

Connecticut Street Readiness Center Buffalo, New York 14201

Submitted to:

National Guard Region North Industrial Hygiene Office 301-IH Old Bay Lane Havre de Grace, Maryland 21078



NATIONAL GUARD READINESS CENTER INDUSTRIAL HYGIENE EVALUATION

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Connecticut Street Readiness Center **Buffalo, New York**

Industrial Hygiene Evaluation

Prepared for:

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

Prepared by:

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September 11, 2008

Non-Responsive Industrial Hygienist	
Non-Responsive, CIH, CSP Senior Proiect Manager, EHS	
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May, 2018



1. EXECUTIVE SUMMARY

Consolidated Safety Services, Inc. (CSS) was contracted by the U.S. Army National Guard to perform an industrial hygiene evaluation at the Connecticut Street New York State Readiness Center located at 184 Connecticut Street, in Buffalo, New York. Non-Responsive performed the evaluation on September 11, 2008. The point of contact for the facility was Ms. Non-Responsive, Superintendent. The purpose of the evaluation was to assess industrial hygiene concerns in the facility, evaluate workers' personal exposures, and review industrial hygiene and safety programs.

The following industrial hygiene and safety programs were evaluated during the site visit: confined space, hearing conservation, respiratory protection, hazard communication (HAZCOM), and personal protective equipment (PPE).

The following industrial hygiene concerns were evaluated during the site visit:

- Noise exposure;
- Illumination;
- Deteriorated suspect lead-based paints:
- Damaged suspect asbestos-containing materials;
- Water damage and possible mold growth;
- General housekeeping;
- Indoor air quality; and
- Ergonomics.

There were several industrial hygiene concerns identified during the assessment. The Risk Assessment Code (RAC) is presented for each identified concern or deficiency:

- There was visual evidence of minor to significant water damage to several ceilings, suspended ceiling tiles, and walls within the facility. There was no evidence of suspect mold growth identified in the facility. The sources of the water intrusion should be identified and corrected and water-damaged ceiling tiles should be replaced to minimize the potential for mold growth. The roof was reportedly undergoing a replacement during the site visit (RAC 4). 29 CFR 1960.8a
- There are several locations where the measured illuminance levels are below those recommended by the Illuminating Engineering Society of North America. Illumination should be improved in deficient areas by replacing burned-out lamps, cleaning fixtures, relocating detailed work to more illuminated areas, and opening window blinds. If illuminance levels still remain deficient, additional light sources should be provided to achieve the recommended illuminance levels (RAC 4). ANSI/IESNA RP-1-04 (Office Lighting) and ANSI ANSI/IESNA RP-7-01 (Lighting Industrial Facilities)

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- Asbestos-containing 9 inch x 9 inch brown floor tile with tan and peach flecks was identified in Room B-30 (Moral Support Room). Overall, the floor tile material was in good condition with a few areas of minor, isolated damage. It is recommended that a detailed operation and maintenance (O&M) plan be developed to insure that the condition of the floor tile is maintained in good condition. Housekeeping and maintenance personnel should be advised of the presence of the suspect asbestos-containing material (RAC 4). 29 CFR 1910.1001(i)(7)(iv) and 29 CFR 1960.8a
- There were five dust wipe samples (in three locations) collected from Hallway 1-14b, the indoor Firing Range, and from the hallway outside the indoor Firing Range that were above the NGB Region North IH Office limit of 200 micrograms/square foot (μg/ft²). It is recommended that signage be posted in the indoor Firing Range warning of the lead hazard and this area should continue to be locked and not permitted for entry. Each of the other areas should be cleaned to eliminate the lead dust contamination. Anyone that may perform work in these areas, including repair or maintenance activities, must be made aware of the lead contamination and appropriate precautions be taken to minimize exposures to the lead contaminated dust (RAC 4). NGB Region North IH Office limit of 200 micrograms/square foot (μg/ft²)
- Detectable levels of lead were found in all ten paint chip samples collected and therefore considered to be lead-containing paint. OSHA requires that precautions be taken when lead is present, but does not define a threshold below which no action is required. Therefore, anyone that may perform repair or maintenance activities to any surfaces in these areas must be made aware of the lead contamination and appropriate precautions be taken to minimize exposures to the lead-based paint. The Department of Housing and Urban Development (HUD) defines lead-based paint as having greater than 0.5% lead by weight. Six of the ten peeling paint samples contained levels of lead that were above the HUD criteria of 0.5% lead by weight (RAC 4). Occupational Safety Health Administration (OSHA) Lead in Construction Standard, 29 CFR 1926.62 and Title 24, Code of Federal Regulations (CFR), Part 35, Subpart B, Sections 35.110, Definitions of Lead-Based Paint, Housing and Urban Development, U.S. Department of Housing
- Boxes are stacked in the garage area and do not appear to be stable or secure against sliding or collapse. It is recommended to reduce the number of boxes stacked which will reduce the likelihood of the boxes sliding, collapsing, or falling (RAC 3). 29 CFR 1910.176(b)



2. INTRODUCTION

Consolidated Safety Services, Inc. (CSS) contracted with the U.S. Army National Guard (USARNG) to perform an industrial hygiene evaluation at the Connecticut Street Readiness Center at 184 Connecticut Street in Buffalo, New York.

Non-Responsive performed the evaluation on September 11, 2008. The point of contact for the facility was Ms Non-Responsive, Superintendent. The purpose of the evaluation was to review industrial hygiene and safety programs, evaluate potential exposures to physical and chemical hazards, and evaluate exposure control strategies and equipment. The building was visually inspected and evaluated for: damaged suspect asbestos-containing materials (ACM), water-damaged building materials, possible mold growth, housekeeping, deteriorated suspect lead-based paints, and poor indoor air quality.

The Connecticut Street Readiness Center currently has seven units assigned to the facility: C CO, 427 Brigade Support Battalion; C CO, 427 Brigade Support Battalion Rear; HHC (-), 27th Brigade Special Troops BN; C CO, 27th Brigade Special Troop BN; 153 Troop Command BDE; 29 Personnel Services DET; and 152 Engineer Support Company. The operations conducted at the facility are primarily administrative activities, equipment maintenance and storage, and training in preparation for potential deployment for combat operations. The building that houses the Connecticut Street Readiness Center was constructed in 1898 and consists of multiple offices, two kitchens, a mess hall, men's and women's restrooms, a locker room, supply areas, a garage area, a grand court and an indoor firing range. The attached garage is used to park vehicles and store materials. No maintenance is performed in the attached garage. According to the Superintendent, the indoor Firing Range has not been properly cleaned. The entry door is therefore locked. Only authorized personnel may enter.

The findings, discussion and interpretation of results are provided in Section 4 through Section 8. The conclusions are provided in Section 9. A diagram of the building layout is provided in Appendix A. Sampling sheets and laboratory results for Lead Paint, Lead in Air, Lead dust, and asbestos floor tile and ceiling results are provided in Appendix B. Selected photographs taken during the evaluation are provided in Appendix C. An explanation of how the Risk Assessment Code (RAC) was determined is located in Appendix D. A list of references used during the evaluation is provided in Appendix E.

This report is for the sole use of the USARNG. The results presented in this report are only indicative of conditions during the time of the evaluation. This evaluation does not purport to include all occupational hazards at this facility, and only those areas and exposures specifically mentioned were evaluated.

3. EVALUATION METHODS

3.1 Noise Survey

Sound pressure levels were measured using a Larson Davis Spark noise dosimeter model # 706RC and serial #17309. The noise dosimeter was factory calibrated May 15, 2008.



3.2 Illumination

Illumination measurements were taken using a Cal-Light 400, factory calibrated on June 17, 2008, and results were compared to the American National Standards Institute/Illumination Engineering Society of North America (ANSI/IESNA) Standard RP-1-04 (Office Lighting) and ANSI/IESNA Standard RP-7-01 (Lighting Industrial Facilities).

3.3 Indoor Air Quality Measurements

Indoor air quality parameters (i.e., carbon dioxide concentration, carbon monoxide concentration, temperature and relative humidity) were measured using a TSI Q-Trak Plus Model 8554, factory calibrated in February 2008. Carbon dioxide, temperature and relative humidity measurements were compared to the recommended levels established by the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE). CO levels were compared to Occupational Safety and Health Administration Permissible Exposure Limit, the American Conference of Governmental Industrial Hygienists Threshold Limit Value (TLV) for CO and the Environmental Protection Agency's National Ambient Air Quality Standard (NAAQS) for CO.

4. OPERATIONS DESCRIPTIONS

4.1 Facility Operations

There are currently seven units assigned to the facility C CO, 427 Brigade Support Battalion; C CO, 427 Brigade Support Battalion Rear; HHC (-), 27th Brigade Special Troops BN; C CO, 27th Brigade Special Troop BN; 153 Troop Command BDE; 29 Personnel Services DET; and 152 Engineer Support Company. The operations conducted at the facility are primarily administrative activities, equipment maintenance and storage, and training in preparation for potential deployment for combat operations.

4.1.a. Noise Measurements

A sound level survey was performed to determine if there were any hazardous noise areas at the facility that could possibly result in exposures to personnel in excess of the Permissible Noise Dose. Sound pressure levels were measured throughout the facility. Measurements ranged from 62 dBA to 77 dBA within the facility. Exposure to sound pressure levels of this magnitude would not result in exposures equal to or in excess of the Permissible Noise Dose over an eight hour period.

4.1.b. Lighting Survey

Illumination levels were measured in all areas within the facility. The measurements indicate that several areas did not meet the ANSI/IESNA RP-1-04 (Office Lighting) and ANSI/IESNA RP-7-01 (Lighting Industrial Facilities). The measurement results are presented in Table 1.

4.1.c. Additional Information

N/A



4.1.d. Recommendations

Illumination should be improved in deficient areas by replacing burned-out lamps, cleaning fixtures, relocating detailed work to more illuminated areas, and opening window blinds. If illuminance levels still remain deficient, additional light sources should be provided to achieve the recommended illuminance levels.

5. PHYSICAL CONDITION OF THE FACILITY

5.1 Visual Inspection – Peeling Paint – Lead

A visual inspection was performed to determine if any areas of peeling or deteriorated paint at the facility could pose a lead exposure hazard. There were ten areas in nine locations where paint was peeling and may result in a potential exposure hazard. These areas include Room 1-8 (Freedom Hall), Room 1-4 (Women's Lounge), Room B-15 (Men's Restroom), the Firing Range, the Basement Hallway, Room 3-14 (Classroom), Third Floor Hallway, Room 3-10f (Office), and Room 3-11a (Office). Ten paint chip samples were collected and submitted to AMA Analytical Services, Inc. to be analyzed in accordance with Environmental Protection Agency (EPA) Method 7420.

The results, presented in Table 3, indicated detectable levels of lead in all ten samples collected. The paint is therefore considered to be lead-containing paint. All construction activities that involve lead-containing coatings are regulated by the Occupational Safety Health Administration (OSHA) Lead in Construction Standard, 29 CFR 1926.62. The standard currently does not define a specific concentration of lead, which must be present within paint for it to be considered "lead-containing." Therefore, painted and glazed surfaces that contain detectable concentrations of lead must be handled in accordance with the OSHA Lead in Construction Standard. Any contractor performing work that could impact paint films or glazing that have detectable concentrations of lead must be informed of the testing results, and must take appropriate actions to comply with OSHA Standard 29 CFR 1926.62. These appropriate actions include performing air monitoring to measure worker exposure; assuring that the workers are provided with adequate respiratory protection; and assuring that workers are provided with appropriate training.

The Department of Housing and Urban Development (HUD) defines lead-based paint as having greater than 0.5% lead by weight. The peeling white paint on the closet wall in Room 1-8 (Freedom Hall), the peeling cream paint on the wall of Room 1-4 (Women's Lounge), the peeling cream paint on the wall of the Basement Hallway, the peeling cream paint on Room 3-14 (Classroom) wall, the peeling cream paint on the wall of Room 3-11a (Office), and the peeling white paint on the ceiling of Hallway 3-7a contained more than 0.5% lead by weight and are therefore considered lead-based paint.

5.2 Visual Inspection – Dust – Lead

Due to concerns with lead contamination, wipe samples were collected from various surfaces throughout the facility. Twenty samples were collected from the walls, floors, and other surfaces. The samples were collected using "Ghost Wipes" using the prescribed NIOSH method for conducting surface wipe samples. The samples were collected and placed in new plastic containers and submitted to AMA Analytical Services, Inc. to be analyzed in accordance with Environmental



Protection Agency (EPA) 600/R-93/200 Lead in Surface Wipe Samples. The results for the wipe samples, presented in Appendix B indicate that there were five samples collected from Hallway 1-14b, the indoor Firing Range, the hallway outside the indoor Firing Range, and the Commander's office that were above the NGB Region North IH Office limit of 200 micrograms/square foot (µg/ft²). It is recommended that signage be posted in the indoor Firing Range warning of the lead hazard and this area should continue to be locked and not permitted for entry. Each of the other areas should be cleaned to eliminate the lead dust contamination. Anyone that may perform work in these areas, including repair or maintenance activities, must be made aware of the lead contamination and appropriate precautions be taken to minimize exposures to the lead contaminated dust.

5.3 Visual Inspection – Asbestos

A visual inspection was performed to determine if there was any suspect asbestos-containing material (ACM) at the facility and its condition. There was a total of approximately 1000 square feet (ft2) of 9 inch x 9 inch brown floor tile with tan and peach flecks, identified in Room B-30 (Moral Support Room). Overall, the floor tile material was in good condition with a few areas of minor, isolated damage. One sample of floor tile was collected and submitted to AMA Analytical Services. Inc., to be analyzed by Polarized Light Microscopy (PLM) and Transmission Electron Microscopy (TEM), to determine if the tiles are asbestos-containing. The result of the sample, presented in Appendix B, indicates that the floor tile is an asbestos-containing material. It is recommended that anyone conducting work on any asbestos-containing material or presumed asbestos-containing material be made aware of the asbestos and the appropriate precautions be taken to minimize exposures. In addition, a detailed operation and maintenance (O&M) plan should be developed to ensure that the materials are not damaged. Approximately 1000 ft² of 12 inch x 12 inch ceiling tile, including several damaged tiles, were noted in the firing range. One sample of ceiling tile was collected and submitted to AMA Analytical Services, Inc., to be analyzed by Polarized Light Microscopy (PLM) and Transmission Electron Microscopy (TEM), to determine if the tiles are asbestos-containing. The result of the sample, presented in Appendix B, indicates that the ceiling tile is not an asbestos-containing material.

5.4 Visual Inspection – Water Damage and Mold Growth

A visual inspection was performed to determine if there was any water damage or visible mold growth at the facility. There was no evidence of mold growth, but some evidence of water damage to the ceiling, ceiling tiles, or walls the in following areas: Room 1-17 (Administration Office), the Firing Range, Room 3-4 (Fitness Room), Room 3-14 Classroom, Third Floor Hallway, Room 3-10d (Office), Room 3-10e (Office), Room 3-10f (Office, Room 3-11a (Office), Room 312, and Room 2-2 (Office). The sources of the water intrusion should be identified and corrected and water-damaged ceiling tiles should be replaced to minimize the potential for mold growth. According to the Superintendent, the roof was undergoing a replacement at the time of the survey which should eliminate the dater incursion problems.



5.5 Visual Inspection – Housekeeping

A visual inspection was performed to assess the state of housekeeping in the facility. Housekeeping was good overall, with the exception of boxes stacked in the garage that do not appear to be stable and secure. It is recommended that the boxes be reduced in height to reduce the potential that they may slide, collapse, or fall.

6. BUILDING CONCERNS

6.1 Ergonomic Concerns

Interviews of employees were conducted and observations made to determine if there were work activities that result in any ergonomic concerns in the facility. No ergonomic concerns were identified.

6.2 Illumination Issue

Illumination levels were measured in nearly all areas of the facility and the results indicate that some illuminance levels do not meet the levels recommended by the Illuminating Engineering Society of North America. The measurements ranged from a low of one foot candle (fc) to a high of 80 fc. The complete results of the evaluation can be found in Table 1, including whether or not the measured levels met ANSI/IESNA RP-1-04 (Office Lighting) and ANSI/IESNA RP-7-01 (Lighting Industrial Facilities) recommendations for illumination.

6.3 Indoor Air Quality (IAQ)

Temperature, relative humidity, carbon monoxide (CO), and carbon dioxide (CO₂) were evaluated in the facility and compared with recognized "comfort factors." Currently, there are no enforceable regulatory IAQ standards. However, ASHRAE defines acceptable IAQ as air (1) in which there are no known contaminants at harmful levels, as determined by cognizant authorities, and (2) about which a substantial majority (80% or more) of the people exposed do not express dissatisfaction. ASHRAE Standard 62.1-2007, "Ventilation for Acceptable Indoor Air Quality," represents the state-of-the-art in ventilation design requirements for commercial, institutional, and residential buildings. It was developed "to specify minimum ventilation rates and indoor air quality that will be acceptable to human occupants and are intended to minimize the potential for adverse health effects." The standard also considers chemical, physical, and biological contaminants and other factors that impact IAQ and affect occupant health and comfort.

A digital IAQ meter (TSI Q-Trak Plus, model #8554) was used to collect temperature, relative humidity, CO₂, and CO measurements in several areas throughout the facility. Results are provided in Table 2. These measurements were compared with current ASHRAE consensus standards and were found to be within acceptable limits.

6.3.a. Carbon Dioxide (CO₂)

Building occupants generate CO₂ as a product of respiration. Concentrations of CO₂ are often used during indoor air quality investigations to determine the effectiveness of ventilation systems in



removing common indoor pollutants. The indoor CO₂ concentration will increase in a given space with fixed ventilation output in proportion to the number of building occupants and their activity level. ASHRAE Standard 62.1-2007 uses CO₂ as a surrogate indicator of building ventilation; namely, an indoor-outdoor CO₂ concentration differential of less than 700 parts per million (ppm) is considered to indicate adequate ventilation. This level is not considered an indication of a health risk, but rather an indicator for human comfort.

Indoor levels of CO₂ ranged from 380 parts per million (ppm) in the Room 3-1 (Gym) to 580 ppm in Room B-30 (Moral Support Room). Outdoor CO₂ levels were approximately 355 ppm during the monitored period. The indoor CO₂ levels were less than 1055 ppm (the outdoor CO₂ levels plus 700 ppm), which indicates adequate ventilation.

6.3.b. Carbon Monoxide (CO)

The Occupational Safety and Health Administration has established a Permissible Exposure Limit for carbon monoxide of 50 per million (ppm) averaged over an eight-hour work day. Similarly, the American Conference of Governmental Industrial Hygienists has established a Threshold Limit Value of 25 ppm averaged over an eight-hour work day. The National Ambient Air Quality Standard (NAAQS) recommended for ambient CO is below 9 ppm over an eight-hour work day. The CO measurements in the facility were well below the monitor's level of detection, which is 1 part per million. These levels are well below the established occupational exposure limits and CO is not expected to present a hazard to employees at this facility.

6.3.c. Temperature

Indoor temperature measurements in the facility ranged from 67°F in the Garage to 74.5°F in the Regimental Parlor Room. These temperatures will not give rise to heat or cold stress and are close to the range recommended by ASHRAE. They are therefore considered acceptable. The garage had a slightly lower temperature because the garage doors were open at the time of the survey. As a result, the readings collected in the garage area were greatly influenced by outdoor conditions. The levels found may be considerably different during times of the year when the doors remain closed.

6.3.d. Relative Humidity

Indoor relative humidity (RH) measurements ranged from 43% in Room 3-14 (Classroom) to 58% in the indoor Firing Range. The results of the measurements indicate that employees were not exposed to temperature or humidity levels at the time of the survey that could give rise to heat- or cold-induced injuries.

6.3.e. Lead Air Sampling

Due to concerns with lead contamination, air samples were collected from two areas in the facility; Room 1-6 (Recruiter's Office) and Room 1-17 (Administration Office). The samples were collected using SKC brand personal sampling pumps with the appropriate sampling media. Pumps were calibrated both before and after use with a Dry-Cal calibrator, which is considered a primary standard. General area samples were collected as close to breathing zone height as could be



achieved. Samples were collected for 433 and 434 minutes, resulting in a sampled volume of 866 and 868 liters of air, respectively. The samples were shipped to AMA Analytical Services, Inc. and Analysis was conducted in accordance with the Environmental Protection Agency (EPA) 600/R-93/200 Lead in Air Samples. Both air samples were below the OSHA PEL and ACGIH TLV of 50 µg/m³ as an 8 Hour time weighted average (TWA). Results as reported by the laboratory are included as Appendix B. The results from the air samples collected over the 7.2 hour period were compared directly to the OSHA PEL, which is based on an 8-hour Time-Weighted Average, because the airborne concentration of lead is not expected to change in the office areas sampled.

7. INDUSTRIAL HYGIENE AND SAFETY PROGRAMS

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

- Confined Space;
- Hearing Conservation;
- Respiratory Protection;
- Hazard Communication (HAZCOM); and
- Personal Protective Equipment (PPE).

It was determined that all industrial hygiene and safety programs are managed at the unit level and there are no specific facility based programs; therefore, no programs were reviewed for the facility. According to the Superintendent, all facility employees are required to attend an annual safety class which includes a review of PPE standards, chemical inventory, asbestos awareness training, and hazardous assessment.

8. VEHICLE, EQUIPMENT AND HAZARDOUS MATERIALS LIST

The use of the items on the equipment and hazardous materials lists were evaluated and it appears that all the items are used at the facility. The Material Safety Data Sheets (MSDS) were in order and all chemicals found in the facility were listed in the materials list (or chemical inventory) at the beginning of the MSDS notebook. According to the Maintenance Assistant there are no vehicles assigned specifically to the facility. All vehicles at the facility are assigned to specific units for the use only.

9. CONCLUSION

Industrial hygiene concerns associated with some water damage to several ceilings, suspended ceiling tiles, and walls were identified at the facility. Illumination levels were low in some areas of the facility. Five lead dust wipe samples were above the NGB Region North IH Office limit of 200 micrograms/square foot (μ g/ft²). Detectable levels of lead were found in all samples of peeling paint

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collected. One housekeeping problem was identified with stacked boxes in the Garage. Asbestoscontaining floor tile was identified. These concerns are discussed in Sections 4 through Section 8.

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Tables



Table 1. Illumination Measurements The New York State Readiness Center Connecticut Street, New York Date of Sampling: September 11, 2008

Location	Luminance (fc) ¹	Standard (fc)	Standard Met (Y/N)
	BASEMENT	, ,	1
Room B-15 (Men's Restroom)	2 – 7	7	N
Firing Range	11 – 70	30	N
Basement Hallway	13 – 15	7	Y
Room B-30 (Moral Support Room)	28 – 35	30	N
Room B-8a (Storage)	13 – 20	5	Υ
Room B-20 (Boiler Room)	12 – 32	30	N
Room B-25 (Kitchen)	34 – 42	50	N
Room B-24 (Mess Hall)	30 - 36	30	Y
	FIRST FLOOR	1	
Room 1-6 (Recruiter's Office)	26 – 32	50	N
Room 1-17 (Administration Office)	33 – 36	30	Y
First Floor Hallways	4 – 10	7	N
Room 1-21 (Grand Court)	10 – 30	30	N
Garage	1 – 2	75	N
Room GS-6 (Garage Storage)	25 – 32	30	N
Room 1-T-1 (Bathroom)	19 – 20	7	Y
Room 1-8 (Freedom Hall)	38 – 40	30	Y
Room 1-5 (Men's Latrine)	36 – 40	7	Y
Room 1-4 (Women's Lounge)	42 – 43	30	Y
Front Desk Area (1-1)	22 – 31	30	N
Room 1-T-2 (Office)	51 – 52	50	Y
SGT Derouche's Office	31 – 32	50	N
Room 1-15 (Office)	30 – 35	50	Y
Room 1-13 (BSTB-HHC)	24 – 28	30	N
Room 1-11(BSTB-C CO)	28 – 29	30	N
Room 1-10 (Club Room)	18 – 25	30	N
Room 1-12d	16 – 21	30	N
		1	<u> </u>



Table 1. Illumination Measurements The New York State Readiness Center Connecticut Street, New York Date of Sampling: September 11, 2008

Location	Luminance (fc) ¹	Standard (fc)	Standard Met (Y/N)		
Room 1-2 (State Break Room)	31 - 38	10	Y		
	SECOND FLOOR		•		
Regimental Parlor	22 – 41	30	N		
Second Floor Hallways	2 – 15	7	N		
Room 2-2 (Office)	34 – 36	50	N		
Room 2-2c (Office)	6 – 38	50	N		
Room 2-2e (Office)	38	50	N		
Room 2-5 (Male Latrine)	60 – 80	7	Y		
Room 2-6 (Officers' Club Room)	18 – 50	30	N		
Room 2-6c (Kitchen)	30 – 31	50	N		
Room 2-9 (Office)	30 – 33	50	N		
Room 2-8 (Office)	29 - 32	50	N		
THIRD FLOOR					
Gym 3-1	32 – 36	30	Y		
Room 3-2 (Nautilus Room)	34	30	Y		
Room 3-4 (Fitness Room)	36 – 42	30	Y		
Room 3-14 (Classroom)	14 – 35	30	N		
Room 3-7a (Hallway)	9 – 18	7	Y		
Room 3-6 (Office)	35 – 40	50	N		
Room 3-10d (Office)	46	50	N		
Room 3-10e (Office)	67 – 69	50	Y		
Room 3-10f (Office)	26	50	N		
Room 3-11a (Office)	39 – 42	50	N		
Room 3-11	25 – 28	30	N		
Room 3-12	36 - 45	30	Y		

¹ fc = foot candles

The readings were taken with a Cal-Light 400, factory calibrated on June 17, 2008.

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The standards listed in Table 1 are from ANSI/IESNA RP-1-04 (Office Lighting) and ANSI/IESNA RP-7-01 (Lighting Industrial Facilities)



Table 2. Indoor Air Quality Measurements Connecticut Street Readiness Center Buffalo, New York

Date of Sampling: September 11, 2008

Location	Occupants Present in Area	CO ₂ (ppm) ¹	CO (ppm)	Relative Humidity (%)	Temperature (° F)
	Base	ement			
Firing Range	1	450 – 530	<1	57 – 58	70 – 70.5
Room B-30 (Moral Support Room)	1	530 – 580	<1	41 – 42	73 - 74
	First	Floor			
Room 1-21 (Grand Court)	2	400 – 440	<1	46 – 47	70 – 70.5
Garage F-16	6	390 – 410	<1	46 – 47	67 - 68
	Secon	d Floor			
Regimental Parlor	1	410 – 545	<1	48 – 49	74 – 74.5
Third Floor					
Gym 3-1	1	380 – 440	<1	48 – 49	72.5 – 73
Room 3 – 14 (Classroom)	1	430 – 465	<1	43 - 44	73 - 74

CO₂, CO, relative humidity and temperature measurements were taken with a TSI Q-Trak Plus Model 8554, calibrated February 2008.

American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) recommendations that indoor CO₂ concentration be maintained at a level that is less than 700 ppm above outdoor concentration.

National Ambient Air Quality Standard (NAAQS) recommendation for ambient CO: below 9 ppm

Occupational Safety and Health Administration Permissible Exposure Limit for CO: 50 ppm as an 8-hour time-weighted average (TWA)

American Conference of Governmental Industrial Hygienists Threshold Limit Value for CO: 25 ppm as an 8-hour time-weighted average (TWA)



Table 3. Peeling Paint Chip Sample Results Connecticut Street Readiness Center Buffalo, New York

Date of Sampling: September 11, 2008

Sample Number	Location	Results (%)¹
9112008 – 50	Room 1-8 (Freedom Hall) – peeling white paint on wall	0.029
9112008 – 51	Room 1-8 (Freedom Hall) – peeling white paint on closet wall	37
9112008 – 52	Room 1-4 (Women's Lounge) peeling cream paint on wall	15
9112008 – 53	Room B-15 (Men's Restroom) – peeling cream paint on wall	0.41
9112008 – 54	Firing Range – peeling cream paint on wall	0.25
9112008 – 55	Basement Hallway – peeling cream paint	0.74
9112008 – 56	Room 3-14 (Classroom) – peeling cream paint on wall	1.7
9112008 – 57	Hallway 3-7a – peeling white paint on ceiling	26
9112008 – 58	Room 3-10f (Office) – peeling white paint on walls and ceiling	0.032
9112008 - 59	Room 3-11a (Office) – peeling cream paint on wall	11

¹ Results cited as % lead by weight

The Department of Housing and Urban Development (HUD) defines lead-based paint as having greater than 0.5% lead by weight.

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AMA Analytical Services, Inc conducted the analysis in accordance with the Environmental Protection Agency (EPA) 7420



Table 4.Lead Wipe Samples Connecticut Street Readiness Center Buffalo, New York

Date of Sampling: September 11, 2008

0I- N I	Date of Camping, Cepteriber 11, 2000				
Sample Number	Location	Sample Area ¹	Results	NGB Standard	
			(µg/ft²)²	(µg/ft²)³	
9112008 - 01	Room 1-6 – Recruiter's Office Desk	12 in x 12 in	140	<200	
9112008 - 02	Rom 1-17 – Administrative Office desk	12 in x 12 in	24	<200	
9112008 - 03	Grand Court – front left floor	12 in x 12 in	19	<200	
9112008 – 04	Grand Court – rear back right floor	12 in x 12 in	17	<200	
9112008 - 05	Grand Court – rear back left floor	12 in x 12 in	<12	<200	
9112008 – 06	Grand Court - shelf	12 in x 12 in	17	<200	
9112008 – 07	Grand Court – left middle floor	12 in x 12 in	42	<200	
9112008 – 08	Hallway 1-14b – stored ladder	12 in x 12 in	340	<200	
9112008 – 09	Room 1-8 (Freedom Hall) – area near fireplace	12 in x 12 in	24	<200	
9112008– 10	Room 1-10 (Office) – top of filing cabinet	12 in x 12 in	33	<200	
9112008 – 11	Firing Range – bullet trap area	12 in x 12 in	48000	<200	
9112008 – 12	Firing Range – chair	12 in x 12 in	99	<200	
9112008 – 13	Firing Range – floor near bullet trap	12 in x 12 in	4000	<200	
9112008 – 14	Hallway floor outside the Firing Range	12 in x 12 in	440	<200	
9112008 – 15	Firing Range – floor near center right wall	12 in x 12 in	2500	<200	
9112008 – 16	Kitchen B-25 – table top	12 in x 12 in	57	<200	
9112008 – 17	Gym 3-1 – right corner floor	12 in x 12 in	130	<200	
9112008 – 18	Classroom 3-14 – desk in rear	12 in x 12 in	42	<200	
9112008 – 19	Room 3-11a (Office) – floor under damaged ceiling	12 in x 12 in	150	<200	
9112008 – 20	Room 2-6c – (Kitchen) – top of	12 in x 12 in	14	<200	



- Sample area was 12 in x 12 in with a total sample area of 144 in or at total of 1 ft
- ² Results are presented as microgram per square feet (µg/ft²)
- Standard is based on the NGB Region North IH office policy

AMA Analytical Services, Inc conducted the analysis in accordance with the Environmental Protection Agency (EPA) 600/R-93/200.

The sample results were compared to the NGB Region North IH Office Policy of maintaining <200 µg/ft2



Table 5.General Area Air Samples for Lead New York State Readiness Center Connecticut Street, New York Date of Sampling: September 11, 2008

Comple		Sam	ple Information		Results
Sample Number	Location	Time Sampled / Minutes	Flow Rate (lpm) ¹	Volume (liters)	(ug/m³) ²
9112008 – A1	Room 1-6 (Recruiters Office)	433	2	866	<3.4
9112008 – A2	Room 1-17 (Administration Office)	434	2	868	<3.5
OSHA PEL (8-hour TWA) ⁴					50
ACGIH TLV (8-hour TWA) ⁵				50	

The results from the air samples collected over the 7.2 hour period were compared directly to the OSHA PEL, which is based on an 8-hour Time-Weighted Average, because the airborne concentration of lead is not expected to change in the office areas sampled.

- 1 lpm = liters of air per minute
- 2 ug/m³ = micrograms per cubic meter
- ND = Parameter not detected above LOD
- 4 U.S. Occupational Safety and Health Administration Permissible Exposure Limit (8-hour Time-Weighted Average)
- 5 American Conference of Governmental Industrial Hygienists Threshold Limit Value (8-hour Time-Weighted Average)



Table 6. Bulk Suspect Asbestos Containing Material (ACM) Samples New York State Readiness Center Geneva, New York Date of Sampling: September 8, 2008

Sample Number	Location	Results (%)/Type ¹
9112008-80	12 in x 12 in damaged ceiling tile in the Firing Range	0% Chrysotile (No Asbestos Detected)
9112008-81	9 in x 9 in brown floor tile with tan and peach flecks in Room B-30 (Moral Support Room)	6% Chrysotile

¹Results cited as % asbestos

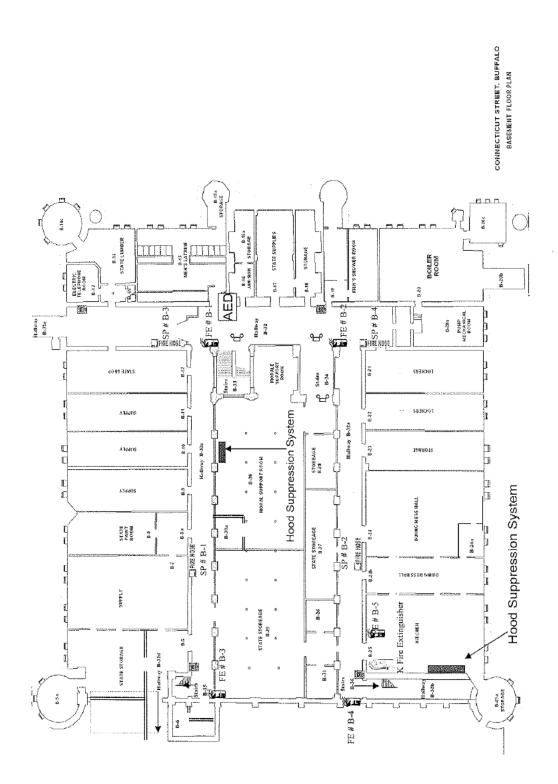
According to 29 CFR 1910.1001(b), Asbestos-containing material means any material containing more than 1% asbestos.

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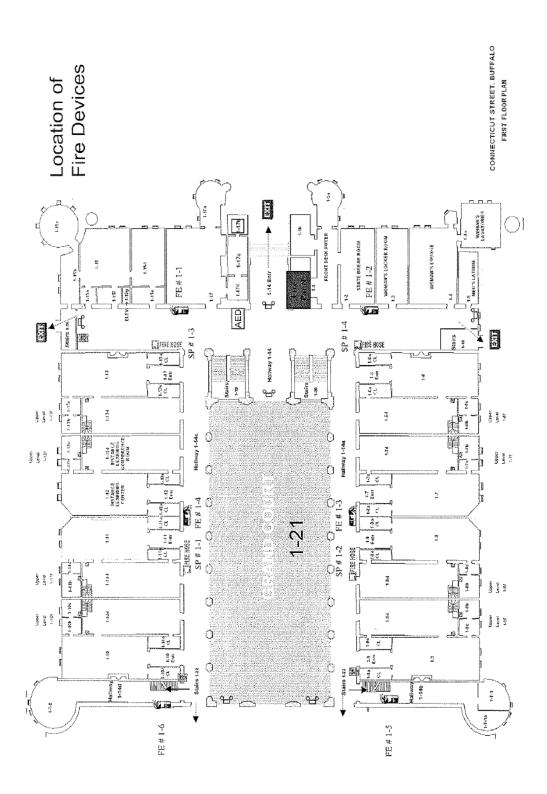
Connecticut Street Readiness Center Buffalo, New York September 11, 2008



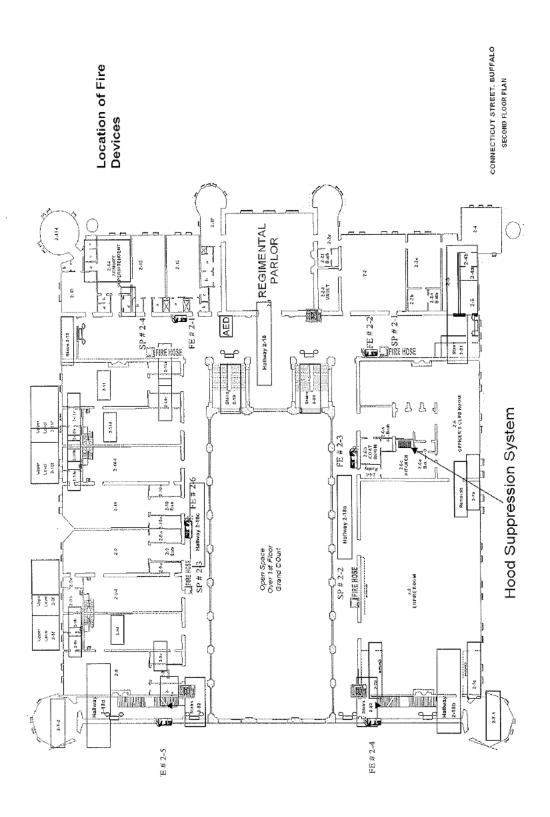
Appendix A Building Layout



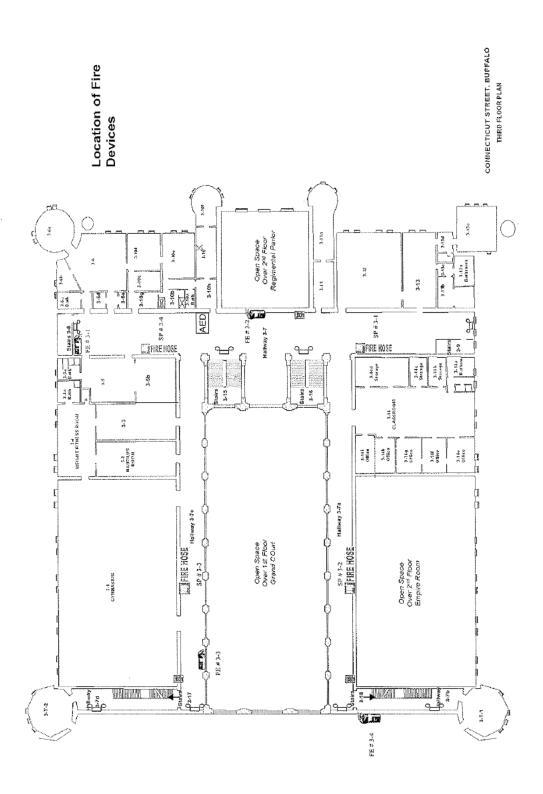
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Appendix B Sampling Sheets and Laboratory Results for Lead Paint Chip Samples, Lead Dust Wipe Samples, Asbestos Samples, and Lead Air Samples



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AIHA GROAJQHICOI Services, Inc.
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www.amalab.com

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A Specialized Environmental Laboratory

AMA Analytical Services, Inc.

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	Flame Wipe **** 1,000 12 ug/ft* 140	Flame Wipe 1.000 12 ug/ft² 140 12me Wipe 1.000 12 ug/ft² 24 1.000 24 1.000 25 1.000	Flame Wipe **** 1,000 12 ug/ft² 140 Flame Wipe **** 1,000 12 ug/ft² 24 Flame Wipe **** 1,000 12 ug/ft² 19	Flame Wipe **** 1,000 12 ug/ft² 140 Flame Wipe **** 1,000 12 ug/ft² 24 Flame Wipe **** 1,000 12 ug/ft² 19 Flame Wipe **** 1,000 12 ug/ft² 17	Flame Wipe 1.000 12 ug/ft* 140 Flame Wipe 1.000 12 ug/ft* 24 Flame Wipe 1.000 12 ug/ft* 19 Flame Wipe 1.000 12 ug/ft* 17 Flame Wipe 12 ug/ft* 17 Flame Wipe 17 ug/ft* 17 Flame Wipe 17 ug/ft* 17 ug/ft* 17	Plame Wipe 1.000 12 ug/ft 140 Plame Wipe 1.000 12 ug/ft 140 Plame Wipe 1.000 12 ug/ft 19 Plame Wipe 1.000 12 ug/ft 17 Plame Wipe 12 ug/ft 17 Plame	Flame Wipe 1.000 12 ug/ft* 140 Flame Wipe 1.000 12 ug/ft* 140 Flame Wipe 1.000 12 ug/ft* 19 Flame Wipe 1.000 12 ug/ft* 17 Flame Wipe 1.000 12	Hame Wipe 1.000 12 ug/ft* 140 Hame Wipe 1.000 12 ug/ft* 140 Hame Wipe 1.000 12 ug/ft* 17 Flame Wipe 1.000 12 ug/ft* 42 Flame Wipe 1.000 12 ug/ft* 340 Flame Wipe 1.000 12	Flame Wipe 1.000 12 ug/ft* 140 Flame Wipe 1.000 12 ug/ft* 140 Flame Wipe 1.000 12 ug/ft* 19 Flame Wipe 1.000 12 ug/ft* 17 Flame Wipe 1.000 12 ug/ft* 340 Flame Wipe 1.000 12 ug/ft* 24 Flame Wipe 1.000 12 ug/ft* 340 Flame Wipe 1.000 12 ug/ft* 24 Flame Wipe 12 ug/ft* 24 Flame Wipe 12 ug/ft* 24	Flame Wipe	Flame Wipe	Flame Wipe	Flame Wipe 1.000 12 ug/ft* 140 Flame Wipe 1.000 12 ug/ft* 140 Flame Wipe 1.000 12 ug/ft* 17 Flame Wipe 1.000 12 ug/ft* 14 Flame Wipe 12 ug/ft* 14 Flame Wipe 12 ug/ft*	Flame Wipe 1.000 12 ug/ft* 140 Flame Wipe 1.000 12 ug/ft* 140 Flame Wipe 1.000 12 ug/ft* 17 Flame Wipe 1.000 12 ug/ft* 14 Flame Wipe 1.000 12 ug/ft* 1400 Flame Wipe 12 ug/ft* 1400 Flame Wipe 12 ug/ft* 1400 Flame Wipe	Hame Wipe	Hame Wipe 1.000 12 ug/ft 140 Hame Wipe 1.000 12 ug/ft 140 Hame Wipe 1.000 12 ug/ft 17 Hame Wipe 1.000 12 ug/ft 18 Hame Wipe 18 18 Hame W	Hame Wipe 1.000 12 ug/ft 140 Hame Wipe 1.000 12 ug/ft 140 Hame Wipe 1.000 12 ug/ft 17 Hame Wipe 17 Ug/ft 17 Ug/ft 17 Hame Wipe 17 Ug/ft 17 Ug/ft 17 Hame Wipe 17 Ug/ft 17 Ug	Flame Wipe 1.000 12 ug/ft Flame Wipe 1.000 12 Flame Wipe 1.000 13 Flame Wipe 1.000 14 Flame Wipe 1.000 15 Flame

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NY ELAP

Summary of Atomic Absorption Analysis for Lead

Affention

Page 2 of 3

10/10/2008

-lu		ug/ft²	%bh
Winel Recalt		14	0.029
ortino	Limit	ug/fi²	%Dh
Rec	-	12	0.0092
	(tr)	1.000	N/A
Air Volume	3	:	:

į

AMA Sample Number	ChentSample Number	Anatysis 1ype	Sample Lype	Air Volume (L)	Area Wiped (ff')	Kepo	Keporting Limit	FIDS	Figal Result	Comments
0901211	9112008-20	Flame	Wipe	****	1.000	12	ug/fit²	-	14 ug/ft²	
0901212	9112008-50	Flame	Paint Chip	:	N/A	0.0092	%Pb	0.0	0.029 %Pb	
01213	9112008-51	Flame	Paint Chip	:	N/A	0.0099	4d%	ř		
01214	9112008-52	Flame	Paint Chip	:	N/A	800.0	%Pb	-	15 %Pb	
0901215	9112008-53	Flame	Paint Chip	:	N/A	0.01	%Pb	0.41		
01216	9112008-54	Пате	Paint Chip	****	A'N	9800.0	%bp	0.25		
0901217	9112008-55	Fiame	Paint Chip	:	N/A	0.0097	%Pb	0.74	4 %Pb	
01218	9112008-56	Flame	Paint Chip	**	N/A	9600'0	9.5%	1.7		
0901219	9112008-57	Flane	Paint Chip	:	N/A	0.0085	%Pb	v.1	26 %P5	
0901220	9112008-58	Flame	Paint Chip	:	N/A	9600'0	4d%	0.032	32 %Pb	
0901221	9112008-59	Flame	Paint Chip	:	N/A	0.0083	%Pb	=	•	
0901222	9112008-AI	Flame	Air	886	N/A	3.4	ng/m³	×	t ug/m³	
0901223	9112008-A2	Flame	Air	868	N/A	3.5	ug/m³	, 3,	s ug/m³	
0901224	9112008-A3	Flame	Air Blank	0	N/A	۳	ug/m³	٧	agn	

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CEKLIFICALE OF ANALYSIS

178318

Chain Of Custody:

Connecticut Street Armony

Buffalo NY 3008-004

Job Location:

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

Address Client

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

Job Name:

Date Submitted:

NY ELAP

10/10/2008 10/3/2008

10/10/2008 Report Date:

Person Submitting:

Date Analyzed:

Not Provided

P.O. Number: Job Number:

Page 3 of 3

Comments

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

NY ELAP accrediation applies only to paint chip, wipe, and water samples.

Technical Manager:

Summary of Atomic Absorption Analysis for Lead

Reporting Limit

Area Wiped (ft²)

Air Volume
(L)

Sample Type

Analysis Type

Client Sample

AMA Sample Number

Attention:

Analysis Method For Furnace: Air, Wipes, Paints, and Soil/Solids: EPA 600/R-93/200(M)-7421; Water: SM-3113B Analysis Method for Flame: Air, Wipes, Paints, and Soli/Solids: EPA 600/R-93/200(M)-7420; Water: SM-3111B mg/Kg = parts per million (ppm) by weight <math>mg/L = parts per million (ppm)N/A = Not Applicable

ug/L = parts per billion (ppb)

ug = micrograms

%Pb = percent lead by weight

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

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A Specialized Environmental Laboratory

Client	National Guard Burcau	Job Name:	Connecticut Street Armory	Chain Of Custedy:	178318
Address:	301-IH Old Bay Lane, Attn: NGB-AVN-SI, State Military Reservation	Job Location:	Buffalo NY	Date Analyzed:	10/10/2008
	Havre de Grace, Maryland 21078	Job Number:	3008-004	Person Submitting:	
		P.O. Number:	Not Provided	l	

Summary of Polarized Light Microscopy

ry Analyst Comments ID		us I.RP	us LBP
Total Chrysottie Amosite Crocidolite Other Mineral Fiberglass Organic Synthetic Other Particulate Sample Homogeneity Analyst Asbestos Percent Percent Percent Asbestos Wool Percent Percent Percent Percent Color Percent Percent		Beige Homogeneous I.RP	Black Homogeneous LBP
Sample Color		Beige	Black
Particulate Percent	The second of th	45	75
Other		I	1
Synthetic Percent	1	;	:
Organic Percent	1	30	:
Fiberglass Percent	-	:	;
Mineral Wool Percent		25	ř
Other Asbestos Percent		1	Ē
Crocidolite Percent		Ě	:
Amasite Percent		:	;
otal Chrysottie Amoste Crocidolite Other Mineral Fiberglass Organic Synthetic Other Pa testos Percent Percent Asbestos Wool Percent Percent Percent Percent Percent		:	\$
Total		NAD	9
Client Sample#		9112008-80	9112008-81
AMA Sample Number		0901225	0901226

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

- TEM RECOMMENDATION Please note, due to resolution limitations with optical microscopy and/or interference from matrix components of this sample, results which are reported via PLM as negative or trace (<1%) for asbestos may contain a significant quantity of asbestos. It is recommended that the additional analytical technique of TEM be used to check for asbestos fibers below the resolution limits
- 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

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

Uncertainty: For samples containing asbestos in range of 1-10% the CV is 0.43, 11-35% CV=6.55, >35 CV≈0.23



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Attention:





Appendix C Selected Photographs of the Connecticut Street Readiness Center



Photo 1: The exterior front of the building that houses the Connecticut Street Readiness Center.



Photo 3: A view of the Grand Court inside the Connecticut Street Readiness Center.



Photo 5: A view of the Indoor Firing Range.



Photo 2: The exterior side of the building that houses the Connecticut Street Readiness Center.



Photo 4: 9 x 9 brown floor tile with tan and peach flecks in Room B-30 (Moral Support Room).



Photo 6: Water damaged ceiling tile located in the Firing Range.



Photo 7: Evidence of water damage to the ceiling in Hallway 3-7a.



Photo 9: Water stained ceiling tiles located in Room 2-7 (Empire Room).



Photo 8: Evidence of water damage to the ceiling and walls in Room 3-10f (Office).



Photo 10: Evidence of water damaged ceiling tiles in Room 2-2 (Office).



Photo 11: Boxes are stacked in the garage area and could create a strike hazard.

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Connecticut Street Readiness Center Buffalo, New York September 11, 2008



Appendix D Risk Assessment Code Determination



RISK ASSESSMENT CODE DETERMINATION

A Risk Assessment Code (RAC) for each hazard identified is provided at the end of each hazard description. The RAC codes are derived using the matrix provided by the National Guard (reference DOD Instruction 6055.1). This process includes three steps:

• Step 1: Determine the Health Hazard Severity Code (HHSC)

A. Exposure Points Assessed

			Exposure Conditions		
	CT Occasionally >CT >CT Always <std th="" ≤std<=""><th></th><th>>STD</th></std>			>STD	
AER	No	0	3	5	7
Possible?	Yes	1-2	4	6	8

AER - Alternate exposure route, such as skin absorption, ingestion

CT – DoD component threshold that triggers surveillance actions, such as microwatts/cm², dB, parts per million (ppm)

STD – DoD exposure limit, such as Threshold Limit Value (TLV) and Permissible Exposure Limit (PEL)

B. Medical Effects Points Assessed

Condition	Points
No medical effect, such as nuisance noise and nuisance odor	2
Temporary reversible illness requiring supportive treatment, such as eye irritation and sore throat	1-2
Temporary reversible illness with a variable but limited period of disability such as metal fume fever	3-4
Permanent, nonsevere illness or loss of capacity, such as permanent hearing loss	5-6
Permanent, severe, disabling, irreversible illness or death, such as asbestosis and lung cancer	7-8



C. Determine the HHSC by totaling the points assessed and using the following guide:

Total Points (sum of A and B)	HHSC
13-16	I
9-12	II
5-8	III
0-4	IV

• Step 2: Determine the Mishap Probability Category (MPC)

A. Duration of Exposure Points Assessed

		Length of Exposure			
	1-8 hr/week >8hr/week not continuous				
Type of	Irregular, intermittent	1-2	4-6		
Exposure	Regular, periodic	2-3	5-7	8	

B. Number of Exposed Personnel Points Assessed

Number of Exposed Personnel	Points
<5	1-2
5-9	3-4
9-49	5-6
>49	7-8

C. Determine the MPC for health hazards by totaling the points assessed and using the following guide:

Total Points (sum A and B)	MPC
14-16	A
10-13	В
5-9	С
<5	D



Step 3: Determine the RAC using the following matrix;

		Mishap P	robability Catego	ory (MPC)	
		Α	В	С	D
Health	I	1	1	2	3
Hazard	II	1	2	3	4
Severity	III	2	3	4	5
Code	IV	3	4	5	5

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Connecticut Street Readiness Center Buffalo, New York September 11, 2008



Appendix E References



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- Department of Defense Instruction (DODI) 6055.1, Department of Defense Occupational Safety and Health (OSH) Program, August 19, 1998.
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- Army Regulation (AR) 40-5, Medical Service, Preventive Medicine, October 15, 1990.
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Prepared for:
National Guard Bureau
Army National Guard
Region North Industrial Hygiene Office
Havre De Grace, Maryland









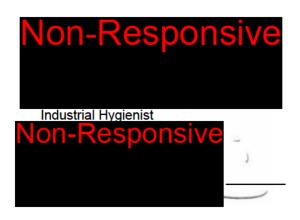
Industrial Hygiene Survey for NYARNG – Connecticut Street Readiness Center 184 Connecticut Street Buffalo, NY 14213

AECOM August 2012

Document No.: 60269454/Connecticut Street Readiness Center

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

Industrial Hygiene Survey for NYARNG – Connecticut Street Readiness Center 184 Connecticut Street Buffalo, NY 14213





Northeast District Health & Safety Manager

AECOM August 2012

Document No.: 60269454/Connecticut Street Readiness Center





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Executive Summary

On July 10, 2012, AECOM conducted an Industrial Hygiene (IH) survey of the Connecticut Street Readiness Center facility located at 184 Connecticut Street, Buffalo, New York. Non-Responsive was the point of contact for the facility and provided personnel to accompany AECOM during the survey to provide access and information concerning the Connecticut Street Readiness Center operations.

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

The Connecticut Street Readiness Center is currently staffed by approximately 65 personnel. The facility is configured as an administrative area and a Drill/Assembly Hall.

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

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

The Connecticut Street Readiness Center is housed in a three story masonry building, consisting of approximately 30% administrative space and 70% Assembly Hall/common areas.

Lighting levels measured throughout the facility were generally adequate as per <u>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 <u>IESNA Lighting Handbook</u>, 9th Edition, 11 April 2005. Lighting levels in most occupied areas were in compliance with ANSI/ISEA guideline levels. Much of the facility is unoccupied, and lighting in those areas was generally below recommended guidelines.</u>

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 outside the former firing range indicated levels of lead in excess of 200 ug/ft².

No damaged suspect asbestos containing materials were observed during the evaluation. It was reported that extensive abatement has been undertaken at the facility.

Approximately four hundred square feet of peeling lead-based paint was observed in the basement corridor, basement shower room, and 2nd floor locker room. Site maintenance personnel indicated that the facility has planned to have the shower room abated but has not yet selected a contractor.

2 roof leaks were reported by building maintenance personnel, 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. There is no HVAC system that provides fresh air from the building exterior in administrative areas.

1.0 Facility Description and Operations

The Connecticut Street Readiness Center is an administrative facility within a masonry structure constructed in 1898. The building consists of administrative space surrounding a centrally located assembly hall. Interior spaces are generally finished with painted block, plaster, acoustical drop ceilings, hardwood flooring, and floor tile.

The primary activity at the Connecticut Street Readiness Center is routine administrative duties and occasional use by units for support and training of soldiers. The Connecticut Street Readiness Center is currently staffed by approximately 65 personnel. Vehicle maintenance activities are undertaken at FMS-10 which is located in the rear portion of the facility.

2.0 Sampling in Readiness Centers

2.1.1 Wipe Sampling

Wipe sampling for lead was conducted in the former firing range, the Assembly Hall, and administrative areas following the Occupational Safety & Health Administration (OSHA) wipe sampling method and using Ghost wipes. According to site personnel the rifle range was abated previously. Samples were collected in areas that are not frequently cleaned and showed signs of dust whenever possible.

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

Table 2-1: Lead Wipe Sample Results

Sample Number	Sample Location	Lead Concentration
NY-CRC-01	Assembly Hall Floor – North	<110 ug/ft ²
NY-CRC-02	Assembly Hall Floor – South	<110 ug/ft ²
NY-CRC-03	Assembly Hall Sill	<110 ug/ft ²
NY-CRC-04	Kitchen	<110 ug/ft ²
NY-CRC-05	Office	<110 ug/ft ²
NY-CRC-06	Former Bullet Trap Area	<110 ug/ft ²
NY-CRC-07	Former Range Floor	170 ug/ft ²
NY-CRC-08	Outside Former Range on Floor	240 ug/ft ²

ug/ft² = Micrograms per square foot.

Lead in excess of the action level of 200 micrograms per square foot (ug/ft²) per NG-PAM 420-15 was detected in a wipe sample collected on the floor outside of the former range. Laboratory analytical results are presented in Appendix C.

2.1.2 Air Sampling

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

Table 2-2: Lead Air Sample Results

Sample Number	Sample Location	Lead Concentration
NY-CRC-01A	Assembly Hall – North	<26ug/m ³
NY-CRC-02A	Assembly Hall - South	<27 ug/m ³

ug/m³ = Micrograms per cubic meter of air.

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

3.0 Physical Condition of Facility and Personnel Concerns

3.1.1 Lead Based Paint

Interior surfaces of walls are coated with paint. The paint on the walls appeared to be generally in good condition. Concrete flooring was generally tiled or unpainted. AECOM observed damaged and peeling paint in the Basement corridor, Basement Shower room, and 2nd floor locker room ceiling the ceiling during this evaluation. Site maintenance personnel indicated that the paint has been sampled previously and found to be lead-containing. Approximately 400 square feet of this material is present in those areas. Site personnel indicated that abatement of these areas is planned.

3.1.2 Suspect Asbestos Containing Materials

AECOM did not observe damaged suspect asbestos containing materials (ACM) in readily accessible areas of the Connecticut Street Readiness Center during this survey. Thermal system piping is typically covered in fiberglass insulation with associated fittings generally in good condition. It was reported that an extensive asbestos abatement project had been undertaken at the facility in previous years.

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

3.1.3 Water Damage/Mold

AECOM did not observe evidence of water intrusion or visible mold growth during this survey. However, according to site personnel there are two roof leaks. Water intrusion is a mold growth risk factor.

3.1.4 Housekeeping

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

3.1.5 Indoor Air Quality/ Ergonomics

The Administration Section contains general office space. The Administration Section is generally utilized by all of the Connecticut Street Readiness Center staff members. No Indoor Air Quality concerns were noted by the Connecticut Street 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. Temperatures in a second floor office were elevated. The facility is not mechanically air-conditioned.

Table 3-1: Indoor Air Quality Monitoring Results

Location	Carbon Monoxide (ppm)	Carbon Dioxide (ppm)	Temp (°F)	Relative Humidity (%)
Exterior – Baseline	0.5	381	70.6	58.3
Security Office	1.3	642	78.3	56.6
Office 117	1.0	505	78.1	45.9
Vet's club	0.2	526	76.8	55.2
Assembly Hall	0.4	500	77.7	54.1
2 nd Floor Office – Southwest	0.4	508	77.9	54.1
2 nd Floor Office - East	0.7	555	80.2	46.4
3 rd floor southeast office	1.0	698	78.3	40.1

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)

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

4.0 Ventilation and HVAC System

4.1.1 Ventilation Systems and Potential for Contamination of Clean Air Sources

Potential for contamination of clean air sources was observed in the facility. The rear portion of the building is used for vehicle storage, as well as housing FMS-10.

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

4.1.2 HVAC Maintenance

There was no 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 adequate in some areas and inadequate in others. Lighting levels in most occupied areas were in compliance with ANSI/ISEA guideline levels. Much of the facility is unoccupied, and lighting in those areas was generally below recommended guidelines.

Table 5-1: Light Survey

Location	Results – (Foot candles)	Met Standard (Y/N)	Standard*
Former Range (Storage)	42.6	Y	30
Basement Corridor	24.9	Y	10
Family Services Lounge	62.3	Υ	10
Kitchen	56.8	Υ	50
Boiler Room	33.6	Y	30
1 st Floor Office	52.0	Υ	50
1 st Floor Office (SE Corner)	53.6	Y	50
1 st Floor Office – East	51.9	Y	50
1 st Floor Office – East	37.5	N	50
Vet's club	32.1	Υ	10
Vet's club lounge	5.1	N	10
Assembly Hall	22-48	Y	30
1 st Floor Locker/Storage	3.5	N	7
1 st Floor Office – West	55.5	Y	50
1 st Floor Office – West	47.9	N	50
Security Office	52.7	Y	50
Break area next to security	32.1	Y	10
2 nd Floor Office - East	62.9	Y	50
2 nd Floor locker room	33.1	Y	7
2 nd Floor Office - East	68.8	Y	50
2 nd Floor Office - East	41.0	N	50
2 nd Floor Office – Southeast	50.9	Y	50
Battalion CMDR Office	72.3	Y	50
2 nd floor corridor	13.5	Υ	5
2 nd Floor Office – Southwest	47.3	N	50
2 nd floor great hall	17.0	N	30
3 rd floor gymnasium	45.0-127	Y	30
Weight room 1	39.6	Y	30
Weight room 2	73.0	Υ	30
3 rd floor southeast office	51.6	Y	50
3 rd floor south center office	32.0	N	50
3 rd floor south center office	66.8	Υ	50
3 rd floor storage west	34.0	N	30
Office Lighting (ANSI/ISEA RP-1-04) and Industria	Lighting Facilities (ANSI RP-7-01)	-

6.0 Evaluation of Attached Garage

FMS-10 is located in the rear portion of the Connecticut Street Readiness Center. The rear portion of the building is also used for vehicle storage. Engineering controls and PPE was observed at the facility in FMS-10, which is located in the rear basement portion of the facility. There is a newly installed Local Exhaust Ventilation system in the FMS, as well as a Carbon Monoxide detection system. An Industrial Hygiene survey of the FMS was completed on July 10, 2012.

FMS-10, which is located in the rear of the basement section of the Connecticut Street Readiness Center is tasked with maintenance and repair of vehicles routinely used by NYARNG personnel during drill weekends. The primary activity at FMS-10 is routine maintenance and repair of vehicles, including but not limited to vehicle brake repair, oil/battery changes, minor engine repairs and adjustments, minor welding and soldering, and spot painting (e.g., lettering, markings, etc.). Vehicle maintenance and repair activities primarily include the use of hand and pneumatic tools. Gas or electric-arc welding may be conducted in place on the vehicle or benchtop locations. Welding operations are extremely limited. Chemical usage includes handling of typical automotive fluids (e.g., engine oils, transmission fluids, hydraulic fluids, etc.), small size containers of paints (e.g., spray cans), acids in batteries, degreasing fluids, and other solvents.

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 Connecticut Street Readiness Center.

Approximately four hundred square feet of peeling lead-based paint was observed in the basement corridor, basement shower room, and 2nd floor locker room. Site maintenance personnel indicated that the facility has planned to have the shower room abated but has not yet selected a contractor.

2 roof leaks were reported by building maintenance personnel. Neither water damage nor visible mold growth was observed by AECOM during the survey. Water intrusion is a mold growth risk factor.

Lighting levels in most occupied areas were in compliance with ANSI/ISEA guideline levels. Much of the facility is unoccupied, and lighting in those areas was generally below recommended guidelines.

Air samples collected and analyzed did not indicate quantifiable levels of airborne lead.

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 outside the former firing range indicated levels of lead in excess of 200 ug/ft².

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.

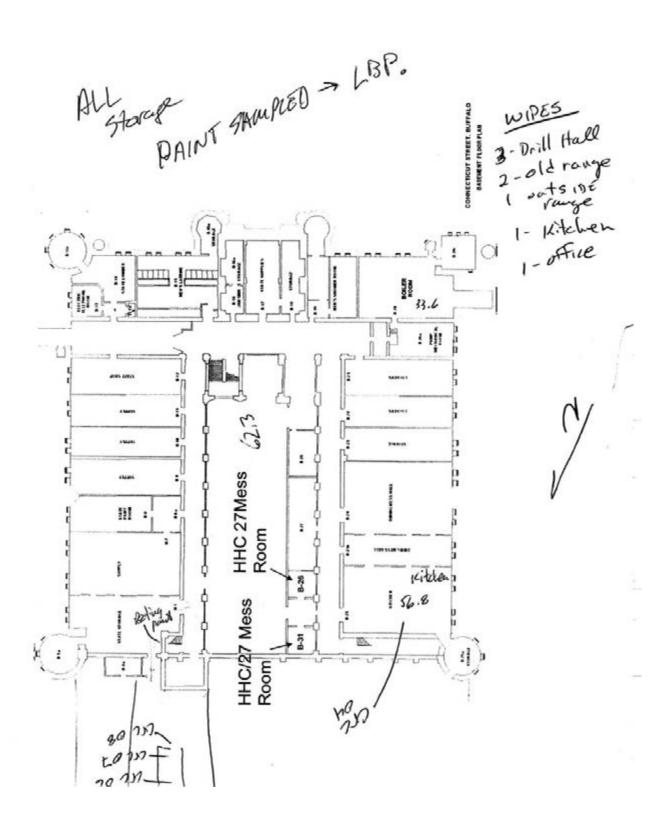
The Client recognizes and agrees that all testing and remediation methods have reliability limitations, no method nor number of sampling locations can guarantee that a condition will be discovered within the performance of the services as authorized by the Client. Additionally, the passage of time may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



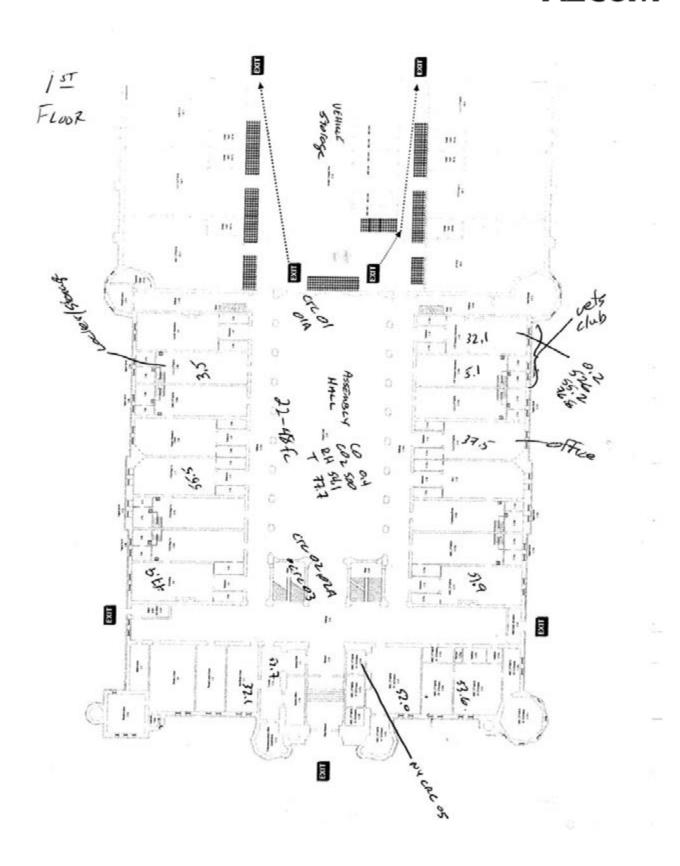
Appendix A

Connecticut Street Readiness Center Facility Layout



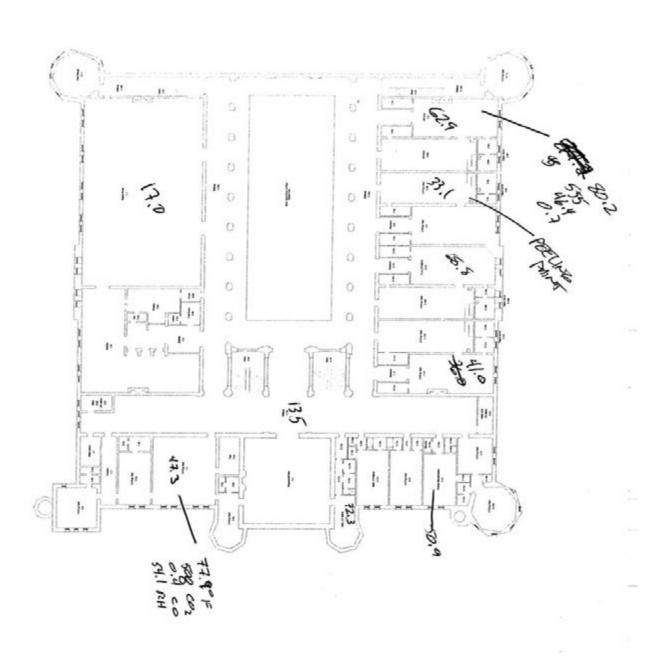


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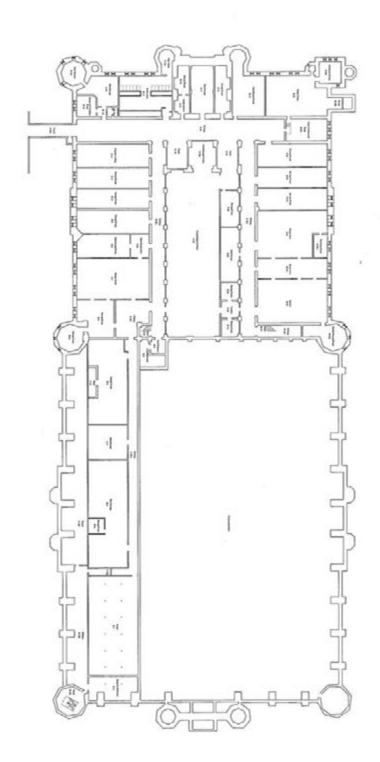




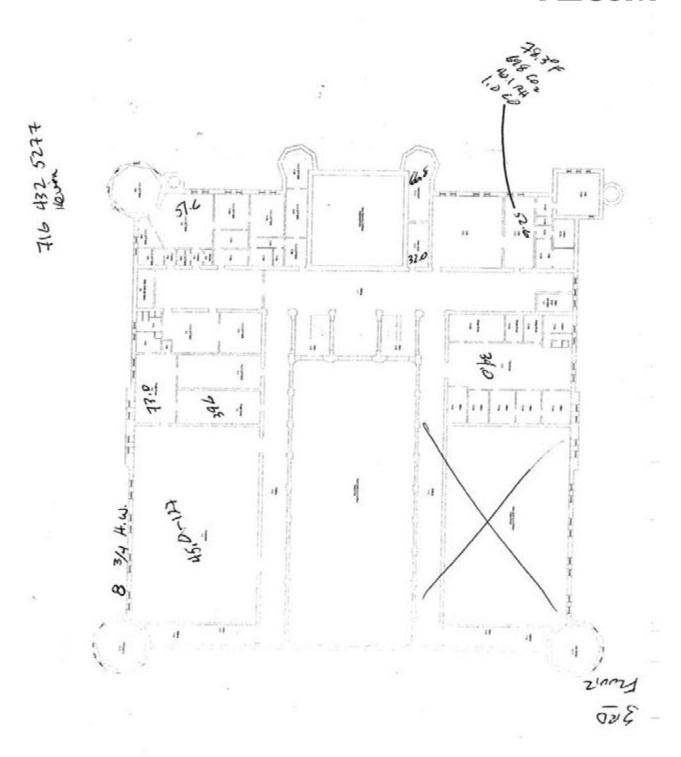
ZND FLUOR













Appendix B

Connecticut Street Readiness Center Photographs



Photograph 1



Building Exterior - Front

Photograph 2



Building Exterior - Rear



Photograph 3



Former Rifle Range

Photograph 4



Former Rifle Range





Peeling Paint in Basement Corridor



Peeling Paint in Shower Room





Boiler Room



Dining Area





Kitchen

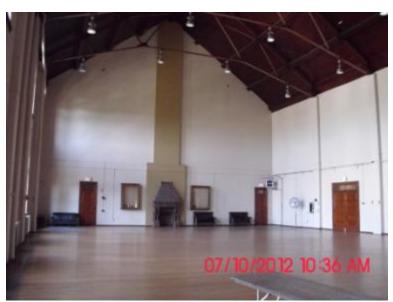


Locker Room





Typical Radiant Heater



Great Hall





Space Adjacent to Assembly Hall



Assembly Hall (from 2nd floor)





Assembly Hall (from main level)



Appendix C

Analytical Results



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

ACREOTED LADORATORY
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Clients	National Guard Bureau	Job Name:	NY-Consection Street RC	Chain Of Custody:	513407		
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	Havre de Gince, Maryland 21078	Job Numbers	Not Pravided	Person Submitting:		Non-Ri	
		P.O. Number:	W912X6-11-F-0070	Bate Analyzed:	7/24/2012	2/24/2012 Report Bates	7/24/2012
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		Summary of	summary of Atomic Absorption Analysis for Lead	nalysis for Lead			Page 1 of

MA Sample Number	Client Sample Number	Analysis Type	Sample Type	Air Volume (L)	Area Wiped (ft ²)	Rep	eporting Limit	Total ag	Final Result	ade	Comments
1077902	NY-CRC-01 A	Plane	Air	114	N/A	92	*m/dia	0	426	"safgie	
077903	NY-CRC-02 A	Plant	Air	112	N/A	22	ughn,	P	427	ng/m²	
9777904	NY-CRC-01	Plante	Wipe	****	0.111	110	"M/Bm	<12	<110	*#/dir	
077905	NY-CRC-02	Flame	Wipe	:	0.111	110	ing/fit	<12	<110	"High	
0077906	NY-CRC-03	Phame	Wipe	:	0.111	110	ng/ll*	412	<410	"H/fin	
12077907	NY-CRC-04	Flame	Wipe	:	0.111	011	, H/dia	<12	<110	off/ills	
077908	NY-CRC-05	Plane	Wipe		0.111	110	Hg/H	<12	<110	"mg/ll"	
077909	NY-CRC-06	Plane	Wipe	:	0.111	110	up/R*	<12	<110	ug/II*	
077910	NY-CRC-07	Phame	Wipe		0.111	110	MAN.	61	170	wg/fli*	
116440	NY-CRC-08	Planie	Wine	:	0.111	110	10,701	3/6	240	"Wolly"	

This report applies only to the number, investigated and is not necessarily indicative of the quality or condition of agazemid be about a security to the number of the problem the condition of agazemid be to be seen, to what or it is not the best of the condition and the condition

An.AllM.181094791 and NY ELAP (#109291.Accredited Laboratory 4475 Forbes Blvd. - Lankam, MD, 20706 - (301) 459-2640 - Tell Free (800) 346-0961 - Fax (301) 459-2643 See QC Summary for analytical results of quality control samples associated with these samples.

Analysis Method For Furnace: Air, Wipes, Paints, and Soli/Solids; EPA 600/R-53/200/MJ-7010; Water: SM-3113B

Analysis Method for Flame: Air, Wipes, Paints, and Soli/Solids: EPA 6000/R-93/200(M)-7000B; Water: SM-3111B

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

ugit. " parts per billion (ppb)

ug = micrograms

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

%Pb = percent lead on a dry weight basis

N/A = Not Applicable

Note: All results have two significant digits. Any additional digits shown

should not be considered when interpreting the result.

Air and Wipe results are not corrected for any blank results

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

Final Result

Total ag

Reporting

Area Wiped (ft?)

Air Volume (1.)

Sample Type

Analysis Type

Client Sample

AMA Sample



CCREDITED LABORATORY AHEALAP, LLC Page 2 of 2 7/24/2012 Report Date: 7/24/2012 2/17/2012 513407 Chain Of Castady: Person Submitting Summary of Atomic Absorption Analysis for Lead Date Submitted: Date Analyzed: CERTIFICATE OF ANALYSIS NY-Commerficat Street RC W912K6-11-F-9070 Not Provided Buffalo, NY Job Location: P.O. Numbers Job Number: Job Namer AMA Analytical Services, Inc. 301-BH Old Bay Lasse, Amr. ARNG-CIG-P. A Specialized Environmental Laboratory Havre de Grace, Maryland 21078 State Military Reservation National Guard Bureau Attentions Address: Client

Non-Responsive

Technical Manager:

Non-Responsive

This report applies only to the sample, investigated and is not necessarily indicative of the quality or encollision of apparently identical or simple. As a matural protection to clients, the public, and these Laboratories, this report is adversely and it is not that it is not the to said, in whit are is not, in any adversible, or publicly notices without priors without priors which the side matural and the conditions are based upon the information from a submitting the side and the secondary of the personal and the said of the conditions and the said of the condition of the said of the condition of the conditi

An AIIIA (#100479), and NY ELAP (#10920) Accredited Laboratory

4475 Forbes Blvd. - Lanham, MD, 20706 - (301) 459-2540 - Toll Prec (800) 346-0961 - Fax (301) 459-2643



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Appendix D

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DEPARTMENT OF THE ARMY

US ARMY CENTER FOR HEALTH PROMOTION AND PREVENTIVE MEDICINE 5158 BLACKHAWK ROAD ABERDEEN PROVING GROUND NY 21010-5403

MCHB-TS-OFS

MAY 1 1 2007

MEMORANDUM FOR National Guard Bureau Region North Industrial Hygiene Office (NGB-ARS-IHNE/Ms. Non-Responsive), 301-IH Old Bay Lane, Havre de Grace, MD 21078

SUBJECT: Industrial Hygiene Baseline Surveys, No. 55-ML-048L-05/07, New York Army National Guard Facilities Auburn Armory, Auburn, NY, 13 September 2005

- 1. Enclosed is the final copy of the subject report and two CD-ROMs.
- 2. Our point of contact is Mr. Non-Responsive, Industrial Hygiene Field Services Program, commercial (410) 436-4938/3118, DSN 584-4938/3118. Mr. Non-Responsive may also be reached by electronic mail: @us.army.mil.

FOR THE COMMANDER:

Non-Responsive

Encl

Director, Occupational Health Sciences

CF: (wo/CD-ROMs)
USACHPPM-NORTH (MCHB-AN-IH/MR.Non-Responsive

Readiness thru Health

U.S. Army Center for Health Promotion and Preventive Medicine



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INDUSTRIAL HYGIENE BASELINE SURVEYS REPORT NO. 55-ML-048L-05/07 NEW YORK ARMY NATIONAL GUARD FACILITIES AUBURN ARMORY 13 SEPTEMBER 2005

Distribution limited to U.S. Government agencies only. Requests for this document must be referred to the National Guard Bu Industrial Hygiene Offi TE/Ms. Non-Responsive

301-IH Old Bay Lane, Havre de Grace, MD 21078

Readiness Thru Health

DESTRUCTION NOTICE - Destroy by any method that will prevent disclosure of contents or reconstruction of the document.

The U.S. Army Center for Health Promotion and Preventive Medicine (USACHPPM) lineage can be traced back over 50 years to the Army Industrial Hygiene Laboratory. That organization was established at the beginning of World War II and was under the direct jurisdiction of The Army Surgeon General. It was originally located at the Johns Hopkins School of Hygiene and Public Health, with a staff of three and an annual budget not to exceed \$3000. Its mission was to conduct occupational health surveys of Army operated industrial plants, arsenals, and depots. These surveys were aimed at identifying and eliminating occupational health hazards within the Department of Defense's (DOD) industrial production base and proved to be beneficial to the Nation's war effort.

Until 1995, it was nationally and internationally known as the U.S. Army Environmental Hygiene Agency or AEHA. Its mission is expanding to support the worldwide preventive medicine programs of the Army, DOD and other Federal Agencies through consultations/ supportive services; investigations and training.

Today, AEHA is redesignated the U.S. Army Center for Health Promotion and Preventive Medicine. Its mission for the future is to provide worldwide technical support for implementing preventive medicine, public health and health promotion/wellness services into all aspects of America's Army and the Army Community anticipating and rapidly responding to operational needs and adaptable to a changing work environment.

The professional disciplines represented at the Center include chemists, physicists, engineers, physicians, optometrists, audiologists, nurses, industrial hygienists, toxicologists, entomologists, and many other as well as sub-specialties within these professions.

The organization's quest has always been one of excellence and continuous quality improvement; and today its vision, to be the nationally recognized Center for Health Promotion and Preventive Medicine, is clearer than ever. To achieve that end, it holds ever fast to its values which are steeped in its rich heritage:

- ♦ Integrity is the foundation
- ♦ Excellence is the standard
- ♦ Customer satisfaction is the focus
- ♦ Its people are the most valued resource
- ♦ Continuous quality improvement is its pathway

The organization, which stands on the threshold of even greater challenges and responsibilities, has General Officer leadership. As it moves into the next century, new programs are being added related to health promotion/wellness, soldier fitness and disease surveillance. As always, its mission focus is centered upon the Army Imperatives so that we are trained and ready to enhance the Army's readiness for war and operations other than war.

It is an organization fiercely proud of its history, yet equally excited about the future. It is destined to continue its development as a world-class organization with expanded services to the Army, DOD, other Federal Agencies, the Nation and the World Community.

CHPPM FORM 433-E (MCHB-CS-IPD), OCT 03 (reverse)



DEPARTMENT OF THE ARMY

US ARMY CENTER FOR HEALTH PROMOTION AND PREVENTIVE MEDICINE
5158 BLACKHAWK ROAD
ABERDEEN PROVING GROUND MD 21010-5403

MCHB-TS-OFS

EXECUTIVE SUMMARY
INDUSTRIAL HYGIENE BASELINE SURVEY
NO. 55-ML-048L-05/07
NEW YORK ARMY NATIONAL GUARD FACILITIES
AUBURN ARMORY
13 SEPTEMBER 2005

1. PURPOSE OF EVALUATION. To conduct an industrial hygiene survey at the New York Army National Guard (NYARNG) Auburn Armory, Auburn, NY, to identify and measure the existence and extent of potentially hazardous operations or conditions. This survey will serve to establish a baseline so that an occupational exposure history can be compiled for each civilian or military employee.

2. CONCLUSIONS.

- a. <u>Lead Exposure</u>. Levels of lead in dust that exceeded safe limits for adults and children were identified. These levels may result in health hazards to adults and to children visiting the Armory. Personnel working in the Armory may have been tracking dust containing lead throughout the facility. Cleaning areas with elevated levels of lead in dust may prevent lead from becoming redistributed throughout the Armory. Deteriorated paint found in two rooms was lead-based paint (LBP).
- b. <u>Asbestos</u>. Exposure to asbestos in the Armory was not expected to be a concern until major renovations to the existing building were conducted. The building was originally constructed with asbestos-containing building materials (ACBM) used for insulation on the hot water pipes and the boiler system, and in the floor tile. The ACBM was identified on the exterior of the building in the form of corrugated Transite on a shed attached to the building. The Auburn Armory had an Asbestos Management Plan (AMP) as required by Army policy.

3. RECOMMENDATIONS.

a. <u>Lead Exposure</u>. Health Risk Assessment Codes (RAC) 3 for children. Health RAC 4 for adults. Ensure that areas with deteriorated LBP are renovated in accordance with Environmental Protection Agency (EPA) and State of New York regulations. Clean horizontal surfaces in the administrative areas to the National Guard Bureau (NGB) Region North Industrial Hygiene Office and the Center's recommended limits for lead in dust on frequently contacted surfaces. Follow the guidance in Appendix F of the report. Address all potential lead hazards before

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continuing to extend the use of this facility to children. If children will visit this facility, clean the floors in the Drill Hall and Classroom to the EPA lead in dust standards for young children, and clean other horizontal surfaces in the Drill Hall and Classroom to the NGB Region North Industrial Hygiene Office and this Center's recommended limit. Ensure that personnel wear disposable gloves and disposable coveralls as extra protection when cleaning in all areas identified as having elevated levels of lead. Consult with the NYARNG Environmental Coordinator concerning waste disposal requirements after clean up.

b. Asbestos Exposure. Health RAC 3.

- (1) Perform an asbestos survey during and after the renovation if potential ACBM additional to the floor tile is identified during the renovation work, including window caulking.
 - (2) Update and implement the AMP for the facility as appropriate.
- (3) If material determined to be ACBM becomes damaged, encapsulate or remove it as soon as possible.

NYARNG, IH Survey, Auburn Armory, Auburn, NY, Report No. 55-ML-0481-05/07, 13 September 2005

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E. FLOOR PLANS	E-1
F. LEAD CLEANING GUIDANCE	F-1

INDUSTRIAL HYGIENE SURVEY REPORT NO. 55-ML-048L-05/07 NEW YORK ARMY NATIONAL GUARD FACILITIES AUBURN ARMORY AUBURN, NY 13 SEPTEMBER 2005

- 1. REFERENCES. See Appendix A.
- 2. PURPOSE OF EVALUATION. To conduct an industrial hygiene survey at the New York Army National Guard (NYARNG) Auburn Armory, Auburn, NY, to identify and measure the existence and extent of potentially hazardous operations or conditions. This survey will serve to establish a baseline so that an occupational exposure history can be compiled for each civilian or military employee.
- 3. AUTHORITY. Fax, National Guard Bureau Region North Industrial Hygiene Office (NGB-ARS-IHNE/Ms. Non-Responsive), 27 July 2005, subject: SAB.
- 4. BACKGROUND INFORMATION.
- a. <u>Armory Mission and Background Information</u>. The Armory mission is to support the 27th Infantry, Brigade Headquarters and Headquarters Company (HHC); 108th Infantry, 1st Brigade Light Infantry Company (CO) C; 227th Military Intelligence CO; and 427th Support Battalion HQ and HHC.
- b. <u>Date of Construction</u>. The construction date was 1957. Renovations to the facility were under way at the time of the site visit and were scheduled to be completed by the end of 2006.
- c. <u>Armory Use by Children</u>. The point of contact (POC) stated that children occupied the Drill Hall or Classroom occasionally for family support meetings. At the time of the survey, the New York Military Department was not advertising the Auburn Armory as available for rental for activities that include young children.
- d. <u>POC</u>. The POC was Mr. Non-Responsive, Armory Regional Manager, 174 South Street, Auburn, NY, Phone: (315) 253-4144 or (315) 438-3304.
- 5. FACILITY EVALUATION.
- a. <u>Sampling</u>. Lead in surface dust and lead in air sampling were conducted to determine the existence of lead hazards based on regulatory guidelines. Laboratory results are shown in Appendix B.

b. Physical Condition of Facilities.

- (1) Paint. The date of construction of the facility indicated that the use of paint containing lead was likely. The painted walls were in good condition throughout most of the building. However, some peeling and flaking of paint was observed in Room 1 on the first floor due to moisture. Also, the painted floor surface in the Boiler Room was flaking due to age and high humidity and paint was peeling on the Boiler Room walls due to humidity. Room 1, the Boiler Room, and most other rooms on the south side of the building were scheduled to be renovated and repainted.
- (2) Asbestos. Mr. Non-Responsive stated that older pipe insulation was asbestos-containing building material (ACBM) and that it had been abated by contractor hired by the State of New York. The areas abated included the Boiler Room and pipe work in the ceiling areas where ACBM may have been used. The floor tile was also ACBM, but was in very good condition, and did not pose a health risk to building occupants. There was a shelter attached to the south end of the building that was made of asbestos-containing Transite corrugated material. It was in good condition with little sign of wear. All documentation for asbestos activities for Auburn Armory was maintained at the headquarters office in Latham, NY. A copy of the Asbestos Management Plan (AMP) was available at the Auburn Armory for review. Personnel reported that window caulking may have been ACBM. The latter should be considered among other potential asbestos hazards in updating the AMP to cover the major renovations planned.
- (3) Mold and Moisture Problems. No mold problems were observed or reported. Moisture damage causing paint deterioration was observed in Room 1 on the first floor. This was caused by condensation on the exterior wall of the room. Room 1 was on the end of the building.
- (4) Building Physical Condition. The building was in good condition and had been well maintained. The building had been painted in the last 5 years and it remained in good condition with the exception of Room 1 and the Boiler Room.
- (5) Indoor Firing Range (IFR). The IFR was closed in the early 1990's, lead had been abated, and the IFR had been converted to a Storage Room. This room did not contain many items and had been designated only for overflow storage.
- c. <u>Safety and Occupational Health Programs</u>. A Lead Hazard Management Plan was provided. The Armory had a comprehensive annual hazard awareness training program in place with a detailed list of topics covered in the training. State employee training records were available and up to date. Employees were instructed on the potential hazards associated with exposure to lead and asbestos, and training requirements as listed in the Occupational Safety and Health Administration (OSHA) Regulation Title 29 Part 1910.

- d. <u>Heating, Ventilation, and Air Conditioning Systems</u>. The building was heated by a hotwater boiler. The building was cooled by window air-conditioning units located in various office spaces in the building. The Drill Hall was heated by ceiling mounted heaters.
- e. <u>Motor Pool</u>. Operations in the "Temporary Motor Pool" attached to the building may at times have produced noise levels in excess of 85 decibels A-weighted (dBA) but it was not likely that these levels would last for an eight-hour period. No sound level readings were taken during the survey. Interviews with Soldiers working in the motor pool revealed that work was confined to minor maintenance operations on a limited basis. This included changing oil, tire repair, muffler replacement, and battery and brake pad replacement. Exhaust exposures were controlled by opening the overhead doors and keeping the rear of the vehicles outside the door opening. All major vehicle repairs were conducted at other locations such as at Syracuse, NY. The vehicle maintenance operations were to be moved to the new Motor Pool once it was completed in late fall of 2006.
- f. <u>Lighting</u>. There were no occupant complaints concerning lighting. The light levels in the office space in Room 43, second floor and Classroom 10, first floor, were 81 and 79 foot-candles respectively. These values fall within the range for medium visual tasks such as office work and reading. The POC stated that the facility had received an upgrade in lighting fixtures throughout the building.
- g. <u>Indoor Air Quality (IAQ)</u>. Temperature in degrees Fahrenheit (° F), relative humidity (RH) in percent, carbon dioxide (CO₂) levels in parts per million (ppm), and carbon monoxide (CO) levels in ppm were measured to assess building IAQ. Individual measurements were not available for this report. However, the interior temperature averaged 73° F, RH averaged 46 percent, CO₂ levels averaged 510 ppm, and CO levels were less than 0.1 ppm. The American Society of Heating, Refrigeration, and Air-conditioning Engineers (ASHRAE) recommends maintaining temperatures of 71 to 81° F in the summer, CO₂ levels below the value of 700 ppm plus the outdoor ambient level (approximately 380 ppm), and 30-60 percent RH. All measured values were within ASHRAE recommendations.
- h. <u>Other Building Concerns</u>. The Motor Pool had personal protective equipment available for the mechanics working in the shop. Equipment included safety eye protection, gloves, hearing protection, and welding goggles. No additional concerns were reported.

6. ASSESSMENT CRITERIA FOR LEAD.

a. <u>Lead in Air</u>. The Army complies with the OSHA 8-hour time-weighted average Permissible Exposure Limit of 50 micrograms of lead per cubic meter (µg/m³) of air.

- b. Lead in Dust. The Environmental Protection Agency (EPA) and State of New York limits for lead in dust are 40 micrograms per square foot ($\mu g/ft^2$) on floors, 250 $\mu g/ft^2$ on windowsills, and 400 $\mu g/ft^2$ in window troughs. These limits apply to pre-1978 Army facilities only if children under 6 years of age occupy them for 60 or more hours per year. The National Guard Bureau (NGB) Region North Industrial Hygiene Office concurs with the US Army Center for Health Promotion and Preventive Medicine (USACHPPM) recommended maximum level of 200 $\mu g/ft^2$ on floors and frequently contacted surfaces, which is more stringent for windowsills than the EPA/State standards. This limit was adopted from OSHA guidance in Compliance Letter 02-02-58. Further details are in Appendix B.
- c. <u>Lead in Paint</u>. Paint containing lead levels of 0.5 percent or more by weight in dried solid (also reported as 5,000 milligrams per kilogram) is considered to be lead-based paint (LBP) according to both Federal and New York State Regulations. Paint containing lead levels of more than 0.7 milligrams per square centimeter is considered to be LBP according to New York State Regulations.

7. SAMPLING RESULTS, DISCUSSION AND CONCLUSIONS.

a. Lead in Dust. Lead in dust sample locations and analytical results are shown in the Table on the next page. Sample results greater than 40 $\mu g/ft^2$ for floors or 200 $\mu g/ft^2$ for frequently contacted surfaces are highlighted. Lead in dust results exceeded the EPA and State of New York limits for young children. Ten lead in dust results exceeded the NGB Region North Industrial Hygiene Office and USACHPPM recommended levels for lead in dust on frequently contacted surfaces. There were very high levels of lead dust inside and adjacent to the Storage Room (former IFR), Boiler Room, and Rooms 1, 40, and 43. Personnel working in these rooms were potentially exposed to lead, and may have been tracking lead out of the area and redistributing it into adjacent rooms in the Armory. This could result in lead exposures for the general workforce and for children visiting this facility. Twenty-nine lead in dust sample results exceeded the EPA and the State of New York lead exposure standard for children of 40 $\mu g/ft^2$ on floors and 250 $\mu g/ft^2$ on windowsills. These levels are hazardous to children exposed to lead dust through physical contact, inhalation, or ingestion of lead dust while visiting the Armory.

