVAC system. No dust was observed at diffusers, and site personnel indicated that the system seems to work well. Temperature readings were constant in all areas occupied by readiness center personnel.

4.1.2 HVAC Maintenance

HVAC maintenance is conducted by a third party vendor, records were not available for review.

There was no 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 as follows.

Table 5-1: Light Survey

Location	Results (Foot candles)	Met Standard (Y/N)	Standard*
Break room	54.8	Y	10
Copy room	56.3	Y	10
Office space S-1	37.0	N	50
Office space S-4	100.3	Y	50
Office S-2/S-3	69.9	Y	50
Conference room	50.5	Y	30
Exec office	64.7	Y	50
East stairwell	65.7	Y	5
Boiler room	21.3	N	30
Men's room	82.4	Y	5
Gym	18.9	Y	10
Drill floor	11.0	Y	10
Kitchen	53.6	Y	50
Kitchen cooks office	14.2	N	50
Classroom A,B,C	33.7	Y	30
Operations center	38.2	N	50
Main foyer	15.1	Y	10
Office Lighting (ANSI/IESNA RP-1-04) and Industrial Lighting Facilities (ANSI/IESNA RP-7-01)			

6.0 Evaluation of Attached Garage

There is no attached garage associated with the Winchester 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 Winchester Readiness Center.

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

Wipe samples collected in association with most administrative areas indicated lead levels below the Occupational Safety and Health Administration's (OSHA's) Clarification of "as free as practicable" and lead contamination under 29 CFR 1926.62, The Compliance Directive for the Interim Standard for Lead in Construction, CPL 2-2.58. OSHA recommends the use of HUD's acceptable decontamination level of 200 ug/ft² for floors in evaluating the cleanliness of change areas, storage facilities, and lunchrooms/eating areas.

No damaged suspect asbestos containing materials or areas of damaged/peeling paint were observed during the evaluation.

Roof leaks were reported throughout the facility and appear to be related to the contact between the roof and walls of the newly constructed facility. The water leaks need to be identified and repaired and the water stained ceiling tiles replaced. Continued moisture intrusion could lead to mold and mildew problems.

The Heating, Ventilation & Air Conditioning (HVAC) system in the building consists of a boiler room that feeds radiant heaters throughout the building. The air conditioning and fresh air intakes are reportedly located on the roof of the structure and were not accessible as part of this survey.

No Indoor Air Quality concerns were noted by the Winchester Readiness Center personnel. Instantaneous real-time reading for carbon monoxide and carbon dioxide (parts per million or ppm), temperature (° Fahrenheit), and relative humidity (as percentage) were generally within acceptable guidelines in those areas occupied by the facility staff.

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

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.

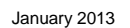
As with all such surveys, the results of the sampling represent conditions found on the date of the survey and may not represent conditions found at other times. Additionally, this survey was limited with respect to the specific parameters indicated above and should not be construed to be a comprehensive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

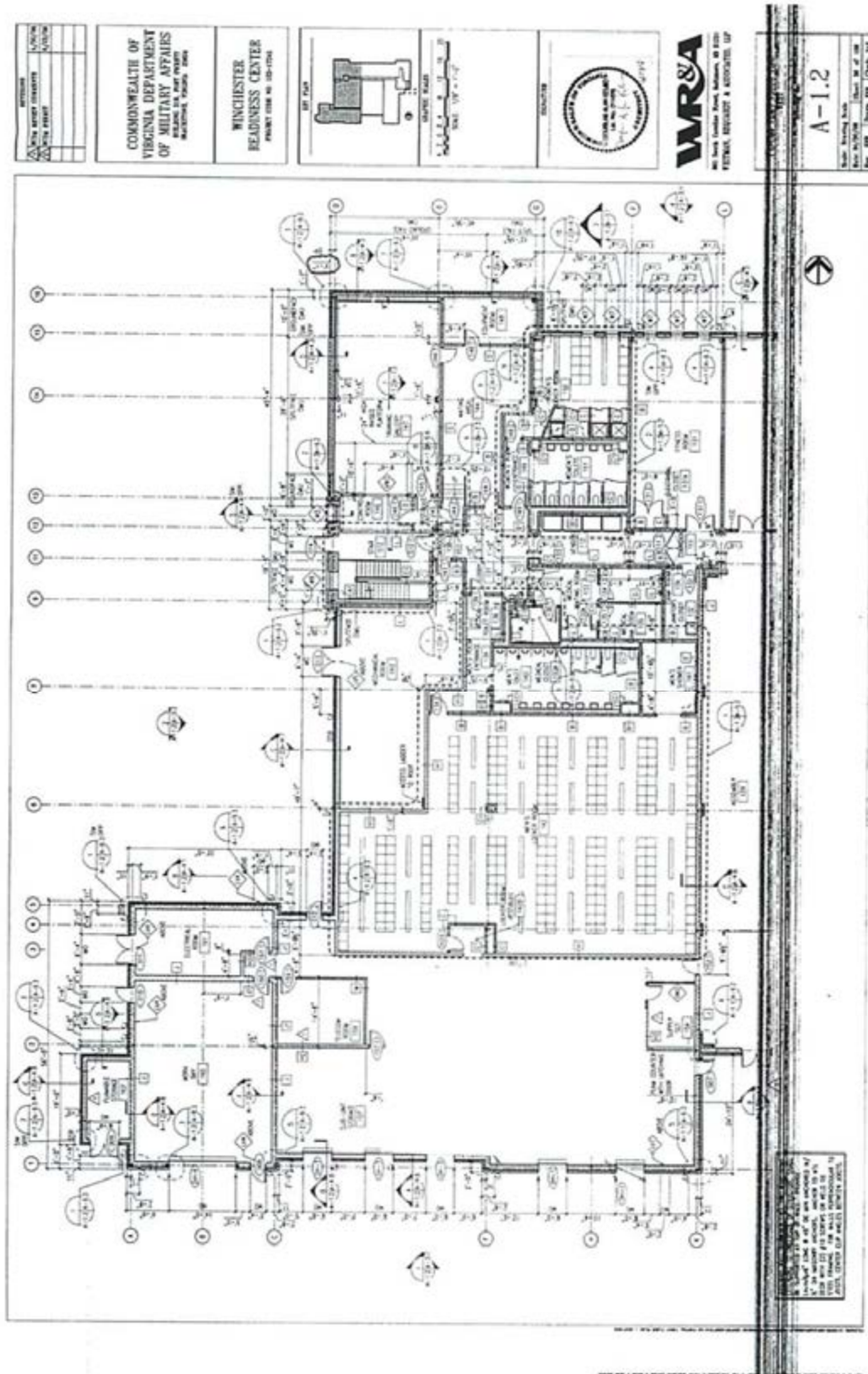
be used as a guide to evaluate the need for further investigation or the need for modifications to the processes or procedures surveyed.

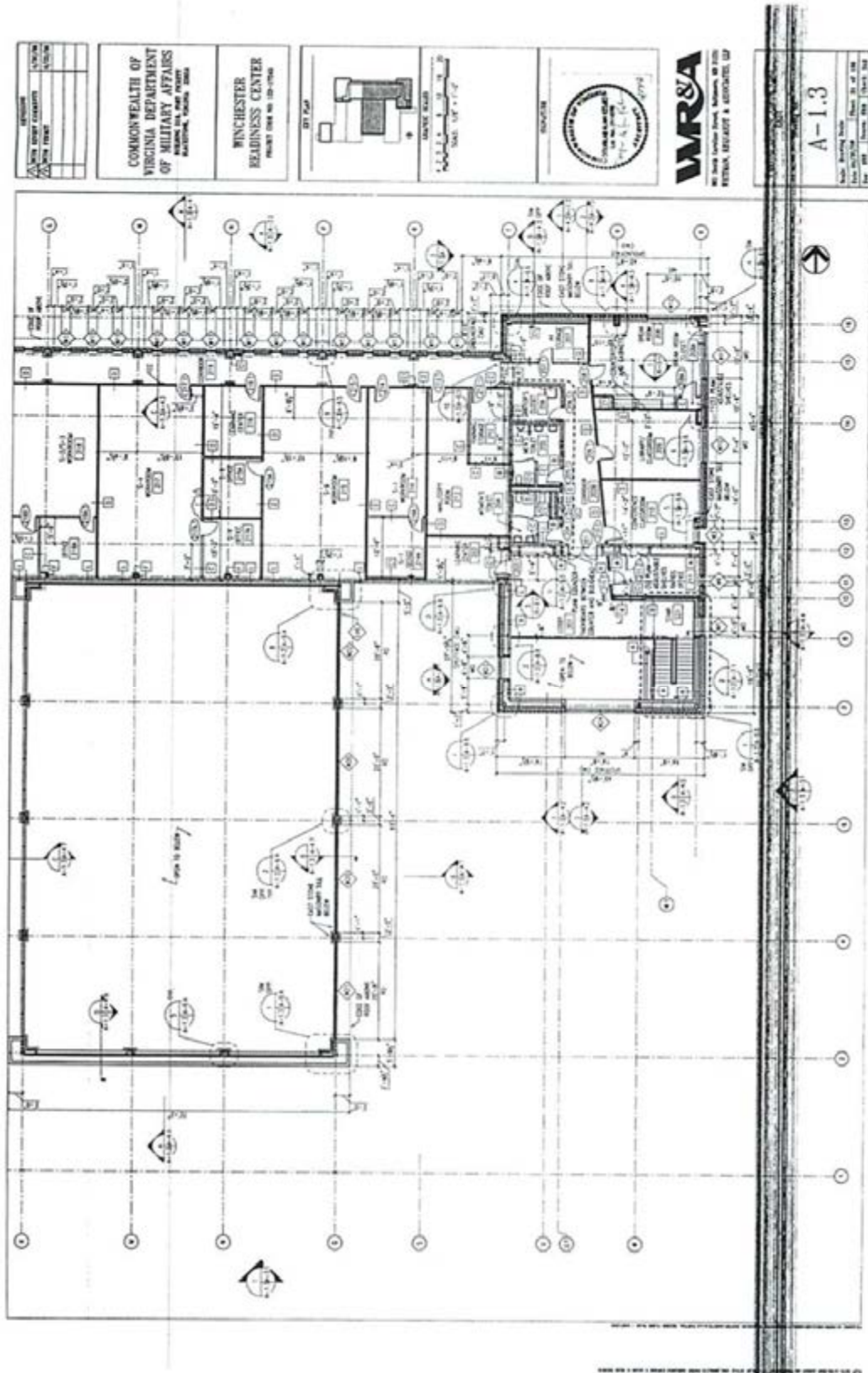
The Client recognizes and agrees that all testing and remediation methods have reliability limitations, no method nor number of sampling locations can guarantee that a condition will be discovered within the performance of the services as authorized by the Client. Additionally, the passage of time may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

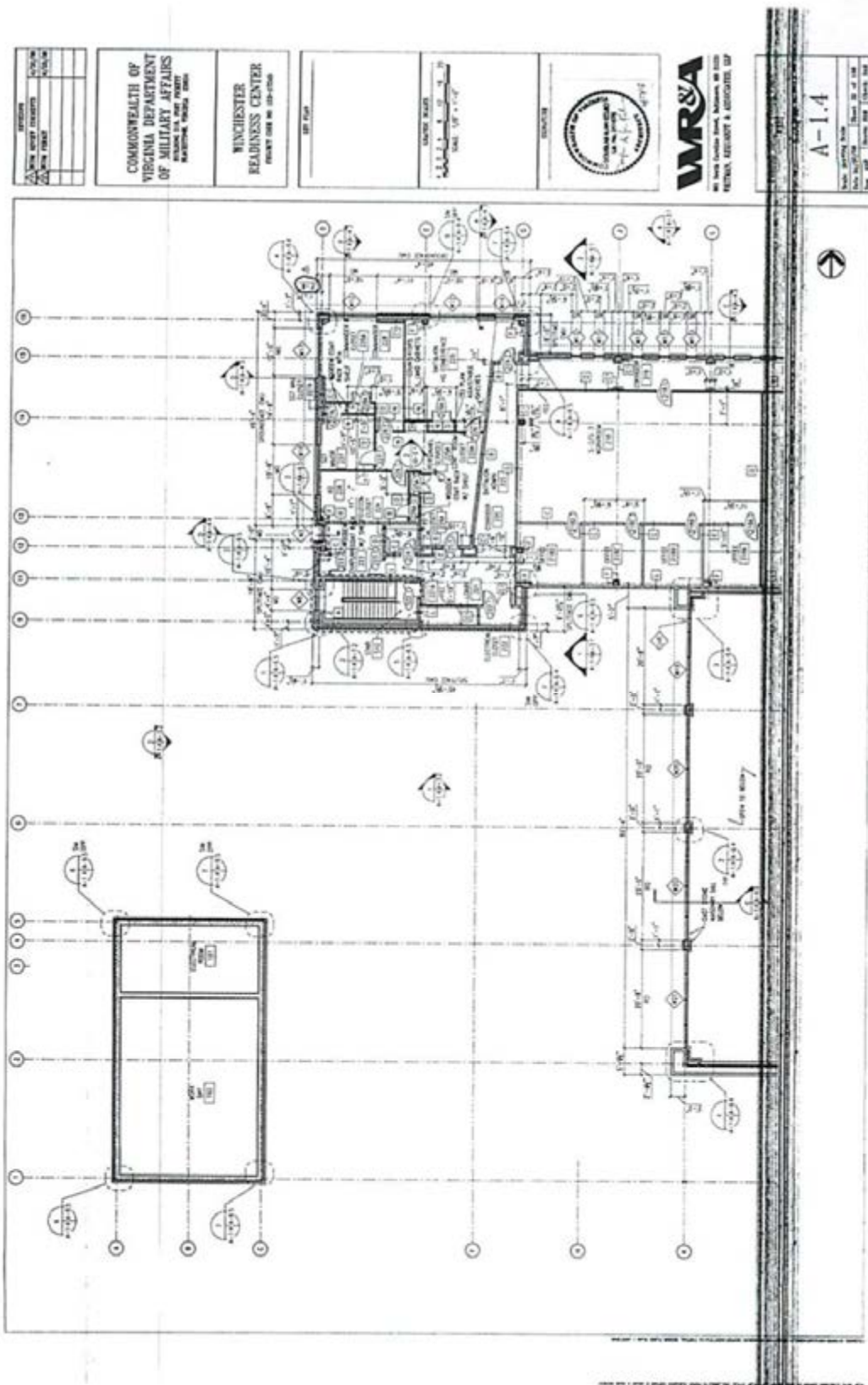
Appendix A

Winchester Readiness Center Facility Layout









Appendix B

Winchester Readiness Center Photographs

Photograph 1



Winchester building

Photograph 2



Detached garage

Photograph 3



Foyer typical interior construction

Photograph 4



Boiler room

Photograph 5



Drill floor wipe sample

Photograph 6



Drill floor heater

Photograph 7



Drill floor

Photograph 8



Kitchen

Photograph 9



Orderly room roof leak

Photograph 10



Heater wipe samples in storage room beside classroom C

Appendix C

Analytical Results

AMA Analytical Services, Inc.



A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS



LAB #100470

Client: National Guard Bureau Job Name: VA ANG IH Survey Chain Of Custody: 514760
 Address: 301-1H Old Bay Lane, Attn: ARNG-CJG-P, State Military Reservation Job Location: Winchester Date Submitted: 12/12/2012
 Harre de Grace, Maryland 21078 Job Number: Not Provided Person Submitting: AECOM
 P.O. Number: W912K6-09-A-0063 Date Analyzed: 12/17/2012 Report Date: 12/17/2012

Attention: **Non-Responsive**

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	Total ug	Final Result	Comments
13021657	001	Flame	Wipe	****	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13021658	002	Flame	Wipe	****	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13021659	003	Flame	Wipe	****	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13021660	004	Flame	Wipe	****	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13021661	005	Flame	Wipe	****	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13021662	006	Flame	Wipe	****	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13021663	007	Flame	Wipe	****	0.111	110 ug/ft ²	<12	<110 ug/ft ²	

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

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

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

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

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

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

Air and Wipe results are not corrected for any blank results

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

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

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

Non-Responsive

Analyst

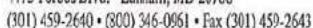
Technical Manager

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. 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.

An AIHA (#100470) and NY ELAP (#10920) Accredited Laboratory

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



514760

5. Submitted by: AFCOM (Signal) **Non-Responsive**

LABORATORY STAFF ONLY (CUSTODY)

1. Date/Time RCVD: 12/12/12 @ 1030 PM Via FedEx By (Print) [Redacted]
2. Date/Time Analyzed: _____ @ _____ By (Print) _____
3. Results Reported To: _____ Via _____ Date: _____/_____/_____ Time: _____ Initials: _____
4. Comments: 2991 0628 9090

Surface Sampling Field Data Sheet

Date Collected: 11/07/12Job Name: Winchester RC FH surveyCompany: Hurt & Poterius Page 1 of 1Job Number: 2012-0179Job Location: Winchester VAPhone Number: 434-941-6152Contact Person: Non-RespoAddress: 608 Millwood RdCollected By: Non-RespoWinchester VA 22601COC Number: 1

Sample Number	Sample Location	Surface/Substrate Sampled	Area Wiped (in ² /ft ²)	Collection Media
001	Drill Hall	Floor in NW corner	16 in ²	Wipe
002	Kitchen cabinet on West Wall	Top of steel cabinet		
003	Heater unit in room used for storage beside classroom C			
004	Desk in ordinary office	Desk		
005	Hallway Floor to left of main door	Tile Floor		
006	Top of locker #86 in mens locker room	Metal		
007	HVAC Filter beside classroom C	Metal	↓	↓



Please Return Samples To:
 AMA Analytical Services, Inc., 4475 Portes Blvd., Lanham, MD 20766, (800) 346-0961/(301) 459-2640 Fax, www.amalab.com, info@amalab.com



Appendix D

References

References

1. Title 29, Code of Federal Regulations (CFR), Part 1910, Occupational Safety and Health Administration, current Ed. <http://www.osha.gov/comp-links.html>
2. Department of Defense Instruction (DODI) 6055.1, Department of Defense Occupational Safety and Health (OSH) Program, August 19, 1998. <http://www.dtic.mil/whs/directives/corres/pdf/605501p.pdf>
3. Army Regulation (AR) 11-34, The Army Respiratory Protection Program, 15 February 1990. http://armypubs.army.mil/epubs/pdf/R11_34.PDF
4. AR 40-5, Medical Service, Preventive Medicine, 25 May 2007. http://armypubs.army.mil/epubs/pdf/R40_5.PDF
5. AR 385-10, The Army Safety Program, 23 August 2007; Rapid Action Revision (RAR) issue date: 4 October 2011. http://armypubs.army.mil/epubs/pdf/R385_10.PDF
6. Department of the Army Pamphlet (DA PAM) 40-501, Medical Services, Hearing Conservation Program, 10 December 1998. http://armypubs.army.mil/epubs/pdf/P40_501.pdf
7. DA PAM 40-11, Preventive Medicine, 22 July 2005, RAR issue date: 19 October 2009. http://armypubs.army.mil/epubs/pdf/p40_11.pdf
8. DA PAM 40-503, Medical Services, Industrial Hygiene Program, 30 October 2000. http://armypubs.army.mil/epubs/pdf/P40_503.PDF
9. UFC 3-410-01FA, Heating, Ventilating, and Air Conditioning, 15 May 2003, change 4, January 2010. http://www.wbdg.org/ccb/DOD/UFC/ufc_3_410_01fa.pdf
10. Threshold Limit Values (TLVs) and Biological Exposure Indices (BEIs), American Conference of Governmental Industrial Hygienists (ACGIH), current Ed.
11. Industrial Ventilation – A Manual of Recommended Practice for Design, ACGIH, current Ed.
12. American National Standards Institute (ANSI)/International Safety Equipment Association (ISEA) Z358.1-2009, Emergency Eyewash and Shower Equipment.
13. ANSI/American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. (ASHRAE) 55-2010, Thermal Environmental Conditions for Human Occupancy.
14. ANSI/ASHRAE 62.1-2010, Ventilation for Acceptable Indoor Air Quality.
15. RP-1-2004, Office Lighting, ANSI/IESNA.
16. RP-7-2001, Industrial Lighting, ANSI/IESNA, change 20 July 2004.
17. OSHA Instruction Letter 02-02-058, Lead Exposure in Construction, Office of Health Compliance Assistance, 13 December 1993.
18. OSHA Standard Interpretation, Clarification of “as free as practicable” and lead contamination under 29 CFR 1926.62, dated January 13, 2003.
19. NG PAM 420-15, Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges, 3 November 2006. http://www.ngbpdc.ngb.army.mil/pubs/420/ngpam420_15.pdf

Shaw Environmental, Inc.

312 Directors Drive
Knoxville, TN 37923
865.690.3211
Fax 865.690.3626



**National Guard Armory
Woodstock Readiness Center
Woodstock, Virginia**

Industrial Hygiene Evaluation

Prepared for:

**National Guard Region North Industrial Hygiene Office
Havre De Grace, Maryland 21078**

Prepared by:

**Shaw Environmental, Inc.
312 Directors Drive
Knoxville, Tennessee 37923**

24 June 2004

**National Guard Armory
Woodstock Readiness Center
Woodstock, Virginia**

Industrial Hygiene Evaluation

Prepared for:

**National Guard Region North Industrial Hygiene Office
Havre De Grace, Maryland 21078**

Prepared by:

**Shaw Environmental, Inc.
312 Directors Drive
Knoxville, Tennessee 37923**

24 June 2004

Prepared by:

Non-Responsive

Environmental Scientist

Reviewed by:

Non-Responsive

Business Line Manager

Table of Contents

<i>Table of Contents</i>	<i>i</i>
<i>List of Tables</i>	<i>ii</i>
<i>List of Appendices</i>	<i>ii</i>
<i>Executive Summary</i>	<i>E-1</i>
<i>1.0 Introduction</i>	<i>1-1</i>
<i>2.0 Findings, Discussion, and Interpretation of Results</i>	<i>2-1</i>
<i>2.1 Sampling for Lead</i>	<i>2-1</i>
<i>2.1.1 Wipe Sampling</i>	<i>2-1</i>
<i>2.1.2 Air Sampling for Lead</i>	<i>2-2</i>
<i>2.2 Physical Condition of Facility</i>	<i>2-2</i>
<i>2.2.1 Peeling Paint - Lead</i>	<i>2-2</i>
<i>2.2.2 Visual Inspection - Asbestos</i>	<i>2-2</i>
<i>2.2.3 Visual Inspection - Water Damage and Mold</i>	<i>2-2</i>
<i>2.2.4 Visual Inspection - Housekeeping</i>	<i>2-3</i>
<i>2.3 Building Concerns</i>	<i>2-3</i>
<i>2.3.1 Ergonomic Concerns</i>	<i>2-3</i>
<i>2.3.2 Indoor Air Quality</i>	<i>2-3</i>
<i>2.4 Safety and Industrial Hygiene Programs</i>	<i>2-3</i>
<i>2.5 Ventilation</i>	<i>2-4</i>
<i>2.5.1 Ventilation System Evaluation</i>	<i>2-4</i>
<i>2.5.2 Contamination of Clean Air Sources</i>	<i>2-4</i>
<i>2.6 Noise Exposure</i>	<i>2-4</i>
<i>2.7 Lighting</i>	<i>2-4</i>
<i>2.8 Converted Indoor Firing Ranges</i>	<i>2-4</i>
<i>2.9 HVAC Systems</i>	<i>2-4</i>
<i>2.10 HHIM</i>	<i>2-5</i>
<i>3.0 Conclusions</i>	<i>3-1</i>
<i>Tables</i>	<i>Follows Section 3.0</i>
<i>Appendices</i>	<i>Follows Tables</i>

List of Tables

Table 1	Wipe Sampling for Lead
Table 2	Air Sampling for Lead
Table 3	Indoor Air Quality Measurements
Table 4	Illumination Readings

List of Appendices

Appendix A	HHIM Data Form
Appendix B	Building Layout
Appendix C	Sampling Sheets and Laboratory Analyses
Appendix D	References
Appendix E	Recommendations for Surface Lead Dust in Armories

Executive Summary

Shaw Environmental, Inc. (Shaw) was contracted to perform an industrial hygiene evaluation for the Woodstock Readiness Center in Woodstock, Virginia. [Non-Responsive] performed the evaluation on 27 January 2004. The point of contact at the readiness center was SFC [Non-Responsive].

The following industrial hygiene concerns were evaluated.