TABLE. Lead in Surface Dust Locations and Analytical Results.

Wipe Sample	Location of Samples	Result
Number		$(\mu g/ft^2)$
ABW01	Storage Room (converted IFR) floor at exit door	<mark>970</mark>
ABW02	Storage Room (converted IFR) on 3 rd row of lights	1,200
ABW03	Storage Room (converted IFR) exhaust grille	7,500
ABW04	Storage Room (converted IFR) floor at bullet trap location	39,000
ABW05	Storage Room (converted IFR) on overhead piping	4,500
ABW06	Hallway floor outside Storage Room (converted IFR) at door	<mark>770</mark>
ABW07	Floor at door, base of stairs outside Storage Room (converted IFR)	1,100
ABW08	Boiler Room floor at entrance	<mark>5,200</mark>
ABW09	Storage Room floor at entrance	<mark>1,200</mark>
ABW11	Drill Hall floor at entrance	<mark>64</mark>
ABW12	Drill Hall, top of cabinet	430
ABW13	Drill Hall floor at entrance to Mess Hall	34
ABW14	Drill Hall floor in corner at overhead door	<mark>260</mark>
ABW15	Drill Hall floor at rear exit	<mark>79</mark>
ABW17	Room 1 windowsill	1,200
ABW18	Landing floor between 1 st and 2 nd floors, upstairs from converted IFR	120
ABW19	Room 3 windowsill	140
ABW21	Drill Hall on fire ax box	760
ABW22	Storage Room 15 floor	<mark>450</mark>
ABW23	Room 15A-16A floor under radiator and window	<mark>140</mark>
ABW24	Room 15A-16A windowsill	<mark>670</mark>
ABW25	Room 15A-16A, top of cabinet	82
ABW26	2 nd Floor landing floor	<mark>930</mark>
ABW27	1 st Floor hallway, floor at north end	24
ABW28	Room 43, top of locker	140
ABW30	Room 43 windowsill	<mark>550</mark>
ABW31	2 nd Floor Hallway windowsill	28
ABW32	Room 40 floor in corner below window	<mark>26,000</mark>
ABW33	Room 40 windowsill at south end	390
ABW34	Room 40 floor at north wall behind door	<mark>160</mark>
ABW36	1 st Floor Hallway, top of office locator by front entrance	250
ABW37	North stairway floor, landing between 1 st and 2 nd Floor	83
ABW38	Kitchen walkthrough floor at entry from Drill Hall	35
ABW39	Dining Hall floor	20

Note: Samples ABW-10, -16, -20, -29, and -35 were field blanks.

- b. <u>Lead in Air</u>. General area lead in air sampling was conducted in the Storage Room (converted IFR), Drill Hall and 2^{nd} floor office, Room 40. Room 40 was occupied by three to four people, and the occupancy level in the Drill Hall could be 80 or more during Brigade or Soldier family events. The air sample results were all less than $4 \,\mu g/m^3$, and were below the laboratory analytical reporting limit for lead results in air of $1 \,\mu g/s$ ample, as well as the OSHA 8-hour time-weighted average Permissible Exposure Limit of $50 \,\mu g/m^3$ for lead in air over an 8-hour day.
- c. <u>Lead in Paint</u>. Bulk sampling for lead in deteriorated paint was conducted on the wall of Room 1 and the window frame and pipe work in Room 10. The samples appeared to be representative of the type of paint used throughout the office areas on the first and second floor and in the hallways and stairways. The paint was identified to be LBP, with 1.1 percent lead in the paint around the window frames and 24 percent on the paint on piping in area 10A of Room 10.
- d. <u>Asbestos</u>. There were no signs observed of asbestos hazards inside the Armory during this walkthrough. Floor tiles, which were ACBM, were in excellent condition. No friable ACBM was observed in the Boiler Room or other areas of the facility. All ACBM had been removed from the Boiler Room and new pipe insulation and outer covering had been installed. The areas above the drywall ceiling where possible ACBM insulation may have been used were not inspected.
- e. <u>Planned Renovation</u>. The Auburn facility was undergoing renovations and the construction of new additions to the building, as well as the construction of a new Motor Pool. Ground breaking for the new additions had begun at the time of the site visit with plans to have the renovation and new additions completed by late 2006. The plans called for major structural changes to the front and sides of the building for both floors. The work was to significantly impact the existing building materials and would require the facility to manage any existing lead paint or ACBM that remained. The addition and new construction would require the Armory to be reassessed for lead and ACBM contamination.
- 8. RECOMMENDATIONS. The Department of Defense Instruction 6055.1 provides Risk Assessment Codes (RACs) for health hazards, a procedure which allows assessment of the magnitude of exposure to physical, chemical, and biological agents and the possible medical effects of exposure. The RAC is an expression of the risk associated with the hazard and combines the hazard severity and accident probability into a single number. The RACs enable one to prioritize hazards. They range in magnitude from one to five, with one being the highest priority.
- a. <u>Lead Exposure</u>. Health RAC 3 for children. Health RAC 4 for adults. Ensure that areas with deteriorated LBP are renovated in accordance with EPA and State of New York regulations. Clean horizontal surfaces in the administrative areas to the NGB Region North Industrial

Hygiene Office and USACHPPM recommended limits for lead in dust on frequently contacted surfaces. Follow the guidance in Appendix F. Address all potential lead hazards before continuing to extend the use of this facility to children. If children will visit this facility, clean the floors in the Drill Hall and Classroom to the EPA lead in dust standards for young children, and clean other horizontal surfaces in the Drill Hall and Classroom to the NGB Region North Industrial Hygiene Office and USACHPPM recommended limits. Ensure that personnel wear disposable gloves and disposable coveralls as extra protection when cleaning in all areas identified as having elevated levels of lead. Consult with the NYARNG Environmental Coordinator concerning waste disposal requirements after clean up.

- b. Asbestos Exposure. Health RAC 3.
- (1) Perform an asbestos survey during and after the renovation if potential ACBM additional to the floor tile is identified during the renovation work, including window caulking.
 - (2) Update and implement the AMP for the facility as appropriate.
- (3) If material determined to be ACBM becomes damaged, encapsulate or remove it as soon as possible.
- 9. PHOTOGRAPHS AND FLOOR PLAN. See Appendices D and E respectively.
- 10. ADDITIONAL ASSISTANCE. For additional assistance or questions concerning this report, please contact the undersigned at DSN 584-3118, commercial 410-436-3118, or e-mail: Non-Responsive@us.army.mil.



Industrial Hygienist
Industrial Hygiene Field Services Program

APPROVED:



Program Manager Industrial Hygiene Field Services Program

NYARNG, IH Survey, Auburn Armory, Auburn, NY, Report No. 55-ML-0481-05/07, 13 September 2005

APPENDIX A

REFERENCES

Literature Cited

- 1. Occupational Safety and Health Administration (OSHA), Title 29 Code of Federal Regulations (CFR) Part 1910, current ed. http://www.osha.gov/comp-links.html
- 2. U.S. Environmental Protection Agency (EPA), 40 CFR Part 61, National Emission Standards for Hazardous Air Pollutants, Subpart M, National Emission Standard for Asbestos.
- 3. American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. (ASHRAE) 62.1-2004, Ventilation for Acceptable Indoor Air Quality. http://www.ashrae.org
- 4. DA PAM 40-501, Medical Services, Hearing Conservation Program, 10 December 1998. http://www.usapaarmy.mil/pdffiles/p40-501.pdf
- 5. Illuminating Engineering Society of North America, ANSI/IESNA RP-1-2004, Office Lighting.
- 6. EPA, 40 CFR Part 745, Lead; Identification of Dangerous Levels of Lead; Final Rule, 5 Jan 2001.
- 7. Department of Defense Instruction (DODI) 6055.1, Department of Defense Occupational Safety and Health (OSH) Program, 19 August 1998. http://www.dtic.mil/whs/directives/corres/pdf/i60551_081998/i60551p.pdf
- 8. OSHA, CPL 02-02-58, 29 CFR 1926.62, Lead Exposure In Construction; Interim Final Rule-Inspection and Compliance Procedures, December 13, 1993.

NYARNG, IH Survey, Auburn Armory, Auburn, NY, Report No. 55-ML-0481-05/07, 13 September 2005

APPENDIX B

LABORATORY REPORTS



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Client:

National Guard Bureau

Job Name:

Not Provided

Chain Of Custody:

116951

Address:

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

Job Location:

Auburn, NY

Date Submitted:

9/23/2005

State Military Reservation

Havre de Grace, Maryland 21078

Job Number:

P.O. Number:

Not Provided

Person Submitting:

Non-Responsive

Attention:

Non-Responsive

Date Analyzed:

9/28/2005

Report Date: 05

05-Oct-05

Summary of Atomic Absorption Analysis for Lead

Page I of 3

AMA Sample Number	Client Sample Number	Analysis Type	•	Air Volume (L)	Area Wiped (ft²)	Ĺ	orting imit	1	Final Res	ult	Comments
0567317	AB-B-01	Flame	Paint Chip	***	N/A	0.01	%Pb		0.094	%РЬ	
0567318	AB-B-02	Flame	Paint Chip	****	N/A	0.01	%Pb		0.15	%Pb	
0567319	AB-B-03	Flame	Paint Chip	****	N/A	0.01	%Pb		1.1	%Pb	
0567320	AB-B-04	Flame	Paint Chip	****	N/A	0.01	%Pb		24	%Pb	
0567321	AB-A-01	Flame	Air	893	N/A	3.36	ug/m³	<	3.4	ug/m³	
0567322	AB-A-02	Flame	Air	860	N/A	3.49	ug/m³	<	3.5	ug/m³	
0567323	AB-A-03	Flame	Air	798	N/A	3.76	ug/m³	<	3.8	ug/m³	
0567324	AB-A-04	Flame	Air	797	N/A	3.76	ug/m³	<	3.8	ug/m³	
0567325	AB-A-05	Flame	Air Blank	0	N/A	3.00	ug/m³	. <	3	ug	
0567326	AB-W-00	Furnace	Wipe Blank	****	N/A	0.30	ug		0.38	ug	
0567327	AB-W-01	Flame	Wipe	****	0.111	108.01	ug/ft²		970	ug/ft²	
0567328	AB-W-02	Flame	Wipe	****	0.111	108.01	ug/ft²		1200	ug/ft²	
0567329	AB-W-03	Flame	Wipe	****	0.111	108.01	ug/ft²		7500	ug/ft²	
0567330	AB-W-04	Flame	Wipe	****	0.111	108.01	ug/ft²		39000	ug/ft²	
0567331	AB-W-05	Flame	Wipe	****	0.111	108.01	ug/ft²		4500	ug/ft²	
0567332	AB-W-06	Flame	Wipe	****	0.111	108.01	ug/ft²		770	ug/ft²	
0567333	AB-W-07	Flame	Wipe	****	0.111	108.01	ug/ft²		1100	ug/ft²	
0567334	AB-W-08	Flame	Wipe	****	0.111	108.01	ug/ft²		5200	ug/ft²	
0567335	AB-W-09	Flame	Wipe	****	0.111	108.01	ug/ft²		1200	ug/ft²	
0567336	AB-W-10	Furnace	Wipe Blank	****	N/A	0.30	ug	<	0.3	ug `	

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A Specialized Environmental Laboratory

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CERTIFICATE OF ANALYSIS



Client:

National Guard Bureau

State Military Reservation

Job Name:

Not Provided

Chain Of Custody:

116951

Address:

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

Job Location:

Auburn, NY

Date Submitted:

9/23/2005

Havre de Grace, Maryland 21078

Job Number:

Not Provided

Person Submitting:

P.O. Number: Not Provided Date Analyzed:

9/28/2005

Report Date:

05-Oct-05

Attention:

Summary of Atomic Absorption Analysis for Lead

Page 2 of 3

AMA Sample Number	Client Sample Number	Analysis Type	Sample Type	Air Volume (L)	Area Wiped (ft²)		orting mit	F	inal Res	ult	Comments
0567337	AB-W-11	Furnace	Wipe	***	0.111	13.50	ug/ft²		64	ug/ft²	
0567338	AB-W-12	Furnace	Wipe	****	0.111	67.51	ug/ft²		430	ug/ft²	
0567339	AB-W-13	Furnace	Wipe	****	0.111	13.50	ug/ft²		34	ug/ft²	
0567340	AB-W-14	Furnace	Wipe	****	0.111	67.51	ug/ft²		260	ug/ft²	
0567341	AB-W-15	Furnace	Wipe	****	0.111	67.51	ug/ft²		79	ug/ft²	
0567342	AB-W-16	Furnace	Wipe Blank	****	N/A	0.30	ug		0.37	ug	
0567343	AB-W-17	Flame	Wipe	****	0.111	108.01	ug/ft²		1200	ug/ft²	
0567344	AB-W-18	Furnace	Wipe	****	0.111	67.51	ug/ft²		120	ug/ft²	
0567345	AB-W-19	Furnace	Wipe	****	0.111	67.51	ug/ft²		140	ug/ft²	
0567346	AB-W-20	Furnace	Wipe Blank	****	N/A	0.30	ug	<	0.3	ug	
0567347	AB-W-21	Flame	Wipe	****	0.111	108.01	ug/ft²		760	ug/ft²	
0567348	AB-W-22	Furnace	Wipe	****	0.111	67.51	ug/ft²		450	ug/ft²	
0567349	AB-W-23	Furnace	Wipe	****	0.111	67.51	ug/ft²		140	ug/ft²	
0567350	AB-W-24	Furnace	Wipe	****	0.111	67.51	ug/ft²		670	ug/ft²	
0567351	AB-W-25	Furnace	Wipe	****	0.111	67.51	ug/ft²		82	ug/ft²	
0567352	AB-W-26	Flame	Wipe	****	0.111	108.01	ug/ft²		930	ug/ft²	
0567353	AB-W-27	Furnace	Wipe	****	0.111	2.70	ug/ft²		24	ug/ft²	
0567354	AB-W-28	Furnace	Wipe	****	0.111	67.51	ug/ft²		140	ug/ft²	
0567355	AB-W-29	Furnace	Wipe Blank	****	N/A	0.30	ug	<	0.3	ug	
0567356	AB-W-30	Furnace	Wipe	****	0.111	67.51	ug/ft²		550	ug/ft²	

s 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, 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 n 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 ility 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 lies 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 LAP, NIST, or any agency of the Federal Government.
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CERTIFICATE OF ANALYSIS



Client:

National Guard Bureau

State Military Reservation Havre de Grace, Maryland 21078 Job Name:

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Auburn, NY

Not Provided

Attention:

Not Provided

Date Analyzed:

associated with these samples.

Person Submitting:

9/28/2005

Report Date:

05-Oct-05

Summary of Atomic Absorption Analysis for Lead

Page 3 of 3

AMA Sample Number	Client Sample Number	Analysis Type	Sample Type	Air Volume (L)	Area Wiped (ft²)	•	orting mit	I	inal Res	ult	Comments				
0567357	AB-W-31	Furnace	Wipe	****	0.111	13.50	ug/ft²	Manager Constitution of the Constitution of th	28	ug/ft²					
0567358	AB-W-32	Flame	Wipe	****	0.111	108.01	ug/ft²		26000	ug/ft²					
0567359	AB-W-33	Furnace	Wipe	****	0.111	67.51	ug/ft²		390	ug/ft²					
0567360	AB-W-34	Furnace	Wipe	****	0.111	67.51	ug/ft²		160	ug/ft²					
0567361	AB-W-35	Furnace	Wipe Blank	****	N/A	0.30	ug	<	0.3	ug					
0567362	AB-W-36	Furnace	Wipe	****	0.111	67.51	ug/ft²		250	ug/ft²					
0567363	AB-W-37	Furnace	Wipe	****	0.111	67.51	ug/ft²		83	ug/ft²					
0567364	AB-W-38	Furnace	Wipe	****	0.111	13.50	ug/ft²		35	ug/ft²					
0567365	AB-W-39	Furnace	Wipe	****	0.111	2.70	ug/ft²		20	ug/ft²					
0567366	AB-W-40	Furnace	Wipe Blank	****	N/A	0.30	ug	<	0.3	ug					
alvsis Method fo	or Flame: Air, Wipes,	Paints, and Soil/So	lids: EPA 600/R-93/	200(M)-7420; Wate	r: SM-3111B	See QC	Summary fo	r analytic	al result:	s of quality co	See QC Summary for analytical results of quality control samples				

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

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

N/A = Not Applicable

ug = micrograms

%Pb = percent lead by weight

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

Analy

lon-Responsiv Technical Manager:

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APPENDIX C

Subject: Recommendations for Surface Lead Dust in Armories

- 1. In armories that do not contain childcare facilities, the National Guard Bureau (NGB) Region North Industrial Hygiene Office recommends cleaning the areas in which sample results are greater than 200 micrograms per square foot ($\mu g/ft^2$). If a special function will be held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function. This guidance is based on professional judgment, risk assessments, adaptation of Occupational Safety and Health Administration (OSHA) guidance, and feasibility of cleaning to a certain level.
- a. Environmental Protection Agency (EPA) standards (40 Code of Federal Regulations (CFR) 745.227(h)(3)) are not directly applicable because they are criteria for dust-lead hazards developed for floors (40 μg/ft²) and windowsills (250 μg/ft²) in residential dwellings and child occupied facilities. A child occupied facility is defined as a building, or portion of a building, constructed prior to 1978, visited regularly by the same child, 6 years of age or under, on at least two different days within any week (Sunday through Saturday period), provided that each day's visit lasts at least 3 hours and the combined weekly visit lasts at least 6 hours, and the combined annual visits last at least 60 hours. Most of the wipe samples in armories were collected in undisturbed areas and therefore, results are worst case scenarios and do not correlate to these standards.
- b. OSHA has no specific requirement for work area surfaces. The lead standard (29 CFR 1910.1025(h)) states that all surfaces shall be maintained as free as practicable of accumulations of lead dust. In workplaces where lead dust is generated, surface levels may be much higher, but personnel exposures can be controlled by limiting airborne lead levels and following good cleanup and hygienic practices.
- c. OSHA used to cite a level of $200 \,\mu\text{g/ft}^2$ in their Technical Manual and 29 CFR 1926.62 as guidance to its own inspectors for evaluating the cleanliness of lunchroom and locker room surfaces that are supposed to be kept as clean as possible.
- d. In a report titled Derivation of Wipe Surface Screening Levels for Environmental Chemicals, the US Army Center for Health Promotion and Preventive Medicine (USACHPPM) has determined that $200~\mu g/ft^2$ is a safe surface contamination level. They have also applied these standards as the decontamination levels for surfaces in administrative offices.

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- e. It should be noted that levels above these recommendations do not necessarily mean there is a significant hazard to workers who are following good cleaning and hygienic practices since there is no correlation between wipe and air samples. Rather, we recommend these levels as a precautionary measure.
- 2. The NGB Occupational Health Branch is developing guidance for armories that are used as childcare facilities. All states will receive this guidance when it is completed. In the interim, we recommend the following actions:
- a. Clean all areas that will be accessible to children to the EPA dust-lead standard for children 6 years of age or under ($40 \mu g/ft^2$ on floors and $250 \mu g/ft^2$ on windowsills).
- b. Refer to the local authorities' regulations since they can be more stringent than federal regulations.
 - c. Post signs in the area to inform people of the presence of lead dust and its effects.
- d. If Soldiers clean weapons in the facility, change the policy so that they cannot clean their weapons in the facility, or if they are allowed to clean their weapons indoors, they must clean the area by wet wiping and mopping the area when they are done.
- e. If the paint is peeling, contact the state Environmental Office to test for lead content and provide recommendations.
- 3. General area air samples collected in the armory were well below OSHA's permissible exposure limit for lead (29 CFR 1910.1025(c)) of 0.05 mg/m³ averaged over an 8-hour day. Therefore, based on these conditions, there is currently no overexposure to personnel from lead dust in this building.

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APPENDIX D

PHOTOGRAPHS



Drill Hall looking towards the north wall



Temporary Motor Pool.



Floor of Boiler Room. Floor surface flaking due to water damage and age.



Boiler Room. Paint peeling due to age and high humidity.

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Room 1, first floor, south wall and front window. Deteriorated paint was sampled for lead.



ABW01. Indoor Firing Range (IFR) door area.



ABW03. Old exhaust vent chase in the IFR.



ABW04. Converted IFR in bullet trap area.



ABW02 and ABW05. The sampled light fixture and overhead pipe work remaining in the converted IFR.



ABW07. Stairway landing at basement level.



ABW06. Outside IFR door area in basement between IFR and stairway.



ABW08. Boiler Room near doorway.



ABW09. Doorway of Storage Room 45.



ABW10. Top step of stairway to basement, east side of building.



ABW11. Drill Hall at south entrance.



ABW12. Sample collected from top of second cabinet from left.



ABW13. Drill Hall behind door to Kitchen on north wall.



ABW14. East wall of Drill Hall near overhead doors and storage area for maintenance equipment.



ABW15. Drill Hall exit door on east wall at north corner.



ABW17. Windowsill of Room 1, first floor, south end of building facing east.



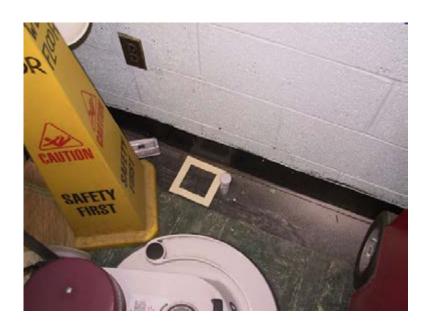
ABW18. Stairway landing between first and second floors, east side of building.



ABW19. Room 3 below window on south side.



ABW21. Drill Hall, north wall. Sample collected from top of fire ax case.



ABW22. Storage Room 15, south wall.



ABW23. Rooms 15A-16A, south wall under window.



ABW24. Rooms 15A-16A, windowsill on south wall.



ABW25. Rooms 15A-16A, south wall. Sample collected from top of cabinet.



ABW27. Hallway, north side of building at exit stairway.



ABW28. Room 43, second floor, north end of building. Sample taken from top of cabinet.



ABW30. Room 43, windowsill on south wall.

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ABW31. North side hallway window sill.



ABW32. Room 40, second floor, south wall below window.

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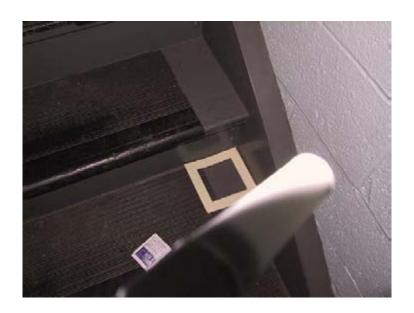
ABW33. Room 40, windowsill on south wall.



ABW34. Room 40, second floor, door to hallway.

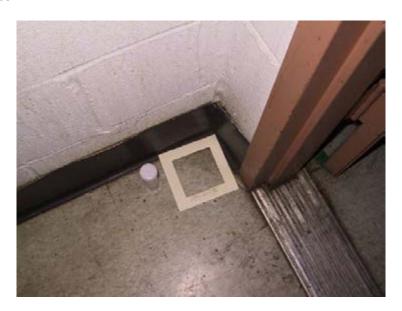


ABW38. Kitchen walkthrough from Drill Hall to Dining Room.



ABW37. Stairway at north end of building, between first and second floor.

May, 2018



ABW39. Dining Hall.

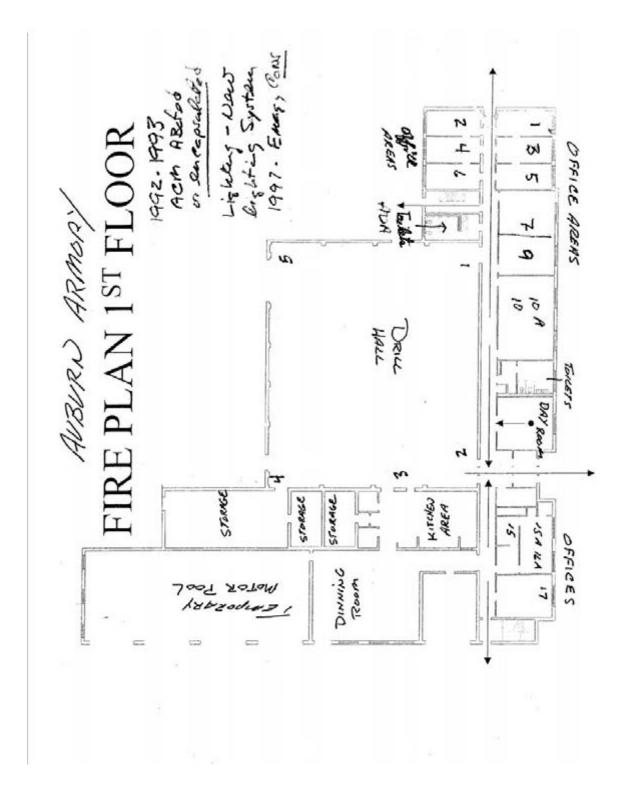
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APPENDIX E

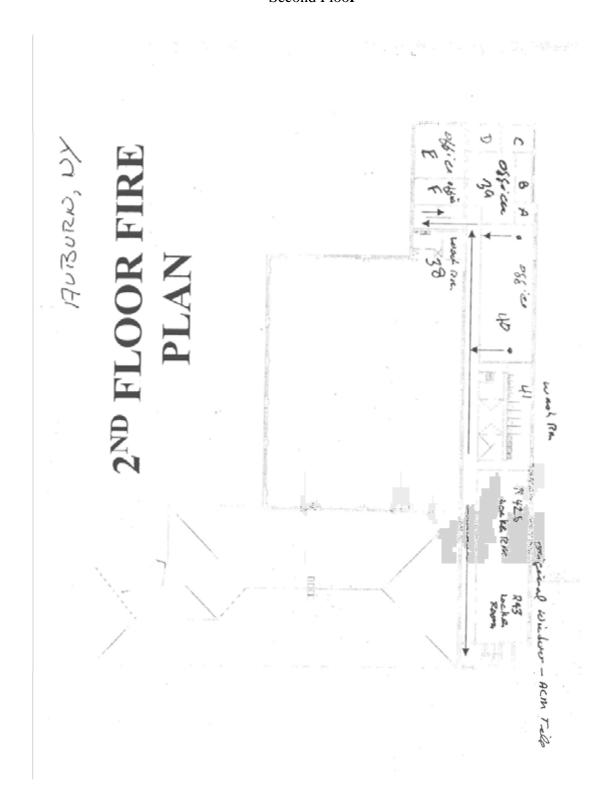
FLOOR PLANS

FIRST FLOOR

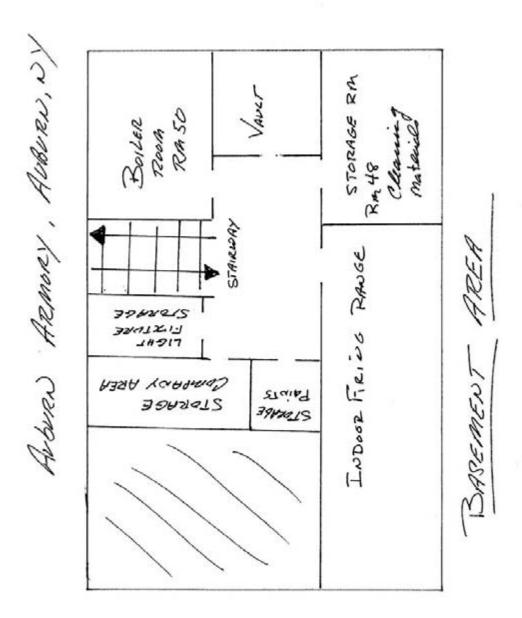


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Second Floor



Basement Floor



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APPENDIX F

LEAD CLEANING GUIDANCE





CHAPTER 14: CLEANING

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Step-by-Step Summary



Cleaning: How To Do It

- Include step-by-step procedures for precleaning, cleaning during the job, and daily and final cleanings in project design or specifications.
- 2. Assign responsibilities to specific workers for cleaning and for maintaining cleaning equipment.
- 3. Have sufficient cleaning equipment and supplies before beginning work.
- 4. If contamination is extensive, conduct precleaning of the dwelling unit. Move or cover all furniture and other objects.
- Conduct ongoing cleaning during the job, including regular removal of large and small debris and dust.
 Decontamination of all tools, equipment, and worker protection gear is required before it leaves containment areas. Electrical equipment should be wiped and high-efficiency particulate air (HEPA) vacuumed, not wetted down, to minimize electrocution hazards.
- 6. Schedule sufficient time (usually 30 minutes to an hour) for a complete daily cleaning, starting at the same time near the end of each workday after lead hazard control activity has ceased.
- For final cleaning, wait at least 1 hour after active lead hazard control activity has ceased to let dust particles settle.
- 8. Use a vacuum cleaner equipped with a HEPA exhaust filter. HEPA vacuum all surfaces in the room (ceilings, walls, trim, and floors). Start with the ceiling and work down, moving toward the entry door. Completely clean each room before moving on.
- Wash all surfaces with a lead-specific detergent, high-phosphate detergent, or other suitable cleaning agent to dislodge any ground-in contamination, then rinse. Change the cleaning solution after every room is cleaned.
- 10. Repeat step 8. To meet clearance standards consistently, a HEPA vacuum, wet wash, and HEPA vacuum cycle is recommended. For interim control projects involving dust removal only, the final HEPA vacuuming step is usually not needed (see Chapter 11). Other cleaning methods are acceptable, as long as clearance criteria are met and workers are not overexposed.
- 11. After final cleaning, perform a visual examination to ensure that all surfaces requiring lead hazard control have been addressed and all visible dust and debris have been removed. Record findings and correct any incomplete work. This visual examination should be performed by the owner or an owner's representative who is independent of the lead hazard control contractor.
- 12. If other construction work will disturb the lead-based paint surfaces, it should be completed at this point. If those surfaces are disturbed, repeat the final cleaning step after the other construction work has been completed.
- 13. Paint or otherwise seal treated surfaces and interior floors.
- 14. Conduct a clearance examination (see Chapter 15).
- 15. If clearance is not achieved, repeat the final cleaning.



- Step-by-Step Summary (continued) -



- 16. Continue clearance testing and repeated cleaning until the dwelling achieves compliance with all clearance standards. As an incentive to conduct ongoing cleaning and a thorough final cleaning, the cost of repeated cleaning after failing to achieve clearance should be borne by the contractor as a matter of the job specification, not the owner.
- 17. Do not allow residents to enter the work area until cleaning is completed and clearance is established.
- 18. Cleaning equipment list:
 - ♦ HEPA vacuums.
 - Detergent.
 - ♦ Waterproof gloves.
 - Rags.
 - Sponges.
 - Mops.
 - Buckets.
 - ♦ HEPA vacuum attachments (crevice tools, beater bar for cleaning rugs).
 - 6-mil plastic bags.
 - Debris containers.
 - Waste water containers.
 - Shovels.
 - Rakes.
 - Water-misting sprayers.
 - ♦ 6-mil polyethylene sheeting (or equivalent).





Chapter 14: Cleaning

I. Introduction

This chapter describes cleaning procedures to be employed following abatement and interim control work. Dust removal as an interim control measure is covered in Chapter 11.

All lead hazard control activities can produce dangerous quantities of leaded dust. Unless this dust is properly removed, a dwelling unit will be more hazardous after the work is completed than it was originally. Once deposited, leaded dust is difficult to clean effectively. Whenever possible, ongoing and daily cleaning of leaded dust during lead hazard control projects is recommended. Ongoing and daily cleaning is also necessary to minimize worker exposures.

Cleaning is the process of removing visible debris and dust particles too small to be seen by the naked eye. Removal of lead-based paint hazards in a dwelling unit will not make the unit safe unless excessive levels of leaded dust are also removed. This is true regardless of whether the dust was present before or generated by the lead hazard control process itself. Improper cleaning can increase the cost of a project considerably because additional cleaning and clearance sampling will be necessary. However, cleaning and clearance can be achieved routinely if care and diligence are exercised.

A. Performance Standard

Although the cleaning methods described in this chapter are feasible and have been shown to be effective in meeting clearance standards, other methods may also be used if they are safe and effective. This performance-oriented approach should stimulate innovation, reduce cost, and ensure safe conditions for both residents and workers.

B. Small Dust Particles

Dust particles that are invisible to the naked eye remain on surfaces after ordinary cleaning procedures. A visibly clean surface may contain high and unacceptable levels of dust particles and require special cleaning procedures.

C. Difficulties in Cleaning

While cleaning is an integral and essential component of any lead hazard control activity, it is also the most likely part of the activity to fail.

Several common reasons for this failure include low clearance standards, worker inexperience, high dust-producing methods, and deadlines.

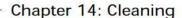
1. Low Clearance Standards

Because very small particles of leaded dust are easily absorbed by the body when ingested or inhaled, a small amount can create a health hazard for young children. Therefore, "clearance standards" are extremely low for acceptable levels of leaded dust particles on surfaces after hazard control activities, and careful cleaning procedures are required. Although it is not possible to remove all leaded dust from a dwelling, it is possible to reduce it to a safe level.

Clearance standards are described more fully in Chapter 15. The permissible amount of leaded dust remaining on each of the following surfaces following lead hazard work is as follows:

- 100 μg/ft² on floors.
- 500 µg/ft² on interior window sills (stools).
- 800 µg/ft² on window troughs (the area where the sash sits when closed).
- 800 μg/ft² on exterior concrete.

These levels are based on wipe sampling.
Clearance testing determines whether the premises or area are clean enough to be reoccupied after the completion of a lead paint hazard control project. A cleaned area may not be reoccupied until compliance with clearance standards has been established. To prevent delays, final testing and final cleaning activities should be coordinated.







2. Worker Inexperience

To understand the level of cleanliness required to meet the established clearance standards for hazard control cleanup, new hazard control personnel often require a significant reorientation to cleaning. Many construction workers are used to cleaning up only dust that they can see, not the invisible dust particles that are also important to remove.

3. High Dust-Producing Methods and/or Inadequate Containment

High dust-generating methods, inadequate containment during hazard control work, and poor work practices can all make achievement of clearance particularly difficult. Work practices necessary to prevent spreading of dust throughout a dwelling (e.g., by tracking dust out of work areas) are essential but sometimes tedious. Essential work practices are sometimes mistakenly considered to be "flexible guidelines" rather than necessary standards that are designed to ensure that the job is completed, not only safely, but also on time and within budget.

4. Deadlines

Daily and final cleanings have sometimes been compromised due to project deadlines, since cleaning comes at the end of the job. Hurried efforts often result in clearance failure. Delayed and over-budget hazard control projects are often the result of repeated, unplanned recleanings that are necessitated by inadequate containment and sloppy work practices.

II. Coordination of Cleaning Activities

A. Checklist

The owner or contractor may use the following cleaning checklist before any lead hazard control activity:

- ✓ Is the critical importance of cleaning in a hazard control project understood?
- ✓ Have all workers been trained and certified for hazard control work?

- ✓ Have the precleaning, daily, and final cleanings been scheduled properly and coordinated with the other participants in the hazard control process?
- ✓ Have cleaning equipment and materials been obtained?
- ✓ Do the workers know how to operate and maintain special cleaning equipment, and do they have directions for the proper use of all cleaning materials?
- ✓ Have all workers carefully studied the step-by-step procedures for precleaning (if needed), in-progress cleaning, and daily and final cleanings?
- ✓ Are all workers properly protected during the cleaning processes (see Chapter9)?
- ✓ Have provisions been made to properly contain and store potentially hazardous debris (see Chapter 10)?
- ✓ Have dust-clearance testing and related visual inspections been arranged (see Chapter 15)?
- ✓ Are the clearance criteria to be met fully understood?
- ✓ Have all appropriate surfaces been properly painted or otherwise sealed?
- ✓ Have appropriate records been maintained that document participants' roles in the hazard control project?

B. Equipment Needed for Cleaning

The following equipment is needed to conduct cleaning: high-efficiency particulate air (HEPA) vacuums and attachments (crevice tools, beater bar for cleaning rugs), detergent, waterproof gloves, rags, sponges, mops, buckets, 6-mil plastic bags, debris containers, waste water containers, shovels, rakes, water-misting sprayers, and 6-mil polyethylene plastic sheeting (or equivalent).

Chapter 14: Cleaning



C. Waste Disposal

Regulations governing hazardous and nonhazardous waste storage, transportation, and disposal affect both the daily and final cleaning procedures. The hazard control contractor and the disposal contractor should work together to establish formal written procedures, specifying selected containers, storage areas, and debris pickups, to ensure that all relevant regulations are met.

III. Cleaning Methods and Procedures

Many of the special cleaning methods and procedures detailed in this chapter are not standard operating procedure for general home improvement contractors. Therefore, project designers, responsible agencies, or owners must ensure that contractors follow the methods and procedures recommended herein or specially designed alternative procedures, even though some may appear to be redundant and unnecessary. These methods have been shown to be feasible and effective in many situations and skipping steps in the cleaning procedures can be counterproductive.

A. Containment

Because of the difficulty involved in the removal of fine dust, dust generated by hazard control work should be contained to the extent possible to the inside of work areas. Inadequately constructed or maintained containment or poor work practices will result in additional cleaning efforts, due to dust that has leaked out or been tracked out of the work area (see Chapter 8).

B. Basic Cleaning Methods: Wet Wash and Vacuum Cleaning Techniques

Because leaded dust adheres tenaciously, especially to such rough or porous materials as weathered or worn wood surfaces and masonry surfaces (particularly concrete), workers should be trained in cleaning methods. As a motivator,

some contractors have awarded bonuses to workers who pass clearance the first time.

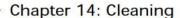
Two basic cleaning methods have proven effective, when used concurrently, in lead-based paint hazard control projects: a special vacuum cleaner equipped with a HEPA exhaust filter, followed by wet washing with special cleaning agents and rinsing, followed by a final pass with the HEPA vacuum.

Although HEPA filtered vacuums and triso-dium phosphate (TSP) cleaners have been considered the standard cleaning tools for lead hazard control projects, new research, discussed under the "Alternatives Methods" section in this chapter, suggests that other tools and products may also be effective in efficiently cleaning dust while providing adequate worker protection from airborne exposure risks. Some of these innovations may even be superior.

1. HEPA Vacuuming

HEPA vacuums differ from conventional vacuums in that they contain high-efficiency filters that are capable of trapping extremely small, micron-sized particles. These filters can remove particles of 0.3 microns or greater from air at 99.97 percent efficiency or greater. (A micron is 1 millionth of a meter, or about 0.00004 inches.) Some vacuums are equipped with an ultra-low penetration air (ULPA) filter that is capable of filtering out particles of 0.13 microns or greater at 99.9995 percent efficiency. However, these ULPA filters are slightly more expensive, and may be less available than HEPA filters.

Vacuuming with conventional vacuum machines is unlikely to be effective, because much of the fine dust will be exhausted back into the environment where it can settle on surfaces. A recent Canadian study revealed that finedust air levels were exceedingly high when a standard portable vacuum with a new bag was used, although partially filled bags were found to be more efficient (CMHC, 1992). Considerations for the proper use of a HEPA vacuum are listed below.







Operating Instructions

There are a numerous manufacturers of HEPA vacuums. Although all HEPA vacuums operate on the same general principle, they may vary considerably with respect to specific procedures, such as how to change the filters. To ensure the proper use of equipment, the manufacturer's operating instructions should be carefully followed and if possible, training sessions arranged with the manufacturer's representative.

Although HEPA vacuums have the same "suction" capacity as ordinary vacuums that are comparably sized, their filters are more efficient. Improper cleaning or changing of HEPA filters may reduce the vacuum's suction capability.

Special Attachments

Because the HEPA vacuum will be used to vacuum surfaces other than floors, operators should buy attachments and appropriate tool kits for use on different surfaces—such as brushes of various sizes, crevice tools, and angular tools.

Selecting Appropriate Size(s)

HEPA vacuums are available in numerous sizes, ranging from a small lunchbucket-sized unit to track-mounted systems. Two criteria for size selection are the size of the job and the type of electrical power available. Manufacturer recommendations should be followed.

Wet-Dry HEPA Vacuums

Some hazard control contractors have found the wet-dry HEPA vacuums to be particularly effective in meeting clearance standards. These vacuums are equipped with a special shut-off float switch to protect the electrical motor from water contact.

Prefilters

HEPA filters are usually used in conjunction with a prefilter or series of prefilters that trap the bulk of the dust in the exhaust airstream, particularly the larger particles. The HEPA filter traps most of the remaining small particles that have passed through the prefilter(s). All filters must be maintained and replaced or

cleaned as specified in the manufacturer's instructions. Failure to do so may cause a reduction in suction power (thus reducing the vacuum's efficiency and effectiveness). Failure to change prefilters may damage the vacuum motor and will also shorten the service life of the HEPA filter, which is far more expensive than the prefilters.

HEPA Vacuuming Procedures

Surfaces frequently vacuumed include ceilings, walls, floors, windows, interior and exterior sills, doors, heating, ventilation, and air conditioning (HVAC) equipment (heating diffusers, radiators, pipes, vents), fixtures of any kind (light, bathroom, kitchen), built-in cabinets, and appliances.

To aid in dislodging and collecting deep dust and lead from carpets, the HEPA vacuum must be equipped with a beater bar (agitator head) that is fixed to the cleaning head. This bar should be used on all passes on the carpet face during dry vacuuming (see Chapter 11 for details on carpet and furniture cleaning).

All rooms and surfaces should be included in the HEPA vacuum process, except for those that (1) were found not to have lead-paint hazards and were properly separated from work areas before the process began (see Chapter 8), or (2) were never entered during the process. Porches, sidewalks, driveways, and other exterior surfaces should be vacuumed if exterior hazard control work was conducted, or if debris was stored or dropped outside. Vacuuming should begin on the ceilings and end on the floors, sequenced to avoid passing through rooms already cleaned, with the dwellings' entryway cleaned last.

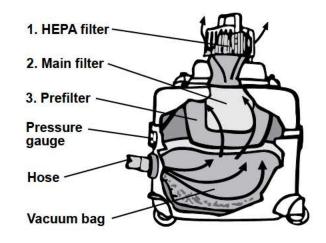
Emptying the HEPA Vacuum

Used filters and vacuumed debris are potentially hazardous waste and should be treated accordingly (see Chapter10). Therefore, operators should use extreme caution when opening the HEPA vacuum for filter replacement or debris removal to avoid accidental release of accumulated dust into the environment. This may occur, for example, if the vacuum's seal has been broken and the vacuum's bag is disturbed.





Figure 14.1a Vacuum With a HEPA Filter.



Parts of a HEPA-vacuum

Most HEPA-vacuums have three filters: HEPA filter, main filter, and prefilter. Debris gets sucked in through the hose into the vacuum bag. The air and dust get filtered through the prefilter, the main filter, and the HEPA filter. The HEPA filter captures the lead dust before the air is released into the work area again.

Operators should also wear a full set of protective clothing and equipment, including appropriate respirators, when performing this maintenance function, which should be done in the containment area or offsite.

2. Wet Detergent Wash

Several types of detergents have been used to remove leaded dust. Those with a highphosphate content (containing at least 5 percent trisodium phosphate, also known as TSP) have been found to be effective when used as part of the final cleaning process (Milar, 1982). TSP detergents are thought to work by coating the surface of dusts with phosphate or polyphosphate groups which reduces electrostatic interactions with other surfaces and thereby permits easier removal. Because of environmental concerns some States have restricted the use of TSP, and some manufacturers have eliminated phosphates from their household detergents. However, high-TSP detergents can usually be found in hardware stores and may be permitted for limited use, such as lead hazard control.

Other non-TSP cleaning agents developed specifically for removing leaded dust have also been found to be effective (possibly more effective than TSP) in limited trials by several



Pressure gauge

Figure 14.1b Pressure Gauge Indicator Shows When Filters Require Changing.





Figure 14.2 HEPA Vacuum Sizes and Tools.

investigators (Grawe, 1993; Wilson, 1993) and may also be safer, since TSP is a skin and eye irritant. See section VII for more information on non-TSP detergents. Proper procedures for using high-phosphate detergents also apply to most other types of detergents and include the following steps:

Manufacturer's Dilution Instructions

Users of cleaning agents for leaded dust removal should follow manufacturer's instructions for the proper use of a product, especially the recommended dilution ratio. Even diluted, trisodium phosphate is a skin irritant and users should wear waterproof gloves. Eye protection should also be worn, and portable eyewash facilities should be located in or very near the work area. Consult manufacturer's directions for the use of other detergents.

Appropriate Cleaning Equipment

Because a detergent may be used to clean leaded dust from a variety of surfaces, several types of application equipment are needed, including cleaning solution spray bottles, wringer buckets, mops, variously sized hand sponges, brushes, and rags. Using the proper equipment on each surface is essential to the quality of the wetwash process.

Proper Wet-Cleaning Procedures

At the conclusion of the active lead hazard control process and the initial HEPA vacuuming, all vacuumed surfaces should be thoroughly and completely washed with a high-phosphate solution or other lead-specific cleaning agent (or equivalent) and rinsed. Select a detergent that does not damage existing surface finishes (TSP may damage some finishes). Work should proceed from ceilings to floors and sequenced to avoid passing through rooms already cleaned.

Changing Cleaning Mixture

Many manufacturers of cleaners will indicate the surface area that their cleaning mixture will cover. To avoid recontaminating an area by cleaning it with dirty water, users should follow manufacturer-specified surface-area limits. However, regardless of manufacturers' recommendations, the cleaning mixture should be changed after its use for each room. As a rule of thumb, 5 gallons should be used to clean no

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Figure 14.3 Goggles, Face Shields, Gloves, and Eye Wash Facilities Should Be Available When Used With Chemicals Such as TSP. EMERGENCY EYE WASH STATION Latex Neoprene Nitrile

more than 1,000 square feet. Used cleaning mixture is potentially hazardous waste (see Chapter 10); consult with your local water and sewage utility for directions on its proper disposal. Wash water should never be poured onto the ground. The wash water is usually filtered and then poured down a toilet (if the local water authority approves).

3. The HEPA/Wet Wash/HEPA Cycle

Typical Procedures

The usual cleaning cycle that follows lead hazard control activities is called the HEPA vacuum/wet wash/HEPA cycle and is applied to an entire affected area as follows:

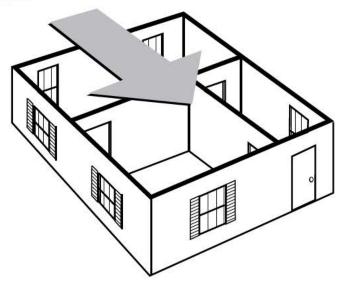
First, the area is HEPA vacuumed.



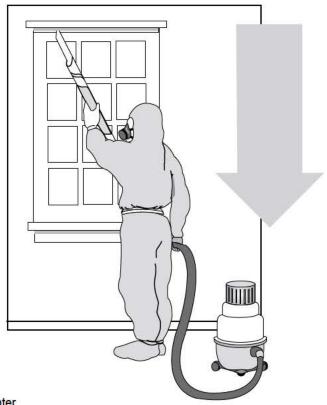


Figure 14.4a The HEPA Vacuum, Wet Wash, HEPA Vacuum Cycle Helps in Meeting Clearance Standards.

HEPA vacuum all surfaces Start at the end farthest from the main entrance/exit. As you vacuum, move towards the main exit and finish there.



Begin at the top of each room and work down. For example, start with the top shelves, the top of the woodwork, and so on, and work down to the floor. Do every inch of the windows, especially the window troughs.



Courtesy: Alice Hamilton Occupational Health Center



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- Next, the area is washed down.
- After drying, the area is again HEPA vacuumed.

The rationale for this three-pass system is as follows:

- The first HEPA vacuum removes as much dust and remaining debris as possible.
- The wet wash further dislodges dust from surfaces.
- The final HEPA cycle removes any remaining particles dislodged but not removed by the wet wash.

Single-Pass Wet Wash/HEPA Vacuum

Some lead hazard control contractors have found HEPA spray cleaner vacuums to be a cost-effective alternative to the three-pass system. Similar to home carpet-cleaning machines, these vacuums simultaneously deliver a solution to the surface and recover the dirty solution. Theoretically, this process combines two of the steps in the HEPA vacuum/wet wash/HEPA cycle into one step. While anecdotal evidence indicates that the spray cleaner wet wash/HEPA is effective for some uses, limitations have been noted in its use for ceilings, vertical surfaces, and hard to reach areas. This device may be used as long as clearance standards are met.

Figure 14.4b (continued)

Use special attachments

Use the rubber cone where the floor meets the baseboard and along all the cracks in the floor boards. Use the brush tool for walls and woodwork.

Use the wheeled floor nozzle for bare floors and the carpet beater for rugs.

Move slowly

Vacuum slowly so the HEPA vacuum can pick up all the lead dust.



Rubber Cone

Dust Brush



Powered Carpet Beater



Wheeled Floor Nozzle





Figure 14.4c (continued)

Wash all surfaces with suitable detergents

Wash all surfaces in the work area with suitable detergents, including areas that had been covered with plastic. Some wallpaper should only be HEPA vacuumed, since it may be damaged by the detergent.



Wipe All Surfaces



Wet Mop Floor



Don't Dry Sweep





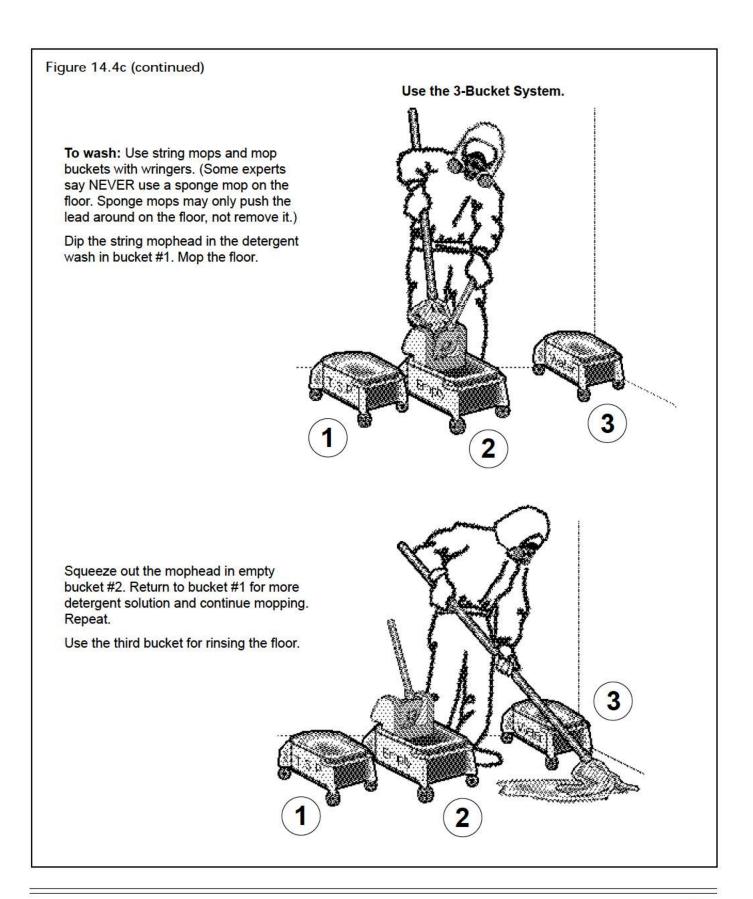


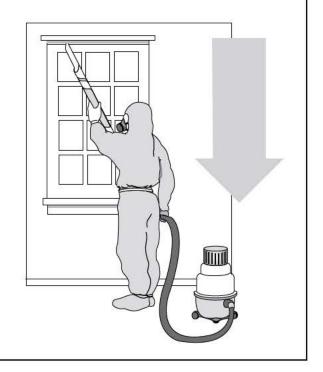




Figure 14.4d (continued)

HEPA vacuum all surfaces a final time HEPA vacuum *all surfaces* in the work area, including areas that had been covered with plastic.

Starting at the far end, work towards the decontamination area. Begin with ceilings or the top of the walls and work down, cleaning the floors last. Do every inch of the windows, especially the troughs. Use the corner tool to clean where the floor meets the baseboard and all the cracks in the floor boards. Use the brush tool for the walls. Move slowly and carefully to get all the dust.



4. Sealing Floors

Before clearance, all floors without an intact, nonporous coating should be coated. Sealed surfaces are easier for residents to clean and maintain over time than those that are not sealed. Wooden floors should be sealed with a clear polyurethane or painted with deck enamel or durable paint. Vinyl tile, linoleum, and other similar floors should be sealed with an appropriate wax. Concrete floors should be sealed with a concrete sealer or other type of concrete deck enamel. However, if these floors are already covered by an effective coat of sealant, it may be possible to skip this step.

As an alternative to sealing, floors may be covered with new vinyl tile, sheet vinyl, linoleum flooring, or the equivalent to create a more permanent cleanable surface. New surfaces should be cleaned with a cleaning solution that is appropriate for that type of surface.

IV. Order of Cleaning Procedures During Lead Hazard Control

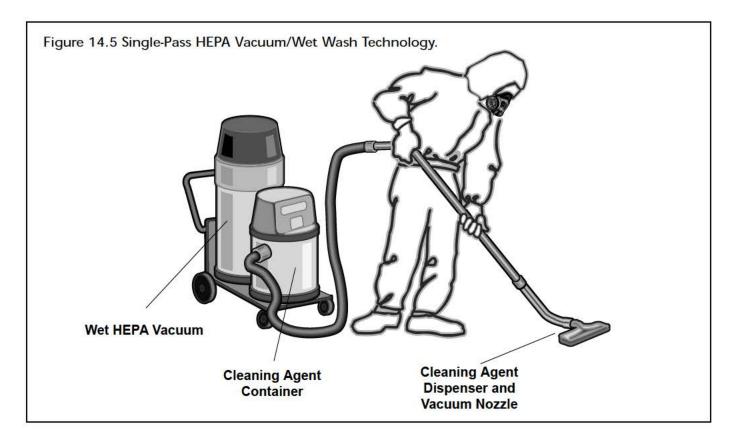
The special cleaning procedures to be followed during a lead-based paint hazard control project are discussed in chronological order below. Skipping steps in the process may result in failure to meet post-lead hazard control clearance standards.

A. Precleaning Procedures

Precleaning (i.e., cleaning conducted before lead hazard control is begun) is necessary only in dwelling units that are heavily contaminated with paint chips. Precleaning involves the removal of large debris and paint chips, followed by HEPA vacuuming. These steps may be followed by removal of occupant personal possessions, furniture, or carpeting, depending on the







Worksite Preparation Level selected (see Chapter 8). If the furniture will not be cleaned, it should be removed from the area or covered with plastic prior to beginning the precleaning procedure. Carpeting should always be misted before its removal to control the generation of hazardous dust.

It is usually the resident's responsibility to remove most of his or her personal possessions. However, if necessary, owners or project management should be prepared to complete this activity before lead hazard control work begins. As a last resort, the contractor may pack any remaining belongings and carefully seal and move the boxes, supplying all necessary boxes, packing materials, and staff to complete the task. Following cleaning and clearance, the contractor should return all packed items to their appropriate places. Leaving these tasks to the contractor may be expensive and inefficient, since the contractor will need to be insured for this function if the occupant's



Figure 14.6 Precleaning Is Needed in Areas Where Contamination and Deterioration Are High.

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belongings are damaged. Additionally, moving furniture, rugs, drapes, and other items owned by the occupant could increase leaded dust levels. Clearance should be conducted after cleaning but before resident items are moved back in.

B. Ongoing Cleaning During the Job

Periodic HEPA vacuuming during the lead hazard control work may be necessary to minimize tracking of dust and paint chips from one area to another (e.g., when a large amount of paint chips or dust is being generated).

C. Daily Cleaning Procedures

Cleaning activity should be scheduled at the end of each workday when all active lead hazard control throughout the dwelling has ceased. Sufficient time must be allowed for a thorough and complete cleaning (usually about 30 minutes to an hour). Daily cleaning helps achieve clearance dust levels by minimizing problems that may otherwise occur during final cleaning and limiting worker exposures. While daily cleaning can be skipped in vacant dwelling units, it is required when occupants will



Figure 14.7 Plastic Sheeting Should Be Repaired as Part of Daily Cleanup.

return in the evening. Under no circumstances should debris or plastic be left outside overnight in an unsecured area, even if the dwelling is vacant. Daily cleaning should consist of:

- Removing large debris.
- Removing small debris.
- HEPA vacuuming, wet clean, HEPA vacuuming (horizontal surfaces only).
- Cleaning exterior.
- Patching and repairing plastic sheeting.
- Securing debris/plastic.

1. Large Debris

Large demolition-type debris (e.g., doors, windows, trim) should be wrapped in 6-mil plastic, sealed with tape, and moved to a secure area on the property designated for waste storage. All sharp corners, edges, and nails should be hammered down to prevent injury and minimize the tearing of plastic. It is not necessary to wrap each individual piece of debris in plastic if the entire load can be wrapped. A secure area either outside or inside the property must be designated as a temporary waste-storage area. Covered, secured, and labeled dumpsters placed on or near the property may be used. Proper segregation of waste should be enforced at this time (see Chapter 10).

2. Small Debris

After being misted with water, small debris should be swept up, collected, and disposed of properly. The swept debris should be placed in double 4-mil or single 6-mil polyethylene (or equivalent) plastic bags, properly sealed, and moved to the designated trash storage area. Trash bags should not be overloaded; overloaded bags may rupture or puncture during handling and transport.

3. Exterior Cleaning

Areas potentially affected by exterior lead hazard control should be protected via a containment system (see Chapter 8). Because weather can adversely affect the efficacy of exterior



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containment, the surface plastic of the containment system should be removed at the end of each workday. On a daily basis, as well as during final cleaning, the immediate area should be examined visually to ensure that no debris has escaped containment. Any such debris should be raked or vacuumed and placed in single 6-mil or double 4-mil plastic bags, which should then be sealed and stored along with other contaminated debris. HEPA vacuuming is appropriate for hard exterior surfaces, not soil.

4. Worker Protection Measures

General worker protection measures are discussed in Chapter 9. Studies indicate that during daily cleaning activities, especially while wet sweeping, workers may be exposed to high levels of airborne dust. Therefore, workers should wear protective clothing and equipment, especially appropriate respirators.

5. Maintaining Containment

The integrity of the plastic sheeting used in a lead hazard control project must be maintained. During their daily cleaning activities, workers should monitor the sheeting and immediately repair any holes or rips with 6-mil plastic and duct tape.

V. Order of Final Cleaning Procedures After Lead Hazard Control

Before treated surfaces can be painted or sealed, final cleaning procedures must be completed. Because airborne dust requires time to settle, the final cleaning process should start no sooner than 1 hour after active lead hazard control has ceased in the room. See Appendix 11 for details regarding dust settling.

A. Final Cleaning

As the first stage in the final cleaning, floor plastic should be misted and swept as detailed earlier in this chapter. Upper-level plastic, such as that on cabinets and counters, should be removed first, after it has been misted with water and cleaned. All plastic should be folded

carefully from the corners/ends to the middle to trap any remaining dust. Next, remove both layers of plastic from the floor.

Plastic sheets used to isolate contaminated rooms from noncontaminated rooms should remain in place until after the cleaning and removal of other plastic sheeting; these sheets may then be misted, cleaned, and removed last.

Removed plastic should be placed into double 4-mil or single 6-mil plastic bags, or plastic bags with equivalent (or better) performance characteristics, which are sealed and removed from the premises. As with daily cleanings, this plastic-removal process usually requires workers to use protective clothing and respirators.

After the plastic has been removed from the contaminated area, the entire area should be cleaned using the HEPA/wet wash/HEPA cycle, starting with the ceiling and working down to the floor. After surfaces are repainted or sealed, a final HEPA/wet wash/HEPA cycle may be necessary if accumulated dust caused by other work is visible.

1. Decontamination of Workers, Supplies, and Equipment

Decontamination is necessary to ensure that worker's families, other workers, and subsequent properties do not become contaminated. Specific procedures for proper decontamination of equipment, tools, and materials prior to their removal from lead hazard control containment areas should be implemented, as described below and in Chapters 9 and 10.

Work clothing, work shoes, and tools should not be placed in a worker's automobile unless they have been laundered or placed in sealed bags. All vacuums and tools that were used should be wiped down using sponges or rags with detergent solutions.

Consumable/disposable supplies, such as mop heads, sponges, and rags, should be replaced, after each dwelling is completed. Soiled items should be treated as contaminated debris (see Chapter 10).







Figure 14.8a Pick Up Corners of Plastic Sheeting.



Figure 14.8b Fold Plastic Inward.

Durable equipment, such as power and hand tools, generators, and vehicles, should be cleaned prior to their removal from the site; the cleaning should consist of a thorough HEPA vacuuming followed by washing.

B. Preliminary Visual Examination

After the preliminary final cleaning effort is completed, the certified supervisor should visually evaluate the entire work area to ensure that all work has been completed and all visible dust and debris have been removed. While the preliminary examination may be performed by the lead hazard control supervisor, contractor, or owner as a preparatory step before the final clearance examination, it does not replace the independent visual assessment conducted during clearance.

If the visual examination results are unsatisfactory, affected surfaces must be retreated and/or recleaned. Therefore, it is more cost effective to have the supervisor rather than the clearance examiner perform this initial examination.

C. Surface Painting or Sealing of Nonfloor Surfaces

The next step of the cleaning process is painting or otherwise sealing all treated surfaces except floors.

Surfaces, including walls, ceilings, and woodwork, should be coated with an appropriate primer and repainted. Surfaces enclosed with vinyl, aluminum coil stock, and other materials traditionally not repainted are exempt from the painting provision.

D. Final Inspection

The final clearance evaluation should take place at least 1 hour after the final cleaning. Clearance has three purposes: 1) to ensure that the lead hazard control work is complete, 2) to detect the presence of leaded dust, and 3) to make sure that all treated surfaces have been repainted or otherwise sealed. Clearance is usually performed after the sealant is applied to the floor. See Chapter 15 for information on clearance examination procedures.

E. Recleaning After Clearance Failure

If after passing the final visual examination, the dwelling unit fails the clearance wipe dust tests,





the HEPA/wet wash/HEPA cleaning cycle should be carefully and methodically repeated. Failure is an indication that the cleaning has not been successful. Recleaning should be conducted under the direct supervision of a certified supervisor. Care should be exercised during the recleaning of "failed" surfaces or components to avoid recontaminating "cleared" surfaces or components.

VI. Cleaning Cost Considerations

An important consideration in determining lead hazard control strategies and methods is the cost and difficulty of required daily and final cleanup operations and the ease with which one can meet dust-clearance standards. A general rule of thumb is that lead hazard control strategies that generate the most dust will have higher cleanup costs and higher initial clearance test-failure rates.

A. Initial Clearance Test Failure Rates

The likelihood of passing final dust-clearance tests is highly correlated with the chosen intervention strategy, methods, and care exercised by the contractor. For example, in one study (HUD, 1991) initial wipe-test failure rates were 14 percent for interior window sills, 19 percent for floors, and 33 percent for window troughs. The pass/fail rates for each surface were strongly associated with the dwelling unit abatement strategy employed. Chemical removal and hand-scraping strategies experi-enced higher failure rates than replacement and encapsulation/enclosure strategies (see Table 14.1).

However, results of the HUD demonstration project indicated that clearance failure is not solely related to abatement method. The report stated that "the diligence and effectiveness of an abatement contractor's cleaning process ... had a major impact on ... the likelihood of the dwelling unit to pass the final wipe test clearance" (HUD, 1991).



Figure 14.8c Dispose of Plastic Sheeting in a Plastic Trash Bag.

B. Key Factors In Effective Cleaning

Effective cleaning will be aided by adequate sealing of surfaces with polyethylene sheeting prior to lead hazard control, proper daily cleaning practices, good worker training, and attention to detail. Where poor worksite preparation is employed, additional cleaning may be required to meet clearance.

C. Special Problems

Surfaces such as porous concrete, old porous hardwood floors, and areas such as corners of rooms and window troughs pose especially difficult cleaning challenges. Porous concrete and corners of rooms normally require additional vacuuming to achieve an acceptable level of cleanliness.

The lead hazard control strategy of enclosure is frequently chosen for window troughs and for old porous hardwood floors due to the difficulty of adequately cleaning these surfaces. This





option provides not only a clean surface but a more permanently cleanable surface for dwelling occupants to maintain.

VII. Alternative Methods

Alternatives to the recommended cleaning tools and practices discussed in this chapter are available, some having significant potential for increasing effectiveness and lowering costs.

A recent Canadian study (CMHC, 1992) evaluated the effectiveness of contaminated dust cleanup activities using tools that would generally be available to construction contractors and homeowners. Vinyl flooring and carpeting were cleaned using several wet/dry vacuuming systems, sweeping, and wet mopping. The study found that regular vacuums with empty bags send a steady stream of fine particles into the air, while vacuums with partially filled bags were more efficient. This finding suggests the necessity for HEPA vacuums. Other vacuums may be used if workers do not experience increased exposures, if compliance with clearance standards is achieved, and if a variance from OSHA regulation (29 CFR 1926.62 (h)(4)) is obtained by the contractor or employer (if required).

Agitator heads on vacuums were demonstrated to significantly enhance vacuum effectiveness on carpets in cleaning up fine dust without

increasing airborne dust levels. Table 14.2 suggests that a central vacuum with an agitator head is most efficient at removing dust and minimizing recontamination, probably because the vacuum exhaust is blown away from living areas. Because many houses do not have central vacuuming systems, a portable HEPA vacuum is the next best choice (see Table 14.2). Vacuums without agitator heads appeared to perform relatively poorly on carpets.

A. Vacuums

Regular (non-HEPA) dry vacuums potentially produce hazardous levels of airborne dust and therefore should be avoided. Externally exhausted vacuum units with adequate dustretaining capability may be used. The OSHA lead standard requires the use of HEPA vacuum equipment (see 29 CFR 1926.62 (h)(4), which states, "where vacuuming methods are selected, the vacuums shall be equipped with HEPA filters").

B. Trisodium Phosphate and Other Detergents

TSP detergents have been used successfully for a number of years in lead hazard control work. However, in recent years, other new cleaning agents have been developed specifically for leaded dust removal. The need for alternatives has been fueled by the fact that TSP is an eye

Table 14.1 Initial Cleaning Wipe-Test Failure Rates for Various Abatement Strategies

Dust Test Location	Hand Scrape w/Heat Gun	Chemical Removal	Enclosure	Encapsulation	Replacement	All Methods	
Floors	28.8%	22.7%	20.0%	13.8%	12.5%	19%	
Sills	24.4%	24.1%	8.2%	4.8%	17.4%	14%	
Wells	44.5%	45.7%	23.7%	25.7%	21.0%	33%	

Source: U.S. Department of Housing and Urban Development (August 1991) The HUD Lead-Based Paint Abatement Demonstration (FHA)



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and skin irritant and is increasingly restricted from household use and unavailable in many local jurisdictions. TSP also damages some finishes. Recently reported trials of two new products suggest that alternative lead-specific cleaning agents may be more effective and safer than TSP (Grawe, 1993; Wilson, 1993).

These Guidelines do not prohibit the use of non-TSP cleaning agents. HUD encourages further evaluation of alternative cleaning methods. Use of any cleaning agent that results in compliance with clearance criteria is encouraged.

Table 14.2 Mass Removal Efficiency for Extended Vacuuming Cycles

	Mass Removal Efficiency Percentages									
Cycle Number		Cleaning Method								
	Central Vacuum—Plain Tool	Central Vacuum—Agitator Head	HEPA Vacuum	Portable Vacuum—Plain Tool						
1	34.7	71.0	55.4	17.5						
2	47.0	80.2	61.2	23.0						
3	51.9	85.9	66.3	26.6						
4	56.0	87.8	67.0	29.4						
5	59.3	88.9	72.1	32.5						
6	61.6	91.2	74.4	34.9						
7	63.8	93.1	76.4	36.5						
8	67.5	95.4	77.5	38.1						
9	67.5	97.7	78.7	40.1						
10	67.2	100.0	80.2	41.7						
11		102.3	80.2	41.7						
12		104.6	84.1	44.8						
13		104.6	84.5	46.8						
14		103.8	84.5	48.4						
15				49.6						
16				50.8						
17				52.4						
18				53.6						
19				54.4						
20				55.2						

Source: Canada Mortgage and Housing Corporation: Saskatchewan Research Council (December 1992) Effectiveness of Clean-up Techniques for Leaded Paint Dust

National Guard Region North

National Guard Readiness Center Industrial Hygiene Evaluation Auburn Readiness Center Auburn, NY 13021

Prepared for:

National Guard Region North Industrial Hygiene Office 301 Old Bay Lane Havre De Grace, MD 21078

Attn:

Non-Responsive

Prepared by:

Bonus Environmental, LLC P.O. Box 121 Mt. Pleasant, Michigan 48804

> Project No. 1061-15 January 29, 2013

Bonus Environmental, LLC

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APPENDICES

Appendix A Shop Diagram and Air Flow Patterns

Appendix B Lead Sample Results

Appendix C Photographs

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January 29, 2013 Project No. 1061-15

National Guard Region North Industrial Hygiene Office 301 Old Bay Lane Havre De Grace, MD 21078-4003

Attn: Non-Responsive

Project: Industrial Hygiene Evaluation

Auburn Readiness Center, Auburn, NY 13021

1.0 - EXECUTIVE SUMMARY

Bonus Environmental, LLC was contracted by the National Guard Bureau Region North Industrial Hygiene office to identify and measure the existence and extent of potentially hazardous operations or conditions at the Auburn Readiness Center located at 174 South Street in Auburn, NY. The purpose of this evaluation was to generate or to update a previous baseline evaluation so that employee exposure history can be provided to each civilian and military employee. The following industrial hygiene conditions were evaluated during this industrial hygiene evaluation performed by Bonus Environmental, LLC representative Erica Funnell on November 15, 2012:

- Indoor Air Quality
- Lead Wipe & Bulk Sampling
- Illumination
- Ergonomics

 Evaluation of the physical condition of the facility in regards to peeling paint, asbestos containing materials, water damage or mold problems, and housekeeping practices.

The Auburn Readiness Center is an Army National Guard armory comprised of offices, classrooms, locker rooms, storage rooms, a drill hall, a kitchen, a boiler room, mechanical/telecom rooms, a weight room, a dining area, a break room, conference rooms, storage bays, and a former indoor firing range. The point of contact for the approximately 27,381 ft² Auburn Readiness Center is Mr.

Sixteen (16) full-time administrative personnel are employed at the Auburn Readiness Center. Health and Safety programs available and reviewed include personal protective equipment (PPE), Lock-Out/Tag-Out, Asbestos Awareness, Fire Safety, and Confined Spaces. A shop diagram depicting the locations of the operations and air flow patterns identified during this industrial hygiene evaluation is attached to this report as Appendix A.

The National Guard Bureau Region North Industrial Hygiene Office provided governmental furnished equipment and sampling media required to perform the industrial hygiene evaluation. Chain of custody forms for laboratories approved by the National Guard Bureau Region North Industrial Hygiene Office were provided with the sampling media. All samples collected during this industrial hygiene evaluation were sent to the National Guard Bureau Region North Industrial Hygiene Office approved laboratories for analysis.

2.0 – LEAD SAMPLING

2.1 – Lead Wipe Sampling

Lead wipe sampling was performed according to the Environmental Protection Agency (EPA) method 600/R-93/200(M)-7420 (Atomic Absorption - Flame). Twenty four (24) wipe samples and one (1) field blank were sent under chain-of-custody procedures to AMA Analytical Services, Inc., an American Industrial Hygiene Association (AIHA) accredited laboratory located in Lanham, Maryland. The U.S. Department of Labor (USDOL) and the Occupational Safety and Health Administration (OSHA) do not have a promulgated standard for lead surface contamination; however OSHA has provided an interpretive level of 200 micrograms per square foot (μg/ft²) to assess the housekeeping requirements of "as free as reasonably practicable". This interpretation is presented in OSHA Industrial Hygiene Technical Manual (TED 01-00-015; 1/20/1999), and in a letter of interpretations dated 1/13/2003, and subsequently issued to public domain. NG Pam 420-15 addresses the conversion and remediation of former indoor firing ranges. The following table outlines the locations and analytical results for the lead wipe samples collected during this project.

		Army National Guard – Auburn Readiness Center Lead Wipe Sample Results		
Sample #	Sample Date	Sample Location	Sample Area (ft²)	Sample Result (µg/ft²)
Auburn RC- LW-1	11-15-12	Field Blank		< 12 μg
Auburn RC- LW-2	11-15-12	Drill Hall, on floor, West end	0.111	< 110
Auburn RC- LW-3	11-15-12	Drill Hall, on floor, East end	0.111	< 110
Auburn RC- LW-4	11-15-12	Drill Hall, on top of Pepsi machine	0.111	120
Auburn RC- LW-5	11-15-12	Drill Hall, on top of vending machine	0.111	220
Auburn RC- LW-6	11-15-12	Drill Hall, on top of AED box	0.111	< 110
Auburn RC- LW-7	11-15-12	Kitchen, on top of ice machine	0.111	< 110
Auburn RC- LW-8	11-15-12	Superintendent's Office, on top of book shelf	0.111	130
Auburn RC- LW-9	11-15-12	HVAC Room, fan side of HVAC Unit	0.111	< 110
Auburn RC- LW-10	11-15-12	HVAC Room, supply side of HVAC Unit	0.111	140
Auburn RC- LW-11	11-15-12	Former Indoor Firing Range, on floor, "bullet trap" area	0.111	2,000
Auburn RC-	11-15-12	Former Indoor Firing Range, on top of storage shelf	0.111	< 110

		Army National Guard – Auburn Readiness Center Lead Wipe Sample Results		
Sample #	Sample Date	Sample Location	Sample Area (ft²)	Sample Result (µg/ft²)
LW-12				
Auburn RC- LW-13	11-15-12	Former Indoor Firing Range, on top of Transfer Switch #1 box	0.111	28,000
Auburn RC- LW-14	11-15-12	Dining Room, on top of microwave	0.111	< 110
Auburn RC- LW-15	11-15-12	Company Maintenance, on top of emergency eye wash	0.111	760
Auburn RC- LW-16	11-15-12	Office 10A, on top of book shelf	0.111	< 110
Auburn RC- LW-17	11-15-12	Men's Locker Room, on top of locker #100	0.111	< 110
Auburn RC- LW-18	11-15-12	1 st Floor Hallway, on top of book shelf	0.111	< 110
Auburn RC- LW-19	11-15-12	Storage Room, on top of filing cabinet	0.111	72,000
Auburn RC- LW-20	11-15-12	Office 30, on window sill	0.111	< 110
Auburn RC- LW-21	11-15-12	Office 38, on filing cabinet	0.111	< 110
Auburn RC- LW-22	11-15-12	2 nd Floor Hallway, on window sill	0.111	< 110
Auburn RC- LW-23	11-15-12	Conference Room 201, on supplied air grill	0.111	< 110
Auburn RC- LW-24	11-15-12	Office 205, on top of book shelf	0.111	< 110
Auburn RC- LW-25	11-15-12	Office 211, on top of storage cabinet	0.111	< 110

Surface cleanliness threshold = < 200 micrograms per square foot ($\mu g/ft^2$)

It is uncertain whether the former indoor firing range was remediated to the protocols specified in NG Pam 420-15. Remediation wipe sample results were not posted, nor were any signs posted restricting access to the area. The bullet trap had been removed from the "bullet trap area".

3.0 - PHYSICAL CONDITION OF FACILITY / PERSONNEL CONCERNS

3.1 - Lead Based Paint

During the industrial hygiene evaluation of the Auburn Readiness Center, Bonus Environmental, LLC performed a visual inspection of the facility in regards to lead based paint. Bonus Environmental, LLC

identified areas of peeling paint which could potentially pose a lead exposure hazard. Bonus Environmental, LLC identified peeling paint in the following areas:

- Approximately 30 ft² peeling grey paint in the Boiler Room;
- Approximately 2 ft² peeling grey paint in the Mechanical Room;
- Approximately 40 ft² peeling grey paint in the Former Indoor Firing Range;
- Approximately 4 ft² peeling grey paint in the Storage;
- Approximately 5 ft² peeling grey paint in the Basement Hallway;
- Approximately 1 ft² peeling beige paint in the Office 10A;
- Approximately 1 ft² peeling beige paint in the Office 10B;
- Approximately 4 ft² peeling white paint in the Storage;
- Approximately 2 ft² peeling white paint in the 1st Floor Hallway;
- Approximately 2 ft² peeling white paint in the Office 10A;
- Approximately 4 ft² peeling white paint in the Office 10B;
- Approximately 2 ft² peeling green paint in the 1st Floor Hallway;
- Approximately 2 ft² peeling green paint in the Office 9

Four (4) paint chip samples were collected and sent under chain-of-custody procedures to AMA Analytical Services, Inc., an AIHA accredited laboratory located in Lanham, MD. See table below for sample information:

	Army National Guard – Aubur Paint Chip Sam		enter	
Sample #	Sample Location	Color	Analytical Reporting Limit (%)	Analytical Results (%)
AuburnRC-PC-1	Boiler room	Gray	0.0057	0.14
AuburnRC-PC-2	1 st floor hallway	Green	0.0053	0.28
AuburnRC-PC-3	1 st floor hallway	White	0.0041	0.38
AuburnRC-PC-4	Office 10A	Beige	0.0061	11

Analysis indicated that each of the peeling paints collected contained detectable levels of lead. The paints are therefore each considered to be lead-based paint. The OSHA Lead in Construction Standard, 29 CFR 1926.62 does not assign a numerical value of which must be present within the paint to be considered lead based paint. Paints which contain any detectable level of lead shall be treated and handled as lead based paint. Housing and Urban Development (HUD) defines lead based paint as having greater than 0.5% lead by weight. Paint chip sample results are attached to this report as Appendix B.

3.2 – Presumed Asbestos Containing Materials

During the industrial hygiene evaluation of the Auburn Readiness Center, Bonus Environmental, LLC performed a visual inspection to identify presumed asbestos containing materials (PACM) and, if found, to note their condition. Bonus Environmental, LLC did not identify any PACM that was considered to be in poor or damaged condition.

3.3 - Water Damage/Mold Growth

During the industrial hygiene evaluation of the Auburn Readiness Center, Bonus Environmental, LLC performed a visual inspection to report the location and perform an evaluation of any water damaged building materials and/or visible mold problems. Bonus Environmental, LLC did not identify any areas with water damaged building materials or visible mold problems within the Auburn Readiness Center.

3.4 - Housekeeping

During the industrial hygiene evaluation of the Auburn Readiness Center, Bonus Environmental, LLC performed an evaluation of the housekeeping practices. Bonus Environmental, LLC found the housekeeping practices within Auburn Readiness Center facility in good order, with the exception of residual lead dust concentrations.

3.5 – Employee Interviews

During the industrial hygiene evaluation of the Auburn Readiness Center, Bonus Environmental, LLC performed interviews and made observations to determine if the work activities being performed possessed any ergonomic concerns. Following the interviews and observations, no ergonomic and or indoor air quality concerns were identified.

3.6 – Indoor Air Quality

During the industrial hygiene evaluation of the Auburn Readiness Center, Bonus Environmental, LLC measured temperature, relative humidity, carbon monoxide (CO), and carbon dioxide (CO₂) throughout the facility. A calibrated TSI Q-Trak Plus Model 7575 Indoor Air Quality Monitor equipped with a Q-Trak Probe 982 was utilized to record indoor air quality measurements.

Carbon dioxide is a natural component of air and the amount of CO₂ in a given air sample is commonly expressed as parts per million (ppm). The outdoor air in most locations contains about 380 ppm carbon dioxide. Higher outdoor CO₂ concentrations can be found near vehicle traffic areas, industry and sources of combustion. The concentrations of CO₂ found in most offices are well below the OSHA Permissible Exposure Limit (PEL) of 5,000 ppm when averaged over an 8-hour time period for an industrial workplace. While levels below 5,000 ppm are considered to pose no serious health threat, studies have indicated that individuals in offices with elevated CO₂ concentrations tend to report drowsiness, lethargy and a general sense that the air is stale. Ventilation rates for office spaces are defined by various codes and standards. The most widely accepted standard is the American Society of Heating, Refrigerating, and Air Conditioning Engineers (ASHRAE) Standard 62. According to ASHRAE Standard 62.1-2010, CO₂ concentrations below 700 ppm above the outdoor level are considered to indicate adequate ventilation and provide human comfort. The CO₂ measurements collected during this industrial hygiene evaluation ranged from 399 ppm to 692 ppm and indicate adequate ventilation within the facility.

Carbon monoxide is a colorless, odorless, poisonous gas that results from the incomplete burning of common fuels such as natural or liquefied petroleum gas, oil, wood or coal. When carbon monoxide is inhaled, it enters the blood stream and reduces the ability of the blood to carry oxygen to vital organs, such as the heart and brain. Because it is impossible to see, taste or smell the toxic fumes, CO can harm you before you are aware it is in your work area. At lower levels of exposure, CO causes mild

effects that are often mistaken for the flu. These symptoms include headaches, dizziness, disorientation, nausea and fatigue. The effects of CO exposure can vary greatly from person to person depending on age, overall health and the concentration and length of exposure. The OSHA has established a permissible exposure limit (PEL) of 50 parts per million (ppm). OSHA standards prohibit worker exposure to more than 50 parts of the gas per million parts of air averaged during an 8-hour time period. The peak CO level for employees is 200 ppm. The CO measurements collected during this industrial hygiene evaluation ranged from 2.8 ppm to 4.9 ppm. CO levels were below the OSHA PEL during this industrial hygiene evaluation.

During the industrial hygiene evaluation of the Auburn Readiness Center, Bonus Environmental, LLC collected temperature measurements. Temperature measurements throughout the common areas of the facility routinely occupied by employees ranged from 58.4°F to 73.6°F and are not considered to be within an acceptable range outlined within ASHRAE Standard 55-2010.

During the industrial hygiene evaluation of the Auburn Readiness Center, Bonus Environmental, LLC collected relative humidity measurements. Relative humidity measurements throughout common areas of the facility routinely occupied by employees ranged from 34.8% to 65.2%. Indoor air quality measurements recorded during this industrial hygiene evaluation are summarized in the table below.

Army National Guard – Auburn Readiness Center Indoor Air Quality Measurements								
Location	CO ₂ (ppm)	CO (ppm)	Relative Humidity (%)	Temperature (°F)				
Outdoors, north side of building (sunny)	407	4.9	27.1	54.8				
Boiler Room	399	4.1	34.8	69.5				
Former Indoor Firing Range	409	3.3	39.7	68.4				
Superintendent's Office (3 people in room)	692	4.2	41.1	62.3				
Office 10A (2 people in room)	448	2.8	36.4	67.1				
Classroom 103	410	4.6	35.4	69.9				
Break Room 109	421	5.0	35.8	70.2				
Conference Room 37	417	4.3	35.4	73.6				
Office 208 (6 people in room)	569	4.4	35.6	71.7				
Office 40	420	4.2	37.7	73.3				
Drill Hall	416	3.0	65.2	58.4				

Required/Recommended Values

CO₂ - OSHA PEL = 5,000 parts per million (ppm) and ASHRAE Standard 62.1-2010 = no greater than 700 ppm above outdoor

Temperature - ASHRAE Standard 55-2010 = between approximately 67 and 82 °F.

4.0 – LIGHTING

Utilizing a properly calibrated Cooke Corporation cal-Light 400 light meter, Bonus Environmental, LLC collected illumination readings throughout the Auburn Armory. Illumination measurements recorded during this industrial hygiene evaluation are summarized in the table below.

CO - OSHA PEL = 50 ppm and OSHA Ceiling Limit = 200 ppm

RH - ASHRAE Standard 62.1-2010 = limited to < 65%

Army National Guard – Auburn Readiness Center Lighting Measurements								
Location	Measurement in Foot Candles	Requirement in Foot Candles	Requirement Met?					
Boiler Room	11.4	30	No					
Mechanical Room	14.1	30	No					
Former Indoor Firing Range	25.3	30	No					
Storage	9.2	30	No					
Storage	15.4	30	No					
Basement Hallway	4.1	5	No					
Office (1)	139.4	50	Yes					
1 st Floor Hallway	125.4	5	Yes					
Storage (2)	68.9	30	Yes					
Office (3)	101.8	50	Yes					
Storage (4)	97.1	30	Yes					
Office (5)	44.5	50	No					
HVAC Room	43.9	30	Yes					
Women's Locker Room	103.0	7	Yes					
Women's Restroom	16.8	5	Yes					
Women's Shower Area	35.1	7	Yes					
Men's Locker Room	37.3	7	Yes					
Men's Restroom	41.2	5	Yes					
Men's Shower Area	10.5	7	Yes					
Office (7)	31.7	50	No					
Men's Restroom	12.9	5	Yes					
Office (9)	138.7	50	Yes					
Office (10A)	54.1	50	Yes					
Office (10A)	86.8	50	Yes					
Women's Restroom (11)	68.7	5	Yes					
Club (Storage) (13)	18.0	30	No					
Kitchen (27)	60.1	50	Yes					
• • •	64.7	30	Yes					
Storage Storage	54.2	30	Yes					
Storage Dining Area	50.9	10	Yes					
Dining Area Company Maintenance (storage)	28.3	30	No					
Company Maintenance (storage)	28.3		NO					
Supply Described: Office (101)	22.5	Inaccessible	NI-					
Recruiter's Office (101)	22.5	50	No					
Classroom (102)	37.6	30	Yes					
Break Room (109)	39.8	10	Yes					
Classroom (103)	67.4	30	Yes					
Men's Restroom	16.2	5	Yes					
Women's Restroom	25.9	5	Yes					
Classroom (104)	52.6	30	Yes					
Pipe Room (106)	25.2	30	No					
Storage (105)	17.	Inaccessible	7.7					
Drill Hall	15.6	30	No					
Storage (1)	24.8	30	No					
Storage (2)		Lighting Inoperable						
Storage (3)	25.5	30	No					
Storage (4)	61.7	30	Yes					
Storage (5)	48.1	30	Yes					

Army National Guard – Auburn Readiness Center Lighting Measurements									
Location	Measurement in Foot Candles	Requirement in Foot Candles	Requirement Met?						
Storage (6)	49.9	30	Yes						
Storage (7)	47.6	30	Yes						
Storage (14)	89.0	30	Yes						
Storage (14A)	48.3	30	Yes						
Storage (16)	30.1	30	Yes						
Superintendent's Office	116.9	50	Yes						
Storage (15)	59.0	30	Yes						
Office (17)	21.9	50	No						
2 nd Floor Hallway	32.6	5	Yes						
Computer Room (43)		Inaccessible							
Training Room (42)		Inaccessible							
Men's Restroom (41B)	8.9	5	Yes						
Men's Shower Area	8.8	7	Yes						
Office (40)	59.7	50	Yes						
Office (38)	63.3	50	Yes						
Unisex Restroom (39)	32.1	5	Yes						
Conference Room (37)	31.1	30	Yes						
Office (30)	79.6	50	Yes						
Office (31)	38.6	50	No						
Office (32)	30.4	50	No						
Office (33)	81.7	50	Yes						
Office (34)	48.0	50	No						
Office (35)	31.2	50	No						
Office (36)	23.9	50	No						
Telecommunication's Room	77.9	30	Yes						
Conference Room (201)	84.8	30	Yes						
Office (203)	19.7	50	No						
Office (205)	55.2	50	Yes						
Office (206)	27.8	50	No						
Office (207)	106.6	50	Yes						
Office (208)	181.7	50	Yes						
Office (209)	162.6	50	Yes						
Office (217)	27.2	50	No						
Office (210)	100.2	50	Yes						
Office (211)	84.5	50	Yes						
Office (212)	144.6	50	Yes						
Office (213)	163.3	50	Yes						
Office (214)	136.7	50	Yes						
Office (210) (2 of 4 lights removed to reduce glare on computer screen)	32.6	50	No						
Restroom	15.8	5	Yes						
Mechanical Room (202)	61.9	30	Yes						

Lighting levels were compared to the levels outlined within the American National Standards Institute/Illuminating Engineering Society of North America (ANSI/IESNA) RP-1-04 Office Lighting

Handbook, and the ANSI/IESNA RP-7-01 Lighting Industrial Facilities Handbook. Areas within the facility which did not meet the foot candle requirements are identified with a "NO" within the "Requirement Met?" column. It is recommended that illumination be improved in all the areas that did not meet the requirements. Improving illumination can be achieved by replacing burned-out lamps/bulbs, cleaning fixtures, relocating detailed work activities to more illuminated areas, and using supplemental task lighting.

5.0 - CONCLUSION & LIMITATIONS

Bonus Environmental, LLC was contracted by the National Guard Bureau Region North Industrial Hygiene office to identify and measure the existence and extent of potentially hazardous operations or conditions at the Auburn Readiness Center located at 174 South Street in Auburn, NY. The purpose of this evaluation was to generate or to update a previous baseline evaluation so that employee exposure history can be provided to each civilian and military employee. Industrial hygiene conditions were evaluated during this industrial hygiene evaluation performed by Bonus Environmental, LLC representative Erica Funnell on November 15, 2012.

The results/findings of this industrial hygiene evaluation are summarized below.

- 1. Lead wipe sample results collected within the Auburn Readiness Center were above the OSHA interpretive level of 200 μ g/ft², as well as the 200 μ g/ft² threshold established in NG Pam 420-15 in the following areas:
 - Drill Hall, on top of vending machine
 - Former Indoor Firing Range, on floor, bullet trap area
 - Former Indoor Firing Range, on top of Transfer Switch #1 Box
 - Company Maintenance, on top of emergency eye wash
 - Storage Room, on top of filing cabinet
- 2. Bonus Environmental, LLC identified areas of peeling paint which contained detectable levels of lead, potentially posing a lead exposure hazard. Peeling lead-based paint was found in the following areas:
 - Approximately 30 ft² peeling grey paint in the Boiler Room;
 - Approximately 2 ft² peeling grey paint in the Mechanical Room;
 - Approximately 40 ft² peeling grey paint in the Former Indoor Firing Range;
 - Approximately 4 ft² peeling grey paint in the Storage;
 - Approximately 5 ft² peeling grey paint in the Basement Hallway;
 - Approximately 1 ft² peeling beige paint in the Office 10A;
 - Approximately 1 ft² peeling beige paint in the Office 10B;
 - Approximately 4 ft² peeling white paint in the Storage;
 - Approximately 2 ft² peeling white paint in the 1st Floor Hallway;
 - Approximately 2 ft² peeling white paint in the Office 10A;
 - Approximately 4 ft² peeling white paint in the Office 10B;
 - Approximately 2 ft² peeling green paint in the 1st Floor Hallway;

- Approximately 2 ft² peeling green paint in the Office 9
- 3. Bonus Environmental, LLC did not identify any PACM that was considered to be in poor or damaged condition.
- 4. Bonus Environmental, LLC did not identify any areas of water damage or visible mold throughout the Auburn Readiness Center.
- 5. Bonus Environmental, LLC found the housekeeping practices within Auburn Readiness Center in good order, with the exception of residual lead dust concentrations.
- 6. Following the interviews and observations, no ergonomic and or indoor air quality concerns were identified.
- 7. Bonus Environmental, LLC measured temperature, relative humidity, CO, and CO₂ throughout the Auburn Readiness Center. All were found to be within their acceptable ranges/limits; with the exception of two (low) temperature readings and one (high) humidity reading.
- 8. Areas within the Auburn Readiness Center facility were identified as improperly illuminated.
- 9. Health and Safety programs available and reviewed at the Auburn Readiness Center included personal protective equipment (PPE), Lock-Out/Tag-Out, Asbestos Awareness, Fire Safety, and Confined Spaces. All were found to meet regulatory requirements.