- Wipe Sampling for Lead
- Air Sampling for Lead
- Peeling Paint – Lead
- Suspected Asbestos Containing Material
- Water Damage
- Presence of Mold
- Housekeeping
- Ergonomic Concerns
- Indoor Air Quality
- Safety and Industrial Hygiene Programs
- Ventilation System Evaluation
- Contamination of Clean Air Sources
- Noise Exposure
- Lighting
- Converted Indoor Firing Range
- HVAC Systems

The following items were either not applicable to the armory or the evaluation resulted in a conclusion that there were no industrial hygiene concerns.

- Air Sampling for Lead
- Peeling Paint – Lead
- Suspected Asbestos Containing Material
- Housekeeping
- Ergonomic Concerns
- Safety and Industrial Hygiene Programs

- Ventilation System Evaluation
- Contamination of Clean Air Sources
- Noise Exposure
- Converted Indoor Firing Range
- HVAC Systems

Areas where there were industrial hygiene concerns are as follows:

- Wipe sampling for lead revealed concentrations above a level of 40 micrograms per square foot ($\mu\text{g}/\text{ft}^2$) in several locations in the drill floor/assembly hall area. Areas with lead concentrations above $40 \mu\text{g}/\text{ft}^2$ that will be accessible to children should be cleaned. If a special function is held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function.
- Water damage was observed at several locations at the armory. The source of the water damage was likely from a combination of roof and pipe leaks. The source of the water damage should be confirmed and actions taken to eliminate the source in order to prevent the possibility of mold growth that may lead to indoor air quality problems.
- Visual mold was observed in the armory. The area where the mold is located should be thoroughly cleaned with 0.5% sodium hypochlorite solution (1 part household bleach to nine parts water) or equivalent in order to eliminate the potential mold/indoor air quality problem. In addition, the cause of the mold should be determined and actions taken to eliminate it.
- Measurements for humidity revealed that levels did not meet the recommended level of 30% in the facility. It is recommended that a humidification system be installed at the facility.
- Lighting measurements were conducted at the armory. The lighting did not meet minimum requirements in some areas; therefore, consideration should be given to providing more lighting in these areas. This may be accomplished by replacing burnt out luminaires, cleaning fixtures, cleaning windows, painting walls with a lighter color, repositioning detailed work to higher illuminated areas, and using supplemental lighting.

1.0 Introduction

Shaw Environmental, Inc. (Shaw) was contracted to perform an industrial hygiene evaluation for the Woodstock Readiness Center in Woodstock, Virginia. Non-Responsive performed the evaluation on 27 January 2004. The point of contact at the readiness center was SFC Non-Responsive.

The findings, discussion, and interpretation of results are provided in Section 2.0. The conclusions are provided in Section 3.0. The HHIM data form for the facility is provided in Appendix A. The building layout is provided in Appendix B. Sampling sheets and laboratory analyses are provided in Appendix C. References are provided in Appendix D. The *Recommendations for Surface Lead Dust in Armories* document is provided in Appendix E.

The statements, opinions, and conclusions contained in this report are based solely upon the services performed by Shaw as described in the report. In performing these services and preparing the report, Shaw Environmental, Inc. relied upon the work and information provided by others, including public agencies, whose information is not guaranteed by Shaw Environmental, Inc.

2.0 Findings, Discussion, and Interpretation of Results

The results, discussion, and interpretation of results are provided in the following sections.

2.1. Sampling for Lead

2.1.1 Wipe Sampling

Wipe samples were collected for lead from the drill floor/assembly area. Also, wipe samples were collected for lead in rooms, hallways, foyers, etc. The sampling in rooms, hallways, foyers, etc. represented approximately 25% of the building. Approximately half of the samples were collected from surfaces in common areas, such as surfaces of a desk. The remaining samples were collected from uncommon surface areas, such as a supply vent or the top of a file cabinet. The samples were collected and analyzed in accordance with the Instructions for *Completing the Sampling of ARMY National Guard Armories* procedure.

The only samples initially submitted for analysis were those from the drill floor/assembly hall. If there were any results above the recommended level from the drill floor/assembly hall, the other samples would have been submitted for analysis.

Results of the wipe sampling are provided in Table 1. The results revealed lead at all locations sampled at concentrations below recommended level of 200 micrograms lead per square foot ($\mu\text{g}/\text{ft}^2$) (See Appendix E); therefore, no actions are necessary. Since the levels were below the recommended level, the other samples were not submitted for analysis.

However, wipe sampling for lead revealed concentrations above a level of $40 \mu\text{g}/\text{ft}^2$ in the drill floor/assembly hall area. Please note that the *Recommendations for Surface Lead Dust in Armories* (Appendix E) states that all areas with lead concentrations above $40 \mu\text{g}/\text{ft}^2$ that will be accessible to children should be cleaned. If a special function is held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function.

2.1.2 Air Sampling for Lead

Breathing zone air sampling was conducted on two (2) full-time building occupants. (Please note that no state employees were monitored.) The samples were collected and analyzed in accordance with Method 7082 of the National Institute of Occupational Safety and Health (NIOSH) Manual of Analytical Methods.

The results of the sampling are provided in Table 2. The results revealed non-detectable concentrations of lead in the breathing zone of the employees; therefore, no actions are necessary.

2.2 Physical Condition of Facility

2.2.1 Peeling Paint - Lead

Peeling paint was not observed at the armory; therefore, bulk samples for lead in paint were not taken.

2.2.2 Visual Inspection - Asbestos

A visual inspection was made to determine if there was any suspected asbestos-containing material at the armory. The inspection did not reveal any materials suspected of containing asbestos.

2.2.3 Visual Inspection - Water Damage and Mold

A visual inspection was made to determine if there was any water damage or visible mold at the armory. Both visible mold and water damage was observed at the armory. Water damage was observed on the ceilings and some walls in rooms 104, 110, 142, 143, and lobby.

The source of the water damage was likely from a combination of roof and pipe leaks. The source of the water damage should be confirmed and actions taken to eliminate the source in order to prevent the possibility of mold growth that may lead to indoor air quality problems.

Visible mold was observed on the ceilings and walls in room 104. The area where the mold is located should be thoroughly cleaned with 0.5% sodium hypochlorite solution (1 part household bleach to nine parts water) or equivalent in order to eliminate the

potential mold/indoor air quality problem. In addition, the cause of the mold should be determined and actions taken to eliminate it.

2.2.4 Visual Inspection - Housekeeping

The housekeeping was determined to be good.

2.3. Building Concerns

2.3.1 Ergonomic Concerns

Interviews with employees and observation of work activities revealed no ergonomic concerns at the armory.

2.3.2 Indoor Air Quality

Interviews with employees and measurements for carbon dioxide and temperature revealed no indoor air quality concerns at the armory. However, measurements for humidity revealed that levels did not meet the recommended level of 30% in the facility. It is recommended that a humidification system be installed at the facility.

The results of the measurements for carbon dioxide, humidity, and temperature are provided in Table 3.

2.4. Safety and Industrial Hygiene Programs

An evaluation was performed to determine the applicability of the following programs.

- Confined Spaces
- Hearing Conservation
- Respiratory Protection
- Hazard Communication (HAZCOM)
- Personal Protective Equipment (PPE)

It was determined that the HAZCOM program was the only program listed above that was applicable at the facility. The HAZCOM program was evaluated and it was determined that the program met minimum requirements.

2.5. Ventilation

2.5.1 Ventilation System Evaluation

There were no local exhaust ventilation systems at this armory; therefore, no ventilation studies were performed.

2.5.2 Contamination of Clean Air Sources

Since there were no local exhaust ventilation systems at the armory, there was no possibility that clean air sources could be contaminated by exhaust air.

2.6. Noise Exposure

An evaluation was performed to determine if there were any hazardous noise areas at the armory. It was determined that there were no areas at the armory that would exceed the permissible exposure limit for noise.

2.7. Lighting

Lighting measurements were conducted at the armory. Results of the lighting evaluation are provided in Table 4. As can be seen from the results, the lighting did not meet the minimum requirements in some areas, including the pellet gun range and supply room.

Consideration should be given to providing more lighting to these areas. This may be accomplished by replacing burnt out luminaries, cleaning fixtures, cleaning windows, painting walls with a lighter color, repositioning detailed work to higher illuminated areas, and using supplemental lighting.

2.8. Converted Indoor Firing Ranges

There was not a converted indoor firing range at the armory. A firing range was constructed, but has never been used as a typical firing range due to "an EPA order because the exhaust air was not filtered". The firing range has been used to fire pump-type pellet guns.

2.9. HVAC System

The maintenance schedule for the HVAC system was evaluated to verify that maintenance occurs on a regular basis. Also, the condition of the HVAC system was

evaluated to determine if the maintenance performed is effective. It was deemed that maintenance occurs on a regular basis, and the maintenance performed is effective.

2.10. HHIM

A Health Hazard Information Module (HHIM) form was completed for the armory. The completed form is provided in Appendix A.

3.0 Conclusions

It is concluded that there were no industrial hygiene concerns at the armory with regards to atmospheric exposure to lead, peeling lead-based paint, suspected asbestos-containing material, housekeeping, ergonomic conditions, safety and industrial hygiene programs, ventilation systems or contamination of clean air sources, noise exposure, surface lead contamination in the converted firing range, and HVAC systems.

There were industrial hygiene concerns at the armory with regards to lead surface contamination, water damage, visible mold, indoor air quality, and lighting. These concerns are discussed in detail in Section 2.0 of this report.

TABLES

Table 1
Wipe Sampling for Lead
National Guard Armory
Woodstock, Virginia
Date of Sampling: 27 January 2004

Sample Number	Location	Results, $\mu\text{g}/\text{ft}^2$ ^a
VAW00027-1	Drill Floor (fire extinguisher case top surface) See Building Layout - Appendix B	180
VAW00027-2	Drill Floor (fire extinguisher case top surface) See Building Layout - Appendix B	40
VAW00027-3	Drill Floor (kitchen service window) See Building Layout - Appendix B	18
VAW00027-4	Drill Floor (bollard next to drill hall garage door) See Building Layout - Appendix B	19
VAW00027-5	Drill Floor (vending machine top surface) See Building Layout - Appendix B	190
VAW00027-6	Field Blank	0.40

^aMicrograms lead per square foot

The samples were taken and analyzed in accordance with the *Instructions for Completing the Sampling of ARMY National Guard Armories* procedure.

In armories that do not contain childcare facilities, the NGB Region North Industrial Hygiene Office recommends cleaning the areas with sample results greater than $200 \mu\text{g}/\text{ft}^2$

Table 2
Breathing Zone Air Samples for Lead
National Guard Armory
Woodstock, Virginia
Date of Sampling: 27 January 2004

Sample Number	Employee	Sampling Information			Results (mg/m ³) ^a
		Time Sampled / Minutes	Flow Rate (lpm) ^b	Volume (liters)	
VAWOO027-A1	Non-Responsive	1500-1625/85	1.679	142.00	<0.007
VAWOO027-A2		1505-1630/85	1.647	140.00	<0.007
VA WOO027-A3	Field Blank	-	-	-	None Detected

^a Milligrams lead per cubic meter of air.

^b Liters of air per minute.

Method 7082 of the National Institute of Occupational Safety and Health (NIOSH) Manual of Analytical Methods was followed for sampling for lead.

Table 3
Indoor Air Quality Measurements for Carbon Dioxide, Humidity, and Temperature
National Guard Armory
Woodstock, Virginia
Date of Sampling: 27 January 2004

Location	Occupants In Area	Carbon Dioxide, parts per million parts of air (ppm)	Percent (%) Humidity	Temperature (°F)
1 st Floor (Office Area)	40-50	804	27.6	70.6
Outdoors	-	278	22.7	43.2

Carbon dioxide, humidity, and temperature measurements were taken with a TSI Q Trak Plus, Model 8554, Indoor Air Quality Meter, calibrated in April 2003.

American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE) recommends that indoor carbon dioxide levels be less than 700 ppm above outdoor levels.

ASHRAE recommends that the relative humidity levels be maintained between 30 to 60 percent.

ASHRAE recommends that the acceptable temperature range be 68 degrees Fahrenheit to 74 degrees Fahrenheit in the winter and 73 degrees Fahrenheit to 79 degrees Fahrenheit in the summer.