Bonus Environmental, LLC has 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 Region North - Industrial Hygiene Office. 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 Bonus Environmental, LLC's inspection of the site.

It has been a pleasure to be of assistance to you. Please contact us if you have any questions concerning this report or if we can be of any further assistance in any other environmental or occupational health matter.

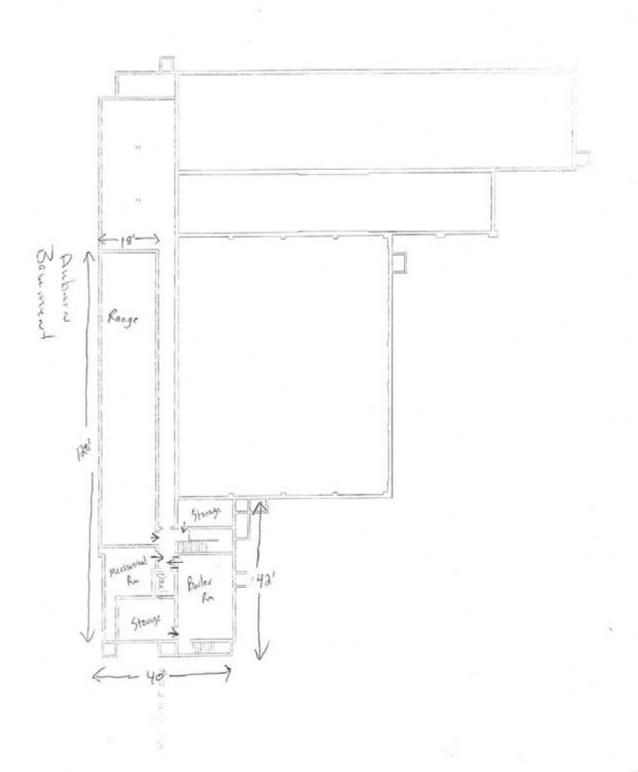
Sincerely,

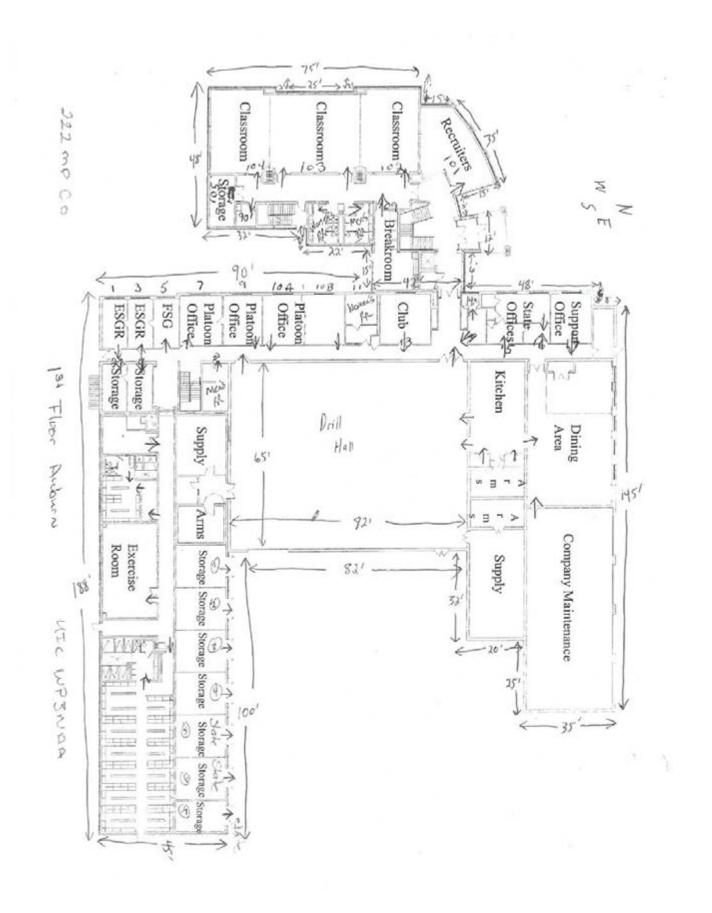


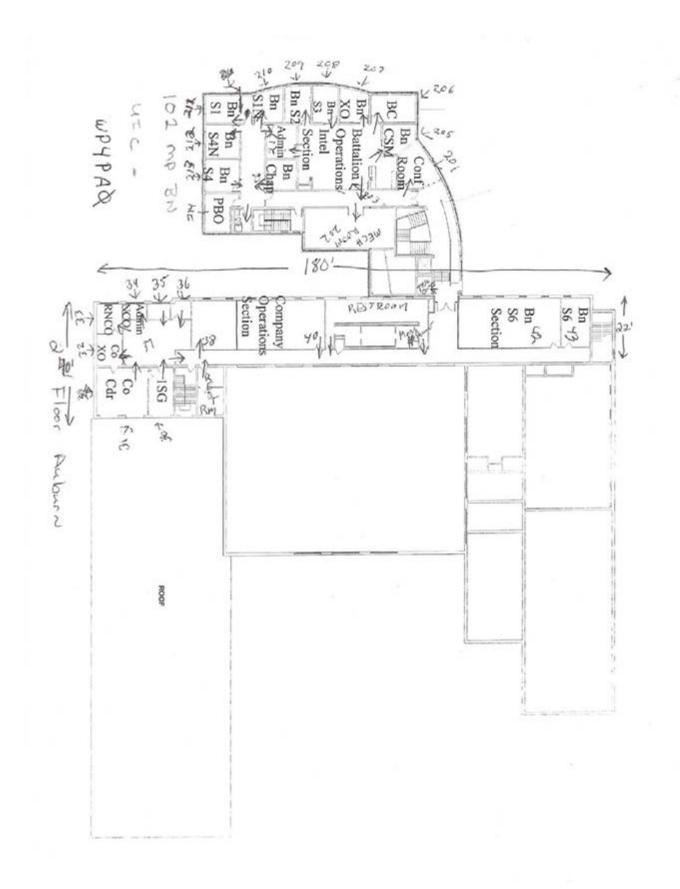
Principal Bonus Environmental, LLC

Appendix A

Shop Diagram and Air Flow Patterns







Appendix B

Lead Sampling Results

AMA Analytical Services, Inc.



A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS



AD 4450470

Client: Na

National Guard Bureau

Job Name:

Aubum RC

Chain Of Custody:

514536

Address:

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

Job Location:

174 South Street, Auburn, NY 13021

Date Submitted:

11/21/2012

State Military Reservation

Job Number: P.O. Number: Not Provided

W912K6-09-A-0003

Person Submitting:

Non-Responsiv

Attention:

Ion-Responsive

Havre de Grace, Maryland 21078

Date Analyzed: Revision Number:

55555

Report Date: 1/2/2013

Revised Date:

2/2013

Summary of Atomic Absorption Analysis for Lead

Page 1 of 3

AMA Sample Number	Client Sample Number	Analysis Type	Sample Type	Air Volume (L)	Area Wiped (ft³)		orting imit	Total ug	Final Res	sult	Comments
13016403	AubumRC-PC-1	Flame	Paint Chip	****	N/A	0.0057	%Fb		0.14	%Pb	
13016404	AuburnRC-PC-2	Flame	Paint Chip	****	N/A	0.0053	%Fb		0.28	%Pb	
13016405	AubumRC-PC-3	Flame	Paint Chip	****	N/A	0.0041	%Fb		0.38	%Pb	
13016406	AuburnRC-PC-4	Flame	Paint Chip	****	N/A	0.0061	%Fb		11	%Pb	
13016407	AubumRC-LW-1	Flame	Wipe Blank	****	N/A	12	ug		<12	ug	
13016408	AuburnRC-LW-2	Flame	Wipe	***1	0.111	110	ug/ft²	<12	<110	ug/fi²	
13016409	AubumRC-LW-3	Flame	Wipe	****	0.111	110	ug/ft²	<12	<110	ug/fi²	
13016410	AuburnRC-LW-4	Flame	Wipe	****	0.111	110	ug/ft²	13	120	ug/fl²	
13016411	AubumRC-LW-5	Flame	Wipe	****	0.111	110	ug/N²	25	220	ug/fl²	
13016412	AubumRC-LW-6	Flame	Wipe	****	0.111	110	ug/ft²	<12	<110	ug/fi²	
13016413	AubumRC-LW-7	Flame	Wipe	****	0.111	110	ug/ft²	<12	<110	ug/fl²	
13016414	AubumRC-LW-#	Flame	Wipe	****	0.111	110	ug/ft²	15	130	ug/fl²	
13016415	AubumRC-LW-9	Flame	Wipe	****	0.111	110	ug/lt²	<12	<110	ug/fl²	
13016416	AubumRC-LW-10	Flame	Wipe	****	0.111	110	ug/lt²	15	140	ug/fl²	
13016417	AubumRC-LW-11	Flame	Wipe	****	0.111	110	ug/ft²	230	2000	ug/ft²	
13016418	AubumRC-LW-12	Flame	Wipe	****	0.111	110	ug/ft²	<12	<110	ug/ft²	
13016419	AubumRC-LW-13	Flame	Wipe	****	0.111	110	ug/ft²	3100	28000	ug/ft²	
13016420	AubumRC-LW-14	Flame	Wipc	****	0.111	110	ug/ft²	<12	<110	ug/ft²	
13016421	AubumRC-LW-15	Flame	Wipe	****	0.111	110	ug/fl²	84	760	ug/fl²	

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

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AMA Analytical Services, Inc.



CERTIFICATE OF ANALYSIS



Client:

National Guard Bureau

Job Name:

Auburn RC

Chain Of Custody:

514536

Address:

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

Job Location:

174 South Street, Auburn, NY 13021

Date Submitted:

11/21/2012

Job Number: P.O. Number: Not Provided

W912K6-09-A-0003

Person Submitting: Date Analyzed:

11/30/2012

1/2/2013 Report Date:

Attention:

Havre de Grace, Maryland 21078

Revision Number:

Revised Date:

1/2/2013

Summary of Atomic Absorption Analysis for Lead

Page 2 of 3

AMA Sample Number	Client Sample Number AubumRC-LW-16		Analysis Type	Sample Type	Air Volume (L)	Area Wiped (ft')	70003	orting .imit	Total ug	Final Res	ult	Comments
13016422		16 Flame	Wipe	****	0.111	110	ug/N²	<12	<110	ug/fi²		
13016423	AubumRC-LW-17	Flame	Wipe	****	0.111	110	ug/ft²	<12	<110	ug/fi²		
13016424	AubumRC-LW-18	Flame	Wipe	****	0.111	110	ug/ft²	<12	<110	ug/fi²		
13016425	AubumRC-LW-19	Flame	Wipe	****	0.111	110	ug/ft²	8000	72000	ug/fl²		
13016426	AubumRC-LW-20	Flame	Wipe	****	0.111	110	ng/ft²	<12	<110	ug/fl²		
13016427	AubumRC-LW-21	Flame	Wipe	****	0.111	110	ug/ft²	<12	<110	ug/fl²		
13016428	AubumRC-LW-22	Flame	Wipe	****	0.111	110	ug/A²	<12	<110	ug/fl²		
13016429	AubumRC-LW-23	Flame	Wipe	****	0.111	110	ug/ft²	<12	<110	ug/fl²		
13016430	AubumRC-LW-24	Flame	Wipc	****	0.111	110	ug/fl²	<12	<110	ug/fl²		
13016431	AubumRC-LW-25	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.

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AMA Analytical Services, Inc.



CERTIFICATE OF ANALYSIS



Client:

National Guard Bureau

Job Name:

Auburn RC

W912K6-09-A-0003

Chain Of Custody: 514536

Address:

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

Job Location:

P.O. Number:

174 South Street, Auburn, NY 13021

Date Submitted:

11/21/2012

State Military Reservation Havre de Grace, Maryland 21078

Job Number: Not Provided Person Submitting:

Date Analyzed: Revision Number:

11/30/2012

Report Date: 1/2/2013

Revised Date:

Attention:

Summary of Atomic Absorption Analysis for Lead

Page 3 of 3

AMA Sample

Client Sample

Analysis Type Sample Type

Air Volume

Area Wiped (ft³)

Reporting

samples.

Final Result

1/2/2013

Number

Limit

Total ug

Comments

Number

Analysis Mathod 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 Soli/Solids: EPA 600/R-93/200(M)-7010; Water: SM-3113B

ug/L = parts per billion (ppb)

See QC Summary for analytical results of quality control samples

associated with these

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

Note: All samples were received in good condition unless otherwise noted. Note: All results have two significant digits. Any additional digits shown should not be considered when interpreting the result.

Air and Wipe results are not corrected for any blank results Final results for air and wipe samples are based on client supplied information nor verified by this laboratory.

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

Technical Manager

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

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Appendix C

Photographs



Building exterior, looking southeast



Company Maintenance (4 storage bays)



Kitchen



Dining room



Company Maintenance, emergency eyewash



Drill Hall



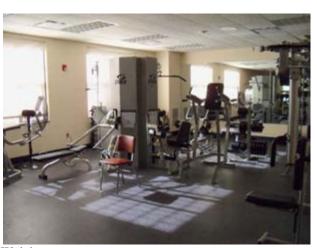
Office 10A, peeling beige paint



1st floor hallway, peeling white paint



HVAC room, air handling unit



Weight room



Former indoor firing range



Boiler room



Boiler room, peeling gray floor paint



2nd floor hallway



Storage room 3, flammables cabinet

Appendix D

References

- 1. Department of Defense Instruction (DODI) 6055.1, Department of Defense Occupational Safety and Health (OS H) Program, August 19, 1998.
- 2. Army Regulation (AR) 11-34, The Army Respiratory Protection Program, February 15, 1990.
- 3. DA PAM 40-503, Medical Service, Industrial Hygiene Program, October 30, 2000.
- 4. Technical Manual (T.M) 5-810-1, Mechanical Design, Heating, Ventilation, and Air Conditioning, June 1991.
- 5. Threshold Limit Values (TLVs) and Biological Exposure Indices (BEls), American Conference of Governmental Industrial Hygienists (ACGIH), current edition.
- 6. UFC 3-410-01 FA Heating, Ventilating, and Air Conditioning, 15 May 2003, change 4 January 2010
- 7. Occupational Safety and Health Administration (OSHA) Lead in Construction Standard, 29 CFR 1926.62.
- 8. Army Regulation (AR) 385-10, The Army Safety Program, August 23, 2007/RAR 4 Oct. 2011
- 9. RP-1-2004, Office Lighting, Illuminating Engineering Society of North America / American National Standards Institute (IESNA/ANSI).
- 10. RP-7-2001, Industrial Lighting, (IESNA/ANSI).
- 11. ANSI/The American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE), Standard 62.1-2010, "Ventilation for Acceptable Indoor Air Quality".
- 12. ANSI/ASHRAE Standard 55-2010 "Thermal Environmental Conditions for Human Occupancy"
- 13. Title 24, CFR, Part 35, Subpart B, Sections 35.110, Definitions of Lead-Based Paint, Housing and Urban Development, U.S. Department of Housing.
- 14. OSHA Permissible Exposure Limit (PEL) for General Industry 29 CFR 1910.1000 Z-1 Table
- 15. NG PAM 420-15, Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges, 3 November 2006.



DEPARTMENT OF THE ARMY

US ARMY CENTER FOR HEALTH PROMOTION AND PREVENTIVE MEDICINE 5158 BLACKHAWK ROAD ABERDEEN PROVING GROUND MD 21010-5403

MCHB-TS-OFS

8 MAY 2006

MEMORANDUM FOR Region North Industrial Hygiene Office (NGB-AVS-SI-IH/Ms. Non-Responsive), Army National Guard Bureau, 301-IH Old Bay Lane, Havre de Grace, MD 21078

SUBJECT: New York Army National Guard Facilities Industrial Hygiene Survey, Batavia Armory, Batavia, New York, Report No. 55-ML-048L-05/06

- 1. We are enclosing a copy of the subject report with an Executive Summary.
- 2. Our point of contact is Mr. Non-Responsive, at commercial (410) 436-5475/3118, DSN 584-5475/3118 or electronic mail Non-Responsive @us.army.mil

FOR THE COMMANDER:

Non-Responsive

Encl

Director, Occupational Health Sciences

Readiness thru Health



U.S. Army Center for Health Promotion and Preventive Medicine



INDUSTRIAL HYGIENE SURVEY REPORT NO. 55-ML-048L-05/06 NEW YORK ARMY NATIONAL GUARD BATAVIA ARMORY BATAVIA, NEW YORK 5 OCTOBER 2005



Readiness Thru Health

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CHPPM FORM 433-E (MCHB-CS-IPD), OCT 03

The U.S. Army Center for Health Promotion and Preventive Medicine (USACHPPM) lineage can be traced back over 50 years to the Army Industrial Hygiene Laboratory. That organization was established at the beginning of World War II and was under the direct jurisdiction of The Army Surgeon General. It was originally located at the Johns Hopkins School of Hygiene and Public Health, with a staff of three and an annual budget not to exceed \$3000. Its mission was to conduct occupational health surveys of Army operated industrial plants, arsenals, and depots. These surveys were aimed at identifying and eliminating occupational health hazards within the Department of Defense's (DOD) industrial production base and proved to be beneficial to the Nation's war effort.

Until 1995, it was nationally and internationally known as the U.S. Army Environmental Hygiene Agency or AEHA. Its mission is expanding to support the worldwide preventive medicine programs of the Army, DOD and other Federal Agencies through consultations/ supportive services; investigations and training.

Today, AEHA is redesignated the U.S. Army Center for Health Promotion and Preventive Medicine. Its mission for the future is to provide worldwide technical support for implementing preventive medicine, public health and health promotion/wellness services into all aspects of America's Army and the Army Community anticipating and rapidly responding to operational needs and adaptable to a changing work environment.

The professional disciplines represented at the Center include chemists, physicists, engineers, physicians, optometrists, audiologists, nurses, industrial hygienists, toxicologists, entomologists, and many other as well as sub-specialties within these professions.

The organization's quest has always been one of excellence and continuous quality improvement; and today its vision, to be the nationally recognized Center for Health Promotion and Preventive Medicine, is clearer than ever. To achieve that end, it holds ever fast to its values which are steeped in its rich heritage:

- ♦ Integrity is the foundation
- ♦ Excellence is the standard
- ♦ Customer satisfaction is the focus
- ♦ Its people are the most valued resource
- ♦ Continuous quality improvement is its pathway

The organization, which stands on the threshold of even greater challenges and responsibilities, has General Officer leadership. As it moves into the next century, new programs are being added related to health promotion/wellness, soldier fitness and disease surveillance. As always, its mission focus is centered upon the Army Imperatives so that we are trained and ready to enhance the Army's readiness for war and operations other than war.

It is an organization fiercely proud of its history, yet equally excited about the future. It is destined to continue its development as a world-class organization with expanded services to the Army, DOD, other Federal Agencies, the Nation and the World Community.

CHPPM FORM 433-E (MCHB-CS-IPD), OCT 03 (reverse)



DEPARTMENT OF THE ARMY

US ARMY CENTER FOR HEALTH PROMOTION AND PREVENTIVE MEDICINE 5158 BLACKHAWK ROAD ABERDEEN PROVING GROUND MD 21010-5403

MCHB-TS-OFS

EXECUTIVE SUMMARY
INDUSTRIAL HYGIENE SURVEY
REPORT NO.55-ML-048L-05/06
NEW YORK ARMY NATIONAL GUARD
BATAVIA ARMORY
BATAVIA, NY
5 OCTOBER 2005

1. PURPOSE. To conduct surveys at the Batavia, New York Army National Guard (NYARNG) facility to identify and measure the existence and extent of potentially hazardous operations or conditions. This survey will serve to establish a baseline so that an occupational exposure history can be compiled for each civilian or military employee.

2. CONCLUSIONS.

- a. <u>Lead Exposure</u>. Levels of lead in dust that exceeded safe limits for adults and children were identified. These levels may result in health hazards to adults and to children visiting the Armory. Personnel working in the Armory may have been tracking dust containing lead throughout the facility. Cleaning areas with elevated levels of lead in dust will prevent lead from becoming redistributed throughout the Armory.
- b. <u>Asbestos</u>. Potential exposures to asbestos in the Armory are not expected to be a significant health risk unless sections of the floor tile in the Dining Hall and Classroom areas are disturbed. The building was originally constructed with asbestos-containing building materials used for insulation and floor tile. As required by Army policy, the Batavia Armory must develop an Asbestos Management Plan (AMP) and take immediate corrective action where possible asbestos hazards have been identified.
- c. <u>Safety and Occupational Health Programs</u>. The Batavia Armory did not have a Hazard Communication (HAZCOM) Program.
- d. <u>Heating, Ventilation and Air Conditioning (HVAC) Systems</u>. There was no maintenance program in place for the HVAC system.
- e. <u>Lighting</u>. In the professional judgment of the project officer, the lighting levels were adequate.
 - f. Indoor Air Quality (IAQ). The IAQ parameters in the facility were within guidelines.
 - g. Other Building Concerns.

Readiness thru Health



- (1) Housekeeping. Unncessary material in the Drill Hall constituted a tripping hazard.
- (2) Fire Extinguishers. Access to one fire extinguisher was blocked and another was being used as a doorstop.

3. RECOMMENDATIONS.

- a. <u>Lead Exposure</u>. Health Risk Assessment Code (RAC) 3 for child exposures. Health RAC 4 for adult exposures. Clean horizontal surfaces in the administrative areas to the National Guard Bureau (NGB) Region North and US Army Center for Health Promotion and Preventive Medicine (USACHPPM) recommended level. Address all potential lead hazards before continuing to extend the use of this facility to children. If children will visit this facility, clean the floors in the Drill Hall, Indoor Firing Range (IFR) and basement stairway areas to the Environmental Protection Agency and State of New York lead in dust standards for young children, and clean other horizontal surfaces in the IFR, Vault, Basement Storage and Boiler Rooms to the NGB Region North and USACHPPM recommended level. Ensure that personnel wear disposable gloves and disposable coveralls as extra protection when working in all areas identified as having elevated levels of lead. Consult with the NYARNG Environmental Coordinator concerning waste disposal requirements after clean up.
 - b. Asbestos Exposure. Health RAC 3.
- (1) Review office records at Armory and the New York State Division of Military and Naval Affairs to determine if there is an AMP for Batavia Armory.
 - (2) Perform an asbestos survey if no records are located.
 - (3) Develop and implement an AMP if there is not one for the Armory.
- c. <u>HAZCOM</u>. Health RAC 3. Develop a written HAZCOM Program that is specific to the Batavia Armory. Review it annually to ensure any changes in policies, procedures or operations have been evaluated.
- d. <u>Heating, Ventilation, and Air Conditioning Systems</u>. Health RAC 4. Develop and implement a maintenance program. The plan should include provisions for regularly scheduled maintenance of the heating and cooling systems.
- e. <u>Lighting</u>. Quantify light levels in follow-on assessments. In the professional judgment of the project lead the lighting was adequate.
 - f. IAQ. Health RAC 5. No recommendation required.

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- g. Other Building Concerns. Safety RAC 3.
- (1) Housekeeping. Remove material in the Drill Hall and in front of the ladder to the roof, and either discard it or place it in an appropriate storage area.
- (2) Fire Extinguishers. Ensure that all fire extinguishers are accessible and properly mounted.

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NYARNG IH Survey, Report No. 55-ML-048L-05/06, Batavia Armory, Batavia, NY

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INDUSTRIAL HYGIENE SURVEY REPORT NO. 55-ML-048L-05/06 NEW YORK ARMY NATIONAL GUARD BATAVIA ARMORY BATAVIA, NEW YORK 5 OCTOBER 2005

- 1. REFERENCES. See Appendix A.
- 2. PURPOSE. To conduct surveys at the Batavia, New York Army National Guard (NYARNG) facilities to identify and measure the existence and extent of potentially hazardous operations or conditions. This survey will serve to establish a baseline so that an occupational exposure history can be compiled for each civilian or military employee.
- 3. AUTHORITY. Electronic mail: MDARNG, Ms. Non-Responsive, 27 July 2005, subject: SAB.
- 4. BACKGROUND.
 - a. Date of Construction. The construction date was 1963.
- b. <u>Size of Facility</u>. The facility had a floor area of approximately 14,000 square foot. It was a one story building.
 - c. <u>Mission</u>. Support activities for the 108th Infantry Battalion.
- d. <u>Armory Use by Children</u>. The point of contact (POC) stated that children occupied the facility occupationally during special events.
- e. <u>POC</u>. The POC was Mr. Facilities Management Supervisor, 250 Weidner Rd, Rochester, NY, 14020-1275, Phone: (585) 783-5300.
- 5. FACILITY EVALUATION.
- a. <u>Sampling</u>. Surface lead in dust, bulk, and air sampling was conducted to determine the existence of lead and asbestos hazards. Results are shown in Appendix B.
 - b. Physical Condition of Facilities.
- (1) Paint. The date of construction of the facility indicated that the use of lead in paint was likely. The painted surfaces throughout the building were in good condition. No chipping or peeling was observed.

- (2) Asbestos. The POC reported that the building was believed to contain some asbestos-containing building material (ACBM) but was unaware of any surveys or abatement conducted at the facility. No asbestos management plan (AMP) was found. Three bulk samples were collected, one from pipe insulation and two from floor tiles.
- (3) Mold and Moisture Problems. No mold or moisture problems were observed or reported.
- (4) Building Physical Condition. The building was in good physical condition, but housekeeping was inadequate. A new boiler had recently been installed.
- (5) Indoor Firing Range (IFR). The POC reported that lead abatement in the IFR had been completed and the area was not in use.
- c. <u>Safety and Occupational Health Programs</u>. The POC stated that the facility did not have a written Hazard Communication (HAZCOM) Program.
- d. <u>Heating, Ventilation, and Air Conditioning (HVAC) Systems</u>. The POC stated that the building was heated by an oil-fired boiler and cooled using window-mounted air conditioning units. The building did not contain ventilation ductwork. There was no scheduled maintenance of the heating system or the air conditioning units.
- e. <u>Noise Dosimetry</u>. No operations with the potential to generate hazardous noise levels were identified.
- f. <u>Lighting</u>. The scope of work for this survey called for measurement of lighting levels in areas where there may have been a potential problem, based on professional judgment. The National Guard Bureau (NGB) verbally requested that light levels be measured throughout facilities. Due to miscommunication, the project lead visiting this site did not quantify light levels, but did use professional judgment in assessing the lighting levels.
- g. Indoor Air Quality (IAQ). The IAQ assessment included measuring temperature in degrees Fahrenheit (°F), relative humidity (RH) in percent, carbon dioxide (CO₂) levels in parts per million (ppm) in different locations throughout the facility. Measurements were made in the Classroom, Drill Hall, Dining Hall, and IFR. The American Society of Heating, Refrigeration, and Air-conditioning Engineers (ASHRAE) recommends maintaining 71-81° F in the summer, CO_2 levels below the value of 700 ppm plus the outdoor ambient level (approximately 380 ppm), and 30-60 percent RH.

h. Other Building Concerns.

- (1) Housekeeping. A lack of housekeeping was evident in several areas of the building. It was particularly noticeable in the Drill Hall, where paint cans, boxes, water hose, and debris were lying on the floor. The area in front of the ladder leading to the roof contained miscellaneous equipment. These were serious tripping hazards. See photographs in Appendix D.
- (2) Fire extinguishers. In the Drill Hall, access to one fire extinguisher was completely blocked by chairs. In another area of the building, a fire extinguisher was being used as a door stop. See photographs in Appendix D.

ASSESSMENT CRITERIA FOR LEAD. See Appendix C.

- a. <u>Lead in Air</u>. The Army complies with the Occupational Safety and Health Administration (OSHA) 8-hour time-weighted average Permissible Exposure Limit of 50 micrograms of lead per cubic meter (μg/m³) of air.
- b. Lead in Dust. The Environmental Protection Agency (EPA) and State of New York limits for lead in dust are 40 micrograms per square foot (μg/ft²) on floors, 250 μg/ft² on windowsills, and 400 μg/ft² in window troughs. These limits apply to pre-1978 Army facilities only if children under 6 years of age occupy them for 60 or more hours per year. The US Army Center for Health Promotion and Preventive Medicine (USACHPPM) applies these limits to areas of Army National Guard facilities that children may occupy, regardless of the amount of time that children occupy them. The NGB Region North concurs with the USACHPPM recommended maximum level of 200 μg/ft² on floors and frequently contacted surfaces, which is more stringent for windowsills than the EPA/State standards. This limit was adopted from OSHA guidance in Compliance Letter 02-02-58.
- c. <u>Lead in Paint</u>. Paint containing lead levels of 0.5 percent or more by weight in dried solid (also reported as 5,000 milligrams per kilogram) is considered to be lead-based paint according to both Federal and New York State Regulations.
- d. <u>Lead Carcinogenicity</u>. The Department of Health and Human Services National Toxicology Program (NTP) released the Report on Carcinogens, Eleventh Edition in February 2005. The NTP report lists "lead and lead compounds" as "reasonably anticipated to be human carcinogens."

7. SAMPLING RESULTS, DISCUSSION, AND CONCLUSIONS.

- a. Lead in Dust. Lead in dust sample locations and analytical results are shown in Appendix B. Sample results greater than $40~\mu g/ft^2$ for floors or $200~\mu g/ft^2$ for other surfaces are highlighted. Three of the lead in dust sample results exceeded the EPA and the State of New York lead exposure standard for children of $40~\mu g/ft^2$ on floors and $250~\mu g/ft^2$ on windowsills. These levels are hazardous to children exposed to lead dust through physical contact, inhalation, or ingestion of lead dust while visiting the Armory. Other areas of the building had elevated lead levels. The highest level was found in the basement Storage Room. Personnel working in this room were potentially exposed to lead, and could be tracking lead out of the area and redistributing it into adjacent rooms in the Armory. This can result in lead exposures for the general workforce and for children visiting this facility.
- b. <u>Lead in Air</u>. General area lead in air sampling was conducted in the Drill Hall, Dining Hall, Classroom, and IFR. The air sample results were less than $7 \mu g/m^3$, and were below the OSHA standard of $50 \mu g/m^3$ for lead in air over an 8 hour day.
- c. <u>Asbestos</u>. The pipe insulation sample collected from Room 13 was negative for asbestos. The floor tile samples collected in the Dining Room and Classroom were ACBM. Floor tiles may become friable and release fibers, resulting in exposure to Armory occupants.
- d. \underline{IAQ} . The temperature averaged 69° F, the RH averaged 67 percent, and CO_2 levels averaged 437 ppm. All values were within ASHRAE recommendations.
- 8. RECOMMENDATIONS. The Department of Defense Instruction 6055.1 provides Risk Assessment Codes (RACs) for health hazards, a procedure which allows assessment of the magnitude of exposure to physical, chemical, and biological agents and the possible medical effects of exposure. The RAC is an expression of the risk associated with the hazard and combines the hazard severity and accident probability into a single number. The RACs enable one to prioritize hazards. They range in magnitude from 1 to 5, with 1 being the highest priority.
- a. <u>Lead Exposure</u>. Health RAC 3 for child exposures. Health RAC 4 for adult exposures. Clean horizontal surfaces in the administrative areas to the NGB Region North and USACHPPM recommended level. Address all potential lead hazards before continuing to extend the use of this facility to children. If children will visit this facility, clean the floors in the Drill Hall, IFR and basement stairway areas to the EPA and State of New York lead in dust standards for young children, and clean other horizontal surfaces in the IFR, Vault, basement storage and Boiler Rooms to the NGB Region North and USACHPPM recommended level. Ensure that personnel wear disposable gloves and disposable coveralls as extra protection when working in all areas identified as having elevated levels of lead. Consult with the NYARNG Environmental Coordinator concerning waste disposal requirements after clean up.

- b. <u>Asbestos Exposure</u>. Health RAC 3.
- (1) Review office records at Armory and the New York State Division of Military and Naval Affairs to determine if there is an AMP for Batavia Armory.
 - (2) Perform an asbestos survey if no records are located.
 - (3) Develop and implement an AMP if there is not one for the Armory.
- c. <u>HAZCOM</u>. Health RAC 3. Develop a written HAZCOM Program that is specific to the Batavia Armory. Review it annually to ensure any changes in policies, procedures or operations have been evaluated.
- d. <u>HVAC Systems</u>. Health RAC 4. Develop and implement a maintenance program. The plan should include provisions for regularly scheduled maintenance of the heating and cooling systems.
 - e. <u>Lighting</u>. Quantify light levels in follow-on assessments.
 - f. IAQ. Health RAC 5. No recommendation required.
 - g. Other building concerns. Safety RAC 3.
- (1) Housekeeping. Remove material in the Drill Hall and in front of the ladder to the roof, and either discard it or place it in an appropriate storage area.
- (2) Fire Extinguishers. Ensure that all fire extinguishers are accessible and properly mounted.
- 9. PHOTOGRAPHS (Appendix D)



Industrial Hygienist
Industrial Hygiene Field Services Program

APPROVED:

Non-Responsive

Program Manager Industrial Hygiene Field Services Program

APPENDIX A

REFERENCES

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

http://www.osha.gov/comp-links.html

- 2. American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. (ASHRAE) 62-2002, Ventilation for Acceptable Indoor Air Quality. http://www.ashrae.org
- 3. Illuminating Engineering Society of North America, ANSI/IESNA, RP-I 1993, Office Lighting.
- 4. American Conference of Governmental Industrial Hygienists (ACGIH), Threshold Limit Values for Chemical Substances and Physical Agents, 2005.
- 5. Department of Health and Human Services National Toxicology Program (NTP) Substance Profiles, Report on Carcinogens, 11th Edition, Lead and Lead Compounds (CAS No. 7439-92-1) February 2005.
- 6. EPA 40 CFR Part 745, Lead; Identification of Dangerous Levels of Lead; Final Rule, 5 Jan 2001.
- 7. American Conference of Governmental Industrial Hygienists (ACGIH), Industrial Ventilation, 25th edition, 2004.
- 8. Department of Defense Instruction (DODI) 6055.1, Department of Defense Occupational Safety and Health (OSH) Program, 19 August 1998. http://www.dtic.mil/whs/directives/corres/pdf/i60551 081998/i60551p.pdf
- 9. DA PAM 40-503, Medical Services, Industrial Hygiene Program, 30 October 2000. http://www.usapa.army.mil/pdffiles/p4C_503.pdf
- 10. Environmental Protection Agency, Title 40 CFR, Part 61, National Emission Standards for Hazardous Air Pollutants, Subpart M-National Emission Standard for Asbestos.
- 11. OSHA Directive CPL 02-02-58, Lead Exposure in Construction; Interim Final Rule Inspection and Compliance Procedures, December 13, 1993.

A-1

APPENDIX B

Lead in Surface Dust Locations and Analytical Results.

Wipe Sample	Location of Samples	Result (µg/ft²)
Number		
BAW-01	Drill Hall – NW Corner	<mark>390</mark>
BAW-02	Drill Hall –NE Corner	28
BAW-03	Drill Hall – SE Corner	19
BAW-04	Drill Hall – SW Corner	34
BAW-06	Drill Hall – Center	5.8
BAW-07	ICFR – Bullet Trap Area –Floor	72
BAW-08	ICFR – Bullet Trap Area – Wall	76
BAW-09	ICFR – Light Fixture	<mark>500</mark>
BAW-11	ICFR –Heating Unit	<mark>670</mark>
BAW-12	ICFR –Outside Door	6.4
BAW-13	Basement Stairway	<mark>900</mark>
BAW-14	Classroom, Room 11	3.8
BAW-16	Dining Hall	59
BAW-17	Kitchen	5.4
BAW-18	Vault	280
BAW-19	Office File Cabinet	4.5
BAW- 21	Main Power Switch Box Top, Room 22	<mark>9700</mark>
BAW- 22	Circuit breaker Box Top, Boiler Room	<mark>660</mark>

Lead in Air Locations and Analytical Results.

Air Sample Number	Location of Samples	Result (µg/m³)
BAA-01	Drill Hall	<6.9
BAA-02	IFR	<6.6
BAA-03	Classroom	<6.2
BAA-04	Dining Hall	<6.2

Bulk Asbestos locations and Analytical Results.

Air Sample Number		% chrysotile/NAD = no acm detected
BAB-01	Pipe Insulation, Room 13	NAD
BAB-02	Brown Floor Tile, Dining Room	3
BAB-03	Black Floor Tile, Classroom	5

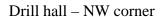
APPENDIX C

SUBJECT: National Guard Bureau Region North Industrial Hygiene Office Proposed Recommendations for Surface Lead in Armories

- 1. In armories that do not contain childcare facilities, the National Guard Bureau (NGB) Region North Industrial Hygiene Office recommends cleaning the areas in which sample results are greater than 200 micrograms per square foot ($\mu g/ft^2$). If a special function will be held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function. This guidance is based on professional judgment, risk assessments, adaptation of Occupational Safety and Health Administration (OSHA) guidance, and feasibility of cleaning to a certain level.
- a. Environmental Protection Agency (EPA) standards (40 Code of Federal Regulations (CFR) 745.227(h)(3)) are not directly applicable because they are criteria for dust-lead hazards developed for floors (40 μ g/ft²) and windowsills (250 μ g/ft²) in residential dwellings and child occupied facilities. A child occupied facility is defined as a building, or portion of a building, constructed prior to 1978, visited regularly by the same child, 6 years of age or under, on at least two different days within any week (Sunday through Saturday period), provided that each day's visit lasts at least 3 hours and the combined weekly visit lasts at least 6 hours, and the combined annual visits last at least 60 hours. Most of the wipe samples in armories were collected in undisturbed areas and therefore, results are worst case scenarios and do not correlate to these standards.
- b. OSHA has no specific requirement for work area surfaces. The lead standard (29 CFR 1910.1025(h)) states that all surfaces shall be maintained as free as practicable of accumulations of lead dust. In workplaces where lead dust is generated, surface levels may be much higher, but personnel exposures can be controlled by limiting airborne lead levels and following good cleanup and hygienic practices.
- c. OSHA used to cite a level of 200 μ g/ft² in their Technical Manual and 29 CFR 1926.62 as guidance to its own inspectors for evaluating the cleanliness of lunchroom and locker room surfaces that are supposed to be kept as clean as possible.
- d. In a report titled Derivation of Wipe Surface Screening Levels for Environmental Chemicals, the US Army Center for Health Promotion and Preventive Medicine (USACHPPM) has determined that $200 \, \mu g/ft^2$ is a safe surface contamination level. They have also applied these standards as the decontamination levels for surfaces in administrative offices.

- e. It should be noted that levels above these recommendations do not necessarily mean there is a significant hazard to workers who are following good cleaning and hygienic practices since there is no correlation between wipe and air samples. Rather, we recommend these levels as a precautionary measure.
- 2. The NGB Occupational Health Branch is developing guidance for armories that are used as childcare facilities. All states will receive this guidance when it is completed. In the interim, we recommend the following actions:
- a. Clean all areas that will be accessible to children to the EPA dust-lead standard for children 6 years of age or under $(40 \mu g/ft^2)$ on floors and $250 \mu g/ft^2$ on windowsills).
- b. Refer to the local authorities' regulations since they can be more stringent than federal regulations.
 - c. Post signs in the area to inform people of the presence of lead dust and its effects.
- d. If soldiers clean weapons in the facility change the policy so that they cannot clean their weapons in the facility, or if they are allowed to clean their weapons indoors, they must clean the area by wet wiping and mopping the area when they are done.
- e. If the paint is peeling, contact the state Environmental Office to test for lead content and provide recommendations.
- 3. Air samples collected on individuals in the armory were well below OSHA's permissible exposure limit for lead (29 CFR 1910.1025(c)) of 0.05 mg/m³ averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead dust in this building,







Drill hall – NE corner



Drill hall – SE corner



Drill hall – SW corner



Drill hall – center



IFR – bullet trap area floor



IFR bullet trap area wall



IFR light fixture



IFR – heating unit



IFR – door outside



Basement stairway



Classroom – room 11





Dining hall Kitchen





Office – file cabinet top

Vault



Pipe insulation – room 13



Blocked fire extinguisher – drill hall



Fire extinguisher used as door stop



Debris at bottom of roof



400 West Cummings Park, Suite 5850 Woburn, MA 01801 781.756.3800 (fax) 781.729.4648 www.eorm.com

February 10, 2009

Ms. Non-Responsive
NGB Region North IH Office
301 – IH Old Bay Lane
Havre De Grace, MD 21078
Non-Responsive @us.army.mil

Re: Results of Industrial Hygiene Survey, 85 West End Street, Binghamton, NY EORM® Project No. NATL0009

Dear Ms. Non-Responsive

At your request, on September 2, 2008, Environmental & Occupational Risk Management, Inc. (EORM®) performed an industrial hygiene survey at the National Guard Readiness Center located at 85 West End Street, Binghamton, NY 13905. The observations, methodology, results and discussion are provided in the sections that follow. Should you have any questions please do not hesitate to contact me.

Regards,

Non-Responsive

Non-Responsive, MPH
Associate EHS Consultant
EORM, Inc.
Telephone 781.756.3813
E-mail

Attachments

Reviewed by:

Non-Responsive

Senior EHS Consultant EORM, Inc.

Page 203 of 1350

Industrial Hygiene Survey

National Guard Readiness Center 85 West End Street Binghamton, NY 13905

Project No. NATL0009

2 September 2008

Prepared by:

E O Environmental and Occupational Risk Management®

400 West Cummings Park Suite 5850 Woburn, MA 01801

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Executive Summary

Environmental and Occupational Risk Management, Inc. (EORM®) was contracted by the National Guard Bureau Industrial Hygiene Region North Office (NGB IH Office) to perform a baseline industrial hygiene (IH) survey of selected Readiness Centers and administrative buildings located in New York. This report summarizes the results of the Binghamton Readiness Center located at 85 West End Street, which occurred on September 2, 2008.

During the IH survey, EORM collected surface wipe samples and personal air samples for lead. The results indicate that lead remains on surfaces within the old indoor firing range, which has been converted to a locker room. In addition, surface lead was identified on several areas of the first and second floors. However, the surface lead did not translate into detectable concentrations of lead on the personal breathing zone samples collected concurrently. EORM recommends that all rooms with detectable surface lead be decontaminated by a contractor specializing in lead decontamination.

The Binghamton Readiness Center is home to the 204th Engineer Combat Battalion. The facility has two drill halls, one of which is used by FMS-13 for vehicle maintenance. In general the Readiness Center was in good condition with no peeling paint, water stains, or stained ceiling tiles. The only confirmed asbestos containing materials were floor tiles, which were undamaged. The pipe insulation was intact. The main hallways, floors, and desktops were clean and dust free; however, a lot of dust was built up behind computers, on shelving, and on air conditioners.

The results of the indoor air quality survey indicate that there is a sufficient amount of outdoor air being supplied to the occupied space of the Binghamton Readiness Center.

Introduction

Environmental and Occupational Risk Management, Inc. (EORM) was contracted by National Guard Bureau Industrial Hygiene Region North Office (NGB IH Office) to perform an industrial hygiene (IH) survey of selected National Guard Armories located in New York. This report summarizes the results of the Readiness Center located at 85 West End Street, Binghamton, New York. The IH survey was performed on September 2, 2008 by Mr. Non-Responsive, Associate EHS Consultant. Ms. Amy Boas, CIH, Senior EHS Consultant, reviewed this report and provided project support. The scope of work completed during this survey included the following:

- Collect wipe samples for lead from surfaces within the drill hall, administration building, and the converted indoor firing range, if present
- Collect personal or general area full-shift samples for lead on National Guard members during normal activities
- Inspect the physical condition of the facility and personnel concerns
- Evaluate the heating, ventilating, and air conditioning system
- Conduct a lighting survey in all areas of the facility
- Evaluate the attached garage, if present
- Collect photographs of the interior and exterior conditions of the Readiness Center
- Provide a diagram of the shop layout
- Prepare a detailed report of findings and sampling results, including recommendations for improvement in any areas of concern and conclusion

EORM's survey activities were aided by the generous assistance of Mr. Non-Responsive and employees who provided information on Readiness Center.

Industrial Hygiene Survey Details

The wipe samples were collected and analyzed in accordance with the Occupational Safety and Health Administration (OSHA) method ID-125G. The samples were analyzed for lead by AMA Analytical Services, Inc. in Lanham, Maryland. AMA is accredited by the American Industrial Hygiene Association.

The analytical laboratory results and chain-of-custody forms corresponding to these samples are provided in Appendix 3. Table 1 includes the results in micrograms of lead per square foot (μ g/ft2).

Table 1: Wipe sample results, September 2, 2008

Sample Number	Location	Description	Area (ft2)	Results (µg/ft2)
BGN-01	Assembly Hall	Table top	0.108	< 110
BGN-02	Assembly Hall	Baseboard heater	0.108	160
BGN-03	Kitchen	Pantry countertop	0.108	< 110
BGN-04	Kitchen	Table in mess hall	0.108	< 110
BGN-05	Converted IFR	Desk top	0.108	< 110
BGN-06	Converted IFR	Old supply air grill	0.108	99,000
BGN-07	Employee break room	Table w/microwave	0.108	260
BGN-08	Mess supply room	Shelf	0.108	1,200
BGN-09	Room 102 Classroom	File cabinet	0.108	150
BGN-10	Room 108 Computer room	Window sill	0.108	1,100
BGN-11	2nd floor mail room	Table top	0.108	< 110
BGN-12	2nd floor S1 Office - Capt Eric Stevens	Shelf	0.108	< 110
BGN-13	Room 201 – Conference room	Window mounted A/C	0.108	< 110
BGN-14	Room 217 – Instructor	Top of shelving	0.108	< 110
BGN-15	Room 211	Window sill	0.108	410
BGN-16	Room 213 – HSC	Top of white board	0.108	200
BGN-17	1st floor - Hall outside NCO office	Floor	0.108	< 110
BGN-18	Basement – locker room	Floor	0.108	260
BGN-19	Generator room	Top of electrical panel	0.108	7,700
BGN-20	Boiler room	Compressor	0.108	< 110
BGN-21	FMS-13 – Drill hall locker room	Table top	0.108	310
BGN-22	FMS-13 Drill hall	Floor in doorway	0.108	< 110
BGN-23	FMS-13 Drill hall	Desktop	0.108	< 110
BGN-24	FMS-13 Break room	Floor	0.108	< 110

There was no lead detected on the field blank

The results indicate that lead remains on surfaces within the old indoor firing range, which has been converted to a locker room. In addition, surface lead was identified in the assembly hall, employee break room, mess supply, classroom 102, computer room, room 211, 213, generator room, and in the locker room for FMS-13.

Personal Air Sample Results

The personal breathing zone samples were collected and analyzed in accordance with OSHA Method ID-125G. The samples were analyzed for lead by AMA Analytical Services, Inc. in Lanham, Maryland. AMA is accredited by the American Industrial Hygiene Association.

The air samples were collected using a SKC AirChek® sampling pump. Pre- and post-calibration of air flow rates were measured and recorded for the sample using the BIOS DryCal Model DC-I. The sample was collected by sampling air in the employee's breathing zone, or the hemisphere forward of the shoulders with a radius of approximately 6 to 9 inches from the inhalation area.

Two members of the National Guard wore air monitors during normal operations. Mr. Non-Responsive performed day-to-day administrative operations throughout the monitoring period. The samples were analyzed for lead. The field notes and analytical laboratory results and chain-of-custody forms corresponding to these samples are provided in Appendix 3. Table 2 includes the results and a comparison to the respective PEL.

Table 2: Personal Breathing Zone Sample Results, September 2, 2008

Sample Number	Employee	Concentration	OSHA Action Level	OSHA PEL	Exceed PEL or TLV? (Yes / No)
BGN-A1	Non-Responsive	$<3.0~\mu g/m3$	$30 \mu g/m3$	50 μg/m3	No
BGN-A2	Non-Responsive	$< 3.0 \ \mu g/m3$	$30 \mu g/m3$	$50 \mu g/m3$	No

There was no lead detected on the field blank

The results of the area air samples indicated that no detectable airborne concentrations of lead was present on the day of EORM's site visit

Facility Inspection and Employee Concerns

The Binghamton Readiness Center is home to the 204th Engineer Combat Battalion. The facility has two drill halls, one of which is used by FMS-13 for vehicle maintenance. In general the Readiness Center was in good condition with no peeling paint, water stains, or stained ceiling tiles. The only confirmed asbestos containing materials were floor tiles, which were undamaged. The pipe insulation was intact.

The main hallways, floors, and desktops were clean and dust free; however, a lot of dust was built up behind computers, on shelving, and on other hard to reach surfaces.

The former indoor firing range has been converted into a locker room. According to Mr. Jim Diffin, maintenance, the only remaining components of the firing range from approximately 14 years ago are the ventilation grates.

Several full-time employees of the National Guard were asked a series of questions related to the indoor air quality and office ergonomics of the facility. The employees reported the following:

- The building is generally dusty, leading to clogged filters in the window mounted airconditioning units
- The vehicle exhaust from FMS-13 can be smelled on the second floor of the Readiness Center. One person reported their clothing smells like diesel fuel at the end of the day

- Several people reported that the window mounted air-conditioners do not sufficiently cool the space and that the air can get "stuffy" at times
- The employees reported having old computer monitors and insufficient adjustments to the office chairs

At the time of EORMs site visit, there was no detectable odor in the office areas of the building that were emanating from the garage.

Ventilation System Evaluation

The general heating, ventilating, and air-conditioning (HVAC) for the Binghamton Readiness Center is accomplished through a combination of baseboard heating and window mounted air-conditioning units. According to Non-Responsive the rooftop air handling unit has not worked for approximately 15 years.

Direct-reading measurements for temperature, relative humidity, and carbon dioxide (CO₂) were performed using a Q-Trak Plus Indoor Air Quality Monitor (Model #s 8551). This instrument detects CO₂ using a selective infrared absorption method and displays airborne concentrations in units of ppm. This instrument also measures temperature and relative humidity using electrical sensing methods. It displays temperature in degrees Fahrenheit and relative humidity in percent. The manufacturer's recommended yearly calibration was last performed in January 2008.

Table 3: Indoor door air quality measurements, September 2, 2008

Location	Number of Occupants	Temp (⁰ F)	RH (% RH)	CO ₂ (ppm)
Foyer	0	77	53	442
FMS-13 Breakroom	2	75	55	435
Room 103 Recruiter	1	74	52	448
Superintendent's office	1	76	53	410
Room 213 HSC office	4	75	50	899
Room 221 S4 office	0	73	44	499
FMS-13 drill hall (maintenance shop)	6	75	57	338
Outdoors		82	56	341

The primary cursors for indoor thermal comfort are temperature and relative humidity. Air temperature is recommended to range from 73 to 79°F during summer and from 68 to 75°F during winter (ASHRAE 55-2004) for indoor office environments. This assumes that building occupants are dressed in normal garments and perform mainly sedentary activities. The results indicated that the indoor temperature ranged from 73 to 77°F, which was within the recommended ranges.

The relative humidity (RH) inside buildings should be maintained between 30 and 60% (ASHRAE – 62.1-2007). When the RH in indoor environments exceeds 60%, microbial growth may occur; whereas, relative humidity below 30% may cause the drying of mucous membranes and discomfort. The results indicated that the indoor relative humidity ranged from 44% to 57% indoors, which was within the recommended guideline

The ASHRAE Standard 62-2001, *Ventilation for Acceptable Indoor Air Quality*, has established a reference level based upon human comfort criteria of a maximum CO₂ concentration of 700 ppm above existing outdoor concentrations, below which is suggestive of an adequate quantity of outdoor air supply ventilation to the occupied space. The results indicated the indoor concentration of CO₂ ranged from 338 ppm to 899 pmm and the concurrent outdoor concentration was 341 ppm. This indicates there was sufficient outdoor air supply to the occupied space.

Lighting Survey

The lighting at the Binghamton Readiness Center consists of metal halide lamps, fluorescent lights, and incandescent lights. The metal halide lamps provide lighting for the Drill Hall, the fluorescent lights provide the lighting in the offices, and the incandescent lights are used in the restrooms and storage rooms. A lighting survey was conducted using a Cooke Corporation Cal-Light 400L, serial number 1C040084L. The Cal-Light was calibrated by the manufacturer.

The lighting measurements were compared to the Recommended Practice for Lighting Industrial Facilities RP-7-01 and for Office Building RP-1-04. Both RP-7 and RP-1 are approved by the American National Standards Institute (ANSI) and the Illuminating Engineering Society of North America (IESNA). Table 4 below, summarizes the results of the lighting survey.

Table 4: Lighting Survey Results, September 2, 2008

Location	Measurement (fc)	RP-7 Recommended Illuminance Values1 (fc)	Meets RP-7 Values? (Yes/No)	Comments
Foyer	12-30	10	Yes	
Hallway by NCO office	8-20	5	Yes	
Men's Room	10-12	7	Yes	
Room 103 (Recruiter)	19-28	50	No	
NCO Club	17-45	10	Yes	
Superintendent's office	10-25	50	No	
2nd floor hall by room 202	6-25	5	Yes	
Office 202	83-92	50	Yes	
Office 219	15-50	50	No	
Office 213 HSC	18-36	50	No	
Room 201 Conference room	25-50	30	Yes	
Room 221 S4 office	45-60	50	Yes	
Room 204 S3 office	27-60	50	No	
Men's room (officer's toilet)	3-17	7	Yes	

May, 2018

Location	Measurement (fc)	RP-7 Recommended Illuminance Values1 (fc)	Meets RP-7 Values? (Yes/No)	Comments
Room 208 Storage	4-5	10	No	
Office 212	10-26	50	No	
2nd floor mail/copy area	12-66	30	Yes	
Room 217 Instructor office	38-50	50	No	
Office 220	38-46	50	No	
Hallway outside CO office	2-28	5	Yes	
S1 Office	40-135	50	Yes	
XO office 226	40-65	50	Yes	Low near door only
Office 219	11-16	50	No	Several lights out
Basement hallway by room 26	3-30	5	Yes	
Employee break room	3-36	10	Yes	
Supply room hallway	1-16	5	Yes	
Mess supply	21-44	10	Yes	
Maintenance flammable storage	7-16	10	Yes	
Locker room (converted IFT)	6-35	7	Yes	
Mess hall	15-25	10	Yes	
Kitchen	40-66	30-50	Yes	
Pantry	43-55	10	Yes	
Boiler room	10-26	30	No	
FMS-13 Bay 1	8-17	75	No	
FMS-13 Bay 2	10-17	75	No	
FMS-13 Bay 3	7-10	75	No	
FMS-13 Bay 4	10-43	75	No	
FMS-13 Bay 5	19-22	75	No	
FMS-13 Bay 6	15-20	75	No	No vehicle in bay
FMS-13 Bay 7	7-12	75	No	
FMS-13 Bay 8	8-15	75	No	

Location	Measurement (fc)	RP-7 Recommended Illuminance Values1 (fc)	Meets RP-7 Values? (Yes/No)	Comments
FMS-13 Bay 9	10-15	75	No	
FMS-13 Bay 10	8-22	75	No	
FMS-13 Bay 11	13-25	75	No	
FMS-13 Bay 12	13-25	75	No	
FMS-13 Bay 13	14-55	75	No	
FMS-13 locker room by weapons locker	3-32	7	Yes	
FMS-13 Break room	15-61	10	Yes	
FMS-13 locker room	5-19	7	Yes	

fc = footcandles

According to RP-1-04 and RP-7-01, the lighting survey results indicate insufficient lighting in several areas throughout the Binghamton Readiness Center. Specifically, the boiler room, recruiter's office, superintendent's office, office 219, office 213, office 204, storage room 208, office 212, office 217, office 219, and office 220 all had insufficient lighting throughout most of the space. In addition, all 13 vehicle maintenance bays in the Readiness Center owned portion of FMS-13 had insufficient lighting.

Evaluation of Attached Garage

Operational Description

The Binghamton Readiness Center has an attached garage operated by FMS-13. EORM conducted an industrial hygiene survey of FMS-13 in July 2007. The garage consists of 13 vehicle maintenance bays and has 14 vehicle exhaust vents. Following the July 2008 assessment EORM recommended the ventilation be increased to accommodate the Heavy Expanded Mobility Tactical Truck (HEMTT), which is the largest vehicle serviced. The improvements were not implemented at the time of this site visit.

Hazards Present and Controls

Based on the materials found in the garage there are several potential hazards associated with this garage. As with most of the field maintenance shops the use of pneumatic tools and other tools such as grinders can create hazardous noise.

Additional hazards that may be present include inhalation of vehicle exhaust, welding fumes, or chemicals used for degreasing.

¹ The recommended illuminance values were obtained from the ANSI/IESNA RP-1-04 (Office Lighting) and RP-7-01 (Industrial Lighting)

Ventilation System Evaluation

There are two garages attached to the Binghamton Readiness Center, which are both operated by FMS-13. The larger of the two garages is depicted as a drill hall on the attached floor plan. FMS-13 leases this space from the Readiness Center. The garage has 13 vehicle maintenance bays and 14 vehicle exhaust vents. Photograph 3 of Appendix 2 shows a picture of the interior of FMS-13.

The exhaust system consists of a fan driven exhaust with a main metal duct through the facility. Fourteen (14) flexible pipes drop from the main duct branch extending to 14 maintenance bays. Maintenance Bay 1 does not have an exhaust vent. Exhaust Drop 10 is located near the large overhead door and is able to serve Work Bay 10 or the area near the large overhead door, if needed. The flexible pipes are 8-inch diameter flex hose, each approximately 20 feet long and have a 12-inch diameter cone hood to attach to the vehicle exhaust tailpipes for ventilation.

The ventilation survey was conducted using a VelociCalc Plus Model 8386. The ventilation survey measured the face velocity in feet per minute (fpm) of the flexible vehicle exhaust ducts. Table 4 summarizes the results of the survey. All measurements were taken with the vents fully open unless otherwise noted.

Table 4: Ventilation Exhaust Survey Results

Average Face Velocity Calculate						
Location	(fpm)	Measurement (cfm)				
Bay 1	995	781				
Bay 2	1210	950				
Bay 3	Not in service					
Bay 4	880	691				
Bay 5	1130	887				
Bay 6	Vent attached to vehicle – could not take measurement					
Bay 7	1160	911				
Bay 8	1180	927				
Bay 9	Vent attached to vehicle – could not take measurement					
Bay 10	7551	593				
Bay 11	1210	950				
Bay 12	1250	982				
Bay 13	1100	864				
Bay 13	1180 927					

cfm = cubic feet per minute

¹exhaust vent will not openly fully. Measurement was taken with vent partially closed.

According to the American Conference of Governmental Industrial Hygienists (ACGIH) Industrial Ventilation Manual Figure VS-85-02, the exhaust ventilation volumes for operating engines connected directly to a tailpipe exhaust system are determined by the engine displacement, the engine RPM, and the tailpipe exhaust temperature, plus a 20% safety factor. The equation is:

$$Q_c = (1.2)(D_{eng} \ x \ N) \ [\underline{460F + T_{eng}}] \\ 530F$$

Where: $Q_c = Exhaust flow (acfm)$

 T_{eng} = Engine tailpipe temperature (F)

 D_{eng} = Engine displacement (ft³)

N = Engine revolutions per minute (rpm)

Reportedly, the HEMTT (Heavy Expanded Mobility Tactical Truck) Detroit 98 is the largest vehicle that is serviced at FMS #05. The HEMTT is a 12 liter, maximum 2,100 rpm, and engine exhaust temperature of 630 (F). The data collected from the manufacturer reveals the following required exhaust ventilation flow:

$$\begin{array}{c} Q_c = (1.2)[12L~x~\underline{0.0353~ft^3}~x~2100]~[\underline{460F+630}] = 2{,}195~acfm\\ L & 530F \end{array}$$

According to the ACGIH Figure VS-85-02, the required tailpipe exhaust flow at FMS-13 is 2,195 acfm (actual cubic feet per minute). On average, the vehicle tailpipe exhaust ventilation system at each maintenance bay did not meet the ACGIH requirement on the day of the survey.

Lighting

The light readings are provided in the lighting survey section above.

Conclusions and Recommendations

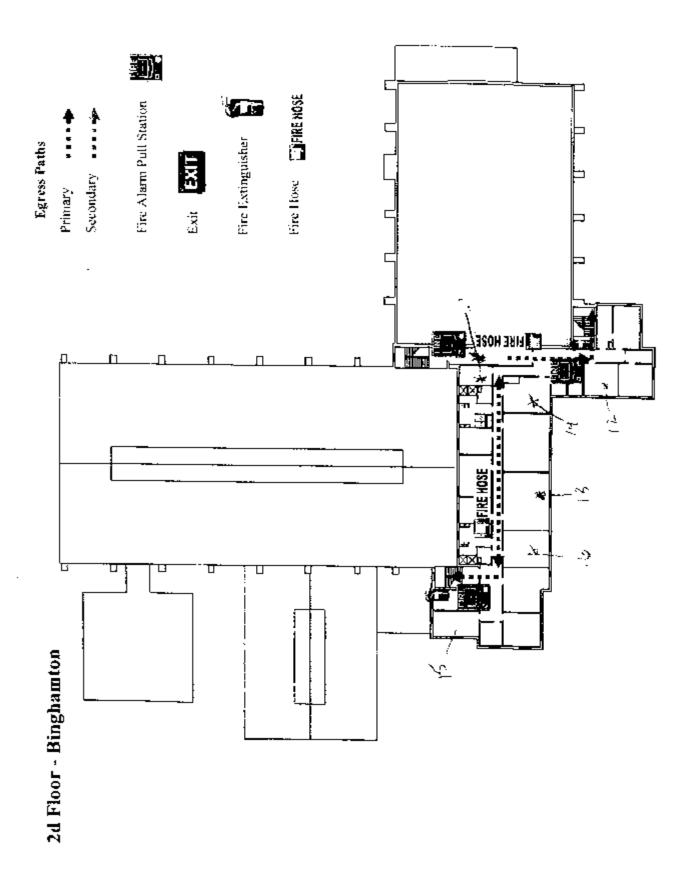
Based on the observations and results of the industrial hygiene survey, EORM has concluded the following:

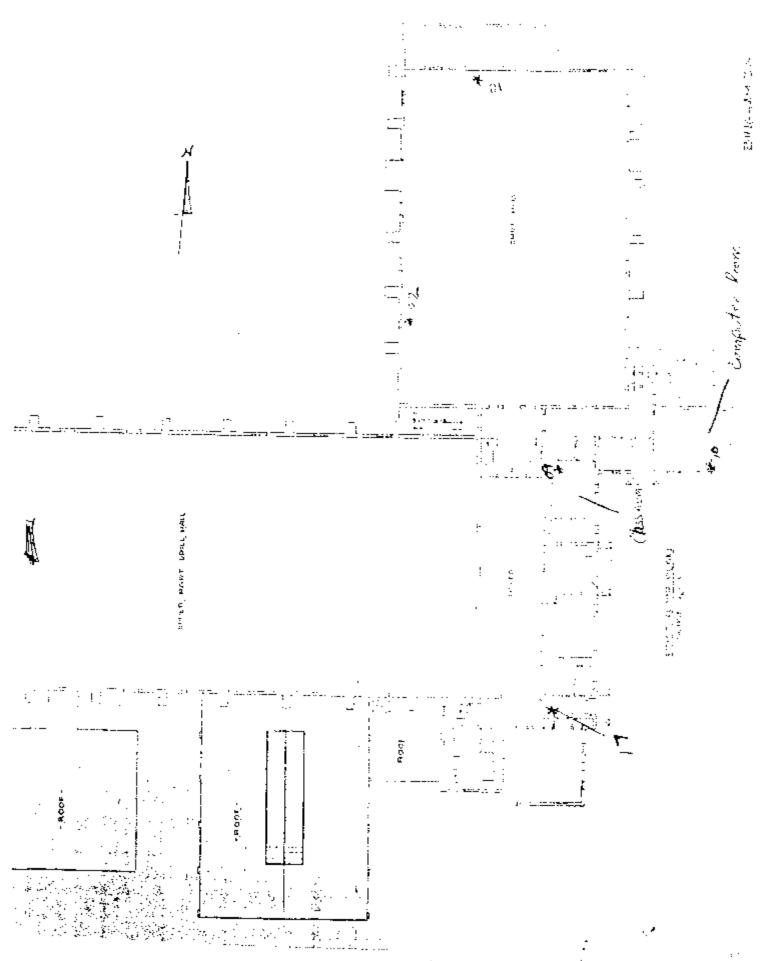
- The surface wipe samples for lead indicated that there is lead on the surfaces within the old indoor firing range, which has been converted to a locker room. In addition, surface lead was identified in the assembly hall, employee break room, mess supply, classroom 102, computer room, room 211, 213, generator room, and in the locker room for FMS-13. EORM recommends that the surfaces within these rooms be cleaned by a contractor specializing in lead decontamination.
- The personal air samples indicated that the surface lead was not airborne on the day of EORM's site visit. However, with the increased foot traffic that occurs during drill weekends the possibility exists that the surface lead may be disturbed during high occupancy.
 Therefore, all lead contaminated surfaces should be cleaned.
- The results of the CO2, temperature, and relative humidity direct reading measurements indicated that there is an adequate amount of outdoor air supplied to the occupied space of the Readiness Center. EORM does not recommend further action at this time.
- The lighting survey indicates that there is insufficient lighting in throughout the first and second floor of the Binghamton Readiness Center. EORM recommends that additional lighting be provided in these areas. There were several lights out in office 219. Fixing these lights may provide sufficient lighting. In addition, the survey indicated there is insufficient lighting in FMS-13 vehicle maintenance bays that are owned by the Readiness Center.
- The ventilation assessment of the vehicle exhaust vents in FMS-13 indicated inadequate capture velocity at all locations. EORM recommends that the ventilation at all maintenance bays be increased.

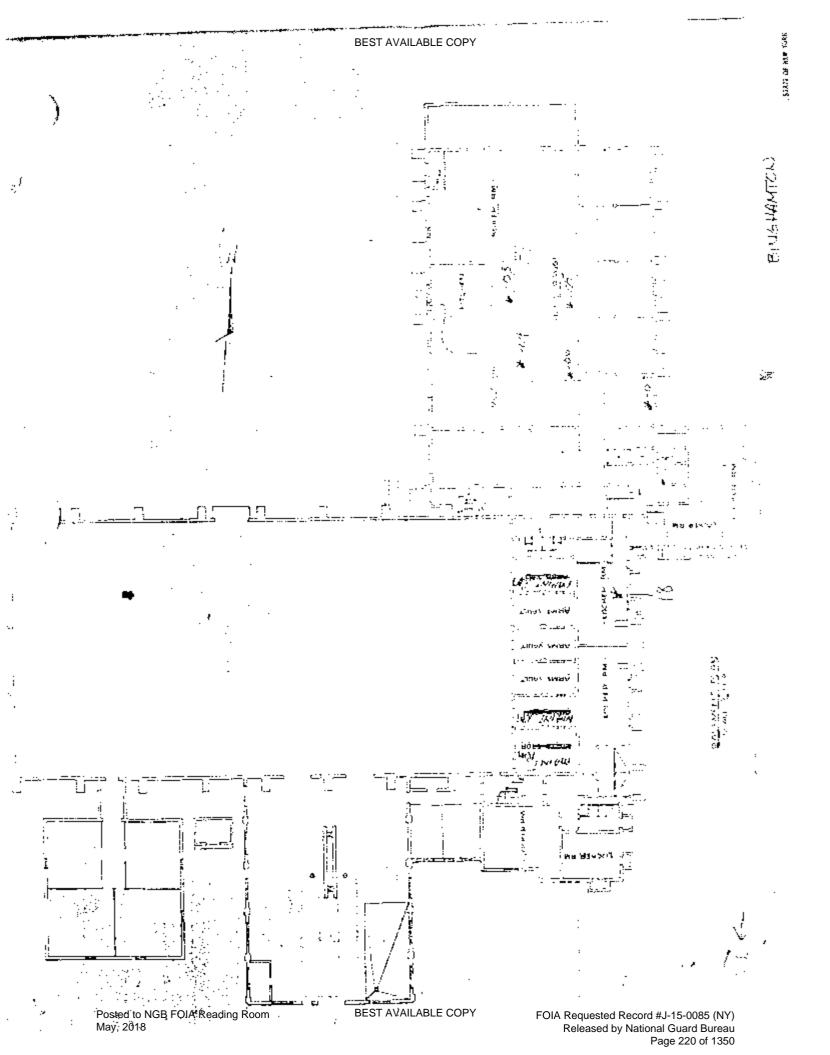
The results of this survey should be communicated to the participants as well as other people who perform similar job duties that did not participate.

May, 2018

Appendix 1 – Binghamton Readiness Center Floor Plan







Appendix 2 – Photographs

Photograph 1: Exterior of Readiness Center



Photograph 2: Drill Hall



Photograph 3: Drill hall (FMS-13)



Photograph 4: Converted indoor firing range



Photograph 5: Old air grate in locker room (former IFR)



Photograph 6: Flammable storage cabinet



Appendix 3 – Laboratory Analytical Results

A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS



Clients

National Guard Bureau

Job Name:

National Guard Armory-Binghamton

Chain Of Custody:

503199

Address:

301-JH Old Bay Lane, Attn: NGB-AVN-SL

Job Location:

85 West End Street, Binghamton, NY

Date Submitted:

10/3/2008

NY ELAP 10920

State Military Reservation

Havre de Grace, Maryland 21078

Job Number:

P.O. Number:

NATL004

Not Provided

Person Submitting: Date Analyzed:

Report Date:

10/7/2008

Attention:

Summary of Atomic Absorption Analysis for Lead

Page 1 of 2

AMA Sample Number	Client Sample Number	Analysis Type	Sample Type	Air Volume (L)	Area Wiped (ft²)		oorting .imit]	Final Res	ult	Comments
0900934	BGN-01	Flame	Wipe	***	0.108	110	ug/ft²	<	110	ug/ft²	
0900935	BGN-02	Flame	Wipe	****	0.108	110	ug/ft²		160	ug/ft²	
0900936	BGN-03	Flame	Wipe	****	0.108	110	ug/ft²	<	110	ug/ft²	
0900937	BGN-04	Flame	Wipe	****	0.108	110	ug/ft²	<	110	ug/ft²	
0900938	BGN-05	Flame	Wipe	****	0.108	110	ug/ft²	<	110	ug/ft²	
0900939	BGN-06	Flame	Wipe	****	0.108	110	ug/ft²		99000	ug/ft²	
0900940	BGN-07	Flame	Wipe	****	0.108	110	ug/ft²		260	ug/ft²	
0900941	BGN-08	Flame	Wipe	****	0.108	110	ug/ft²		1200	ug/ft²	
0900942	BGN-09	Flame	Wipe	****	0.108	110	ug/ft²		150	ug/ft²	
0900943	BGN-10	Flame	Wipe	****	0.108	110	ug/ft²		1100	ug/ft²	
0900944	BGN-11	Flame	Wipe	****	0.108	110	ug/ft²	<	110	ug/ft²	
0900945	BGN-12	Flame	Wipe	****	0.108	110	ug/ft²	<	110	ug/ft²	
0900946	BGN-13	Flame	Wipe	***	0.108	110	ug/ft²	<	110	ug/ft²	
0900947	BGN-14	Flame	Wipe	****	0.108	110	ug/ft²	<	110	ug/ft²	
0900948	BGN-15	Flame	Wipe	****	0.108	110	ug/ft²		410	ug/ft²	
0900949	BGN-16	Flame	Wipe	****	0.108	110	ug/ft²		200	ug/ft²	
0900950	BGN-17	Flame	Wipe	***	0.108	110	ug/ft²	<	110	ug/ft²	
0900951	BGN-18	Flame	Wipe	***	0.108	110	ug/ft²		260	ug/ft²	
0900952	BGN-19	Flame	Wipe	****	0.108	110	ug/ft²		7700	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 (#100470), NVLAP (101BEST)AVARLABLEICKPY#10920) Accredited Laboratory Posted to NGB FOIA Reading Room FOIA Requested Record #J-15-0085 (NY) 4475 Forbes Blvd. · Lanham, MD, 20706 · (301) 459-2640 · Toll Free (800) 346-0961 · Fax (301) 459-2643 Released by National Guard Bureau May, 2018 Page 226 of 1350



A Specialized Environmental Laboratory

Havre de Grace, Maryland 21078

CERTIFICATE OF ANALYSIS



Client:

National Guard Bureau

Job Name:

National Guard Armory-Binghamton

Chain Of Custody:

503199

NY ELAP

Address:

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

Job Location:

85 West End Street, Binghamton, NY

Date Submitted:

10/3/2008

State Military Reservation

Job Number:

P.O. Number:

NATT.004

Not Provided

Person Submitting: Date Analyzed:

10/7/2008

Report Date:

10/7/2008

Attention:



Summary of Atomic Absorption Analysis for Lead

Page 2 of 2

AMA Sample Number	Client Sample Number	Analysis Type	Sample Type	Air Volume (L)	Area Wiped (ft²)	-	orting imit	F	inal Res	ult	Comments
0900953	BGN-20	Flame	Wipe	***	0.108	110	ug/ft²	<	110	ug/ft²	
0900954	BGN-21	Flame	Wipe	****	0.108	110	ug/ft²		310	ug/ft²	
0900955	BGN-22	Flame	Wipe	****	0.108	110	ug/ft²	<	110	ug/ft²	
0900956	BGN-23	Flame	Wipe	****	0.108	110	ug/ft²	<	110	ug/ft²	
0900957	BGN-24	Flame	Wipe	****	0.108	110	ug/ft²	<	110	ug/ft²	
0900958	BGN-FB	Flame	Wipe Blank	****	N/A	12	ug	<	12	ug	
0900959	BGN-A1	Flame	Air	0	N/A	3	ug/m³	<	3	ug	
0900960	BGN-A2	Flame	Air	0	N/A	3	ug/m³	<	3	ug	
0900961	BGN-AFB	Flame	Air Blank	0	N/A	3	ug/m³	<	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-31138

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

%Pb = percent lead by weight

ug = micrograms

ug/L = parts per billion (ppb)

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

Note: All results have two significant digits. Any additional digits shown

should not be considered when interpreting the result.

Air and Wipe results are not corrected for any blank results

samples.

associated with these sampes.

Technical Manager:

See QC Summary for analytical results of quality control samples

NY ELAP accrediation applies only to paint chip, wipe, and water



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Analyst:

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Appendix 4 – References

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National Guard Region North

National Guard Readiness Center Industrial Hygiene Evaluation Binghamton Readiness Center Binghamton, NY 13905-3855

Prepared for:

National Guard Region North Industrial Hygiene Office 301 Old Bay Lane Havre De Grace, MD 21078

Attn:

Non-Responsive

Prepared by:

Bonus Environmental, LLC P.O. Box 121 Mt. Pleasant, Michigan 48804

> Project No. 1061-15 January 30, 2013

Bonus Environmental, LLC

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APPENDICES

Appendix A Shop Diagram and Air Flow Patterns

Appendix B Lead Sample Results

Appendix C Photographs

Appendix D References

January 30, 2013 Project No. 1061-15

National Guard Region North Industrial Hygiene Office 301 Old Bay Lane Havre De Grace, MD 21078-4003

Attn: Non-Responsive

Project: Industrial Hygiene Evaluation

Binghamton Readiness Center, Binghamton, NY 13905-3855

1.0 - EXECUTIVE SUMMARY

Bonus Environmental, LLC was contracted by the National Guard Bureau Region North Industrial Hygiene office to identify and measure the existence and extent of potentially hazardous operations or conditions at the Binghamton Readiness Center located at 85 West End Avenue in Binghamton, NY. The purpose of this evaluation was to generate or to update a previous baseline evaluation so that employee exposure history can be provided to each civilian and military employee. The following industrial hygiene conditions were evaluated during this industrial hygiene evaluation performed by Bonus Environmental, LLC representative Non-Responsive on November 16, 2012:

- Indoor Air Quality
- Lead Wipe & Bulk Sampling
- Illumination
- Ergonomics

 Evaluation of the physical condition of the facility in regards to peeling paint, asbestos containing materials, water damage or mold problems, and housekeeping practices.

The Binghamton Readiness Center was constructed in 1933, and is an Army National Guard armory comprised of offices, locker rooms, storage rooms, a conference room, a drill hall, a kitchen, a boiler room, a break room, a dining hall, a fitness room, classrooms, and a former indoor firing range. Field Maintenance Shop (FMS) 13 is attached to the Binghamton Readiness Center. The point of contact for the approximately 32,080 ft² Binghamton Readiness Center is Mr. Non-Responsive. One (1) full-time administrative person is employed at the Binghamton Readiness Center. Health and Safety programs reviewed during this survey included personal protective equipment (PPE), Lock-Out/Tag-Out, Asbestos Awareness, Fire Safety, Confined Spaces, Respiratory protection, and Hazcom. A shop diagram depicting the locations of the operations and air flow patterns identified during this industrial hygiene evaluation is attached to this report as Appendix A.

The National Guard Bureau Region North Industrial Hygiene Office provided governmental furnished equipment and sampling media required to perform the industrial hygiene evaluation. Chain of custody forms for laboratories approved by the National Guard Bureau Region North Industrial Hygiene Office were provided with the sampling media. All samples collected during this industrial

hygiene evaluation were sent to the National Guard Bureau Region North Industrial Hygiene Office approved laboratories for analysis.

2.0 – LEAD SAMPLING

2.1 – Lead Wipe Sampling

Lead wipe sampling was performed according to the Environmental Protection Agency (EPA) method 600/R-93/200(M)-7420 (Atomic Absorption - Flame). Nineteen (19) wipe samples and one (1) field blank were sent under chain-of-custody procedures to AMA Analytical Services, Inc., an American Industrial Hygiene Association (AIHA) accredited laboratory located in Lanham, Maryland. The U.S. Department of Labor (USDOL) and the Occupational Safety and Health Administration (OSHA) do not have a promulgated standard for lead surface contamination; however OSHA has provided an interpretive level of 200 micrograms per square foot (μg/ft²) to assess the housekeeping requirements of "as free as reasonably practicable". This interpretation is presented in OSHA Industrial Hygiene Technical Manual (TED 01-00-015; 1/20/1999), and in a letter of interpretations dated 1/13/2003, and subsequently issued to public domain. NG Pam 420-15 addresses the conversion and remediation of former indoor firing ranges. The following table outlines the locations and analytical results for the lead wipe samples collected during this project.

	Army National Guard – Binghamton Readiness Center Lead Wipe Sample Results										
Sample #	Sample Date	Sample Location	Sample Area (ft²)	Sample Result (µg/ft²)							
Binghampton RC-LW-1	11-16-12	Field Blank		< 12 μg							
Binghampton RC-LW-2	11-16-12	Drill hall, southeast corner, top of circuit breaker box	0.111	1,700							
Binghampton RC-LW-3	11-16-12	Drill hall, northeast corner, on heat register	0.111	630							
Binghampton RC-LW-4	11-16-12	Drill hall, northwest corner, on window sill	0.111	1,900							
Binghampton RC-LW-5	11-16-12	Drill hall, southwest corner, on brown metal housing	0.111	2,100							
Binghampton RC-LW-6	11-16-12	Drill hall, center, on floor	0.111	< 110							
Binghampton RC-LW-7	11-16-12	Kitchen, northwest corner, top of Garland oven	0.111	< 110							
Binghampton RC-LW-8	11-16-12	Dining hall, west side, top of light fixture	0.111	< 110							
Binghampton RC-LW-9	11-16-12	Room 46 (former indoor firing range), center of room, on floor	0.111	630							
Binghampton RC-LW-10	11-16-12	Room 46 (former indoor firing range), south end, on ceiling heater	0.111	3,100							

	Army National Guard – Binghamton Readiness Center Lead Wipe Sample Results											
Sample #	Sample Date	Sample Location	Sample Area (ft²)	Sample Result (µg/ft²)								
Binghampton RC-LW-11	11-16-12	Fitness room, southeast corner, on window sill	0.111	7,600								
Binghampton RC-LW-12	11-16-12	Locker room 15, southeast corner, on ceiling heater	0.111	3,500								
Binghampton RC-LW-13	11-16-12	Classroom 108, top of "Smartboard"	0.111	220								
Binghampton RC-LW-14	11-16-12	Classroom 102, south end, top of exit sign	0.111	270								
Binghampton RC-LW-15	11-16-12	Main hallway, center, top of display case	0.111	< 110								
Binghampton RC-LW-16	11-16-12	Break room 107, southeast corner, on television table	0.111	1,200								
Binghampton RC-LW-17	11-16-12	Copy area, top of copy machine	0.111	420								
Binghampton RC-LW-18	11-16-12	Conference room, top of file cabinet	0.111	220								
Binghampton RC-LW-19	11-16-12	2 nd floor hallway, top of emergency lighting	0.111	320								
Binghampton RC-LW-20	11-16-12	Office 226, northeast corner, on heat register	0.111	220								

Surface cleanliness threshold = < 200 micrograms per square foot ($\mu g/ft^2$)

The former indoor firing range is currently used as storage. It is uncertain whether it was remediated to the protocols specified in NG Pam 420-15. Remediation wipe sample results were not posted, nor were any signs posted restricting access to the area.

3.0 - PHYSICAL CONDITION OF FACILITY / PERSONNEL CONCERNS

3.1 - Lead Based Paint

During the industrial hygiene evaluation of the Binghamton Readiness Center, Bonus Environmental, LLC performed a visual inspection of the facility in regards to lead based paint. Bonus Environmental, LLC identified one area of peeling paint which could potentially pose a lead exposure hazard. Bonus Environmental, LLC identified peeling paint in the following area:

• Approximately 12 ft² of peeling brown paint in room 14 (shower)

One (1) paint chip samples was collected and sent under chain-of-custody procedures to AMA Analytical Services, Inc., an AIHA accredited laboratory located in Lanham, MD. See table below for sample information:

	Army National Guard – Binghamton Readiness Center Paint Chip Sample											
Sample #	Sample Location	Color	Analytical Reporting Limit (%)	Analytical Results (%)								
BinghamptonRC-PC-1	Room 14 (shower)	Brown	0.0083	0.031								

Analysis indicated that the peeling paint collected contained detectable levels of lead. The paint is therefore considered to be lead-based paint. The OSHA Lead in Construction Standard, 29 CFR 1926.62 does not assign a numerical value of which must be present within the paint to be considered lead based paint. Paints which contain any detectable level of lead shall be treated and handled as lead based paint. Housing and Urban Development (HUD) defines lead based paint as having greater than 0.5% lead by weight. Paint chip sample results are attached to this report as Appendix B.

3.2 – Presumed Asbestos Containing Materials

During the industrial hygiene evaluation of the Binghamton Readiness Center, Bonus Environmental, LLC performed a visual inspection to identify presumed asbestos containing materials (PACM) and, if found, to note their condition. Bonus Environmental, LLC did not identify any PACM's that were considered to be in poor or damaged condition.

3.3 - Water Damage/Mold Growth

During the industrial hygiene evaluation of the Binghamton Readiness Center, Bonus Environmental, LLC performed a visual inspection to report the location and perform an evaluation of any water damaged building materials and/or visible mold problems. Bonus Environmental, LLC identified water-damaged materials in the following locations:

- Approximately 90 ft² of water-damaged brick wall in the Dining hall;
- Approximately 120 ft² of water-damaged brick wall in the Drill hall.

3.4 - Housekeeping

During the industrial hygiene evaluation of the Binghamton Readiness Center, Bonus Environmental, LLC performed an evaluation of the housekeeping practices. Bonus Environmental, LLC found the housekeeping practices within Binghamton Readiness Center facility in good order, with the exception of residual lead dust concentrations.

3.5 – Employee Interviews

During the industrial hygiene evaluation of the Binghamton Readiness Center, Bonus Environmental, LLC performed interviews and made observations to determine if the work activities being performed possessed any ergonomic concerns. Following the interviews and observations, no ergonomic and or indoor air quality concerns were identified.

3.6 – Indoor Air Quality

During the industrial hygiene evaluation of the Binghamton Readiness Center, Bonus Environmental, LLC measured temperature, relative humidity, carbon monoxide (CO), and carbon dioxide (CO₂)

throughout the facility. A calibrated TSI Q-Trak Plus Model 7575 Indoor Air Quality Monitor equipped with a Q-Trak Probe 982 was utilized to record indoor air quality measurements.

Carbon dioxide is a natural component of air and the amount of CO₂ in a given air sample is commonly expressed as parts per million (ppm). The outdoor air in most locations contains about 380 ppm carbon dioxide. Higher outdoor CO₂ concentrations can be found near vehicle traffic areas, industry and sources of combustion. The concentrations of CO₂ found in most offices are well below the OSHA Permissible Exposure Limit (PEL) of 5,000 ppm when averaged over an 8-hour time period for an industrial workplace. While levels below 5,000 ppm are considered to pose no serious health threat, studies have indicated that individuals in offices with elevated CO₂ concentrations tend to report drowsiness, lethargy and a general sense that the air is stale. Ventilation rates for office spaces are defined by various codes and standards. The most widely accepted standard is the American Society of Heating, Refrigerating, and Air Conditioning Engineers (ASHRAE) Standard 62. According to ASHRAE Standard 62.1-2010, CO₂ concentrations below 700 ppm above the outdoor level are considered to indicate adequate ventilation and provide human comfort. The CO₂ measurements collected during this industrial hygiene evaluation ranged from 433 ppm to 519 ppm and indicate adequate ventilation within the facility.

Carbon monoxide is a colorless, odorless, poisonous gas that results from the incomplete burning of common fuels such as natural or liquefied petroleum gas, oil, wood or coal. When carbon monoxide is inhaled, it enters the blood stream and reduces the ability of the blood to carry oxygen to vital organs, such as the heart and brain. Because it is impossible to see, taste or smell the toxic fumes, CO can harm you before you are aware it is in your work area. At lower levels of exposure, CO causes mild effects that are often mistaken for the flu. These symptoms include headaches, dizziness, disorientation, nausea and fatigue. The effects of CO exposure can vary greatly from person to person depending on age, overall health and the concentration and length of exposure. The OSHA has established a permissible exposure limit (PEL) of 50 parts per million (ppm). OSHA standards prohibit worker exposure to more than 50 parts of the gas per million parts of air averaged during an 8-hour time period. The peak CO level for employees is 200 ppm. The CO measurements collected during this industrial hygiene evaluation all indicated 0.0 ppm. CO levels were below the OSHA PEL during this industrial hygiene evaluation.

During the industrial hygiene evaluation of the Binghamton Readiness Center, Bonus Environmental, LLC collected temperature measurements. Temperature measurements throughout the common areas of the facility routinely occupied by employees ranged from 64.8°F to 71.1°F and are not considered to be within an acceptable range outlined within ASHRAE Standard 55-2010.

During the industrial hygiene evaluation of the Binghamton Readiness Center, Bonus Environmental, LLC collected relative humidity measurements. Relative humidity measurements throughout common areas of the facility routinely occupied by employees ranged from 26.4% to 38.3%. Indoor air quality measurements recorded during this industrial hygiene evaluation are summarized in the table below.

· · · · · · · · · · · · · · · · · · ·	Army National Guard – Binghamton Readiness Center Indoor Air Quality Measurements										
Location	CO ₂ (ppm)	CO (ppm)	Relative Humidity (%)	Temperature (°F)							
Outdoors, east side of building (mostly cloudy)	433	0.0	37.5	39.1							
Fitness room	484	0.0	38.3	64.8							
Dining hall	451	0.0	30.4	67.1							
Boiler room	454	0.0	26.4	69.3							
Locker room 15	519	0.0	32.6	69.3							
Drill hall	461	0.0	30.2	70.5							
Classroom 102	487	0.0	28.9	70.5							
Break room 107	491	0.0	28.1	70.3							
Copy area	477	0.0	28.0	70.3							
2 nd floor hallway	472	0.0	28.4	71.1							
Office 226	494	0.0	29.8	70.2							

Required/Recommended Values

 $\overrightarrow{CO_2}$ - OSHA PEL = 5,000 parts per million (ppm) and ASHRAE Standard 62.1-2010 = no greater than 700 ppm above outdoor

CO - OSHA PEL = 50 ppm and OSHA Ceiling Limit = 200 ppm

Temperature - ASHRAE Standard 55-2010 = between approximately 67 and 82 °F.

RH - ASHRAE Standard 62.1-2010 = limited to < 65%

4.0 - LIGHTING

Utilizing a properly calibrated Cooke Corporation cal-Light 400 light meter, Bonus Environmental, LLC collected illumination readings throughout the Binghamton Readiness Center. Illumination measurements recorded during this industrial hygiene evaluation are summarized in the table below.

Army National Guard – Binghamton Readiness Center Lighting Measurements										
Location	Measurement in	Requirement in Foot	Requirement							
Locuiton	Foot Candles	Candles	Met?							
Fitness room	33.2	30	Yes							
Room 6		Inaccessible								
Basement, men's restroom	52.6	5	Yes							
Locker room 12	13.7	7	Yes							
Room 14 (shower)	12.2	7	Yes							
Room 30 (elec room)		Inaccessible								
Room 34		Inaccessible								
Supply storage	7.8	30	No							
Room 46 (storage/former indoor firing range)	27.7	30	No							
Dining hall	68.1	10	Yes							
Kitchen	35.2	50	No							
Pantry		Inaccessible								
Boiler room	20.9	30	No							
Room 32 (storage)	24.4	30	No							
Room 28 (storage)	6.5	30	No							
Supply vault		Inaccessible								
Basement hallway	45.4	5	Yes							
Locker room 15	34.3	7	Yes							
1 st floor, men's restroom	47.3	5	Yes							

Army National Guard – Binghamton Readiness Center Lighting Measurements										
Location	Measurement in Foot Candles	Requirement in Foot Candles	Requirement Met?							
Break room 107	50.9	10	Yes							
Foyer	8.5	10	No							
1 st floor, main hallway	38.6	5	Yes							
Room 105 (office)	22.4	50	No							
Room 103 (office)	31.2	50	No							
Foyer	28.3	10	Yes							
Superintendent's office	89.1	50	Yes							
Classroom 102	105.1	30	Yes							
FRG office	28.5	50	No							
Classroom 108	76.4	30	Yes							
Women's restroom	59.5	5	Yes							
Drill hall	33.3	30	Yes							
2 nd floor hallway	48.3	5	Yes							
Room 217		Inaccessible								
Room 212		Inaccessible								
Room 206 (men's restroom)	41.7	5	Yes							
Vault		Inaccessible								
Room 204		Inaccessible								
Room 221 (office)	50.5	50	Yes							
NY Guard office	13.1	50	No							
Engineering office		Inaccessible								
Conference room	16.1	30	No							
Women's restroom	21.7	5	Yes							
Women's shower	29.1	7	Yes							
Room 209		Inaccessible								
Copy area	34.1	10	Yes							
Room 213		Inaccessible								
Room 215 (office)	93.7	50	Yes							
Room 211		Inaccessible								
Room 202 (office)	191.7	50	Yes							
Room 219		Inaccessible								
Room 218		Inaccessible								
Room 220		Inaccessible								
Room S-3		Inaccessible								
Room 230		Inaccessible								
Room 226 (office)	127.4	50	Yes							
Room 222 (storage)	12.2	30	No							
Stairwell	11.7	5	Yes							

Lighting levels were compared to the levels outlined within the American National Standards Institute/Illuminating Engineering Society of North America (ANSI/IESNA) RP-1-04 Office Lighting Handbook, and the ANSI/IESNA RP-7-01 Lighting Industrial Facilities Handbook. Areas within the facility which did not meet the foot candle requirements are identified with a "NO" within the "Requirement Met?" column. It is recommended that illumination be improved in all the areas that did not meet the requirements. Improving illumination can be achieved by replacing burned-out

lamps/bulbs, cleaning fixtures, relocating detailed work activities to more illuminated areas, and using supplemental task lighting.

5.0 - CONCLUSION & LIMITATIONS

Bonus Environmental, LLC was contracted by the National Guard Bureau Region North Industrial Hygiene office to identify and measure the existence and extent of potentially hazardous operations or conditions at the Binghamton Readiness Center located at 85 West End Avenue in Binghamton, NY. The purpose of this evaluation was to generate or to update a previous baseline evaluation so that employee exposure history can be provided to each civilian and military employee. Industrial hygiene conditions were evaluated during this industrial hygiene evaluation performed by Bonus Environmental, LLC representative Non-Responsive on November 16, 2012.

The results/findings of this industrial hygiene evaluation are summarized below.

- 1. Lead wipe sample results collected within the Binghamton Readiness Center were above the OSHA interpretive level of 200 μ g/ft², as well as the 200 μ g/ft² threshold established in NG Pam 420-15 in the majority of the tested areas;
- 2. Bonus Environmental, LLC identified one area of peeling paint which contained detectable levels of lead, potentially posing a lead exposure hazard.
- 3. Bonus Environmental, LLC did not identify any PACM that was considered to be in poor or damaged condition.
- 4. Bonus Environmental, LLC identified approximately 90 ft² of water damaged brick in the Dining hall, and approximately 120 ft² of water damaged brick in the Drill hall.
- 5. Bonus Environmental, LLC found the housekeeping practices within Binghamton Readiness Center in good order, with the exception of residual lead dust concentrations.
- 6. Following the interviews and observations, no ergonomic and or indoor air quality concerns were identified.
- 7. Bonus Environmental, LLC measured temperature, relative humidity, CO, and CO₂ throughout the Binghamton Readiness Center. All were found to be within their acceptable ranges/limits; with the exception of one temperature reading.
- 8. Areas within the Binghamton Readiness Center facility were identified as improperly illuminated.
- 9. Health and Safety policies reviewed at the Binghamton Readiness Center included Personal Protective Equipment (PPE), Lock-Out/Tag-Out, Asbestos Awareness, Fire Safety, Confined Spaces, Respiratory Protection, and Hazcom. All were found to meet regulatory requirements.

Bonus Environmental, LLC has 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 Region North - Industrial Hygiene Office. 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 Bonus Environmental, LLC's inspection of the site.

It has been a pleasure to be of assistance to you. Please contact us if you have any questions concerning this report or if we can be of any further assistance in any other environmental or occupational health matter.

Sincerely,



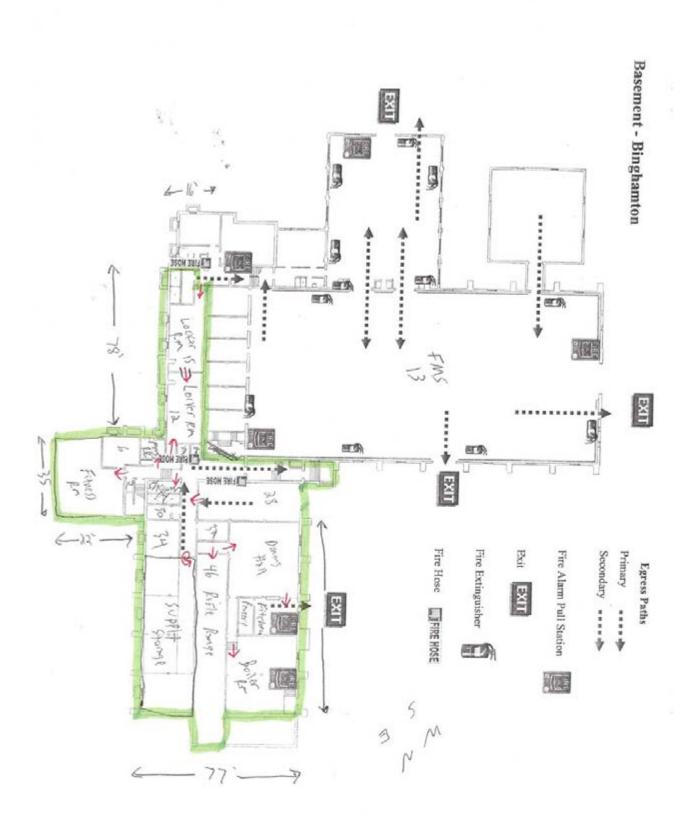
Principal Bonus Environmental, LLC

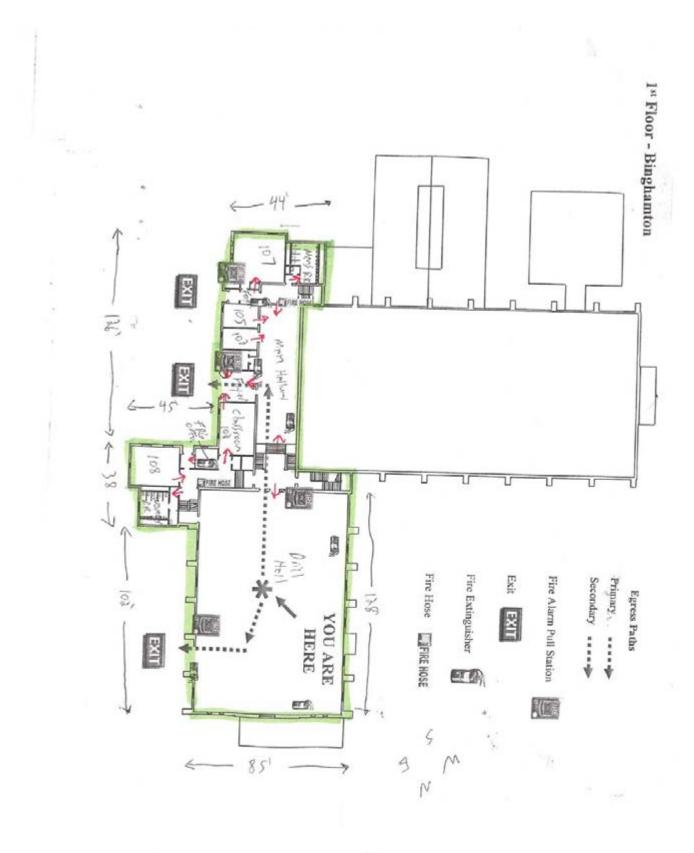
May, 2018

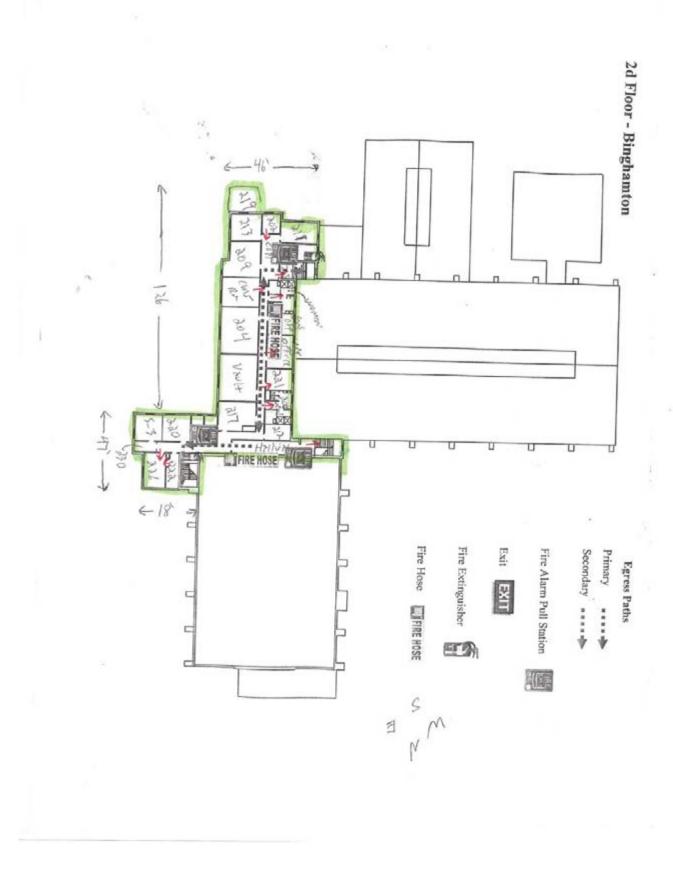
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Appendix A

Shop Diagram and Air Flow Patterns







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Appendix B

Lead Sampling Results



CERTIFICATE OF ANALYSIS



Client:

National Guard Bureau

Job Name:

P.O. Number:

Binghamton RC

Chain Of Custody:

514540

Address:

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

Havre de Grace, Maryland 21078

Job Location:

Binghamton, NY

W912K6-09-A-0003

Date Submitted:

11/21/2012

State Military Reservation

Job Number:

1061-15

Person Submitting:

Date Analyzed:

11/29/2012

Report Date: 11/29/2012

Attention:

Summary of Atomic Absorption Analysis for Lead

Page 1 of 3

AMA Sample Number	Client Sample Number BinghamptonRC- LW-1	Analysis Type	Sample Type	Air Volume (L)	Area Wiped (ft')	200	oorting Limit	Total ug	Final Result		Comments
13016347		Flame	Wipe Blank		N/A	12	ug		<12	ug	
13016348	BinghamptonRC- LW-2	Flame	Wipe	****	0.111	110	ug/ft²	180	1700	ug/fi²	
13016349	BinghamptonRC- LW-3	Flame	Wipe	****	0.111	110	ug/lt²	70	630	ug/fl²	
13016350	BinghamptonRC- LW-4	Flame	Wipe	****	0.111	110	ug/ft²	210	1900	ug/fi²	
13016351	BinghamptonRC- LW-5	Flame	Wipe	****	0.111	110	ug/ft²	230	2100	ug/fl²	
13016352	BinghamptonRC- LW-6	Flame	Wipe	****	0.111	110	ug/ft²	<12	<110	ug/ft²	
13016353	BinghamptonRC- LW-7	Flame	Wipe	****	0.111	110	ug/ft²	<12	<110	ug/ft²	
13016354	BinghamptonRC- LW-8	Flame	Wipe	****	0.111	110	ug/ll²	<12	<110	ug/fl²	
13016355	BinghamptonRC- LW-9	Flame	Wipe	****	0.111	110	ug/ft²	70	630	ug/ft²	
13016356	BinghamptonRC- LW-10	Flame	Wipe	****	0.111	110	ug/îl²	340	3100	ug/ft²	
13016357	BinghamptonRC- LW-11	Flame	Wipe	****	0.111	110	ug/ft²	850	7600	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 howledge 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

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CERTIFICATE OF ANALYSIS



Client:

National Guard Bureau

Job Name:

Binghamton RC

Chain Of Custody:

514540

Address:

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

Job Location:

P.O. Number:

Binghamton, NY

W912K6-09-A-0003

Date Submitted:

11/21/2012

State Military Reservation Havre de Grace, Maryland 21078

Job Number:

1061-15

Person Submitting: Date Analyzed:

11/29/2012 Report Date: 11/29/2012

Attention:

Summary of Atomic Absorption Analysis for Lead

Page 2 of 3

AMA Sample Number	Client Sample Number	Analysis Type	Sample Type Wipe	Air Volune (L)	Area Wiped (ft²)		orting imit	Total ug	Final Res	sulf	Comments
13016358	BinghamptonRC- LW-12	Flame			0.111	110	ug/fl²	390	3500	ug/fl²	
13016359	BinghamptonRC- LW-13	Flame	Wipe	****	0.111	110	ug/ft²	25	220	ug/fl²	
13016360	BinglamptonRC- LW-14	Flame	Wipe	****	0.111	110	ug/ft²	30	270	ug/ft²	
13016361	BinghamptonRC- LW-15	Flame	Wipe	****	0.111	110	ug/ft²	<12	<110	ug/ft²	
13016362	BinglamptonRC- LW-16	Flime	Wipe	****	0.111	110	ug/it²	140	1200	ug/ft³	
13016363	BinghamptonRC- LW-17	Flame	Wipe	****	0.111	110	ug/il²	47	420	ug/fl³	
13016364	BinghamptonRC- LW-18	Flame	Wipe	****	0.111	110	ug/it²	24	220	ug/ft³	
13016365	BinghamptonRC- LW-19	Flame	Wipe	****	0.111	110	ug/ft²	36	320	ug/fl ⁴	
13016366	BinghamptonRC- LW-20	Flame	Wipe	****	0.111	110	ug/ft²	25	220	ng/ft;	
13016367	BinghamptonRC-PC-	Flame	Paint Chip	****	N/A	0.0083	%P6		0.031	%Pb	

This report applies only to the sample, or sample, or sample, 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 enforsement by NY ELAP, AHIA, or any agency of the Federal Government. All rights reserved. AMA Analytical Services, Inc.

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CERTIFICATE OF ANALYSIS



Client:

National Guard Bureau

Job Name:

Binghamton RC

Chain Of Custody:

514540

Address:

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

Job Location:

P.O. Number:

Binghamton, NY

W912K6-09-A-0003

1061-15

Date Submitted:

11/21/2012

State Military Reservation

Havre de Grace, Maryland 21078

Job Number:

Person Submitting: Date Analyzed:

11/29/2012

Report Date: 11/29/2012

Attention:

Summary of Atomic Absorption Analysis for Lead

Page 3 of 3

AMA Sample Number

Client Sample

Analysis Type Sample Type

Air Volume Area Wiped Reporting Limit

Total ug Final Result

Number

(L)

(ft')

associated with these

samples.

See QC Summary for analytical results of quality control samples

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

%Pb = percent lead on a dry weight basis ug = micrograms

ug/L = parts per billion (ppb)

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

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

Air and Wipe results are not corrected for any blank results Final results for air and wipe samples are based on client supplied information nor verified by this laboratory.

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

Technical Manager:

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Sample Number	Sample Location	Surface/Substrate Sampled	Area Wiped (in²/ft²)	Collection Media
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-2	Drin HAII	SE country top of Circuit breaker box	4",4"	
-3	Don Hall	NE corner, on hert		
-4	Drin Hall	NW corner, on window SI)		
-5	orial Hull	SW Corner, on brown Metal housing		
-6	Drill Hall	on Floor, lander of room		
-7	Kilchen	NW COMET, top of Earland oven		
-8	Dang Hall	West Silv-center, top of		
-9	Run 46 Former Findour Firmy Range	center of Room, on Floor		
-10	Run 46, Former Indoor Formy Rings	South end, on ceiles hener		
1 1	Filmes RM	SE comery on window sill		
-12	Locker An 15	. SE corner, on cilling home		
J -13	PM 108 District Learning for	top of "SMARI bows"		



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Surface Sampling Field Data Sheet

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Job Number: 1061-15	Job Location:	85 West Gnd Ave.	Phone Number: 989 -779 - 7686
Contact Person	Address:	Binghampion, NY	Collected By: Non-Responsive
	-		COC Number;

Sample Number	Sample Location	Surface/Substrate Sampled	Area Wiped (in ² /ft ²)	Collection Media
himfloar-LW-14	Chiliam 102	South and, top of Exit Sign	4"×4"	Ghust wipe
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Appendix C

Photographs



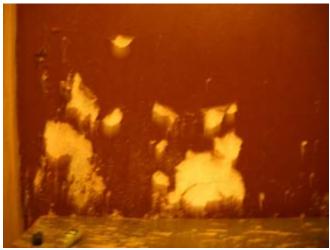
Building exterior, east side



Room 46, former indoor firing range



Kitchen



Shower room 14, peeling brown paint



Dining Hall



Boiler room



Locker room 12



Break room 107



Drill Hall



Drill hall, west wall, water-damaged bricks



2nd floor hallway

Appendix D

References

- 1. Department of Defense Instruction (DODI) 6055.1, Department of Defense Occupational Safety and Health (OS H) Program, August 19, 1998.
- 2. Army Regulation (AR) 11-34, The Army Respiratory Protection Program, February 15, 1990.
- 3. DA PAM 40-503, Medical Service, Industrial Hygiene Program, October 30, 2000.
- 4. Technical Manual (T.M) 5-810-1, Mechanical Design, Heating, Ventilation, and Air Conditioning, June 1991.
- 5. Threshold Limit Values (TLVs) and Biological Exposure Indices (BEls), American Conference of Governmental Industrial Hygienists (ACGIH), current edition.
- 6. UFC 3-410-01 FA Heating, Ventilating, and Air Conditioning, 15 May 2003, change 4 Jan 2010
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- 8. Army Regulation (AR) 385-10, The Army Safety Program, August 23, 2007/RAR 4 Oct. 2011
- 9. RP-1-2004, Office Lighting, Illuminating Engineering Society of North America / American National Standards Institute (IESNA/ANSI).
- 10. RP-7-2001, Industrial Lighting, (IESNA/ANSI).
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- 13. Title 24, CFR, Part 35, Subpart B, Sections 35.110, Definitions of Lead-Based Paint, Housing and Urban Development, U.S. Department of Housing.
- 14. OSHA Permissible Exposure Limit (PEL) for General Industry 29 CFR 1910.1000 Z-1 Table
- 15. Guidelines on Assessment and Remediation of Fungi in Indoor Environments, New York City Department of Health and Mental Hygiene, November 2008.
- 16. Mold Remediation in Schools and Commercial Buildings, U.S. Environmental Protection Agency, March 2001
- 17. Army Facilities Management Information Document on Mold Remediation Issues TG277, February 2002
- 18. NG PAM 420-15, Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges, 3 November 2006.



The New York State Readiness Center Geneseo, New York 14454

Submitted to:

National Guard Region North Industrial Hygiene Office 301-IH Old Bay Lane Havre de Grace, Maryland 21078



NATIONAL GUARD READINESS CENTER INDUSTRIAL HYGIENE EVALUATION

Consolidated Safety Services, Inc. 10301 Democracy Lane, Suite 300 Fairfax, Virginia 22030 703-691-4612 703-691-4615 Facsimile 800-888-4612 Toll free

www.consolidatedsafety.com



The New York State Readiness Center Geneseo, New York

Industrial Hygiene Evaluation

Prepared for:

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

Prepared by:

Consolidated Safety Services, Inc. 10301 Democracy Lane, Suite 300 Fairfax, Virginia 22030

September 9, 2008

Non-Responsive Industrial Hygienist	
Non-Responsive, CIH, CSP Senior Proiect Manager, EHS	
	Industrial Hygienist



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Appendix B	Sampling Sheets and Laboratory Results for Lead Paint Chip Samples, Lead Dust Wipe Samples, Asbestos Floor Tile and Ceiling Tile Samples, and Lead Air Samples
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1. EXECUTIVE SUMMARY

Consolidated Safety Services, Inc. (CSS) was contracted by the U.S. Army National Guard to perform an industrial hygiene evaluation at the Geneseo New York State Readiness Center located at 34 Avon Road, in Geneseo, New York. Non-Responsive performed the evaluation on September 9, 2008. The point of contact for the facility was Mr. Non-Responsive, Maintenance Assistant. The purpose of the evaluation was to assess industrial hygiene concerns in the facility, evaluate workers' personal exposures, and review industrial hygiene and safety programs.

The following industrial hygiene and safety programs were evaluated during the site visit: confined space, hearing conservation, respiratory protection, hazard communication (HAZCOM), and personal protective equipment (PPE).

The following industrial hygiene concerns were evaluated during the site visit:

- Noise exposure;
- Illumination;
- Deteriorated suspect lead-based paints;
- Damaged suspect asbestos-containing materials;
- Water damage and possible mold growth;
- General housekeeping;
- Indoor air quality; and
- Ergonomics.

There were several industrial hygiene concerns identified during the assessment. The Risk Assessment Code (RAC) is presented for each identified concern or deficiency:

- There was visual evidence of minor water damage to the floor in the Basement Classroom.
 There was no evidence of suspect mold growth identified in the facility. The sources of the water intrusion should be identified and corrected. (RAC 4). 29 CFR 1960.8a
- There are several locations where the measured illuminance levels are below those recommended by the Illuminating Engineering Society of North America. Illumination should be improved in deficient areas by replacing burned-out lamps, cleaning fixtures, relocating detailed work to more illuminated areas, and opening window blinds. If illuminance levels still remain deficient, additional light sources should be provided to achieve the recommended illuminance levels (RAC 4). ANSI/IESNA RP-1-04 (Office Lighting) and ANSI ANSI/IESNA RP-7-01 (Lighting Industrial Facilities)
- Suspect asbestos-containing pipe insulation was noted in the basement area of the facility.
 The insulation is located on the fittings for the pipes and is in good condition. The insulation should be considered asbestos-containing until sampling is conducted to prove otherwise. In the interim, the condition of the pipe fitting insulation should be monitored on a routine basis to



insure that the materials are not damaged. Housekeeping and maintenance personnel should be advised of the presence of the suspect asbestos-containing material (RAC 4). 29 CFR 1910.1001(j)(7)(iv) and 29 CFR 1960.8a

- Asbestos-containing tan floor tile with tan flecks was identified in the First Floor Hallway and asbestos-containing black floor tile with brown flecks was identified in the Room 3 (Administration Office). Overall, the material was in good condition with a few areas of minor, isolated damage. It is recommended that a detailed operation and maintenance (O&M) plan be developed to insure that the condition of the floor tile is maintained in good condition. Housekeeping and maintenance personnel should be advised of the presence of the suspect asbestos-containing material (RAC 4). 29 CFR 1910.1001(j)(7)(iv) and 29 CFR 1960.8a
- There is one location where a lead dust wipe sample was above the NGB Region North IH Office limit of 200 micrograms/square foot (µg/ft²). This area should be cleaned to eliminate the lead dust contamination. Anyone that may perform work in this area, including repair or maintenance activities, must be made aware of the lead contamination and appropriate precautions be taken to minimize exposures to the lead contaminated dust (RAC 4). NGB Region North IH Office limit of 200 micrograms/square foot (µg/ft²)
- Detectable levels of lead were found in all three paint chip samples collected and therefore considered to be lead-containing paint. OSHA requires that precautions be taken when lead is present, but does not define a threshold concentration below which no action is required. Therefore, anyone that may perform repair or maintenance activities to any surfaces in these areas must be made aware of the lead contamination and appropriate precautions be taken to minimize exposures to the lead-containing paint. The Department of Housing and Urban Development (HUD) defines lead-based paint as having greater than 0.5% lead by weight. There were no samples of peeling paint that contained levels of lead that were above the HUD criteria of 0.5% lead by weight (RAC 4). Occupational Safety Health Administration (OSHA) Lead in Construction Standard, 29 CFR 1926.62 and Title 24, Code of Federal Regulations (CFR), Part 35, Subpart B, Sections 35.110, Definitions of Lead-Based Paint, Housing and Urban Development, U.S. Department of Housing
- The second floor stair railing is loose and unstable, presenting a fall hazard. The railing should be replaced or repaired to eliminate the hazard (RAC 4). 29 CFR 1910.23(e)(3)(iv)



2. INTRODUCTION

Consolidated Safety Services, Inc. (CSS) was contracted by the U.S. Army National Guard (USARNG) to perform an industrial hygiene evaluation at the Geneseo New York State Readiness Center at 34 Avon Road in Geneseo, New York.

Non-Responsive performed the evaluation on September 9, 2008. The point of contact for the facility was Mr. Non-Responsive, Maintenance Assistant. The purpose of the evaluation was to review industrial hygiene and safety programs, evaluate potential exposures to physical and chemical hazards, and evaluate exposure control strategies and equipment. The building was visually inspected and evaluated for: damaged suspect asbestos-containing materials (ACM), water-damaged building materials, possible mold growth, housekeeping, deteriorated suspect lead-based paints, and poor indoor air quality.

The Geneseo New York State Readiness Center currently has one unit assigned to the facility: A CO (-), 2 BATTALION, 108 INFANTRY. The operations conducted at the facility are primarily administrative activities, equipment maintenance and storage, and training in preparation for potential deployment for combat operations. The building that houses the Geneseo New York State Readiness Center was constructed in 1900 and consists of multiple offices, a kitchen, a club room, men's and women's restrooms, classrooms, supply areas, a locker room, a drill hall, and an attached Field Maintenance Shop (FMS). The FMS was not accessible during the survey because the Maintenance Assistant did not have access to the key for entry. According to the Maintenance Assistant, the FMS has not been operational since January 2008.

The findings, discussion and interpretation of results are provided in Section 4 through Section 8. The conclusions are provided in Section 9. A diagram of the building layout is provided in Appendix A. Sampling sheets and laboratory results for Lead Paint, Lead in Air, and Lead dust are provided in Appendix B. Selected photographs taken during the evaluation are provided in Appendix C. An explanation of how the Risk Assessment Code (RAC) was determined is located in Appendix D. A list of references used during the evaluation is provided in Appendix E.

This report is for the sole use of the USARNG. The results presented in this report are only indicative of conditions during the time of the evaluation. This evaluation does not purport to include all occupational hazards at this facility, and only those areas and exposures specifically mentioned were evaluated.

3. EVALUATION METHODS

3.1 Noise Survey

Sound pressure levels were measured using a Larson Davis Spark noise dosimeter model # 706RC and serial #17309. The noise dosimeter was factory calibrated May 15, 2008.

3.2 Illumination

Illumination measurements were taken using a Cal-Light 400, factory calibrated on June 17, 2008, and results were compared to the American National Standards Institute/Illumination Engineering Society of North America (ANSI/IESNA) Standard RP-1-04 (Office Lighting) and ANSI/IESNA Standard RP-7-01 (Lighting Industrial Facilities).



3.3 Indoor Air Quality Measurements

Indoor air quality parameters (i.e., carbon dioxide concentration, carbon monoxide concentration, temperature and relative humidity) were measured using a TSI Q-Trak Plus Model 8554, serial number 8554-04031056, factory calibrated in February 2008. Carbon dioxide, temperature and relative humidity measurements were compared to the recommended levels established by the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE). CO levels were compared to Occupational Safety and Health Administration Permissible Exposure Limit, the American Conference of Governmental Industrial Hygienists Threshold Limit Value (TLV) for CO and the Environmental Protection Agency's National Ambient Air Quality Standard (NAAQS) for CO.

4. OPERATIONS DESCRIPTIONS

4.1 Facility Operations

There is currently one unit assigned to the facility: A CO (-), 2 Battalion, 108 Infantry. The operations conducted at the facility are primarily administrative activities, equipment maintenance and storage, and training in preparation for potential deployment for combat operations.

4.1.a. Noise Measurements

A sound level survey was performed to determine if there were any hazardous noise areas at the facility that could possibly result in exposures to personnel in excess of the Permissible Noise Dose. Sound pressure levels were measured throughout the facility. Measurements ranged from 50 dBA to 77 dBA within the facility. Exposure to sound pressure levels of this magnitude would not result in exposures equal to or in excess of the Permissible Noise Dose of 85 dBA averaged over an eight hour period.

4.1.b. Lighting Survey

Illumination levels were measured in all areas within the facility. The measurements indicate that several areas did not meet the illuminance levels recommended by the Illuminating Engineering Society of North America. The measurement results are presented in Table 1.

4.1.c. Additional Information

N/A

4.1.d. Recommendations

Illumination should be improved in deficient areas by replacing burned-out lamps, cleaning fixtures, relocating detailed work to more illuminated areas, and opening window blinds. If illuminance levels still remain deficient, additional light sources should be provided to achieve the recommended illuminance levels.



5. PHYSICAL CONDITION OF THE FACILITY

5.1 Visual Inspection – Peeling Paint – Lead

A visual inspection was performed to determine if any areas of peeling or deteriorated paint at the facility could pose a lead exposure hazard. There were three areas identified where paint was peeling and may result in a potential exposure hazard. These areas include the Boiler Room, Room 14 (Old Kitchen), and the Basement Classroom. Three paint chip samples were collected and submitted to AMA Analytical Services, Inc. to be analyzed in accordance with Environmental Protection Agency (EPA) Method 7420.

The results, presented in Table 3, indicated detectable levels of lead in all of the samples collected. The paint is therefore considered to be lead-containing paint. All construction activities that involve lead-containing coatings are regulated by the Occupational Safety Health Administration (OSHA) Lead in Construction Standard, 29 CFR 1926.62. The standard currently does not define a specific concentration of lead, which must be present within paint for it to be considered "lead-containing." Therefore, painted and glazed surfaces that contain detectable concentrations of lead must be handled in accordance with the OSHA Lead in Construction Standard. Any contractor performing work that could impact paint films or glazing that have detectable concentrations of lead must be informed of the testing results, and must take appropriate actions to comply with OSHA Standard 29 CFR 1926.62. These appropriate actions include performing air monitoring to measure worker exposure; assuring that the workers are provided with adequate respiratory protection; and assuring that workers are provided with appropriate training.

The Department of Housing and Urban Development (HUD) defines lead-based paint as having greater than 0.5% lead by weight. All three paint chip samples collected contained less than 0.5% lead by weight and are not considered lead-based paint according to HUD.

5.2 Visual Inspection – Dust – Lead

Due to concerns with lead contamination, wipe samples were collected from various surfaces throughout the facility. Seventeen samples were collected from the walls, floors, and other surfaces. The samples were collected using "Ghost Wipes" using the prescribed NIOSH method for conducting surface wipe samples. Seventeen samples were collected and placed in new plastic containers and submitted to AMA Analytical Services, Inc. to be analyzed in accordance with Environmental Protection Agency (EPA) 600/R-93/200 Lead in Surface Wipe Samples. The results for the wipe samples, presented in Appendix B indicate that there was one sample from the Drill Hall that was above the NGB Region North IH Office limit of 200 micrograms/square foot (µg/ft²). The Drill Hall should be cleaned to eliminate the lead dust contamination. Anyone that may perform work in these areas, including repair or maintenance activities, must be made aware of the lead contamination and appropriate precautions be taken to minimize exposures to the lead contaminated dust.

5.3 Visual Inspection – Asbestos

A visual inspection was performed to determine if there was any suspect asbestos-containing material (ACM) at the facility and its condition. There was approximately 1420 square feet (ft²) of 9



inch x 9 inch black floor tile with tan flecks, identified in Room 3 (Administration Offices), the First Floor Classroom, and in Room 11 Recruiter's Office. Approximately 800 ft² of 9 inch x 9 inch tan tile with brown flecks was identified throughout the first floor hallway and in Room 13 Officers' Locker Room. Approximately 200 ft² of 9 inch x 9 inch light-green floor tile with tan and dark green flecks was identified in Room 1 Superintendent's Office. Approximately 300 ft2 of 9 inch x 9 inch brown tile with red and tan flecks was identified in Room 17 Club Room. In addition, 12 inch x 12 inch ceiling tile was observed in Room 3 (administration office), Room 11 (recruiter's office), Room 126 (Commander's Office), Room 127 (Storage), Room 128 (First SRG Office), and the first floor classroom. Overall, the material was in good condition with a few areas of minor, isolated damage. Two samples of floor tile and one sample of ceiling tile were collected and submitted to AMA Analytical Services, Inc., to be analyzed by Polarized Light Microscopy (PLM) and Transmission Electron Microscopy (TEM), to determine if the tiles are asbestos-containing. The result of the samples, presented in Table 4, indicate that the floor tile is asbestos-containing. It is recommended that anyone conducting work on any asbestos-containing material or presumed asbestos-containing material be made aware of the asbestos and the appropriate precautions be taken to minimize exposures. The condition of the floor tile should be monitored on a routine basis to insure that the materials are not damaged. In addition, there were green pipe fittings identified in the Basement Classroom (see Photo 12). All fittings were in good condition and no samples were collected. These fittings should be presumed to contain asbestos unless sampling is conducted to prove otherwise. It is recommended that anyone conducting work on any asbestos-containing material or presumed asbestos-containing material be made aware of the asbestos and the appropriate precautions be taken to minimize exposures. The condition of the pipe insulation should be monitored on a routine basis to insure that the materials are not damaged.

5.4 Visual Inspection – Water Damage and Mold Growth

A visual inspection was performed to determine if there was any water damage or visible mold growth at the facility. There was no evidence of mold growth, but evidence of water staining to the cement Basement Classroom floor was noted (Photo 11). Water reportedly will back up through the sump pump during periods of hard rains. A dehumidifier is located in the Basement Classroom to help with the moisture problem. The sources of the water intrusion should be identified and controlled.

5.5 Visual Inspection – Housekeeping and Maintenance

A visual inspection was performed to assess the state of housekeeping in the facility. Housekeeping was good overall. However, the second floor stair railing is loose and unstable presenting a fall hazard. It is recommended that the railing be repaired or replaced.

6. BUILDING CONCERNS

6.1 Ergonomic Concerns

Interviews of employees were conducted and observations made to determine if there were work activities that result in any ergonomic concerns in the facility. No ergonomic concerns were identified.



6.2 Illumination Issue

Illumination levels were measured in all areas of the facility and the results indicate that some illuminance levels do not meet the levels recommended by the Illuminating Engineering Society of North America. The measurements ranged from a low of 5 foot candles (fc) to a high of 111 fc. The complete results of the evaluation can be found in Table 1, including whether or not the measured levels met ANSI/IESNA RP-1-04 (Office Lighting) and ANSI/IESNA RP-7-01 (Lighting Industrial Facilities) recommendations for illumination.

6.3 Indoor Air Quality (IAQ)

Temperature, relative humidity, carbon monoxide (CO), and carbon dioxide (CO₂) were evaluated in the facility and compared with recognized "comfort factors." Currently, there are no enforceable regulatory IAQ standards. However, ASHRAE defines acceptable IAQ as air (1) in which there are no known contaminants at harmful levels, as determined by cognizant authorities, and (2) about which a substantial majority (80% or more) of the people exposed do not express dissatisfaction. ASHRAE Standard 62.1-2004, "Ventilation for Acceptable Indoor Air Quality," represents the state-of-the-art in ventilation design requirements for commercial, institutional, and residential buildings. It was developed "to specify minimum ventilation rates and indoor air quality that will be acceptable to human occupants and are intended to minimize the potential for adverse health effects." The standard also considers chemical, physical, and biological contaminants and other factors that impact IAQ and affect occupant health and comfort.

A digital IAQ meter (TSI Q-Trak Plus, model #8554) was used to collect temperature, relative humidity, CO₂, and CO measurements in several areas throughout the facility. Results are provided in Table 2. These measurements were compared with current ASHRAE consensus standards and were found to be within acceptable limits.

6.3.a. Carbon Dioxide (CO₂)

Building occupants generate CO₂ as a product of respiration. Concentrations of CO₂ are often used during indoor air quality investigations to determine the effectiveness of ventilation systems in removing common indoor pollutants. The indoor CO₂ concentration will increase in a given space with fixed ventilation output in proportion to the number of building occupants and their activity level. ASHRAE Standard 62.1-2007 uses CO₂ as a surrogate indicator of building ventilation; namely, an indoor-outdoor CO₂ concentration differential of less than 700 parts per million (ppm) is considered to indicate adequate ventilation. This level is not considered an indication of a health risk, but rather an indicator for human comfort.

Indoor levels of CO_2 ranged from 350 parts per million (ppm) in the Drill Hall to 520 ppm in Locker Room. Outdoor CO_2 levels were approximately 345 ppm during the monitored period. The indoor CO_2 levels were less than 1220 ppm (the outdoor CO_2 levels plus 700 ppm), which indicates adequate ventilation.



6.3.b. Carbon Monoxide (CO)

The Occupational Safety and Health Administration has established a Permissible Exposure Limit for carbon monoxide of 50 parts per million (ppm) averaged over an eight-hour work day. Similarly, the American Conference of Governmental Industrial Hygienists has established a Threshold Limit Value of 25 parts per million (ppm) averaged over an eight-hour work day. The National Ambient Air Quality Standard (NAAQS) recommendation for ambient CO is below 9 parts per million (ppm) for an 8 hour work day. The CO measurements in the facility were below the monitor's level of detection, which is 1 part per million. These levels are well below established occupational exposure limits and CO is not expected to present a hazard to employees at this facility.

6.3.c. Temperature

Indoor temperature measurements in the facility ranged from 68°F in the Second Floor Locker Room to 73°F in the Basement Classroom. These measurements were compared with current ASHRAE consensus standards and were found to be within acceptable limits.

6.3.d. Relative Humidity

Indoor relative humidity (RH) measurements ranged from 56% in the Basement Classroom to 64% in the Drill Hall. Some of the relative humidity readings were above 60%, the level above which the potential for microbial growth increases. The facility was not climate controlled and some windows were open during the survey. The results of the measurements indicate that employees were not exposed to temperature or humidity levels at the time of the survey that could give rise to heat- or cold-induced injuries.

6.3.e. Lead Air Sampling

Due to concerns with lead contamination, air samples were collected from two areas in the facility; Room 3 (Administration Office) and Room 1 (Superintendent's Office). The samples were collected using SKC brand personal sampling pumps with the appropriate sampling media. Pumps were calibrated both before and after use with a Dry-Cal calibrator, which is considered a primary standard. General area samples were collected as close to breathing zone height as could be achieved. Samples were collected for 411 and 419 minutes, resulting in a sampled volume of 822 and 838 liters of air, respectively. The samples were shipped to AMA Analytical Services, Inc. and Analysis was conducted in accordance with the Environmental Protection Agency (EPA) 600/R-93/200 Lead in Air Samples. Both air samples were below the OSHA PEL and ACGIH TLV of 50 µg/m³ as an 8 Hour time weighted average (TWA). The results from the air samples collected over the 6.9 and 7.0 hour periods were compared directly to the OSHA PEL, which is based on an 8-hour Time-Weighted Average, because the airborne concentration of lead is not expected to change in the office areas sampled. Results as reported by the laboratory are included as Appendix B.

7. INDUSTRIAL HYGIENE AND SAFETY PROGRAMS

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



- Confined Space;
- Hearing Conservation;
- Respiratory Protection;
- Hazard Communication (HAZCOM); and
- Personal Protective Equipment (PPE).

It was determined that all industrial hygiene and safety programs are managed at the unit level and there are no specific facility based programs; therefore, no programs were reviewed for the facility. According to the Maintenance Assistant, all facility employees are required to attend an annual safety class which includes a review of PPE standards, chemical inventory, asbestos awareness training, and hazardous assessment.

8. VEHICLE, EQUIPMENT AND HAZARDOUS MATERIALS LIST

The use of the items on the equipment and hazardous materials lists were evaluated and it appears that all the items are used at the facility. The Material Safety Data Sheets (MSDS) were in order and all chemicals found in the facility were listed in the materials list (or chemical inventory) at the beginning of the MSDS notebook. According to the Maintenance Assistant there is one Chevy pick-up truck assigned to the building.

9. CONCLUSION

Industrial hygiene concerns associated with some minor water damage to the basement floor was identified at the facility. Illumination levels were low in some areas of the facility. One lead dust wipe sample was above the NGB Region North IH Office limit of 200 micrograms/square foot (μ g/ft²). Detectable levels of lead were found in three lead paint chip samples. One minor housekeeping problem was identified. Suspect asbestos-containing materials were identified. Asbestos-containing 9 inch x 9 inch floor tile was identified in two locations. These concerns are discussed in Sections 4 through Section 8.

Geneseo New York State Readiness Center Geneseo, New York September 9, 2008



Tables



Table 1. Illumination Measurements The New York State Readiness Center Geneseo, New York

Date of Sampling: September 9, 2008

Location	Luminance (fc)¹	Standard (fc)	Standard Met (Y/N)		
First Floor					
Room 1 (Superintendent's Office)	39	50	N		
Room 3 (Administration Office)	63 – 76	50	Y		
Room 10 (Drill Hall)	15 – 25	30	N		
Room 11 (Recruiter's Office)	60 – 71	50	Y		
Room 13 Officers' Locker Room	19 – 33	7	Y		
Room 14 (Old Kitchen)	20 – 47	50	N		
Room 15 (Janitor's Closet)	25	7	Y		
Room 17 Clubroom	5 – 31	30	N		
Room 126 Commander's Office	31	50	N		
Room 127 Storage	23	30	N		
Room 128 First SRG Office	52	50	Y		
Boiler Room	22 – 35	30	N		
Classroom	45	30	Y		
Kitchen	80 – 111	50	Y		
Men's Restroom	6 – 10	7	N		
State Shop	34 – 51	50	N		
	Second Floor		•		
Locker Room	25 - 84	7	Y		
	Basement		•		
Basement Hallway	5	7	N		
Basement Classroom	38 - 40	30	Y		
Basement State Room	25 - 30	30	Y		
Old Firing Range	5 – 8	7	N		

¹ fc = foot candles

The readings were taken with a Cal-Light 400, factory calibrated on June 17, 2008.

The standards listed in Table 1 are from ANSI/IESNA RP-1-04 (Office Lighting) and ANSI/IESNA RP-7-01 (Lighting Industrial Facilities)



Table 2. Indoor Air Quality Measurements The New York State Readiness Center Geneseo, New York Date of Sampling: September 9, 2008

Location	Occupants Present in Area	CO ₂ (ppm) ¹	CO (ppm)	Relative Humidity (%)	Temperature (° F)
	Basem	ent			
Old Firing Range	2	405 – 460	<1	58 – 59	70 - 71
Basement Classroom	2	390 – 415	<1	56 – 57	72 - 73
	First F	loor			
Drill Hall	2	350 – 370	<1	63 – 64	72 - 73
Administration Office	2	390 – 412	<1	62 – 63	70 - 71
Class Room	2	358 – 390	<1	59 – 60	70 - 71
	Second Floor				
Locker Room	2	470 – 520	<1	58 – 59	68 – 69

CO₂, CO, relative humidity and temperature measurements were taken with a TSI Q-Trak Plus Model 8554, calibrated February 2008.

American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) recommendations that indoor CO₂ concentration be maintained at a level that is less than 700 ppm above outdoor concentration.

National Ambient Air Quality Standard (NAAQS) recommendation for ambient CO: below 9 ppm

Occupational Safety and Health Administration Permissible Exposure Limit for CO: 50 ppm as an 8-hour time-weighted average (TWA) concentration

American Conference of Governmental Industrial Hygienists Threshold Limit Value for CO: 25 ppm as an 8-hour time-weighted average (TWA) concentration



Table 3. Peeling Paint Chip Sample Results The New York State Readiness Center Geneseo, New York

Date of Sampling: September 9, 2008

Sample Number	Location	Results (%)¹
9092008 - 50	Boiler Room – gray peeling paint on floor	<0.0097
9092008 - 51	Room 14 (Old Kitchen) – blue peeling paint on wall	<0.011
9092008 - 52	Basement Classroom – peeling gray paint on floor	0.051

¹ Results cited as % lead by weight

The Department of Housing and Urban Development (HUD) defines lead-based paint as having greater than 0.5% lead by weight.

AMA Analytical Services, Inc conducted the analysis in accordance with the Environmental Protection Agency (EPA) Method 7420



Table 4.Lead Wipe Samples **New York State Readiness Center** Geneseo, New York

Date of Sampling: September 9, 2008

Sample Number	Location	Sample Area ¹	Results (µg/ft²)²	NGB Standard (µg/ft²)³
9092008 - 01	Drill Hall - Left rear ventilation unit	12 in x 12 in	390	<200
9092008 - 02	Drill Hall - rear center floor	12 in x 12 in	94	<200
9092008 - 03	Drill Hall – center right ventilation unit	12 in x 12 in	<12	<200
9092008 - 04	Drill Hall – front right floor	12 in x 12 in	69	<200
9092008 - 05	Drill Hall – table top	12 in x 12 in	14	<200
9092008 - 06	Kitchen – top of storage rack	12 in x 12 in	<12	<200
9092008 - 07	Room 3 Administration Office – desk top	12 in x 12 in	<12	<200
9092008 - 08	Room 1 Superintendent Room – radiator	12 in x 12 in	<12	<200
9092008 - 09	First Floor Classrooom – floor near windows	12 in x 12 in	<12	<200
9092008 - 10	First Floor Hallway – floor near main entrance	12 in x 12 in	<12	<200
9092008 - 11	Old Firing Range – bullet trap area	12 in x 12 in	20	<200
9092008 -12	Old Firing Range – wall beside old bullet trap	12 in x 12 in	<12	<200
9092008 - 14	Old Firing Range – top of electrical box	12 in x 12 in	91	<200
9092008 -15	Basement Floor – outside old firing range	12 in x 12 in	37	<200
9092008 - 16	Basement Classroom – desktop	12 in x 12 in	75	<200
9092008 - 17	Room 11 Recruiter's Office – desktop	12 in x 12 in	<12	<200
9092008 - 18	Room 11 Recruiter's Office – top of filing cabinet	12 in x 12 in	<12	<200

Sampled area was 12 in x 12 in with a total area of 144 in² or at total of 1 ft²

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May, 2018



- ² Results are presented as microgram per square feet (µg/ft²)
- Standard is based on the NGB Region North IH office policy

AMA Analytical Services, Inc conducted the analysis in accordance with the Environmental Protection Agency (EPA) 600/R-93/200.

The sample results were compared to the NGB Region North IH Office Policy of maintaining <200 µg/ft2



Table 5.General Area Air Samples for Lead New York State Readiness Center Geneseo, New York

Date of Sampling: September 9, 2008

Samuela.		Sam	ple Information		Results
Sample Number	Location	Time Sampled / Minutes	Flow Rate (lpm)¹	Volume (liters)	(ug/m³) ²
9092008 – A1	Room 3 (Administration Office)	411	2	822	<3.6
9092008 – A2	Room 1 (Superintendent's Office)	419	2	838	<3.6
	OSHA PE	L (8-hour TWA) ⁴			50
	ACGIH TI	V (8-hour TWA) ⁵			50

The results from the air samples collected over the 6.9 and 7.0 hour periods were compared directly to the OSHA PEL, which is based on an 8-hour Time-Weighted Average, because the airborne concentration of lead is not expected to change in the office areas sampled.

- 1 lpm = liters of air per minute
- ² ug/m³ = micrograms per cubic meter
- 3 ND = Parameter not detected above LOD
- 4 U.S. Occupational Safety and Health Administration Permissible Exposure Limit (8-hour Time-Weighted Average)
- 5 American Conference of Governmental Industrial Hygienists Threshold Limit Value (8-hour Time-Weighted Average)



Table 6. Bulk Suspect Asbestos Containing Material (ACM) Samples New York State Readiness Center Geneva, New York Date of Sampling: September 9, 2008

Sample Number	9092008-30 Room 3 (Administration Office) – black 9 inch x 9 inch floor tile with tan flecks 9092008-31 First Floor Hallway – 9 inch x 9 inch tan floor tile with brown flecks 2 % Chrysotile	
9092008-30	black 9 inch x 9 inch floor tile with tan	2 % Chrysotile
9092008-31		2 % Chrysotile
9092008 – 32	First Floor Classroom – 12 inch x 12 inch ceiling tile	No Asbestos Detected

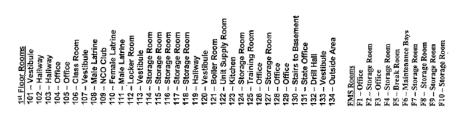
¹Results cited as % asbestos

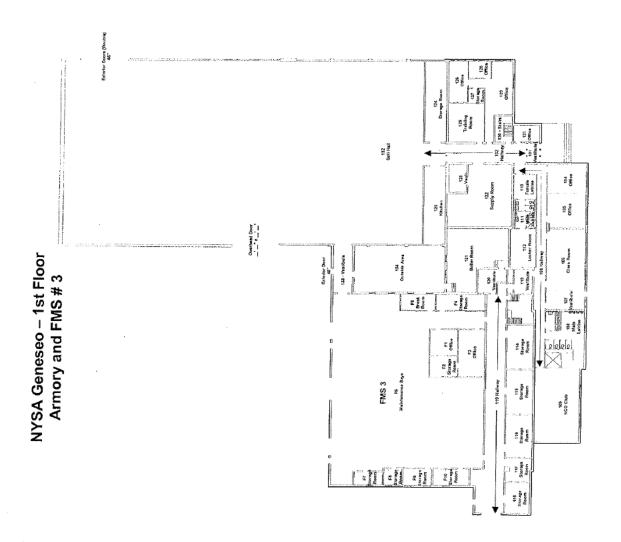
According to 29 CFR 1910.1001(b), Asbestos-containing material means any material containing more than 1% asbestos



Appendix A Building Layout

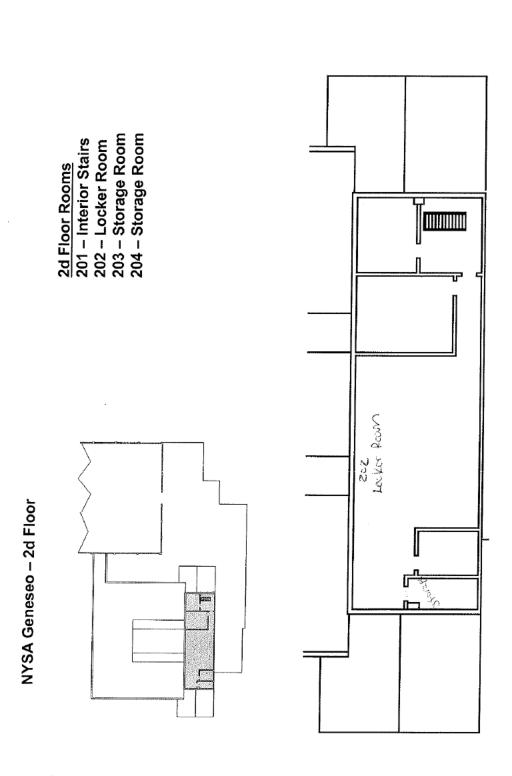






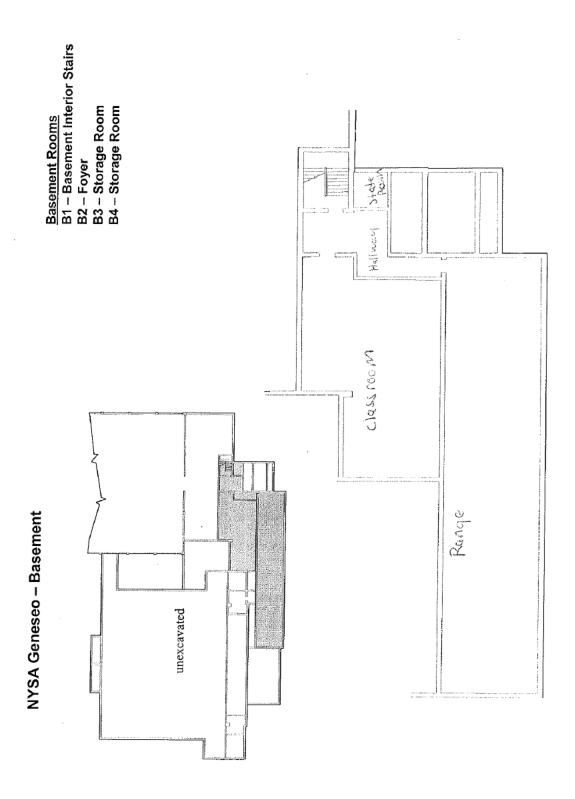
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Geneseo New York State Readiness Center Geneseo, New York September 9, 2008



Appendix B

Sampling Sheets and Laboratory Results for Suspect Asbestos Floor Tile and Ceiling Tile Samples, Lead Paint Chip Samples, Lead Dust Wipe Samples, and Lead Air Samples



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CERTIFICATE OF ANALYSIS

AMA Analytical Services, Inc.

at the time of the evaluation.

May, 2018

Posted to NGB FOIA Reading Room

A Specialized Environmental Laboratory

NY ELAP

10/3/2008

Date Submitted:

148436

Chain Of Custody:

New York Armony Geneseo

Geneseo, NY Not Provided Not Provided

Job Location: Job Number: P.O. Number:

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

Address:

Client

National Guard Bureau

Havre de Grace, Maryland 21078

Job Name:

Person Submitting:

Date Analyzed:

Page 1 of 2

Report Date: 10/9/2008

10/9/2008

Comments

Summary of Atomic Absorption Analysis for Lead

Final Result

Reporting Limit

Area Wiped

Air Volume (L)

Sample Type

Analysis Type

Client Sample Number

AMA Sample

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NY ELAP

Page 2 of 2

Summary of Atomic Absorption Analysis for Lead

Attention:

Clieat: Address: 10/9/2008



AMA Analytical Services, Inc.



A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS

eau Job Name: New York Armony Geneseo Chain Of Custody: 148436	ne, Attn: NGB-AVN-St. Job Location: Genesee, NY Date Submitted: 10/3/2008	aryland 21078 Job Number: Not Provided Person Submitting:	P.O. Number: Not Provided Date Analyzed: 10/9/2008 Report Date:	
National Guard Bureau	301-Et Old Bay Lane, Attn: NGB-AVN-St. State Military Reservation	Havre de Grace, Maryland 21078		

AMA Sample Number	Client Sample Number	Client Sample Analysis Type Number	Sample Type	Air Volume (L)	Arcs Wiped (ft²)	Reporting Limit	Final Result	Comments
0901483	9092008-52	Flame	Paint Chip	**	N/A	0.01 %Pb	0.051 %Pb	
0901484	9092008-A1	Flame	Air	822	N/A	3.6 ug/m³	< 3.6 ug/m³	u,
0901485	9092008-A2	Flame	Air	838	N/A	3.6 ug/m³	< 3.6 ug/m³	1,0
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This report applies only to the example, investigated and it and necessarily indicative of the quality or condition of apparently identical or vinalar products. As a marked protection to clients, the public, and these Laboratories, first supervised and journal to condition of apparently identical or products. As a marked publicly matter without prior written antication from an Sample type. Supplying the analy, unless collected by the rests, in whole the condition of the rests and to the condition of the persons a bunishing them and, unless collected by personnel of these Laboratories, we expressly distribute any knowledge and habitive for the accuracy and completees, this information. Recidinal sample material will be discarded in accordance with the appropriate regulatory guidelines, unless otherwise requested by the client. NVLAP accordance is only to public and the base of the public and the base of the public and the 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 Servicies, Ide.

An ATHA (#100479), AVI AP (101143-9), and AY E.I AP (#10920) Accredited Laboratory

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CERTIFICATE OF ANALYSIS







148436 Chain Of Custody: Person Submitting: Date Analyzed: New York Armony Geneseo Not Provided Geneseo, NY Job Location: Job Number: Job Name: 301-IH Old Bay Lane, Attn: NGB-AVN-SI, Havre de Grace, Maryland 21078 State Military Reservation National Guard Bureau Address: Client

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ments Summary of Polarized Light Microscopy AMA Samp Number

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

TEM RECOMMENDATION - Please note, due to resolution limitations with optical microscopy and/or interference from matrix components of this sample, results which are reported via PLM as buggive or trace (<1%) for asbestos may contain a significant quantity of asbestos. It is recommended that the additional analytical technique of TFM be used to check for asbestos fibers below the resolution limits

MATRIX REDUCTION RECOMMENDATION - Please note, due to interference from the matrix components of this sample, results which are reported via PLM as negative or travet (<1%) for asbestos may contain a significant quantity of asbestos which is obscured from view. It is recommended that the additional preparation technique of grav metric 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

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

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



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 those Laboratories, we described for the exclusive use of the client to whom it is addressed and uppose the condition that is not the totals, in whole or it is part in any abstractive; mater values produced for the calculation whom the presents submitting them and, unders collected by personnel of these Laboratories, we expressly disclaim any knowledge and liability for the accurates and completeness of this information. Recidial sample material will be discarded in accordance with the appropriate regulatory guidelines, unless otherwise requested by the citient. NYLAF accordination applies only to patrice and accordance with the appropriate regulatory guidelines, unless otherwise requested by the citient. NYLAF accordination applies only to patrice fight microscopy of bulk samples and the reduction of the Federal Covernment. All rights reserved.

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Appendix C Selected Photographs of the Geneseo New York State Readiness Center



Photo 1: The exterior front of the building that houses the Geneseo New York State Readiness Center.



Photo 3: A view of the Drill Hall located on the first floor of the Geneseo New York State Readiness Center.



Photo 5: 9 inch x 9 inch black floor tile with tan flecks located in Room 3 (Administration Office).



Photo 2: An exterior side view of the building that houses the Geneseo New York State Readiness Center.



Photo 4: A view of the old firing range that has reportedly been cleaned and is not a simulator firing range.



Photo 6: 9 inch x 9 inch floor tile with brown, red, and tan flecks in Room 17 (Club Room).

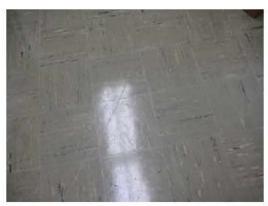


Photo 7: 9 inch x 9 inch light-green floor tile with tan and dark green flecks was observed in Room 1 (Superintendent's Office).



Photo 9: Suspect asbestos pipe insulation located in the Boiler Room.



Photo 11: Evidence of water incursion in the Basement Classroom.



Photo 8: Suspect asbestos pipe insulation located in Room 17 (Club Room).



Photo 10: A hand railing is loose and unstable, presenting a fall hazard in the second floor Locker Room.



Photo 12: Green suspect asbestos pipe fittings located in the Basement Classroom.

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Geneseo New York State Readiness Center Geneseo, New York September 9, 2008



Appendix D Risk Assessment Code Determination



RISK ASSESSMENT CODE DETERMINATION

A Risk Assessment Code (RAC) for each hazard identified is provided at the end of each hazard description. The RAC codes are derived using the matrix provided by the National Guard (reference DOD Instruction 6055.1). This process includes three steps:

• Step 1: Determine the Health Hazard Severity Code (HHSC)

A. Exposure Points Assessed

			Exposure Conditions		
		<ct< th=""><th>Occasionally >CT Always <std< th=""><th>>CT ≤STD</th><th>>STD</th></std<></th></ct<>	Occasionally >CT Always <std< th=""><th>>CT ≤STD</th><th>>STD</th></std<>	>CT ≤STD	>STD
AER	No	0	3	5	7
Possible?	Yes	1-2	4	6	8

AER - Alternate exposure route, such as skin absorption, ingestion

CT – DoD component threshold that triggers surveillance actions, such as microwatts/cm², dB, parts per million (ppm)

STD – DoD exposure limit, such as Threshold Limit Value (TLV) and Permissible Exposure Limit (PEL)

B. Medical Effects Points Assessed

Condition	Points
No medical effect, such as nuisance noise and nuisance odor	2
Temporary reversible illness requiring supportive treatment, such as eye irritation and sore throat	1-2
Temporary reversible illness with a variable but limited period of disability such as metal fume fever	3-4
Permanent, nonsevere illness or loss of capacity, such as permanent hearing loss	5-6
Permanent, severe, disabling, irreversible illness or death, such as asbestosis and lung cancer	7-8



C. Determine the HHSC by totaling the points assessed and using the following guide:

Total Points (sum of A and B)	ннѕс
13-16	
9-12	II
5-8	III
0-4	IV

• Step 2: Determine the Mishap Probability Category (MPC)

A. Duration of Exposure Points Assessed

		Length of E	xposure	
		1-8 hr/week	>8hr/week not continuous	Continuous
Type of	Irregular, intermittent	1-2	4-6	
Exposure	Regular, periodic	2-3	5-7	8

B. Number of Exposed Personnel Points Assessed

Number of Exposed Personnel	Points
<5	1-2
5-9	3-4
9-49	5-6
>49	7-8

C. Determine the MPC for health hazards by totaling the points assessed and using the following guide:

Total Points (sum A and B)	MPC
14-16	A
10-13	В
5-9	С
<5	D



Step 3: Determine the RAC using the following matrix;

		Mishap P	robability Catego	ory (MPC)	
		Α	В	С	D
Health	I	1	1	2	3
Hazard	II	1	2	3	4
Severity	III	2	3	4	5
Code	IV	3	4	5	5



Appendix E References



References

- Title 29, Code of Federal Regulations (CFR), Part 1910, Occupational Safety and Health Administration, current edition.
- 2. Title 24, Code of Federal Regulations (CFR), Part 35, Subpart B, Sections 35.110, Definitions of Lead-Based Paint, Housing and Urban Development, U.S. Department of Housing.
- Department of Defense Instruction (DODI) 6055.1, Department of Defense Occupational Safety and Health (OSH) Program, August 19, 1998.
- Army Regulation (AR) 11-34, The Army Respiratory Protection Program, February 15, 1990.
- Army Regulation (AR) 40-5, Medical Service, Preventive Medicine, May 25, 2007.
- 6. Army Regulation (AR) 385-10, The Army Safety Program, August 23, 2007.
- Department of the Army Pamphlet (DA PAM) 40-501, Medical Service, Hearing Conservation Program, December 10, 1998.
- 8. Department of the Army Pamphlet (DA PAM) 40-503, Medical Service, Industrial Hygiene Program, October 30, 2000.
- Technical Manual (TM) 5-810-1, Mechanical Design, Heating, Ventilation, and Air Conditioning, June 1991.
- 10. Threshold Limit Values (TLVs) and Biological Exposure Indices (BEIs), American Conference of Governmental Industrial Hygienists (ACGIH), current edition.
- Industrial Ventilation A Manual of Recommended Practices, American Conference of Governmental Industrial Hygienists (ACGIH), current edition.
- 12. ANSI Z358.1 2004, Emergency Eyewash and Shower Equipment.
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- RP-7-2001, Industrial Lighting, Illuminating Engineering Society of North America (IESNA)/ANSI.
- The American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE), Standard 62.1-2007, "Ventilation for Acceptable Indoor Air Quality".
- Occupational Safety Health Administration (OSHA) Lead in Construction Standard, 29 CFR 1926.62

National Guard Region North

National Guard Readiness Center Industrial Hygiene Evaluation Geneseo Readiness Center Geneseo, NY 14454-1002

Prepared for:

National Guard Region North Industrial Hygiene Office 301 Old Bay Lane Havre De Grace, MD 21078

Attn:

Non-Responsive

Prepared by:

Bonus Environmental, LLC P.O. Box 121 Mt. Pleasant, Michigan 48804

> Project No. 1061-15 January 31, 2013

Bonus Environmental, LLC

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APPENDICES

Appendix A Shop Diagram and Air Flow Patterns

Appendix B Lead Sample Results

Appendix C Asbestos Sample Results

Appendix D Photographs

Appendix E References

January 31, 2013 Project No. 1061-15

National Guard Region North Industrial Hygiene Office 301 Old Bay Lane Havre De Grace, MD 21078-4003

Attn: Non-Responsive

Project: Industrial Hygiene Evaluation

Geneseo Readiness Center, Geneseo, NY 14454-1002

1.0 - EXECUTIVE SUMMARY

Bonus Environmental, LLC was contracted by the National Guard Bureau Region North Industrial Hygiene office to identify and measure the existence and extent of potentially hazardous operations or conditions at the Geneseo Readiness Center located at 34 Avon Road in Geneseo, NY. The purpose of this evaluation was to generate or to update a previous baseline evaluation so that employee exposure history can be provided to each civilian and military employee. The following industrial hygiene conditions were evaluated during this industrial hygiene evaluation performed by Bonus Environmental, LLC representative Non-Responsive on November 26, 2012:

- Indoor Air Quality
- Lead Wipe & Bulk Sampling
- Illumination
- Ergonomics

 Evaluation of the physical condition of the facility in regards to peeling paint, asbestos containing materials, water damage or mold problems, and housekeeping practices.

The Geneseo Readiness Center is an Army National Guard armory comprised of offices, a classroom, maintenance bays (currently used for storage/weight room), locker rooms, storage rooms, a drill hall, kitchens (old and newer), boiler rooms (old and newer), and a former indoor firing range (used as a training room). The point of contact for the approximately 34,329 ft² Geneseo Readiness Center is Mr. Raymond Carmody. Eight (8) full-time administrative personnel are employed at the Geneseo Readiness Center. Health and Safety programs reviewed during the survey included Personal Protective Equipment (PPE), Lock-Out/Tag-Out, Hazcom, Fire Safety, and Asbestos Awareness. A shop diagram depicting the locations of the operations and air flow patterns identified during this industrial hygiene evaluation is attached to this report as Appendix A.

The National Guard Bureau Region North Industrial Hygiene Office provided governmental furnished equipment and sampling media required to perform the industrial hygiene evaluation. Chain of custody forms for laboratories approved by the National Guard Bureau Region North Industrial Hygiene Office were provided with the sampling media. All samples collected during this industrial hygiene evaluation were sent to the National Guard Bureau Region North Industrial Hygiene Office approved laboratories for analysis.

2.0 – LEAD SAMPLING

2.1 – Lead Wipe Sampling

Lead wipe sampling was performed according to the Environmental Protection Agency (EPA) method 600/R-93/200(M)-7420 (Atomic Absorption - Flame). Twelve (12) wipe samples and one (1) field blank were sent under chain-of-custody procedures to AMA Analytical Services, Inc., an American Industrial Hygiene Association (AIHA) accredited laboratory located in Lanham, Maryland. The U.S. Department of Labor (USDOL) and the Occupational Safety and Health Administration (OSHA) do not have a promulgated standard for lead surface contamination; however OSHA has provided an interpretive level of 200 micrograms per square foot (μ g/ft²) to assess the housekeeping requirements of "as free as reasonably practicable". This interpretation is presented in OSHA Industrial Hygiene Technical Manual (TED 01-00-015; 1/20/1999), and in a letter of interpretations dated 1/13/2003, and subsequently issued to public domain. NG Pam 420-15 addresses the conversion and remediation of former indoor firing ranges. The following table outlines the locations and analytical results for the lead wipe samples collected during this project.

	Army National Guard – Geneseo Readiness Center Lead Wipe Sample Results							
Sample #	Sample Date	Sample Location	Sample Area (ft²)	Sample Result (µg/ft²)				
Geneseo RC- LW-1	11-26-12	Field Blank		< 12 μg				
Geneseo RC- LW-2	11-26-12	Drill Hall, on floor, South end	0.111	300				
Geneseo RC- LW-3	11-26-12	Drill Hall, on floor, North end	0.111	240				
Geneseo RC- LW-4	11-26-12	Drill Hall, on top of Amnesty Box	0.111	360				
Geneseo RC- LW-5	11-26-12	Drill Hall, on top of Control Panel Box #4	0.111	7,700				
Geneseo RC- LW-6	11-26-12	Drill Hall, on top of table	0.111	130				
Geneseo RC- LW-7	11-26-12	Maintenance Bay 1, on top of storage shelf	0.111	380				
Geneseo RC- LW-8	11-26-12	Locker Room, on top of locker #6	0.111	< 110				
Geneseo RC- LW-9	11-26-12	Motor Vehicle Storage Building, on floor, center	0.111	1,000				
Geneseo RC- LW-10	11-26-12	Kitchen, on top of refrigerator	0.111	140				
Geneseo RC- LW-11	11-26-12	Training Room (Former Indoor Firing Range), on floor, bullet trap area	0.111	220				
Geneseo RC-	11-26-12	Training Room (Former Indoor Firing Range), on ventilation	0.111	< 110				

	Army National Guard – Geneseo Readiness Center Lead Wipe Sample Results										
Sample #	Sample # Sample Date Sample Location										
LW-12		grill		Sample Result (µg/ft²)							
Geneseo RC- LW-13	Geneseo RC- Training Room (Former Indoor Firing Range), on light										

Surface cleanliness threshold = < 200 micrograms per square foot ($\mu g/ft^2$)

The former indoor firing range is currently used as a Training Room. It is uncertain whether it was remediated to the protocols specified in NG Pam 420-15. Remediation wipe sample results were not posted, nor were any signs posted restricting access to the area.

3.0 - PHYSICAL CONDITION OF FACILITY / PERSONNEL CONCERNS

3.1 - Lead Based Paint

During the industrial hygiene evaluation of the Geneseo Readiness Center, Bonus Environmental, LLC performed a visual inspection of the facility in regards to lead based paint. Bonus Environmental, LLC identified one area of peeling paint which could potentially pose a lead exposure hazard. Bonus Environmental, LLC identified approximately 1 ft² of peeling white paint in the former kitchen (107).

One (1) paint chip sample was collected and sent under chain-of-custody procedures to AMA Analytical Services, Inc., an AIHA accredited laboratory located in Lanham, MD. See table below for sample information:

Army National Guard – Geneseo Readiness Center Paint Chip Sample									
Sample #	Sample Location	Color	Analytical Reporting Limit (%)	Analytical Results (%)					
Geneseo RC-PC-1	Room 107 (former kitchen)	White	0.0067	< 0.0067					

Analysis indicated that the sample of the peeling paint collected did not contain detectable levels of lead. The paint is therefore not considered to be lead-based paint. Paint chip sample results are attached to this report as Appendix B.

3.2 – Presumed Asbestos Containing Materials

During the industrial hygiene evaluation of the Geneseo Readiness Center, Bonus Environmental, LLC performed a visual inspection to identify presumed asbestos containing materials (PACM) and, if found, to note their condition. Bonus Environmental, LLC observed the following damaged PACM during the industrial hygiene evaluation:

 Approximately 1 lineal foot of damaged thermal systems pipe insulation located in the 1st floor hallway;

- Approximately 1 lineal foot of damaged/moldy thermal systems pipe insulation located in storage room 114;
- Approximately 2 lineal feet of damaged thermal systems pipe insulation located in the old boiler room (121A);
- Approximately 1 ft² of damaged wall plaster located in the former kitchen (107).

Samples were collected of the pipe insulation and the plaster PACM's and sent under chain-of-custody procedures to AMA Analytical Services, Inc., an AIHA accredited laboratory located in Lanham, MD. Analytical results determined that both the thermal systems pipe insulation and the wall plaster analytical results determined the materials to be "No Asbestos Detected".

Bonus Environmental, LLC collected a general area air sample within the vicinity of the damaged thermal systems pipe insulation located within the 1st floor hallway. Analytical results indicate the levels of airborne asbestos fibers to be less than the Asbestos Hazard Emergency Response Act (AHERA) clearance criteria of 0.01 fibers/cubic centimeter (f/cc). Analytical results of the asbestos bulk and air samples are attached to this report as Appendix C.

3.3 - Water Damage/Mold Growth

During the industrial hygiene evaluation of the Geneseo Readiness Center, Bonus Environmental, LLC performed a visual inspection to report the location and perform an evaluation of any water damaged building materials and/or visible mold problems. Bonus Environmental, LLC identified the following water-damaged and/or moldy building materials:

- Approximately 16 ft² of water-stained cement floor in storage room B3;
- Approximately 1 ft² of water-damaged/moldy pipe insulation in storage room 114;
- Approximately 1 ft² of water-damaged wall plaster in room 107, former kitchen.

3.4 - Housekeeping

During the industrial hygiene evaluation of the Geneseo Readiness Center, Bonus Environmental, LLC performed an evaluation of the housekeeping practices. Bonus Environmental, LLC found the housekeeping practices within Geneseo Readiness Center facility in good order, with the exception of residual lead dust concentrations.

3.5 – Employee Interviews

During the industrial hygiene evaluation of the Geneseo Readiness Center, Bonus Environmental, LLC performed interviews and made observations to determine if the work activities being performed possessed any ergonomic concerns. Following the interviews and observations, no ergonomic and or indoor air quality concerns were identified.

One (1) employee expressed concern regarding damaged pipe insulation located in the 1st floor hallway, concerned that it may be asbestos. Analytical results indicated this material to be non-asbestos.

3.6 – Indoor Air Quality

During the industrial hygiene evaluation of the Geneseo Readiness Center, Bonus Environmental, LLC measured temperature, relative humidity, carbon monoxide (CO), and carbon dioxide (CO₂) throughout the facility. A calibrated TSI Q-Trak Plus Model 7575 Indoor Air Quality Monitor equipped with a Q-Trak Probe 982 was utilized to record indoor air quality measurements.

Carbon dioxide is a natural component of air and the amount of CO₂ in a given air sample is commonly expressed as parts per million (ppm). The outdoor air in most locations contains about 380 ppm carbon dioxide. Higher outdoor CO₂ concentrations can be found near vehicle traffic areas, industry and sources of combustion. The concentrations of CO₂ found in most offices are well below the OSHA Permissible Exposure Limit (PEL) of 5,000 ppm when averaged over an 8-hour time period for an industrial workplace. While levels below 5,000 ppm are considered to pose no serious health threat, studies have indicated that individuals in offices with elevated CO₂ concentrations tend to report drowsiness, lethargy and a general sense that the air is stale. Ventilation rates for office spaces are defined by various codes and standards. The most widely accepted standard is the American Society of Heating, Refrigerating, and Air Conditioning Engineers (ASHRAE) Standard 62. According to ASHRAE Standard 62.1-2010, CO₂ concentrations below 700 ppm above the outdoor level are considered to indicate adequate ventilation and provide human comfort. The CO₂ measurements collected during this industrial hygiene evaluation ranged from 386 ppm to 531 ppm and indicate adequate ventilation within the facility.

Carbon monoxide is a colorless, odorless, poisonous gas that results from the incomplete burning of common fuels such as natural or liquefied petroleum gas, oil, wood or coal. When carbon monoxide is inhaled, it enters the blood stream and reduces the ability of the blood to carry oxygen to vital organs, such as the heart and brain. Because it is impossible to see, taste or smell the toxic fumes, CO can harm you before you are aware it is in your work area. At lower levels of exposure, CO causes mild effects that are often mistaken for the flu. These symptoms include headaches, dizziness, disorientation, nausea and fatigue. The effects of CO exposure can vary greatly from person to person depending on age, overall health and the concentration and length of exposure. The OSHA has established a permissible exposure limit (PEL) of 50 parts per million (ppm). OSHA standards prohibit worker exposure to more than 50 parts of the gas per million parts of air averaged during an 8-hour time period. The peak CO level for employees is 200 ppm. The CO measurements collected during this industrial hygiene evaluation ranged from 2.0 ppm to 9.6 ppm. CO levels were below the OSHA PEL during this industrial hygiene evaluation.

During the industrial hygiene evaluation of the Geneseo Readiness Center, Bonus Environmental, LLC collected temperature measurements. Temperature measurements throughout the common areas of the facility routinely occupied by employees ranged from 55.4°F to 63.7°F and are not considered to be within an acceptable range outlined within ASHRAE Standard 55-2010.

During the industrial hygiene evaluation of the Geneseo Readiness Center, Bonus Environmental, LLC collected relative humidity measurements. Relative humidity measurements throughout common areas of the facility routinely occupied by employees ranged from 29.3% to 100.0%. Indoor air quality measurements recorded during this industrial hygiene evaluation are summarized in the table below.

Army National Guard – Geneseo Readiness Center Indoor Air Quality Measurements												
Location	CO_2 (ppm)	CO (ppm)	Relative Humidity (%)	Temperature (°F)								
Outdoors, north side of building (overcast)	386	9.6	32.9	41.0								
Basement, Storage B3 (standing water puddles)	401	2.6	100.0	57.9								
Basement, Training Room B5 (standing water present)	391	2.0	100.0	55.4								
Drill Hall 132	420	3.9	29.3	62.2								
Office 129 (3 people in room)	531	2.8	42.4	63.7								
Classroom 105	424	3.6	37.8	63.6								
NCO Club 109	421	3.7	35.3	61.4								
Storage Room 118	418	4.4	31.6	58.0								
Storage Room F7	402	4.6	32.3	59.1								
Maintenance Bay 2	396	5.2	31.8	59.3								
Storage Room 114	405	4.4	33.0	57.9								

Required/Recommended Values

CO₂ - OSHA PEL = 5,000 parts per million (ppm) and ASHRAE Standard 62.1-2010 = no greater than 700 ppm above outdoor

CO - OSHA PEL = 50 ppm and OSHA Ceiling Limit = 200 ppm

Temperature - ASHRAE Standard 55-2010 = between approximately 67 and 82 °F.

RH - ASHRAE Standard 62.1-2010 = limited to < 65%

4.0 – LIGHTING

Utilizing a properly calibrated Cooke Corporation cal-Light 400 light meter, Bonus Environmental, LLC collected illumination readings throughout the Geneseo Readiness Center. Illumination measurements recorded during this industrial hygiene evaluation are summarized in the table below.

Army National Guard – Geneseo Readiness Center Lighting Measurements											
Location	Measurement in	Requirement in Foot	Requirement								
	Foot Candles	Candles	Met?								
Storage (B3)	28.3	30	No								
Training Room (Former Indoor Firing Range)	3.6	30	No								
Back Flow Room (B4)	17.2	30	No								
State shop office (124)	26.0	50	No								
Kitchen (125)	56.3	50	Yes								
(123)		Inaccessible									
Annex (136)		Inaccessible									
Drill Hall (132)	7.1	30	No								
Maintenance Bay 1 (F6) (storage/weight room)	14.7	30	No								
Maintenance Bay 2 (F6) (storage/weight room)	27.6	30	No								
Maintenance Bay 3 (F6) (storage/weight room)	22.1	30	No								
(F7)		Inaccessible									
Storage (F8)	64.9	30	Yes								
(F9)		Inaccessible									
Chemical Storage (F10)		Inaccessible	_								
Office (F1)	58.6	50	Yes								
Office (F5)		Lighting Inoperable									
Locker Room (F4)	51.6	7	Yes								

<u> </u>	Army National Guard – Geneseo Readiness Center Lighting Measurements Measurement in Requirement in Foot Requirement										
Location	Measurement in Foot Candles										
Tool and Parts Room (F3)	72.1	30	Yes								
1 st Floor Hallway	101.6	5	Yes								
Office (118)	2.5	50	No								
(117)		Inaccessible									
(116)		Inaccessible									
Office/Storage (115)	21.7	50	No								
Storage (114)	18.9	30	No								
Old Boiler Room (121A)	0.8	30	No								
Boiler Room (121)	63.2	30	Yes								
Hallway (113)	55.7	5	Yes								
Former Club/Storage (109)	7.4	30	No								
Men's Restroom (108)	3.6	5	No								
Former Kitchen (107)	90.9	50	Yes								
Classroom (106)	113.9	30	Yes								
NCO Locker Room (112)	18.8	7	Yes								
Classroom (105)	66.9	30	Yes								
Recruiter's Office (104)	142.8	50	Yes								
Women's Restroom (110)	72.2	5	Yes								
Superintendent's Office (131)	111.5	50	Yes								
Copy Room (129)	140.9	10	Yes								
Office (128)	52.6	50	Yes								
Telecommunication's Room (127)	90.3	30	Yes								
Office (126)	93.7	50	Yes								
Commander's Office (125)	91.1	50	Yes								
Supply Room (122)		Inaccessible									
Locker Room (201)		Inaccessible									
Storage Room (202)		Inaccessible									
Motor Vehicle Storage Building	5.4	30	No								

Lighting levels were compared to the levels outlined within the American National Standards Institute/Illuminating Engineering Society of North America (ANSI/IESNA) RP-1-04 Office Lighting Handbook, and the ANSI/IESNA RP-7-01 Lighting Industrial Facilities Handbook. Areas within the facility which did not meet the foot candle requirements are identified with a "NO" within the "Requirement Met?" column. It is recommended that illumination be improved in all the areas that did not meet the requirements. Improving illumination can be achieved by replacing burned-out lamps/bulbs, cleaning fixtures, relocating detailed work activities to more illuminated areas, and using supplemental task lighting.

5.0 - VENTILATION SYSTEM EVALUATION

5.1 - Vehicle Exhaust System

A vehicle exhaust hood ventilation system had previously been installed in the Maintenance Bays, but has subsequently been disconnected. It was reported to Bonus Environmental, LCC that the Maintenance Bays are not used to work on vehicles, that they are currently used for storage and as a work out/weight room.

6.0 - CONCLUSION & LIMITATIONS

Bonus Environmental, LLC was contracted by the National Guard Bureau Region North Industrial Hygiene office to identify and measure the existence and extent of potentially hazardous operations or conditions at the Geneseo Readiness Center located at 34 Avon Road in Geneseo, NY. The purpose of this evaluation was to generate or to update a previous baseline evaluation so that employee exposure history can be provided to each civilian and military employee. The following industrial hygiene conditions were evaluated during this industrial hygiene evaluation performed by Bonus Environmental, LLC representative Erica Funnell on November 26, 2012.

The results/findings of this industrial hygiene evaluation are summarized below.

- 1. Lead wipe sample results collected within the Geneseo Readiness Center were above the OSHA interpretive level of 200 $\mu g/ft^2$, as well as the 200 $\mu g/ft^2$ threshold established in NG Pam 420-15 in the following areas:
 - Drill Hall, on floor, South end
 - Drill Hall, on floor, North end
 - Drill Hall, on top of Amnesty Box
 - Drill Hall, on top of Control Panel Box #4
 - Maintenance Bay 1, on top of storage shelf
 - Motor Vehicle Storage Building, on floor, center
 - Training Room (former indoor firing range), on floor, "bullet trap" area (no bullet trap remains in area).
- 2. Bonus Environmental, LLC identified an area of peeling white paint in room 107 (former kitchen), which did not contain detectable levels of lead.
- 3. Bonus Environmental, LLC observed damaged presumed asbestos-containing materials (PACM) in the following locations:
 - Approximately 1 lineal foot of damaged thermal systems pipe insulation located in the 1st floor hallway;
 - Approximately 1 lineal foot of damaged/moldy thermal systems pipe insulation located in storage room 114;
 - Approximately 2 lineal feet of damaged thermal systems pipe insulation located in the old boiler room (121A);
 - Approximately 1 ft² of damaged wall plaster located in the former kitchen (107).

Analytical results determined each of these materials to have "No Asbestos Detected."

- 4. Bonus Environmental, LLC identified the following water-damaged and/or moldy building materials:
 - Approximately 16 ft² of water-stained cement floor in storage room B3;

- Approximately 1 ft² of water-damaged/moldy pipe insulation in storage room 114;
- Approximately 1 ft² of water-damaged wall plaster in room 107, former kitchen.
- 5. Bonus Environmental, LLC found the housekeeping practices within Geneseo Readiness Center in good order, with the exception of residual lead dust concentrations.
- 6. Following the interviews and observations, no ergonomic and or indoor air quality concerns were identified. One (1) employee expressed concern regarding damaged pipe insulation located in the 1st floor hallway, concerned that it may be asbestos. Analytical results indicated this material to be non-asbestos.
- 7. Bonus Environmental, LLC measured temperature, relative humidity, CO, and CO₂ throughout the Geneseo Readiness Center. All were found to be within their acceptable ranges/limits; with the exception of all temperature readings and two relative humidity readings.
- 8. Areas within the Geneseo Readiness Center were identified as improperly illuminated.
- 9. Health and Safety programs reviewed during the survey included Personal Protective Equipment (PPE), Lock-Out/Tag-Out, Hazcom, Fire Safety, and Asbestos Awareness.
- 10. No vehicle maintenance occurs in the Maintenance Bays, which are used for storage and as a weight room. A vehicle exhaust hood ventilation system had previously been installed in the Maintenance Bays, but has subsequently been disconnected.

Bonus Environmental, LLC has 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 Region North - Industrial Hygiene Office. 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 Bonus Environmental, LLC's inspection of the site.

It has been a pleasure to be of assistance to you. Please contact us if you have any questions concerning this report or if we can be of any further assistance in any other environmental or occupational health matter.

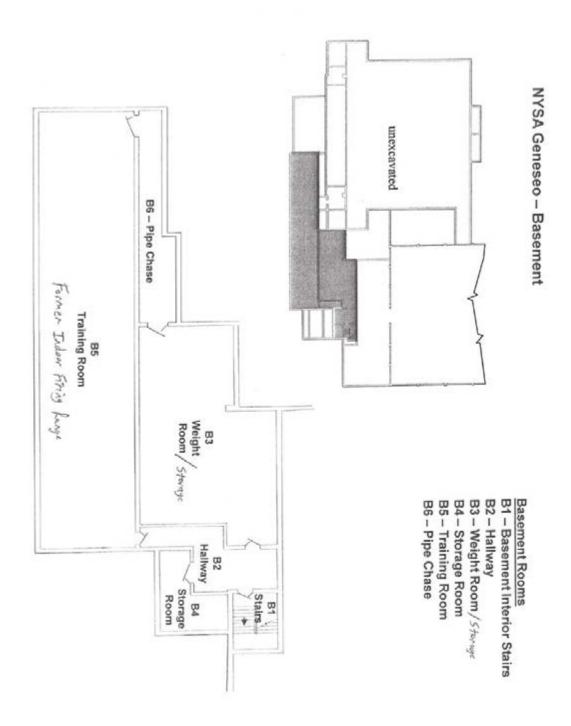
Sincerely,

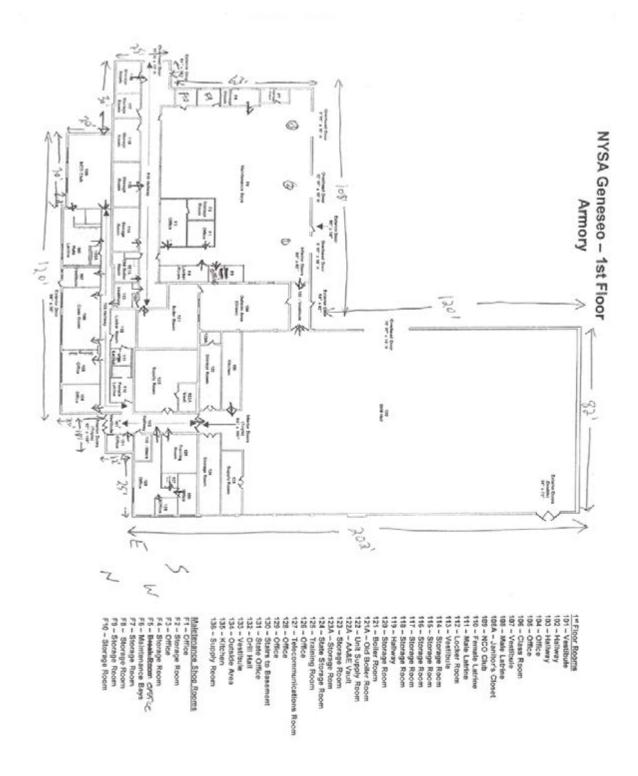


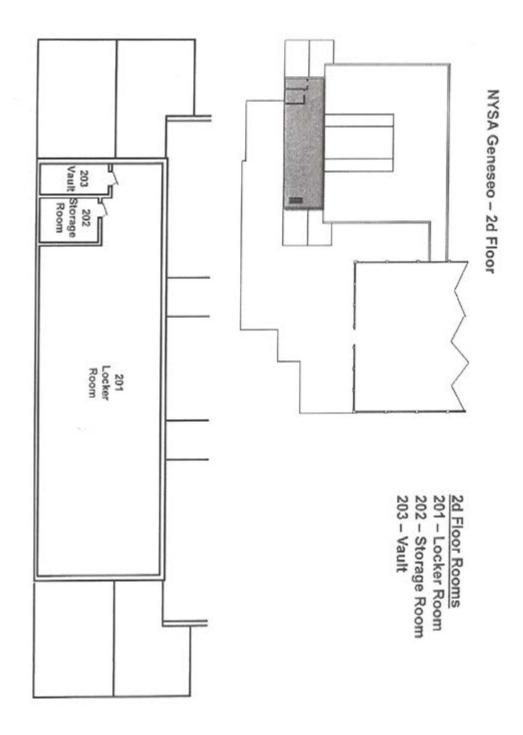
Bonus Environmental, LLC

Appendix A

Shop Diagram and Air Flow Patterns







Appendix B

Lead Sampling Results

AMA Analytical Services, Inc.



CERTIFICATE OF ANALYSIS



Client

National Guard Bureau

Job Name:

Geneseo RC

Chain Of Custody:

514681

Address:

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

Havre de Grace, Maryland 21078

Job Location:

34 Avon Road, Genesco, NY 14454-1002

Date Submitted:

12/4/2012

State Military Reservation

Job Number: P.O. Number: 1061-15

W912K6-09-A-0003

Person Submitting: Date Analyzed:

12/13/2012

Report Date:

Attention:

Summary of Atomic Absorption Analysis for Lead

Page 1 of 2

12/17/2012

AMA Sample Number	Client Sample Number	Analysis Type	Sample Type	Air Volume (L)	Area Wiped (ft ¹)		orting Imit	Total ug	Final Res	ult	Comments	
13019670	GeneseoRC-PC-1	GeneseoRC-PC-1	Flame	Paint Chip	****	N/A	0.0067	%Pb		< 0.0067	%Pb	
13019671	GeneseoRC-LW-I	Flame	Wipe Blank	****	N/A	12	ug		<12	ug		
13019672	GeneseoRC-LW-2	Flame	Wipe	****	0.111	110	ug/ft²	33	300	ug/fl²		
13019673	GeneseoRC-LW-3	Flame	Wipe	****	0.111	110	ug/N²	27	240	ug/fl²		
13019674	GeneseoRC-LW-4	Flame	Wipe	****	0.111	110	ug/ft²	41	360	ug/fl²		
13019675	GeneseoRC-LW-5	Flame	Wipe	****	0.111	110	ug/ll ²	860	7700	ug/fl²		
13019676	GeneseoRC-LW-6	Flame	Wipe	****	0.111	110	ug/fl²	14	130	ug/fl²		
13019677	GeneseoRC-LW-7	Flame	Wipe	****	0.111	110	ug/ft²	42	380	ug/ft²		
13019678	GeneseoRC-LW-#	Flame	Wipe	****	0.111	110	ug/A²	<12	<110	ug/ft²		
13019679	GeneseoRC-LW-9	Flame	Wipe	****	0.111	110	ug/it²	110	1000	ug/ft²		
13019680	GeneseoRC-LW-10	Flame	Wipe	****	0.111	110	ug/ft²	16	140	ug/ft ^a		
13019681	GeneseoRC-LW-11	Flame	Wipe	****	0.111	110	ug/it²	25	220	ug/ft²		
13019682	GeneseoRC-LW-12	Flame	Wipe	****	0.111	110	ug/ft²	<12	<110	ug/ft²		
13019683	GeneseoRC-LW-13	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 enforsement 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.



CERTIFICATE OF ANALYSIS



Client:

National Guard Bureau

Job Names

Geneseo RC

Chain Of Custody:

514681

Address:

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

Job Location:

34 Avon Road, Geneseo, NY 14454-1002

Date Submitted:

12/4/2012

12/13/2012

State Military Reservation Havre de Grace, Maryland 21078

Job Number: P.O. Number: 1061-15

W912K6-09-A-0003

Person Submitting: Date Analyzed:

Report Date: 12/17/2012

Attention:

Summary of Atomic Absorption Analysis for Lead

Page 2 of 2

AMA Sample Number

Client Sample

Analysis Type Sample Type

Air Volume

Area Wiped

Total ug

associated with these

samples.

Final Result

Number

(L)

Reporting Limit

See QC Summary for analytical results of quality control samples

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

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

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

supplied information nor verified by this laboratory.

Technical Man

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 agenty of the Federal Government. All rights reserved. AMA Analytical Services, Inc.

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CHAIN OF CUSTODY

(Please Refer To This Number For Inquires)

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3. Address 2: Attr	I-IH Old Bay Lane n: NGB-AVN-SI, State Mili vre de Grace, Marvland 21	ary Rese	rvation			3. Job	#: //	11-1	c		di seri			W912		0003	
4. Address 3: Hav	vre de Grace, Maryland 21	078				4. Con	ntact Per	No	n-	Ke	sp	or	ISI	Ve HOLE			
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Surface Sampling Field Data Sheet

Date Collected: 11/24/12	Job Name: Genesco RC	Company: Bonus Environmental, 4.0
Job Number: 1061-15	Job Location:	Phone Number: 989 -779 - 7686
Contact Pi	Address: 34 Avon Rd	Collected By: Non-Responsive
	Geneseo, NY 14454-1002	COC Number:

Sample Number	Sample Location	Surface/Substrate Sampled	Area Wiped (in ² /ft ²)	Collection Media	
Geneseo Re- LW-1	Field Blank			6 host wife	
Geneseo AC- Lb-7	Poil Hall	On floor, South end	4" ×4"	1	
Geneseo Rt. LW-3	Poil Hall	On Apar, North and	1		
Genesco Re-	PART Hall	On top of Amesty Box			
Geneseo RC- LW-5	Voil Hall	On top of Control Panel Box #4			
Geneseo Al- LN-6	Prill Hall	On top of table			
Geneseo RC- LW-7	Maintenance Bay 1	Un top of Storage Shelf			
6891580 RC- Llu-8	Locker Rm	On top of locker #6			
Geneseo RC- Llu-9	Motor Vehicle Storage Bldy	on floor, Center			
Geneseo Re- LW-10	Kitchen	On top of Lefrigerator			
Geneseo RC- LW-11	Training La, Former Indoor Firing Pange	On Floor, Bullet Truf Aren			
Geneseo RC- Lw-13	Training Am Former Indoor Firing Phage	Da Verttilation GAIL			
benesea Rc- LW-13	Training has Former Indoor firing Lange	On light Fixture	1		



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



Appendix C

Asbestos Sample Results

AMA Analytical Services, Inc.