Table 4
Illumination Readings
National Guard Armory
Woodstock, Virginia
Date of Sampling: 27 January 2004

Location	Luminance (fc) ^a	Standard (fc) ^a	Standard Met
Room 102	100-177.7	70	Yes
Room 111	66.6-133.3	70	Some Areas
Room 113	72.2-133.3	70	Yes
Pellet Gun Range	50-66.6	70	No
Room 116	72.2-111.1	70	Yes
Supply Room	27.7-61.1	30	Some Areas
Kitchen	94.4-133.3	70	Yes
Locker Room	22.2-77.7	40	Some Areas
Men's Latrine	38.8-111.1	40	Some Areas
Women's Latrine	44.4-111.1	40	Yes
Classroom	66.6-122.2	70	Some Areas
Room 142	100-155.5	70	Yes
Room 143	111.1-155.5	70	Yes
Room 106	83.3-133.3	70	Yes

^a fc - footcandles

The readings were taken with a Weston model 614-60 Lightmeter.

The standards listed above are from ANSI/IES RP-1 and RP-7.

Appendix A

HHIM Data Form(s)

HEALTH HAZARD INFORMATION MODULE: INDUSTRIAL HYGIENE SURVEY

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

SECTION 1. DEMOGRAPHIC DATA

ARLOC 24255	INSTALLATION APG-EA	BLDG/RM NO. WOODSTOCK
LOCATION/CODE ADMINISTRATIVE AREA / AA	OPERATION/CODE ADMINISTRATIVE OPERATIONS / ADD	
SURVEY DATE 27 JANUARY 2004	EVALUATOR (Initials) Non-Responsible	
MACOM/CODE	SUBMACOM/CODE XX	SUPERVISOR SFC Non-Responsible
TELEPHONE/DSN NO. (540) 459 3344	UNIT/ORGANIZATION WOODSTOCK ARMORY	RAC S
NO. CIV(S) 0	NO. MIL 3	NO. CONTRACTOR(S) 0
	NO. LOC(S) -	NO. OTHER -
FREQUENCY (hrs/day) 8		

SECTION 2. FACILITY DATA

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

SECTION 3. SURVEY DATA

CONTROLS PRESENT	EVALUATION	UNIT CODE	CONTROLS REQUIRED	STATUS

PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized)

GLOVES	R	U	RESPIRATOR	NIOSH TC NO.	MANUFACTURER	R	U
ACID			AIRLINE				
COLD SURFACES			ABRASIVE BLASTING HOOD				
HOT SURFACES			DISPOSABLE				
IBC AGENTS			FULL FACE AIR PURIFYING				
OIL			1/2 FACE AIR PURIFYING				
SOLVENTS			POWERED AIR PURIFYING				
SURGICAL GLOVES			1/4 FACE AIR PURIFYING				
			SELF CONTAINED				

EYES/FACE	R	U	HEARING	R	U	BODY	R	U	HEAD/HT	R	U
CHEMICAL SPLASH			CANAL CAPS			APRONS			COLD WEATHER BOOTS/HATS		
FULL FACE SHIELD			EAR PLUGS			COLD WEATHER CLOTHING			HARD HATS		
CHEMICAL/SAFETY			HELMETS			COVERALLS			IMPERMEABLE BOOTS		
SAFETY/IMPACT			MUFFS			FULL BODY SUIT			SAFETY/CONDUCTIVE SHOES		
WELDING HELMET			MUFF/EARPLUG COMBO			HEAT REFLECTIVE VEST/SUIT			SAFETY/NON-CONDUCTIVE SHOES		
			MUFF/EARPLUG W/TIME LIMIT			SAFETY BELT/HARNES					

SECTION 4. HAZARD INVENTORY DATA

CAS CODE	HAZARD DESCRIPTION	PAC	EPC
POVDXXXXX	VIDEO DISPLAY TERMINAL	3-LOW	D- UNCONTROLLED PHYSICAL
7439-92-1	LEAD, INORGANIC DUSTS & FUMES	2- MODERATE	C- UNCONTROLLED RESPIRATORY
1332-21-4	ASBESTOS	3-LOW	C- UNCONTROLLED RESPIRATORY
124-38-9	CARBON DIOXIDE	2- MODERATE	C- UNCONTROLLED RESPIRATORY
PO LIFTING	HEAVY LIFTING	2- MODERATE	D- UNCONTROLLED PHYSICAL
PO HEAT STR	HEAT STRESS	3-LOW	D- UNCONTROLLED PHYSICAL

SECTION 5. PERSONNEL DATA

LAST NAME	FIRST NAME	MI	SEX	(LAST FOUR) SSN	CATEGORY
Non-Responsive		H	m	Non-Responsive	MIL
		A	m		MIL
		A	m		MIL

SECTION 6. COMMENTS

☒ No comments

☐ See attached sheet

PRIVACY ACT STATEMENT

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

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

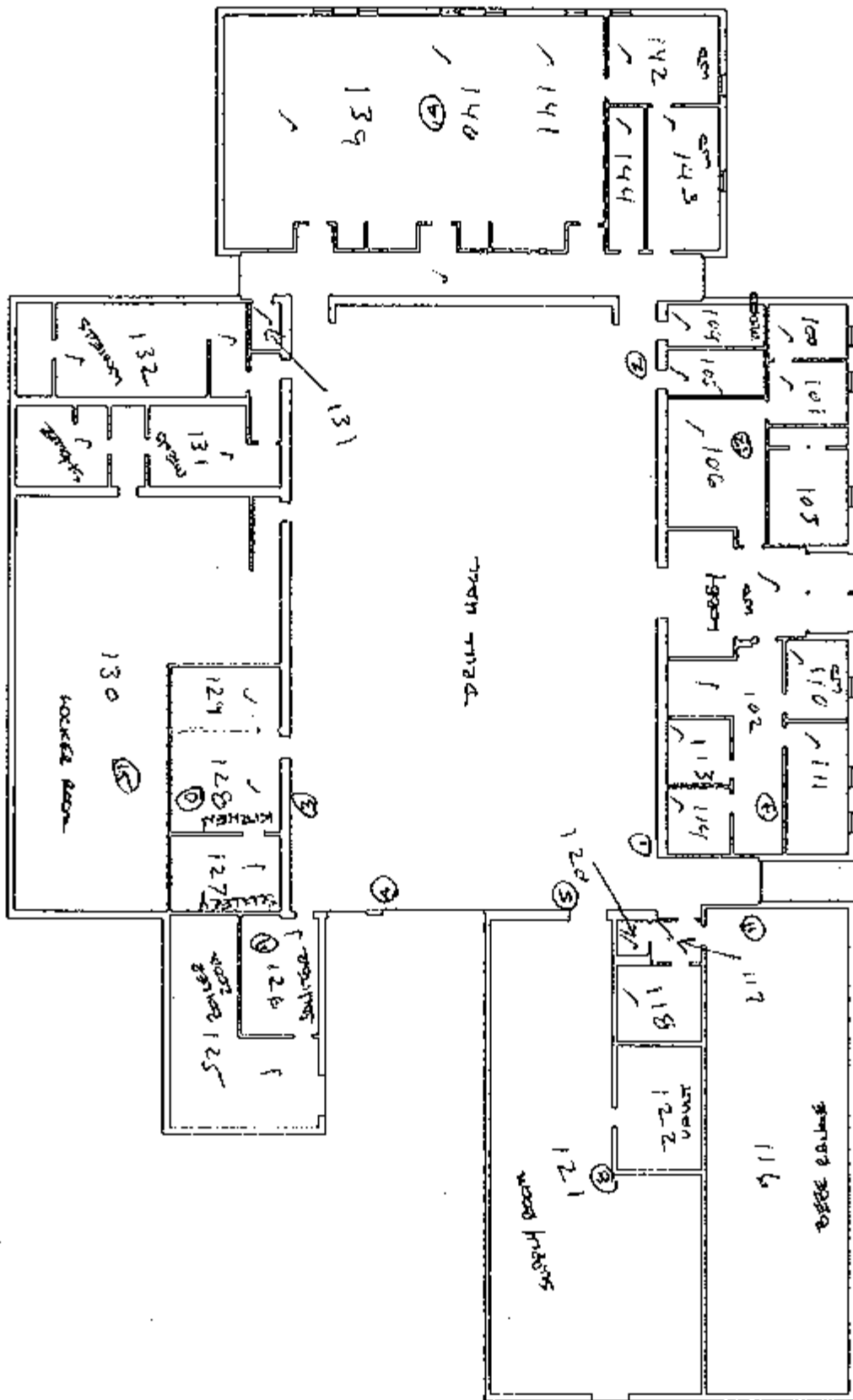
Woodstock Armory

Co. B 3/116th Infantry 29th ID (L)
Non-Responsive
Readiness NCO
Supply NCO
Recruiter

Non-Responsive

Appendix B

Building Layout



Appendix C

Sampling Sheets and Laboratory Analyses

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

Job Name: VA WOO 027
Job Location: Woodstock, Virginia
Job Number: 845702 01000000
P.O. Number: 1103

Chain Of Custody: 122664
Date Analyzed: 02/07/2004
Person Submitting:
Report Date: 09-Feb-04

Attention: **Non-Responsive**

Summary of Atomic Absorption Analysis for Lead

AMA Sample Number	Client Sample Number	Analysis Type	Sample Type	Air Volume (L)	Area Wiped (ft²)	Reporting Limit	Final Result	Comments
0422935	VA WOO 027 1	Furnace	Wipe	****	0.111	67.51 ug/ft²	180 ug/ft²	
0422936	VA WOO 027 2	Furnace	Wipe	****	0.111	6.75 ug/ft²	40 ug/ft²	
0422937	VA WOO 027 3	Furnace	Wipe	****	0.111	2.70 ug/ft²	18 ug/ft²	
0422938	VA WOO 027 4	Furnace	Wipe	****	0.111	2.70 ug/ft²	19 ug/ft²	
0422939	VA WOO 027 5	Furnace	Wipe	****	0.111	67.51 ug/ft²	190 ug/ft²	
0422940	VA WOO 027 6	Furnace	Wipe Blank	****	N/A	0.30 ug	0.4 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:

Non-Responsive

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 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.

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

All rights reserved. AMA Analytical Services, Inc.

BEST AVAILABLE COPY

**DATA
CHEM**
LABORATORIES, INC.TEST REPORT
Page 1 of 2
2/6/04Submitted To: **Non-Responsive**Shaw Environmental, Inc.
5700 Thurston Ave., Suite 116
Virginia Beach, VA 23455

Reference Data:

	Lead
Client Sample No.:	VAW00027A1 through VALEE028A3
P.O. No.:	1103
Sample Location:	Virginia
Sample Type:	Filter
Method Reference:	NIOSH 7300
DCL Set ID No.:	04-S-0488
DCL Sample ID No.:	04-02620 through 04-02635
Sample Receipt Date:	2/3/2004
Preparation Date:	02/04/04
Analysis Date:	02/05/04

The samples were prepared and analyzed in accordance with NIOSH method 7300 using a Perkin Elmer 3000XL ICP.

The sample condition upon receipt was acceptable except where noted.

The results are in the enclosed data table. Results relate only to the items tested and are not blank corrected unless indicated in the data table.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Non-Responsive

Analyst

Non-Responsive

Reviewer

CINCINNATI OFFICE
4388 GLENDALE-MILFORD ROAD
CINCINNATI, OHIO 45242-3706
513 733-5336, FAX 513 733-5347WEST COAST OFFICE
11 SANTA YORMA COURT
NOVATO, CALIFORNIA 94945
800 280-8071, FAX 415 893-9469

BEST AVAILABLE COPY

TEST REPORT
Page 2 of 2
04-S-0488Results
Lead

Client #	DCL #	Sample Volume (L)	µg/sample	mg/m ³
VAW00027A1	04-02620	142.00	ND	<0.007
VAW00027A2	04-02621	140.00	ND	<0.007
VAW00027A3	04-02622	0	ND	-
VAFRE029A1	04-02623	277.06	ND	<0.004
VAFRE029A2	04-02624	296.60	ND	<0.003
VAFRE029A3	04-02625	0	ND	-
VAWAR029A1	04-02626	125.75	ND	<0.008
VAWAR029A2	04-02627	123.36	ND	<0.008
VAWAR029A3	04-02628	0	ND	-
VAMAN028A1	04-02629	218.41	ND	<0.005
VAMAN028A2	04-02630	225.70	ND	<0.004
VAMAN028A3	04-02631	0	ND	-
VALEE028A1	04-02633	192.77	ND	<0.005
VALEE028A2	04-02634	195.65	ND	<0.005
VALEE028A3	04-02635	0	ND	-
	Prep Blank		ND	
% Recovery	LCS		118.	
RPL			1.	