A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS



Client: National Guard Bureau

Job Name:

Geneseo RC

Chain Of Custedy:

514681

Address:

301-IH Old Bay Lane, Attn: ARNG-CJG-P, State Military Reservation Job Location:

34 Avon Road, Geneseo, NY 14454-1002

Date Analyzed:

12/11/2012

Havre de Grace, Maryland 21078

Job Number:

P.O. Number:

1061-15

W912K6-09-A-0003

Person Submitting:

Non-Responsive

Attention:

Ion-Responsive

Page 1 of 2

Summary of Polarized Light Microscopy

AMA Sample Number	Client Sample#	Total Asbestos	Chrysotile Percent	Amosite Percent		Asbestos	Mineral Wool Percent	Percent				Sample Type	Sample Color	Homogeneity	Analyst ID	Comments
13019687	GeneseoRC- ASB-1 PL	NAD				44 <			3 		100	PL	White	Homogereous	SW	
13019688	GeneseoRC- ASB-1 BC	NAD	**	- 55	**	3995	**	***	975		100	BC	Gray	Homogeneous	SW	
13019689	GeneseoRC- ASB-2	NAD	•			340	144		60	TR	 40	PI	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 protectles are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information. Residual sample material will be discarded in accordance with the appropriate regulatory guidelines, unless otherwise requested by the client. NVLAP accreditation applies only to polarized light microscopy of bulk samples and transmission electron microscopy of AHERA air samples. This report must not be used to claim, and does not imply product certification, approval, or endorsement by NVLAP or any agency of the Federal Government. All rights reserved. AMA Analytical Services, Inc.

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AMA Analytical Services, Inc.



A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS



Client:

National Guard Bureau

Job Name:

Geneseo RC

Chain Of Custody:

514681

Address

301-IH Old Bay Lane, Atm: ARNG-CJG-P, State Military Reservation Job Location:

34 Avon Road, Geneseo, NY 14454-1002

Date Analyzed:

12/11/2012

Havre de Grace, Maryland 21078

Job Number:

P.O. Number:

1061-15

W912K6-09-A-0003

Person Submitting:

lon-Responsive

Attention:

Non-Responsive

Page 2 of 2

Summary of Polarized Light Microscopy

AMA Sample Client Total Chrysofile Amosite Crocidolite Other Mineral Fiberglass Organic Synthetic Other Particulate Sample Sample Homogeneity Analyst Comments

Number Sample# Asbestos Percent Percen

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.</p>
- 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 remalysis by FLM and/or TEM.</p>

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)



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Bulk Sampling Survey Sheet

Date Collected: 11-26-12	Job Name: Geneseo RC	Page 1 of Company: Pan & Environmental, Like
Job Number: 061-15	Job Location:	Phone Number: 939-779-7194
Contact Per	Address: 34 Avon Rd	Collected Non-Responsive
3	Genesco NY 14454	COC Number:

Sample Number	Homegenous Area ID	Type of Material	Sample Location	Friable	Condition of Material	Accessibility	Photo	Comments
Geneseo RC ASB-1	Surfacing		8m 107, Former Kitchen	⊠Yes □ No □ Potentially	□ Good ⊠Fair □ Poor	□ Low □ Medium ☑ High	⊠Yes □No	
Genescokt Asb-J	ŢĵĪ	Pipe Insulation	Hallway	☐ Yes ☑ No ☐ Potentially	□ Good ⊠Fair □ Poor	⊠Low □ Medium □ High	i⊠ Yes □ No	
				☐ Yes ☐ No ☐ Potentially	□ Good □ Fair □ Poor	Low Medium High	□Yes □No	
				☐ Yes ☐ No ☐ Potentially	□ Good □ Fair □ Poor	□ Low □ Medium □ High	□Yes □No	
				☐ Yes ☐ No ☐ Potentially	□ Good □ Fair □ Poor	□ Low □ Medium □ High	□Yes □No	
	00000			☐ Yes ☐ No ☐ Potentially	□ Good □ Fair □ Poor	Low Medium High	□Yes □No	
				☐ Yes ☐ No ☐ Potentially	□ Good □ Fair □ Poor	□ Low □ Medium □ High	□ Yes □ No	
				☐ Yes☐ No☐ Potentially	☐ Good ☐ Fair ☐ Poor	□ Low □ Medium □ High	□Yes □No	
				☐ Yes ☐ No ☐ Potentially	☐ Good ☐ Fair ☐ Poor	□ Low □ Medium □ High	□Yes □No	
				☐ Yes ☐ No ☐ Potentially	☐ Good ☐ Fair ☐ Poor	□ Low □ Medium □ High	□Yes □No	



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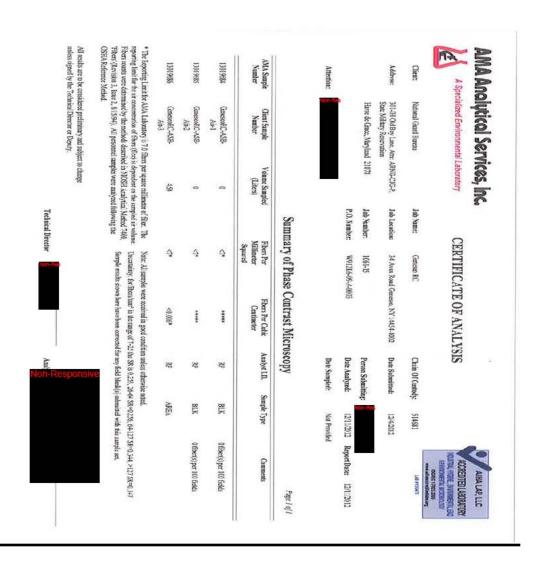


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Focused on Results www.amalab.com AIHA (#100470) NYLAP (#101143-0) NY ELAP (10920) 4475 Forbes Blvd. • Lanham, MD 20706 (301) 459-2640 • (800) 345-0961 • Fax (3)

CHAIN OF CUSTODY

(Please Refer To This Number For Inquires

Mailing/Billing Information: 1. Client Name National Guard Bureau Address National Guard Bureau					Submittal Information:					51/	4681				
2. Address 1:30	11-IH Old Bay Lane					1. Job Name: Geneseo RC						1001			
3. Address 2: Aff	In: NGB-AVN-SI, State M	ilitary Res	envation		_	2. Job Location: 34 Aven Rd. Genesco UY 14454-1002 3. Job #: 1061-15									
4. Address 3:Ha	vre de Grace, Maryland 2	11070	CIVALIOII		-	J. JOD	#: /	101-	15				Whiteless	A-0003	
							nact Pe	VOI	1-1-	es	oor		@ -b #		
Reporting Ir	ufo (Results provided as so ust be pre-scheduled)	ax #:(4	10) 942-02	54		5. Sub	mitted						natu Non-Re	sponsive	
AFTER HOURS (III	usi bepre-scheduled)	on as tech	nically feasi	ble). If no	TAT/	Reportio	g Info i	s provi	ded, A	MA will	assign	defa	ults of 5.Day and emai	/Fau to	
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*PCM Air Please Indicate NIOSH 7400	Filter Type:			AP 198,4/C	hatfald					M	etak An	alysis	1		
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U AHERA	(OTY)		TEM Dust								QPh !	AUL_	(QTY)		0.075.007
U NIOSH 7402	(QTY)		⊋ Qua	l. (pres/abs	Vacuu	m/Dist_		(QT	Y)		WPD !	CLP.	(OTY)		
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UNY State Friable 198	3.1(QTY)		→ ELA	P 198.2/EP	A 100.2		m	(Y)		rui	gai An	11/212			
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U Asbestos Soil PLM_(Qual) P.M_(Quan) P.M/TEM_(Qual) exceptes the submitted with all air and restince	PLM/TEM_/	(um) If field d	ata sheets are	Suhméte	d there is a	need to a							irable ID Species (Med	a)(QTY) fa)(QTY)
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Eneseo Rt PC-1	Rm 107	11-21	-		1	X	4	×	9/	¥ 76/ 5	E E	15	(LABORA	TORY STAFF ON	LY)
Lenesco RC-ASB-1	Rn 107	1	~		*	1	+	*	+	+	-	-	Date/Time:	Contact:	By:
Augen El. All 1	Hallway		~		*		+		+	+	+	_			
CACSCO NUTTIONS	77101177	TILETO.	0	+-	1	11/	-	*	_		1		, =x::::::::::::::::::::::::::::::::::::		
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¥ SEE A	TTACHED FIELD DATA	SHEE IS		107	-	11)			*			1	15		
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Y-SEE A Yenesco RC-ASB-Air-1	Field Blank Field Blank		Ø	***			***						Date/Time:	Contact:	By:
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ELABORATORY STAFF ONLY:	Field black Field black Hallway 1. Date/Time RCVD: 2. Date/Time Analyman		Ø	**		By (Print):	*	rest			7-		Date/Time:	Contact:	By:
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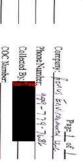
Please Return Samples Ti:
AMA Analytical Services, Inc., 4475 Forties Blwd., Lunham, MD 20706 (800) 346-086 (600) 449-2840 Fac, www.amalib.com, info@amalab.com

Gensio Re-Hil Air-3 68000 17-158 AIR-1 benesee RC-Sample Type pww.dwa. FC.Env. FER. NMB, BLK. dtc.) 0. 3 Sample Location 311/8 3 Time On 1 ing Q 133 1 1 0 33 0 N of Plow Rate 20 0 0 5 0 Volume Comments
(for mole samples, must indicate sampling apparatus
and/or collection media)



Date Collected: 11-36-16

benesa KC



34 Avon Rd Genera NY

25.7



Appendix D

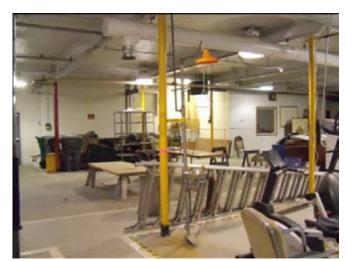
Photographs



Building exterior, looking southeast



Kitchen



Maintenance Bay 1, emergency shower



Drill Hall, looking south



Maintenance Bays 1-3, looking east



Training room, (former indoor firing range)



Room 107, peeling white paint and water-damaged plaster wall



Boiler room



Hallway, damaged pipe insulation



Hallway, flammables cabinet



Motor vehicle storage building exterior, looking northeast



Motor vehicle storage building interior, looking north

Appendix E

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The New York State Readiness Center Geneva, New York 14456

Submitted to:

National Guard Region North Industrial Hygiene Office 301-IH Old Bay Lane Havre de Grace, Maryland 21078



NATIONAL GUARD READINESS CENTER INDUSTRIAL HYGIENE EVALUATION

Consolidated Safety Services, Inc. 10301 Democracy Lane, Suite 300 Fairfax, Virginia 22030 703-691-4612 703-691-4615 Facsimile 800-888-4612 Toll free

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The New York State Readiness Center Geneva, New York

Industrial Hygiene Evaluation

Prepared for:

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

Prepared by:

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September 8, 2008

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1. EXECUTIVE SUMMARY

Consolidated Safety Services, Inc. (CSS) was contracted by the U.S. Army National Guard to perform an industrial hygiene evaluation at the Geneva New York State Readiness Center located at 300 Main Street, in Geneva, New York.

Non-Responsive performed the evaluation on September 8, 2008. The point of contact for the facility was Mr. Non-Responsive, Maintenance Assistant. The purpose of the evaluation was to assess industrial hygiene concerns in the facility, evaluate workers' personal exposures, and review industrial hygiene and safety programs.

The following industrial hygiene and safety programs were evaluated during the site visit: confined space, hearing conservation, respiratory protection, hazard communication (HAZCOM), and personal protective equipment (PPE).

The following industrial hygiene concerns were evaluated during the site visit:

- Noise exposure;
- Illumination;
- Deteriorated suspect lead-based paints;
- Damaged suspect asbestos-containing materials;
- Water damage and possible mold growth;
- General housekeeping;
- Indoor air quality; and
- Ergonomics.

There were several industrial hygiene concerns identified during the assessment. The Risk Assessment Code (RAC) is presented for each identified concern or deficiency:

- There was visual evidence of minor water damage to a wall and two ceilings within the facility.
 There was no evidence of suspect mold growth identified in the facility. The sources of the
 water intrusion should be identified and corrected and water-damaged ceiling tiles should be
 replaced to minimize the potential for mold growth. (RAC 4). 29 CFR 1960.8a
- There are several locations where the measured illuminance levels are below those recommended by the Illuminating Engineering Society of North America. Illumination should be improved in deficient areas by replacing burned-out lamps, cleaning fixtures, relocating detailed work to more illuminated areas, and opening window blinds. If illuminance levels still remain deficient, additional light sources should be provided to achieve the recommended illuminance levels (RAC 4). ANSI/IESNA RP-1-04 (Office Lighting) and ANSI ANSI/IESNA RP-7-01 (Lighting Industrial Facilities)
- Asbestos-containing brown floor tile with white and blacks flecks was identified in Room 9 (Cammo Room). Asbestos-containing brown floor tile with white flecks was identified in Room 21 (First Sergeant's Office). Overall, the material was in good condition with a few areas of

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minor, isolated damage. It is recommended that a detailed operation and maintenance (O&M) plan be developed to insure that the condition of the floor tile is maintained in good condition. Housekeeping and maintenance personnel should be advised of the presence of the suspect asbestos-containing material (RAC 4). 29 CFR 1910.1001(j)(7)(iv) and 29 CFR 1960.8a

- Housekeeping was good overall throughout the facility, with the exception of a phone cord that
 presents a trip hazard in Room 17 (Commander's Office). A cord protector should be placed
 over the cord to prevent the trip hazard or the phone should be relocated so the cord is not
 required to extend across a walkway. (RAC 3) 29 CFR 1910.22(b)(1)
- There are two locations (three samples) where lead dust wipe samples were above the NGB Region North IH Office limit of 200 micrograms/square foot (µg/ft²). These areas should be cleaned to eliminate the lead dust contamination. Anyone that may perform work in this area, including repair or maintenance activities, must be made aware of the lead contamination and appropriate precautions be taken to minimize exposures to the lead contaminated dust (RAC 4). NGB Region North IH Office limit of 200 micrograms/square foot (µg/ft²)
- Detectable levels of lead were found in all seven paint chip samples collected and therefore considered to be lead-containing paint. OSHA requires that precautions be taken when lead is present, but does not define a threshold below which no action is required. Therefore, anyone that may perform repair or maintenance activities to any surfaces in these areas must be made aware of the lead contamination and appropriate precautions be taken to minimize exposures to the lead-based paint. The Department of Housing and Urban Development (HUD) defines lead-based paint as having greater than 0.5% lead by weight. There are three locations where peeling paint samples contained levels of lead that were above the HUD criteria of 0.5% lead by weight. (RAC 4). Occupational Safety Health Administration (OSHA) Lead in Construction Standard, 29 CFR 1926.62 and Title 24, Code of Federal Regulations (CFR), Part 35, Subpart B, Sections 35.110, Definitions of Lead-Based Paint, Housing and Urban Development, U.S. Department of Housing



2. INTRODUCTION

Consolidated Safety Services, Inc. (CSS) contracted with the U.S. Army National Guard (USARNG) to perform an industrial hygiene evaluation at the Geneva New York State Readiness Center at 300 Main Street in Geneva, New York. Non-Responsive performed the evaluation on September 8, 2008. The point of contact for the facility was Mr. Non-Responsive, Maintenance Assistant. The purpose of the evaluation was to review industrial hygiene and safety programs, evaluate potential exposures to physical and chemical hazards, and evaluate exposure control strategies and equipment. The building was visually inspected and evaluated for: damaged suspect asbestos-containing materials (ACM), water-damaged building materials, possible mold growth, housekeeping, deteriorated suspect lead-based paints, and poor indoor air quality.

The Geneva New York State Readiness Center currently has one unit assigned to the facility: Troop A 2-101 Calvary. The operations conducted at the facility are primarily administrative activities, equipment maintenance and storage, and training in preparation for potential deployment for combat operations. The building that houses the Geneva New York State Readiness Center was constructed in 1892 and consists of multiple offices, a kitchen, a mess hall, break rooms, men's and women's restrooms, a locker room, supply areas, a garage, and a drill hall. The garage is only used for parking and storage; no maintenance activities are performed in the garage.

The findings, discussion and interpretation of results are provided in Section 4 through Section 8. The conclusions are provided in Section 9. A diagram of the building layout is provided in Appendix A. Sampling sheets and laboratory results for Lead Paint, Lead in Air, and Lead dust are provided in Appendix B. Selected photographs taken during the evaluation are provided in Appendix C. An explanation of how the Risk Assessment Code (RAC) was determined is located in Appendix D. A list of references used during the evaluation is provided in Appendix E.

This report is for the sole use of the USARNG. The results presented in this report are only indicative of conditions during the time of the evaluation. This evaluation does not purport to include all occupational hazards at this facility, and only those areas and exposures specifically mentioned were evaluated.

3. EVALUATION METHODS

3.1 Noise Survey

Sound pressure levels were measured using a Larson Davis Spark noise dosimeter model # 706RC and serial #17309. The noise dosimeter was factory calibrated May 15, 2008.

3.2 Illumination

Illumination measurements were taken using a Cal-Light 400, calibrated on June 17, 2008, and compared to the American National Standards Institute/Illumination Engineering Society of North America (ANSI/IESNA) Standard RP-1-04 (Office Lighting) and ANSI/IESNA Standard RP-7-01 (Lighting Industrial Facilities).

3.3 Indoor Air Quality Measurements



Indoor air quality parameters (i.e., carbon dioxide concentration, carbon monoxide concentration, temperature and relative humidity) were measured using a TSI Q-Trak Plus Model 8554, calibrated in February 2008. Carbon dioxide, temperature and relative humidity measurements were compared to the recommended levels established by the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE). CO levels were compared to Occupational Safety and Health Administration Permissible Exposure Limit, the American Conference of Governmental Industrial Hygienists Threshold Limit Value (TLV) for CO and the Environmental Protection Agency's National Ambient Air Quality Standard (NAAQS) for CO.

4. OPERATIONS DESCRIPTIONS

4.1 Facility Operations

There is currently one unit assigned to the facility: Troop A 2-101 Calvary. The operations conducted at the facility are primarily administrative activities, equipment maintenance and storage, and training in preparation for potential deployment for combat operations.

4.1.a. Noise Measurements

A sound level survey was performed to determine if there were any hazardous noise areas at the facility that could possibly result in exposures to personnel in excess of the Permissible Noise Dose. Sound pressure levels were measured throughout the facility. Measurements ranged from 59 dBA to 76 dBA within the facility. Exposure to sound pressure levels of this magnitude would not result in exposures equal to or in excess of the Permissible Noise Dose over an eight hour period.

4.1.b. Lighting Survey

Illumination levels were measured in all areas within the facility. The measurements indicate that several areas did not meet the illuminance levels recommended by the Illuminating Engineering Society of North America. The measurement results are presented in Table 1.

4.1.c. Additional Information

N/A

4.1.d. Recommendations

Illumination should be improved in deficient areas by replacing burned-out lamps, cleaning fixtures, relocating detailed work to more illuminated areas, and opening window blinds. If illuminance levels still remain deficient, additional light sources should be provided to achieve the recommended illuminance levels.



5. PHYSICAL CONDITION OF THE FACILITY

5.1 Visual Inspection – Peeling Paint – Lead

A visual inspection was performed to determine if any areas of peeling or deteriorated paint at the facility could pose a lead exposure hazard. There were seven areas identified where paint was peeling and may result in a potential exposure hazard. These areas include the drill hall, Room 11 (Supply Room), Room 21 (First Sergeant's Office), Room 1 (office), Room 35 (mess supply room), Room 41 (Locker Room), and Room 46 (kitchen). Seven paint chip samples were collected and submitted to AMA Analytical Services, Inc. to be analyzed in accordance with Environmental Protection Agency (EPA) Method 7420.

The results, presented in Table 3, indicated detectable levels of lead in all of the samples collected. The paint is therefore considered to be lead-containing paint. All construction activities that involve lead-containing coatings are regulated by the Occupational Safety Health Administration (OSHA) Lead in Construction Standard, 29 CFR 1926.62. The standard currently does not define a specific concentration of lead, which must be present within paint for it to be considered "lead-containing." Therefore, painted and glazed surfaces that contain detectable concentrations of lead must be handled in accordance with the OSHA Lead in Construction Standard. Any contractor performing work that could impact paint films or glazing that have detectable concentrations of lead must be informed of the testing results, and must take appropriate actions to comply with OSHA Standard 29 CFR 1926.62. These appropriate actions include performing air monitoring to measure worker exposure; assuring that the workers are provided with adequate respiratory protection; and assuring that workers are provided with appropriate training.

The Department of Housing and Urban Development (HUD) defines lead-based paint as having greater than 0.5% lead by weight. The peeling yellow paint in the Drill Hall, the peeling blue paint in Room 1 (Office), and the peeling blue paint in Room 46 (Kitchen) contained more than 0.5% lead by weight and are therefore considered lead-based paint.

5.2 Visual Inspection – Dust – Lead

Due to concerns with lead contamination, wipe samples were collected from various surfaces throughout the facility. Nineteen samples were collected from the walls, floors, and other surfaces. The samples were collected using "Ghost Wipes" using the prescribed NIOSH method for conducting surface wipe samples. The samples were collected and placed in new plastic containers and submitted to AMA Analytical Services, Inc. to be analyzed in accordance with Environmental Protection Agency (EPA) 600/R-93/200 Lead in Surface Wipe Samples. The results for the wipe samples, presented in Appendix B indicate that there were three samples from the Firing Range and Drill Hall that were above the NGB Region North IH Office limit of 200 micrograms/square foot (µg/ft²). It is recommended that signage be posted in the Firing Range warning of the lead hazard. Each of the other areas should be cleaned to eliminate the lead dust contamination. Anyone that may perform work in these areas, including repair or maintenance activities, must be made aware of the lead contamination and appropriate precautions be taken to minimize exposures to the lead contaminated dust.



5.3 Visual Inspection – Asbestos

A visual inspection was performed to determine if there was any suspect asbestos-containing material (ACM) at the facility and its condition. There was approximately 300 square feet (ft²) of 9 inch x 9 inch brown floor tile with black and white flecks, identified in Room #9 (Cammo Room). There was also approximately 250 ft² of 9 x 9 inch brown tile with white flecks, identified in Room #21 (First Sergeant's Office). Overall, the material was in good condition with a few areas of minor, isolated damage. Two samples of floor tile were collected and submitted to AMA Analytical Services, Inc., to be analyzed by Polarized Light Microscopy (PLM) and Transmission Electron Microscopy (TEM), to determine if the tiles are asbestos-containing. The result of the samples, presented in Table 4, indicate that the floor tile is asbestos-containing. It is recommended that anyone conducting work on any asbestos-containing material or presumed asbestos-containing material be made aware of the asbestos and the appropriate precautions be taken to minimize exposures. The condition of the floor tile should be monitored on a routine basis to insure that the materials are not damaged.

5.4 Visual Inspection – Water Damage and Mold Growth

A visual inspection was performed to determine if there was any water damage or visible mold growth at the facility. There was no evidence of mold growth, but some evidence of minor water damage to the ceiling in Room #8 (Supply Office) and Room #35 (Mess Supply Room). Minor water damage was also noted on the wall of Room #21 (First Sergeant's Office). The sources of the water intrusion should be identified and corrected and water-damaged ceiling tiles should be replaced to minimize the potential for mold growth.

5.5 Visual Inspection – Housekeeping

A visual inspection was performed to assess the state of housekeeping in the facility. Housekeeping was good overall, with the exception of a phone cord extending across a walkway that presents a trip hazard in Room #17 (Commander's Office). It is recommended to relocate the phone so the cord does not extend across a walkway or place a cord protector over this cord to eliminate the trip hazard.

6. BUILDING CONCERNS

6.1 Ergonomic Concerns

Interviews of employees were conducted and observations made to determine if there were work activities that result in any ergonomic concerns in the facility. No ergonomic concerns were identified.



6.2 Illumination Issue

Illumination levels were measured in all areas of the facility and the results indicate that some illuminance levels do not meet the levels recommended by the Illuminating Engineering Society of North America. The measurements ranged from a low of 2 foot candles (fc) to a high of 78 (fc). The complete results of the evaluation can be found in Table 1, including whether or not the measured levels met ANSI/IESNA RP-1-04 (Office Lighting) and ANSI/IESNA RP-7-01 (Lighting Industrial Facilities) recommendations for illumination.

6.3 Indoor Air Quality (IAQ)

Temperature, relative humidity, carbon monoxide (CO), and carbon dioxide (CO₂) were evaluated in the facility and compared with recognized "comfort factors." Currently, there are no enforceable regulatory IAQ standards. However, ASHRAE defines acceptable IAQ as air (1) in which there are no known contaminants at harmful levels, as determined by cognizant authorities, and (2) about which a substantial majority (80% or more) of the people exposed do not express dissatisfaction. ASHRAE Standard 62.1-2007, "Ventilation for Acceptable Indoor Air Quality," represents the state-of-the-art in ventilation design requirements for commercial, institutional, and residential buildings. It was developed "to specify minimum ventilation rates and indoor air quality that will be acceptable to human occupants and are intended to minimize the potential for adverse health effects." The standard also considers chemical, physical, and biological contaminants and other factors that impact IAQ and affect occupant health and comfort.

A digital IAQ meter (TSI Q-Trak Plus, model #8554) was used to collect temperature, relative humidity, CO₂, and CO measurements in several areas throughout the facility. Results are provided in Table 2. These measurements were compared with current ASHRAE consensus standards and were found to be within acceptable limits.

The facility is not climate controlled and the windows were open during the survey. As a result, the readings collected indoors during this survey were greatly influenced by outdoor conditions. The levels found may be considerably different during times of the year when the windows remain closed.

6.3.a. Carbon Dioxide (CO₂)

Building occupants generate CO₂ as a product of respiration. Concentrations of CO₂ are often used during indoor air quality investigations to determine the effectiveness of ventilation systems in removing common indoor pollutants. The indoor CO₂ concentration will increase in a given space with fixed ventilation output in proportion to the number of building occupants and their activity level. ASHRAE Standard 62.1-2004 uses CO₂ as a surrogate indicator of building ventilation; namely, an indoor-outdoor CO₂ concentration differential of less than 700 parts per million (ppm) is considered to indicate adequate ventilation. This level is not considered an indication of a health risk, but rather an indicator for human comfort.

Indoor levels of CO₂ ranged from 370 parts per million (ppm) in the Drill Hall to 590 ppm in Room 47 (NCO Club Room). Outdoor CO₂ levels were approximately 340 ppm during the monitored period.



The indoor CO₂ levels were less than 1040 ppm (the outdoor CO₂ levels plus 700 ppm), which indicates adequate ventilation.

6.3.b. Carbon Monoxide (CO)

The Occupational Safety and Health Administration has established a Permissible Exposure Limit for carbon monoxide of 50 parts per million (ppm) averaged over an eight-hour work day. Similarly, the American Conference of Governmental Industrial Hygienists has established a Threshold Limit Value of 25 ppm averaged over an eight-hour work day. The National Ambient Air Quality Standard (NAAQS) recommended for ambient CO is below 9 ppm over an eight-hour work day. The CO measurements in the facility were less than 1 ppm. These levels are well below established occupational exposure limits and CO does not present a hazard to employees at this facility.

6.3.c. Temperature

Indoor temperature measurements in the facility ranged from 70°F in the Drill Hall to 77°F in the Attic. These temperatures will not give rise to heat or cold stress and are close to the range recommended by ASHRAE. They are therefore considered acceptable.

6.3.d. Relative Humidity

Indoor relative humidity (RH) measurements ranged from 50% in Room 22 (Administration Offices) to 70% in Room 47 (NCO Club Room). Some of the relative humidity readings were above 60%, the level above which the potential for microbial growth increases. No suspect mold growth was noted. The results of the measurements indicate that employees were not exposed to temperature or humidity levels at the time of the survey that could give rise to heat- or cold-induced injuries.

6.3.e. Lead Air Sampling

Due to concerns with lead contamination, air samples were collected from two areas in the facility; Room 22 (Administration Offices) and Room 5 (Recruiter's Office). The samples were collected using SKC brand personal sampling pumps with the appropriate sampling media. Pumps were calibrated both before and after use with a Dry-Cal calibrator, which is considered a primary standard. General area samples were collected as close to breathing zone height as could be achieved. Samples were collected for 387 and 390 minutes, resulting in a sampled volume of 774 and 780 liters of air, respectively. The samples were shipped to AMA Analytical Services, Inc. and Analysis was conducted in accordance with the Environmental Protection Agency (EPA) 600/R-93/200 Lead in Air Samples. Both air samples were below the OSHA PEL and ACGIH TLV of 50 µg/m³ as an 8 Hour time weighted average (TWA). The results from the air samples collected over the 6.5 hour period were compared directly to the OSHA PEL, which is based on an 8-hour Time-Weighted Average, because the airborne concentration of lead is not expected to change in the office areas sampled.

Results as reported by the laboratory are included in Appendix B.

7. INDUSTRIAL HYGIENE AND SAFETY PROGRAMS



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

- Confined Space;
- Hearing Conservation;
- Respiratory Protection;
- Hazard Communication (HAZCOM); and
- Personal Protective Equipment (PPE).

It was determined that all industrial hygiene and safety programs are managed at the unit level and there are no specific facility based programs; therefore, no programs were reviewed for the facility. The attached garage is only used for parking and storage; no maintenance activities are performed in the attached garage. According to the Maintenance Assistant, all facility employees are required to attend an annual safety class which includes a review of PPE standards, chemical inventory, asbestos awareness training, and hazardous assessment.

8. VEHICLE, EQUIPMENT AND HAZARDOUS MATERIALS LIST

The use of the items on the equipment and hazardous materials lists were evaluated and it appears that all the items are used at the facility. The Material Safety Data Sheets (MSDS) were in order and all chemicals found in the facility were listed in the materials list (or chemical inventory) at the beginning of the MSDS notebook. According to the Maintenance Assistant there is one FMTV and one Hummer assigned to the facility.

9. CONCLUSION

Industrial hygiene concerns associated with some minor water damage to a wall and two ceilings were identified at the facility. Illumination levels were low in some areas of the facility. Three lead dust wipe samples were above the NGB Region North IH Office limit of 200 micrograms/square foot (μ g/ft²). Detectable levels of lead were found in seven lead paint chip samples. One minor housekeeping problem was identified. Asbestos containing floor tiles were identified in two locations. These concerns are discussed in Sections 4 through Section 8.

Geneva New York State Readiness Center Geneva, New York September 8, 2008



Tables



Table 1. Illumination Measurements The New York State Readiness Center Geneva, New York

Date of Sampling: September 8, 2008

Location	Luminance (fc) ¹	Standard (fc)	Standard Met (Y/N)
	Basement	()	
Room 32 Mess Hall	60 – 78	30	Υ
Room 33 Men's Room	3 – 15	7	N
Room 34 Janitor Closet	2	7	N
Room 35 Mess Supply	10 – 30	30	N
Room 37 Training Room	20 – 28	30	N
Room 38	32	30	Y
Room 40	2 – 32	30	N
Room 41	25	30	Y
Room 42 Boiler Room	23 – 27	30	N
Room 45 Garage Storage	20 – 35	5	Y
Room 46 Kitchen	43 – 56	50	N
Room 47 NCO Club Room	26 - 32	30	N
Basement Hallway	21 – 25	7	Y
	First Floor	1	•
Attached Garage	28 – 46	75	N
Drill Hall	18 – 25	30	N
Room 1 Office	38 – 40	50	N
Room 2 Support Office	48 – 49	30	Y
Room 6 Day Room	18 – 34	30	N
Room 7	45 – 48	30	Υ
Room 8 Supply Office	48	30	Y
Room 9 Cammo Room	38 – 41	30	Y
Room 11 Supply	28 – 32	30	N
Room 12 Med Room	11 – 15	30	N
Room 13 Push-up Room	17 – 18	30	N
Room 14	28	30	N
Room 15 NBC Room	28	30	Y



Table 1. Illumination Measurements The New York State Readiness Center Geneva, New York

Date of Sampling: September 8, 2008

Location	Luminance (fc) ¹	Standard (fc)	Standard Met (Y/N)				
Room 16 Arms Room	27 - 28	30	N				
Second Floor							
Room 17 Commander's Office	36 – 37	50	N				
Room 18 Locker Room	36 – 39	7	Y				
Room 19 Bathroom	74	7	Y				
Room 20	28 – 33	30	N				
Room 21 First Sergeant's Office	35 – 40	50	N				
Room 22 Admin Offices	22 – 35	30	N				
Room 23 Training Offices	28 – 30	30	N				
Room 24	25 - 30	30	N				
Second Floor Hallway	15 - 35	7	Y				
	Third Floor	•	•				
Attic Storage	9 - 41	5	Y				

¹ fc = foot candles

The readings were taken with a Cal-Light 400, factory calibrated on June 17, 2008.

The standards listed in Table 1 are from ANSI/IESNA RP-1-04 (Office Lighting) and ANSI/IESNA RP-7-01 (Lighting Industrial Facilities)



Table 2. Indoor Air Quality Measurements The New York State Readiness Center Geneva, New York

Date of Sampling: September 8, 2008

Location	Occupants Pr in Area		I I		Relative Humidity (%)	Temperature (° F)		
Basement								
Room 32 (Mess Hall)	2	48	0 – 560	<1	64 – 65	73 - 74		
Room 47 (NCO Club Room)	2	48	0 – 590	< 1	69 - 70	71 – 71.5		
	First Floor							
Drill Hall	2	37	0 – 380	<1	60 – 61	70 - 71		
Room 2 (Support Office)	2	475 – 510		<1	60 – 61	72 - 73		
	Sec	ond Floo	r					
Administration Offices	2	52	0 – 560	<1	50 – 51	76 - 77		
		Attic						
Attic	1450 – 480	45	0 - 480	<1	58 – 59	76 - 77		
	Attacl	ned Gara	ge					
Attached Garage	2	45	0 – 510	<1	55 – 56	74 - 75		

CO₂, CO, relative humidity and temperature measurements were taken with a TSI Q-Trak Plus Model 8554, calibrated February 2008.

American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) recommendations that indoor CO₂ concentration be maintained at a level that is less than 700 ppm above outdoor concentration.

National Ambient Air Quality Standard (NAAQS) recommendation for ambient CO: below 9 ppm

Occupational Safety and Health Administration Permissible Exposure Limit for CO: 50 ppm as an 8-hour time-weighted average (TWA) concentration

American Conference of Governmental Industrial Hygienists Threshold Limit Value for CO: 25 ppm as an 8-hour time-weighted average (TWA) concentration



Table 3. Peeling Paint Chip Sample Results The New York State Readiness Center Geneva, New York

Date of Sampling: September 8, 2008

Sample Number	Location	Results (%)¹
9082008-30	Drill Hall - peeling yellow paint from wall	5.4
9082008-31	Room 11 supply room – peeling blue paint on rear wall	0.093
9082008-32	Room 21 First Sergeant's Office – peeling white paint on wall	0.12
9082008-33	Room 1 (Office) - peeling blue paint on wall	5.7
9082008-34	Room 35 (Mess Supply) - peeling white paint on wall	0.16
9082008-35	Room 41 (Locker Room) - peeling white paint on wall	0.02
9082008-36	Room 46 (Kitchen) – blue peeling paint from kitchen wall	2.1

¹ Results cited as % lead by weight

The Department of Housing and Urban Development (HUD) defines lead-based paint as having greater than 0.5% lead by weight.

AMA Analytical Services, Inc conducted the analysis in accordance with the Environmental Protection Agency (EPA) 7420



Table 4.Lead Wipe Samples New York State Readiness Center Geneva, New York

Date of Sampling: September 8, 2008

Sample Number	Location	Sample Area ¹	Results (µg/ft²)²	NGB Standard (µg/ft²)³
9082008 - 01	Firing Range – bullet trap wall	12 in x 12 in	<12	<200
9082008 - 02	Firing Range – floor near bullet trap	12 in x 12 in	290	<200
9082008 - 03	Firing Range – storage pallet	12 in x 12 in	27	<200
9082008 – 04	Firing Range – floor near door	12 in x 12 in	1100	<200
9082008 – 05	Firing Range – light fixture	12 in x 12 in	56	<200
9082008 – 06	Drill Hall – left floor by wall and side door	12 in x 12 in	420	<200
9082008 – 07	Drill Hall – top of filing cabinet back wall	12 in x 12 in	<12	<200
9082008 – 08	Drill Hall – rear floor under bench	12 in x 12 in	84	<200
9082008 – 09	Drill Hall – ventilation unit on front right wall	12 in x 12 in	98	<200
9082008 – 10	Drill Hall – Front center wall	12 in x 12 in	<12	<200
9082008 – 11	Room 9 cammo room – rear floo	12 in x 12 in	180	<200
9082008 – 12	Room 2 support office – Office Desk	12 in x 12 in	<12	<200
9082008 – 13	Attached Garage – storage rack	12 in x 12 in	96	<200
9082008 – 14	Room 6 Day Room – radiator	12 in x 12 in	24	<200
9082008 – 15	Room 22 Administration Offices – top of filing cabinet	12 in x 12 in	<12	<200
9082008 – 16	Room # 21 First Sergeant's Office – floor	12 in x 12 in	<12	<200
9082008 – 17	Second Floor Hallway – floor	12 in x 12 in	12	<200
9082008 – 18	Floor outside firing range	12 in x 12 in	120	<200
9082008 - 19	Room 46 Kitchen – table top	12 in x 12 in	120	<200
	ı		1	

- Sample area was 12cm in x 12cm in with a total sample area of 144 in² or at total of 1 ft²
- Results are presented as microgram per square feet (µg/ft²)
- Standard is based on the NGB Region North IH office policy

AMA Analytical Services, Inc conducted the analysis in accordance with the Environmental Protection Agency (EPA) 600/R-93/200.

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The sample results were compared to the NGB Region North IH Office Policy of maintaining <200 µg/ft2



Table 5.General Area Air Samples for Lead New York State Readiness Center Geneva, New York

Date of Sampling: September 8, 2008

Sample Number	Location	Sample Information			Results
		Time Sampled / Minutes	Flow Rate (lpm) ¹	Volume (liters)	(ug/m³) ²
07112008-60	Room 22 (Administration Offices)	387	2	774	<3.9
07112008-61	Room 5 (Recruiter's Office)	390	2	780	<3.8
OSHA PEL (8-hour TWA) ⁴					
ACGIH TLV (8-hour TWA)⁵					

The results from the air samples collected over the 6.5 hour period were compared directly to the OSHA PEL, which is based on an 8-hour Time-Weighted Average, because the airborne concentration of lead is not expected to change in the office areas sampled.

- 1 lpm = liters of air per minute
- ² ug/m³ = micrograms per cubic meter
- ND = Parameter not detected above LOD
- U.S. Occupational Safety and Health Administration Permissible Exposure Limit (8-hour Time-Weighted Average)
- American Conference of Governmental Industrial Hygienists Threshold Limit Value (8-hour Time-Weighted Average)



Table 6. Bulk Suspect Asbestos Containing Material (ACM) Samples New York State Readiness Center Geneva, New York Date of Sampling: September 8, 2008

Sample Number	Location	Results (%)/Type ¹
9082008-80	9 in x 9 in brown floor tile with white and black flecks Room 9 (Cammo Room)	4% Chrysotile
9082008-81	9 in x 9 in brown floor tile with white flecks in Room 21 (First Sergeant's Office)	3% Chrysotile

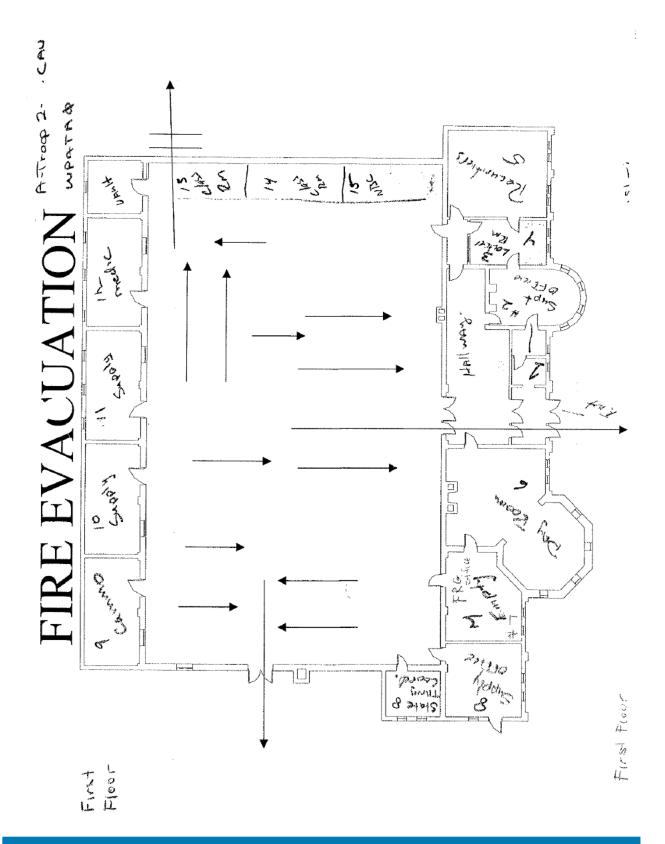
¹Results cited as % asbestos

According to 29 CFR 1910.1001(b), Asbestos-containing material means any material containing more than 1% asbestos

Geneva New York State Readiness Center Geneva, New York September 8, 2008

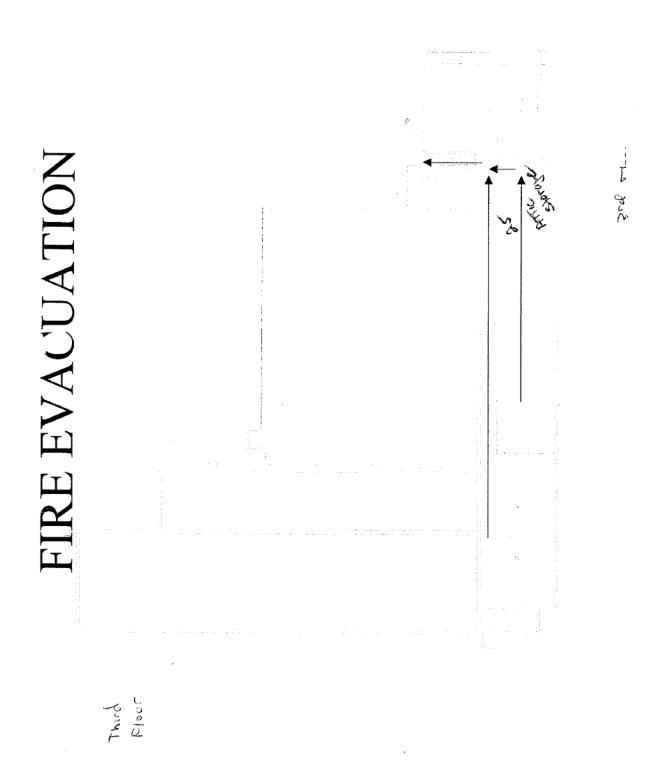


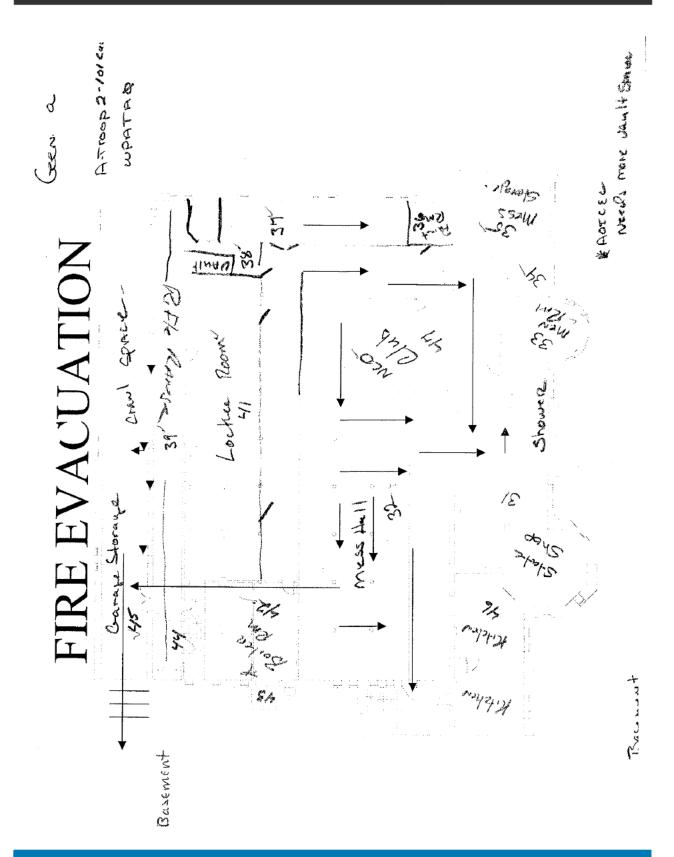
Appendix A Building Layout



EVACUATION







Geneva New York State Readiness Center Geneva, New York September 8, 2008



Appendix B

Sampling Sheets and Laboratory Results for Suspect Asbestos Floor Tile Samples, Lead Paint Chip Samples, Lead Dust Wipe Samples, and Lead Air Samples



レスタル ションSer To This 159443	Annery Genera NY		0529-872-165 ,		☐ Immd. ☐ 24hr. ☐ 48hr. ☐ 72hr. ☐ 5 Day + ☐ Immd. After-Hours* ☐ 24hr. After-Hours* ☐ Late-Night* (*must be pre-scheduled)		types had below (STY)	(QTY)	(QTY) (QTY)	ace (wipe type)(QTY)	Bulk (QTY)	(QTY) Gother (Specify(QTY)	CLIENT CONTACT (LABORATORY STAFF ONLY)					ime: Contact: By:			ime; Contact: By:		Additional Additional Annual An					1.52.1	SERVINE STATES
(Please Refer To This Number For Inquires)	State Aug	# Od		Signature easible):	urs*	Lead Analysis	Dust Wipe (wipe types)	O Soil/Solid	☐ Drinking Water (Q17) ☐ Waste Water (Q17)	🛘 Dust Wipe Fum	Mold - Direct Microscopic Analysis	U Surface Swab	BVMS BdVI		000000000000000000000000000000000000000			Date/Time:			Date/Time:					ć	ingic -		Hime
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AIHA (#100470) NVLAP (#101143-0) NY ELAP (10920) 4475 Forbes Blvd. • Lanham, MD 20706 (301) 459-2640 • (800) 346-0961 • Fax (301) 459-2643		. Address 1:		5. Phone #. \\\\ \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	Date & Time Results Required:	Asbestos Analysis	PC MCE Porosity in a 25n	Tibergiass The Diese Indicate D	PC MCE Porosity in a 25mm 37mm	Other (specify	PLM Bulk CEPA 600 - Visual Est D EPA Point Count	Orav. Reduction ELAP 198.6	CLIENT ID		20-3002306	7082008-03	108 2008 - 01	200.05		20 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		7087005-10	105 2008 - 11	7082008 - 12	968208 - 13	LABORATORY STAFF ONLY: (CUSTODY)	1. Date/Time RCVD:	Z. Date/ Lime Analyzed:	s. Kesults Keported 10.



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CERTIFICATE OF ANALYSIS

AMA Analytical Services, Inc. A Specialized Environmental Laboratory

National Guard Bureau	Job Name:	New York State Armory Geneva NY	Chain Of Custody: 159443	159443	
301-IH Old Bay Lane, Attn: NGB-AVN-SI, State Military Reservation	Job Location: Not Provided	Not Provided	Date Submitted:	10/3/2008	
Havre de Grace, Maryland 21078	Job Number: Not Provided	Not Provided	Person Submitting:		Non-Re
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An AIHA (#100470), XVI AP (101148.0), and XV FL AP (#10920) Accredited Jahoratory

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



AMA Analytical Services, Inc.

Analytical Services, III
A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS



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

Client: Address:

National Guard Bureau

Havre de Grace, Maryland 21078

,		P.O. Number: Not Provided	Not Provided	Date Analyzed:	10/9/2008	3/9/2008 Report Date:	10/9/2008
Affention:	e e	Summary of	Summary of Atomic Absorption Analysis for Lead	sis for Lead			Page 2 of 2

Comments	Table Statement and Statement									samples	nd water	
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Sample Type	Paint Chip	Paint Chip	Paint Chip	Paint Chip	Paint Chip	Paint Chip	Paint Chip	Air	Air	ids: EPA 600/R-93/2	Solids: EPA 600/R-	mg/Kg = parts per million (ppm) by weight $mg/L = parts per million (ppm)$
Analysis Type	Flame	Flame	Flame	Flame	Hame	Flame	Hame	Flame	Flame	Paints, and Soil/Sol	es, Paints, and Soil/	ts per million (ppm) !
Client Sample Number	9082008-30	9082008-31	9082008-32	9082008-33	9082008-34	9082008-35	9082008-36	9082008-60	9082008-61	Flame: Air, Wipes,	Furnace: Air, Wipe	
AMA Sample Number	0901169	0601170	0901171	0901172	0901173	0901174	0901175	9/11/060	0901177	Analysis Method for Flame: Air, Wipes, Paints, and Soit/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

Technical Manager: Annlyst: 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 %Pb = percent lead by weight

This report applies only to the samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a matual protocion to citects, the public, and these Laboratories, this report is submitted and accepted for the exhibitive are of the citect or 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 as. Sample types. Sections, and collection protocols are based upon the information provided by the persons submitting from and, unless collected by personnel of these Laboratories, we expect and Laboratories and in the experimental provided by the citera and, unless otherwise requested by the citer. NALAP acceptation applies only to polarized light microscopy of balk samples and a properties regulatory guidelines, unless otherwise requested by the citer. NALAP acceptation applies only to polarized light microscopy of balk samples. This report must not be used to claim, and does not imply product certification, a redousement by NVLAP, NIST, or any agency of the Federal Government. All rights reserved.

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AMA Analytical Services, Inc.

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Andiothal Selvices, III.
A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS

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* Galvi



Person Submitting

Not Provided Not Provided

Job Number: P.O. Number:

Job Location:

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

Client: Address:

National Guard Bureau

State Military Reservation Havre de Grace, Maryland 21078

Attention:

Job Name:

Summary of Polarized Light Microscopy

	Comments			
	Analyst ID		LBP	1.35
	Client Total Chrysotile Amestie Crocidolite Other Mineral Fiberglass Organic Synthetic Other Particulate Sample Homogeneity Analyst Sample# Asbestos Percent Percent Percent Asbestos Wool Percent Percent Percent Percent Color ID		Homogeneous	Jark Brown Homogeneous 1.3P
	Sample Color		Вгочи	Jark Brov
	dibergisss Organic Synthetic Other Particulate S. Percent Percent Cercent		96	44
	Other Percent	The state of commercial control of the	ŧ	ı
	Synthetic Percent		:	ı
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TAXABLE MANAGEMENT OF THE PROPERTY OF THE PROP	Fiberglass Percent	Percent		ı
	Mineral Wood	Percent	:	;
	Other Asbestos	Percent	1	1
	Amosite Crocidolite Other Mineral Fi	Percent Perc	4	:
	Amosite Percent	1	;	1
The second secon	Chrysotile Percent		4	m
THE RESIDENCE OF THE PROPERTY	Total Asbestos		7	۴.
			9082008-80	9082008-81
	AMA Sample Number	;	8211060	0901179

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

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

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

NAD = "No Asbestos Detected" TR = "Trace equals less than 1% of this component" Innormative. Give complex containing asshed to in range of 1,10%, the CV is 0.43 11.35%, CV=6.

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



This report applies only to the samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public, and these Laboratories, this report is submitted and acceptable for the cartier authorization whom it addressed and upon the condition of this is not to be used, in whole or part, in any part, in any part, in any calculate, matter whites anthronization from us. Sample types. One cannot be calculated for the cartiers and consideration from us. Sample types the cartiers are calculated in the cartiers and considerated with the accuracy and completeness of this information. Recition is merital will be discarded in accordance with the appropriate regulatory guidelines, unless otherwise requisition do the client. NVLAF secretiation appeared to particulate light microscopy of bulk 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 Covernment. All rights reserved.

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Appendix C Selected Photographs of the Geneva New York State Readiness Center



Photo 1: The exterior front of the building that houses the Geneva New York State Readiness Center.



Photo 3: A view of the Drill Hall located on the first floor of the Geneva New York State Readiness Center.



Photo 5: Evidence of water damage on the wall of Room 21 (First Photo 6: Evidence of water damage Room 8 (Supply Office). Sergeant's Office).



Photo 2: An exterior view of the attached garage at the Geneva New York State Readiness Center.



Photo 4: A view of the indoor Firing Range that reportedly has been cleaned.





Photo 7: Damaged 9 inch x 9 inch brown floor tile with black and white flecks located in Room 9 (Cammo Room).



Photo 8: Damaged 9 inch x 9 inch brown floor tile with white and black flecks in Room 21 First Sergeant's Office.



Photo 9: A phone cord presents a trip hazard in Room 17 (Commander's Office).

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Geneva New York State Readiness Center Geneva, New York September 8, 2008



Appendix D Risk Assessment Code Determination



RISK ASSESSMENT CODE DETERMINATION

A Risk Assessment Code (RAC) for each hazard identified is provided at the end of each hazard description. The RAC codes are derived using the matrix provided by the National Guard (reference DOD Instruction 6055.1). This process includes three steps:

• Step 1: Determine the Health Hazard Severity Code (HHSC)

A. Exposure Points Assessed

	Exposure Conditions						
		<ct< th=""><th>Occasionally >CT Always <std< th=""><th>>CT ≤STD</th><th>>STD</th></std<></th></ct<>	Occasionally >CT Always <std< th=""><th>>CT ≤STD</th><th>>STD</th></std<>	>CT ≤STD	>STD		
AER	No	0	3	5	7		
Possible?	Yes	1-2	4	6	8		

AER - Alternate exposure route, such as skin absorption, ingestion

CT – DoD component threshold that triggers surveillance actions, such as microwatts/cm², dB, parts per million (ppm)

STD – DoD exposure limit, such as Threshold Limit Value (TLV) and Permissible Exposure Limit (PEL)

B. Medical Effects Points Assessed

Condition	Points
No medical effect, such as nuisance noise and nuisance odor	2
Temporary reversible illness requiring supportive treatment, such as eye irritation and sore throat	1-2
Temporary reversible illness with a variable but limited period of disability such as metal fume fever	3-4
Permanent, nonsevere illness or loss of capacity, such as permanent hearing loss	5-6
Permanent, severe, disabling, irreversible illness or death, such as asbestosis and lung cancer	7-8



C. Determine the HHSC by totaling the points assessed and using the following guide:

Total Points (sum of A and B)	HHSC
13-16	1
9-12	II
5-8	III
0-4	IV

• Step 2: Determine the Mishap Probability Category (MPC)

A. Duration of Exposure Points Assessed

	Length of Exposure						
	1-8 hr/week >8hr/week continuous						
Type of	Irregular, intermittent	1-2	4-6				
Exposure	Regular, periodic	2-3	5-7	8			

B. Number of Exposed Personnel Points Assessed

Number of Exposed Personnel	Points
<5	1-2
5-9	3-4
9-49	5-6
>49	7-8

C. Determine the MPC for health hazards by totaling the points assessed and using the following guide:

Total Points (sum A and B)	MPC
14-16	A
10-13	В
5-9	С
<5	D



Step 3: Determine the RAC using the following matrix;

	Mishap Probability Category (MPC)							
		Α	В	С	D			
Health	I	1	1	2	3			
Hazard	II	1	2	3	4			
Severity	III	2	3	4	5			
Code	IV	3	4	5	5			

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Geneva New York State Readiness Center Geneva, New York September 8, 2008



Appendix E References



References

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- Occupational Safety Health Administration (OSHA) Lead in Construction Standard, 29 CFR 1926.62

National Guard Region North

National Guard Readiness Center Industrial Hygiene Evaluation Geneva Readiness Center Geneva, NY 14456-2606

Prepared for:

National Guard Region North Industrial Hygiene Office 301 Old Bay Lane Havre De Grace, MD 21078

Attn:

Non-Responsive

Prepared by:

Bonus Environmental, LLC P.O. Box 121 Mt. Pleasant, Michigan 48804

> Project No. 1061-15 January 30, 2013

Bonus Environmental, LLC

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APPENDICES

Appendix A Shop Diagram and Air Flow Patterns

Appendix B Lead Sample Results

Appendix C Photographs

Appendix D References

January 30, 2013 Project No. 1061-15

National Guard Region North Industrial Hygiene Office 301 Old Bay Lane Havre De Grace, MD 21078-4003

Attn: Non-Responsive

Project: Industrial Hygiene Evaluation

Geneva Readiness Center, Geneva, NY 14456-2606

1.0 - EXECUTIVE SUMMARY

Bonus Environmental, LLC was contracted by the National Guard Bureau Region North Industrial Hygiene office to identify and measure the existence and extent of potentially hazardous operations or conditions at the Geneva Readiness Center located at 300 Main Street in Geneva, NY. The purpose of this evaluation was to generate or to update a previous baseline evaluation so that employee exposure history can be provided to each civilian and military employee. The following industrial hygiene conditions were evaluated during this industrial hygiene evaluation performed by Bonus Environmental, LLC representative Non-Responsive on November 16, 2012:

- Indoor Air Quality
- Lead Wipe & Bulk Sampling
- Illumination
- Ergonomics

 Evaluation of the physical condition of the facility in regards to peeling paint, asbestos containing materials, water damage or mold problems, and housekeeping practices.

The Geneva Readiness Center is an Army National Guard armory comprised of offices, locker rooms, storage rooms, a conference room, a gym, a drill hall, a kitchen, a mess hall, a lounge, a boiler room, maintenance (storage) bays (no maintenance activity, and no exhaust ventilation system), and a former indoor firing range. The point of contact for the approximately 29,242 ft² Geneva Readiness Center is Mr. Raymond Carmody. Health and Safety programs reviewed during this survey included personal protective equipment (PPE), Lock-Out/Tag-Out, Asbestos Awareness, Fire Safety, and Confined Spaces. Four (4) full-time administrative personnel are employed at the Geneva Readiness Center. A shop diagram depicting the locations of the operations and air flow patterns identified during this industrial hygiene evaluation is attached to this report as Appendix A.

The National Guard Bureau Region North Industrial Hygiene Office provided governmental furnished equipment and sampling media required to perform the industrial hygiene evaluation. Chain of custody forms for laboratories approved by the National Guard Bureau Region North Industrial Hygiene Office were provided with the sampling media. All samples collected during this industrial hygiene evaluation were sent to the National Guard Bureau Region North Industrial Hygiene Office approved laboratories for analysis.

2.0 – LEAD SAMPLING

2.1 – Lead Wipe Sampling

Lead wipe sampling was performed according to the Environmental Protection Agency (EPA) method 600/R-93/200(M)-7420 (Atomic Absorption - Flame). Twelve (12) wipe samples and one (1) field blank were sent under chain-of-custody procedures to AMA Analytical Services, Inc., an American Industrial Hygiene Association (AIHA) accredited laboratory located in Lanham, Maryland. The U.S. Department of Labor (USDOL) and the Occupational Safety and Health Administration (OSHA) do not have a promulgated standard for lead surface contamination; however OSHA has provided an interpretive level of 200 micrograms per square foot (μg/ft²) to assess the housekeeping requirements of "as free as reasonably practicable". This interpretation is presented in OSHA Industrial Hygiene Technical Manual (TED 01-00-015; 1/20/1999), and in a letter of interpretations dated 1/13/2003, and subsequently issued to public domain. NG Pam 420-15 addresses the conversion and remediation of former indoor firing ranges. The following table outlines the locations and analytical results for the lead wipe samples collected during this project.

		Army National Guard – Geneva Readiness Center Lead Wipe Sample Results		
Sample #	Sample Date	Sample Location	Sample Area (ft²)	Sample Result (µg/ft²)
Geneva RC- LW-1	11-16-12	Field Blank		< 12 μg
Geneva RC- LW-2	11-16-12	Office 103, on filing cabinet	0.111	< 110
Geneva RC- LW-3	11-16-12	Drill Hall, on floor, southeast end	0.111	< 110
Geneva RC- LW-4	11-16-12	Drill Hall, on floor, northwest end	0.111	< 110
Geneva RC- LW-5	11-16-12	Drill Hall, on top of refrigerator	0.111	< 110
Geneva RC- LW-6	11-16-12	Drill Hall, on top of wooden shelving	0.111	< 110
Geneva RC- LW-7	11-16-12	Drill Hall, on top of Westinghouse heater (southeast heater)	0.111	160
Geneva RC- LW-8	11-16-12	Kitchen, on top of storage rack	0.111	120
Geneva RC- LW-9	11-16-12	Former indoor firing range, on floor, southeast end	0.111	7,400
Geneva RC- LW-10	11-16-12	Former indoor firing range, on floor, northwest end	0.111	2,900
Geneva RC- LW-11	11-16-12	Mess Hall, on heater fin	0.111	< 110
Geneva RC-	11-16-12	Men's locker room, on top of locker #5	0.111	250

Army National Guard – Geneva Readiness Center Lead Wipe Sample Results						
Sample #	Sample Date	Sample Location	Sample Area (ft²)	Sample Result (µg/ft²)		
LW-12						
Geneva RC- LW-13	11-16-12	Office 207, on window sill	0.111	420		

Surface cleanliness threshold = < 200 micrograms per square foot ($\mu g/ft^2$)

The former indoor firing range is not currently used (it is padlocked and empty, and was unlocked to enable the wipe sampling). It is uncertain whether it was remediated to the protocols specified in NG Pam 420-15. Remediation wipe sample results were not posted, nor were any signs posted restricting access to the area.

3.0 - PHYSICAL CONDITION OF FACILITY / PERSONNEL CONCERNS

3.1 - Lead Based Paint

During the industrial hygiene evaluation of the Geneva Readiness Center, Bonus Environmental, LLC performed a visual inspection of the facility in regards to lead based paint. Bonus Environmental, LLC identified several areas of peeling paint which could potentially pose a lead exposure hazard. Bonus Environmental, LLC identified peeling paint in the following areas:

- Approximately 35 ft² peeling yellow paint in the Drill Hall (120);
- Approximately 10 ft² peeling grey paint in the Serving Room;
- Approximately 15 ft² peeling grey paint in the Kitchen;
- Approximately 3 ft² peeling white paint in the Kitchen;
- Approximately 1 ft² peeling white paint in the Locker Room;
- Approximately 6 ft² peeling white paint in the Office/Storage;
- Approximately 2 ft² peeling white paint in the Supply Office (122);
- Approximately 2 ft² peeling white paint in the Storage (112);
- Approximately 3 ft² peeling white paint in the 2nd Floor Hallway;
- Approximately 3 ft² peeling blue paint in the Kitchen;
- Approximately 1 ft² peeling blue paint in the Locker Room

Four (4) paint chip samples were collected and sent under chain-of-custody procedures to AMA Analytical Services, Inc., an AIHA accredited laboratory located in Lanham, MD. See table below for sample information:

	Army National Guard – Geneva Readiness Center Paint Chip Samples						
Sample #	Sample Location	Color	Analytical Reporting Limit (%)	Analytical Results (%)			
GenevaRC-PC-1	Drill Hall	Yellow	0.0039	7.4			
GenevaRC-PC-2	Kitchen	Gray	0.0056	0.071			
GenevaRC-PC-3	Kitchen	White	0.0053	0.3			
GenevaRC-PC-4	Kitchen	Blue	0.0077	0.61			

Analysis indicated that each of the peeling paints collected and submitted contained detectable levels of lead. The paints are therefore each considered to be lead-based paint. The OSHA Lead in Construction Standard, 29 CFR 1926.62 does not assign a numerical value of which must be present within the paint to be considered lead based paint. Paints which contain any detectable level of lead shall be treated and handled as lead based paint. Housing and Urban Development (HUD) defines lead based paint as having greater than 0.5% lead by weight. Paint chip sample results are attached to this report as Appendix B.

3.2 – Presumed Asbestos Containing Materials

During the industrial hygiene evaluation of the Geneva Readiness Center, Bonus Environmental, LLC performed a visual inspection to identify presumed asbestos containing materials (PACM) and, if found, to note their condition. Bonus Environmental, LLC did identify PACM that was considered to be in poor or damaged condition (approximately 2 ft² of damaged plaster on the ceiling of Supply office 122 was inaccessible to collect a bulk sample).

3.3 - Water Damage/Mold Growth

During the industrial hygiene evaluation of the Geneva Readiness Center, Bonus Environmental, LLC performed a visual inspection to report the location and perform an evaluation of any water damaged building materials and/or visible mold problems. Bonus Environmental, LLC identified approximately 2 ft² of water damaged plaster on the ceiling within the Supply Office (122).

3.4 - Housekeeping

During the industrial hygiene evaluation of the Geneva Readiness Center, Bonus Environmental, LLC performed an evaluation of the housekeeping practices. Bonus Environmental, LLC found the housekeeping practices within Geneva Readiness Center facility in good order, with the exception of residual lead dust concentrations.

3.5 – Employee Interviews

During the industrial hygiene evaluation of the Geneva Readiness Center, Bonus Environmental, LLC performed interviews and made observations to determine if the work activities being performed possessed any ergonomic concerns. Following the interviews and observations, no ergonomic and or indoor air quality concerns were identified.

3.6 – Indoor Air Quality

During the industrial hygiene evaluation of the Geneva Readiness Center, Bonus Environmental, LLC measured temperature, relative humidity, carbon monoxide (CO), and carbon dioxide (CO₂) throughout the facility. A calibrated TSI Q-Trak Plus Model 7575 Indoor Air Quality Monitor equipped with a Q-Trak Probe 982 was utilized to record indoor air quality measurements.

Carbon dioxide is a natural component of air and the amount of CO₂ in a given air sample is commonly expressed as parts per million (ppm). The outdoor air in most locations contains about 380 ppm carbon dioxide. Higher outdoor CO₂ concentrations can be found near vehicle traffic areas, industry and sources of combustion. The concentrations of CO₂ found in most offices are well below the OSHA Permissible Exposure Limit (PEL) of 5,000 ppm when averaged over an 8-hour time period for an industrial workplace. While levels below 5,000 ppm are considered to pose no serious health threat, studies have indicated that individuals in offices with elevated CO₂ concentrations tend to report drowsiness, lethargy and a general sense that the air is stale. Ventilation rates for office spaces are defined by various codes and standards. The most widely accepted standard is the American Society of Heating, Refrigerating, and Air Conditioning Engineers (ASHRAE) Standard 62. According to ASHRAE Standard 62.1-2010, CO₂ concentrations below 700 ppm above the outdoor level are considered to indicate adequate ventilation and provide human comfort. The CO₂ measurements collected during this industrial hygiene evaluation ranged from 411 ppm to 502 ppm and indicate adequate ventilation within the facility.

Carbon monoxide is a colorless, odorless, poisonous gas that results from the incomplete burning of common fuels such as natural or liquefied petroleum gas, oil, wood or coal. When carbon monoxide is inhaled, it enters the blood stream and reduces the ability of the blood to carry oxygen to vital organs, such as the heart and brain. Because it is impossible to see, taste or smell the toxic fumes, CO can harm you before you are aware it is in your work area. At lower levels of exposure, CO causes mild effects that are often mistaken for the flu. These symptoms include headaches, dizziness, disorientation, nausea and fatigue. The effects of CO exposure can vary greatly from person to person depending on age, overall health and the concentration and length of exposure. The OSHA has established a permissible exposure limit (PEL) of 50 parts per million (ppm). OSHA standards prohibit worker exposure to more than 50 parts of the gas per million parts of air averaged during an 8-hour time period. The peak CO level for employees is 200 ppm. The CO measurements collected during this industrial hygiene evaluation ranged from 3.3 ppm to 6.4 ppm. CO levels were below the OSHA PEL during this industrial hygiene evaluation.

During the industrial hygiene evaluation of the Geneva Readiness Center, Bonus Environmental, LLC collected temperature measurements. Temperature measurements throughout the common areas of the facility routinely occupied by employees ranged from 56.1°F to 68.4°F and are not considered to be within an acceptable range outlined within ASHRAE Standard 55-2010.

During the industrial hygiene evaluation of the Geneva Readiness Center, Bonus Environmental, LLC collected relative humidity measurements. Relative humidity measurements throughout common areas of the facility routinely occupied by employees ranged from 34.2% to 60.8%. Indoor air quality measurements recorded during this industrial hygiene evaluation are summarized in the table below.

Army National Guard – Geneva Readiness Center Indoor Air Quality Measurements							
Location	CO_2 (ppm)	CO (ppm)	Relative Humidity (%)	Temperature (°F)			
Outdoors, northeast side of building (mostly cloudy)	411	6.4	39.7	48.4			
Superintendent's office 104	439	3.6	60.8	56.1			
Drill Hall	420	3.3	49.1	59.4			
Office 123 (3 people in room)	494	4.0	43.7	61.3			
Mess Hall	502	4.0	43.9	64.2			
Kitchen	471	4.3	38.0	63.9			
Garage	478	4.5	35.3	63.4			
Office 209	432	4.3	38.1	68.4			
Locker Room 204	419	4.6	34.8	68.1			
Storage Room 305	436	4.9	34.2	67.1			
Storage Room 303	431	5.2	35.7	64.8			

Required/Recommended Values

CO₂ - OSHA PEL = 5,000 parts per million (ppm) and ASHRAE Standard 62.1-2010 = no greater than 700 ppm above outdoor

CO - OSHA PEL = 50 ppm and OSHA Ceiling Limit = 200 ppm

Temperature - ASHRAE Standard 55-2010 = between approximately 67 and 82 °F.

RH - ASHRAE Standard 62.1-2010 = limited to < 65%

4.0 – LIGHTING

Utilizing a properly calibrated Cooke Corporation cal-Light 400 light meter, Bonus Environmental, LLC collected illumination readings throughout the Geneva Readiness Center. Illumination measurements recorded during this industrial hygiene evaluation are summarized in the table below.

Army National Guard – Geneva Readiness Center Lighting Measurements							
Location	Measurement in	Requirement in Foot	Requirement				
Locuiton	Foot Candles	Candles	Met?				
Maintenance office	33.6	75	No				
Mess Hall	152.2	10	Yes				
Lounge	40.6	10	Yes				
Serving Room	9.8	50	No				
Kitchen	61.7	50	Yes				
Boiler Room	51.6	30	Yes				
Garage (storage)	21.0	30	No				
Locker Room	31.2	7	Yes				
Former Indoor Firing Range	4.1	30	No				
Storage		Inaccessible					
Paint Supply Room	101.1	30	Yes				
Office/Storage	21.3	50	No				
Men's Restroom	17.7	5	Yes				
Men's Shower Area	4.9	7	No				
Office (123)	24.4	50	No				
Conference Room (124)	15.7	30	No				
Drill Hall (120)	43.0	30	Yes				
Supply Office (122)	67.9	50	Yes				

Army National Guard – Geneva Readiness Center Lighting Measurements							
Location	Measurement in Foot Candles	Requirement in Foot Candles	Requirement Met?				
Storage (121)		Inaccessible					
Storage (119)		Inaccessible					
Storage (118)		Inaccessible					
Storage (117)		Inaccessible					
Storage (116)		Inaccessible					
Storage (115)		Inaccessible					
Weight Room (114)	12.4	30	No				
Storage (113)	30.0	30	Yes				
Storage (112)	18.7	30	No				
Recruiting Office (108)	15.1	50	No				
Maintenance Garage (109) (storage)	22.3	30	No				
Latrine (110)	5.9	5	Yes				
Storage (111)		Inaccessible					
Female Locker Room (106)	37.3	7	Yes				
Female Restroom	33.3	5	Yes				
Superintendent's Office (104)	32.8	50	No				
Office (103)	35.3	50	No				
Office (203)	43.9	50	No				
2 nd Floor Hallway	15.6	5	Yes				
Unisex Restroom (205)	33.8	5	Yes				
Locker Room (204)	67.4	7	Yes				
Office (206)	50.9	50	Yes				
Office (207)	51.2	50	Yes				
Copy Room/Office (208)	32.9	50	No				
Office (209)	34.1	50	No				
Office (210)	21.9	50	No				
Storage (301)	35.2	30	Yes				
Storage (303)	20.9	30	No				
Storage (304)		Inaccessible					
Storage (302)	No Lighting						
Storage (305)	26.5	30	No				
Storage (306)	6.0	30	No				
Storage (401) (Not Used)	10.7	30	No				
Storage (501) (Not Used)	3.8	30	No				

Lighting levels were compared to the levels outlined within the American National Standards Institute/Illuminating Engineering Society of North America (ANSI/IESNA) RP-1-04 Office Lighting Handbook, and the ANSI/IESNA RP-7-01 Lighting Industrial Facilities Handbook. Areas within the facility which did not meet the foot candle requirements are identified with a "NO" within the "Requirement Met?" column. It is recommended that illumination be improved in all the areas that did not meet the requirements. Improving illumination can be achieved by replacing burned-out lamps/bulbs, cleaning fixtures, relocating detailed work activities to more illuminated areas, and using supplemental task lighting.

5.0 - CONCLUSION & LIMITATIONS

Bonus Environmental, LLC was contracted by the National Guard Bureau Region North Industrial Hygiene office to identify and measure the existence and extent of potentially hazardous operations or conditions at the Geneva Readiness Center located at 300 Main Street in Geneva, NY. The purpose of this evaluation was to generate or to update a previous baseline evaluation so that employee exposure history can be provided to each civilian and military employee. Industrial hygiene conditions were evaluated during this industrial hygiene evaluation performed by Bonus Environmental, LLC representative Erica Funnell on November 16, 2012.

The results/findings of this industrial hygiene evaluation are summarized below.

- 1. Lead wipe sample results collected within the Geneva Readiness Center were above the OSHA interpretive level of 200 μ g/ft², as well as the 200 μ g/ft² threshold established in NG Pam 420-15 in the following areas:
 - Former indoor firing range, southeast end, on floor;
 - Former indoor firing range, northwest end, on floor;
 - Men's locker room, on top of locker #5;
 - Office 207, on window sill
- 2. Bonus Environmental, LLC identified several areas of peeling paint which contained detectable levels of lead, potentially posing a lead exposure hazard.
- 3. Bonus Environmental, LLC identified PACM that was considered to be in poor or damaged condition (approximately 2 ft² of damaged plaster on the ceiling of Supply office 122 was inaccessible to collect a bulk sample).
- 4. Bonus Environmental, LLC identified approximately 2 ft² of water damaged plaster ceiling.
- 5. Bonus Environmental, LLC found the housekeeping practices within Geneva Readiness Center in good order, with the exception of residual lead dust concentrations.
- 6. Following the interviews and observations, no ergonomic and or indoor air quality concerns were identified.
- 7. Bonus Environmental, LLC measured temperature, relative humidity, CO, and CO₂ throughout the Geneva Readiness Center. All were found to be within their acceptable ranges/limits; with the exception of several temperature readings.
- 8. Areas within the Geneva Readiness Center facility were identified as improperly illuminated.
- 9. Health and Safety programs reviewed during this survey included personal protective equipment (PPE), Lock-Out/Tag-Out, Asbestos Awareness, Fire Safety, and Confined Spaces. All were found to meet regulatory requirements.

10. No vehicle maintenance occurs in the maintenance bays, which are used for storage. No vehicle exhaust ventilation system exists in the maintenance bays.

Bonus Environmental, LLC has 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 Region North - Industrial Hygiene Office. 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 Bonus Environmental, LLC's inspection of the site.

It has been a pleasure to be of assistance to you. Please contact us if you have any questions concerning this report or if we can be of any further assistance in any other environmental or occupational health matter.

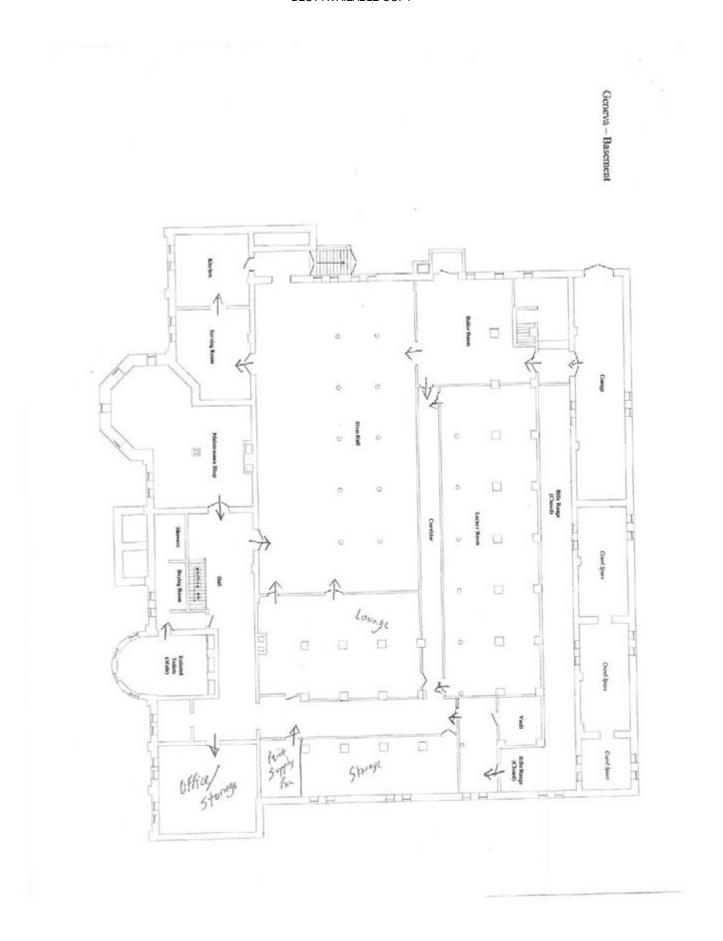
Non-Responsive

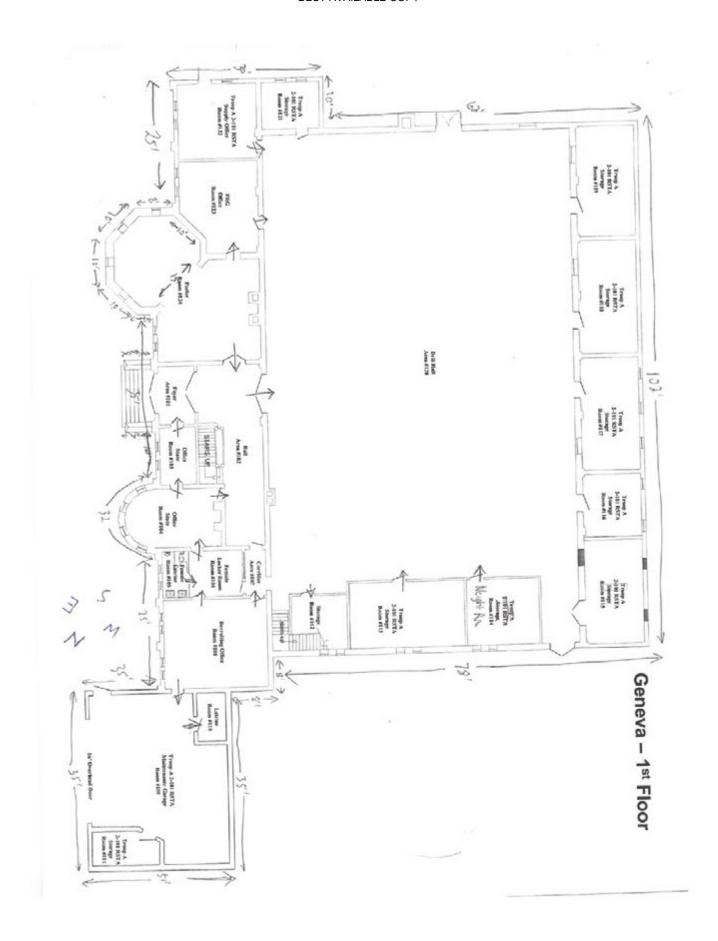
Principal

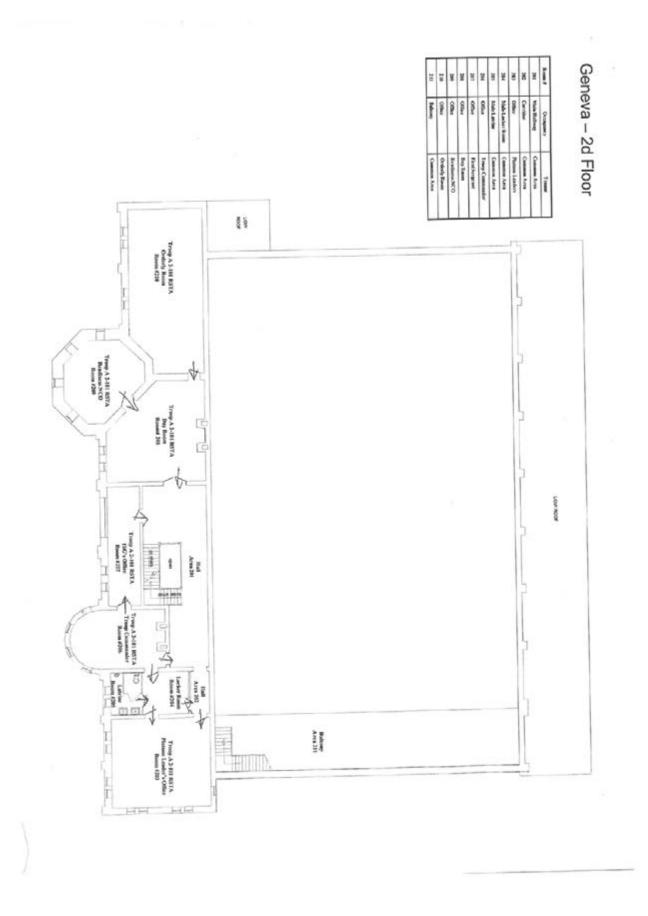
Bonus Environmental, LLC

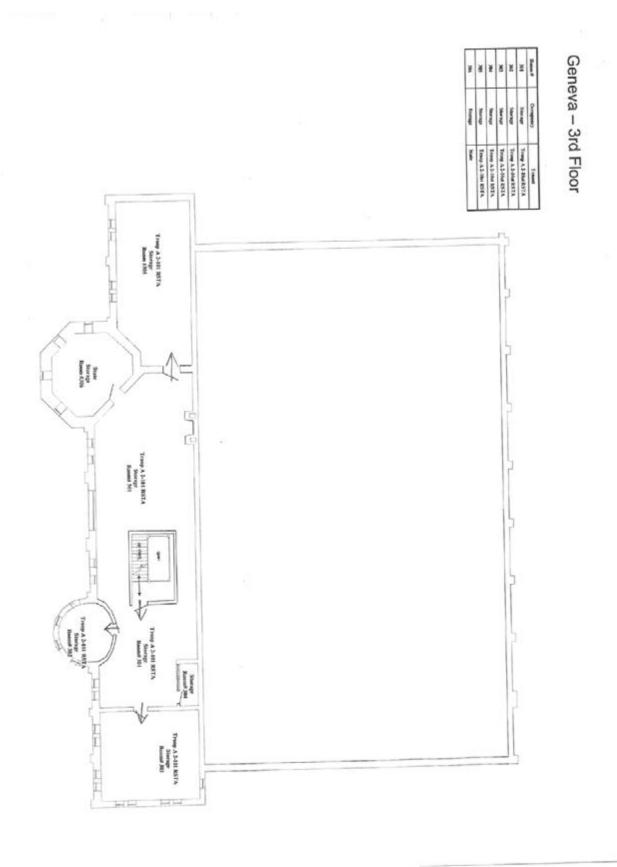
Appendix A

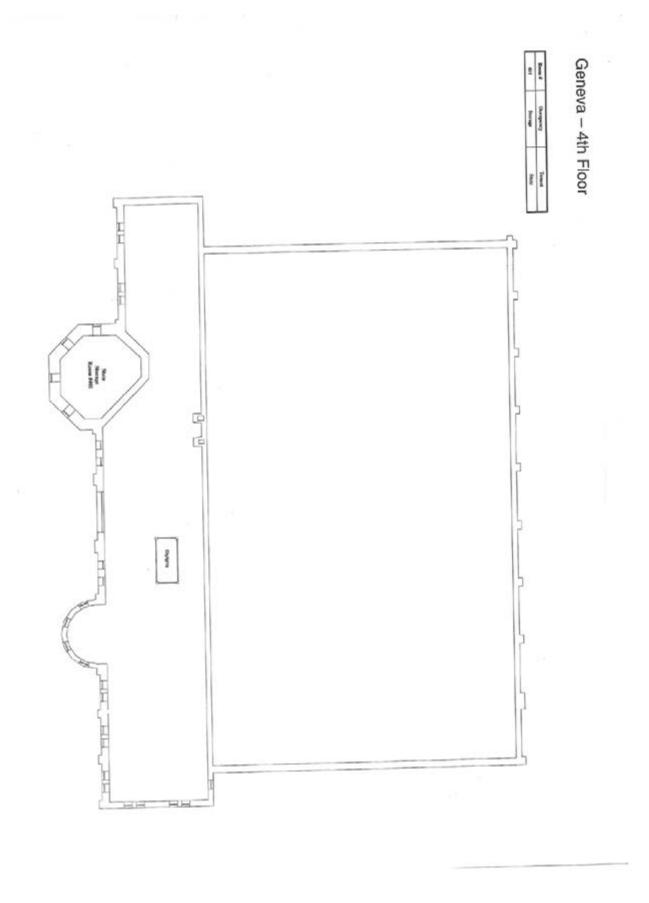
Shop Diagram and Air Flow Patterns











BEST AVAILABLE COPY

Appendix B

Lead Sampling Results

AMA Analytical Services, Inc.



CERTIFICATE OF ANALYSIS



Client:

National Guard Bureau

Job Name:

Geneva RC

Chain Of Custody:

514538

Address:

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

Job Location:

300 Main Street, Geneva, NY 14456

Date Submitted:

11/21/2012

State Military Reservation

Havre de Grace, Maryland 21078

Job Number: P.O. Number: 1061-15

W912K6-09-A-0003

Person Submitting: Date Analyzed; Non-Responsive

11/30/2012 Report Date:

com

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 (ft³)		orting imit	Totalug	Final Res	sult	Comments
13016518	GenevaRC-PC-1	Flane	Paint Chip	****	N/A	0.0039	%Pb		7.4	%Pb	
13016519	GenevaRC-PC-2	Flame	Paint Chip	****	N/A	0.0056	%Pb		0.071	%Pb	
13016520	GenevaRC-PC-3	Flame	Paint Chip	****	N/A	0.0053	%Pb		0.3	%Pb	
13016521	GenevaRC-PC-4	Flame	Paint Chip	****	N/A	0.0077	%Pb		0.61	%Pb	
13016522	GenevaRC-LW-1	Flame	Wipe Blank	****	N/A	12	ug		<12	ug	
13016523	GenevaRC-LW-2	Flame	Wipe	****	0.111	110	ug/fi²	<12	<110	ug/ft²	
13016524	GenevaRC-LW-3	Flame	Wipe	****	0.111	110	ug/ft²	<12	<110	ug/ft²	
13016525	GenevaRC-LW-4	Flame	Wipe	****	0.111	110	ug/ft²	<12	<110	ug/ft²	
13016526	GenevaRC-LW-5	Flame	Wipe	****	0.111	110	ug/fl²	<12	<110	ug/ft²	
13016527	GenevaRC-LW-6	Flame	Wipe	****	0.111	110	ug/fi²	<12	<110	ug/ft²	
13016528	GenevaRC-LW-7	Flame	Wipe	****	0.111	110	ug/fl²	18	160	ug/ft²	
13016529	GenevaRC-LW-8	Flame	Wipe	****	0.111	110	ug/fi²	14	120	ug/ft²	
13016530	GenevaRC-LW-9	Flame	Wipe	****	0.111	110	ug/fi²	820	7400	ug/ft²	
13016531	GenevaRC-LW-10	Flame	Wipe	****	0.111	110	ug/fi²	330	2900	ug/ft²	
13016532	GenevaRC-LW-11	Flame	Wipe	****	0.111	110	ug/fi²	<12	<110	ug/ft²	
13016533	GenevaRC-LW-12	Flame	Wipe	****	0.111	110	ug/fi²	28	250	ug/ft²	
13016534	GenevaRC-LW-13	Flame	Wipe	****	0.111	110	ug/fi²	47	420	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 dient. This report must not be used to claim, and does not imply product certification, approval, or endorsement by NY ELAP, AllIA, 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.



CERTIFICATE OF ANALYSIS



Client:

National Guard Bureau

Job Name:

Geneva RC

Chain Of Custody:

514538

Address:

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

Job Location:

300 Main Street, Geneva, NY 14456

Date Submitted:

11/21/2012

State Military Reservation

Job Number: P.O. Number: 1061-15

W912K6-09-A-0003

Person Submitting: Date Analyzed:

11/30/2012

Report Date:

Attention:

Havre de Grace, Maryland 21078

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 Reporting (ft³)

Limit

Total ug

associated with these

samples.

Final Result

See QC Summary for analytical results of quality control samples

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 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

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

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

Air and Wipe results are not corrected for any blank results

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

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

Technical Manager:

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

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RMA 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) 346-0961 • Fax (301) 459-2643

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3. Address 2: Attn: NGB-AVN	-or, orace military M	eservation			_ 3,	Job#:		0 -		Re	en	one	PO	₩912K	6-09-A-0003		
4. Address 3: Havre de Grace	, Maryland 21078	(110) 010		-	_ 4.	Conta	et Perso	n	OII-	110	,sp	011	31 V	@ ph	one#		
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LM Bulk		ū	Quan. (s/a	rea)Dus	t D6480	99		_(QTY	1		UN	asie \	Vater Q	PbOT	Y) Q Cu (OTY	ALC	(OTV)
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Surface Sampling Field Data Sheet

Date Collected:_	[H6-12
Job Number:	061-15
Contact Pe	-Responsiv

Job Name: Geneva RC	
Job Location:	
Address: 300 Main Street	

Company: Bony	Page 1 of _
Phone Number: 9	89-779-7686
Collected E Non-	Responsive
COC Number:	

Sample Number	Sample Location	Surface/Substrate Sampled	Area Wiped (in ¹ /ft ²)	Collection	
General RC- LW-1	Field Blank		(111 /11)	Media	
beneva RK- LW-2	Office 103	On Filing cabinet	4" x 4"	wife	
Genera RC- Llu-3	Hill Hall	On Alor SE End	7 / 1		
benem RC- LW-4	Mill Hall	On Floor, NW ENd			
Genera Kl UV-5	Noll Itali	On top of refrigerator	+		
benera K- LV-b	Prill Hall	On top of wooden shelving			
Genera AC- Lbrz	Dell Hall	On top of Weshighauss Heater,			
lug Lug	Kitchen	On top of storage Rack			
streva Rc- Lw-9	Former Indoor Firing Lange	On Floor, SE End		+	
beneva RC- LW-10	Former Indoor Filing Range	en floor, NW End			
Geneva RC- LW-11	Mess Hall	On Heater Fin		-	
loneva RC- CW-13	Locker Rn (Mens)	On top of Locker kg			
Senera Rt- cw-13	Office 207	On window sill	$\rightarrow \downarrow \rightarrow \downarrow$	-	



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 C

Photographs



Building exterior, looking southwest



Drill hall, looking west



Weight room



Building exterior, looking south



Drill hall, peeling yellow paint



Maintenance garage (storage)



Maintenance garage, flammables cabinets



Supply office 122, damaged plaster ceiling/peeling white paint



2nd floor hallway



Kitchen



Kitchen, peeling blue paint



Kitchen, peeling gray floor paint



Boiler room



Boiler room, emergency eyewash



Men's locker room



Former indoor firing range

Appendix D

References

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- 2. Army Regulation (AR) 11-34, The Army Respiratory Protection Program, February 15, 1990.
- 3. DA PAM 40-503, Medical Service, Industrial Hygiene Program, October 30, 2000.
- 4. Technical Manual (T.M) 5-810-1, Mechanical Design, Heating, Ventilation, and Air Conditioning, June 1991.
- 5. Threshold Limit Values (TLVs) and Biological Exposure Indices (BEls), American Conference of Governmental Industrial Hygienists (ACGIH), current edition.
- 6. UFC 3-410-01 FA Heating, Ventilating, and Air Conditioning, 15 May 2003, change 4 Jan 2010
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- 11. ANSI/The American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE), Standard 62.1-2010, "Ventilation for Acceptable Indoor Air Quality".
- 12. ANSI/ASHRAE Standard 55-2010 "Thermal Environmental Conditions for Human Occupancy"
- 13. Title 24, CFR, Part 35, Subpart B, Sections 35.110, Definitions of Lead-Based Paint, Housing and Urban Development, U.S. Department of Housing.
- 14. OSHA Permissible Exposure Limit (PEL) for General Industry 29 CFR 1910.1000 Z-1 Table
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- 16. Mold Remediation in Schools and Commercial Buildings, U.S. Environmental Protection Agency, March 2001
- 17. Army Facilities Management Information Document on Mold Remediation Issues TG277, February 2002
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DEPARTMENT OF THE ARMY US ARMY CENTER FOR HEALTH PROMOTION AND PREVENTIVE MEDICINE 5158 BLACKHAWK ROAD ABERDEEN PROVING GROUND MD 21010-5403

JUL 0 5 2007

MCHB-TS-OFS

MEMORANDUM FOR National Guard Bureau Region North Industrial Hygiene Office (NGB-ARS-IHNE/Ms. Non-Responsive 301-IH Old Bay Lane, Havre de Grace, MD 21078

SUBJECT: New York Army National Guard Facilities Industrial Hygiene Survey, Report No. 55-ML-048L-05/07, Horseheads Armory, Horseheads, NY, 6 October 2005

- 1. Enclosed are a copy of the subject report and two CD-ROMs.
- 2. Our point of contact is MrNon-Responsive t commercial (410) 436-5474/3118, DSN 584-5474/3118, or electronic mail: Non-Responsive us.army.mil.

FOR THE COMMANDER:

Non-Responsive

Encl

Director, Occupational Health Sciences

CF: (wo/CD ROMs)
USACHPPM-N (MCHB-AN-IH/MR. Non-Responsive

U.S. Army Center for Health Promotion and Preventive Medicine

HORSEHEADS, NY 6 OCTOBER 2005



NEW YORK ARMY NATIONAL GUARD FACILITIES INDUSTRIAL HYGIENE SURVEY REPORT NO. 55-ML-048L-05/07 HORSEHEADS ARMORY













Distribution limited to U.S. Government agencies only. Requests for this document must be referred to the National Guard Bu Industrial Hygiene Office NE/Ms. Non-Responsive 301-IH Old Bay Lane, Havre de Grace, MD 21078

Readiness Thru Health

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U.S. ARMY CENTER FOR HEALTH PROMOTION AND PREVENTIVE MEDICINE

The U.S. Army Center for Health Promotion and Preventive Medicine (USACHPPM) lineage can be traced back over 50 years to the Army Industrial Hygiene Laboratory. That organization was established at the beginning of World War II and was under the direct jurisdiction of The Army Surgeon General. It was originally located at the Johns Hopkins School of Hygiene and Public Health, with a staff of three and an annual budget not to exceed \$3000. Its mission was to conduct occupational health surveys of Army operated industrial plants, arsenals, and depots. These surveys were aimed at identifying and eliminating occupational health hazards within the Department of Defense's (DOD) industrial production base and proved to be beneficial to the Nation's war effort.

Until 1995, it was nationally and internationally known as the U.S. Army Environmental Hygiene Agency or AEHA. Its mission is expanding to support the worldwide preventive medicine programs of the Army, DOD and other Federal Agencies through consultations/ supportive services; investigations and training.

Today, AEHA is redesignated the U.S. Army Center for Health Promotion and Preventive Medicine. Its mission for the future is to provide worldwide technical support for implementing preventive medicine, public health and health promotion/wellness services into all aspects of America's Army and the Army Community anticipating and rapidly responding to operational needs and adaptable to a changing work environment.

The professional disciplines represented at the Center include chemists, physicists, engineers, physicians, optometrists, audiologists, nurses, industrial hygienists, toxicologists, entomologists, and many other as well as sub-specialties within these professions.

The organization's quest has always been one of excellence and continuous quality improvement; and today its vision, to be the nationally recognized Center for Health Promotion and Preventive Medicine, is clearer than ever. To achieve that end, it holds ever fast to its values which are steeped in its rich heritage:

- ♦ Integrity is the foundation
- ♦ Excellence is the standard
- ♦ Customer satisfaction is the focus
- Its people are the most valued resource
- ◆ Continuous quality improvement is its pathway

The organization, which stands on the threshold of even greater challenges and responsibilities, has General Officer leadership. As it moves into the next century, new programs are being added related to health promotion/wellness, soldier fitness and disease surveillance. As always, its mission focus is centered upon the Army Imperatives so that we are trained and ready to enhance the Army's readiness for war and operations other than war.

It is an organization fiercely proud of its history, yet equally excited about the future. It is destined to continue its development as a world-class organization with expanded services to the Army, DOD, other Federal Agencies, the Nation and the World Community.



DEPARTMENT OF THE ARMY

US ARMY CENTER FOR HEALTH PROMOTION AND PREVENTIVE MEDICINE
5158 BLACKHAWK ROAD
ABERDEEN PROVING GROUND MD 21010-5403

MCHB-TS-OFS

EXECUTIVE SUMMARY
NEW YORK ARMY NATIONAL GUARD FACILITIES
INDUSTRIAL HYGIENE SURVEY
REPORT NO. 55-ML-048L-05/07
HORSEHEADS ARMORY
HORSEHEADS, NY
6 OCTOBER 2005

- 1. PURPOSE. Conduct an industrial hygiene survey of the New York Army National Guard (NYARNG) Horseheads Armory, Horseheads, NY to identify and measure the existence and extent of potentially hazardous operations or conditions. This survey will serve as a baseline so that an occupational exposure history can be compiled for each civilian or military employee.
- 2. CONCLUSIONS. Significant health and safety concerns were: an inadequate Hazard Communication Program (HCP) and associated documentation; lack of regular maintenance of Heating, Ventilation and Air Conditioning (HVAC) systems; exposures to lead, welding fumes, and vehicle emissions; potential exposures to asbestos; serious trip hazards; and inadequately maintained fire extinguishers. Potential carbon monoxide (CO), noise, lighting, and ergonomic hazards should be assessed.
- 3. RECOMMENDATIONS. The Department of Defense Instruction 6055.1 provides Risk Assessment Codes (RACs) for health hazards, a procedure which allows assessment of the magnitude of exposure to physical, chemical, and biological agents and the possible medical effects of exposure. The RAC is an expression of the risk associated with the hazard and combines the hazard severity and accident probability into a single number. The RACs enable one to prioritize hazards. They range in magnitude from 1 to 5, with 1 being the highest priority.
- a. <u>Safety and Occupational Health Programs</u>. Health RAC 4. Develop a written HCP that is specific to the Horseheads Armory. Review annually to ensure any changes in policies, procedures or operations have been evaluated. Ensure that the chemical inventory sheet and Material Safety Data Sheets lists the chemicals actually used in the work area. Update these documents periodically.

Readiness thru Health



- b. <u>HVAC Systems</u>. Health RAC 4. Develop and implement an HVAC maintenance program. Include provisions for regularly scheduled maintenance.
- c. <u>Lead</u>. Health RAC 3. Clean horizontal surfaces in the vault to the National Guard Bureau (NGB) Region North Industrial Hygiene Office and US Army Center for Health Promotion and Preventive Medicine (USACHPPM) recommended maximum level of 200 µg/ft² for lead in dust on frequently contacted surfaces. Follow the guidance in National Guard Pamphlet 420-15 and in Appendix E of the report. Address all potential lead hazards before continuing to extend the use of this facility to children. If children will visit this facility, clean the floors in the former indoor firing range to the Environmental Protection Agency lead in dust standards for young children, and clean other horizontal surfaces in the vault to the NGB Region North Industrial Hygiene Office and USACHPPM recommended maximum level. Ensure that personnel wear disposable gloves and disposable coveralls as extra protection when cleaning all areas identified as having elevated levels of lead. Consult with the NYARNG Environmental Coordinator concerning waste disposal requirements after clean up.

d. Asbestos. Health RAC 3.

- (1) Asbestos-containing building materials. Review the Armory and the NYARNG Environmental Office records to determine whether there are asbestos records for inspection and abatement, or if there is an Asbestos Management Plan (AMP) for Horseheads Armory. Perform an asbestos survey if no records are located. If asbestos is found, develop and implement an AMP if there is not one for the Armory.
- (2) Brake pad replacement. Determine whether personnel perform this operation. If so, ensure that personnel follow the NGB Standard Operating Procedures.
- e. <u>The CO</u>. No RAC can be assigned. Collect CO measurements in a follow-on survey. Install a vehicle exhaust ventilation system that provides at least 1,500 cubic feet per minute exhaust at each drop.
- f. Welding. Health RAC 3. Evaluate exposures to welding fumes and provide a local exhaust system if needed. Provide a welding screen to protect other employees from flying sparks and intense light.
 - g. <u>Lighting</u>. Health RAC 5. If lighting levels seem inadequate, use task lighting.
- h. <u>Noise hazards</u>. No RAC can be assigned. Assess noise hazards from vehicle maintenance operations.

- i. <u>Ergonomics</u>. No RAC can be assigned. Assess ergonomics hazards from vehicle maintenance operations.
- j. <u>Housekeeping</u>. Safety RAC 3. Store materials safely. Do not store boxes, equipment and other debris in hallways or at the top of stairs.
- k. <u>Fire Extinguishers</u>. Safety RAC 4. Recharge or remove discharged extinguishers. Inspect the building fire extinguishers monthly. Mark the tags on the extinguishers with the initials of the person conducting the inspection. Wall mount working extinguishers in a visible area. Store extinguishers waiting for servicing in a secure area, not in the hallway or base of a stairway.

NYARNG IH Survey, Report No. 55-ML-048L-05/07, Horseheads Armory, Horseheads, NY, 6 Oct 05

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NEW YORK ARMY NATIONAL GUARD FACILITIES INDUSTRIAL HYGIENE SURVEY REPORT NO. 55-ML-048L-05/07 HORSEHEADS ARMORY HORSEHEADS, NY 6 OCTOBER 2005

- 1. REFERENCES. See Appendix A.
- 2. PURPOSE. Conduct an industrial hygiene survey of the New York Army National Guard (NYARNG) Horseheads Armory, Horseheads, NY to identify and measure the existence and extent of potentially hazardous operations or conditions. This survey will serve as a baseline so that an occupational exposure history can be compiled for each civilian or military employee.
- 3. AUTHORITY. Electronic mail, National Guard Bureau (NGB) Region North Industrial Hygiene Office (NGB-ARS-IHNE/Ms. Non-Responsive), 27 July 2005, subject: SAB.
- 4. GENERAL.
- a. <u>Personnel Contacted</u>. The point of contact (POC) was Mr. Maintenance Superintendent, 128 Colonial Road, Horseheads, NY, Phone: (607) 739-7725.
- b. <u>Survey Personnel</u>. This survey was conducted on 6 October 2005 by Mr. Non-Responsive, Industrial Hygienist, United States Army Center for Health Promotion and Preventive Medicine (USACHPPM).
- c. <u>Risk Assessment Codes (RACs)</u>. The Department of Defense Instruction (DODI) 6055.1 provides a method for assigning RACs to health hazards that are based on the magnitude of exposures to physical, chemical, and biological agents and the possible medical effects. The DODI 6055.1 also provides RACs for safety and ergonomic hazards. A RAC is an expression of the risk associated with a hazard that combines the hazard severity and accident probability into a single numeral. The RACs enable one to prioritize hazards. They range in magnitude from 1 to 5, with 1 being the highest priority.
- d. <u>Background</u>. The facility was constructed in 1963 and had a floor area of approximately 25,000 square feet. It was a one-story building. No floor plan could be located for this report. The Armory's mission was to support the 204th Engineer Battalion. The POC stated that children occupied the facility occasionally during special events.

Use of trademarked name(s) does not imply endorsement by the US Army but is intended only to assist in the identification of a specific product.

5. METHODOLOGY.

- a. <u>Assessment Criteria</u>. Army Regulation 40-5 contains the requirement that airborne chemical exposures in Army facilities must comply with the lower of the Occupational Safety and Health Administration (OSHA) Permissible Exposure Limit (PEL) or the American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Value®. The NGB Region North Industrial Hygiene Office criterion for lead in surface dust is discussed in Appendix B.
- b. <u>Calibration</u>. All instruments were calibrated in accordance with manufacturers' instructions using National Institute of Standards and Testing traceable methods.
- c. <u>Methodology</u>. The survey consisted of the collection of indoor air quality and ventilation measurements, sampling surface dust and air for lead, observation of work practices and procedures, and employee interviews.

6. FINDINGS AND DISCUSSION.

- a. <u>Description of Operations</u>. An area identified by the POC as a vehicle storage area was used for many different operations, including vehicle repair, truck tire changing, battery charging, and welding. Vehicles were running inside the maintenance area during the survey. There were two ceiling fans in the area but no vehicle exhaust ventilation system exhaust.

 Mr Maintenance Assistant, stated that welding was occasionally performed. The Armory had a former indoor firing range (IFR) that was being used as a supply room.
- b. <u>Occupational Safety and Health Programs</u>. Hazard Communication training was documented. The written program was incomplete. It consisted of a photocopy of a generic program from another source. A hazardous chemical inventory was kept in the vehicle maintenance area. However, it was a generic list which did not match the materials used on site.
- c. <u>Building Condition</u>. The building was in good condition and well maintained in most areas.

d. Indoor Environmental Quality.

(1) Heating, Ventilation, and Air-Conditioning (HVAC) Systems. The POC stated that the building was heated by an oil heater and cooled using window mounted air conditioning units. The building did not have mechanical ventilation. There was no scheduled maintenance of heating or air conditioning units.

- (2) Mold and Moisture Problems. No mold or moisture problems were observed or reported.
- e. <u>Water Quality</u>. There were no concerns expressed by Armory personnel about water quality. No samples were collected.
- f. <u>Lead Hazards</u>. The POC reported that lead abatement had been performed in the former IFR. The date of construction of the facility indicated that the use of lead-based paint was possible. The painted surfaces throughout the building were in good condition with no observed chipping or peeling, therefore paint samples were not collected.
 - (1) Lead Criteria.
- (a) Lead in paint. The Environmental Protection Agency (EPA) definition of lead-based paint is paint containing more than 0.5 percent lead by mass. It should be noted, however, that deteriorated paint with much lower levels of lead could create dust lead hazards.
- (b) Lead in air. The Army has adopted the OSHA 8-hour time-weighted average PEL of 50 micrograms per cubic meter ($\mu g/m^3$).
- (c) Lead in surface dust. The EPA limits for lead in dust are 40 micrograms per square foot ($\mu g/ft^2$) on floors, 250 $\mu g/ft^2$ on windowsills, and 400 $\mu g/ft^2$ in window troughs. These limits apply to pre-1978 Army facilities only if children under 6 years of age occupy them for 60 or more hours per year. The NGB Region North Industrial Hygiene Office concurs with the USACHPPM recommended maximum level of 200 $\mu g/ft^2$ on floors and frequently contacted surfaces, which is more stringent for windowsills than the EPA standards. This level was adopted from OSHA Compliance Letter 02-02-58. Further information is provided in Appendix B.
- (2) Lead Results. Results and laboratory reports are in Appendix C. Surface dust sampling locations are shown in Appendix D.
- (a) Lead in dust. Lead in dust sample locations and analytical results are shown in Table C-1, Appendix C. Results greater than 40 μ g/ft² for floors or 200 μ g/ft² for other surfaces are highlighted. One result exceeded the NGB Region North Industrial Hygiene Office and USACHPPM recommended maximum level for lead in dust on frequently contacted surfaces. Personnel working in this room were potentially exposed to lead, and could have been tracking lead out of the area and redistributing it into adjacent rooms in the Armory. This could result in lead exposures for the general workforce and for children visiting this facility. One of the results exceeded the EPA lead exposure standard for children of 40 μ g/ft² on floors and 250 μ g/ft² on windowsills. These levels are hazardous to children exposed to lead dust through physical contact, inhalation, or ingestion of lead dust while visiting the Armory.

(b) Lead in air. Results are shown in Table C-2, Appendix C. General area sampling was conducted in the Drill and Dining Halls, the Classroom and IFR. The results were all less than $13 \,\mu\text{g/m}^3$, and were below the OSHA PEL.

g. Other Chemical Hazards.

- (1) Asbestos. The POC reported that the building did have some asbestos-containing building material (ACBM) but was unaware of any surveys or abatement conducted at the facility. Bulk samples were collected from pipe insulation in the Boiler Room and floor tile in the Front Lobby area. The tile was not deteriorated. Results are in Table C-3, Appendix C. Neither material was found to be ACBM. No asbestos management plan (AMP) was found. Based on experience with similar facilities, personnel may have been exposed to asbestos during brake pad replacement. It was not determined whether personnel followed the NGB standard operating procedures (SOPs) for this operation, if it was performed.
- (2) Carbon Monoxide (CO). No measurements could be located for this report. Exposures from vehicle maintenance should be assessed. A vehicle exhaust ventilation system should be installed that provides at least 1,500 cubic feet per minute (cfm) exhaust at each drop in accordance with the ACGIH Industrial Ventilation Manual recommendation for 9 liter displacement turbocharged diesel engines run at 1,000 revolutions per minute. This exhaust rate is intended to accommodate large turbocharged diesel engines that are, or may be, maintained at the Armory.
- (3) Welding fumes. There was no local ventilation system to control welding fumes. Exposures should be assessed.
- h. <u>Noise Hazards</u>. The POC stated that there were no noise hazardous operations at this facility and none were being performed at the time of the site visit, therefore no measurements were taken. Our experience with similar vehicle maintenance operations is that significant noise hazards may have been present and should be evaluated.
- i. <u>Lighting</u>. The scope of work for this survey called for measurement of lighting levels in areas where there may have been a potential problem, based on professional judgment. The NGB verbally requested that light levels be measured throughout the facilities. Due to miscommunication, the project lead visiting this site did not quantify light levels, but did use professional judgment in assessing the lighting levels. All areas were visually judged to be adequately lit.

j. Safety Hazards.

- (1) Housekeeping. Poor housekeeping was evident in the former IFR. Boxes, equipment including discharged fire extinguishers, and other miscellaneous debris were strewn about the floor directly in the path of the entrance to the area as well as the top and bottom of the stairway. This represented a dangerous trip hazard. Photographs are provided in Appendix D.
- (2) Fire extinguishers. Inspection tags did not confirm that fire extinguishers were being inspected on a monthly basis.
- k. <u>Physical Hazards</u>. Our experience with similar vehicle maintenance operations is that significant ergonomics and noise hazards may have been present and should be evaluated. There were no welding screens in the vehicle maintenance area to protect personnel from sparks and intense light.
- 7. CONCLUSIONS. Significant health and safety concerns were: an inadequate Hearing Conservation Program and associated documentation; lack of regular maintenance of HVAC systems; exposures to lead, welding fumes, and vehicle emissions; potential exposures to asbestos; serious trip hazards; and inadequately maintained fire extinguishers. Potential CO, noise, lighting, and ergonomic hazards should be assessed.
- 8. RECOMMENDATIONS. The DODI 6055.1 provides RACs for health hazards, a procedure which allows assessment of the magnitude of exposure to physical, chemical, and biological agents and the possible medical effects of exposure. The RAC is an expression of the risk associated with the hazard and combines the hazard severity and accident probability into a single number. The RACs enable one to prioritize hazards. They range in magnitude from 1 to 5, with 1 being the highest priority.
- a. <u>Safety and Occupational Health Programs</u>. Health RAC 4. Develop a written Hazard Communication Program that is specific to the Horseheads Armory. Review annually to ensure any changes in policies, procedures or operations have been evaluated. Ensure that the chemical inventory sheet and Material Safety Data Sheets lists the chemicals actually used in the work area. Update these documents periodically.
- b. <u>HVAC Systems</u>. Health RAC 4. Develop and implement an HVAC maintenance program. Include provisions for regularly scheduled maintenance.
- c. <u>Lead</u>. Health RAC 3. Clean horizontal surfaces in the vault to the NGB Region North Industrial Hygiene Office and USACHPPM recommended maximum level of $200 \,\mu\text{g/ft}^2$ for lead in dust on frequently contacted surfaces. Follow the guidance in National Guard Pamphlet

420-15 and in Appendix E. Address all potential lead hazards before continuing to extend the use of this facility to children. If children will visit this facility, clean the floors in the former IFR to the EPA lead in dust standards for young children, and clean other horizontal surfaces in the vault to the NGB Region North Industrial Hygiene Office and USACHPPM recommended maximum level. Ensure that personnel wear disposable gloves and disposable coveralls as extra protection when cleaning all areas identified as having elevated levels of lead. Consult with the NYARNG Environmental Coordinator concerning waste disposal requirements after clean up.

d. Asbestos. Health RAC 3.

- (1) Asbestos-containing building materials. Review the Armory and the NYARNG Environmental Office records to determine whether there are asbestos records for inspection and abatement, or if there is an AMP for Horseheads Armory. Perform an asbestos survey if no records are located. If asbestos is found, develop and implement an AMP if there is not one for the Armory.
- (2) Brake pad replacement. Determine whether personnel perform this operation. If so, ensure that personnel follow the NGB SOPs.
- e. <u>The CO</u>. No RAC can be assigned. Collect CO measurements in a follow-on survey. Install a vehicle exhaust ventilation system that provides at least 1,500 cfm exhaust at each drop.
- f. Welding. Health RAC 3. Evaluate exposures to welding fumes and provide a local exhaust system if needed. Provide a welding screen to protect other employees from flying sparks and intense light.
 - g. Lighting. Health RAC 5. If lighting levels seem inadequate, use task lighting.
- h. <u>Noise hazards</u>. No RAC can be assigned. Assess noise hazards from vehicle maintenance operations.
- i. <u>Ergonomics</u>. No RAC can be assigned. Assess ergonomics hazards from vehicle maintenance operations.
- j. <u>Housekeeping</u>. Safety RAC 3. Store materials safely. Do not store boxes, equipment and other debris in hallways or at the top of stairs.

- k. <u>Fire Extinguishers</u>. Safety RAC 4. Recharge or remove discharged extinguishers. Inspect the building fire extinguishers monthly. Mark the tags on the extinguishers with the initials of the person conducting the inspection. Wall mount working extinguishers in a visible area. Store extinguishers waiting for servicing in a secure area, not in the hallway or base of a stairway.
- 9. ADDITIONAL ASSISTANCE. For additional assistance or questions concerning this report, please contact the undersigned at DSN 584-3118, commercial 410-436-3118, or by electronic mail: Non-Responsive@us.army.mil



Industrial Hygienist Industrial Hygiene Field Services Program

APPROVED:

Non-Responsive

MAJ, MS Program Manager Industrial Hygiene Field Services Program

Posted to NGB FOIA Reading Room

May, 2018

APPENDIX A

REFERENCES

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- 11. OSHA CPL 02-02-58, 29 CFR 1926.62, Lead Exposure in Construction; Interim Final Rule-Inspection and Compliance Procedures, December 13, 1993.

NYARNG IH Survey, Report No. 55-ML-048L-05/07, Horseheads Armory, Horseheads, NY, 6 Oct 05

12. NG Pam 420-15, Facilities Engineering, Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges, 3 Nov 06.

APPENDIX B

PROPOSED CRITERIA FOR LEAD

Subject: Recommendations for Surface Lead Dust in Armories

- 1. In armories that do not contain childcare facilities, the National Guard Bureau (NGB) Region North Industrial Hygiene Office recommends cleaning the areas in which sample results are greater than 200 micrograms per square foot (µg/ft²). If a special function will be held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function. This guidance is based on professional judgment, risk assessments, adaptation of Occupational Safety and Health Administration (OSHA) guidance, and feasibility of cleaning to a certain level.
- a. Environmental Protection Agency (EPA) standards (40 Code of Federal Regulations (CFR) 745.227(h)(3)) are not directly applicable because they are criteria for dust-lead hazards developed for floors (40 µg/ft²) and windowsills (250 µg/ft²) in residential dwellings and child occupied facilities. A child occupied facility is defined as a building, or portion of a building, constructed prior to 1978, visited regularly by the same child, 6 years of age or under, on at least two different days within any week (Sunday through Saturday period), provided that each day's visit lasts at least 3 hours and the combined weekly visit lasts at least 6 hours, and the combined annual visits last at least 60 hours. Most of the wipe samples in armories were collected in undisturbed areas and therefore, results are worst case scenarios and do not correlate to these standards.
- b. OSHA has no specific requirement for work area surfaces. The lead standard (29 CFR 1910.1025(h)) states that all surfaces shall be maintained as free as practicable of accumulations of lead dust. In workplaces where lead dust is generated, surface levels may be much higher, but personnel exposures can be controlled by limiting airborne lead levels and following good cleanup and hygienic practices.
- c. OSHA used to cite a level of 200 µg/ft² in their Technical Manual and 29 CFR 1926.62 as guidance to its own inspectors for evaluating the cleanliness of lunchroom and locker room surfaces that are supposed to be kept as clean as possible.
- d. In a report titled Derivation of Wipe Surface Screening Levels for Environmental Chemicals, the US Army Center for Health Promotion and Preventive Medicine (USACHPPM) has determined that 200 µg/ft² is a safe surface contamination level. They have also applied these standards as the decontamination levels for surfaces in administrative offices.

- e. It should be noted that levels above these recommendations do not necessarily mean there is a significant hazard to workers who are following good cleaning and hygienic practices since there is no correlation between wipe and air samples. Rather, we recommend these levels as a precautionary measure.
- 2. The NGB Occupational Health Branch is developing guidance for armories that are used as childcare facilities. All states will receive this guidance when it is completed. In the interim, we recommend the following actions:
- a. Clean all areas that will be accessible to children to the EPA dust-lead standard for children 6 years of age or under ($40 \mu g/ft^2$ on floors and $250 \mu g/ft^2$ on windowsills).
- b. Refer to the local authorities' regulations since they can be more stringent than Federal regulations.
 - c. Post signs in the area to inform people of the presence of lead dust and its effects.
- d. If Soldiers clean weapons in the facility change the policy so that they cannot clean their weapons in the facility, or if they are allowed to clean their weapons indoors, they must clean the area by wet wiping and mopping the area when they are done.
- e. If the paint is peeling, contact the state Environmental Office to test for lead content and provide recommendations.
- 3. General air samples collected in the armory were well below OSHA's permissible exposure limit for lead (29 CFR 1910.1025(c)) of 0.05 mg/m^3 averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead dust in this building,

APPENDIX C

TABLE C-1. Lead in Surface Dust Locations and Analytical Results

Wipe	Location of Samples	Result (µg/ft²)
Sample		
Number		
HHW- 01	Drill Hall – NW Corner	5.8
HHW- 02	Drill Hall – NE Corner	<2.7
HHW- 03	Drill Hall – SE Corner	24
HHW- 04	Drill Hall – SW Corner	11
HHW- 05	Drill Hall – Center	3.4
HHW- 07	Vault	380
HHW- 08	Former IFR Bullet Trap – Floor	110
HHW- 09	Former IFR Bullet Trap – Wall	<2.7
HHW- 11	Former IFR Storage Shelf	28
HHW- 12	Former IFR Supply Desk Area	7.8
HHW- 13	Former IFR Outside Door	110
HHW- 14	Dining Hall	<2.7
HHW- 15	Kitchen Stove Hood	6.8
HHW- 17	Vehicle Maintenance Area	61
HHW- 18	Storage Room	84
HHW- 19	Orderly room	6.8
HHW- 20	Front Lobby Hallway Floor	4.2
HHW- 22	1 st SGT Office	32
HHW- 23	Classroom 1	7.4

TABLE C-2. Lead in Air Locations and Analytical Results

Air Sample Number	Location of Samples	Result (µg/m³)
HHA-01	Former IFR	<13
HHA-02	Classroom 1	<13
HHA-03	Drill Hall	<13
HHA-04	Dining Hall	<13

TABLE C-3. Bulk Asbestos locations and Analytical Results

Air Sample Number	Location of Samples	% chrysotile/NAD = no acm detected
HHB-01	Floor Tile, Front Lobby Area	NAD
HHB-02	Pipe Insulation Elbow, Boiler Room	NAD

NYARNG IH Survey, Horseheads Armory, Horseheads, NY, Report No. 55-ML-048L-05/07, 6 Oct 05

APPENDIX D

PHOTOGRAPHS

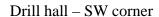




Drill hall - NW corner

Drill hall – NE corner







Drill hall – SE corner



Drill hall - center



Former IFR – bullet trap area floor



Former IFR – bullet trap area wall



Former IFR – storage area shelf



Former IFR – supply desk area



Former IFR – outside door



Dining hall



Kitchen above stove





Vehicle storage area

Orderly room







1st SGT's Office





Stairway leading to Supply Area (top)

Supply Area



Stairway leading to Supply Area (bottom)

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APPENDIX E

LEAD CLEANING GUIDANCE





CHAPTER 14: CLEANING

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Chapter 14: Cleaning



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Step-by-Step Summary



Cleaning: How To Do It

- Include step-by-step procedures for precleaning, cleaning during the job, and daily and final cleanings in project design or specifications.
- 2. Assign responsibilities to specific workers for cleaning and for maintaining cleaning equipment.
- 3. Have sufficient cleaning equipment and supplies before beginning work.
- 4. If contamination is extensive, conduct precleaning of the dwelling unit. Move or cover all furniture and other objects.
- Conduct ongoing cleaning during the job, including regular removal of large and small debris and dust.
 Decontamination of all tools, equipment, and worker protection gear is required before it leaves containment areas. Electrical equipment should be wiped and high-efficiency particulate air (HEPA) vacuumed, not wetted down, to minimize electrocution hazards.
- 6. Schedule sufficient time (usually 30 minutes to an hour) for a complete daily cleaning, starting at the same time near the end of each workday after lead hazard control activity has ceased.
- For final cleaning, wait at least 1 hour after active lead hazard control activity has ceased to let dust particles settle.
- 8. Use a vacuum cleaner equipped with a HEPA exhaust filter. HEPA vacuum all surfaces in the room (ceilings, walls, trim, and floors). Start with the ceiling and work down, moving toward the entry door. Completely clean each room before moving on.
- Wash all surfaces with a lead-specific detergent, high-phosphate detergent, or other suitable cleaning agent to dislodge any ground-in contamination, then rinse. Change the cleaning solution after every room is cleaned.
- 10. Repeat step 8. To meet clearance standards consistently, a HEPA vacuum, wet wash, and HEPA vacuum cycle is recommended. For interim control projects involving dust removal only, the final HEPA vacuuming step is usually not needed (see Chapter 11). Other cleaning methods are acceptable, as long as clearance criteria are met and workers are not overexposed.
- 11. After final cleaning, perform a visual examination to ensure that all surfaces requiring lead hazard control have been addressed and all visible dust and debris have been removed. Record findings and correct any incomplete work. This visual examination should be performed by the owner or an owner's representative who is independent of the lead hazard control contractor.
- 12. If other construction work will disturb the lead-based paint surfaces, it should be completed at this point. If those surfaces are disturbed, repeat the final cleaning step after the other construction work has been completed.
- 13. Paint or otherwise seal treated surfaces and interior floors.
- 14. Conduct a clearance examination (see Chapter 15).
- 15. If clearance is not achieved, repeat the final cleaning.



-Step-by-Step Summary (continued) -



- 16. Continue clearance testing and repeated cleaning until the dwelling achieves compliance with all clearance standards. As an incentive to conduct ongoing cleaning and a thorough final cleaning, the cost of repeated cleaning after failing to achieve clearance should be borne by the contractor as a matter of the job specification, not the owner.
- 17. Do not allow residents to enter the work area until cleaning is completed and clearance is established.
- 18. Cleaning equipment list:
 - ♦ HEPA vacuums.
 - Detergent.
 - ♦ Waterproof gloves.
 - Rags.
 - Sponges.
 - Mops.
 - Buckets.
 - ◆ HEPA vacuum attachments (crevice tools, beater bar for cleaning rugs).
 - 6-mil plastic bags.
 - Debris containers.
 - Waste water containers.
 - Shovels.
 - Rakes.
 - Water-misting sprayers.
 - 6-mil polyethylene sheeting (or equivalent).





I. Introduction

This chapter describes cleaning procedures to be employed following abatement and interim control work. Dust removal as an interim control measure is covered in Chapter 11.

All lead hazard control activities can produce dangerous quantities of leaded dust. Unless this dust is properly removed, a dwelling unit will be more hazardous after the work is completed than it was originally. Once deposited, leaded dust is difficult to clean effectively. Whenever possible, ongoing and daily cleaning of leaded dust during lead hazard control projects is recommended. Ongoing and daily cleaning is also necessary to minimize worker exposures.

Cleaning is the process of removing visible debris and dust particles too small to be seen by the naked eye. Removal of lead-based paint hazards in a dwelling unit will not make the unit safe unless excessive levels of leaded dust are also removed. This is true regardless of whether the dust was present before or generated by the lead hazard control process itself. Improper cleaning can increase the cost of a project considerably because additional cleaning and clearance sampling will be necessary. However, cleaning and clearance can be achieved routinely if care and diligence are exercised.

A. Performance Standard

Although the cleaning methods described in this chapter are feasible and have been shown to be effective in meeting clearance standards, other methods may also be used if they are safe and effective. This performance-oriented approach should stimulate innovation, reduce cost, and ensure safe conditions for both residents and workers.

B. Small Dust Particles

Dust particles that are invisible to the naked eye remain on surfaces after ordinary cleaning procedures. A visibly clean surface may contain high and unacceptable levels of dust particles and require special cleaning procedures.

C. Difficulties in Cleaning

While cleaning is an integral and essential component of any lead hazard control activity, it is also the most likely part of the activity to fail.

Several common reasons for this failure include low clearance standards, worker inexperience, high dust-producing methods, and deadlines.

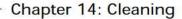
1. Low Clearance Standards

Because very small particles of leaded dust are easily absorbed by the body when ingested or inhaled, a small amount can create a health hazard for young children. Therefore, "clearance standards" are extremely low for acceptable levels of leaded dust particles on surfaces after hazard control activities, and careful cleaning procedures are required. Although it is not possible to remove all leaded dust from a dwelling, it is possible to reduce it to a safe level.

Clearance standards are described more fully in Chapter 15. The permissible amount of leaded dust remaining on each of the following surfaces following lead hazard work is as follows:

- 100 μg/ft² on floors.
- 500 μg/ft² on interior window sills (stools).
- 800 µg/ft² on window troughs (the area where the sash sits when closed).
- 800 μg/ft² on exterior concrete.

These levels are based on wipe sampling.
Clearance testing determines whether the premises or area are clean enough to be reoccupied after the completion of a lead paint hazard control project. A cleaned area may not be reoccupied until compliance with clearance standards has been established. To prevent delays, final testing and final cleaning activities should be coordinated.







2. Worker Inexperience

To understand the level of cleanliness required to meet the established clearance standards for hazard control cleanup, new hazard control personnel often require a significant reorientation to cleaning. Many construction workers are used to cleaning up only dust that they can see, not the invisible dust particles that are also important to remove.

3. High Dust-Producing Methods and/or Inadequate Containment

High dust-generating methods, inadequate containment during hazard control work, and poor work practices can all make achievement of clearance particularly difficult. Work practices necessary to prevent spreading of dust throughout a dwelling (e.g., by tracking dust out of work areas) are essential but sometimes tedious. Essential work practices are sometimes mistakenly considered to be "flexible guidelines" rather than necessary standards that are designed to ensure that the job is completed, not only safely, but also on time and within budget.

4. Deadlines

Daily and final cleanings have sometimes been compromised due to project deadlines, since cleaning comes at the end of the job. Hurried efforts often result in clearance failure. Delayed and over-budget hazard control projects are often the result of repeated, unplanned recleanings that are necessitated by inadequate containment and sloppy work practices.

II. Coordination of Cleaning Activities

A. Checklist

The owner or contractor may use the following cleaning checklist before any lead hazard control activity:

- ✓ Is the critical importance of cleaning in a hazard control project understood?
- ✓ Have all workers been trained and certified for hazard control work?

- Have the precleaning, daily, and final cleanings been scheduled properly and coordinated with the other participants in the hazard control process?
- ✓ Have cleaning equipment and materials been obtained?
- ✓ Do the workers know how to operate and maintain special cleaning equipment, and do they have directions for the proper use of all cleaning materials?
- ✓ Have all workers carefully studied the step-by-step procedures for precleaning (if needed), in-progress cleaning, and daily and final cleanings?
- ✓ Are all workers properly protected during the cleaning processes (see Chapter9)?
- ✓ Have provisions been made to properly contain and store potentially hazardous debris (see Chapter 10)?
- ✓ Have dust-clearance testing and related visual inspections been arranged (see Chapter 15)?
- ✓ Are the clearance criteria to be met fully understood?
- ✓ Have all appropriate surfaces been properly painted or otherwise sealed?
- ✓ Have appropriate records been maintained that document participants' roles in the hazard control project?

B. Equipment Needed for Cleaning

The following equipment is needed to conduct cleaning: high-efficiency particulate air (HEPA) vacuums and attachments (crevice tools, beater bar for cleaning rugs), detergent, waterproof gloves, rags, sponges, mops, buckets, 6-mil plastic bags, debris containers, waste water containers, shovels, rakes, water-misting sprayers, and 6-mil polyethylene plastic sheeting (or equivalent).



C. Waste Disposal

Regulations governing hazardous and nonhazardous waste storage, transportation, and disposal affect both the daily and final cleaning procedures. The hazard control contractor and the disposal contractor should work together to establish formal written procedures, specifying selected containers, storage areas, and debris pickups, to ensure that all relevant regulations are met.

III. Cleaning Methods and Procedures

Many of the special cleaning methods and procedures detailed in this chapter are not standard operating procedure for general home improvement contractors. Therefore, project designers, responsible agencies, or owners must ensure that contractors follow the methods and procedures recommended herein or specially designed alternative procedures, even though some may appear to be redundant and unnecessary. These methods have been shown to be feasible and effective in many situations and skipping steps in the cleaning procedures can be counterproductive.

A. Containment

Because of the difficulty involved in the removal of fine dust, dust generated by hazard control work should be contained to the extent possible to the inside of work areas. Inadequately constructed or maintained containment or poor work practices will result in additional cleaning efforts, due to dust that has leaked out or been tracked out of the work area (see Chapter 8).

B. Basic Cleaning Methods: Wet Wash and Vacuum Cleaning Techniques

Because leaded dust adheres tenaciously, especially to such rough or porous materials as weathered or worn wood surfaces and masonry surfaces (particularly concrete), workers should be trained in cleaning methods. As a motivator,

some contractors have awarded bonuses to workers who pass clearance the first time.

Two basic cleaning methods have proven effective, when used concurrently, in lead-based paint hazard control projects: a special vacuum cleaner equipped with a HEPA exhaust filter, followed by wet washing with special cleaning agents and rinsing, followed by a final pass with the HEPA vacuum.

Although HEPA filtered vacuums and triso-dium phosphate (TSP) cleaners have been considered the standard cleaning tools for lead hazard control projects, new research, discussed under the "Alternatives Methods" section in this chapter, suggests that other tools and products may also be effective in efficiently cleaning dust while providing adequate worker protection from airborne exposure risks. Some of these innovations may even be superior.

1. HEPA Vacuuming

HEPA vacuums differ from conventional vacuums in that they contain high-efficiency filters that are capable of trapping extremely small, micron-sized particles. These filters can remove particles of 0.3 microns or greater from air at 99.97 percent efficiency or greater. (A micron is 1 millionth of a meter, or about 0.00004 inches.) Some vacuums are equipped with an ultra-low penetration air (ULPA) filter that is capable of filtering out particles of 0.13 microns or greater at 99.9995 percent efficiency. However, these ULPA filters are slightly more expensive, and may be less available than HEPA filters.

Vacuuming with conventional vacuum machines is unlikely to be effective, because much of the fine dust will be exhausted back into the environment where it can settle on surfaces. A recent Canadian study revealed that finedust air levels were exceedingly high when a standard portable vacuum with a new bag was used, although partially filled bags were found to be more efficient (CMHC, 1992). Considerations for the proper use of a HEPA vacuum are listed below.







Operating Instructions

There are a numerous manufacturers of HEPA vacuums. Although all HEPA vacuums operate on the same general principle, they may vary considerably with respect to specific procedures, such as how to change the filters. To ensure the proper use of equipment, the manufacturer's operating instructions should be carefully followed and if possible, training sessions arranged with the manufacturer's representative.

Although HEPA vacuums have the same "suction" capacity as ordinary vacuums that are comparably sized, their filters are more efficient. Improper cleaning or changing of HEPA filters may reduce the vacuum's suction capability.

Special Attachments

Because the HEPA vacuum will be used to vacuum surfaces other than floors, operators should buy attachments and appropriate tool kits for use on different surfaces—such as brushes of various sizes, crevice tools, and angular tools.

Selecting Appropriate Size(s)

HEPA vacuums are available in numerous sizes, ranging from a small lunchbucket-sized unit to track-mounted systems. Two criteria for size selection are the size of the job and the type of electrical power available. Manufacturer recommendations should be followed.

Wet-Dry HEPA Vacuums

Some hazard control contractors have found the wet-dry HEPA vacuums to be particularly effective in meeting clearance standards. These vacuums are equipped with a special shut-off float switch to protect the electrical motor from water contact.

Prefilters

HEPA filters are usually used in conjunction with a prefilter or series of prefilters that trap the bulk of the dust in the exhaust airstream, particularly the larger particles. The HEPA filter traps most of the remaining small particles that have passed through the prefilter(s). All filters must be maintained and replaced or

cleaned as specified in the manufacturer's instructions. Failure to do so may cause a reduction in suction power (thus reducing the vacuum's efficiency and effectiveness). Failure to change prefilters may damage the vacuum motor and will also shorten the service life of the HEPA filter, which is far more expensive than the prefilters.

HEPA Vacuuming Procedures

Surfaces frequently vacuumed include ceilings, walls, floors, windows, interior and exterior sills, doors, heating, ventilation, and air conditioning (HVAC) equipment (heating diffusers, radiators, pipes, vents), fixtures of any kind (light, bathroom, kitchen), built-in cabinets, and appliances.

To aid in dislodging and collecting deep dust and lead from carpets, the HEPA vacuum must be equipped with a beater bar (agitator head) that is fixed to the cleaning head. This bar should be used on all passes on the carpet face during dry vacuuming (see Chapter 11 for details on carpet and furniture cleaning).

All rooms and surfaces should be included in the HEPA vacuum process, except for those that (1) were found not to have lead-paint hazards and were properly separated from work areas before the process began (see Chapter 8), or (2) were never entered during the process. Porches, sidewalks, driveways, and other exterior surfaces should be vacuumed if exterior hazard control work was conducted, or if debris was stored or dropped outside. Vacuuming should begin on the ceilings and end on the floors, sequenced to avoid passing through rooms already cleaned, with the dwellings' entryway cleaned last.

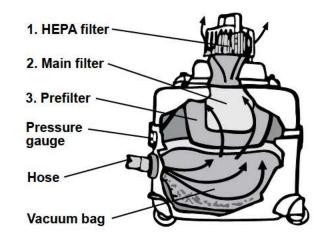
Emptying the HEPA Vacuum

Used filters and vacuumed debris are potentially hazardous waste and should be treated accordingly (see Chapter10). Therefore, operators should use extreme caution when opening the HEPA vacuum for filter replacement or debris removal to avoid accidental release of accumulated dust into the environment. This may occur, for example, if the vacuum's seal has been broken and the vacuum's bag is disturbed.





Figure 14.1a Vacuum With a HEPA Filter.



Parts of a HEPA-vacuum

Most HEPA-vacuums have three filters: HEPA filter, main filter, and prefilter. Debris gets sucked in through the hose into the vacuum bag. The air and dust get filtered through the prefilter, the main filter, and the HEPA filter. The HEPA filter captures the lead dust before the air is released into the work area again.

Operators should also wear a full set of protective clothing and equipment, including appropriate respirators, when performing this maintenance function, which should be done in the containment area or offsite.

2. Wet Detergent Wash

Several types of detergents have been used to remove leaded dust. Those with a highphosphate content (containing at least 5 percent trisodium phosphate, also known as TSP) have been found to be effective when used as part of the final cleaning process (Milar, 1982). TSP detergents are thought to work by coating the surface of dusts with phosphate or polyphosphate groups which reduces electrostatic interactions with other surfaces and thereby permits easier removal. Because of environmental concerns some States have restricted the use of TSP, and some manufacturers have eliminated phosphates from their household detergents. However, high-TSP detergents can usually be found in hardware stores and may be permitted for limited use, such as lead hazard control.

Other non-TSP cleaning agents developed specifically for removing leaded dust have also been found to be effective (possibly more effective than TSP) in limited trials by several



gauge

Pressure

Figure 14.1b Pressure Gauge Indicator Shows When Filters Require Changing.





Figure 14.2 HEPA Vacuum Sizes and Tools.

investigators (Grawe, 1993; Wilson, 1993) and may also be safer, since TSP is a skin and eye irritant. See section VII for more information on non-TSP detergents. Proper procedures for using high-phosphate detergents also apply to most other types of detergents and include the following steps:

Manufacturer's Dilution Instructions

Users of cleaning agents for leaded dust removal should follow manufacturer's instructions for the proper use of a product, especially the recommended dilution ratio. Even diluted, trisodium phosphate is a skin irritant and users should wear waterproof gloves. Eye protection should also be worn, and portable eyewash facilities should be located in or very near the work area. Consult manufacturer's directions for the use of other detergents.

Appropriate Cleaning Equipment

Because a detergent may be used to clean leaded dust from a variety of surfaces, several types of application equipment are needed, including cleaning solution spray bottles, wringer buckets, mops, variously sized hand sponges, brushes, and rags. Using the proper equipment on each surface is essential to the quality of the wetwash process.

Proper Wet-Cleaning Procedures

At the conclusion of the active lead hazard control process and the initial HEPA vacuuming, all vacuumed surfaces should be thoroughly and completely washed with a high-phosphate solution or other lead-specific cleaning agent (or equivalent) and rinsed. Select a detergent that does not damage existing surface finishes (TSP may damage some finishes). Work should proceed from ceilings to floors and sequenced to avoid passing through rooms already cleaned.

Changing Cleaning Mixture

Many manufacturers of cleaners will indicate the surface area that their cleaning mixture will cover. To avoid recontaminating an area by cleaning it with dirty water, users should follow manufacturer-specified surface-area limits. However, regardless of manufacturers' recommendations, the cleaning mixture should be changed after its use for each room. As a rule of thumb, 5 gallons should be used to clean no



Figure 14.3 Goggles, Face Shields, Gloves, and Eye Wash Facilities Should Be Available When Used With Chemicals Such as TSP. EMERGENCY EYE WASH STATION Latex Neoprene Nitrile

more than 1,000 square feet. Used cleaning mixture is potentially hazardous waste (see Chapter 10); consult with your local water and sewage utility for directions on its proper disposal. Wash water should never be poured onto the ground. The wash water is usually filtered and then poured down a toilet (if the local water authority approves).

3. The HEPA/Wet Wash/HEPA Cycle

Typical Procedures

The usual cleaning cycle that follows lead hazard control activities is called the HEPA vacuum/wet wash/HEPA cycle and is applied to an entire affected area as follows:

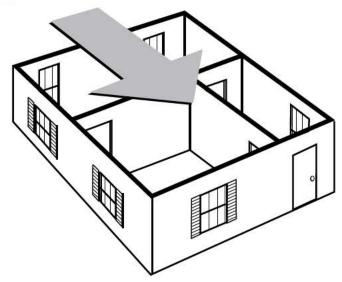
First, the area is HEPA vacuumed.



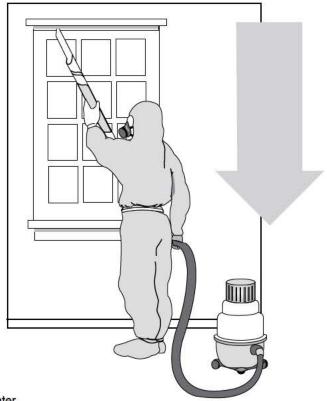


Figure 14.4a The HEPA Vacuum, Wet Wash, HEPA Vacuum Cycle Helps in Meeting Clearance Standards.

HEPA vacuum all surfaces Start at the end farthest from the main entrance/exit. As you vacuum, move towards the main exit and finish there.



Begin at the top of each room and work down. For example, start with the top shelves, the top of the woodwork, and so on, and work down to the floor. Do every inch of the windows, especially the window troughs.



Courtesy: Alice Hamilton Occupational Health Center





- Next, the area is washed down.
- After drying, the area is again HEPA vacuumed.

The rationale for this three-pass system is as follows:

- The first HEPA vacuum removes as much dust and remaining debris as possible.
- The wet wash further dislodges dust from surfaces.
- The final HEPA cycle removes any remaining particles dislodged but not removed by the wet wash.

Single-Pass Wet Wash/HEPA Vacuum

Some lead hazard control contractors have found HEPA spray cleaner vacuums to be a cost-effective alternative to the three-pass system. Similar to home carpet-cleaning machines, these vacuums simultaneously deliver a solution to the surface and recover the dirty solution. Theoretically, this process combines two of the steps in the HEPA vacuum/wet wash/HEPA cycle into one step. While anecdotal evidence indicates that the spray cleaner wet wash/HEPA is effective for some uses, limitations have been noted in its use for ceilings, vertical surfaces, and hard to reach areas. This device may be used as long as clearance standards are met.

Figure 14.4b (continued)

Use special attachments

Use the rubber cone where the floor meets the baseboard and along all the cracks in the floor boards. Use the brush tool for walls and woodwork.

Use the wheeled floor nozzle for bare floors and the carpet beater for rugs.

Move slowly

Vacuum slowly so the HEPA vacuum can pick up all the lead dust.



Rubber Cone

Dust Brush



Powered Carpet Beater



Wheeled Floor Nozzle





Figure 14.4c (continued)

Wash all surfaces with suitable detergents

Wash all surfaces in the work area with suitable detergents, including areas that had been covered with plastic. Some wallpaper should only be HEPA vacuumed, since it may be damaged by the detergent.



Wipe All Surfaces



Wet Mop Floor



Don't Dry Sweep



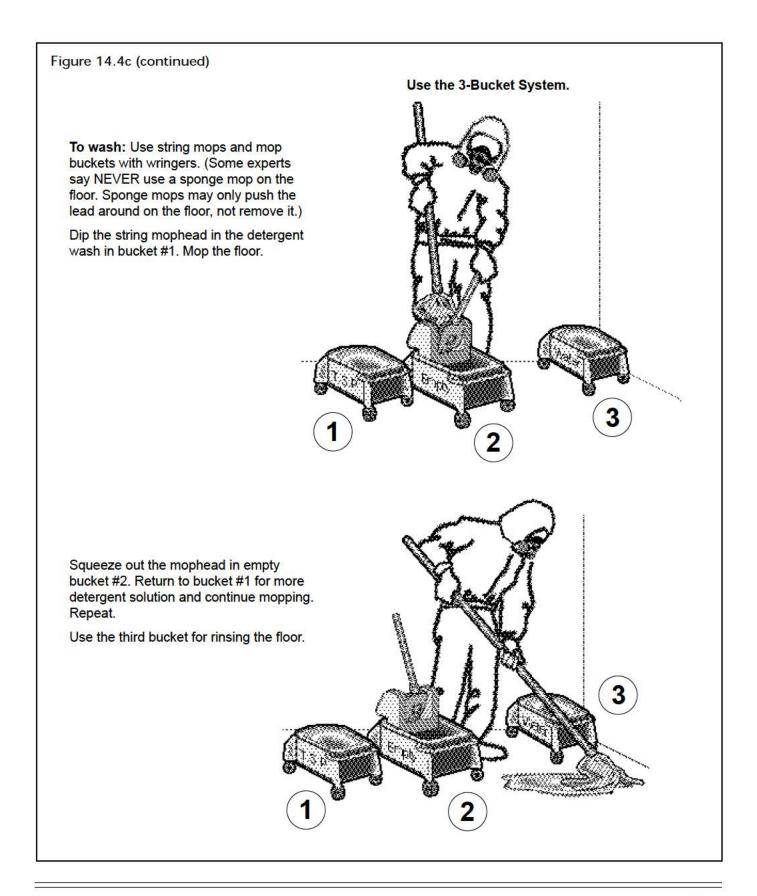


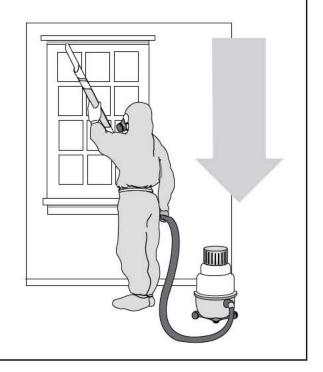




Figure 14.4d (continued)

HEPA vacuum all surfaces a final time HEPA vacuum *all surfaces* in the work area, including areas that had been covered with plastic.

Starting at the far end, work towards the decontamination area. Begin with ceilings or the top of the walls and work down, cleaning the floors last. Do every inch of the windows, especially the troughs. Use the corner tool to clean where the floor meets the baseboard and all the cracks in the floor boards. Use the brush tool for the walls. Move slowly and carefully to get all the dust.



4. Sealing Floors

Before clearance, all floors without an intact, nonporous coating should be coated. Sealed surfaces are easier for residents to clean and maintain over time than those that are not sealed. Wooden floors should be sealed with a clear polyurethane or painted with deck enamel or durable paint. Vinyl tile, linoleum, and other similar floors should be sealed with an appropriate wax. Concrete floors should be sealed with a concrete sealer or other type of concrete deck enamel. However, if these floors are already covered by an effective coat of sealant, it may be possible to skip this step.

As an alternative to sealing, floors may be covered with new vinyl tile, sheet vinyl, linoleum flooring, or the equivalent to create a more permanent cleanable surface. New surfaces should be cleaned with a cleaning solution that is appropriate for that type of surface.

IV. Order of Cleaning Procedures During Lead Hazard Control

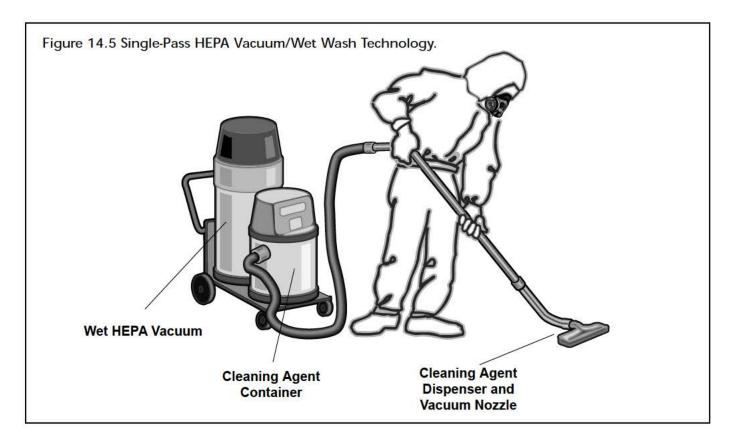
The special cleaning procedures to be followed during a lead-based paint hazard control project are discussed in chronological order below. Skipping steps in the process may result in failure to meet post-lead hazard control clearance standards.

A. Precleaning Procedures

Precleaning (i.e., cleaning conducted before lead hazard control is begun) is necessary only in dwelling units that are heavily contaminated with paint chips. Precleaning involves the removal of large debris and paint chips, followed by HEPA vacuuming. These steps may be followed by removal of occupant personal possessions, furniture, or carpeting, depending on the





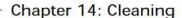


Worksite Preparation Level selected (see Chapter 8). If the furniture will not be cleaned, it should be removed from the area or covered with plastic prior to beginning the precleaning procedure. Carpeting should always be misted before its removal to control the generation of hazardous dust.

It is usually the resident's responsibility to remove most of his or her personal possessions. However, if necessary, owners or project management should be prepared to complete this activity before lead hazard control work begins. As a last resort, the contractor may pack any remaining belongings and carefully seal and move the boxes, supplying all necessary boxes, packing materials, and staff to complete the task. Following cleaning and clearance, the contractor should return all packed items to their appropriate places. Leaving these tasks to the contractor may be expensive and inefficient, since the contractor will need to be insured for this function if the occupant's



Figure 14.6 Precleaning Is Needed in Areas Where Contamination and Deterioration Are High.





belongings are damaged. Additionally, moving furniture, rugs, drapes, and other items owned by the occupant could increase leaded dust levels. Clearance should be conducted after cleaning but before resident items are moved back in.

B. Ongoing Cleaning During the Job

Periodic HEPA vacuuming during the lead hazard control work may be necessary to minimize tracking of dust and paint chips from one area to another (e.g., when a large amount of paint chips or dust is being generated).

C. Daily Cleaning Procedures

Cleaning activity should be scheduled at the end of each workday when all active lead hazard control throughout the dwelling has ceased. Sufficient time must be allowed for a thorough and complete cleaning (usually about 30 minutes to an hour). Daily cleaning helps achieve clearance dust levels by minimizing problems that may otherwise occur during final cleaning and limiting worker exposures. While daily cleaning can be skipped in vacant dwelling units, it is required when occupants will



Figure 14.7 Plastic Sheeting Should Be Repaired as Part of Daily Cleanup.

return in the evening. Under no circumstances should debris or plastic be left outside overnight in an unsecured area, even if the dwelling is vacant. Daily cleaning should consist of:

- Removing large debris.
- Removing small debris.
- ♦ HEPA vacuuming, wet clean, HEPA vacuuming (horizontal surfaces only).
- Cleaning exterior.
- Patching and repairing plastic sheeting.
- Securing debris/plastic.

1. Large Debris

Large demolition-type debris (e.g., doors, windows, trim) should be wrapped in 6-mil plastic, sealed with tape, and moved to a secure area on the property designated for waste storage. All sharp corners, edges, and nails should be hammered down to prevent injury and minimize the tearing of plastic. It is not necessary to wrap each individual piece of debris in plastic if the entire load can be wrapped. A secure area either outside or inside the property must be designated as a temporary waste-storage area. Covered, secured, and labeled dumpsters placed on or near the property may be used. Proper segregation of waste should be enforced at this time (see Chapter 10).

2. Small Debris

After being misted with water, small debris should be swept up, collected, and disposed of properly. The swept debris should be placed in double 4-mil or single 6-mil polyethylene (or equivalent) plastic bags, properly sealed, and moved to the designated trash storage area. Trash bags should not be overloaded; overloaded bags may rupture or puncture during handling and transport.

3. Exterior Cleaning

Areas potentially affected by exterior lead hazard control should be protected via a containment system (see Chapter 8). Because weather can adversely affect the efficacy of exterior





containment, the surface plastic of the containment system should be removed at the end of each workday. On a daily basis, as well as during final cleaning, the immediate area should be examined visually to ensure that no debris has escaped containment. Any such debris should be raked or vacuumed and placed in single 6-mil or double 4-mil plastic bags, which should then be sealed and stored along with other contaminated debris. HEPA vacuuming is appropriate for hard exterior surfaces, not soil.

4. Worker Protection Measures

General worker protection measures are discussed in Chapter 9. Studies indicate that during daily cleaning activities, especially while wet sweeping, workers may be exposed to high levels of airborne dust. Therefore, workers should wear protective clothing and equipment, especially appropriate respirators.

5. Maintaining Containment

The integrity of the plastic sheeting used in a lead hazard control project must be maintained. During their daily cleaning activities, workers should monitor the sheeting and immediately repair any holes or rips with 6-mil plastic and duct tape.

V. Order of Final Cleaning Procedures After Lead Hazard Control

Before treated surfaces can be painted or sealed, final cleaning procedures must be completed. Because airborne dust requires time to settle, the final cleaning process should start no sooner than 1 hour after active lead hazard control has ceased in the room. See Appendix 11 for details regarding dust settling.

A. Final Cleaning

As the first stage in the final cleaning, floor plastic should be misted and swept as detailed earlier in this chapter. Upper-level plastic, such as that on cabinets and counters, should be removed first, after it has been misted with water and cleaned. All plastic should be folded

carefully from the corners/ends to the middle to trap any remaining dust. Next, remove both layers of plastic from the floor.

Plastic sheets used to isolate contaminated rooms from noncontaminated rooms should remain in place until after the cleaning and removal of other plastic sheeting; these sheets may then be misted, cleaned, and removed last.

Removed plastic should be placed into double 4-mil or single 6-mil plastic bags, or plastic bags with equivalent (or better) performance characteristics, which are sealed and removed from the premises. As with daily cleanings, this plastic-removal process usually requires workers to use protective clothing and respirators.

After the plastic has been removed from the contaminated area, the entire area should be cleaned using the HEPA/wet wash/HEPA cycle, starting with the ceiling and working down to the floor. After surfaces are repainted or sealed, a final HEPA/wet wash/HEPA cycle may be necessary if accumulated dust caused by other work is visible.

1. Decontamination of Workers, Supplies, and Equipment

Decontamination is necessary to ensure that worker's families, other workers, and subsequent properties do not become contaminated. Specific procedures for proper decontamination of equipment, tools, and materials prior to their removal from lead hazard control containment areas should be implemented, as described below and in Chapters 9 and 10.

Work clothing, work shoes, and tools should not be placed in a worker's automobile unless they have been laundered or placed in sealed bags. All vacuums and tools that were used should be wiped down using sponges or rags with detergent solutions.

Consumable/disposable supplies, such as mop heads, sponges, and rags, should be replaced, after each dwelling is completed. Soiled items should be treated as contaminated debris (see Chapter 10).







Figure 14.8a Pick Up Corners of Plastic Sheeting.



Figure 14.8b Fold Plastic Inward.

Durable equipment, such as power and hand tools, generators, and vehicles, should be cleaned prior to their removal from the site; the cleaning should consist of a thorough HEPA vacuuming followed by washing.

B. Preliminary Visual Examination

After the preliminary final cleaning effort is completed, the certified supervisor should visually evaluate the entire work area to ensure that all work has been completed and all visible dust and debris have been removed. While the preliminary examination may be performed by the lead hazard control supervisor, contractor, or owner as a preparatory step before the final clearance examination, it does not replace the independent visual assessment conducted during clearance.

If the visual examination results are unsatisfactory, affected surfaces must be retreated and/or recleaned. Therefore, it is more cost effective to have the supervisor rather than the clearance examiner perform this initial examination.

C. Surface Painting or Sealing of Nonfloor Surfaces

The next step of the cleaning process is painting or otherwise sealing all treated surfaces except floors.

Surfaces, including walls, ceilings, and woodwork, should be coated with an appropriate primer and repainted. Surfaces enclosed with vinyl, aluminum coil stock, and other materials traditionally not repainted are exempt from the painting provision.

D. Final Inspection

The final clearance evaluation should take place at least 1 hour after the final cleaning. Clearance has three purposes: 1) to ensure that the lead hazard control work is complete, 2) to detect the presence of leaded dust, and 3) to make sure that all treated surfaces have been repainted or otherwise sealed. Clearance is usually performed after the sealant is applied to the floor. See Chapter 15 for information on clearance examination procedures.

E. Recleaning After Clearance Failure

If after passing the final visual examination, the dwelling unit fails the clearance wipe dust tests,





the HEPA/wet wash/HEPA cleaning cycle should be carefully and methodically repeated. Failure is an indication that the cleaning has not been successful. Recleaning should be conducted under the direct supervision of a certified supervisor. Care should be exercised during the recleaning of "failed" surfaces or components to avoid recontaminating "cleared" surfaces or components.

VI. Cleaning Cost Considerations

An important consideration in determining lead hazard control strategies and methods is the cost and difficulty of required daily and final cleanup operations and the ease with which one can meet dust-clearance standards. A general rule of thumb is that lead hazard control strategies that generate the most dust will have higher cleanup costs and higher initial clearance test-failure rates.

A. Initial Clearance Test Failure Rates

The likelihood of passing final dust-clearance tests is highly correlated with the chosen intervention strategy, methods, and care exercised by the contractor. For example, in one study (HUD, 1991) initial wipe-test failure rates were 14 percent for interior window sills, 19 percent for floors, and 33 percent for window troughs. The pass/fail rates for each surface were strongly associated with the dwelling unit abatement strategy employed. Chemical removal and hand-scraping strategies experi-enced higher failure rates than replacement and encapsulation/enclosure strategies (see Table 14.1).

However, results of the HUD demonstration project indicated that clearance failure is not solely related to abatement method. The report stated that "the diligence and effectiveness of an abatement contractor's cleaning process ... had a major impact on ... the likelihood of the dwelling unit to pass the final wipe test clearance" (HUD, 1991).



Figure 14.8c Dispose of Plastic Sheeting in a Plastic Trash Bag.

B. Key Factors In Effective Cleaning

Effective cleaning will be aided by adequate sealing of surfaces with polyethylene sheeting prior to lead hazard control, proper daily cleaning practices, good worker training, and attention to detail. Where poor worksite preparation is employed, additional cleaning may be required to meet clearance.

C. Special Problems

Surfaces such as porous concrete, old porous hardwood floors, and areas such as corners of rooms and window troughs pose especially difficult cleaning challenges. Porous concrete and corners of rooms normally require additional vacuuming to achieve an acceptable level of cleanliness.

The lead hazard control strategy of enclosure is frequently chosen for window troughs and for old porous hardwood floors due to the difficulty of adequately cleaning these surfaces. This





option provides not only a clean surface but a more permanently cleanable surface for dwelling occupants to maintain.

VII. Alternative Methods

Alternatives to the recommended cleaning tools and practices discussed in this chapter are available, some having significant potential for increasing effectiveness and lowering costs.

A recent Canadian study (CMHC, 1992) evaluated the effectiveness of contaminated dust cleanup activities using tools that would generally be available to construction contractors and homeowners. Vinyl flooring and carpeting were cleaned using several wet/dry vacuuming systems, sweeping, and wet mopping. The study found that regular vacuums with empty bags send a steady stream of fine particles into the air, while vacuums with partially filled bags were more efficient. This finding suggests the necessity for HEPA vacuums. Other vacuums may be used if workers do not experience increased exposures, if compliance with clearance standards is achieved, and if a variance from OSHA regulation (29 CFR 1926.62 (h)(4)) is obtained by the contractor or employer (if required).

Agitator heads on vacuums were demonstrated to significantly enhance vacuum effectiveness on carpets in cleaning up fine dust without

increasing airborne dust levels. Table 14.2 suggests that a central vacuum with an agitator head is most efficient at removing dust and minimizing recontamination, probably because the vacuum exhaust is blown away from living areas. Because many houses do not have central vacuuming systems, a portable HEPA vacuum is the next best choice (see Table 14.2). Vacuums without agitator heads appeared to perform relatively poorly on carpets.

A. Vacuums

Regular (non-HEPA) dry vacuums potentially produce hazardous levels of airborne dust and therefore should be avoided. Externally exhausted vacuum units with adequate dustretaining capability may be used. The OSHA lead standard requires the use of HEPA vacuum equipment (see 29 CFR 1926.62 (h)(4), which states, "where vacuuming methods are selected, the vacuums shall be equipped with HEPA filters").

B. Trisodium Phosphate and Other Detergents

TSP detergents have been used successfully for a number of years in lead hazard control work. However, in recent years, other new cleaning agents have been developed specifically for leaded dust removal. The need for alternatives has been fueled by the fact that TSP is an eye

Table 14.1 Initial Cleaning Wipe-Test Failure Rates for Various Abatement Strategies

Dust Test Location	Hand Scrape w/Heat Gun	Chemical Removal	Enclosure	Encapsulation	Replacement	All Methods
Floors	28.8%	22.7%	20.0%	13.8%	12.5%	19%
Sills	24.4%	24.1%	8.2%	4.8%	17.4%	14%
Wells	44.5%	45.7%	23.7%	25.7%	21.0%	33%

Source: U.S. Department of Housing and Urban Development (August 1991) The HUD Lead-Based Paint Abatement Demonstration (FHA)





and skin irritant and is increasingly restricted from household use and unavailable in many local jurisdictions. TSP also damages some finishes. Recently reported trials of two new products suggest that alternative lead-specific cleaning agents may be more effective and safer than TSP (Grawe, 1993; Wilson, 1993).

These Guidelines do not prohibit the use of non-TSP cleaning agents. HUD encourages further evaluation of alternative cleaning methods. Use of any cleaning agent that results in compliance with clearance criteria is encouraged.

Table 14.2 Mass Removal Efficiency for Extended Vacuuming Cycles

	Mass Removal Efficiency Percentages						
Cycle Number	Cleaning Method						
	Central Vacuum—Plain Tool	Central Vacuum—Agitator Head	HEPA Vacuum	Portable Vacuum—Plain Tool			
1	34.7	71.0	55.4	17.5			
2	47.0	80.2	61.2	23.0			
3	51.9	85.9	66.3	26.6			
4	56.0	87.8	67.0	29.4			
5	59.3	88.9	72.1	32.5			
6	61.6	91.2	74.4	34.9			
7	63.8	93.1	76.4	36.5			
8	67.5	95.4	77.5	38.1			
9	67.5	97.7	78.7	40.1			
10	67.2	100.0	80.2	41.7			
11		102.3	80.2	41.7			
12		104.6	84.1	44.8			
13		104.6	84.5	46.8			
14		103.8	84.5	48.4			
15				49.6			
16				50.8			
17				52.4			
18				53.6			
19				54.4			
20				55.2			

Source: Canada Mortgage and Housing Corporation: Saskatchewan Research Council (December 1992) Effectiveness of Clean-up Techniques for Leaded Paint Dust

National Guard Region North

National Guard Readiness Center Industrial Hygiene Evaluation Horseheads Readiness Center Horseheads, NY 14845

Prepared for:

National Guard Region North Industrial Hygiene Office 301 Old Bay Lane Havre De Grace, MD 21078

Attn:

Non-Responsive

Prepared by:

Bonus Environmental, LLC P.O. Box 121 Mt. Pleasant, Michigan 48804

> Project No. 1061-15 January 31, 2013

Bonus Environmental, LLC

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APPENDICES

Appendix A Shop Diagram and Air Flow Patterns

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January 31, 2013 Project No. 1061-15

National Guard Region North Industrial Hygiene Office 301 Old Bay Lane Havre De Grace, MD 21078-4003

Attn: Non-Responsive

Project: Industrial Hygiene Evaluation

Horseheads Readiness Center, Horseheads, NY 14845

1.0 - EXECUTIVE SUMMARY

Bonus Environmental, LLC was contracted by the National Guard Bureau Region North Industrial Hygiene office to identify and measure the existence and extent of potentially hazardous operations or conditions at the Horseheads Readiness Center located at 128 Colonial Drive in Horseheads, NY. The purpose of this evaluation was to generate or to update a previous baseline evaluation so that employee exposure history can be provided to each civilian and military employee. The following industrial hygiene conditions were evaluated during this industrial hygiene evaluation performed by Bonus Environmental, LLC representative Non-Responsive on November 26, 2012:

- Indoor Air Quality
- Lead Wipe & Bulk Sampling
- Illumination
- Ergonomics

 Evaluation of the physical condition of the facility in regards to peeling paint, asbestos containing materials, water damage or mold problems, and housekeeping practices.

The Horseheads Readiness Center was constructed in 1978, and is an Army National Guard armory comprised of offices, locker rooms, storage rooms, a classroom, a drill hall, a kitchen, a boiler room, a fitness room, a Supply room, a break room, maintenance areas (used for storage), and a former indoor firing range (currently used as storage). The point of contact for the approximately 32,312 ft² Horseheads Readiness Center is Mr. Raymond Carmody. Six (6) full-time administrative personnel are employed at the Horseheads Readiness Center. Health and Safety programs reviewed during this survey included Spill Prevention, Hazcom, Fire Prevention, Personal Protective Equipment (PPE), Lock-Out/Tag-Out, Confined Spaces, and Respiratory Protection. A shop diagram depicting the locations of the operations and air flow patterns identified during this industrial hygiene evaluation is attached to this report as Appendix A.

The National Guard Bureau Region North Industrial Hygiene Office provided governmental furnished equipment and sampling media required to perform the industrial hygiene evaluation. Chain of custody forms for laboratories approved by the National Guard Bureau Region North Industrial Hygiene Office were provided with the sampling media. All samples collected during this industrial

hygiene evaluation were sent to the National Guard Bureau Region North Industrial Hygiene Office approved laboratories for analysis.

2.0 – LEAD SAMPLING

2.1 – Lead Wipe Sampling

Lead wipe sampling was performed according to the Environmental Protection Agency (EPA) method 600/R-93/200(M)-7420 (Atomic Absorption - Flame). Fifteen (15) wipe samples and one (1) field blank were sent under chain-of-custody procedures to AMA Analytical Services, Inc., an American Industrial Hygiene Association (AIHA) accredited laboratory located in Lanham, Maryland. The U.S. Department of Labor (USDOL) and the Occupational Safety and Health Administration (OSHA) do not have a promulgated standard for lead surface contamination; however OSHA has provided an interpretive level of 200 micrograms per square foot (μg/ft²) to assess the housekeeping requirements of "as free as reasonably practicable". This interpretation is presented in OSHA Industrial Hygiene Technical Manual (TED 01-00-015; 1/20/1999), and in a letter of interpretations dated 1/13/2003, and subsequently issued to public domain. NG Pam 420-15 addresses the conversion and remediation of former indoor firing ranges. The following table outlines the locations and analytical results for the lead wipe samples collected during this project.

Army National Guard – Horseheads Readiness Center Lead Wipe Sample Results					
Sample #	Sample Date	Sample Location		Sample Result (µg/ft²)	
HHRC-LW-1	11-26-12	Field Blank		$< 12 \mu g$	
HHRC-LW-2	11-26-12	Drill hall, northeast corner, top of exit sign	0.111	< 110	
HHRC-LW-3	11-26-12	Drill hall, north wall, top of AHU #2 switch box	0.111	140	
HHRC-LW-4	11-26-12	Drill hall, west wall, top of display case	0.111	170	
HHRC-LW-5	11-26-12	Drill hall, east side, on floor	0.111	< 110	
HHRC-LW-6	11-26-12	Drill hall, west side, on floor	0.111	< 110	
HHRC-LW-7	11-26-12	Kitchen, southwest corner, top of paper towel dispenser	0.111	< 110	
HHRC-LW-8	11-26-12	Basement, former indoor firing range, west end, on floor	0.111	120	
HHRC-LW-9	11-26-12	Basement, former indoor firing range, center, on light fixture	0.111	180	
HHRC-LW-10	11-26-12	Basement, former indoor firing range, east end, on floor	0.111	120	
HHRC-LW-11	11-26-12	Fitness room 110B, west wall, top of clock	0.111	< 110	
HHRC-LW-12	11-26-12	Men's locker room, southwest corner, on heater fins	0.111	2,800	
HHRC-LW-13	11-26-12	Room 106B, on window sill	0.111	< 110	
HHRC-LW-14	11-26-12	Break room 134B, center of room, supplied air grill	0.111	220	
HHRC-LW-15	11-26-12	Hallway, top of AED case	0.111	< 110	
HHRC-LW-16	11-26-12	Maintenance area, along south wall, on work table	0.111	140	

Surface cleanliness threshold = < 200 micrograms per square foot ($\mu g/ft^2$)

The former indoor firing range is currently used as storage. It was stated to Bonus Environmental, LLC that it was remediated "several" years ago. It is uncertain whether it was remediated to the protocols specified in NG Pam 420-15. Remediation wipe sample results were not posted, nor were any signs posted restricting access to the area.

3.0 - PHYSICAL CONDITION OF FACILITY / PERSONNEL CONCERNS

3.1 - Lead Based Paint

During the industrial hygiene evaluation of the Horseheads Readiness Center, Bonus Environmental, LLC performed a visual inspection of the facility in regards to lead based paint. Bonus Environmental, LLC identified two areas of peeling paint which could potentially pose a lead exposure hazard. Bonus Environmental, LLC identified peeling paint in the following areas:

- Approximately 220 ft² of peeling gray paint on the floor of the men's locker room;
- Approximately 80 ft² of peeling gray paint in the Drill hall.

One (1) paint chip samples was collected and sent under chain-of-custody procedures to AMA Analytical Services, Inc., an AIHA accredited laboratory located in Lanham, MD. See table below for sample information:

Army National Guard – Horseheads Readiness Center Paint Chip Sample					
Sample #	Sample Location	Color	Analytical Reporting Limit (%)	Analytical Results (%)	
HHRC-PC-1	Men's locker room	Gray	0.0085	< 0.0085	

Analysis indicated that the peeling paint collected did not contain detectable levels of lead. The paint is therefore not considered to be lead-based paint. Paint chip sample results are attached to this report as Appendix B.

3.2 – Presumed Asbestos Containing Materials

During the industrial hygiene evaluation of the Horseheads Readiness Center, Bonus Environmental, LLC performed a visual inspection to identify presumed asbestos containing materials (PACM) and, if found, to note their condition. Bonus Environmental, LLC did not identify any PACM's that were considered to be in poor or damaged condition.

3.3 - Water Damage/Mold Growth

During the industrial hygiene evaluation of the Horseheads Readiness Center, Bonus Environmental, LLC performed a visual inspection to report the location and perform an evaluation of any water damaged building materials and/or visible mold problems. Bonus Environmental, LLC did not identify any water-damaged materials.

3.4 - Housekeeping

During the industrial hygiene evaluation of the Horseheads Readiness Center, Bonus Environmental, LLC performed an evaluation of the housekeeping practices. Bonus Environmental, LLC found the

housekeeping practices within Horseheads Readiness Center facility in good order, with the exception of residual lead dust concentrations.

3.5 – Employee Interviews

During the industrial hygiene evaluation of the Horseheads Readiness Center, Bonus Environmental, LLC performed interviews and made observations to determine if the work activities being performed possessed any ergonomic concerns. Following the interviews and observations, no ergonomic and or indoor air quality concerns were identified.

3.6 – Indoor Air Quality

During the industrial hygiene evaluation of the Horseheads Readiness Center, Bonus Environmental, LLC measured temperature, relative humidity, carbon monoxide (CO), and carbon dioxide (CO₂) throughout the facility. A calibrated TSI Q-Trak Plus Model 7575 Indoor Air Quality Monitor equipped with a Q-Trak Probe 982 was utilized to record indoor air quality measurements.

Carbon dioxide is a natural component of air and the amount of CO₂ in a given air sample is commonly expressed as parts per million (ppm). The outdoor air in most locations contains about 380 ppm carbon dioxide. Higher outdoor CO₂ concentrations can be found near vehicle traffic areas, industry and sources of combustion. The concentrations of CO₂ found in most offices are well below the OSHA Permissible Exposure Limit (PEL) of 5,000 ppm when averaged over an 8-hour time period for an industrial workplace. While levels below 5,000 ppm are considered to pose no serious health threat, studies have indicated that individuals in offices with elevated CO₂ concentrations tend to report drowsiness, lethargy and a general sense that the air is stale. Ventilation rates for office spaces are defined by various codes and standards. The most widely accepted standard is the American Society of Heating, Refrigerating, and Air Conditioning Engineers (ASHRAE) Standard 62. According to ASHRAE Standard 62.1-2010, CO₂ concentrations below 700 ppm above the outdoor level are considered to indicate adequate ventilation and provide human comfort. The CO₂ measurements collected during this industrial hygiene evaluation ranged from 391 ppm to 535 ppm and indicate adequate ventilation within the facility.

Carbon monoxide is a colorless, odorless, poisonous gas that results from the incomplete burning of common fuels such as natural or liquefied petroleum gas, oil, wood or coal. When carbon monoxide is inhaled, it enters the blood stream and reduces the ability of the blood to carry oxygen to vital organs, such as the heart and brain. Because it is impossible to see, taste or smell the toxic fumes, CO can harm you before you are aware it is in your work area. At lower levels of exposure, CO causes mild effects that are often mistaken for the flu. These symptoms include headaches, dizziness, disorientation, nausea and fatigue. The effects of CO exposure can vary greatly from person to person depending on age, overall health and the concentration and length of exposure. The OSHA has established a permissible exposure limit (PEL) of 50 parts per million (ppm). OSHA standards prohibit worker exposure to more than 50 parts of the gas per million parts of air averaged during an 8-hour time period. The peak CO level for employees is 200 ppm. The CO measurements collected during this industrial hygiene evaluation all indicated 0.0 ppm. CO levels were below the OSHA PEL during this industrial hygiene evaluation.

During the industrial hygiene evaluation of the Horseheads Readiness Center, Bonus Environmental, LLC collected temperature measurements. Temperature measurements throughout the common areas of the facility routinely occupied by employees ranged from 57.9°F to 68.0°F and are not considered to be within an acceptable range outlined within ASHRAE Standard 55-2010.

During the industrial hygiene evaluation of the Horseheads Readiness Center, Bonus Environmental, LLC collected relative humidity measurements. Relative humidity measurements throughout common areas of the facility routinely occupied by employees ranged from 25.2% to 32.2%. Indoor air quality measurements recorded during this industrial hygiene evaluation are summarized in the table below.

Army National Guard – Horseheads Readiness Center Indoor Air Quality Measurements						
Location	CO ₂ (ppm)	CO (ppm)	Relative Humidity (%)	Temperature (°F)		
Outdoors, east side of building (partly sunny)	391	0.0	47.7	39.7		
Office 102	468	0.0	30.2	66.7		
Basement, former indoor firing range	415	0.0	30.7	65.5		
Office 106B	535	0.0	27.1	65.1		
Fitness room 110B	453	0.0	29.5	66.4		
Boiler room	446	0.0	26.8	68.0		
Men's locker room	455	0.0	27.3	66.9		
Break room 134B	515	0.0	32.2	65.8		
Kitchen	409	0.0	25.2	64.8		
Drill hall	409	0.0	27.1	61.9		
Maintenance area (1 bay door open)	428	0.0	26.0	57.9		

Required/Recommended Values

CO₂ - OSHA PEL = 5,000 parts per million (ppm) and ASHRAE Standard 62.1-2010 = no greater than 700 ppm above outdoor

CO - OSHA PEL = 50 ppm and OSHA Ceiling Limit = 200 ppm

Temperature - ASHRAE Standard 55-2010 = between approximately 67 and 82 °F.

RH - ASHRAE Standard 62.1-2010 = limited to < 65%

4.0 – LIGHTING

Utilizing a properly calibrated Cooke Corporation cal-Light 400 light meter, Bonus Environmental, LLC collected illumination readings throughout the Horseheads Readiness Center. Illumination measurements recorded during this industrial hygiene evaluation are summarized in the table below.

Army National Guard – Horseheads Readiness Center Lighting Measurements						
Location	Measurement in	Requirement in Foot	Requirement			
	Foot Candles	Candles	Met?			
Basement, former indoor firing range (storage)	36.9	30	Yes			
Basement, room 2 Inaccessible						
East entrance foyer	26.4	10	Yes			
Room 102, Superintendent's office	136.9	50	Yes			
Room 105 (office)	82.9	50	Yes			
Hallway	45.3	5	Yes			
Room 106A (office)	128.2	50	Yes			

Army National Guard – Horseheads Readiness Center Lighting Measurements					
Location	Measurement in Foot Candles	Requirement in Foot Candles	Requirement Met?		
Room 106B (office)	83.8	50	Yes		
Room 108 (office)	52.4	50	Yes		
Room 107 (storage)	11.3	30	No		
Room 109 (janitor's closet)	46.2	30	Yes		
Room 110A (office)	66.5	50	Yes		
Room 110B (fitness room)	101.9	30	Yes		
Room 112 (storage)	42.1	30	Yes		
Boiler room	38.8	30	Yes		
Men's locker room	14.2	7	Yes		
Men's restroom	34.3	5	Yes		
Men's showers	74.6	7	Yes		
Women's locker room	43.4	7	Yes		
Women's restroom	125.1	5	Yes		
Women's locker room	61.4	7	Yes		
Officer's restroom	127.2	5	Yes		
Officer's locker room	119.0	7	Yes		
Room 136 (FRG office/storage)	32.2	30	Yes		
Room 137 (Supply)	19.4	30	No		
Classroom 134A	110.0	30	Yes		
Break room 134B	57.3	10	Yes		
Kitchen	65.4	50	Yes		
Room 131 (kitchen storage)	58.4	30	Yes		
Room 129 (storage)	13.3	30	No		
Drill hall	21.5	30	No		
Maintenance area (storage)	16.2	30	No		
Maintenance office 1	19.2	50	No		
Maintenance storage 1	69.3	30	Yes		
Maintenance office 2	56.5	50	Yes		
Maintenance storage 2		Inaccessible			
Room 126 (storage)		Inaccessible			
Room 125 (medical storage)	8.2	30	No		
Room 123 (office)	26.2	50	No		
Room 137 (Supply vault)		Inaccessible			

Lighting levels were compared to the levels outlined within the American National Standards Institute/Illuminating Engineering Society of North America (ANSI/IESNA) RP-1-04 Office Lighting Handbook, and the ANSI/IESNA RP-7-01 Lighting Industrial Facilities Handbook. Areas within the facility which did not meet the foot candle requirements are identified with a "NO" within the "Requirement Met?" column. It is recommended that illumination be improved in all the areas that did not meet the requirements. Improving illumination can be achieved by replacing burned-out lamps/bulbs, cleaning fixtures, relocating detailed work activities to more illuminated areas, and using supplemental task lighting.

5.0 - CONCLUSION & LIMITATIONS

Bonus Environmental, LLC was contracted by the National Guard Bureau Region North Industrial Hygiene office to identify and measure the existence and extent of potentially hazardous operations or conditions at the Horseheads Readiness Center located at 128 Colonial Drive in Horseheads, NY. The purpose of this evaluation was to generate or to update a previous baseline evaluation so that employee exposure history can be provided to each civilian and military employee. Industrial hygiene conditions were evaluated during this industrial hygiene evaluation performed by Bonus Environmental, LLC representative Jeff Walworth on November 26, 2012.

The results/findings of this industrial hygiene evaluation are summarized below.

- 1. Lead wipe sample results collected within the Horseheads Readiness Center were above the OSHA interpretive level of 200 μg/ft² in two of the tested areas;
- 2. Bonus Environmental, LLC identified two areas of peeling paint which did not contain detectable levels of lead.
- 3. Bonus Environmental, LLC did not identify any PACM that was considered to be in poor or damaged condition.
- 4. Bonus Environmental, LLC did not identify any water-damaged or moldy building materials.
- 5. Bonus Environmental, LLC found the housekeeping practices within Horseheads Readiness Center in good order, with the exception of residual lead dust concentrations.
- 6. Following the interviews and observations, no ergonomic and or indoor air quality concerns were identified.
- 7. Bonus Environmental, LLC measured temperature, relative humidity, CO, and CO₂ throughout the Horseheads Readiness Center. All were found to be within their acceptable ranges/limits; with the exception of several temperature readings.
- 8. Areas within the Horseheads Readiness Center facility were identified as improperly illuminated.
- 9. Health and Safety policies reviewed at the Horseheads Readiness Center included Spill Prevention, Hazcom, Fire Prevention, Personal Protective Equipment (PPE), Lock-Out/Tag-Out, Confined Spaces, and Respiratory Protection. All were found to meet regulatory requirements.
- 10. The Maintenance area is used for storage, with the only maintenance activity being sporadic tire repairs. No vehicle exhaust ventilation system exists within the Maintenance area.

Bonus Environmental, LLC has 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 Region North -

Industrial Hygiene Office. 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 Bonus Environmental, LLC's inspection of the site.

It has been a pleasure to be of assistance to you. Please contact us if you have any questions concerning this report or if we can be of any further assistance in any other environmental or occupational health matter.

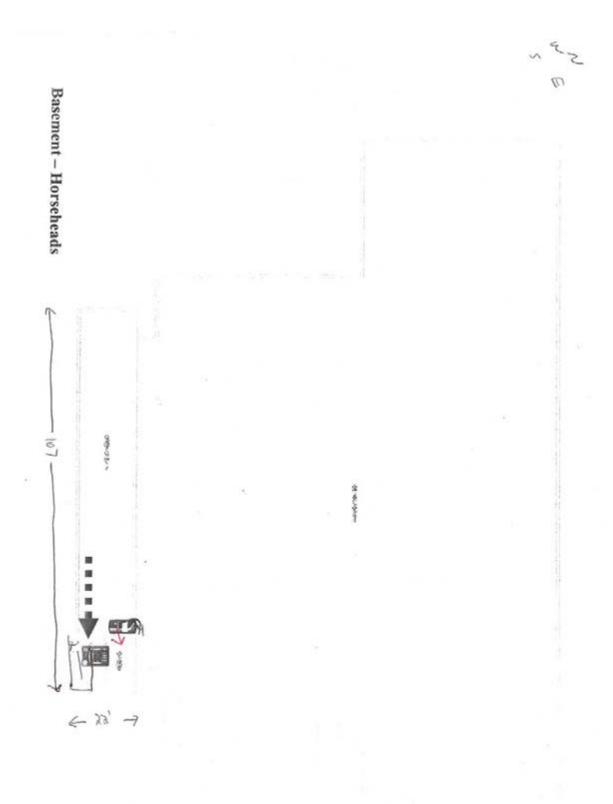


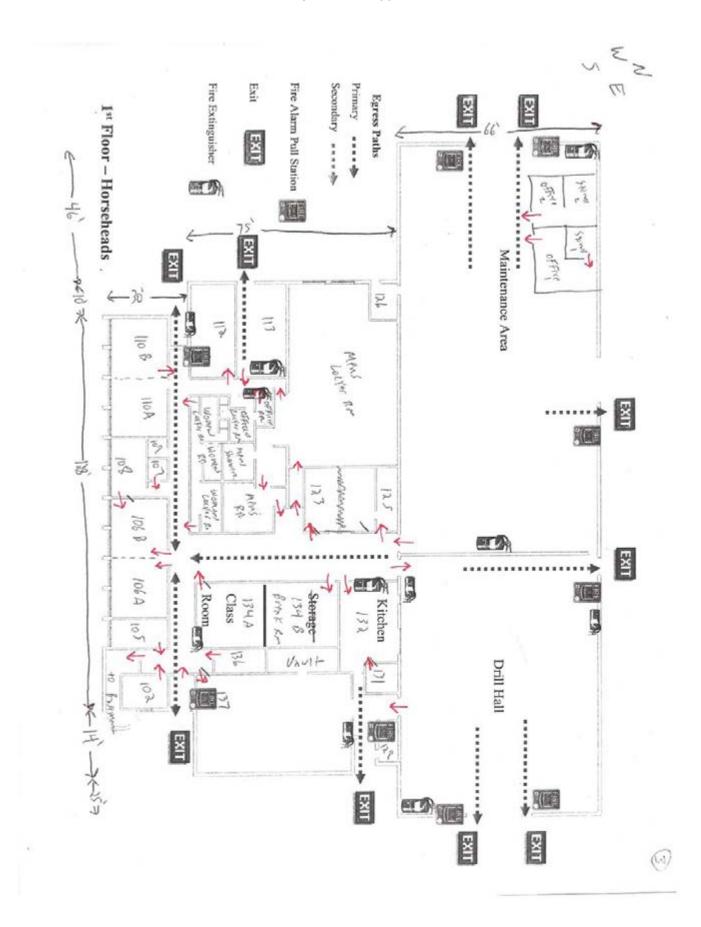
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Appendix A

Shop Diagram and Air Flow Patterns





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Appendix B

Lead Sampling Results

AMA Analytical Services, Inc.