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

Non-Responsive

Analyst

Non-Responsive

Reviewer

National Guard Armory Location: Woodstock
Date: 1/27/2004

Sample 1

Sample Number: VAW00027A1

Pump: 647605

Pre Flow Rate	Post Flow Rate
----------------------	-----------------------

1.682 1.668

1.683 1.670

1.677 1.652

1.672 1.661

Average	1.679	1.663
---------	-------	-------

Average Pre and Post 1.6706

Time 1 15:00

Time 2 16:25

Total Time Sampled	1:25
--------------------	------

Minutes Sampled	85.00
-----------------	-------

Volume 142.00 Liters

Sample 2

Sample Number: VAW00027A2

Pump: 647633

Pre Flow Rate	Post Flow Rate
----------------------	-----------------------

1.655 1.647

1.651 1.650

1.642 1.642

1.645 1.644

Average	1.648	1.646
----------------	--------------	--------------

Average Pre and Post	1.6470
----------------------	--------

Time 1 15:05

Time 2 16:30

Total Time Sampled	1:25
---------------------------	-------------

Minutes Sampled	85.00
-----------------	-------

Volume 140.00 Liters

Appendix D

References

References

Title 29, Code of Federal Regulations (CFR), Part 1910, Occupational Safety and Health Administration (current edition)

American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc (ASHRAE) 62-2002, Ventilation for Acceptable Indoor Air Quality

Instructions for Completing the Sampling of Army National Guard Armories, Lead Wipe Sampling Procedure included with the Request for Proposal

Air Sampling for Lead - Method 7082 of the National Institute of Occupational Safety and Health (NIOSH) Manual of Analytical Methods

Design Guide DG-415-2, Logistics Facilities, National Guard Bureau Installation Division, 14 December 1999

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

Army Regulation (AR) 40-5, Medical Service, Preventive Medicine, 15 October 1990

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

Department of the Army Pamphlet (DA PAM) 40-501, Medical Services, Hearing Conservation Program, 10 December 1998

DA PAM 40-503, Medical Services, Industrial Hygiene Program, 30 October 2000

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

Policy and Responsibilities for Inspection, Evaluation and Operation of Army National Guard Indoor Firing Ranges, Headquarters, Department of the Army, NG PAM (AR) 385-15, 30 December 2002

24 CFR, Part 35, Subpart B, Section 35-110, Definition of Lead-Based Paint, Housing and Urban Development, U. S. Department of Housing

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 $0.05 \text{ mg}/\text{m}^3$ averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead dust in this building.

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

NGB-AVS-SI (40-5f)

9 July 2004

MEMORANDUM FOR VAARNG, Woodstock Readiness Center, ATTN: SFC [Redacted] Non-Responsiv
451 Hoover Road, Woodstock, VA 22264-2017

SUBJECT: Baseline Survey

1. I have enclosed the industrial hygiene survey report completed by Shaw Environmental, Incorporated.
2. In addition to the attached discussion and recommendations regarding wipe samples for lead, if a special function is held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function.
3. Please contact me at (410) 942-0273 or 1-800-550-6967 if you have any questions regarding the enclosed report.

Encl

[Redacted] Non-Responsive

Regional Industrial Hygienist

CF: Organizational Maintenance Officer
Occupational Health Manager

National Guard Armory

Woodstock Readiness Center, Woodstock, Virginia

Industrial Hygiene Evaluation

Recommendations

- Wipe sampling for lead revealed concentrations above a level of 40 micrograms per square foot ($\mu\text{g}/\text{ft}^2$) in several locations in the drill floor/assembly hall area. Areas with lead concentrations above 40 $\mu\text{g}/\text{ft}^2$ that will be accessible to children should be cleaned. If a special function is held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function. **RAC - 5**
- Water damage was observed at several locations at the armory. The source of the water damage was likely from a combination of roof and pipe leaks. The source of the water damage should be confirmed and actions taken to eliminate the source in order to prevent the possibility of mold growth that may lead to indoor air quality problems. **RAC - 5**
- Visual mold was observed in the armory. The area where the mold is located should be thoroughly cleaned with 0.5% sodium hypochlorite solution (1 part household bleach to nine parts water) or equivalent in order to eliminate the potential mold/indoor air quality problem. In addition, the cause of the mold should be determined and actions taken to eliminate it. **RAC - 5**
- Measurements for humidity revealed that levels did not meet the recommended level of 30% in the facility. It is recommended that a humidification system be installed at the facility. **RAC - 5**
- Lighting measurements were conducted at the armory. The lighting did not meet minimum requirements in some areas; therefore, consideration should be given to providing more lighting in these areas. This may be accomplished by replacing burnt out luminaries, cleaning fixtures, cleaning windows, painting walls with a lighter color, repositioning detailed work to higher illuminated areas, and using supplemental lighting. **RAC - 5**

MEDICAL RECORD – SUPPLEMENTAL MEDICAL DATA

For use of this form, see AR 40-66; the proponent agency is the Office of The Surgeon General.

REPORT TITLE

OTSG APPROVED (Date)

WORKERS' OCCUPATIONAL WORKSITE SAMPLING DATA RECORD

DIRECTORATE Woodstock Armory

BLDG/ROOM Woodstock

SPECIAL STUDY/REPORT NUMBER Virginia National Guard Study

JOB DESCRIPTION/SERIES Military/Administrative Operations

SAMPLING DATE January 27, 2004

EXPOSURE MONITORED	TYPE SAMPLE*	PERMISSIBLE EXPOSURE LIMIT	SAMPLING RESULT	CALCULATED TWA	EXPOSURE CATEGORY**
1. Lead	P	0.05 mg/m ³	<0.007	<0.007	1
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					

*TYPE OF SAMPLE: G=General Area Sample

P=Personal Sample Collected in the Breathing Zone of the Worker.

R=Personal Sample Collected on another worker, but representative of expected exposure for this worker.

**EXPOSURE CATEGORY

1. Measured Exposure levels are below permissible exposure limit.
2. Measured Exposure levels are close to permissible exposure limits: See Comments.
3. Measured Exposure levels are above permissible exposure limits: See Comments.

COMMENTS:

NOTE: REFER TO THE SPECIAL STUDY OR REPORT REFERENCED FOR DETAILS OF SAMPLING AND RESULTS.

(Continue on reverse)

PREPARED BY (Signature & Title)

DEPARTMENT/SERVICE/CLINIC

DATE

Non-Responsive Environmental Scientist

INDUSTRIAL HYGIENE SECTION

1/27/2004

PATIENT'S IDENTIFICATION (For typed or written entries give: Name --last, first, Middle; grade; date; hospital or medical facility)

NAME: Non-Responsive SGT: 1/27/2004

HISTORY/PHYSICAL

FLOW CHART

SSN: Non-Responsive (last four)

OTHER EXAMINATION OR EVALUATION

OTHER (SPECIFY)

UNIT PHONE NO: 540-459-3344

DIAGNOSTIC STUDIES

TREATMENT

DA FORM 4700

HSXR-APG-Z OP 32 1 Jan 90

MEDICAL RECORD – SUPPLEMENTAL MEDICAL DATA

For use of this form, see AR 40-66; the proponent agency is the Office of The Surgeon General.

REPORT TITLE

OTSG APPROVED (Date)

WORKERS' OCCUPATIONAL WORKSITE SAMPLING DATA RECORD

DIRECTORATE Woodstock Armory

BLDG/ROOM Woodstock

SPECIAL STUDY/REPORT NUMBER Virginia National Guard Study

JOB DESCRIPTION/SERIES Military/Administrative Operations

SAMPLING DATE January 27, 2004

EXPOSURE MONITORED	TYPE SAMPLE*	PERMISSIBLE EXPOSURE LIMIT	SAMPLING RESULT	CALCULATED TWA	EXPOSURE CATEGORY**
1. Lead	P	0.05 mg/m ³	<0.007	<0.007	1
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					

*TYPE OF SAMPLE: G=General Area Sample

P=Personal Sample Collected in the Breathing Zone of the Worker.

R=Personal Sample Collected on another worker, but representative of expected exposure for this worker.

**EXPOSURE CATEGORY

1. Measured Exposure levels are below permissible exposure limit.
2. Measured Exposure levels are close to permissible exposure limits: See Comments.
3. Measured Exposure levels are above permissible exposure limits: See Comments.

COMMENTS:

NOTE: REFER TO THE SPECIAL STUDY OR REPORT REFERENCED FOR DETAILS OF SAMPLING AND RESULTS.

(Continue on reverse)

PREPARED BY (Signature & Title)	DEPARTMENT/SERVICE/CLINIC	DATE
Non-Responsive Environmental Scientist	INDUSTRIAL HYGIENE SECTION	1/27/2004
PATIENT'S IDENTIFICATION (For typed or written entries give: Name --last, first, Middle; grade; date; hospital or medical facility)	HISTORY/PHYSICAL	FLOW CHART
NAME: Non-Responsive SPC: 1/27/2004	OTHER EXAMINATION OR EVALUATION	OTHER (SPECIFY)
SSN: Non-Responsive (last four)	DIAGNOSTIC STUDIES	TREATMENT
UNIT PHONE NO: 540-459-3344		

DA FORM 4700
1 MAY 78

HSXR-APG-Z OP 32 1 Jan 90

Shaw Environmental, Inc.

312 Directors Drive
Knoxville, TN 37923
865.690.3211
Fax 865.690.3626



Shaw Environmental, Inc.

30 March 2004

Ms. [Non-Responsive] CIH
Regional Industrial Hygienist
Region North Industrial Hygiene Office
Attn: NGB-AVS-SI
301-IH Old Bay Lane
Havre De Grace, Maryland 21078

RE: Draft Report for the Industrial Hygiene Evaluation at the Woodstock Readiness
Center – Woodstock, Virginia

Dear Ms. [Non-Responsive]

Attached is a copy of the referenced report. Also attached is a copy of the field notes, photographs and photograph log, and the completed contaminant exposure forms (three copies of each employee sampled). Please call me if you have questions.

Sincerely,

[Non-Responsive]

Project Manager

Survey - 27 Nov 04
Rec'd 9 Apr 04
rev 6/16/04

e-mailed 6-17-04

E-mail
To myself
& To [Non-Responsive]

Field Notes and Checklist

State: VIRGINIA Location: WOODSTOCK ARMORY Date: JANUARY 27, 2004
 Contact: SFC Non-Responsiv

1.0 Sampling for Lead

1.1 Wipe Sampling

Sample #:	<u>1</u>	Picture #:	<u>/</u>	Location:	<u>FIRE EXTINGUISHER CASE</u>
Sample #:	<u>2</u>	Picture #:	<u>/</u>	Location:	<u>FIRE EXTINGUISHER CASE</u>
Sample #:	<u>3</u>	Picture #:	<u>/</u>	Location:	<u>KITCHEN SERVICE WINDOW</u>
Sample #:	<u>4</u>	Picture #:	<u>/</u>	Location:	<u>BOLLARD NEXT TO DRILL HALL GARAGE DOOR</u>
Sample #:	<u>5</u>	Picture #:	<u>/</u>	Location:	<u>VENDING MACHINE TOP</u>
Sample #:	<u>6, 12</u>	Picture #:	<u>N/A</u>	Location:	<u>FIELD BLANK</u>
Sample #:	<u>7</u>	Picture #:	<u>/</u>	Location:	<u>ROOM 102 COPY MACHINE TOP</u>
Sample #:	<u>8</u>	Picture #:	<u>/</u>	Location:	<u>SUPPLY ROOM FILING CABINET TOP</u>
Sample #:	<u>9</u>	Picture #:	<u>/</u>	Location:	<u>ROOM 126 JANITOR ROOM SHELF</u>
Sample #:	<u>10</u>	Picture #:	<u>/</u>	Location:	<u>KITCHEN PAPER TOWEL DISPENSER</u>
Sample #:	<u>11</u>	Picture #:	<u>/</u>	Location:	<u>STORAGE SHELF IN PELLET BURN RANGE</u>
Sample #:	<u>13</u>	Picture #:	<u>/</u>	Location:	<u>ROOM 106 CONFERENCE ROOM TABLE TOP</u>
Sample #:	<u>14</u>	Picture #:	<u>/</u>	Location:	<u>CLASSROOM HEAT REGISTER</u>
Sample #:	<u>15</u>	Picture #:	<u>/</u>	Location:	<u>LOCKER ROOM TOP OF LOCKER</u>
Sample #:	_____	Picture #:	_____	Location:	_____
Sample #:	_____	Picture #:	_____	Location:	_____
Sample #:	_____	Picture #:	_____	Location:	_____
Sample #:	_____	Picture #:	_____	Location:	_____
Sample #:	_____	Picture #:	_____	Location:	_____

(Also, please see the sketch of sampling locations.)

1.2 Breathing Zone Air Sampling

Sample #: A1 Employee Sampled: SFC
 Sample #: A2 Employee Sampled: SGT
A3 FIELD BLANK

Non-Responsive

Peeling paint observed (Yes or No): no

[illegible]

Suspected asbestos-containing material observed (Yes or No): No

Location 1: _____ Picture #: _____
 Condition: _____ Approximate (Square or Linear Feet): _____
 Location 2: _____ Picture #: _____
 Condition: _____ Approximate (Square or Linear Feet): _____
 Location 3: _____ Picture #: _____
 Condition: _____ Approximate (Square or Linear Feet): _____
 Location 4: _____ Picture #: _____
 Condition: _____ Approximate (Square or Linear Feet): _____
 Location 5: _____ Picture #: _____
 Condition: _____ Approximate (Square or Linear Feet): _____

2.3 Visual Inspection – Water Damage and Mold

Water damage observed (Yes or No): Yes

If yes, water damage was observed at the following locations:

Location 1:	<u>Room 110</u>	Picture #:	<u>✓</u>
Location 2:	<u>Lease</u>	Picture #:	<u>✓</u>
Location 3:	<u>Room 142 & 143</u>	Picture #:	<u>✓</u>
Location 4:	<u>Room 154</u>	Picture #:	<u>✓</u>
Location 5:		Picture #:	

Mold observed (Yes or No): Yes

If yes, mold was observed at the following locations:

Location 1:	<u>Room 104</u>	Picture #:	<u>✓</u>
Location 2:		Picture #:	
Location 3:		Picture #:	
Location 4:		Picture #:	
Location 5:		Picture #:	

2.4 Visual Inspection - Housekeeping

Housekeeping (good, average, poor): Good

Comments (such as no dirt or trash was visible on the floors or the housekeeping was poor in that there was trash and debris on the floors that could lead to a tripping hazard, or there was dust in the vents.):

3.0 Building Concerns

3.1 Ergonomic Concerns

Ergonomic concerns (Yes or No): No

If there are ergonomic concerns at the armory, describe the extent of the problem, such as three employees stated that they perform repetitive motion at the XYZ machine for 6 hours per day, and they stated that they are suffering from symptoms of musculoskeletal disorders (MSDs).

3.2 Indoor Air Quality

IAQ concerns (based on employee interviews)(Yes or No): No

If yes, what were concerns:

Measurements for carbon dioxide, humidity, and temperature:

Location	CO ₂ (ppm)	Humidity (%)	Temperature (°F)	Occupancy (People in Room)
Outdoors -	278	22.7	43.2	0
1 st Floor -	804	27.6	70.6	250
2 nd Floor -				
3 rd Floor -				
Basement				

4.0 Safety and Industrial Hygiene Programs

4.1 Confined Spaces

Are confined spaces applicable (Yes or No): No

If yes, does the program meet minimum standards (Yes or No): _____

If no, explain the deficiencies:

4.2 Hearing Conservation

Is hearing conservation applicable (Yes or No): yes

If yes, does the program meet minimum standards (Yes or No): yes

If no, explain the deficiencies:

4.3 Respiratory Protection

Is respiratory protection applicable (Yes or No): yes

If yes, does the program meet minimum standards (Yes or No): yes

If no, explain the deficiencies:

4.4 Hazard Communication

Is hazard communication applicable (Yes or No): yes

If yes, does the program meet minimum standards (Yes or No): yes

If no, explain the deficiencies:

4.5 Personal Protective Equipment

Is personal protective equipment applicable (Yes or No): no

If yes, does the program meet minimum standards (Yes or No): no

If no, explain the deficiencies:

5.0 Ventilation

5.1 Ventilation System Evaluation

Local exhaust ventilation systems at this armory (Yes or No): no

If yes, results of airflow patterns:

Location 1: _____

Airflow Pattern (acceptable or unacceptable, with reason):

Location 2: _____

Airflow Pattern (acceptable or unacceptable, with reason):

Location 3: _____

Airflow Pattern (acceptable or unacceptable, with reason):

5.2 Contamination of Clean Air Sources

Clean air sources contaminated by contaminated exhaust air (Yes or No): no

If yes, describe:

6.0 Noise Dosimetry

Potential hazardous noise areas (Yes or No): no

If yes, results of noise dosimetry sampling:

Employee sampled: _____

Results: _____ % Actual _____ % Projected 8-hour TWA _____ Equivalent dBA

Activity: _____

Employee sampled: _____

Results: _____ % Actual _____ % Projected 8-hour TWA _____ Equivalent dBA

Activity: _____

Employee sampled: _____

Results: _____ % Actual _____ % Projected 8-hour TWA _____ Equivalent dBA

Activity: _____

7.0 Lighting Evaluation

DIVIDE BY 9

Location	Luminance Range (fc)
Room 102	90-160
Room 111	60-120
Room 113	65-120
PELLER GUN RANGE	45-60
Room 116	65-100
SUPPLY ROOM	25-55
KITCHEN	85-120
LOCKER ROOM	20-70
MEN'S LATRINE	35-100
WOMEN'S LATRINE	40-100
CLASSROOM	60-110
Room 142	90-140
Room 143	100-140
Room 106	75-120

8.9 Converted Indoor Firing Ranges

Converted indoor firing range (Yes or No): NO

ROOM WAS ALWAYS BEEN SET UP AS A PELLET GUN RANGE

If yes, locations sampled:

Sample #: Picture #: Location: Inside any remaining ventilation ductwork

Sample #: Picture #: Location: Exhaust ventilation system

Sample #: Picture #: Location: Bullet trap

Sample #: Picture #: Location: Light fixtures

Sample #: Picture #: Location: Overhead heaters

Sample #: Picture #: Location: Stored items

Sample #: Picture #: Location: Floor

Sample #: Picture #: Location: Outside the range

9.0 HVAC System

Does the HVAC system have maintenance performed on a regular basis (Yes or No):

YES

In yes, is the maintenance effective (Yes or No): YES

If no, describe:

10.0 HHIM

Complete HHIM form for facility (Initial as completed):

Reproduction Room HHIM Necessary (Yes or No) (Initial if Yes):

Film Developing Room HHIM Necessary (Yes or No) (Initial if Yes):

Maintenance Area HHIM Necessary (Yes or No) (Initial if Yes):

11.0 Additional Items

- Table 1 (wipe sampling) completed (initial when completed): _____
- Table 2 (air sampling) completed (initial when completed): _____
- Table 3 (peeling paint), if necessary, completed (initial when completed): _____
- Table 3 or 4 (IAQ) completed (initial when completed): _____
- Table 4 or 5 (noise), if necessary, completed (initial when completed): _____
- Table 5 or 6 (firing ranges), if necessary, completed (initial when completed): _____
- Airflow pattern diagram(s) completed (initial when completed): _____
- Building layout included (initial when completed): _____
- Photographs (initial when completed): _____
- Sampling Sheets and Laboratory Analyses (initial when completed): _____
- Sampling tracking form completed and faxed to NGB ARNG Region North III office
within 5 days of date of this survey (initial when completed): _____
(Fax to Ken Forsythe at 410-942-0254)
- State Lead Wipes Spreadsheet* completed (initial when completed): _____
- Three copies of noise exposure notification letter, if necessary (initial when
completed): _____
- Three copies of contaminant exposure forms for each employee that participated in air
sampling (initial when completed): _____

Woodstock Armory Photo Log
National Guard Armory
Woodstock, Virginia
Date of Survey: 27 January 2004

Photo	Description
1	Lead Wipe Assembly Room - Fire Extinguisher Case - Sample 1
2	Lead Wipe Assembly Room - Fire Extinguisher Case - Sample 2
3	Lead Wipe Assembly Room - Kitchen Service Window - Sample 3
4	Lead Wipe Assembly Room - Bollard next to Drill Hall Garage Door - Sample 4
5	Lead Wipe Assembly Room - Vending Machine - Sample 5
6	25% Building - Room 102 Copy Machine Top - Sample 7
7	25% Building - Supply Room Filing Cabinet - Sample 8
8	25% Building - Room 126 Janitor Room Shelf - Sample 9
9	25% Building - Kitchen Paper Towel Dispenser - Sample 10
10	25% Building - Pellet Range Area Storage Shelf - Sample 11
11	25% Building - Room 106 Conference Room Table Top - Sample 13
12	25% Building - Classroom Heat Register - Sample 14
13	25% Building - Locker Room Locker Top - Sample 15
14	Water Damage - Lobby
15	Water Damage - Office
16	Mold - Room 114
17	Water Damage - Office
18	Water Damage - Office
19	Water Damage
20	Water Damage
21	Water Damage

Shaw Environmental, Inc.

312 Directors Drive
Knoxville, TN 37923
865.690.3211
Fax 865.690.3626



24 June 2004

Ms. Vanessa Franchere, CIH
Regional Industrial Hygienist
Region North Industrial Hygiene Office
Attn: NGB-AVS-SI
301-III Old Bay Lane
Havre De Grace, Maryland 21078

RE: Final Report for the Industrial Hygiene Evaluation at the Woodstock Readiness
Center – Woodstock, Virginia

Dear Ms. Franchere:

Attached are four (4) copies of the referenced report. Please note that a copy of the field notes, photographs and photograph log, and the completed contaminant exposure forms (three copies of each employee sampled) were provided with the draft report. Please call me if you have questions.

Sincerely,

A handwritten signature in black ink, reading "Harry A. Pullum".

Harry A. Pullum, CIH, CSP, CIAQP
Project Manager

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



Industrial Hygiene Survey
for VAARNG – Woodstock Readiness Center
451 Hoover Road
Woodstock, Virginia 22264

AECOM
January 2013
Document No.: 60275401/ Woodstock Readiness Center

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

Industrial Hygiene Survey
for VAARNG – Woodstock Readiness Center
451 Hoover Road
Woodstock, Virginia 22264

Non-Responsive

A large black rectangular redaction box covering the name and contact information of the Industrial Hygienist.

Industrial Hygienist

Non-Responsive

A large black rectangular redaction box covering the name and contact information of the Project Manager.

Project Manager

Non-Responsive

A large black rectangular redaction box covering the name and contact information of the Northeast District Health & Safety Manager.

Northeast District Health & Safety Manager

AECOM Environment
January 2013
Document No.: 60275401/ Woodstock 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 WoodstockReadiness Center Facility Layout

Appendix B Woodstock Readiness Center Photographs

Appendix C Analytical Results

Appendix D References



List of Tables

Table 2-1: Lead Wipe Sample Results 2-1

Table 3-1: Indoor Air Quality Monitoring Results..... 3-2

Table 5-1: Light Survey 5-1



Executive Summary

On November 11, 2012, AECOM Technical Services Northeast, Inc. (AECOM) conducted an Industrial Hygiene (IH) survey of the Woodstock Readiness Center facility located at 9797 Braddock Road in Woodstock, Virginia. SFC Non- [REDACTED] was the point of contact for the facility and accompanied AECOM during the survey to provide access and information concerning the Woodstock Readiness Center operations.

The industrial hygiene survey was conducted in general accordance with the scope of work as described in the "Statement of Work – Industrial Hygiene Services for National Guard Bureau Industrial Hygiene Region North – Baseline Surveys for Readiness Centers and Administrative Buildings," dated March 2009.

The Woodstock Readiness Center is currently staffed by five personnel. The facility is configured as an administrative area and a drill/assembly hall.

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

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

The Woodstock Readiness Center is a 22,000 square foot facility constructed for the National Guard in 1996.

Lighting levels measured throughout the facility were generally inadequate as per American National Standard Institute/Illuminating Engineering Society of North America (ANSI/IESNA) RP-1-2004, Office Lighting, ANSI/IESNA RP-7-2001, Industrial Lighting, and the IESNA Lighting Handbook, 9th Edition, 11 April 2005. See Section 5 for a list of areas that did not meet the lighting standard.

Wipe samples collected in association with most administrative areas indicated lead levels below the Occupational Safety and Health Administration's (OSHA's) Clarification of "as free as practicable" and lead contamination under 29 Code of Federal Regulations (CFR) 1926.62, The Compliance Directive for the Interim Standard for Lead in Construction, CPL 2-2.58. OSHA recommends the use of the U.S. Department of Housing and Urban Development's (HUD) acceptable decontamination level of 200 micrograms per square foot (ug/ft²) for floors in evaluating the cleanliness of change areas, storage facilities, and lunchrooms/eating areas. However, wipe samples collected from the floor and lighting fixture in the former indoor firing range indicated levels of lead in excess of 200 ug/ft². Indoor firing ranges shall be converted in accordance with NG PAM 240-15.