A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS



ASI #100476

Client:

National Guard Bureau

Job Name:

Horseheads RC

Chain Of Custody:

514688

Address:

301-IH Old Bay Line, Aitn: ARNG-CJG-P,

Job Location:

P.O. Number:

Horseheads, NY

Date Submitted:

12/4/2012

1001000

State Military Reservation

Job Number: 10

1061-15

W912K6-09-A-0003

Person Submitting: Date Analyzed:

Non-Respons

12/11/2012 Report Date: 12/17/2012

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Non-Responsive

Havre de Grace, Maryland 21078

Summary of Atomic Absorption Analysis for Lead

Page 1 of 2

AMA Sample Number	Client Sample Number	Number		Analysis Type	Sample Type	Air Volume (L)	Area Wiped (ft³)		orting imit	Total ug	Final Res	ult	Comments
13020006			Flame	Paint Chip	****	N/A	0.0085	%Pb		<0.0085	%Pb		
13020007	HorseheadsRC-LW 1	Flame	Wipe Blank	****	N/A	12	ug		<12	ug			
13020008	HorseheadsRC-LW 2	Flame	Wipe	****	0.111	110	ug/ft²	<12	<110	ug/ft²			
13020009	HorseheadsRC-LW 3	Flame	Wipe	****	0.111	110	ug/it²	16	140	ug/ft²			
13020010	HorseheadsRC-LW 4	Flame	Wipe	****	0.111	110	ug/ft²	19	170	ug/ft²			
13020011	HorseheadsRC-LW 5	Flame	Wipe	****	0.111	110	ug/it²	<12	<110	ug/ft²			
13020012	HorseheadsRC-LW 6	Flame	Wipe	****	0.111	110	ug/ft²	<12	<110	ug/ft²			
13020013	HorschradsRC-LW 7	Flame	Wipc	****	0.111	110	ug/it²	<12	<110	ug/ft²			
13020014	HorsehradsRC-LW 8	Flame	Wipe	****	0.111	110	ug/ft²	14	120	ug/ft			
13020015	HorseheadsRC-LW 9	Flame	Wipe	****	0.111	110	ug/ft²	21	180	ug/ft'			
13020016	HorseheadsRC-LW 10	Flame	Wipe	****	0.111	110	ug/ft²	13	120	ug/ft²			
13020017	HorseheadsRC-LW 11	Flame	Wipe	****	0.111	110	ug/ft²	<12	<110	ug/ft²			
13020018	HorseheadsRC-LW 12	Flame	Wipe	****	0.111	110	ug/ft²	320	2800	ug/fl ⁱ			
13020019	HorseheadsRC-LW 13	Flame	Wipe	****	0.111	110	ug/ft²	<12	<110	ug/ft²			
13020020	HorseheadsRC-LW 14	Flune	Wipe	****	0.111	110	ng/fl²	24	220	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 enforcement by NY ELAP, AHIA, or any agency of the Federal Government. All rights reserved. AMA Analytical Services, Inc.

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AMA Analytical Services, Inc.



A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS



Client:

National Guard Bureau

Job Name:

Horseheads RC

Chain Of Custody:

514688

Address:

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

Job Location:

Horseheads, NY

W912K6-09-A-0003

Date Submitted:

12/4/2012

State Military Reservation Havre de Grace, Maryland 21078

Job Number: P.O. Number: 1061-15

Person Submitting: Date Analyzed:

12/11/2012

Report Date: 12/17/2012

Attention:

Summary of Atomic Absorption Analysis for Lead

Page 2 of 2

AMA Sample Number	Client Sample Number HorseleadsRC-LW 15		200	200			200	Analysis Type	Sample Type	Air Volume (L)	Area Wiped (ft')		orting .imit	Total ug	Final Res	sult	Comments
13020021		seheadsRC-LW Flame	Wipe	****	0.111	110	ug/lt²	<12	<110	ug/fl²							
13020022	HorseheadsRC-LW 16	Flame	Wipe	****	0.111	110	ug/lt²	16	140	ug/fl²							

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

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

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.



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Surface Sampling Field Data Sheet

Date Collected: 11-26-12	Job Name: Howeheads RC	Company: Bony Environmental, LLC
Job Number: 1061-15	Job Location: 128 Colonial DR:	Phone Number: 989 -779 - 7686
Contact Perso	Address: Hollcheads, NY	Collected By Non-Responsive
	*	COC Number:

Sample Number	Sample Location	Surface/Substrate Sampled	Area Wiped (in ² /ft ²)	Collection Media		
HHRC-LW-1	Find Blank	_		bhost wife		
-2	Drin Hall	NE corally top of Exit sign	4",4"			
-3	Dill Hall North well	109 OF AHU #2 switch box				
-4	ONI Half, WERWAN	top of dishy cast				
-5	Doil Hall, east rive	ON Floor				
-6	orin Hall, were see	on floor				
-7	Kitchin, Sw comer	tof of Paper town				
-8	balament, Former Indoor Firms Ang	West end, on Floor				
-9	basisment, Former andoor Firing Kange	ceally on light fixture				
-/0	Basement, Former Indoor Firms Range	exit end, on Floor				
71	Fitness Rm 110 B WEST WILL	70P OF CLOCK				
-12	Mins Locker Rm, SW corner	on Herter fins				
V → -13	Rn 106 B	on undow sill				



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



Surface Sampling Field Data Sheet

Date Collected: 1/-26-12	Job Name: Hollehads RC	Company: Bones Environmental He
Job Number: 1061-15	Job Location: 128 Colonial DR.	Phone Number: 989 -779- 7686
Contact Person	Address: Horscheads, NY	Collected B Non-Responsive
	100 a	COC Number

Sample Number	Sample Location	Surface/Substrate Sampled	Area Wiped (in²/ft²)	Collection Media
HARC-LW-14	Break room 134 B, CAMPR OF AM	Supplied Air grill	4",4"	Ghost wife
15	Association After, Hallway	tol OF AED Call		
V-16	Mantenance Arts,		V	V
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Appendix C

Photographs



Building exterior, east side



Main hallway



Men's locker room, peeling gray floor paint



Basement, former indoor firing range



Boiler room



Break room



Kitchen



Maintenance area, bulk fluids storage



Maintenance area (storage)



Drill Hall

Appendix D

References

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- 3. DA PAM 40-503, Medical Service, Industrial Hygiene Program, October 30, 2000.
- 4. Technical Manual (T.M) 5-810-1, Mechanical Design, Heating, Ventilation, and Air Conditioning, June 1991.
- 5. Threshold Limit Values (TLVs) and Biological Exposure Indices (BEls), American Conference of Governmental Industrial Hygienists (ACGIH), current edition.
- 6. UFC 3-410-01 FA Heating, Ventilating, and Air Conditioning, 15 May 2003, change 4 January 2010
- 7. Occupational Safety and Health Administration (OSHA) Lead in Construction Standard, 29 CFR 1926.62.
- 8. Army Regulation (AR) 385-10, The Army Safety Program, August 23, 2007/RAR 4 Oct. 2011
- 9. RP-1-2004, Office Lighting, Illuminating Engineering Society of North America / American National Standards Institute (IESNA/ANSI).
- 10. RP-7-2001, Industrial Lighting, (IESNA/ANSI).
- 11. ANSI/The American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE), Standard 62.1-2010, "Ventilation for Acceptable Indoor Air Quality".
- 12. ANSI/ASHRAE Standard 55-2010 "Thermal Environmental Conditions for Human Occupancy"
- 13. Title 24, CFR, Part 35, Subpart B, Sections 35.110, Definitions of Lead-Based Paint, Housing and Urban Development, U.S. Department of Housing.
- 14. OSHA Permissible Exposure Limit (PEL) for General Industry 29 CFR 1910.1000 Z-1 Table
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U.S. Army Center for Health Promotion and Preventive Medicine



INDUSTRIAL HYGIENE SURVEY REPORT NO. 55-ML-048L-05/07 NEW YORK ARMY NATIONAL GUARD FACILITIES ITHACA, ARMORY ITHACA, NEW YORK 12 SEPTEMBER 2005

















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Readiness Thru Health

DESTRUCTION NOTICE - Destroy by any method that will prevent disclosure of contents or reconstruction of the document.

The U.S. Army Center for Health Promotion and Preventive Medicine (USACHPPM) lineage can be traced back over 50 years to the Army Industrial Hygiene Laboratory. That organization was established at the beginning of World War II and was under the direct jurisdiction of The Army Surgeon General. It was originally located at the Johns Hopkins School of Hygiene and Public Health, with a staff of three and an annual budget not to exceed \$3000. Its mission was to conduct occupational health surveys of Army operated industrial plants, arsenals, and depots. These surveys were aimed at identifying and eliminating occupational health hazards within the Department of Defense's (DOD) industrial production base and proved to be beneficial to the Nation's war effort.

Until 1995, it was nationally and internationally known as the U.S. Army Environmental Hygiene Agency or AEHA. Its mission is expanding to support the worldwide preventive medicine programs of the Army, DOD and other Federal Agencies through consultations/ supportive services; investigations and training.

Today, AEHA is redesignated the U.S. Army Center for Health Promotion and Preventive Medicine. Its mission for the future is to provide worldwide technical support for implementing preventive medicine, public health and health promotion/wellness services into all aspects of America's Army and the Army Community anticipating and rapidly responding to operational needs and adaptable to a changing work environment.

The professional disciplines represented at the Center include chemists, physicists, engineers, physicians, optometrists, audiologists, nurses, industrial hygienists, toxicologists, entomologists, and many other as well as sub-specialties within these professions.

The organization's quest has always been one of excellence and continuous quality improvement; and today its vision, to be the nationally recognized Center for Health Promotion and Preventive Medicine, is clearer than ever. To achieve that end, it holds ever fast to its values which are steeped in its rich heritage:

- ♦ Integrity is the foundation
- ♦ Excellence is the standard
- ♦ Customer satisfaction is the focus
- ♦ Its people are the most valued resource
- ♦ Continuous quality improvement is its pathway

The organization, which stands on the threshold of even greater challenges and responsibilities, has General Officer leadership. As it moves into the next century, new programs are being added related to health promotion/wellness, soldier fitness and disease surveillance. As always, its mission focus is centered upon the Army Imperatives so that we are trained and ready to enhance the Army's readiness for war and operations other than war.

It is an organization fiercely proud of its history, yet equally excited about the future. It is destined to continue its development as a world-class organization with expanded services to the Army, DOD, other Federal Agencies, the Nation and the World Community.

CHPPM FORM 433-E (MCHB-CS-IPD), OCT 03 (reverse)



DEPARTMENT OF THE ARMY

US ARMY CENTER FOR HEALTH PROMOTION AND PREVENTIVE MEDICINE 5158 BLACKHAWK ROAD ABERDEEN PROVING GROUND MD 21010-5403

MCHB-TS-OFS

EXECUTIVE SUMMARY
INDUSTRIAL HYGIENE SURVEY
REPORT NO. 55-ML-048L-05/07
NEW YORK ARMY NATIONAL GUARD FACILITIES
ITHACA ARMORY
ITHACA, NY
12 SEPTEMBER 2005

1. PURPOSE. To conduct an industrial hygiene survey of the New York Army National Guard (NYARNG) Ithaca Armory, Ithaca, NY, to identify and measure the existence and extent of potentially hazardous operations or conditions. This survey will serve as a baseline so that an occupational exposure history can be compiled for each civilian or military employee.

2. CONCLUSIONS.

- a. <u>Lead Exposure</u>. Levels of lead in dust that exceeded safe limits for adults and children were identified. These levels may result in health hazards to adults and to children visiting the Armory. Personnel working in the Armory were tracking dust containing lead to the Hallway and Weight Room exiting the Locker Room, which was a converted Indoor Firing Range. Cleaning areas with elevated levels of lead in dust may prevent lead dust from being redistributed to other areas of the Armory.
 - b. Safety Hazards. An extension cord in the Weight Room posed a tripping hazard.
- 3. RECOMMENDATIONS. The Department of Defense Instruction 6055.1 provides Risk Assessment Codes (RACs) for health hazards, a procedure which allows assessment of the magnitude of exposure to physical, chemical, and biological agents and the possible medical effects of exposure. The RAC is an expression of the risk associated with the hazard and combines the hazard severity and accident probability into a single number. The RACs enable one to prioritize hazards. They range in magnitude from 1 to 5, with 1 being the highest priority.
- a. <u>Lead Exposure</u>. Health RAC 3 for child exposure. Health RAC 4 for adult exposure. Clean horizontal surfaces in the Locker Room, Weight Room, and Hallways leading out of the Locker Room to the National Guard Bureau Region North Industrial Hygiene Office and US Army Center for Health Promotion and Preventive Medicine recommended maximum level. Follow the guidance in National Guard Pam 420-15 and in Appendix F of the report. Address all potential lead hazards before continuing to extend the use of this facility to children. If children will visit this facility, clean the floors in the Hallways leading out of the Locker Room to the Environmental Protection Agency lead in dust standards for young children. Pending cleanup, ensure that personnel are notified of the potential to track lead contamination through adjacent

EXSUM, NYARNG, IH Survey, Ithaca Armory, Ithaca, New York, Report No. 55-ML-048L-05/07

rooms and transport it home in their clothing. Consult with the NYARNG Environmental Coordinator concerning waste disposal requirements after clean up.

b. <u>Safety Hazards</u>. Safety RAC 4. Inspect building for clutter and tripping hazards, and remove them.

NYARNG, IH Survey, Ithaca Armory, Ithaca, NY, Report No. 55-ML-048L-05/07

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INDUSTRIAL HYGIENE SURVEY REPORT NO. 55-ML-048L-05/07 NEW YORK ARMY NATIONAL GUARD FACILITIES ITHACA ARMORY ITHACA, NY 12 SEPTEMBER 2005

- 1. REFERENCES. See Appendix A.
- 2. PURPOSE OF EVALUATION. To conduct an industrial hygiene survey of the New York Army National Guard (NYARNG) Ithaca Armory, Ithaca, NY, to identify and measure the existence and extent of potentially hazardous operations or conditions. This survey will serve as a baseline so that an occupational exposure history can be compiled for each civilian or military employee.
- 3. AUTHORITY. Fax, National Guard Bureau Region North Industrial Hygiene Office (NGB-ARS-IHNE/Ms. Non-Responsive), 27 July 2005, subject: SAB.
- 4. BACKGROUND INFORMATION.
- a. <u>Armory Mission and Background Information</u>. The Armory mission was to support the 108th Infantry, 1st Brigade (L1), Company D; the 127th Army Reserves, 1st Brigade, Company D; and the 204th Engineering Brigade, Detachment 1, Company B.
 - b. <u>Date of Construction</u>. The construction date was 1988.
- c. <u>Armory Use by Children</u>. The point of contact (POC) stated that children occupied the Drill Hall area and classrooms occasionally for family support meetings. The New York Military Department is currently advertising Ithaca Armory as available for rental for activities that include young children.
- d. <u>POC</u>. The POC was Mr. Armory Manager, 128 Colonial Drive, Horseheads, NY, Phone: 607-739-7725; or Ithaca, NY, Phone: 607-257-0918.

5. FACILITY EVALUATION.

a. <u>Sampling</u>. Surface dust and air sampling were conducted to determine the existence of lead hazards. Results are shown in the Table in Appendix B.

b. Physical Condition of Facilities.

- (1) Paint. The date of construction indicates that lead paint was unlikely to have been used. The painted wall surfaces were in very good condition. No signs of deteriorating paint were observed.
- (2) Asbestos. The POC stated that the building did not contain any asbestos-containing building materials (ACBM). The date of construction indicates that the presence of ACBM would be unlikely.
- (3) Mold and Moisture Problems. No mold or moisture problems were observed or reported.
- (4) Building Physical Condition. The building was in good condition and well maintained in the office areas, classrooms, and Drill Hall. The POC for the facility stated that the walls had been painted within the last five years and that general housekeeping and maintenance were performed routinely. The former Indoor Firing Range (IFR), now a Locker Room, and an adjoining Locker Room, Weight Room and Shower Room, used only by the Soldiers, showed less attention to housekeeping and maintenance. These areas were dusty and the former IFR was cluttered with scaffolding, building material and office equipment as well as lockers used by the Soldiers.
- (5) IFR. The IFR had been closed for approximately 13 years at the time of the site visit. The range had been decontaminated in 2001 by a lead abatement contractor hired through the State of New York. The contractor removed the bullet trap and firing line equipment and reportedly conducted a final clearance assessment. The IFR was converted to a Locker Room in 2002. State records on the lead abatement project were maintained at the Latham Headquarters Office.
- c. <u>Safety and Occupational Health Programs</u>. Hazard awareness training programs covered occupational health topics that included lead and asbestos hazards, noise, personal protective equipment, material safety data sheets, the Occupational Safety and Health Administration (OSHA) right-to-know standard, lockout and tag out, and other topics required in the training for State employees. Employee training records were up to date and located onsite.

- d. <u>Heating, Ventilation, and Air Conditioning Systems</u>. The building was heated by a hotwater boiler serving the office and classroom areas. The building was cooled by window air-conditioning units located in various office spaces in the building. The Drill Hall was heated by ceiling-mounted forced air heaters and the Locker Room by ceiling-mounted radiant heaters.
- e. <u>Noise Dosimeter</u>. There appeared to be no operations within the facility that would generate noise levels above the occupational exposure levels.
- f. <u>Lighting</u>. There were no complaints about inadequate lighting. Levels in the offices of Companies C and E were 83 and 74 foot candles respectively. These values fall well within the Illumination Engineering Society of North America recommended range for medium visual tasks such as office work and reading.
- g Other Building Concerns. An extension cord in the Weight Room posed a tripping hazard.

6. ASSESSMENT CRITERIA FOR LEAD. See Appendix C.

- a. <u>Lead in Air</u>. The Army complies with the OSHA 8-hour time-weighted average Permissible Exposure Limit of 50 micrograms of lead per cubic meter (μ g/m³) of air.
- b. <u>Lead in Dust</u>. The Environmental Protection Agency (EPA) and State of New York limits for lead in dust are 40 micrograms per square foot ($\mu g/ft^2$) on floors, 250 $\mu g/ft^2$ on windowsills, and 400 $\mu g/ft^2$ in window troughs. These limits apply to pre-1978 Army facilities only if children under 6 years of age occupy them for 60 or more hours per year. The National Guard Bureau (NGB) Region North Industrial Hygiene Office concurs with the US Army Center for Health Promotion and Preventive Medicine (USACHPPM) recommended maximum level of 200 $\mu g/ft^2$ on floors and frequently contacted surfaces, which is more stringent for windowsills than the EPA/State standards. This level was adopted from OSHA Compliance Letter 02-02-58.
- c. <u>Lead in Paint</u>. Because of the building's age, it was unlikely that lead-based paint was used during construction and maintenance.

7. SAMPLING RESULTS, DISCUSSION, AND CONCLUSIONS

a. Lead in Dust. Sample locations and analytical results are shown in the Table below. Sample results greater than $40~\mu g/ft^2$ for floors or $200~\mu g/ft^2$ for other surfaces are highlighted. Nine results exceeded the NGB Region North Industrial Hygiene Office and USACHPPM recommended maximum level for lead in dust. The highest readings were found on top of the lighting and heating fixtures inside the Locker Room (former IFR) and the range exhaust ventilation grill. There were very high levels of lead on the floor at both doorways exiting the Locker Room, and in the Hallway and Weight Room area outside the Locker Room. Personnel

occupying or working in these rooms were potentially exposed to lead, and were tracking lead out of the Locker Room and redistributing it into adjacent rooms in the Armory. Five of the floor results exceeded the EPA and the State of New York lead exposure standard for children.

TABLE. Lead in Surface Dust Locations and Analytical Results.

Wipe Sample	Location of Samples	Result (µg/ft²)
Number		
ITW01	Drill Hall floor, Location 1	7.4
ITW02	Drill Hall floor, Location 1	9.9
ITW03	Drill Hall floor, Location 3	4.9
ITW04	Drill Hall floor, Location 4	12
ITW05	Drill Hall floor, Location 5	13
ITW07	Locker Room (Converted IFR), top of heaters	<mark>2,000</mark>
ITW08	Locker Room floor at door to hallway	<mark>2,200</mark>
ITW09	Locker Room, top of cabinet	230
ITW10	Locker Room floor inside entrance from hallway	<mark>3,800</mark>
ITW11	Locker Room exhaust air duct	150,000
ITW13	Locker Room, top of light fixture	<mark>4,200</mark>
ITW14	Locker Room floor at door to Weight Room	19,000
ITW15	Weight Room floor at door to Locker Room	3,200
ITW16	Hallway floor outside Locker Room	<mark>1,600</mark>
ITW17	Storage Room floor next to Locker Room	Sample lost

Note: Samples ITW06, -12, and -18 were field blanks.

- b. <u>Lead in Air</u>. General area sampling was conducted in the Locker Room and in the Drill Hall. The air sample results were less than $4 \mu g/m^3$, and were below the laboratory analytical reporting limit for lead in air of $1 \mu g/sample$, as well as the OSHA standard of $50 \mu g/m^3$ for lead in air over an 8-hour day.
- 8. RECOMMENDATIONS. The Department of Defense Instruction 6055.1 provides Risk Assessment Codes (RACs) for health hazards, a procedure which allows assessment of the magnitude of exposure to physical, chemical, and biological agents and the possible medical effects of exposure. The RAC is an expression of the risk associated with the hazard and combines the hazard severity and accident probability into a single number. The RACs enable one to prioritize hazards. They range in magnitude from 1 to 5, with 1 being the highest priority.
- a. <u>Lead Exposure</u>. Health RAC 3 for child exposure. Health RAC 4 for adult exposure. Clean horizontal surfaces in the Locker Room, Weight Room, and Hallways leading out of the Locker Room to the NGB Region North Industrial Hygiene Office and USACHPPM recommended maximum level. Follow the guidance in NG Pamphlet 420-15 and in Appendix F.

recommended maximum level. Follow the guidance in NG Pamphlet 420-15 and in Appendix F. Address all potential lead hazards before continuing to extend the use of this facility to children. If children will visit this facility, clean the floors in the Hallways leading out of the Locker Room to the EPA lead in dust standards for young children. Pending cleanup, ensure that personnel are notified of the potential to track lead contamination through adjacent rooms and transport it home in their clothing. Consult with the NYARNG Environmental Coordinator concerning waste disposal requirements after clean up.

- b. Other Building Concerns. Safety RAC 4. Inspect building for clutter and tripping hazards, and remove them.
- 9. PHOTOGRAPHS AND FLOOR PLAN. See Appendices D and E respectively.
- 10. ADDITIONAL ASSISTANCE. For additional assistance or questions concerning this report; please contact the undersigned at DSN 584-3118, commercial 410-436-3118, or by electronic mail: Non-Responsive @us.army.mil



Industrial Hygienist
Industrial Hygiene Field Services Program

APPROVED: -



Program Manager Industrial Hygiene Field Services Program

APPENDIX A

References:

- 1. Occupational Safety and Health Administration, Title 29, Code of Federal Regulations (CFR), Part 1910, current ed. 1910.1025 (Lead). http://www.osha.gov/comp-links.html
- 2. Occupational Safety and Health Administration, Title 29, Code of Federal Regulations (CFR), Part 1910 for General Industry and current ed. 1910.1200 (Hazard Communication). http://www.osha.gov/comp-links.html
- 3. American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. (ASHRAE) 62.1-2004, Ventilation for Acceptable Indoor Air Quality. http://www.ashrae.org
- 4 DA PAM 40-501, Medical Services, Hearing Conservation Program, 10 December 1998. http://www.usapaarmy.mil/pdffiles/p40-501.pdf
- 5. Illuminating Engineering Society of North America, ANSI/IESNA RP-1-2004, Office Lighting, American National Standards Institute.
- 6. Environmental Protection Agency, Title 40 CFR Part 745, Lead; Identification of Dangerous Levels of Lead; Final Rule, 5 Jan 2001.
- 7. Department of Defense Instruction (DODI) 6055.1, Department of Defense Occupational Safety and Health (OSH) Program, 19 August 1998. http://www.dtic.mil/whs/directives/corres/pdf/i60551_081998/i60551p.pdf
- 8. DA PAM 40-503, Medical Services, Industrial Hygiene Program, 30 October 2000. http://www.usapa.army.mil/pdffiles/p4C 503.pdf
- 9. Environmental Protection Agency, Title 40 CFR, Part 61, National Emission Standards for Hazardous Air Pollutants, Subpart M-National Emission Standard for Asbestos.
- 10. OSHA Directive CPL 02-02-58, Lead Exposure in Construction; Interim Final Rule Inspection and Compliance Procedures, December 13, 1993.
- 11. NG Pam 420-15, Facilities Engineering, Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges, 3 Nov 06.

A-1

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APPENDIX B

LABORATORY REPORTS

AMA Analytical Services, Inc.

A Specialized Environmental Laboratory

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CERTIFICATE OF ANALYSIS



Client:

National Guard Bureau

Job Name:

State Amary

Chain Of Custody:

143824

Address:

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

Job Location:

Ithaca, NY

Date Submitted:

9/21/2005

9/27/2005

State Military Reservation

Havre de Grace, Maryland 21078

Job Number: P.O. Number: Not Provided Not Provided Person Submitting: Date Analyzed: Non-Responsive

Report Date:

27-Sep-05

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)		orting imit		inal Resu	eit	Comments
0566930	IT-W 01	Furnace	Wipe	***	0.111	2.70	ug/ft²		7.4	ug/ft²		
0566931	IT-W 02	Furnace	Wipe	****	0.111	2.70	ug/ft²		9.9	ug/ft²		
0566932	IT-W 03	Furnace	Wipe	****	0.111	2.70	ug/ft²		4.9	ug/ft²		
0566933	IT-W 04	Furnace	Wipe	****	0.111	2.70	ug/ft²		12	ug/ft²		
0566934	IT-W 05	Furnace	Wipe	****	0.111	2.70	ug/ft²		13	ug/ft²		
0566935	IT-W 06	Furnace	Wipe	****	0.111	2.70	ug/ft²	<	2.7	ug/ft²		
0566936	IT-W 07	Flame	Wipe	****	0.111	108.01	ug/ft²		2000	ug/ft²		
0566937	IT-W 08	Flame	Wipe	****	0.111	108.01	ug/ft²		2200	ug/ft²		
0566938	IT-W 09	Furnace	Wipe	****	0.111	67.51	ug/ft²		230	ug/ft²		
0566939	IT-W 10	Flame	Wipe	****	0.111	108.01	ug/ft²		3800	ug/ft²		
0566940	IT-W 11	Flame	Wipe	****	0.111	108.01	ug/ft²		150000	ug/ft²		
0566941	IT-W 12	Furnace	Wipe	****	0.111	2.70	ug/ft²		3.6	ug/ft²		
0566942	IT-W 13	Flame	Wipe	****	0.111	108.01	ug/ft²		4200	ug/ft²		
0566943	IT-W 14	Flame	Wipe	****	0.111	108.01	ug/ft²		19000	ug/ft²		
0566944	IT-W 15	Flame	Wipe	****	0.111	108.01	ug/ft²		3200	ug/ft²		
0566945	IT-W 16	Flame	Wipe	****	0.111	108.01	ug/ft²		1600	ug/ft²		
0566947	IT-W 18	Furnace	Wipe	****	0.111	2.70	ug/ft²		4.4	ug/ft²		
0566948	IT- A 01	Flame	Air	945	N/A	3.17	ug/m³	<	3.2	ug/m³		
0566949	IT- A 02	Flame	Air	900	N/A	3.33	ug/m³	<	3.3	ug/m³		
0566950	IT- A 03	Flame	Air	839	N/A	3.58	ug/m³	<	3.6	ug/m³ `		

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 Laborat 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 authorize 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 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 Accredity 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 NVLAP, NIST, or any agency of the Federal Government.

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Page 491 of 1350



CERTIFICATE OF ANALYSIS



Client:

National Guard Bureau

Job Name:

State Amary

Chain Of Custody:

143824

Address:

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

Ithaca, NY

Date Submitted:

9/21/2005

Havre de Grace, Maryland 21078

Job Number: P.O. Number:

Job Location:

Not Provided Not Provided

Person Submitting: Date Analyzed:

associated with these samples.

9/27/2005

Report Date:

27-Sep-05

Attention:

Summary of Atomic Absorption Analysis for Lead

Page 2 of 2

AMA Sample Number	Client Sample Number	Analysis Type	Sample Type	Air Volume (L)	Area Wiped (ft²)	•	Reporting Limit		Final Result		Comments
0566951	IT- A 04	Flame	Air	897	N/A	3.34	ug/m³	<	3.3	ug/m³	
0566952	IT- A 05	Flame	Air Blank	0	N/A	3.00	ug/m³	<	3	ug	
Analysis Method fo	r Flame: Air, Wipes,	Paints, and Soil/Sol	ids: EPA 600/R-93/	200(M)-7420; Wate	r: SM-3111B	See QC S	ummary for	r analytic	al result	s of quality c	ontrol samples

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

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

N/A = Not Applicable

%Pb = percent lead by weight

ug = micrograms

ug/L = parts per billion (ppb)

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

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

Air and Wipe results are not corrected for any blank results

Technical Manager:

his 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, ais 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 rom us. Sample types, locations and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and ability for the accuracy and completeness of this information. Residual sample material will be discarded in accordance with the appropriate regulatory guidelines, unless otherwise requested by the client. NVLAP Accreditation pplies 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 IVLAP, NIST, or any agency of the Federal Government. All rights reserved. AMA Analytical Services, Inc.

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APPENDIX C

Subject: Recommendations for Surface Lead Dust in Armories

- 1. In armories that do not contain childcare facilities, the National Guard Bureau (NGB) Region North Industrial Hygiene Office recommends cleaning the areas in which sample results are greater than 200 micrograms per square foot ($\mu g/ft^2$). If a special function will be held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function. This guidance is based on professional judgment, risk assessments, adaptation of Occupational Safety and Health Administration (OSHA) guidance, and feasibility of cleaning to a certain level.
- a. Environmental Protection Agency (EPA) standards (40 Code of Federal Regulations (CFR) 745.227(h)(3)) are not directly applicable because they are criteria for dust-lead hazards developed for floors (40 µg/ft²) and windowsills (250 µg/ft²) in residential dwellings and child occupied facilities. A child occupied facility is defined as a building, or portion of a building, constructed prior to 1978, visited regularly by the same child, 6 years of age or under, on at least two different days within any week (Sunday through Saturday period), provided that each day's visit lasts at least 3 hours and the combined weekly visit lasts at least 6 hours, and the combined annual visits last at least 60 hours. Most of the wipe samples in armories were collected in undisturbed areas and therefore, results are worst case scenarios and do not correlate to these standards.
- b. OSHA has no specific requirement for work area surfaces. The lead standard (29 CFR 1910.1025(h)) states that all surfaces shall be maintained as free as practicable of accumulations of lead dust. In workplaces where lead dust is generated, surface levels may be much higher, but personnel exposures can be controlled by limiting airborne lead levels and following good cleanup and hygienic practices.
- c. OSHA used to cite a level of 200 μ g/ft² in their Technical Manual and 29 CFR 1926.62 as guidance to its own inspectors for evaluating the cleanliness of lunchroom and locker room surfaces that are supposed to be kept as clean as possible.
- d. In a report titled Derivation of Wipe Surface Screening Levels for Environmental Chemicals, the US Army Center for Health Promotion and Preventive Medicine (USACHPPM) has determined that $200~\mu\text{g/ft}^2$ is a safe surface contamination level. They have also applied these standards as the decontamination levels for surfaces in administrative offices.
- e. It should be noted that levels above these recommendations do not necessarily mean there is a significant hazard to workers who are following good cleaning and hygienic practices since there is no correlation between wipe and air samples. Rather, we recommend these levels as a precautionary measure.

- 2. The NGB Occupational Health Branch is developing guidance for armories that are used as childcare facilities. All states will receive this guidance when it is completed. In the interim, we recommend the following actions:
- a. Clean all areas that will be accessible to children to the EPA dust-lead standard for children 6 years of age or under ($40 \mu g/ft^2$ on floors and $250 \mu g/ft^2$ on windowsills).
- b. Refer to the local authorities' regulations since they can be more stringent than federal regulations.
 - c. Post signs in the area to inform people of the presence of lead dust and its effects.
- d. If Soldiers clean weapons in the facility change the policy so that they cannot clean their weapons in the facility, or if they are allowed to clean their weapons indoors, they must clean the area by wet wiping and mopping the area when they are done.
- e. If the paint is peeling, contact the state Environmental Office to test for lead content and provide recommendations.
- 3. General area air samples collected in the armory were well below OSHA's permissible exposure limit for lead (29 CFR 1910.1025(c)) of 0.05 mg/m³ averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead dust in this building.

APPENDIX D PHOTOGRAPHS



Main entrance. The building was constructed of cement block with a brick exterior.



Drill Hall.



Main office areas of the Armory and the main entrance.



Drill Hall. The Hall was occasionally used for storage of vehicles during inclement weather.



Maintenance Storage Room of the Drill Hall. This room contained paints, oils, lubricants, and grounds maintenance equipment.



Kitchen.



Equipment stored in the converted IFR. The range's lighting and heating fixtures had remained.



View of cabinets, lockers and scaffolding placed inside the old IFR. The Companies used the lockers during 2-week training periods at the facility.



ITW01. Northeast corner of Drill Hall near hallway to converted IFR and Men's Locker Room.



ITW02. Drill Hall in front of the Maintenance Storage Room.



ITW03. West door of Drill Hall at hallway to the IFR.



ITW04. East wall of Drill Hall beside door to Company C Storage and Arms Vault.



ITW05. Southwest corner of Drill Hall.



ITW07. Indoor Firing Range (IFR) showing heaters and light fixtures sampled.



ITW08. Inside the IFR at entrance.



ITW09. IFR on top of lockers.



ITW10. Hallway at entrance to Locker Room.



ITW11. Exhaust vents in converted IFR above the bullet trap.



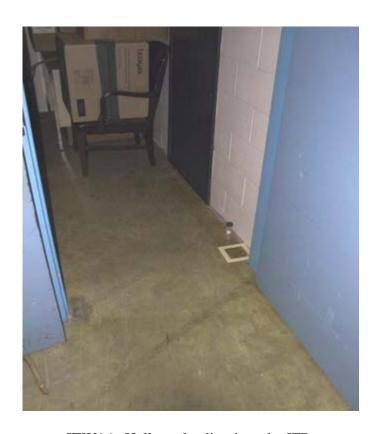
ITW13. Top of lighting fixtures close to bullet trap area.



ITW-14. Doorway between IFR and Weight Room.



ITW15. Weight Room at door to IFR. Note tripping hazard.



ITW16. Hallway leading into the IFR.



ITW17. Storage Room next to IFR.

FIRST FLOOR PLAN 104"-0" LIBRARY LEARNING 87'-0" RECRUITING OFFICERS LOCKERS NEWING 8 STOR

APPENDIX E Floor Plan of the Ithaca Armory, Ithaca, NY

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APPENDIX F

LEAD CLEANING GUIDANCE





CHAPTER 14: CLEANING

Ste	p-b	oy-Step Summary	14–3
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Step-by-Step Summary



Cleaning: How To Do It

- Include step-by-step procedures for precleaning, cleaning during the job, and daily and final cleanings in project design or specifications.
- 2. Assign responsibilities to specific workers for cleaning and for maintaining cleaning equipment.
- 3. Have sufficient cleaning equipment and supplies before beginning work.
- 4. If contamination is extensive, conduct precleaning of the dwelling unit. Move or cover all furniture and other objects.
- Conduct ongoing cleaning during the job, including regular removal of large and small debris and dust.
 Decontamination of all tools, equipment, and worker protection gear is required before it leaves containment areas. Electrical equipment should be wiped and high-efficiency particulate air (HEPA) vacuumed, not wetted down, to minimize electrocution hazards.
- 6. Schedule sufficient time (usually 30 minutes to an hour) for a complete daily cleaning, starting at the same time near the end of each workday after lead hazard control activity has ceased.
- For final cleaning, wait at least 1 hour after active lead hazard control activity has ceased to let dust particles settle.
- Use a vacuum cleaner equipped with a HEPA exhaust filter. HEPA vacuum all surfaces in the room (ceilings, walls, trim, and floors). Start with the ceiling and work down, moving toward the entry door. Completely clean each room before moving on.
- Wash all surfaces with a lead-specific detergent, high-phosphate detergent, or other suitable cleaning agent to dislodge any ground-in contamination, then rinse. Change the cleaning solution after every room is cleaned.
- 10. Repeat step 8. To meet clearance standards consistently, a HEPA vacuum, wet wash, and HEPA vacuum cycle is recommended. For interim control projects involving dust removal only, the final HEPA vacuuming step is usually not needed (see Chapter 11). Other cleaning methods are acceptable, as long as clearance criteria are met and workers are not overexposed.
- 11. After final cleaning, perform a visual examination to ensure that all surfaces requiring lead hazard control have been addressed and all visible dust and debris have been removed. Record findings and correct any incomplete work. This visual examination should be performed by the owner or an owner's representative who is independent of the lead hazard control contractor.
- 12. If other construction work will disturb the lead-based paint surfaces, it should be completed at this point. If those surfaces are disturbed, repeat the final cleaning step after the other construction work has been completed.
- 13. Paint or otherwise seal treated surfaces and interior floors.
- 14. Conduct a clearance examination (see Chapter 15).
- 15. If clearance is not achieved, repeat the final cleaning.



-Step-by-Step Summary (continued) -



- 16. Continue clearance testing and repeated cleaning until the dwelling achieves compliance with all clearance standards. As an incentive to conduct ongoing cleaning and a thorough final cleaning, the cost of repeated cleaning after failing to achieve clearance should be borne by the contractor as a matter of the job specification, not the owner.
- 17. Do not allow residents to enter the work area until cleaning is completed and clearance is established.
- 18. Cleaning equipment list:
 - ♦ HEPA vacuums.
 - Detergent.
 - ♦ Waterproof gloves.
 - Rags.
 - Sponges.
 - Mops.
 - Buckets.
 - ♦ HEPA vacuum attachments (crevice tools, beater bar for cleaning rugs).
 - 6-mil plastic bags.
 - Debris containers.
 - ♦ Waste water containers.
 - Shovels.
 - Rakes.
 - Water-misting sprayers.
 - ♦ 6-mil polyethylene sheeting (or equivalent).





I. Introduction

This chapter describes cleaning procedures to be employed following abatement and interim control work. Dust removal as an interim control measure is covered in Chapter 11.

All lead hazard control activities can produce dangerous quantities of leaded dust. Unless this dust is properly removed, a dwelling unit will be more hazardous after the work is completed than it was originally. Once deposited, leaded dust is difficult to clean effectively. Whenever possible, ongoing and daily cleaning of leaded dust during lead hazard control projects is recommended. Ongoing and daily cleaning is also necessary to minimize worker exposures.

Cleaning is the process of removing visible debris and dust particles too small to be seen by the naked eye. Removal of lead-based paint hazards in a dwelling unit will not make the unit safe unless excessive levels of leaded dust are also removed. This is true regardless of whether the dust was present before or generated by the lead hazard control process itself. Improper cleaning can increase the cost of a project considerably because additional cleaning and clearance sampling will be necessary. However, cleaning and clearance can be achieved routinely if care and diligence are exercised.

A. Performance Standard

Although the cleaning methods described in this chapter are feasible and have been shown to be effective in meeting clearance standards, other methods may also be used if they are safe and effective. This performance-oriented approach should stimulate innovation, reduce cost, and ensure safe conditions for both residents and workers.

B. Small Dust Particles

Dust particles that are invisible to the naked eye remain on surfaces after ordinary cleaning procedures. A visibly clean surface may contain high and unacceptable levels of dust particles and require special cleaning procedures.

C. Difficulties in Cleaning

While cleaning is an integral and essential component of any lead hazard control activity, it is also the most likely part of the activity to fail.

Several common reasons for this failure include low clearance standards, worker inexperience, high dust-producing methods, and deadlines.

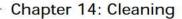
1. Low Clearance Standards

Because very small particles of leaded dust are easily absorbed by the body when ingested or inhaled, a small amount can create a health hazard for young children. Therefore, "clearance standards" are extremely low for acceptable levels of leaded dust particles on surfaces after hazard control activities, and careful cleaning procedures are required. Although it is not possible to remove all leaded dust from a dwelling, it is possible to reduce it to a safe level.

Clearance standards are described more fully in Chapter 15. The permissible amount of leaded dust remaining on each of the following surfaces following lead hazard work is as follows:

- 100 μg/ft² on floors.
- 500 µg/ft² on interior window sills (stools).
- 800 µg/ft² on window troughs (the area where the sash sits when closed).
- 800 μg/ft² on exterior concrete.

These levels are based on wipe sampling.
Clearance testing determines whether the premises or area are clean enough to be reoccupied after the completion of a lead paint hazard control project. A cleaned area may not be reoccupied until compliance with clearance standards has been established. To prevent delays, final testing and final cleaning activities should be coordinated.







2. Worker Inexperience

To understand the level of cleanliness required to meet the established clearance standards for hazard control cleanup, new hazard control personnel often require a significant reorientation to cleaning. Many construction workers are used to cleaning up only dust that they can see, not the invisible dust particles that are also important to remove.

3. High Dust-Producing Methods and/or Inadequate Containment

High dust-generating methods, inadequate containment during hazard control work, and poor work practices can all make achievement of clearance particularly difficult. Work practices necessary to prevent spreading of dust throughout a dwelling (e.g., by tracking dust out of work areas) are essential but sometimes tedious. Essential work practices are sometimes mistakenly considered to be "flexible guidelines" rather than necessary standards that are designed to ensure that the job is completed, not only safely, but also on time and within budget.

4. Deadlines

Daily and final cleanings have sometimes been compromised due to project deadlines, since cleaning comes at the end of the job. Hurried efforts often result in clearance failure. Delayed and over-budget hazard control projects are often the result of repeated, unplanned recleanings that are necessitated by inadequate containment and sloppy work practices.

II. Coordination of Cleaning Activities

A. Checklist

The owner or contractor may use the following cleaning checklist before any lead hazard control activity:

- ✓ Is the critical importance of cleaning in a hazard control project understood?
- ✓ Have all workers been trained and certified for hazard control work?

- Have the precleaning, daily, and final cleanings been scheduled properly and coordinated with the other participants in the hazard control process?
- ✓ Have cleaning equipment and materials been obtained?
- ✓ Do the workers know how to operate and maintain special cleaning equipment, and do they have directions for the proper use of all cleaning materials?
- ✓ Have all workers carefully studied the step-by-step procedures for precleaning (if needed), in-progress cleaning, and daily and final cleanings?
- ✓ Are all workers properly protected during the cleaning processes (see Chapter9)?
- ✓ Have provisions been made to properly contain and store potentially hazardous debris (see Chapter 10)?
- ✓ Have dust-clearance testing and related visual inspections been arranged (see Chapter 15)?
- ✓ Are the clearance criteria to be met fully understood?
- ✓ Have all appropriate surfaces been properly painted or otherwise sealed?
- ✓ Have appropriate records been maintained that document participants' roles in the hazard control project?

B. Equipment Needed for Cleaning

The following equipment is needed to conduct cleaning: high-efficiency particulate air (HEPA) vacuums and attachments (crevice tools, beater bar for cleaning rugs), detergent, waterproof gloves, rags, sponges, mops, buckets, 6-mil plastic bags, debris containers, waste water containers, shovels, rakes, water-misting sprayers, and 6-mil polyethylene plastic sheeting (or equivalent).





C. Waste Disposal

Regulations governing hazardous and nonhazardous waste storage, transportation, and disposal affect both the daily and final cleaning procedures. The hazard control contractor and the disposal contractor should work together to establish formal written procedures, specifying selected containers, storage areas, and debris pickups, to ensure that all relevant regulations are met.

III. Cleaning Methods and Procedures

Many of the special cleaning methods and procedures detailed in this chapter are not standard operating procedure for general home improvement contractors. Therefore, project designers, responsible agencies, or owners must ensure that contractors follow the methods and procedures recommended herein or specially designed alternative procedures, even though some may appear to be redundant and unnecessary. These methods have been shown to be feasible and effective in many situations and skipping steps in the cleaning procedures can be counterproductive.

A. Containment

Because of the difficulty involved in the removal of fine dust, dust generated by hazard control work should be contained to the extent possible to the inside of work areas. Inadequately constructed or maintained containment or poor work practices will result in additional cleaning efforts, due to dust that has leaked out or been tracked out of the work area (see Chapter 8).

B. Basic Cleaning Methods: Wet Wash and Vacuum Cleaning Techniques

Because leaded dust adheres tenaciously, especially to such rough or porous materials as weathered or worn wood surfaces and masonry surfaces (particularly concrete), workers should be trained in cleaning methods. As a motivator,

some contractors have awarded bonuses to workers who pass clearance the first time.

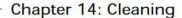
Two basic cleaning methods have proven effective, when used concurrently, in lead-based paint hazard control projects: a special vacuum cleaner equipped with a HEPA exhaust filter, followed by wet washing with special cleaning agents and rinsing, followed by a final pass with the HEPA vacuum.

Although HEPA filtered vacuums and triso-dium phosphate (TSP) cleaners have been considered the standard cleaning tools for lead hazard control projects, new research, discussed under the "Alternatives Methods" section in this chapter, suggests that other tools and products may also be effective in efficiently cleaning dust while providing adequate worker protection from airborne exposure risks. Some of these innovations may even be superior.

1. HEPA Vacuuming

HEPA vacuums differ from conventional vacuums in that they contain high-efficiency filters that are capable of trapping extremely small, micron-sized particles. These filters can remove particles of 0.3 microns or greater from air at 99.97 percent efficiency or greater. (A micron is 1 millionth of a meter, or about 0.00004 inches.) Some vacuums are equipped with an ultra-low penetration air (ULPA) filter that is capable of filtering out particles of 0.13 microns or greater at 99.9995 percent efficiency. However, these ULPA filters are slightly more expensive, and may be less available than HEPA filters.

Vacuuming with conventional vacuum machines is unlikely to be effective, because much of the fine dust will be exhausted back into the environment where it can settle on surfaces. A recent Canadian study revealed that finedust air levels were exceedingly high when a standard portable vacuum with a new bag was used, although partially filled bags were found to be more efficient (CMHC, 1992). Considerations for the proper use of a HEPA vacuum are listed below.







Operating Instructions

There are a numerous manufacturers of HEPA vacuums. Although all HEPA vacuums operate on the same general principle, they may vary considerably with respect to specific procedures, such as how to change the filters. To ensure the proper use of equipment, the manufacturer's operating instructions should be carefully followed and if possible, training sessions arranged with the manufacturer's representative.

Although HEPA vacuums have the same "suction" capacity as ordinary vacuums that are comparably sized, their filters are more efficient. Improper cleaning or changing of HEPA filters may reduce the vacuum's suction capability.

Special Attachments

Because the HEPA vacuum will be used to vacuum surfaces other than floors, operators should buy attachments and appropriate tool kits for use on different surfaces—such as brushes of various sizes, crevice tools, and angular tools.

Selecting Appropriate Size(s)

HEPA vacuums are available in numerous sizes, ranging from a small lunchbucket-sized unit to track-mounted systems. Two criteria for size selection are the size of the job and the type of electrical power available. Manufacturer recommendations should be followed.

Wet-Dry HEPA Vacuums

Some hazard control contractors have found the wet-dry HEPA vacuums to be particularly effective in meeting clearance standards. These vacuums are equipped with a special shut-off float switch to protect the electrical motor from water contact.

Prefilters

HEPA filters are usually used in conjunction with a prefilter or series of prefilters that trap the bulk of the dust in the exhaust airstream, particularly the larger particles. The HEPA filter traps most of the remaining small particles that have passed through the prefilter(s). All filters must be maintained and replaced or

cleaned as specified in the manufacturer's instructions. Failure to do so may cause a reduction in suction power (thus reducing the vacuum's efficiency and effectiveness). Failure to change prefilters may damage the vacuum motor and will also shorten the service life of the HEPA filter, which is far more expensive than the prefilters.

HEPA Vacuuming Procedures

Surfaces frequently vacuumed include ceilings, walls, floors, windows, interior and exterior sills, doors, heating, ventilation, and air conditioning (HVAC) equipment (heating diffusers, radiators, pipes, vents), fixtures of any kind (light, bathroom, kitchen), built-in cabinets, and appliances.

To aid in dislodging and collecting deep dust and lead from carpets, the HEPA vacuum must be equipped with a beater bar (agitator head) that is fixed to the cleaning head. This bar should be used on all passes on the carpet face during dry vacuuming (see Chapter 11 for details on carpet and furniture cleaning).

All rooms and surfaces should be included in the HEPA vacuum process, except for those that (1) were found not to have lead-paint hazards and were properly separated from work areas before the process began (see Chapter 8), or (2) were never entered during the process. Porches, sidewalks, driveways, and other exterior surfaces should be vacuumed if exterior hazard control work was conducted, or if debris was stored or dropped outside. Vacuuming should begin on the ceilings and end on the floors, sequenced to avoid passing through rooms already cleaned, with the dwellings' entryway cleaned last.

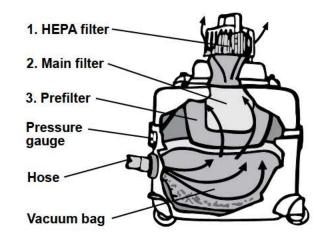
Emptying the HEPA Vacuum

Used filters and vacuumed debris are potentially hazardous waste and should be treated accordingly (see Chapter10). Therefore, operators should use extreme caution when opening the HEPA vacuum for filter replacement or debris removal to avoid accidental release of accumulated dust into the environment. This may occur, for example, if the vacuum's seal has been broken and the vacuum's bag is disturbed.





Figure 14.1a Vacuum With a HEPA Filter.



Parts of a HEPA-vacuum

Most HEPA-vacuums have three filters: HEPA filter, main filter, and prefilter. Debris gets sucked in through the hose into the vacuum bag. The air and dust get filtered through the prefilter, the main filter, and the HEPA filter. The HEPA filter captures the lead dust before the air is released into the work area again.

Operators should also wear a full set of protective clothing and equipment, including appropriate respirators, when performing this maintenance function, which should be done in the containment area or offsite.

2. Wet Detergent Wash

Several types of detergents have been used to remove leaded dust. Those with a highphosphate content (containing at least 5 percent trisodium phosphate, also known as TSP) have been found to be effective when used as part of the final cleaning process (Milar, 1982). TSP detergents are thought to work by coating the surface of dusts with phosphate or polyphosphate groups which reduces electrostatic interactions with other surfaces and thereby permits easier removal. Because of environmental concerns some States have restricted the use of TSP, and some manufacturers have eliminated phosphates from their household detergents. However, high-TSP detergents can usually be found in hardware stores and may be permitted for limited use, such as lead hazard control.

Other non-TSP cleaning agents developed specifically for removing leaded dust have also been found to be effective (possibly more effective than TSP) in limited trials by several

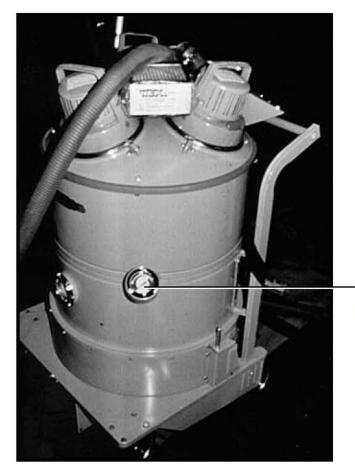


Figure 14.1b Pressure Gauge Indicator Shows When Filters Require Changing.

14-9

Pressure

gauge





Figure 14.2 HEPA Vacuum Sizes and Tools.

investigators (Grawe, 1993; Wilson, 1993) and may also be safer, since TSP is a skin and eye irritant. See section VII for more information on non-TSP detergents. Proper procedures for using high-phosphate detergents also apply to most other types of detergents and include the following steps:

Manufacturer's Dilution Instructions

Users of cleaning agents for leaded dust removal should follow manufacturer's instructions for the proper use of a product, especially the recommended dilution ratio. Even diluted, trisodium phosphate is a skin irritant and users should wear waterproof gloves. Eye protection should also be worn, and portable eyewash facilities should be located in or very near the work area. Consult manufacturer's directions for the use of other detergents.

Appropriate Cleaning Equipment

Because a detergent may be used to clean leaded dust from a variety of surfaces, several types of application equipment are needed, including cleaning solution spray bottles, wringer buckets, mops, variously sized hand sponges, brushes, and rags. Using the proper equipment on each surface is essential to the quality of the wetwash process.

Proper Wet-Cleaning Procedures

At the conclusion of the active lead hazard control process and the initial HEPA vacuuming, all vacuumed surfaces should be thoroughly and completely washed with a high-phosphate solution or other lead-specific cleaning agent (or equivalent) and rinsed. Select a detergent that does not damage existing surface finishes (TSP may damage some finishes). Work should proceed from ceilings to floors and sequenced to avoid passing through rooms already cleaned.

Changing Cleaning Mixture

Many manufacturers of cleaners will indicate the surface area that their cleaning mixture will cover. To avoid recontaminating an area by cleaning it with dirty water, users should follow manufacturer-specified surface-area limits. However, regardless of manufacturers' recommendations, the cleaning mixture should be changed after its use for each room. As a rule of thumb, 5 gallons should be used to clean no



Figure 14.3 Goggles, Face Shields, Gloves, and Eye Wash Facilities Should Be Available When Used With Chemicals Such as TSP. EMERGENCY EYE WASH STATION

more than 1,000 square feet. Used cleaning mixture is potentially hazardous waste (see Chapter 10); consult with your local water and sewage utility for directions on its proper disposal. Wash water should never be poured onto the ground. The wash water is usually filtered and then poured down a toilet (if the local water authority approves).

Latex

3. The HEPA/Wet Wash/HEPA Cycle

Typical Procedures

Neoprene

The usual cleaning cycle that follows lead hazard control activities is called the HEPA vacuum/wet wash/HEPA cycle and is applied to an entire affected area as follows:

First, the area is HEPA vacuumed.

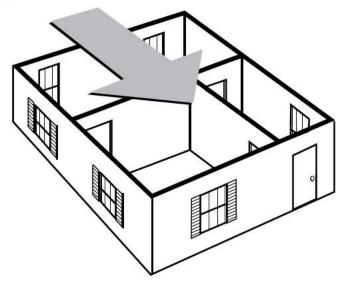
Nitrile



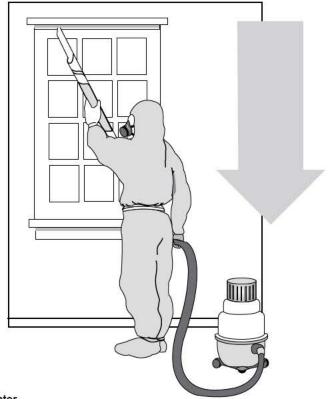


Figure 14.4a The HEPA Vacuum, Wet Wash, HEPA Vacuum Cycle Helps in Meeting Clearance Standards.

HEPA vacuum all surfaces Start at the end farthest from the main entrance/exit. As you vacuum, move towards the main exit and finish there.



Begin at the top of each room and work down. For example, start with the top shelves, the top of the woodwork, and so on, and work down to the floor. Do every inch of the windows, especially the window troughs.



Courtesy: Alice Hamilton Occupational Health Center





- Next, the area is washed down.
- After drying, the area is again HEPA vacuumed.

The rationale for this three-pass system is as follows:

- The first HEPA vacuum removes as much dust and remaining debris as possible.
- The wet wash further dislodges dust from surfaces.
- The final HEPA cycle removes any remaining particles dislodged but not removed by the wet wash.

Single-Pass Wet Wash/HEPA Vacuum

Some lead hazard control contractors have found HEPA spray cleaner vacuums to be a cost-effective alternative to the three-pass system. Similar to home carpet-cleaning machines, these vacuums simultaneously deliver a solution to the surface and recover the dirty solution. Theoretically, this process combines two of the steps in the HEPA vacuum/wet wash/HEPA cycle into one step. While anecdotal evidence indicates that the spray cleaner wet wash/HEPA is effective for some uses, limitations have been noted in its use for ceilings, vertical surfaces, and hard to reach areas. This device may be used as long as clearance standards are met.

Figure 14.4b (continued)

Use special attachments

Use the rubber cone where the floor meets the baseboard and along all the cracks in the floor boards. Use the brush tool for walls and woodwork.

Use the wheeled floor nozzle for bare floors and the carpet beater for rugs.

Move slowly

Vacuum slowly so the HEPA vacuum can pick up all the lead dust.



Rubber Cone

Dust Brush



Powered Carpet Beater



Wheeled Floor Nozzle





Figure 14.4c (continued)

Wash all surfaces with suitable detergents

Wash all surfaces in the work area with suitable detergents, including areas that had been covered with plastic. Some wallpaper should only be HEPA vacuumed, since it may be damaged by the detergent.



Wipe All Surfaces



Wet Mop Floor



Don't Dry Sweep



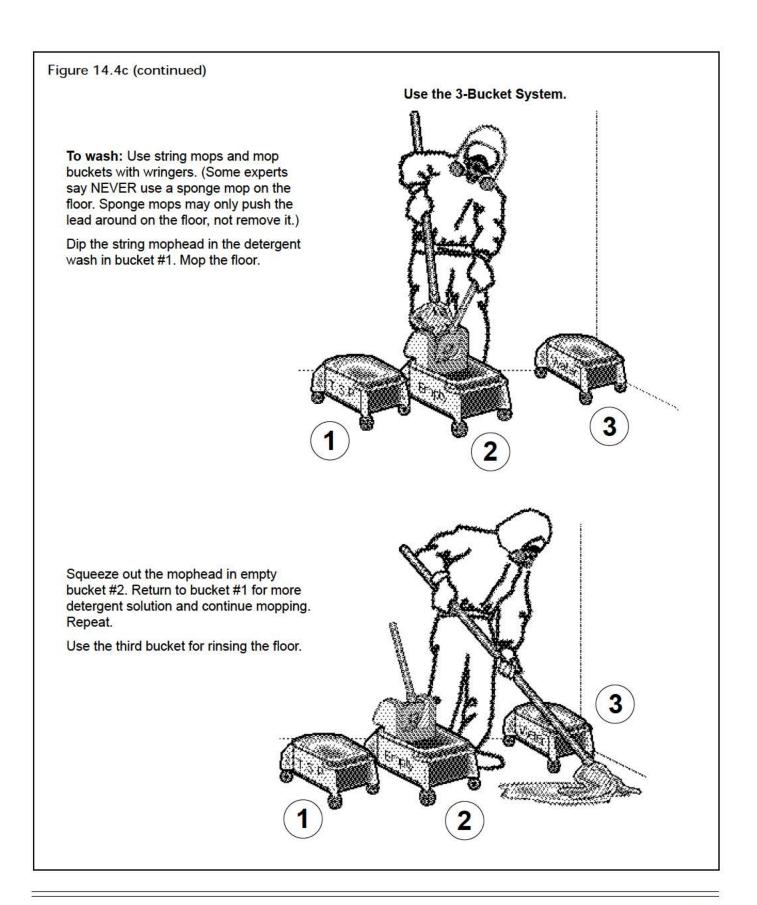


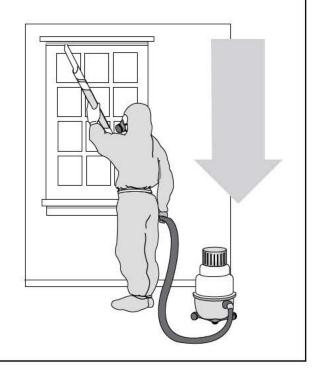




Figure 14.4d (continued)

HEPA vacuum all surfaces a final time HEPA vacuum *all surfaces* in the work area, including areas that had been covered with plastic.

Starting at the far end, work towards the decontamination area. Begin with ceilings or the top of the walls and work down, cleaning the floors last. Do every inch of the windows, especially the troughs. Use the corner tool to clean where the floor meets the baseboard and all the cracks in the floor boards. Use the brush tool for the walls. Move slowly and carefully to get all the dust.



4. Sealing Floors

Before clearance, all floors without an intact, nonporous coating should be coated. Sealed surfaces are easier for residents to clean and maintain over time than those that are not sealed. Wooden floors should be sealed with a clear polyurethane or painted with deck enamel or durable paint. Vinyl tile, linoleum, and other similar floors should be sealed with an appropriate wax. Concrete floors should be sealed with a concrete sealer or other type of concrete deck enamel. However, if these floors are already covered by an effective coat of sealant, it may be possible to skip this step.

As an alternative to sealing, floors may be covered with new vinyl tile, sheet vinyl, linoleum flooring, or the equivalent to create a more permanent cleanable surface. New surfaces should be cleaned with a cleaning solution that is appropriate for that type of surface.

IV. Order of Cleaning Procedures During Lead Hazard Control

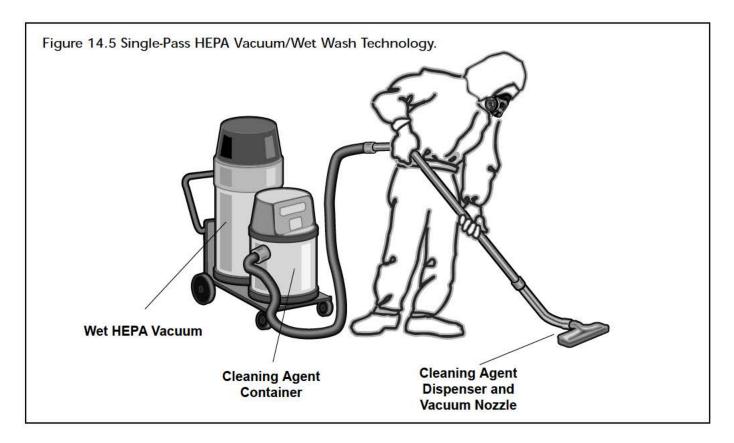
The special cleaning procedures to be followed during a lead-based paint hazard control project are discussed in chronological order below. Skipping steps in the process may result in failure to meet post-lead hazard control clearance standards.

A. Precleaning Procedures

Precleaning (i.e., cleaning conducted before lead hazard control is begun) is necessary only in dwelling units that are heavily contaminated with paint chips. Precleaning involves the removal of large debris and paint chips, followed by HEPA vacuuming. These steps may be followed by removal of occupant personal possessions, furniture, or carpeting, depending on the







Worksite Preparation Level selected (see Chapter 8). If the furniture will not be cleaned, it should be removed from the area or covered with plastic prior to beginning the precleaning procedure. Carpeting should always be misted before its removal to control the generation of hazardous dust.

It is usually the resident's responsibility to remove most of his or her personal possessions. However, if necessary, owners or project management should be prepared to complete this activity before lead hazard control work begins. As a last resort, the contractor may pack any remaining belongings and carefully seal and move the boxes, supplying all necessary boxes, packing materials, and staff to complete the task. Following cleaning and clearance, the contractor should return all packed items to their appropriate places. Leaving these tasks to the contractor may be expensive and inefficient, since the contractor will need to be insured for this function if the occupant's



Figure 14.6 Precleaning Is Needed in Areas Where Contamination and Deterioration Are High.





belongings are damaged. Additionally, moving furniture, rugs, drapes, and other items owned by the occupant could increase leaded dust levels. Clearance should be conducted after cleaning but before resident items are moved back in.

B. Ongoing Cleaning During the Job

Periodic HEPA vacuuming during the lead hazard control work may be necessary to minimize tracking of dust and paint chips from one area to another (e.g., when a large amount of paint chips or dust is being generated).

C. Daily Cleaning Procedures

Cleaning activity should be scheduled at the end of each workday when all active lead hazard control throughout the dwelling has ceased. Sufficient time must be allowed for a thorough and complete cleaning (usually about 30 minutes to an hour). Daily cleaning helps achieve clearance dust levels by minimizing problems that may otherwise occur during final cleaning and limiting worker exposures. While daily cleaning can be skipped in vacant dwelling units, it is required when occupants will



Figure 14.7 Plastic Sheeting Should Be Repaired as Part of Daily Cleanup.

return in the evening. Under no circumstances should debris or plastic be left outside overnight in an unsecured area, even if the dwelling is vacant. Daily cleaning should consist of:

- Removing large debris.
- Removing small debris.
- HEPA vacuuming, wet clean, HEPA vacuuming (horizontal surfaces only).
- Cleaning exterior.
- Patching and repairing plastic sheeting.
- Securing debris/plastic.

1. Large Debris

Large demolition-type debris (e.g., doors, windows, trim) should be wrapped in 6-mil plastic, sealed with tape, and moved to a secure area on the property designated for waste storage. All sharp corners, edges, and nails should be hammered down to prevent injury and minimize the tearing of plastic. It is not necessary to wrap each individual piece of debris in plastic if the entire load can be wrapped. A secure area either outside or inside the property must be designated as a temporary waste-storage area. Covered, secured, and labeled dumpsters placed on or near the property may be used. Proper segregation of waste should be enforced at this time (see Chapter 10).

2. Small Debris

After being misted with water, small debris should be swept up, collected, and disposed of properly. The swept debris should be placed in double 4-mil or single 6-mil polyethylene (or equivalent) plastic bags, properly sealed, and moved to the designated trash storage area. Trash bags should not be overloaded; overloaded bags may rupture or puncture during handling and transport.

3. Exterior Cleaning

Areas potentially affected by exterior lead hazard control should be protected via a containment system (see Chapter 8). Because weather can adversely affect the efficacy of exterior





containment, the surface plastic of the containment system should be removed at the end of each workday. On a daily basis, as well as during final cleaning, the immediate area should be examined visually to ensure that no debris has escaped containment. Any such debris should be raked or vacuumed and placed in single 6-mil or double 4-mil plastic bags, which should then be sealed and stored along with other contaminated debris. HEPA vacuuming is appropriate for hard exterior surfaces, not soil.

4. Worker Protection Measures

General worker protection measures are discussed in Chapter 9. Studies indicate that during daily cleaning activities, especially while wet sweeping, workers may be exposed to high levels of airborne dust. Therefore, workers should wear protective clothing and equipment, especially appropriate respirators.

5. Maintaining Containment

The integrity of the plastic sheeting used in a lead hazard control project must be maintained. During their daily cleaning activities, workers should monitor the sheeting and immediately repair any holes or rips with 6-mil plastic and duct tape.

V. Order of Final Cleaning Procedures After Lead Hazard Control

Before treated surfaces can be painted or sealed, final cleaning procedures must be completed. Because airborne dust requires time to settle, the final cleaning process should start no sooner than 1 hour after active lead hazard control has ceased in the room. See Appendix 11 for details regarding dust settling.

A. Final Cleaning

As the first stage in the final cleaning, floor plastic should be misted and swept as detailed earlier in this chapter. Upper-level plastic, such as that on cabinets and counters, should be removed first, after it has been misted with water and cleaned. All plastic should be folded

carefully from the corners/ends to the middle to trap any remaining dust. Next, remove both layers of plastic from the floor.

Plastic sheets used to isolate contaminated rooms from noncontaminated rooms should remain in place until after the cleaning and removal of other plastic sheeting; these sheets may then be misted, cleaned, and removed last.

Removed plastic should be placed into double 4-mil or single 6-mil plastic bags, or plastic bags with equivalent (or better) performance characteristics, which are sealed and removed from the premises. As with daily cleanings, this plastic-removal process usually requires workers to use protective clothing and respirators.

After the plastic has been removed from the contaminated area, the entire area should be cleaned using the HEPA/wet wash/HEPA cycle, starting with the ceiling and working down to the floor. After surfaces are repainted or sealed, a final HEPA/wet wash/HEPA cycle may be necessary if accumulated dust caused by other work is visible.

1. Decontamination of Workers, Supplies, and Equipment

Decontamination is necessary to ensure that worker's families, other workers, and subsequent properties do not become contaminated. Specific procedures for proper decontamination of equipment, tools, and materials prior to their removal from lead hazard control containment areas should be implemented, as described below and in Chapters 9 and 10.

Work clothing, work shoes, and tools should not be placed in a worker's automobile unless they have been laundered or placed in sealed bags. All vacuums and tools that were used should be wiped down using sponges or rags with detergent solutions.

Consumable/disposable supplies, such as mop heads, sponges, and rags, should be replaced, after each dwelling is completed. Soiled items should be treated as contaminated debris (see Chapter 10).







Figure 14.8a Pick Up Corners of Plastic Sheeting.



Figure 14.8b Fold Plastic Inward.

Durable equipment, such as power and hand tools, generators, and vehicles, should be cleaned prior to their removal from the site; the cleaning should consist of a thorough HEPA vacuuming followed by washing.

B. Preliminary Visual Examination

After the preliminary final cleaning effort is completed, the certified supervisor should visually evaluate the entire work area to ensure that all work has been completed and all visible dust and debris have been removed. While the preliminary examination may be performed by the lead hazard control supervisor, contractor, or owner as a preparatory step before the final clearance examination, it does not replace the independent visual assessment conducted during clearance.

If the visual examination results are unsatisfactory, affected surfaces must be retreated and/or recleaned. Therefore, it is more cost effective to have the supervisor rather than the clearance examiner perform this initial examination.

C. Surface Painting or Sealing of Nonfloor Surfaces

The next step of the cleaning process is painting or otherwise sealing all treated surfaces except floors.

Surfaces, including walls, ceilings, and woodwork, should be coated with an appropriate primer and repainted. Surfaces enclosed with vinyl, aluminum coil stock, and other materials traditionally not repainted are exempt from the painting provision.

D. Final Inspection

The final clearance evaluation should take place at least 1 hour after the final cleaning. Clearance has three purposes: 1) to ensure that the lead hazard control work is complete, 2) to detect the presence of leaded dust, and 3) to make sure that all treated surfaces have been repainted or otherwise sealed. Clearance is usually performed after the sealant is applied to the floor. See Chapter 15 for information on clearance examination procedures.

E. Recleaning After Clearance Failure

If after passing the final visual examination, the dwelling unit fails the clearance wipe dust tests,





the HEPA/wet wash/HEPA cleaning cycle should be carefully and methodically repeated. Failure is an indication that the cleaning has not been successful. Recleaning should be conducted under the direct supervision of a certified supervisor. Care should be exercised during the recleaning of "failed" surfaces or components to avoid recontaminating "cleared" surfaces or components.

VI. Cleaning Cost Considerations

An important consideration in determining lead hazard control strategies and methods is the cost and difficulty of required daily and final cleanup operations and the ease with which one can meet dust-clearance standards. A general rule of thumb is that lead hazard control strategies that generate the most dust will have higher cleanup costs and higher initial clearance test-failure rates.

A. Initial Clearance Test Failure Rates

The likelihood of passing final dust-clearance tests is highly correlated with the chosen intervention strategy, methods, and care exercised by the contractor. For example, in one study (HUD, 1991) initial wipe-test failure rates were 14 percent for interior window sills, 19 percent for floors, and 33 percent for window troughs. The pass/fail rates for each surface were strongly associated with the dwelling unit abatement strategy employed. Chemical removal and hand-scraping strategies experi-enced higher failure rates than replacement and encapsulation/enclosure strategies (see Table 14.1).

However, results of the HUD demonstration project indicated that clearance failure is not solely related to abatement method. The report stated that "the diligence and effectiveness of an abatement contractor's cleaning process ... had a major impact on ... the likelihood of the dwelling unit to pass the final wipe test clearance" (HUD, 1991).



Figure 14.8c Dispose of Plastic Sheeting in a Plastic Trash Bag.

B. Key Factors In Effective Cleaning

Effective cleaning will be aided by adequate sealing of surfaces with polyethylene sheeting prior to lead hazard control, proper daily cleaning practices, good worker training, and attention to detail. Where poor worksite preparation is employed, additional cleaning may be required to meet clearance.

C. Special Problems

Surfaces such as porous concrete, old porous hardwood floors, and areas such as corners of rooms and window troughs pose especially difficult cleaning challenges. Porous concrete and corners of rooms normally require additional vacuuming to achieve an acceptable level of cleanliness.

The lead hazard control strategy of enclosure is frequently chosen for window troughs and for old porous hardwood floors due to the difficulty of adequately cleaning these surfaces. This





option provides not only a clean surface but a more permanently cleanable surface for dwelling occupants to maintain.

VII. Alternative Methods

Alternatives to the recommended cleaning tools and practices discussed in this chapter are available, some having significant potential for increasing effectiveness and lowering costs.

A recent Canadian study (CMHC, 1992) evaluated the effectiveness of contaminated dust cleanup activities using tools that would generally be available to construction contractors and homeowners. Vinyl flooring and carpeting were cleaned using several wet/dry vacuuming systems, sweeping, and wet mopping. The study found that regular vacuums with empty bags send a steady stream of fine particles into the air, while vacuums with partially filled bags were more efficient. This finding suggests the necessity for HEPA vacuums. Other vacuums may be used if workers do not experience increased exposures, if compliance with clearance standards is achieved, and if a variance from OSHA regulation (29 CFR 1926.62 (h)(4)) is obtained by the contractor or employer (if required).

Agitator heads on vacuums were demonstrated to significantly enhance vacuum effectiveness on carpets in cleaning up fine dust without

increasing airborne dust levels. Table 14.2 suggests that a central vacuum with an agitator head is most efficient at removing dust and minimizing recontamination, probably because the vacuum exhaust is blown away from living areas. Because many houses do not have central vacuuming systems, a portable HEPA vacuum is the next best choice (see Table 14.2). Vacuums without agitator heads appeared to perform relatively poorly on carpets.

A. Vacuums

Regular (non-HEPA) dry vacuums potentially produce hazardous levels of airborne dust and therefore should be avoided. Externally exhausted vacuum units with adequate dustretaining capability may be used. The OSHA lead standard requires the use of HEPA vacuum equipment (see 29 CFR 1926.62 (h)(4), which states, "where vacuuming methods are selected, the vacuums shall be equipped with HEPA filters").

B. Trisodium Phosphate and Other Detergents

TSP detergents have been used successfully for a number of years in lead hazard control work. However, in recent years, other new cleaning agents have been developed specifically for leaded dust removal. The need for alternatives has been fueled by the fact that TSP is an eye

Table 14.1 Initial Cleaning Wipe-Test Failure Rates for Various Abatement Strategies

Dust Test Location	Hand Scrape w/Heat Gun	Chemical Removal	Enclosure	Encapsulation	Replacement	All Methods
Floors	28.8%	22.7%	20.0%	13.8%	12.5%	19%
Sills	24.4%	24.1%	8.2%	4.8%	17.4%	14%
Wells	44.5%	45.7%	23.7%	25.7%	21.0%	33%

Source: U.S. Department of Housing and Urban Development (August 1991) The HUD Lead-Based Paint Abatement Demonstration (FHA)





and skin irritant and is increasingly restricted from household use and unavailable in many local jurisdictions. TSP also damages some finishes. Recently reported trials of two new products suggest that alternative lead-specific cleaning agents may be more effective and safer than TSP (Grawe, 1993; Wilson, 1993).

These Guidelines do not prohibit the use of non-TSP cleaning agents. HUD encourages further evaluation of alternative cleaning methods. Use of any cleaning agent that results in compliance with clearance criteria is encouraged.

Table 14.2 Mass Removal Efficiency for Extended Vacuuming Cycles

	Mass Removal Efficiency Percentages						
Cycle Number							
	Central Vacuum—Plain Tool	Central Vacuum—Agitator Head	HEPA Vacuum	Portable Vacuum—Plain Tool			
1	34.7	71.0	55.4	17.5			
2	47.0	80.2	61.2	23.0			
3	51.9	85.9	66.3	26.6			
4	56.0	87.8	67.0	29.4			
5	59.3	88.9	72.1	32.5			
6	61.6	91.2	74.4	34.9			
7	63.8	93.1	76.4	36.5			
8	67.5	95.4	77.5	38.1			
9	67.5	97.7	78.7	40.1			
10	67.2	100.0	80.2	41.7			
11		102.3	80.2	41.7			
12		104.6	84.1	44.8			
13		104.6	84.5	46.8			
14		103.8	84.5	48.4			
15				49.6			
16				50.8			
17				52.4			
18				53.6			
19				54.4			
20				55.2			

Source: Canada Mortgage and Housing Corporation: Saskatchewan Research Council (December 1992) Effectiveness of Clean-up Techniques for Leaded Paint Dust

National Guard Region North

National Guard Readiness Center Industrial Hygiene Evaluation Ithaca Readiness Center Ithaca, NY 14850

Prepared for:

National Guard Region North Industrial Hygiene Office 301 Old Bay Lane Havre De Grace, MD 21078

Attn:

Non-Responsive

Prepared by:

Bonus Environmental, LLC P.O. Box 121 Mt. Pleasant, Michigan 48804

> Project No. 1061-15 January 28, 2013

Bonus Environmental, LLC

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APPENDICES

Appendix A Shop Diagram and Air Flow patterns

Appendix B Lead Sample Results

Appendix C Photographs

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May, 2018

January 28, 2013 Project No. 1061-15

National Guard Region North Industrial Hygiene Office 301 Old Bay Lane Havre De Grace, MD 21078-4003

Attn: Non-Responsive

Project: Industrial Hygiene Evaluation

Ithaca Readiness Center, Ithaca, NY 14850

1.0 - EXECUTIVE SUMMARY

Bonus Environmental, LLC was contracted by the National Guard Bureau Region North Industrial Hygiene office to identify and measure the existence and extent of potentially hazardous operations or conditions at the Ithaca Readiness Center located at 1765 Hanshaw Road in Ithaca, NY. The purpose of this evaluation was to generate or to update a previous baseline evaluation so that employee exposure history can be provided to each civilian and military employee. The following industrial hygiene conditions were evaluated during this industrial hygiene evaluation performed by Bonus Environmental, LLC representative Non-Responsive on November 14, 2012:

- Indoor Air Quality
- Lead Wipe & Bulk Sampling
- Illumination
- Ergonomics

 Evaluation of the physical condition of the facility in regards to peeling paint, asbestos containing materials, water damage or mold problems, and housekeeping practices.

The Ithaca Readiness Center is an Army National Guard armory comprised of offices, classrooms, locker rooms, storage rooms, a drill hall, a kitchen, a weight room, supply rooms, a boiler room, and a former indoor firing range. The point of contact for the approximately 31,512 ft² Ithaca Readiness Center is Mr. Non-Responsive. Six (6) full-time administrative personnel are employed at the Ithaca Readiness Center. Health and Safety programs available and reviewed include personal protective equipment (PPE), Lock-Out/Tag-Out, Asbestos Awareness, Fire Safety, and Confined Spaces. A shop diagram depicting the locations of the operations and air flow patterns identified during this industrial hygiene evaluation is attached to this report as Appendix A.

The National Guard Bureau Region North Industrial Hygiene Office provided governmental furnished equipment and sampling media required to perform the industrial hygiene evaluation. Chain of custody forms for laboratories approved by the National Guard Bureau Region North Industrial Hygiene Office were provided with the sampling media. All samples collected during this industrial hygiene evaluation were sent to the National Guard Bureau Region North Industrial Hygiene Office approved laboratories for analysis.

2.0 – LEAD SAMPLING

2.1 – Lead Wipe Sampling

Lead wipe sampling was performed according to the Environmental Protection Agency (EPA) method 600/R-93/200(M)-7420 (Atomic Absorption - Flame). Twelve (12) wipe samples and one (1) field blank were sent under chain-of-custody procedures to AMA Analytical Services, Inc., an American Industrial Hygiene Association (AIHA) accredited laboratory located in Lanham, Maryland. The U.S. Department of Labor (USDOL) and the Occupational Safety and Health Administration (OSHA) do not have a promulgated standard for lead surface contamination; however OSHA has provided an interpretive level of 200 micrograms per square foot ($\mu g/ft^2$) to assess the housekeeping requirements of "as free as reasonably practicable". This interpretation is presented in OSHA Industrial Hygiene Technical Manual (TED 01-00-015; 1/20/1999), and in a letter of interpretations dated 1/13/2003, and subsequently issued to public domain. NG Pam 420-15 addresses the conversion and remediation of former indoor firing ranges. The following table outlines the locations and analytical results for the lead wipe samples collected during this project.

Army National Guard – Ithaca Readiness Center Lead Wipe Sample Results						
Sample #	Sample Date	Sample Location	Sample Area (ft²)	Sample Result (µg/ft²)		
Ithaca RC- LW-1	11-14-12	Field Blank		< 12 μg		
Ithaca RC- LW-2	11-14-12	Drill Hall, on floor, Northeast end	0.111	< 110		
Ithaca RC- LW-3	11-14-12	Drill Hall, on floor, Southwest end	0.111	< 110		
Ithaca RC- LW-4	11-14-12	Drill Hall, on top of Pepsi machine	0.111	< 110		
Ithaca RC- LW-5	11-14-12	Drill Hall, on top of ice machine	0.111	< 110		
Ithaca RC- LW-6	11-14-12	Drill Hall, on top of Destroyer Donation Box	0.111	< 110		
Ithaca RC- LW-7	11-14-12	Training Area (Former Indoor Firing Range), on center of floor	0.111	280		
Ithaca RC- LW-8	11-14-12	Training Area (Former Indoor Firing Range), on top of light fixture	0.111	< 110		
Ithaca RC- LW-9	11-14-12	Training Area (Former Indoor Firing Range), on top of locker #80	0.111	170		
Ithaca RC- LW-10	11-14-12	Kitchen, on top of microwave	0.111	< 110		
Ithaca RC- LW-11	11-14-12	Women's Locker Room, on top of locker #31	0.111	250		
Ithaca RC-	11-14-12	Classroom 117, on window sill	0.111	< 110		

	Army National Guard – Ithaca Readiness Center Lead Wipe Sample Results						
Sample #	Sample Date	Sample Location	Sample Area (ft²)	Sample Result (µg/ft²)			
LW-12							
Ithaca RC- LW-13	11-14-12	Superintendent's Office, on top of filing cabinet	0.111	< 110			

Surface cleanliness threshold = < 200 micrograms per square foot ($\mu g/ft^2$)

The former indoor firing range is currently used as a Training Area. It is uncertain whether it was remediated to the protocols specified in NG Pam 420-15. Remediation wipe sample results were not posted, nor were any signs posted restricting access to the area.

3.0 - PHYSICAL CONDITION OF FACILITY / PERSONNEL CONCERNS

3.1 - Lead Based Paint

During the industrial hygiene evaluation of the Ithaca Readiness Center, Bonus Environmental, LLC performed a visual inspection of the facility in regards to lead based paint. Bonus Environmental, LLC identified areas of peeling paint which could potentially pose a lead exposure hazard. Bonus Environmental, LLC identified peeling paint in the following areas:

- Approximately 35 ft² peeling white paint in the Telecommunication's Room (118);
- Approximately 30 ft² peeling white paint in the Storage (121);
- Approximately 40 ft² peeling white paint in the Women's Locker Room (123);
- Approximately 160 ft² peeling white paint in the Men's Locker Room (124);
- Approximately 200 ft² peeling white paint in the Men's Locker Room (131);
- Approximately 200 ft² peeling white paint in the Supply Room (136);
- Approximately 150 ft² peeling white paint in the Storage Room (140);
- Approximately 35 ft² peeling off-white paint in the Drill Hall (149)

Each of the areas containing peeling paint were on or near ceilings, and therefore were inaccessible. It was reported to Bonus Environmental, LLC by site contact Ray Carmody that the peeling paints had previously been tested, and analytical results indicated that they were negative for lead-content.

3.2 – Presumed Asbestos Containing Materials

During the industrial hygiene evaluation of the Ithaca Readiness Center, Bonus Environmental, LLC performed a visual inspection to identify presumed asbestos containing materials (PACM) and, if found, to note their condition. Bonus Environmental, LLC did not identify any PACM that was considered to be in poor or damaged condition.

3.3 - Water Damage/Mold Growth

During the industrial hygiene evaluation of the Ithaca Readiness Center, Bonus Environmental, LLC performed a visual inspection to report the location and perform an evaluation of any water damaged building materials and/or visible mold problems. Bonus Environmental, LLC identified water-stained/water-damaged/moldy dropped-ceiling tiles located in the following areas:

- Approximately 1 ft² of stained dropped-ceiling tiles within the Office (114);
- Approximately 1 ft² of stained DCT within the Office (111);
- Approximately 1 ft² of stained DCT within the Office (113);
- Approximately 14 ft² of stained DCT within the Hallway;
- Approximately 6 ft² of stained DCT within the NCO Club (108);
- Approximately 1 ft² of stained DCT within the Security Office (106);
- Approximately 11 ft² of stained DCT within the Office (119);
- Approximately 1 ft² of stained DCT within the Recruiting Office (105);
- Approximately 22 ft² of stained/moldy DCT within the Classroom (146);
- Approximately 34 ft² of stained/moldy DCT within the Weight Room (126)

3.4 - Housekeeping

During the industrial hygiene evaluation of the Ithaca Readiness Center, Bonus Environmental, LLC performed an evaluation of the housekeeping practices. Bonus Environmental, LLC found the housekeeping practices within Ithaca Readiness Center facility in good order, with the exception of residual lead dust concentrations.

3.5 – Employee Interviews

During the industrial hygiene evaluation of the Ithaca Readiness Center, Bonus Environmental, LLC performed interviews and made observations to determine if the work activities being performed possessed any ergonomic concerns. Following the interviews and observations, no ergonomic and or indoor air quality concerns were identified.

3.6 – Indoor Air Quality

During the industrial hygiene evaluation of the Ithaca Readiness Center, Bonus Environmental, LLC measured temperature, relative humidity, carbon monoxide (CO), and carbon dioxide (CO₂) throughout the facility. A calibrated TSI Q-Trak Plus Model 7575 Indoor Air Quality Monitor equipped with a Q-Trak Probe 982 was utilized to record indoor air quality measurements.

Carbon dioxide is a natural component of air and the amount of CO₂ in a given air sample is commonly expressed as parts per million (ppm). The outdoor air in most locations contains about 380 ppm carbon dioxide. Higher outdoor CO₂ concentrations can be found near vehicle traffic areas, industry and sources of combustion. The concentrations of CO₂ found in most offices are well below the OSHA Permissible Exposure Limit (PEL) of 5,000 ppm when averaged over an 8-hour time period for an industrial workplace. While levels below 5,000 ppm are considered to pose no serious health threat, studies have indicated that individuals in offices with elevated CO₂ concentrations tend to report drowsiness, lethargy and a general sense that the air is stale. Ventilation rates for office spaces are defined by various codes and standards. The most widely accepted standard is the American Society of Heating, Refrigerating, and Air Conditioning Engineers (ASHRAE) Standard 62. According to ASHRAE Standard 62.1-2010, CO₂ concentrations below 700 ppm above the outdoor level are considered to indicate adequate ventilation and provide human comfort. The CO₂ measurements collected during this industrial hygiene evaluation ranged from 402 ppm to 516 ppm and indicate adequate ventilation within the facility.

Carbon monoxide is a colorless, odorless, poisonous gas that results from the incomplete burning of common fuels such as natural or liquefied petroleum gas, oil, wood or coal. When carbon monoxide is inhaled, it enters the blood stream and reduces the ability of the blood to carry oxygen to vital organs, such as the heart and brain. Because it is impossible to see, taste or smell the toxic fumes, CO can harm you before you are aware it is in your work area. At lower levels of exposure, CO causes mild effects that are often mistaken for the flu. These symptoms include headaches, dizziness, disorientation, nausea and fatigue. The effects of CO exposure can vary greatly from person to person depending on age, overall health and the concentration and length of exposure. The OSHA has established a permissible exposure limit (PEL) of 50 parts per million (ppm). OSHA standards prohibit worker exposure to more than 50 parts of the gas per million parts of air averaged during an 8-hour time period. The peak CO level for employees is 200 ppm. The CO measurements collected during this industrial hygiene evaluation ranged from 3.4 ppm to 5.9 ppm. CO levels were below the OSHA PEL during this industrial hygiene evaluation.

During the industrial hygiene evaluation of the Ithaca Readiness Center, Bonus Environmental, LLC collected temperature measurements. Temperature measurements throughout the common areas of the facility routinely occupied by employees ranged from 62.0 to 66.8°F and are not considered to be within an acceptable range outlined within ASHRAE Standard 55-2010.

During the industrial hygiene evaluation of the Ithaca Readiness Center, Bonus Environmental, LLC collected relative humidity measurements. Relative humidity measurements throughout common areas of the facility routinely occupied by employees ranged from 30.7% to 41.6%. Indoor air quality measurements recorded during this industrial hygiene evaluation are summarized in the table below.

Army National Guard – Ithaca Readiness Center Indoor Air Quality Measurements							
Location	CO_2	CO	Relative	Temperature			
	(ppm)	(ppm)	Humidity (%)	(°F)			
Outdoors, northeast side of building (mostly cloudy)	402	5.9	26.8	55.1			
Security Office (106) (4 people in room)	516	4.4	41.6	66.8			
Office (109)	409	3.9	37.0	66.7			
Classroom (117)	429	3.9	37.1	66.6			
Weight Room (126)	418	4.5	36.1	64.2			
Training Area (129)	423	4.5	30.7	64.9			
Classroom (146)	441	4.1	40.2	62.0			
Kitchen (144)	409	3.4	33.6	65.1			
Storage Room (140)	411	3.7	33.7	66.3			
Supply Room (138)	414	3.9	33.0	65.8			
Drill Hall (149)	417	3.4	36.3	64.6			

Required/Recommended Values

 ${\it CO}_2$ - OSHA PEL = 5,000 parts per million (ppm) and ASHRAE Standard 62.1-2010 = no greater than 700 ppm above outdoor

CO - OSHA PEL = 50 ppm and OSHA Ceiling Limit = 200 ppm

Temperature - ASHRAE Standard 55-2010 = between approximately 67 and 82 °F.

RH - ASHRAE Standard 62.1-2010 = limited to < 65%

4.0 - LIGHTING

Utilizing a properly calibrated Cooke Corporation cal-Light 400 light meter, Bonus Environmental, LLC collected illumination readings throughout the Ithaca Readiness Center. Illumination measurements recorded during this industrial hygiene evaluation are summarized in the table below.