No Indoor Air Quality concerns were noted by the Woodstock Readiness Center personnel. Instantaneous real-time reading for carbon monoxide and carbon dioxide (parts per million or ppm), temperature (° Fahrenheit), and relative humidity (as percentage) are presented in Table 3-1. Readings were generally within acceptable guidelines in those areas occupied by the facility staff.

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

No damaged suspect asbestos containing materials were observed during the evaluation.

No damaged or peeling paint was observed during the evaluation.



Roof leaks were reported to occur during heavy rain, although neither water damage nor visible mold growth was observed during the survey. Water intrusion is a mold growth risk factor.

The Heating, Ventilation & Air Conditioning (HVAC) system in the building consists of a boiler room that feeds radiant heaters throughout the building. The AC units are roof mounted and were not accessed as part of this assessment.

1.0 Facility Description and Operations

The Woodstock Readiness Center is located in a dedicated facility with office, storage and classroom spaces. The section occupied by Readiness Center personnel consists of multiple rooms configured as office space and is finished with drywall; acoustical drop ceilings, and floor tile. A former indoor firing range was observed and is currently being used for storage.

The primary activity at the Woodstock Readiness Center is routine administrative duties. The Woodstock Readiness Center is currently staffed by approximately 5 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 multiple locations throughout the facility following the Occupational Safety & Health Administration (OSHA) wipe sampling method and using Ghost Wipes. The facility contains an area originally constructed as a firing range. There was no indication that the firing range had ever been used to fire live rounds. 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
001	Drill hall horizontal surface/table top	<110 ug/ft ²
002	Kitchen area storage shelf	<110 ug/ft ²
003	AC supply vent conference room	<110 ug/ft ²
004	Recruiters office desk top	<110 ug/ft ²
005	Orderly office file cabinet	<110 ug/ft ²
006	Hallway floor inside main entrance	<110 ug/ft ²
007	Firing range/light fixture	210 ug/ft ²
008	Firing range cabinet top	<110 ug/ft ²
009	Floor of firing range	350 ug/ft ²
010	Floor outside entrance to firing range	<110 ug/ft ²

ug/ft² = Micrograms per square foot.

Wipe samples collected in association with most administrative areas indicated lead levels below the Occupational Safety and Health Administration's (OSHA's) Clarification of "as free as practicable" and lead contamination under 29 CFR 1926.62, The Compliance Directive for the Interim Standard for Lead in Construction, CPL 2-2.58. OSHA recommends the use of HUD's acceptable decontamination level of 200 ug/ft² for floors in evaluating the cleanliness of change areas, storage facilities, and lunchrooms/eating areas.

Two wipe samples collected in the converted indoor firing range (IFR) areas were above the action level of 200 micrograms per square foot (ug/ft²) per NG-PAM 420-15 in a wipe samples collected from a light fixture and floor sample in the former range. Laboratory analytical results are presented in Appendix C.

2.1.2 Air Sampling

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

3.0 Physical Condition of Facility and Personnel Concerns

3.1.1 Lead Based Paint

Interior surfaces of walls are coated with paint. The paint on the walls is in satisfactory condition. AECOM did not observe damaged or peeling paint during this evaluation.

3.1.2 Suspect Asbestos Containing Materials

AECOM did not observe damaged, friable suspect asbestos-containing materials (ACM) in readily accessible areas of the Woodstock Readiness Center during this survey.

Typical suspect miscellaneous building materials observed but not sampled include drywall, floor tiles and associated mastic, cove base and associated mastic, ceiling tiles, carpet mastic, and window caulks.

3.1.3 Water Damage/Mold

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

3.1.4 Housekeeping

The Woodstock 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 Woodstock Readiness Center staff members. No Indoor Air Quality concerns were noted by the Woodstock Readiness Center personnel.

Instantaneous real-time reading for carbon monoxide and carbon dioxide (parts per million or ppm), temperature (° Fahrenheit), and relative humidity (as percentage) are presented in the following table. Readings were generally within acceptable guidelines in those areas occupied by the facility staff.

Table 3-1: Indoor Air Quality Monitoring Results

Location	Carbon Monoxide (ppm)	Carbon Dioxide (ppm)	Temp (°F)	Relative Humidity (%)
Foyer	2.7	568	64.8	34.1
Recruiters office	1.9	754	66.1	33.2
Admin office	2.1	511	66.8	30.5
Break room	2.4	556	66.2	30.4
Smoking room	2.4	578	64.6	31.6
Admin office	1.9	564	66.3	31.6
Readiness NCO	1.9	563	67.2	31.6
Training office	1.9	510	67.4	29.6
Executive office	1.9	669	68.9	30.2
Hallway at room 115	2.4	489	68.3	30.7
Supply office	2.3	504	67.3	28.5
Storage room 117	2.2	478	65.3	29.8
Drill floor	1.9	488	65.2	31.3
Facility maintenance	1.9	502	66.5	30.9
Boiler room	1.9	450	67.2	29.5
Kitchen	1.9	475	67.4	23.5
Scullery	1.9	450	67.2	25.0
Men's restroom	1.8	550	68.9	24.4
Chair storage	2.3	692	71.5	32.9
Classroom ABC	2.8	416	70.0	27.0
Classroom/Library	2.4	451	69.2	25.4
Firing Range	2.5	437	62.4	26.0
<p>Table 3-1 Guidelines:</p> <p>Carbon Monoxide: Office/Warehouse Space – 9 ppm based on United States Environmental Protection Agency's National Ambient Air Quality Standard.</p> <p>OSHA Permissible Exposure Limit (PEL) = 50 ppm. American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit value (TLV) = 25, ppm.</p> <p>Carbon Dioxide: Office Space -Approximately 700 ppm above background (Derived from American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE) Standard 62.1-2010). Not Applicable to warehouse and vehicle maintenance bays.</p> <p>Relative Humidity: Mechanically air-conditioned space – Maximum 65% (Derived from ASHRAE Standard 62.1-2010 – 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 55-2010)</p>				

Woodstock 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 building HVAC system appears to be fully operational. No dust was observed at diffusers, and site personnel indicated that the system seems to work well. Temperature readings were constant in all areas occupied by readiness center personnel.

4.1.2 HVAC Maintenance

The HVAC system is maintained by a third party vendor. No records were available for review.

There was no 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 several areas of the facility

Table 5-1: Light Survey

Location	Results (Foot candles)	Met Standard (Y/N)	Standard*
Foyer	5.5	N	10
Recruiters office	55.6	Y	50
Admin office	72.8	Y	50
Break room	50.7	Y	10
Smoking room	30.0	Y	10
Admin office	44.0	N	50
Readiness NCO	35.1	N	50
Training office	57.6	Y	50
Executive office	30.9	N	50
Hallway at room 115	33.5	Y	5
Supply office	41.5	Y	30
Storage room 117	3.8	Y	30
Drill floor	29.8	Y	10
Facility maintenance	31.1	N	50
Boiler room	3.1	N	30
Kitchen	42.6	N	50
Scullery	39.8	N	50
Men's restroom	33.7	Y	5
Chair storage	44.6	Y	30
Classroom ABC	33.6	Y	30
Classroom/Library	25.3	N	30
Firing Range	14.3	N	30
Office Lighting (ANSI/IESNA RP-1-04) and Industrial Lighting Facilities (ANSI/IESNA RP-7-01)			

6.0 Evaluation of Attached Garage

There is no garage associated with the Woodstock 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 Woodstock Readiness Center.

Lighting levels measured throughout the facility were generally not adequate as per American National Standard Institute/Illuminating Engineering Society of North America (ANSI/IESNA) RP-1-2004, Office Lighting, ANSI/IESNA RP-7-2001, Industrial Lighting, and the IESNA Lighting Handbook, 9th Edition, 11 April 2005. Areas with inadequate lighting levels shall upgrade lighting or provide additional task lighting as necessary.

Wipe samples collected in association with most administrative areas indicated lead levels below the Occupational Safety and Health Administration's (OSHA's) Clarification of "as free as practicable" and lead contamination under 29 CFR 1926.62, The Compliance Directive for the Interim Standard for Lead in Construction, CPL 2-2.58. OSHA recommends the use of HUD's acceptable decontamination level of 200 ug/ft² for floors in evaluating the cleanliness of change areas, storage facilities, and lunchrooms/eating areas. However, wipe samples collected from the floor and lighting fixture in the former IFR indicated levels of lead in excess of 200 ug/ft². Personnel trained in accordance with the OSHA Lead Standard should clean the areas where lead was detected in quantities greater than 200 ug/ft² in accordance with NG PAM 420-15.

No damaged suspect asbestos containing materials were observed during the evaluation.

No damaged or peeling paint was observed during the evaluation.

Roof leaks were reported to occur during heavy rain, although neither water damage nor visible mold growth was observed during the survey. Water intrusion is a mold growth risk factor.

The Heating, Ventilation & Air Conditioning (HVAC) system in the building consists of a boiler room that feeds radiant heaters throughout the building. The AC units are roof mounted and were not accessed as part of this assessment.

No Indoor Air Quality concerns were noted by the Woodstock Readiness Center personnel. Instantaneous real-time reading for carbon monoxide and carbon dioxide (parts per million or ppm), temperature (° Fahrenheit), and relative humidity (as percentage) were generally within acceptable guidelines in those areas occupied by the facility staff.

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

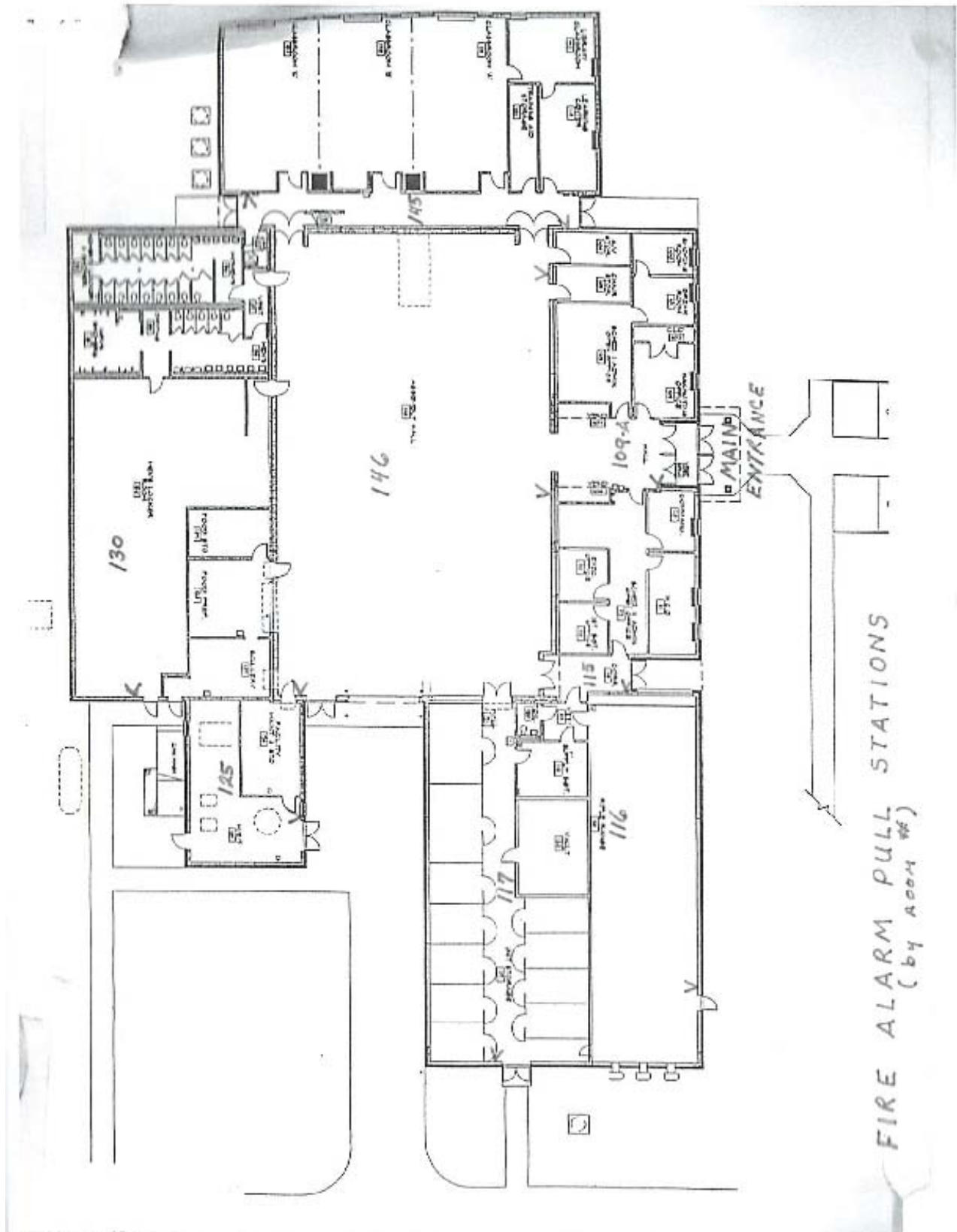
AECOM provided these services consistent with the level and skill ordinarily exercised by members of the profession currently providing similar services under similar circumstances at the time the services were provided. This statement is in lieu of other statements either expressed or implied. This 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

Woodstock Readiness Center Facility Layout



Appendix B

Woodstock Readiness Center Photographs

Photograph 1



Warrenton

building

Photograph 2



Drill floor

Photograph 3



Drill floor air handler

Photograph 4



Foyer

Photograph 5



Kitchen

Photograph 6



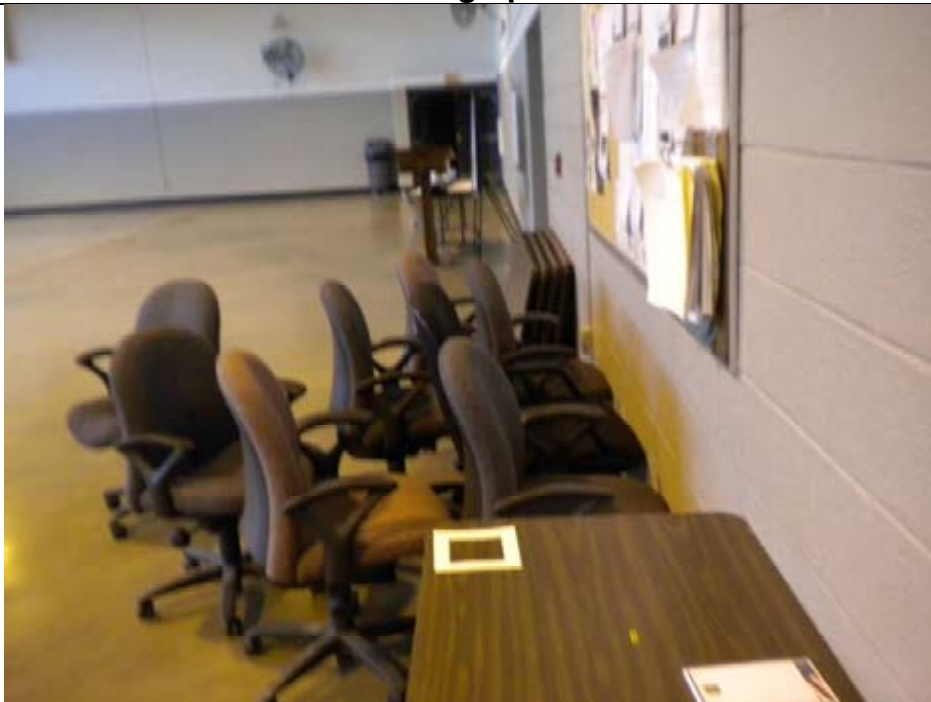
Boiler room

Photograph 7



Office area

Photograph 8



Drill hall wipe sample location

Photograph 9



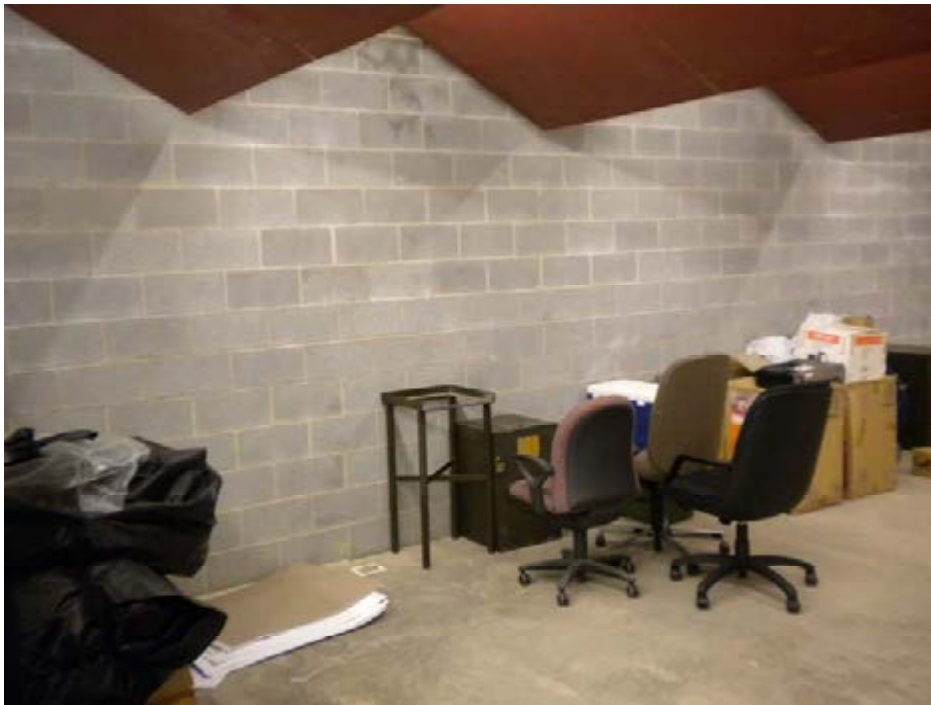
Sculley wipe sample location

Photograph 10



Former range

Photograph 11



Floor wipe sample former range

Photograph 12



Cabinet in former range/wipe sample location

Appendix C

Analytical Results

AMA Analytical Services, Inc.



A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS



Client:	National Guard Bureau	Job Name:	VA ANG IH Survey	Chain Of Custody:	514738
Address:	301-IH Old Bay Lane, Attn: ARNG-CJG-P, State Military Reservation Havre de Grace, Maryland 21078	Job Location:	Woodstock RC	Date Submitted:	12/12/2012
		Job Number:	Not Provided	Person Submitting:	AECOM
		P.O. Number:	W912K6-09-A-0063	Date Analyzed:	12/18/2012
				Report Date:	12/18/2012

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
13021961	001	Flame	Wipe	****	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13021962	002	Flame	Wipe	****	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13021963	003	Flame	Wipe	****	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13021964	004	Flame	Wipe	****	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13021965	005	Flame	Wipe	****	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13021966	006	Flame	Wipe	****	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13021967	007	Flame	Wipe	****	0.111	110 ug/ft ²	23	210 ug/ft ²	
13021968	008	Flame	Wipe	****	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
13021969	009	Flame	Wipe	****	0.111	110 ug/ft ²	39	350 ug/ft ²	
13021970	010	Flame	Wipe	****	0.111	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. 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.

An AIHA (#100470) and NY ELAP (#10920) Accredited Laboratory

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

AMA Analytical Services, Inc.



A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS



LAB #100470

Client: National Guard Bureau Job Name: VA AMG IH Survey Chain Of Custody: 514738
 Address: 301-TH Old Bay Lane, Attn: ARNG-CIG-P, Job Location: Woodstock RC Date Submitted: 12/12/2012
 State Military Reservation
 Havre de Grace, Maryland 21078 Job Number: Not Provided Person Submitting: AECOM
 P.O. Number: W912K6-09-A-0003 Date Analyzed: 12/18/2012 Report Date: 12/18/2012

Attention:

Non-Responsive

Summary of Atomic Absorption Analysis for Lead

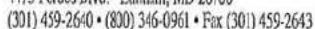
Page 2 of 2

AMA Sample Number	Client Sample Number	Analysis Type	Sample Type	Air Volume (L)	Area Wiped (ft ²)	Reporting Limit	Total ug	Final Result	Comments
<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. 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>									
See QC Summary for analytical results of quality control samples associated with these samples.									
Non-Responsive							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.

An AIHA (#100470) and NY ELAP (#10920) Accredited Laboratory

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



514738

FOIA Requested Record #J-15-0085 (VA)
Released by National Guard Bureau
Page 1920 of 1923

Surface Sampling Field Data Sheet

Date Collected: 11/17/12Job Name: WOOD STONY NGB RCCompany: H&P Page 1 of 1Job Number: 20120569Job Location: WOODSTOWN VAPhone Number: 4741-847-7796Contact Person: Non-RespoAddress: 451 HUNTER RD WOODSTOWN VA 22264Collected By: Non-Respo

COC Number: _____

Sample Number	Sample Location	Surface/Substrate Sampled	Area Wiped (in ² /ft ²)	Collection Media
001	Horizontal Surface Drill HALL	Table Top		
002	Horizontal Kitchen Counter Storage Shelf/Sill	Top of Cabinet in Sill		
003	AC Supply Unit Conference Room			
004	Reception Desk top			
005	Ordinary office file cabinet			
006	Hallway floor white main entrance			
007	Firing Range light fixture			
008	Firing Range cabinet top			
009	Floor of Firing Range			
010	Floor outside entrance to Range			

Please Return Samples To:

AMA Analytical Services, Inc., 4475 Forbes Blvd., Lanham, MD 20706, (800) 346-0961/(301) 459-2640 Fax, www.amaab.com, info@amaab.com

Appendix D

References

References

1. Title 29, Code of Federal Regulations (CFR), Part 1910, Occupational Safety and Health Administration, current Ed. <http://www.osha.gov/comp-links.html>
2. Department of Defense Instruction (DODI) 6055.1, Department of Defense Occupational Safety and Health (OSH) Program, August 19, 1998. <http://www.dtic.mil/whs/directives/corres/pdf/605501p.pdf>
3. Army Regulation (AR) 11-34, The Army Respiratory Protection Program, 15 February 1990. http://armypubs.army.mil/epubs/pdf/R11_34.PDF
4. AR 40-5, Medical Service, Preventive Medicine, 25 May 2007. http://armypubs.army.mil/epubs/pdf/R40_5.PDF
5. AR 385-10, The Army Safety Program, 23 August 2007; Rapid Action Revision (RAR) issue date: 4 October 2011. http://armypubs.army.mil/epubs/pdf/R385_10.PDF
6. Department of the Army Pamphlet (DA PAM) 40-501, Medical Services, Hearing Conservation Program, 10 December 1998. http://armypubs.army.mil/epubs/pdf/P40_501.pdf
7. DA PAM 40-11, Preventive Medicine, 22 July 2005, RAR issue date: 19 October 2009. http://armypubs.army.mil/epubs/pdf/p40_11.pdf
8. DA PAM 40-503, Medical Services, Industrial Hygiene Program, 30 October 2000. http://armypubs.army.mil/epubs/pdf/P40_503.PDF
9. UFC 3-410-01FA, Heating, Ventilating, and Air Conditioning, 15 May 2003, change 4, January 2010. http://www.wbdg.org/ccb/DOD/UFC/ufc_3_410_01fa.pdf
10. Threshold Limit Values (TLVs) and Biological Exposure Indices (BEIs), American Conference of Governmental Industrial Hygienists (ACGIH), current Ed.
11. Industrial Ventilation – A Manual of Recommended Practice for Design, ACGIH, current Ed.
12. American National Standards Institute (ANSI)/International Safety Equipment Association (ISEA) Z358.1-2009, Emergency Eyewash and Shower Equipment.
13. ANSI/American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. (ASHRAE) 55-2010, Thermal Environmental Conditions for Human Occupancy.
14. ANSI/ASHRAE 62.1-2010, Ventilation for Acceptable Indoor Air Quality.
15. RP-1-2004, Office Lighting, ANSI/IESNA.
16. RP-7-2001, Industrial Lighting, ANSI/IESNA, change 20 July 2004.
17. OSHA Instruction Letter 02-02-058, Lead Exposure in Construction, Office of Health Compliance Assistance, 13 December 1993.
18. OSHA Standard Interpretation, Clarification of “as free as practicable” and lead contamination under 29 CFR 1926.62, dated January 13, 2003.
19. NG PAM 420-15, Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges, 3 November 2006. http://www.ngbpdc.ngb.army.mil/pubs/420/ngpam420_15.pdf