Army National Guard – Ithaca Readiness Center Lighting Measurements						
Location	Measurement in Foot Candles	Requirement in Foot Candles	Requirement Met?			
Office (114)	33.9	50	No			
Office (115)	53.6	50	Yes			
Office (116)	56.6	50	Yes			
Office (111)	50.1	50	Yes			
Office (112)	62.7	50	Yes			
Office (113)	153.9	50	Yes			
Office (109)	38.6	50	No			
Hallway	17.5	5	Yes			
NCO Club (108)	34.4	10	Yes			
Classroom (117)	47.1	30	Yes			
Superintendent's Office (107)	71.0	50	Yes			
Security Office (106)	100.5	50	Yes			
Telecommunication's Room (118)	21.5	30	No			
Office (119)	23.2	50	No			
Storage (120)	29.8	30	No			
Storage (121)	19.6	30	No			
Recruiting Office (105)	70.2	50	Yes			
Women's Restroom (122)	14.0	5	Yes			
Women's Locker Room (123)	78.9	7	Yes			
Men's Restroom (125)	14.8	5	Yes			
Men's Locker Room (124)	26.4	7	Yes			
Classroom (146)	44.3	30	Yes			
Weight Room (126)	22.7	30	No			
Storage (130)	23.2	30	No			
Training Area (129) (Former Indoor Firing Range)	21.6	30	No			
Storage (128)	12.9	30	No			
Men's Locker Room (131)	7.1	7	Yes			
Men's Restroom (132)	16.7	5	Yes			
Men's Shower (134)	14.2	7	Yes			
Drill Hall (149)	29.0	30	No			
Storage (147)	4.4	30	No			
Supply Room (136)	10.6	30	No			
Supply Room (138)	12.1	30	No			
Storage Room (140)	6.3	30	No			
Kitchen (144)	29.8	50	No			
Food Storage (143)	8.1	30	No			
Scullery (145)	33.1	30	Yes			
Boiler Room (142)	16.1	30	No			
Storage (141) (POL Room)	17.3	30	No			

Lighting levels were compared to the levels outlined within the American National Standards Institute/Illuminating Engineering Society of North America (ANSI/IESNA) RP-1-04 Office Lighting Handbook, and the ANSI/IESNA RP-7-01 Lighting Industrial Facilities Handbook. Areas within the facility which did not meet the foot candle requirements are identified with a "NO" within the "Requirement Met?" column. It is recommended that illumination be improved in all the areas that did not meet the requirements. Improving illumination can be achieved by replacing burned-out lamps/bulbs, cleaning fixtures, relocating detailed work activities to more illuminated areas, and using supplemental task lighting.

5.0 - CONCLUSION & LIMITATIONS

Bonus Environmental, LLC was contracted by the National Guard Bureau Region North Industrial Hygiene office to identify and measure the existence and extent of potentially hazardous operations or conditions at the Ithaca Readiness Center located at 1765 Hanshaw Road in Ithaca, NY. The purpose of this evaluation was to generate or to update a previous baseline evaluation so that employee exposure history can be provided to each civilian and military employee. Industrial hygiene conditions were evaluated during this industrial hygiene evaluation performed by Bonus Environmental, LLC representative Erica Funnell on November 14, 2012.

The results/findings of this industrial hygiene evaluation are summarized below.

- 1. Lead wipe sample results collected within the Ithaca Readiness Center were above the OSHA interpretive level of 200 μ g/ft², as well as the 200 μ g/ft² threshold established in NG Pam 420-15 in the following areas:
 - Training Area (Former Indoor Firing Range), on center of floor
 - Women's Locker Room, on top of locker #31
- 2. Bonus Environmental, LLC identified areas of peeling paint which may contain detectable levels of lead, potentially posing a lead exposure hazard. Bonus Environmental, LLC was informed that these paints had previously tested negative for lead-content. Peeling paint was found in the following areas:
 - Approximately 35 ft² peeling white paint in the Telecommunication's Room (118);
 - Approximately 30 ft² peeling white paint in the Storage (121);
 - Approximately 40 ft² peeling white paint in the Women's Locker Room (123);
 - Approximately 160 ft² peeling white paint in the Men's Locker Room (124);
 - Approximately 200 ft² peeling white paint in the Men's Locker Room (131);
 - Approximately 200 ft² peeling white paint in the Supply Room (136);
 - Approximately 150 ft² peeling white paint in the Storage Room (140);
 - Approximately 35 ft² peeling off white paint in the Drill Hall (149)
- 3. Bonus Environmental, LLC did not identify any PACM that was considered to be in poor or damaged condition.

- 4. Bonus Environmental, LLC identified water-stained/water-damaged/moldy dropped-ceiling tiles located in the following areas:
 - Approximately 1 ft² of stained dropped-ceiling tiles within the Office (114);
 - Approximately 1 ft² of stained DCT within the Office (111);
 - Approximately 1 ft² of stained DCT within the Office (113);
 - Approximately 14 ft² of stained DCT within the Hallway;
 - Approximately 6 ft² of stained DCT within the NCO Club (108);
 - Approximately 1 ft² of stained DCT within the Security Office (106);
 - Approximately 11 ft² of stained DCT within the Office (119);
 - Approximately 1 ft² of stained DCT within the Recruiting Office (105);
 - Approximately 22 ft² of stained/moldy DCT within the Classroom (146);
 - Approximately 34 ft² of stained/moldy DCT within the Weight Room (126)
- 5. Bonus Environmental, LLC found the housekeeping practices within Ithaca Readiness Center in good order, with the exception of residual lead dust concentrations.
- 6. Following the interviews and observations, no ergonomic and or indoor air quality concerns were identified.
- 7. Bonus Environmental, LLC measured temperature, relative humidity, CO, and CO₂ throughout the Ithaca Readiness Center. All were found to be within their acceptable ranges/limits; with the exception of the temperature readings, which were all low.
- 8. Areas within the Ithaca Readiness Center facility were identified as improperly illuminated.
- 9. Health and Safety programs available and reviewed at the Ithaca Readiness Center included personal protective equipment (PPE), Lock-Out/Tag-Out, Asbestos Awareness, Fire Safety, and Confined Spaces. All were found to meet the minimum requirements.

Bonus Environmental, LLC has 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 Region North - Industrial Hygiene Office. 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 Bonus Environmental, LLC's inspection of the site.

It has been a pleasure to be of assistance to you. Please contact us if you have any questions concerning this report or if we can be of any further assistance in any other environmental or occupational health matter.

Sincerely,

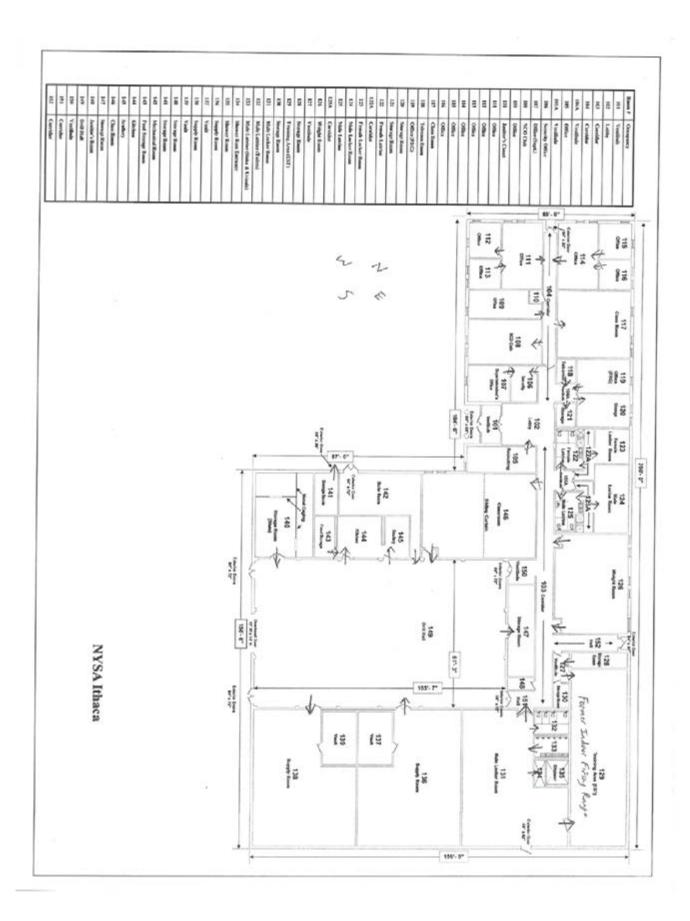


Principal Bonus Environmental, LLC

Ithaca RC_12_Report.docx

Appendix A

Shop Diagram and Air Flow Patterns



Appendix B

Lead Sampling Results

AMA Analytical Services, Inc.



CERTIFICATE OF ANALYSIS



Client:

National Guard Bureau

Job Name:

Ithaca RC

Chain Of Custody:

514541

Address;

Haronii Ouard Davas

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

Job Location:

1765 Hanshaw Road, Ithaca, NY 14850

Date Submitted:

11/21/2012

11/2

State Military Reservation

Havre de Grace, Maryland 21078

Job Number:

P.O. Number:

1061-15

W912K6-09-A-0003

Person Submitting: Date Analyzed: 11/27/2012 F

11/27/2012

Report Date:

Attention:

Von-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 ^a)		orting Limit	Total ug	Final Res	sult	Comments
13016577	IthacaRC-LW-I	Flame	Wipe Blank	****	N/A	12	ug		<12	ug	
13016578	IthacaRC-LW-2	Flame	Wipe	****	0.111	110	ug/ft²	<12	<110	ug/ft²	
13016579	IthacaRC-LW-3	Flame	Wipe	****	0.111	110	ug/ft²	<12	<110	ug/fl²	
13016580	IthacaRC-LW-4	Flame	Wipe	****	0.111	110	ug/ft²	<12	<110	ug/fl²	
13016581	IthacaRC-LW-5	Flame	Wipe	****	0.111	110	ug/ft²	<12	<110	ug/fl²	
13016582	IthacaRC-LW-6	Flame	Wipe	***1	0.111	110	ug/ft²	<12	<110	ug/fl²	
13016583	IthacaRC-LW-7	Flame	Wipe	****	0.111	110	ug/N2	31	280	ug/fl2	
13016584	IthacaRC-LW-8	Flame	Wipe	****	0.111	110	ug/N2	<12	<110	ug/fl²	
13016585	IthacaRC-LW-9	Flame	Wipe	****	0.111	110	ug/ft²	19	170	ug/fl³	
13016586	IthacaRC-LW-10	Flame	Wipe	****	0.111	110	ug/ft²	<12	<110	ug/fl²	
13016587	IthacaRC-LW-11	Flame	Wipe	****	0.111	110	ug/ft²	27	250	ug/ft²	
13016588	IthacaRC-LW-12	Flame	Wipe	****	0.111	110	ug/ft²	<12	<110	ug/fl²	
13016589	IthacaRC-LW-13	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 whem it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from us. Sample types, locations, and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information. Residual sample material will be discarded in accordance with the appropriate regulatory guidelines, unless otherwise requested by the client. This report must not be used to claim, and does not imply product certification, approval, or endorsement by NY ELAP, AHIA, or any agency of the Federal Government. All rights reserved. AMA Analytical Services, Inc.

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

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AMA Analytical Services, Inc.



CERTIFICATE OF ANALYSIS



Client:

National Guard Bureau

Job Name:

Ithaca RC

Chain Of Custody:

514541

Address:

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

Job Location:

1765 Hanshaw Road, Ithaca, NY 14850

Date Submitted:

11/21/2012

State Military Reservation Havre de Grace, Maryland 21078

Job Number:

P.O. Number:

1061-15

W912K6-09-A-0003

Person Submitting: Date Analyzed:

11/27/2012

Report Date:

Attention:

Summary of Atomic Absorption Analysis for Lead

Page 2 of 2

AMA Sample

Client Sample

Analysis Type Sample Type

Air Volume

Area Wiped

Reporting

Final Result

See QC Summary for analytical results of quality control samples

Number

Number

(L)

(ft')

Limit

associated with these

samples.

Total ug

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

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

N/A = Not Applicable %Pb = percent lead on a dry weight basis ug = micrograms

ug/L = parts per billion (ppb)

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

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

Air and Wipe results are not corrected for any blank results

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

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

Technical Manage

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

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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,

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

RMA Analytical Services, Inc.
Focused on Results www.amalab.com
AIHA (#100470) NYLAP (#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 Inquires)

514541

4. Address I;SUI-IH Old Bay Lai	Client Name: National Guard Bureau Address 1: 301-IH Old Bay Lane							The The	-		01	711	1969 NY 148	FA	
Address 2: Attn; NGB-AVN-SI, State Military Reservation															
				_	J. J0	D#:	100	15	De	en	on	P	₩912K6-0	9-A-0003	
 Address 3: <u>Havre de Grace, M</u> Phone # (410) 942-0273 					4. C	ontact P								echonelye	
	Fax #:(110) 942-02	54		5. Si	bmitted	by:_						Non-R pature	esponsive	
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D EPA 600 - Visual Estimate	(QTY)	TEM Wate		20					10	u	Po Fur	mace (Media)(QT)	()
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Surface Sampling Field Data Sheet

Date Collected://-/4-/ &	Job Name: Ithaca RC	Company: Bonys Environmental LLd
Job Number: 061-15	Job Location:	Phone Number: 989 - 779 - 7686
Contact Persor Non-Responsive	Address: 1765 Hanshaw Rd	Collected By:
	Ithaca, NY 14850	COC Number:

Sample Number	Sample Location	Surface/Substrate Sampled	Area Wiped (in²/ft²)	Collection Media
Ithaca RC- LW-1	Field Blank			Chost Wife
Ithera KC- Lw-x	Deill Hall	On Floor NE end	4" 24"	
Ithaia Ri- Lw-3	Dall Hall	On Floor, Sw and		
Ithaca RC- LW-4	Pall Hall	On top of Pepil Machine		
Ithna Ki- Lw-5	Prill Hell	On top of the Machine		
Ithaca RC- LW-6	Dist Hall	On top of Distroyer Ponation Box		
Ithaca RC- LW-7	Training Area (Former Indoor Firing Range)	on center of floor		
Ithaca Re- LW-8	Training Area (former Indoor Firing Lange)	On top of light Fixture		
Ithra RC- LW-9	Training Area (former Indoor String Range)	On top of Locker #80		
Ithaca RC- LW-10	Kitchen	On top of Microwave		
Ithaca Re- LW-11	Women's Lacker Rm	On top of Locker #31		
Ithaia Al- LW-12	Clasiroon 117	ón window sill		
Ithau Re- LW-B	Superintendent's office	Un top of Filling Cabinet	\downarrow	V



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, info/@amalab.com, info/@amalab.com, info/@amalab.com, info/@amalab.com, info/@amalab.com, info/@amalab.com, info/oamalab.com, info/

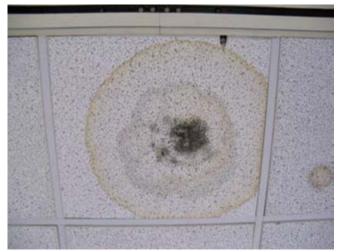


Appendix C

Photographs



Building exterior, looking east



Classroom 146, stained/moldy dropped-ceiling tile



Kitchen



POL room



Boiler room



Drill hall, peeling off-white paint



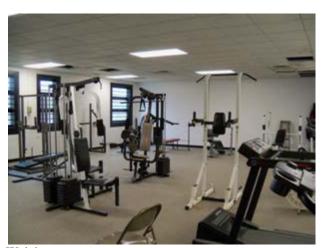
Drill Hall



Men's locker room



Training room (former indoor firing range)



Weight room



Telecom room, peeling white ceiling paint

Appendix D

References

- 1. Department of Defense Instruction (DODI) 6055.1, Department of Defense Occupational Safety and Health (OS H) Program, August 19, 1998.
- 2. Army Regulation (AR) 11-34, The Army Respiratory Protection Program, February 15, 1990.
- 3. DA PAM 40-503, Medical Service, Industrial Hygiene Program, October 30, 2000.
- 4. Technical Manual (T.M) 5-810-1, Mechanical Design, Heating, Ventilation, and Air Conditioning, June 1991.
- 5. Threshold Limit Values (TLVs) and Biological Exposure Indices (BEls), American Conference of Governmental Industrial Hygienists (ACGIH), current edition.
- 6. UFC 3-410-01 FA Heating, Ventilating, and Air Conditioning, 15 May 2003, change 4 Jan 2010
- 7. Occupational Safety and Health Administration (OSHA) Lead in Construction Standard, 29 CFR 1926.62.
- 8. Army Regulation (AR) 385-10, The Army Safety Program, August 23, 2007/RAR 4 Oct. 2011
- 9. RP-1-2004, Office Lighting, Illuminating Engineering Society of North America / American National Standards Institute (IESNA/ANSI).
- 10. RP-7-2001, Industrial Lighting, (IESNA/ANSI).
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- 12. ANSI/ASHRAE Standard 55-2010 "Thermal Environmental Conditions for Human Occupancy"
- 13. Title 24, CFR, Part 35, Subpart B, Sections 35.110, Definitions of Lead-Based Paint, Housing and Urban Development, U.S. Department of Housing.
- 14. OSHA Permissible Exposure Limit (PEL) for General Industry 29 CFR 1910.1000 Z-1 Table
- 15. Guidelines on Assessment and Remediation of Fungi in Indoor Environments, New York City Department of Health and Mental Hygiene, November 2008.
- 16. Mold Remediation in Schools and Commercial Buildings, U.S. Environmental Protection Agency, March 2001
- 17. Army Facilities Management Information Document on Mold Remediation Issues TG277, February 2002
- 18. NG PAM 420-15, Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges, 3 November 2006.



ECS CAROLINAS

Geotechnical • Construction Materials • Environmental

November 17 2008

Ms. Non-Responsive
National Guard Bureau Region North
301-IH Old Bay Lane
Havre de Grace, Maryland 21078

Reference:

Industrial Hygiene Survey Readiness Centers (RC) Jamaica, New York 11433 ECS Project No. 14-4876

Dear Ms. Non-Responsive

ECS Carolinas, LLP (ECS) is pleased to provide the results of our Industrial Hygiene survey for the referenced facility. Our services were provided in accordance with Army National Guard work order number W912K6-08-F-0063, dated June 12, 2008 and the requirements of the National Guard Bureau Region North Industrial Hygiene Office "Statement of Work".

If there are questions regarding this report, or a need for further information, please contact us.

Respectfully submitted,



Industrial Hygiene Project Manager



Principal Scientist

I:\Environ\Report\4800\4876 ANG IH\Jamaica\4876 Jamaica Report.doc

68 Global Drive Greenville, South Carolina 29607 (864) 987-1610 FAX (864) 987-1615 www.ecslimited.com
Aberdeen, MD* • Atlanta, GA • Baltimore, MD • Chantilly, VA • Charlotte, NC • Chicago, IL • Cornelia, GA* • Dallas, TX
Danville, VA • Frederick, MD • Fredericksburg, VA • Greensboro, NC • Greenville, SC • Norfolk, VA • Orlando, FL • Research Triangle Park, NC
Richmond, VA • Roanoke, VVA • San Antonio, TX • Williamsburg, VA • Wilmington, NC • Winchester, VA • York PA

*Testing Services Only

INDUSTRIAL HYGIENE SURVEY

Conducted on

READINESS CENTER 93-05 168TH STREET JAMAICA, NEW YORK 11433

ECS Project No. 14-4876

For

National Guard Bureau Region North Industrial Hygiene Office 301-IH Old Bay Lane Havre de Grace, Maryland 21078



November 17, 2008

INDUSTRIAL HYGIENE SURVEY READINESS CENTER 93-05 168TH STREET JAMAICA, NEW YORK 11433

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Asbestos Bulk Sample Results

Lead Wipe Results

INDUSTRIAL HYGIENE SURVEY READINESS CENTER 93-05 168TH STREET JAMAICA, NEW YORK 11433

1.0 EXECUTIVE SUMMARY

ECS Carolinas, LLP (ECS) has completed an Industrial Hygiene Survey at the facility located at 93-05 168th Street in Jamaica, New York, 11433. The report was prepared in general accordance with the *Statement of Work* provided by the National Guard Bureau Industrial Hygiene Region North. The objective of the survey was to identify and measure the existence and extent of potentially hazardous operations or conditions at the Army National Guard (ARNG) facilities identified in the work order. The surveys were performed to establish a baseline of workplace conditions or to update a previous survey and employee exposure histories.

The survey involved a facility reconnaissance and sampling of the Readiness Centers (RC), which serve as recruitment facilities and administration offices with a small garage or mechanics shop to maintain various ARNG vehicles and equipment for the supported units when necessary. Jamaica RC included a garage, men and women's locker rooms, lunch room/kitchen, gym, tool room, steam room, administrative offices on the first, second and third levels, battery room, utility room, a vault and conference rooms. At the time of the survey, several members of the unit were deployed and the shop was not operating at full capacity. The point of contact for the RC-Jamaica facility was Mr.

Lighting measurements conducted during the survey indicated the illumination levels in the vehicle maintenance area are below the required levels.

The physical facility and the site health and safety plans were reviewed. Some written safety programs were missing or not provided to ECS. This missing information should be prepared for the facility and provided during the next facility survey. During the physical assessment of the facility, the following items were noted:

Vehicle Maintenance Area/Garage:

- Material Safety Data Sheets (MSDS) were observed in the area.
- Fire extinguishers are present and are current with routine inspections.
- Generally clean work and storage areas.

Tools Storage:

- Tool storage area.
- Generally clean and safe storage area.

Storage Room:

- General materials storage room.
- Fire extinguisher inspection is outdated.
- Generally clean work and storage area.

Boiler Room Basement:

- Peeling paint found in stairwell leading into the Boiler Room.
- Miscellaneous flammable and unidentified materials stored improperly and not labeled.
- General housekeeping needs to be addressed.
- Fire extinguisher inspections are outdated.
- Standing water found in several areas of basement
- Deteriorating insulation on piping from the boiler.

Sub-Basement:

- Miscellaneous flammable and unidentified materials stored improperly and not labeled.
- Oily substance on floor in hallway causing a slip hazard.
- Fire extinguisher inspections are outdated.
- General housekeeping needs to be addressed.

<u>Administrative Areas (Office's, Conference Room, Drill Hall, Men's and Women's Locker Rooms)</u>:

- Posted training documents, warning signs, best work practices, and fire evacuation plans.
- Fire extinguishers present and are current with routine inspections.
- Windows air conditioning units located in several administration offices.
- Generally clean areas.

2.0 INTRODUCTION

2.1 Scope of Work

ECS Carolinas, LLP (ECS) has completed an Industrial Hygiene Survey at the facility located at 93-05 168th Street, Jamaica, New York 11433. The report was prepared in general accordance with the *Statement of Work* provided by the National Guard Bureau Industrial Hygiene Region North. The objective of the survey was to identify and measure the existence and extent of potentially hazardous operations or conditions at the Army National Guard (ARNG) facilities identified in the work order. The surveys were performed to establish a baseline of workplace conditions or to update a previous survey and employee exposure histories.

A total number of sixty employees work at the RC. At the time of the survey, approximately 15 members of the unit were present. Several members of the unit were deployed and the shop was not operating at full capacity. The point of contact for the RC-Jamaica facility was Felix Ramos.

2.2 Facility Information and Description

The survey involved a facility reconnaissance and sampling of RC-Jamaica. Readiness Centers (RC) serve as recruitment facilities, administration offices and some have small garage or mechanics shop to maintain various ARNG vehicles and equipment for the supported units when necessary. RC-Jamaica included a garage, boiler room, locker rooms, kitchen, administrative offices, conference room and a drill hall. At the time of the survey, several members of the unit were deployed, approximately four (4) persons were in the center and the shop was not operating at full capacity.

3.0 CHEMICAL SAMPLING

3.1 <u>Lead Wipes</u>

Wipe samples were collected for lead dust in the administrative areas and mechanics shop of the garage in the facility. Sampling was conducted to determine if cross contamination was occurring in the non-maintenance areas of the facility.

The following results are *below* the NGB Region North IH Office Guidance level of 200 $\mu g/ft^2$:

Table 3.1.1 Lead Wipe Results						
Sample	Sample Location	Results (µg/ft ²)				
Number						
LW-13	Sub-basement counter top Restricted Area-28	110				
LW-33	First Floor Entryway	150				

The Indoor Firing Range (IFR) at this facility has been converted to another use on the site. Lead wipes were collected according to the scope of work for the items still present in the IFR. The following results are *above* the NGB Region North IH Office Guidance level of 200 μ g/ft².

Table 3.1.1 Lead Wipe Results							
Sample	Sample Location	Results (µg/ft ²)					
Number							
LW-1	Left side of Firing Range	2,900					
LW-2	Right Side of Firing Range	7,900					
LW-3	Sub-basement Firing Range	1,500					
LW-4	Pump room near floor drain	15,000					
LW-5	Storage Room-Sub basement	7,900					
LW-6	First Floor Women' Locker Room	2,400					
LW-7	Top of parts bin for bays 1-3	220					
LW-9	Sub-basement – Top of sewage pipe	58,000					
LW-10	Garage-Outside restroom	18,000					
LW-11	Third Floor Room 312	6,600					
LW-12	Vehicle Storage Area	2,900					
LW-14	Sub-basement Counter top Restricted Area-28	1,900					
LW-15	Drill Hall G-427	8,200					
LW-16	Boiler room-on floor by stairs with handrail	3,800					
LW-17	Bay 4 & 5 – Top of parts bin	3,300					
LW-19	Drill Hall-Steps going upstairs	540					
LW-20	First Floor-Room #107	1,100					
LW-21	Sub-basement-Halfway down hall on floor	20,000					
LW-22	Sub-basement-Floor outside restricted door #27	24,000					
LW-23	Basement-Stairs going up to first floor	2,100					

Table 3.1.1 Lead Wipe Results						
Sample	Sample Location	Results (μg/ft ²)				
Number						
LW-24	Boiler Room-table top	2,300				
LW-25	Office 101-Window Sill	31,000				
LW-26	Sub-basement	7,400				
LW-27	Room #216-Top locker	4,000				
LW-28	Second floor-Balcony	7,500				
LW-29	Board Room	3,400				
LW-30	Second floor-floor outside	460				
LW-31	Sub-basement-Concrete block	220,000				
LW-32	Third Floor-Electrical conduit	2,400				
LW-34	Basement-Testing	1,000				
LW-35	Drill Hall-Back third of	1,400				
LW-36	Third Floor-Room #302	3,200				
LW-37	Drill Hall	4,000				

3.2 Additional Sampling Information

Personnel samples measuring airborne lead levels were collected from within the breathing zone of two (2) staff members on site at the RC-Jamaica facility. Each employee was monitored for their full time on-site the day the site visit was conducted, which was approximately four and a half hours. Samples indicated that the results were below the OSHA permissible exposure limit. Results have been listed in the following table:

Table 3.2.2 Personnel Samples-Lead							
Staff Member	Pump	Sample	Total	Concentration	Lab Results Above		
Monitored	ID	Collection	Liters	Ug/m^3	Permissible Exposure		
		Times	(L)		Limit		
		(Hours)	collected				
Non-Responsive	3051	1200-1630	690.7	<4.3 ug/m³	No		
won-responsive							
Non-Responsive	3056	1200-1630	570.8	<5.3 ug/m³	No		

3.3 Additional Sampling Information

Samples were not collected for welding fumes, volatile organic compounds or acid gases during the survey. Welding operations and parts washing are not conducted at this facility.

Indoor air quality measurements including temperature, relative humidity and carbon dioxide were collected in various locations throughout the facility and are presented in the following table:

Table 3.3.1 Indoor Air Quality (IAQ) Meter Measurements						
Location	Temperature	Relative Humidity	Carbon Dioxide			
	(°F)	(%)	(ppm)			
Room #109	77.3	33.6	440			
Room #210	78.0	45.2	812			
Room #310	77.4	38.5	753			
Testing Room	79.5	51.5	387			
Room #5	76.0	46.9	411			

The American Society for Heating, Refrigeration, and Air Conditioning Engineers (ASHRAE) has determined that a carbon dioxide level greater than 1000 ppm indicates that not enough outdoor air is coming into the building to dilute the carbon dioxide level. The carbon dioxide levels measured at the NYC 5th Avenue RC facility are well below those limits, indicating that air is being circulated properly throughout the building.

ASHRAE standards state that systems within the building should establish a relative humidity in occupied space to be 60% or less. The levels measured at the NYC 5th Avenue RC facility indicate that the relative humidity is below the required standard for indoor air quality.

Since outside air readings were not required to be collected, the results were compared to the ASHRAE standards for ventilation of acceptable indoor air quality.

Noise sampling was not conducted during the survey; active vehicle maintenance does not occur regularly on this site.

4.0 VENTILATION ASSESSMENT

4.1 General Ventilation

General building ventilation is provided to the administrative areas of the building through wall uni-vent units. Neither central air nor heat is present at the site. Several of the offices in the administration areas on the first, second and third floor of the building are equipped with window mounted air conditioning units.

In the maintenance areas cooling is provided by the roll-up doors and fans. LEV units are not present. Ventilation measurements were not collected in the battery storage room. Roll-up doors located in the vehicle maintenance area provide fresh air to the room when the door remains open. Direct ventilation is not present.

5.0 LIGHTING EVALUATION

Illumination levels were recorded in each area in closed door conditions and compared to the ANSI minimum lighting requirement (ANSI/IESNA RP-7-01). Recorded illumination measurements are presented in the following table and are presented on the illumination plan in Appendix I.

Table 5.1 Illumination Measurements						
Location	Measured Illumination Level in Foot Candles (FC)	Required Illumination Level	Requirement Met?			
Room #102	22.9	10-50	Yes			
CSM Office	55.7	30-50	Yes			
Bn CDR Room #104	10.7	50	No			
BN XO PSNCO Room #109	66.8	50	Yes			
Room #106	22.0	10-50	Yes			
Board Room #110	22.5	30-50	No			
Female Locker Room #111	22.6	7	Yes			
Female Locker Room #111-Lav.	12.1	5	Yes			
R&R Room #115	55.9	10	Yes			
Superintendent's Office-1 st Fl.	99.1	50	Yes			
Main Entryway	12.1	10	Yes			
Locker Room #216	19.9	7	Yes			
Room #216-A	30.7	10-50	Yes			
Room #202	45.9 & 54.9	10-50	Yes			
Administration Offices	41.0	30-50	Yes			
Locker Room #207	19.0	7	Yes			
Hallway-Room #200	15.3	5	Yes			
Room # 210	41.7	10-50	Yes			

Location	Measured Illumination Level in Foot Candles (FC)	Required Illumination Level	Requirement Met?
Locker Room #211	24	7	Yes
128 th EOC Room #302	52.2	30-50	Yes
Weight Room #307	51.6	30	Yes
HHB Admin. #310	22.7	30-50	No
Locker Room #312	14.1	7	Yes
Locker Lav. & Shower Room #312A	32.5	7	Yes
Room #313	9.2	10-50	No
Supply Room #314	41.0	30	Yes
CDR Room #315	46.0	50	No
Locker Room #316	38.0	7	Yes
Locker Room #316A	12.3	7	Yes
Locker #316B	22.5	7	Yes
Boiler Room	12.1	30	No
Room #5	63.1	10-50	Yes
Testing Room Basement	25.1	30-50	No
Electronic Firing Range (Behind Firing Line)	10.1	50	No
Hall under Drill Bay	3.2	5	No

6.0 REVIEW OF SAFETY PLANS AND POLICIES

6.1 Written Safety Plans

ECS reviewed on-site health and safety plans during our site visit. Below are the listed plans available and the plans recommended for these facilities.

Plans Not Available to ECS:

- Emergency Action/Fire Prevention
- Hearing Conservation

• Hazard Communication

6.2 Personal Protective Equipment (PPE)

Written information could not be made available when requested for review by ECS during the site visit. PPE is not a requirement at the site. Hearing protection: ear plugs, have been provided to staff and may be used at their own discretion. No additional information was available for review.

7.0 PHYSICAL CONDITIONS & EMPLOYEE INTERVIEWS

ECS observed damaged green peeling paint in the Pump Room, white peeling paint in the stairwell leading down to the boiler, and peeling paint in the sub-basement Pump Room. Three paint chip bulk samples were taken and sent for analysis to AMA Analytical Services, Inc. to determine the presence of lead-based paint in those areas.

Wipe samples were collected for lead dust throughout the administrative areas, basement, boiler room and drill hall in the facility. Lab results indicated that lead was detected on several of the wipe samples collected. Sampling was conducted to determine if cross contamination was occurring in the non-maintenance areas of the facility.

ECS observed materials in the Jamaica RC facilities that have the potential to be asbestos containing material (ACM). Samples of the pipe insulation in the boiler room and sub-basement of the boiler room were collected for analysis. Results are presented in the following table:

Table 7.1 Asbestos Summary Table			
Sample Number	Description of Material	Location	Results
7A	TSI Pipe Insulation	Boiler Room	No asbestos detected
7B	TSI Pipe Insulation	Boiler Room	No asbestos detected
8A	TSI Pipe Insulation	Sub-Basement Old Boiler	40 % Chrysotile
8B	TSI Pipe Insulation	Sub-Basement Old Boiler	30 % Chrysotile

8.0 FINDINGS AND CONCLUSIONS

Following are the findings of this Industrial Hygiene Survey:

- Wipe samples were collected for lead dust throughout the administrative areas, basement, boiler room and drill hall in the facility. Lab results indicated that lead was detected on several of the wipe samples collected. Sampling was conducted to determine if cross contamination was occurring in the non-maintenance areas of the facility. Based on the analytical results, lead dust appears to be present in a majority of the building. Levels above the NGB Guidance levels were detected on 35 of the 37 samples collected within the building.
- Lighting measurements conducted during the survey indicated the illumination levels in the office areas and the sub-basement walk ways are below the required levels.
- Insulation on piping associated with the Boiler in the Sub-basement was noted to be deteriorating and was classified as "Significantly Damaged". Lab results indicate that this material contains asbestos.
- Standing water was found in the Boiler House Basement. Drains may have been clogged or sump pumps might not have been in operation.
- Fire-extinguishers (FE) in the facility need to be up to date with safety inspections.
 - o FE in Board Room is missing a tag.
 - o FE in All outside Break Room-Last inspection was in 2007.
 - o FE in basement-Last inspection was in May 2008.
 - o A total of three (3) FEs in the sub-basement were inspected in 2004.
- Oil is collecting on floor and creating a slip-hazard half way down the hallway in subbasement under the Drill Hall.
- Some written safety programs were missing or not provided to ECS. This missing
 information should be prepared for the facility and provided during the next facility
 survey.
 - o Emergency Action/Fire Prevention
 - o Hearing Conservation
- Flammable materials need to be labeled and placed in proper storage containers. Fireretardant cabinets should be made available and placed in clearly marked areas. Placards should be placed on the cabinets and materials should have MSDS sheets onsite.
 - o Room 107-A case of "Handy-Fuel" in an office, which was unlocked. This material is extremely flammable.

Industrial Hygiene Survey Readiness Center Jamaica, New York 11433 ECS Project No. 14-4786

o Five-gallon pail of Kerosene clearly marked as being a flammable material. The material was sitting on floor in the boiler room and was not in a locked cabinet.

9.0 REFERENCES

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

Lead - (29 CFR 1910.1025(h))

American Conference of Governmental Industrial Hygienists (ACGIH) – Threshold Limit Values and Biological Exposure Indices, 2008 Edition

Industrial Ventilation: A Manual of Recommended Practice for Design, 25th Edition

Georgia Army National Guard: Standard Army Safety and Occupational Health Inspection Checklist; 1 October 1999 Edition

American Society of Heating, Refrigerating and Air-Conditioning Engineers, Ventilation for Acceptable Indoor Air Quality, 62-1-2007.

National Emission Standard Hazardous Air Pollutants (NESHAP) - The standards for asbestos are contained in 40 CFR 61.140 through 61.157.

Environmental Protection Agency (EPA) standards (40 Code of Federal Regulations (CFR) 745.227(h)(3))

Derivation of Wipe Surface Screening Levels for Environmental Chemicals, the US Army Center for Health Promotion and Preventive Medicine (USACHPPM)

The US Army Technical Guide 277 Army Facilities Management Information Document on Mold Remediation

29 CFR 1910.1000 <u>Air Contaminants</u>, Table Z-1, Occupational Safety and Health Administration, US DOL, Washington, DC

ANSI RP-1-04, American National Standard Practice for Office Lighting, 2004

ANSI RP-7-01, Lighting Industrial Facilities, 2001

Industrial Ventilation, A Manual of Recommended Practice, 25th Edition, ACGIH, 2004

2008 TLVs and BEIs, ACGIH, 2008

DA PAM 40-501, Hearing Conservation Program, Department of the Army, 1998

ANSI/ASHRAE 55-204

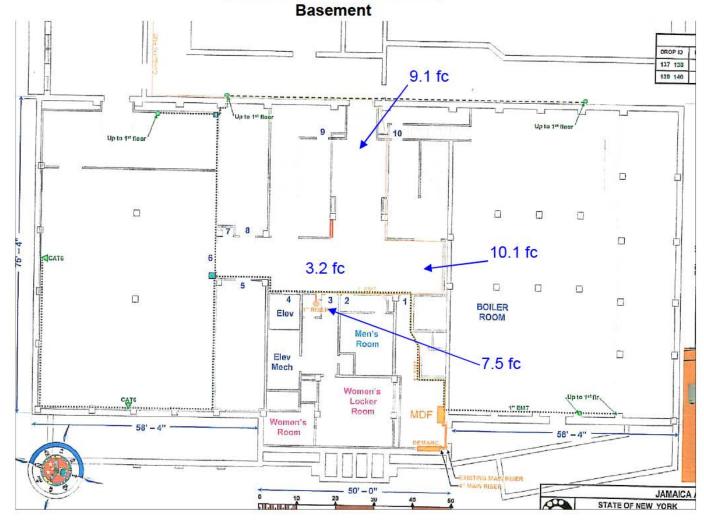
ANSI/ASHRAE 62.1-2007

Industrial Hygiene Survey Readiness Center Jamaica, New York 11433 ECS Project No. 14-4786

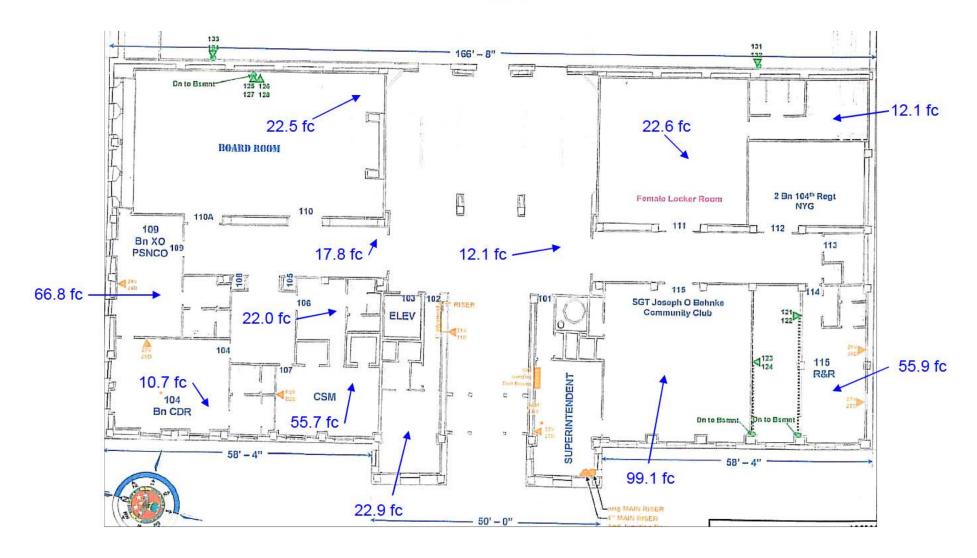
APPENDIX I

FIGURES

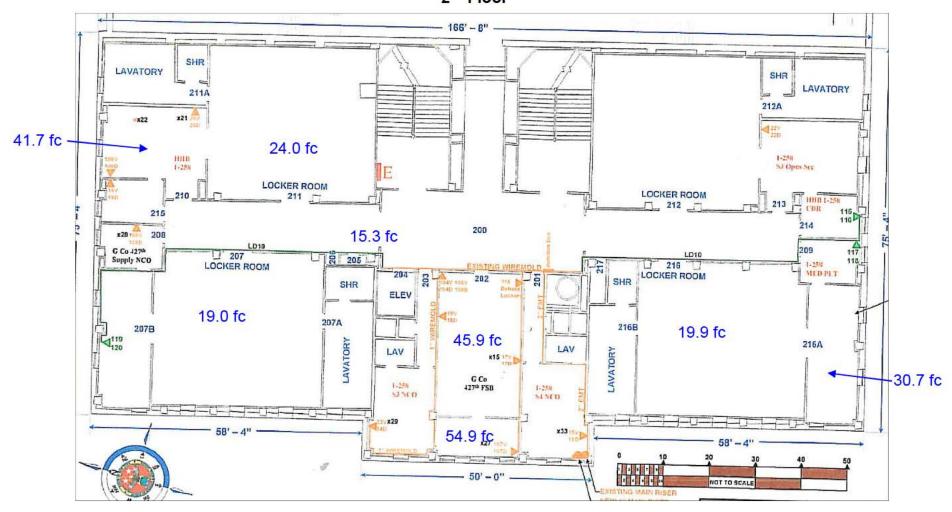
READINESS CENTER 93-05 168TH STREET JAMAICA, NEW YORK 11433



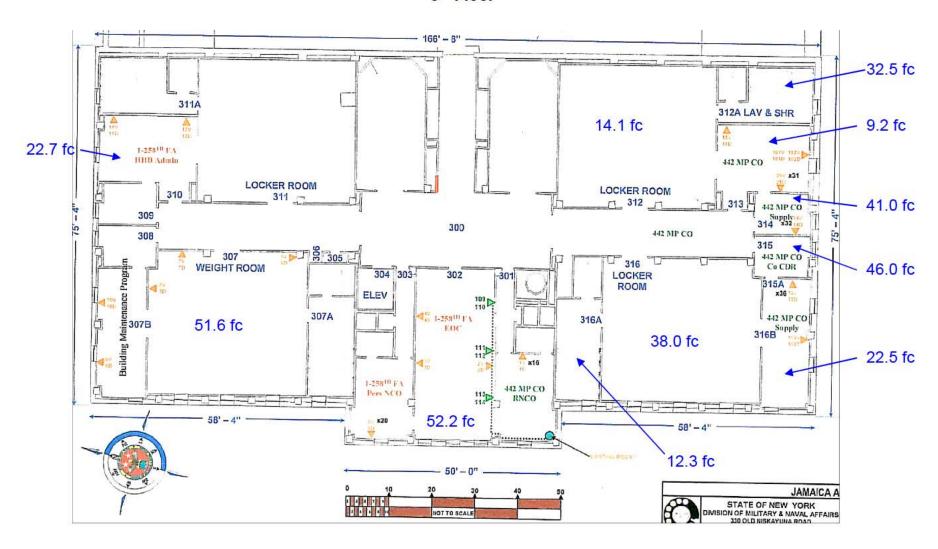
READINESS CENTER 93-05 168TH STREET JAMAICA, NEW YORK 11433 1st Floor



READINESS CENTER 93-05 168TH STREET JAMAICA, NEW YORK 11433 2nd Floor



READINESS CENTER 93-05 168TH STREET JAMAICA, NEW YORK 11433 3rd Floor



APPENDIX II PHOTOGRAPHS

Industrial Hygiene Survey Readiness Center Jamaica, New York ECS Project No. 14-4876



Photo 1: Out of date fire extinguisher inspection record.



Photo 2: Standing water in basement.

APPENDIX III

ASBESTOS BULK SAMPLE RESULTS



A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS



Page I of I

Client:

National Guard Bureau

Job Name:

National Guard Armory

Chain Of Custody:

159403

Address:

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

Job Location:

Jamaica, NY

Date Analyzed:

8/1/2008

.....

State Military Reservation

Havre de Grace, Maryland 21078

Job Number:

P.O. Number:

14-4876

Person Submitting:

Non-Responsive

Attention:



Not Provided

Summary of Polarized Light Microscopy

AMA Sample Number	Client Sample #	Total Asbestos	•	Amosite Percent		Other Asbestos Percent	Wool	Percent		Synthetic Percent		Sample Color	Homogeneity	Analyst ID	Соттепт
0873430	7A	NAD						<u></u>	80		 20	Brown	Homogeneous	LBP	
0873431	7B	NAD							80		 20	Brown	Homogeneous	LBP	
0873432	8A	40	40		-				20		 40	Off-White	Homogeneous	LBP	
0873433	8B	31	30	TR					20		 50	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

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, nuless collected by personnel of these Laboratories, we expressly discassim 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.

Posted to NGB FOIA Reading Room May, 2018



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CHAIN OF CUSTODY

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APPENDIX IV LEAD WIPE RESULTS

A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS

ACCAROLLED LA



Address: Client: 301-IH Old Bay Lane, Attn: NGB-AVNSI, State Military Reservation National Guard Bureau Job Number: Job Location: Job Name:

Attention: Havre de Grace, Maryland 21078

> Jamanca, NY National Guard Armory

Not Provided 14-4876

P.O. Number:

Chain Of Custody:

Date Analyzed: Person Submitting

Date Submitted:

8/1/2008 7/28/2008

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Report Date:

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Released by National Guard Bureau Page 583 of 1350

Summary of Atomic Absorption Analysis for Lead

AMA Sample

Client Sample Number:

Analysis Type

Sample Type

Air Volume

Area Wiped ₹

Reporting

Final Result

Comments

Number

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

A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS

ACCAROTTED LA

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100470 ▥ 10920

Client: Address: State Military Reservation 301-JH Old Bay Lane, Attn: NGB-AVNSI, National Guard Bureau

Havre de Grace, Maryland 21078

P.O. Number:

Not Provided

Job Location: Job Name: Jamaica, NY

Job Number: 14-4876

National Guard Armory

Date Submitted: Chain Of Custody:

Person Submitting:

7/28/2008

159403

8/1/2008

Report Date:

Date Analyzed:

8/1/2008

FOIA Requested Record #5-0085 (NY)
Released by National Guard Bureau
Page 584 of 1350

Page 2 of 3

Summary of Atomic Absorption Analysis for Lead

0873412	0873411	0873410	0873409	0873408	0873407	0873406	AMA Sample Number
20	19	18	17	16	15	14	Client Sample Number
Flame	Flame	Flame	Flame	Flame	Flame	Flame	Analysis Type
Wipe	Wipe	Wipe	Wipe	Wipe	Wipe	Wipe	Sample Type
***	****	* * *	***	***	* *	***	Air Volume (L)
0.108	0.108	0.108	0.108	0.108	0.108	0.108	Area Wiped (ft²)
		111.52 ug/ft ²					Reporting Limit
		3200 ug/ft²					Final Result
							Comments
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0873416 0873415 0873414 0873413

Flame Flame Flame Flame

Wipe Wipe Wipe

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ug/ft² ug/ft²

0.108

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24000 2100

> ug/ft² ng/ft²

20000

Attention:

873418 26 Flame Wipe **** 0.108 111.52 ug/ft² 0.008 ug/ft 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 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 completends 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



A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS

ACCREDITED AMOUNDO

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

P.O. Number: Job Number:

Not Provided 14-4876 Job Location: Job Name: National Guard Armory

Jamaica, NY

Date Submitted: Chain Of Custody:

7/28/2008 159403

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Page 585 of

10920

Date Analyzed:

Person Submitting:

8/1/2008

Report Date:

8/1/2008

Page 3 of 3

FOIA Requested Record #55-0085 (NY)
Released by National Guard Bureau

Summary of Atomic Absorption Analysis for Lead

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 mg/Kg = parts per million (ppm) by weight mg/L = parts per million (ppm) *** *** *** *** *** 0.108 0.1080.108 0.108 See QC Summary for analytical results of quality control samples NY ELAP accrediation applies only to paint chip, wipe, and water associated with these sampes 111.52 111.52 111.52 111.52 111.52 ug/ft³ ug/ft^2 ug/ft² սց/Ու 900 7200 400 9 150 ug/fi² ug/fi² ղջ/**ք**եշ ug/ft²

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Flame Flame

Flame Flame

Flame

Wipe

Wipe Wipe Wipe AMA Sample

Client Sample Number

Analysis Type

Sample Type

Air Volume

Area Wiped

Reporting

Final Result

Comments

Attention:

Number

samples.

Note: All samples were received in good condition unless otherwise noted %Pb = percent lead by weight ug = micrograms ug/L = parts per billion (ppb)

N/A = Not Applicable

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

Air and Wipe results are not corrected for any blank results

Analyst:

Analyst:

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Analyst:

Comparison of the sample, or samples, investigated and is not necessarily indicative of the quality or condition that it is not to be used, in whole or in part, in any alvertising or publicity matter without prior written authorization from us. Sample types, it is information. Residual sample material will be discarded in accordance with the appropriate regulatory guidelines, unless otherwise requested by the citer. Not applies only to polarized light microscopy of bulks unless otherwise requested by the citer. Not applies only to polarized light microscopy of bulks unless otherwise requested by the citer. Not applies only to polarized light microscopy of bulks unless otherwise requested by the citer. Not applies only to polarized light microscopy of bulks unless otherwise requested by the citer. Not applies only to polarized light microscopy of bulks unless otherwise requested by the citer. Not applies only to polarized light microscopy of applies and the calculate Comparison. 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

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National Guard Region North

National Guard Readiness Center Industrial Hygiene Evaluation Jamaica Readiness Center Jamaica, NY 11433-1234

Prepared for:

National Guard Region North Industrial Hygiene Office 301 Old Bay Lane Havre De Grace, MD 21078

Attn:

Non-Responsive

Prepared by:

Bonus Environmental, LLC P.O. Box 121 Mt. Pleasant, Michigan 48804

> Project No. 1061-15 January 8, 2013

Bonus Environmental, LLC

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APPENDICES

Appendix A Shop Diagram and Air Flow Patterns

Appendix B Lead Sample Results

Appendix C Asbestos Bulk Sample Results

Appendix D Photographs

Appendix E References

May, 2018

January 8, 2013 Project No. 1061-15

National Guard Region North Industrial Hygiene Office 301 Old Bay Lane Havre De Grace, MD 21078-4003

Attn: Non-Responsive

Project: Industrial Hygiene Evaluation

Jamaica Readiness Center, Jamaica NY 11433-1234

1.0 - EXECUTIVE SUMMARY

Bonus Environmental, LLC was contracted by the National Guard Bureau Region North Industrial Hygiene office to identify and measure the existence and extent of potentially hazardous operations or conditions at the Jamaica Readiness Center located at 93-05 168th Street in Jamaica, New York. The purpose of this evaluation was to generate or to update a previous baseline evaluation so that employee exposure history can be provided to each civilian and military employee. The following industrial hygiene conditions were evaluated during this industrial hygiene evaluation performed by Bonus Environmental, LLC representative Non-Responsive on October 23, 2012:

- Indoor Air Quality
- Lead Wipe & Bulk Sampling
- Illumination
- Ergonomics

 Evaluation of the physical condition of the facility in regards to peeling paint, asbestos containing materials, water damage or mold problems, and housekeeping practices. The Jamaica Readiness Center is an Army National Guard armory comprised of offices, classrooms, locker rooms, storage rooms, a break room, a boiler room, a fitness room, a former indoor firing range, and a drill hall. The point of contact for the approximately 94,095 ft² Jamaica Readiness Center is Mr. Dennis McGlynn. Four hundred forty seven (447) full-time administrative personnel and three (3) maintenance personnel are employed at the Jamaica Readiness Center. A shop diagram depicting the locations of the operations and air flow patterns identified during this industrial hygiene evaluation is attached to this report as Appendix A.

The National Guard Bureau Region North Industrial Hygiene Office provided governmental furnished equipment and sampling media required to perform the industrial hygiene evaluation. Chain of custody forms for laboratories approved by the National Guard Bureau Region North Industrial Hygiene Office were provided with the sampling media. All samples collected during this industrial hygiene evaluation were sent to the National Guard Bureau Region North Industrial Hygiene Office approved laboratories for analysis.

2.0 – LEAD SAMPLING

2.1 – Lead Wipe Sampling

Lead wipe sampling was performed according to the Environmental Protection Agency (EPA) method 600/R-93/200(M)-7420 (Atomic Absorption - Flame). Twenty two (22) wipe samples and one (1) field blank were sent under chain-of-custody procedures to AMA Analytical Services, Inc., an American Industrial Hygiene Association (AIHA) accredited laboratory located in Lanham, Maryland. The U.S. Department of Labor (USDOL) and the Occupational Safety and Health Administration (OSHA) do not have a promulgated standard for lead surface contamination; however OSHA has provided an interpretive level of 200 micrograms per square foot (μg/ft²) to assess the housekeeping requirements of "as free as reasonably practicable". This interpretation is presented in OSHA Industrial Hygiene Technical Manual (TED 01-00-015; 1/20/1999), and in a letter of interpretations dated 1/13/2003, and subsequently issued to public domain. NG Pam 420-15 addresses the conversion and remediation of former indoor firing ranges. The following table outlines the locations and analytical results for the lead wipe samples collected during this project.

		Army National Guard – Jamaica Readiness Center Lead Wipe Sample Results		
Sample #	Sample Date	Sample Location	Sample Area (ft²)	Sample Result (µg/ft²)
Jamaica RC- LW-1	10-23-12	Field Blank		25 μg
Jamaica RC- LW-2	10-23-12	Drill Hall, on center of drill floor	0.111	380
Jamaica RC- LW-3	10-23-12	Drill Hall, on payphone	0.111	4,700
Jamaica RC- LW-4	10-23-12	Drill Hall, on filing cabinet	0.111	710

		Army National Guard – Jamaica Readiness Center Lead Wipe Sample Results		
Sample #	Sample Date	Sample Location	Sample Area (ft²)	Sample Result (µg/ft²)
Jamaica RC- LW-5	10-23-12	Drill Hall, on electrical panel box	0.111	8,200
Jamaica RC- LW-6	10-23-12	Drill Hall, on chair in Southeast corner	0.111	1,100
Jamaica RC- LW-7	10-23-12	Community Center (Break Room), on top of refrigerator	0.111	920
Jamaica RC- LW-8	10-23-12	Supervisor's Office (101), on toaster oven	0.111	960
Jamaica RC- LW-9	10-23-12	Board Room (110), on bookshelf	0.111	710
Jamaica RC- LW-10	10-23-12	Female Locker Room, on locker #4	0.111	7,900
Jamaica RC- LW-11	10-23-12	Men's Locker Room (211), on locker #70	0.111	930
Jamaica RC- LW-12	10-23-12	Office (201), on top of TV	0.111	630
Jamaica RC- LW-13	10-23-12	Office (213), on filing cabinet	0.111	460
Jamaica RC- LW-14	10-23-12	Men's Locker Room (207), on top of filing cabinet	0.111	4,700
Jamaica RC- LW-15	10-23-12	Office (313), on window sill	0.111	1,800
Jamaica RC- LW-16	10-23-12	Men's Restroom (312A), on paper towel dispenser	0.111	5,500
Jamaica RC- LW-17	10-23-12	Computer Room (316E), on top of paper shredder	0.111	300
Jamaica RC- LW-18	10-23-12	Weight Room (307), on top of TV shelf	0.111	310
Jamaica RC- LW-19	10-23-12	Mechanical Room (5), on corner of work table	0.111	1,600
Jamaica RC- LW-20	10-23-12	Women's Restroom, on top of paper towel dispenser	0.111	8,000
Jamaica RC- LW-21	10-23-12	Former Indoor Firing Range, at bullet trap area #1 (left side)	0.111	3,200
Jamaica RC- LW-22	10-23-12	Former Indoor Firing Range, at bullet trap area #2 (right side)	0.111	3,800
Jamaica RC-	10-23-12	Former Indoor Firing Range, on electrical box	0.111	67,000

		Army National Guard – Jamaica Readiness Center Lead Wipe Sample Results		
Sample #	Sample Date	Sample Location	Sample Area (ft²)	Sample Result (µg/ft²)
LW-23				

Surface cleanliness threshold = < 200 micrograms per square foot ($\mu g/ft^2$)

The former indoor firing range is currently used for storage. It is uncertain whether it was remediated to the protocols specified in NG Pam 420-15. Remediation wipe sample results were not posted, nor were any signs posted restricting access to the area. The bullet trap had been removed from the "bullet trap area".

3.0 - PHYSICAL CONDITION OF FACILITY / PERSONNEL CONCERNS

3.1 - Lead Based Paint

During the industrial hygiene evaluation of the Jamaica Readiness Center, Bonus Environmental, LLC performed a visual inspection of the facility in regards to lead based paint. Bonus Environmental, LLC identified several areas of peeling paint which could potentially pose a lead exposure hazard.

- Approximately 3 ft² of peeling blue paint located within the Storage Room (301)
- Approximately 5 ft² of peeling white paint located within the Copy Room (209)
- Approximately 100 ft² of peeling white paint located within the Men's Locker Room (216)
- Approximately 10 ft² of peeling white paint located within the Former Indoor Firing Range
- Approximately 10 ft² of peeling white paint located within the Fire Pump Room
- Approximately 6 ft² of peeling beige paint located within the Men's Restroom (216B)
- Approximately 30 ft² of peeling beige paint located within the Weight Room (307)
- Approximately 2 ft² of peeling beige paint located within the Men's Restroom (307A)
- Approximately 3 ft² of peeling brown paint located within the Office (214)
- Approximately 3 ft² of peeling grey paint located within the Women's Restroom
- Approximately 25 ft² of peeling grey paint located within the Boiler Room

Five (5) paint chip samples (white, brown, blue, gray, and beige) were collected and sent under chain-of-custody procedures to AMA Analytical Services, Inc., an AIHA accredited laboratory located in Lanham, MD. Analysis indicated that each of the peeling paints collected contained detectable levels of lead. The paints are therefore considered to be lead-based paint. The OSHA Lead in Construction Standard, 29 CFR 1926.62 does not assign a numerical value of which must be present within the paint to be considered lead based paint. Paints which contain any detectable level of lead shall be treated and handled as lead based paint. Housing and Urban Development (HUD) defines lead based paint as having greater than 0.5% lead by weight. Paint chip sample results are attached to this report as Appendix B.

3.2 – Presumed Asbestos Containing Materials

During the industrial hygiene evaluation of the Jamaica Readiness Center, Bonus Environmental, LLC performed a visual inspection to identify presumed asbestos containing materials (PACM) and, if

found, to note their condition. Bonus Environmental, LLC identified approximately 8 ft² of damaged 9"x9" dark brown floor tile located in the Storage Room (301). Bonus Environmental, LLC identified approximately 36 ft² of damaged plaster walls and ceilings within the men's restroom, office (213), cleaning supply area and the former indoor firing range. Bulk samples were collected of these materials and sent under chain-of-custody procedures to AMA Analytical Services, Inc., an AIHA accredited laboratory located in Lanham, MD. Analytical results determined that the 9"x9" dark brown floor contains 3% Chrysotile asbestos and the plaster sample had no asbestos detected. Analytical results of the asbestos bulk samples are attached to this report as Appendix C.

3.3 - Water Damage/Mold Growth

During the industrial hygiene evaluation of the Jamaica Readiness Center, Bonus Environmental, LLC performed a visual inspection to report the location and perform an evaluation of any water damaged building materials or visible mold problems. Bonus Environmental, LLC identified the following areas of water-damaged building materials:

- Approximately 12 ft² water-damaged plaster, 2nd floor men's restroom;
- Approximately 10 ft² water-damaged plaster, office 213;
- Approximately 8 ft² water-damaged plaster, 3rd floor cleaning supply area;
- Approximately 6 ft² water-damaged plaster, former indoor firing range.

3.4 - Housekeeping

During the industrial hygiene evaluation of the Jamaica Readiness Center, Bonus Environmental, LLC performed an evaluation of the housekeeping practices. Bonus Environmental, LLC found the housekeeping practices within Jamaica Readiness Center facility in good order.

3.5 – Employee Interviews

During the industrial hygiene evaluation of the Jamaica Readiness Center, Bonus Environmental, LLC performed interviews and made observations to determine if the work activities being performed possessed any ergonomic concerns. Following the interviews and observations, no ergonomic and or indoor air quality concerns were identified.

3.6 – Indoor Air Quality

During the industrial hygiene evaluation of the Jamaica Readiness Center, Bonus Environmental, LLC measured temperature, relative humidity, carbon monoxide (CO), and carbon dioxide (CO₂) throughout the facility. A calibrated TSI Q-Trak Plus Model 7575 Indoor Air Quality Monitor equipped with a Q-Trak Probe 982 was utilized to record indoor air quality measurements.

Carbon dioxide is a natural component of air and the amount of CO₂ in a given air sample is commonly expressed as parts per million (ppm). The outdoor air in most locations contains about 380 ppm carbon dioxide. Higher outdoor CO₂ concentrations can be found near vehicle traffic areas, industry and sources of combustion. The concentrations of CO₂ found in most offices are well below the OSHA Permissible Exposure Limit (PEL) of 5,000 ppm when averaged over an 8-hour time period for an industrial workplace. While levels below 5,000 ppm are considered to pose no serious health threat, studies have indicated that individuals in offices with elevated CO₂ concentrations tend to report drowsiness, lethargy and a general sense that the air is stale. Ventilation rates for office spaces are defined by various codes and standards. The most widely accepted standard is the American Society

of Heating, Refrigerating, and Air Conditioning Engineers (ASHRAE) Standard 62. According to ASHRAE Standard 62.1-2010, CO₂ concentrations below 700 ppm above the outdoor level are considered to indicate adequate ventilation and provide human comfort. The CO₂ measurements collected during this industrial hygiene evaluation ranged from 494 ppm to 659 ppm and indicate adequate ventilation within the facility.

Carbon monoxide is a colorless, odorless, poisonous gas that results from the incomplete burning of common fuels such as natural or liquefied petroleum gas, oil, wood or coal. When carbon monoxide is inhaled, it enters the blood stream and reduces the ability of the blood to carry oxygen to vital organs, such as the heart and brain. Because it is impossible to see, taste or smell the toxic fumes, CO can harm you before you are aware it is in your work area. At lower levels of exposure, CO causes mild effects that are often mistaken for the flu. These symptoms include headaches, dizziness, disorientation, nausea and fatigue. The effects of CO exposure can vary greatly from person to person depending on age, overall health and the concentration and length of exposure. The OSHA has established a permissible exposure limit (PEL) of 50 parts per million (ppm). OSHA standards prohibit worker exposure to more than 50 parts of the gas per million parts of air averaged during an 8-hour time period. The peak CO level for employees is 200 ppm. The CO measurements collected during this industrial hygiene evaluation ranged from 5.1 ppm to 5.9 ppm. CO levels were well below the OSHA PEL during this industrial hygiene evaluation.

During the industrial hygiene evaluation of the Jamaica Readiness Center, Bonus Environmental, LLC collected temperature measurements. Temperature measurements throughout the common areas of the facility routinely occupied by employees ranged from 69.0°F to 72.4°F and are considered to be within an acceptable range outlined within ASHRAE Standard 55-2010.

During the industrial hygiene evaluation of the Jamaica Readiness Center, Bonus Environmental, LLC collected relative humidity measurements. Relative humidity measurements throughout common areas of the facility routinely occupied by employees ranged from 42.1% to 45.7%. Indoor air quality measurements recorded during this industrial hygiene evaluation are summarized in the table below.

Army National C Indoor A	Guard – Jamaico Air Quality Mea		enter	
Location	CO ₂	СО	Relative	Temperature
_,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	(ppm)	(ppm)	Humidity (%)	(°F)
Outdoors, North side of Building; (overcast)	516	5.9	43.6	70.1
Supervisor's Office (101); 3 people in room	631	5.8	45.3	71.1
Board Room (110)	494	5.5	43.7	69.0
Men's Locker Room (207)	659	5.5	42.7	71.2
Men's Restroom (216B)	547	5.4	42.1	71.8
Office (215)	628	5.5	43.6	71.7
Men's Locker Room (312)	566	5.4	44.5	71.5
Weight Room (307)	579	5.5	43.4	71.4
Office (315)	599	5.1	42.2	72.4
Mechanical Room (5)	573	5.5	43.4	71.7
Women's Restroom	630	5.6	45.7	71.8

Required/Recommended Values

 $\overline{CO_2}$ - OSHA PEL = 5,000 parts per million (ppm) and ASHRAE Standard 62.1-2010 = no greater than 700 ppm above outdoor

CO - OSHA PEL = 50 ppm and OSHA Ceiling Limit = 200 ppm

Temperature - ASHRAE Standard 55-2010 = between approximately 67 and 82 °F.

RH - ASHRAE Standard 62.1-2010 = limited to < 65%

4.0 - LIGHTING

Utilizing a properly calibrated Cooke Corporation cal-Light 400 light meter, Bonus Environmental, LLC collected illumination readings throughout the Jamaica Readiness Center. Illumination measurements recorded during this industrial hygiene evaluation are summarized in the table below.

•	Guard – Jamaica Readi ighting Measurements	ness Center	
Location	Measurement in Foot Candles	Requirement in Foot Candles	Requirement Met?
Female Locker Room	50.6	7	Yes
Female Restroom	26.7	5	Yes
Family Readiness Center (112)	39.3	50	No
Recruiting Office	90.1	50	Yes
Office	44.7	50	No
Restroom (115A)	69.8	5	Yes
Community Center (Break Room)	16.6	10	Yes
Board Room (110)	3.9	50	No
Office (109)		Inaccessible	
Office (104)	11.9	50	No
Office (107)		Inaccessible	
Office (106)		Inaccessible	
Supervisor's Office (101)	83.0	50	Yes
Office (210)	38.7	50	No
Copy Room (209)	34.5	10	Yes
Men's Locker Room (207)	14.3	7	Yes
Men's Restroom	26.2	5	Yes
(208)		Inaccessible	·

•	Guard – Jamaica Readi ighting Measurements	ness Center	
Location	Measurement in Foot Candles	Requirement in Foot Candles	Requirement Met?
Men's Locker Room (211)	15.1	7	Yes
Men's Restroom	33.1	5	Yes
(205)		Inaccessible	
(206)		Inaccessible	
Office (203)		Inaccessible	
Office (202)	74.6	50	Yes
Office (201)	76.6	50	Yes
Restroom	47.5	5	Yes
Men's Locker Room (216)	15.8	7	Yes
Men's Restroom (216B)	12.3	5	Yes
Office (213)	34.4	50	No
Office (214)	45.1	50	No
Office (215)	58.4	50	Yes
Men's Locker Room (212)		Inaccessible	
Men's Locker Room (312)	16.2	7	Yes
Office (313)	20.1	50	No
Office (314)		Inaccessible	
Men's Restroom (312A)	42.9	5	Yes
Locker Room (316)	34.3	7	Yes
Computer Room (316E)	54.0	30	Yes
Office (315)	78.3	50	Yes
Storage (301)	83.9	30	Yes
Restroom (301A)	27.6	5	Yes
(302)		Inaccessible	
(303)		Inaccessible	
Weight Room (307)	35.0	30	Yes
Men's Restroom (307A)	25.2	5	Yes
Office (310)		Inaccessible	
(309)		Inaccessible	
(308)		Inaccessible	
(9)		Inaccessible	
Mechanical Room (5)	70.2	30	Yes
Women's Restroom	45.1	5	Yes
Cleaning Supply Area	41.6	30	Yes
Men's Restroom	29.1	5	Yes
Boiler Room	4.3	30	No
Aptitude Testing Room (6)	12.7	30	No
Former Indoor Firing Range (storage)	4.6	30	No
Fire Pump Room	11.5	30	No
Paint Room Storage	6.4	30	No
Storage	13.6	30	No
Drill Hall	27.3	30	No
Lobby	26.8	10	Yes
Office (102)	81.7	50	Yes

Lighting levels were compared to the levels outlined within the American National Standards Institute/Illuminating Engineering Society of North America (ANSI/IESNA) RP-1-04 Office Lighting Handbook, and the ANSI/IESNA RP-7-01 Lighting Industrial Facilities Handbook. Areas within the facility which did not meet the foot candle requirements are identified with a "NO" within the "Requirement Met?" column. It is recommended that illumination be improved in all the areas that did not meet the requirements. Improving illumination can be achieved by replacing burned-out lamps/bulbs, cleaning fixtures, relocating detailed work activities to more illuminated areas, and using supplemental task lighting.

5.0 - CONCLUSION & LIMITATIONS

Bonus Environmental, LLC was contracted by the National Guard Bureau Region North Industrial Hygiene office to identify and measure the existence and extent of potentially hazardous operations or conditions at the Jamaica Readiness Center located at 93-05 168th Street in Jamaica, New York. The purpose of this evaluation was to generate or to update a previous baseline evaluation so that employee exposure history can be provided to each civilian and military employee. Industrial hygiene conditions were evaluated during this industrial hygiene evaluation performed by Bonus Environmental, LLC representative Erica Funnell on October 23, 2012.

The results/findings of this industrial hygiene evaluation are summarized below.

- 1. Lead wipe sample results collected within the Jamaica Readiness Center were above the OSHA interpretive level of 200 μg/ft², as well as the 200 μg/ft² threshold established in NG Pam 420-15.
- 2. Bonus Environmental, LLC identified several areas of peeling paint which contained detectable levels of lead, potentially posing a lead exposure hazard.
- 3. Bonus Environmental, LLC identified approximately 8 ft² damaged asbestos 9"x9" dark brown floor tile.
- 4. Bonus Environmental, LLC identified approximately 36 ft² of water-damaged plaster walls and ceiling in the men's restroom, the office (213), cleaning supply area and in the former indoor firing range.
- 5. Bonus Environmental, LLC found the housekeeping practices within Jamaica Readiness Center in good order.
- 6. Following the interviews and observations, no ergonomic and or indoor air quality concerns were identified.
- 7. Bonus Environmental, LLC measured temperature, relative humidity, CO, and CO₂ throughout the Jamaica Readiness Center. All were found to be below or within their acceptable ranges/limits.
- 8. Areas within the Jamaica Readiness Center facility were identified as improperly illuminated.

- No Health and Safety policies existed for Bonus Environmental, LLC to review at the Jamaica Readiness Center.
- 10. No hazardous materials inventory lists available at the Jamaica Readiness Center.

Bonus Environmental, LLC has 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 Region North - Industrial Hygiene Office. 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 Bonus Environmental, LLC's inspection of the site.

It has been a pleasure to be of assistance to you. Please contact us if you have any questions concerning this report or if we can be of any further assistance in any other environmental or occupational health matter.

Sincerely,

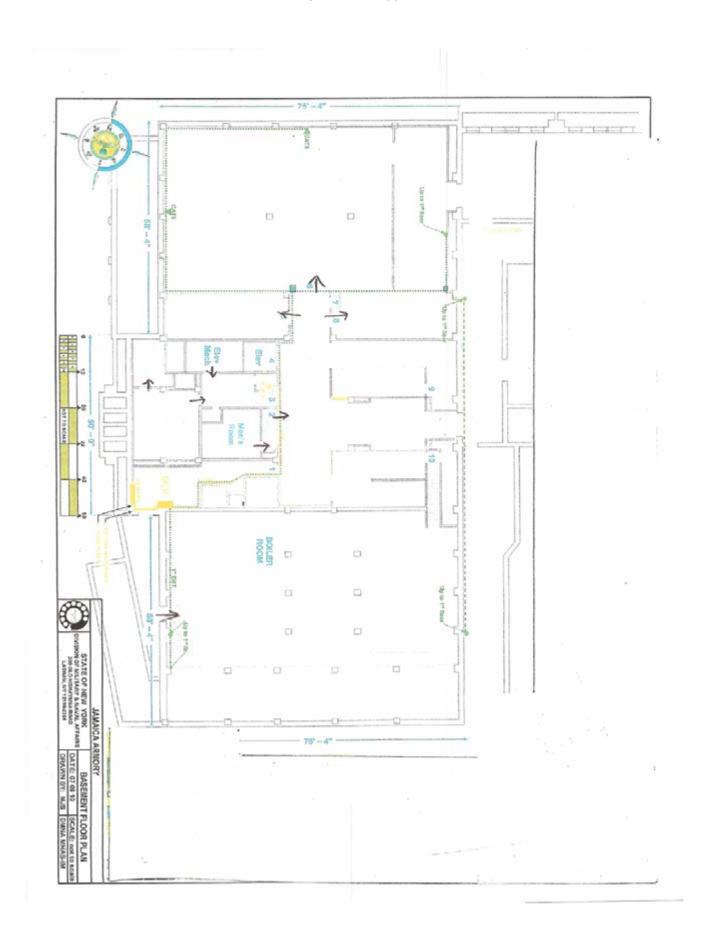
Non-Responsive

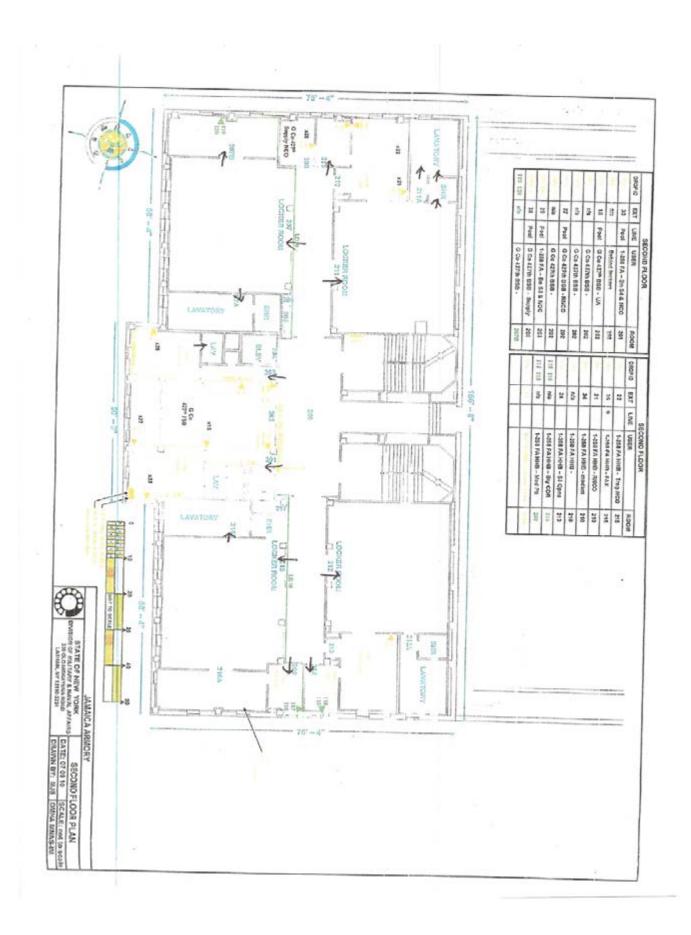
Principal

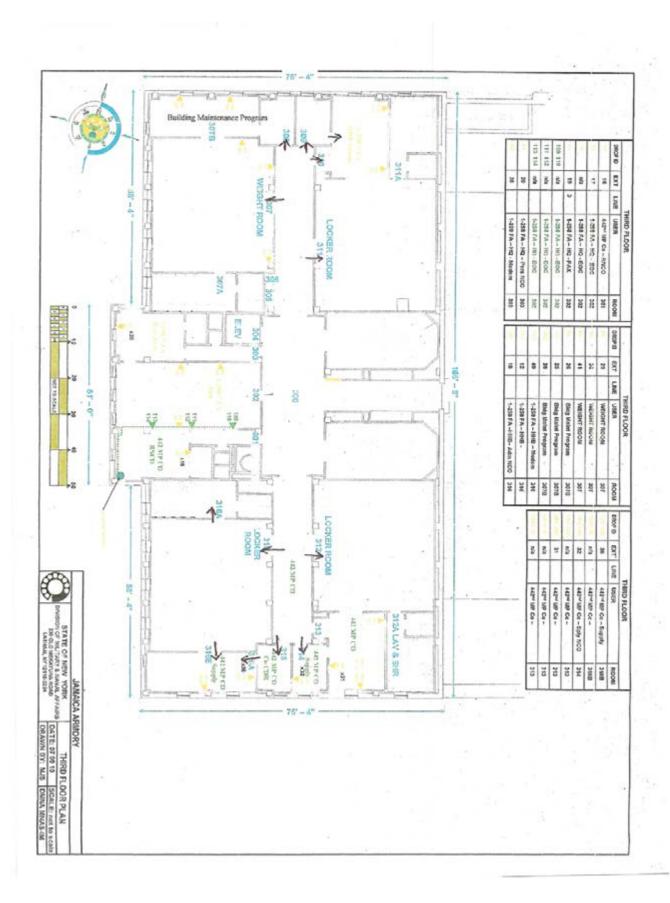
Principal Bonus Environmental, LLC

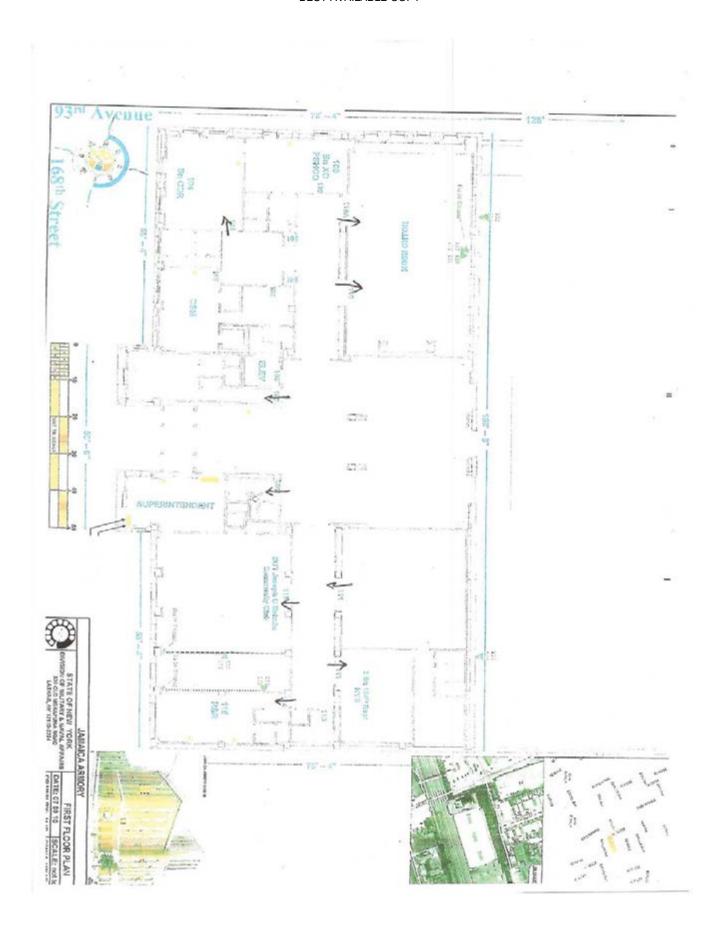
Appendix A

Shop Diagram and Air Flow Patterns









BEST AVAILABLE COPY

Appendix B

Lead Sampling Results



CERTIFICATE OF ANALYSIS



Client:

National Guard Bureau

Job Name:

P.O. Number:

Jamaica RC

Chain Of Custody: 514391

Address:

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

Job Location:

93 05 168th Street, Jamaica, NY

W912K6-09-A-0003

Date Submitted:

11/2/2012

State Military Reservation Havre de Grace, Maryland 21078

Job Number: 1061-15 Person Submitting: Date Analyzed:

11/7/2012

Report Date: 11/12/2012

Attention:

Summary of Atomic Absorption Analysis for Lead

Page 1 of 3

AMA Sample Number	Client Sample Number	Analysis Type	Sample Type	Air Volume (L)	Area Wiped (ft ¹)	100000	orting imit	Total ug	Final Re	sult	Comments
13011010	JamaicaRC-PC-1	Flame	Paint Chip	****	N/A	0.0092	%Fb		35	%Pb	
13011011	JamaicaRC-PC-2	Flame	Paint Chip	****	N/A	0.0071	%Fb		2.9	%Pb	
13011012	JamaicaRC-PC-3	Flame	Paint Chip	****	N/A	0.0055	%Pb		11	%Pb	
13011013	JamaicaRC-PC-4	Flame	Paint Chip	****	N/A	0.0073	%Рь		20	%Pb	
13011014	JamaicaRC-PC-5	Flame	Paint Chip	****	N/A	0.0071	%РЬ		37	%P6	
13011015	JamaicaRC-LW-1	Flame	Wipe Blank	****	N/A	12	ug		25	ug	
13011016	JamaicaRC-LW-2	Flame	Wipe	****	0.111	110	ug/ft²	42	380	ug/fi²	
13011017	JamaicaRC-LW-3	Flame	Wipe	****	0.111	110	ug/ft°	520	4700	ug/fi²	
13011018	JamaicaRC-LW-4	Flame	Wipe	****	0.111	110	ug/ft²	78	710	ug/ft²	
13011019	JamaicaRC-LW-5	Flame	Wipe	****	0.111	110	ug/lt²	910	8200	ug/fi²	
13011020	JamaicaRC-LW-6	Flame	Wipe	****	0.111	110	ug/ft²	120	1100	ug/fl²	
13011021	JamaicaRC-LW-7	Flame	Wipe	****	0.111	110	ug/ft²	100	920	ug/fl²	
13011022	JamaicaRC-LW-8	Flame	Wipe	****	0.111	110	ug/ft²	110	960	ug/fl²	
13011023	JamaicaRC-LW-9	Flame	Wipe	****	0.111	110	ug/fl ²	79	710	ug/ft²	
13011024	JamaicaRC-LW-10	Flame	Wipe	****	0.111	110	ug/ft²	880	7900	ug/fl²	
13011025	JamaicaRC-LW-11	Flame	Wipe	****	0.111	110	ug/A²	100	930	ug/ft²	
13011026	JamaicaRC-LW-12	Flame	Wipe	****	0.111	110	ug/\hbar^2	70	630	ug/ft²	
13011027	JamaicaRC-LW-13	Flame	Wipe	****	0.111	110	ug/lt²	51	460	ug/ft²	
13011028	JamaicaRC-LW-14	Flime	Wipe	****	0.111	110	ug/ft²	520	4700	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 honolege and liability for the accuracy and completeness of this information. Residual sample material will be discarded in accordance with the appropriate regulatory guidelines, unless otherwise requested by the client. This report must not be used to claim, and does not imply product certification, approval, or endorsement by NY ELAP, AHIA, or any agency of the Federal Government. All rights reserved. AMA Analytical Services, Inc.

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CERTIFICATE OF ANALYSIS



Client:

National Guard Bureau

Job Name:

Jamaica RC

Chain Of Custody:

514391

Address:

Job Location:

93 05 168th Street, Jamaica, NY

D (0 1 1 1 1 1

11/2/2017

Adult35;

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

75 05 100m Succi, Janaica, IX I

Date Submitted:

11/2/2012

Havre de Grace, Maryland 21078

Job Number: P.O. Number: 1061-15

W912K6-09-A-0003

Person Submitting: Date Analyzed:

11/7/2012

Report Date: 11/12/2012

Attention:

Non-Responsive

Summary of Atomic Absorption Analysis for Lead

Page 2 of 3

AMA Sample Number	Client Sample Number	Analysis Type	Sample Type	Air Volume (L)	Area Wiped (ft ⁱ)	0.000	orting Jmit	Total ug	Final Res	ult	Comments
13011029	JamaicaRC-LW-15	Flame	Wipe	****	0.111	110	ug/ft²	200	1800	ug/fi²	
13011030	JamaicaRC-LW-16	Flame	Wipe	****	0.111	110	ug/ft²	610	5500	ug/fi²	
13011031	JamaicaRC-LW-17	Flame	Wipe	****	0.111	110	ug/ft²	33	300	ug/fl²	
13011032	JamaicaRC-LW-18	Flame	Wipe	****	0.111	110	ug/ft²	35	310	ug/fl²	
13011033	JamaicaRC-LW-19	Flame	Wipe	****	0.111	110	ug/ft²	180	1600	ug/fi²	
13011034	JamaieaRC-LW-20	Flame	Wipe	****	0.111	110	ug/ft²	890	8000	ug/ft²	
13011035	JamaicaRC-LW-21	Flame	Wipe	****	0.111	110	ug/lt²	360	3200	ug/ft²	
13011036	JamaicaRC-LW-22	Flame	Wipe	****	0.111	110	ug/ft²	420	3800	ug/fi²	
13011037	JamaicaRC-LW-23	Flame	Wipe	****	0.111	110	ug/ft²	7500	67000	ug/fl²	

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CERTIFICATE OF ANALYSIS



Client:

National Guard Bureau

Job Name:

Jamaica RC

1061-15

W912K6-09-A-0003

Chain Of Custody:

514391

Address:

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

Job Location:

P.O. Number:

93 05 168th Street, Jamaica, NY

State Military Reservation

Date Submitted:

11/2/2012

Havre de Grace, Maryland 21078

Job Number:

Person Submitting: Date Analyzed:

11/7/2012

Report Date: 11/12/2012

Attention:

Summary of Atomic Absorption Analysis for Lead

Page 3 of 3

AMA Sample Number

Client Sample

Analysis Type Sample Type

Air Volume

Reporting

Final Result Total ug

Technical

See QC Summary for analytical results of quality control samples

Number

(L)

Area Wiped (fti)

Limit

associated with these

samples.

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 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.

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 personned of these Laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information. Residual sample material will be discarded in accordance with the appropriate regulatory guidelines, unless otherwise requested by the client. This report must not be used to claim, and does not imply product certification, approval, or endorsement by NY ELAP, AIHA, or any agency of the Federal Government. All rights reserved. AMA Analytical Services, Inc.

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CHAIN OF CUSTODY

(Please Refer To This Number For Inquires)

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3. Address 2: Attn: NGB-AVN-SI, State	Military Reserva	ation		3. Job	#: _ []	061-1	5			P	O.#- W912K6-09	A-0003	
, Address 3: Havre de Grace, Maryland	d 21078			4. Co	ntact Pers	son	on-	Re	spo	nsi	Ve @_nhone #		
. Phone #:(410) 942-0273											ature: Non-	Responsive	
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XEPA 600 - Visual Estimate 2 (0T	Y)]	EM Water				- 185	2		□ Pb	Furnace	(Media	(QTY)
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NY State Friable 198.1QTY)		Q ELAP 19	3.2/EPA 100.2	-		(TY)			Col	lection /	Apparatus for Spore Tra	es/Air Samples:	-
Grav. Reduction ELAP 198.6(Q	(TY)	J EPA 100.		_ (QT))					lection l		Surface Vacuum Dust	OTV
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☐ Vermiculite			samples	-					□ 88	refuga Ti	ipe(QTY) 🖫	Diturable ID Species (Med	/_
									M .01	HINC I	Pro		M I
Asbestos Soil H.M_(Qual) Pl.M_(Quan) Pl.M_(Quan) Pl.MTEM_	.(Qual) PLANTEM(Qua	n) If field data si	rets are submitte	d, there is	ro need to	complete b	ottom se	ction.			(QTY)	omen is open part	ч
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"It is recommended that blank samples be submitted with all air and so SAMPLE INFORMATIO	ourlace semples		ANALY						□ Othe	r Specify	(QTY)	LIENT CONTACT	
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Surface	Sampling	Field	Data	Shee
			~ HILL	DHE

	8.5	
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1	01	9

Date Collected:	10-23-12
Job Number:	1061-15
Contact Person	Non-Responsive

Job Nar	ne:	94191	ca RC			4		
Job Loc	ation:		_					
	02	~	HAH	41	_		4	

Company: Bony	Page of
	89 -779- 7686
Collected By:	1-Responsive
COC Number:	

Sample Number	Sample Location	Surface/Substrate Sampled	Area Wiped	Collection
Jamaica RC- LW-1	Field Blank		(in²/ft²)	Media 6host
Janaféa RC- LW-2	Drill Hall	On Center of Anil Floor	4"x4"	Wipe
Tqmaica RC+ LW-3	Drill Hall	De Pay phone	7 1	+-
Jamaica RC- LW-4	Dvill Hall	On Filing Colonet		+
Jamaica RC – LW-5	Drill Hall	On electrical Panel Box		
Jamaica RC - LW-6	Doil Hall	On chair in SE Corner		
Tanaica KC- LW-7	Community Center (Break Room)	on top of Refriguenter		
Tamaica RC- LW-8	Supr. Office (101)	On toaster Oven		
Jamalca RC = LW-9	Board Room (110)	On Bookshalf		
Janaiu RC- LW-10	Female Locker Kn	On locker # 4		
amaica RC- LW-11	Men's Locker Rm (211)	On Locker # 70		
Tamaica Rc- Lw-12	Office (201)	On top of TV		
amaica AC- LW-13	Office (213)	On Filing Cabinet		



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
~	Sampling.	LIVIU	Data	DIICCI

27		-0.0
2		1
a	or	•

Date Collected	: 10-21-12
Job Number:_	1061-15
Contact Persor	Non-Responsive

Job Name:_	Janaic	a RC			
Job Location				-2	
Address:_	93-05	168th	St. Tomai	a MV	

Company:_	Bonus	Environ	ge_of_ mental c	_ LC
Phone Num	ber: <u>98</u>	9 -779.	7686	_
Collected B	Mon	Respon	sive	
COC Numb	er'		7 3	-

Sample Number	Sample Location	Surface/Substrate Sampled	Area Wiped (in ² /ft ²)	Collection Media
Jamuica RC- LW-14	Mer's Locker for (201)	On top of filing cabinet	4"x4"	6host Wipe
Jamaéta Rc- LW-15	OFFice (313)	on window sill	i	1
Jamuica RC- LW-16	Mens RR (312A)	On Paper Towel Pisperser		
Jamaica RC- LW-17	Computer In (316E)	Du top of Paper Shredder		
Jamaica RC- LW-18	Weight Ra (307)	On top of TV shelf		
Tamaica RC- LW-19	Mcchanical for (5)	on corner of work telde		
Tamqica RC- LW-20	Women's ILR	On top at Paper Tower Disperse	, \	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \
Tamaica R(- LW-2)	Former Indoor Firing Range	At Bullet trap #1 (Lift)		
Jamaica RC- LW-22	Former Indoor Firing Range	At Bullet Tray #2 (Right)		
Janaica RC- Lw-23	Former Indoor Fifting Lange	On electricial bax	V	\forall



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Appendix C

Asbestos Bulk Sampling Results



A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS



National Guard Bureau

Job Name:

Jamaica RC

Chain Of Custody:

Address:

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

State Military Reservation

Job Location:

Job Number:

P.O. Number:

93 05 168th Street, Jamaica, NY

Date Analyzed:

11/7/2012

Havre de Grace, Maryland 21078

1061-15

W912K6-09-A-0003

Person Submitting:

Attention:

Page I of I

Summary of Polarized Light Microscopy

AMA Sample Number	Client Sample #	Total Asbestos	Chrysotile Percent	Amosite Percent		Asbestos		Fiberglass Percent					Sample Type	Sample Color	Honogeneity	Analyst ID	Comments
13011038	JamaicaRC- Asb-1	3	3		w							97	FT	Dk.Brown	Homogeneous	SW	
13011039	JamaicaRC- Asb-2	NAD	5	•	**	*	••	•	*	••	•	100	PL	Off-White	Homogeneous	SW	

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

- 1 TEM RECOMMENDATION Flease 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

Analys

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

Bulk Sampling Survey Sheet

Date Collected: 10-23-12	Job Name: Jameica RC	Page_of_ Company: Bonus Environmental Wic
Job Number: 10/1-15	Job Location:	Phone Number: 989-779-7686
Contact Person	Address: 93-05 168th St, Jamaica NY	Collected By
·		COC Number:

Sample Number	Homegenous Area ID	Type of Material	Sample Location	Friable	Condition of Material	Accessibility	Photo	Comments
Tandica RC- HSB-1	Mix	Ploor Tile	Storage Ru 301	☐ Yes ☐ You ☐ Potentially	☐ Good ☐ Fair ▶ Poor	□ Low □ Medium ☑ High	Yes	
Tamaica RC ASB-Q	Suif	Plaster	Storage Ru 301 Cleaning Sipply Area	☐ Yes ☐ No ☐ Potentially	□ Good □ Fair □ Poor	⊠Low □ Medium □ High	¥Yes □No	
				☐ Yes ☐ No ☐ Potentially	☐ Good ☐ Fair ☐ Poor	□ Low □ Medium □ High	□ Yes □ No	
				☐ Yes ☐ No ☐ Potentially	□ Good □ Fair □ Poor	□ Low □ Medium □ High	□ Yes □ No	
				☐ Yes ☐ No ☐ Potentially	□ Good □ Fair □ Poor	☐ Low ☐ Medium ☐ High	□ Yes	
				☐ Yes ☐ No ☐ Potentially	☐ Good ☐ Fair ☐ Poor	□ Low □ Medium □ High	□ Yes □ No	
				☐ Yes☐ No☐ Potentially	□ Good □ Fair □ Poor	□ Low □ Medium □ High	□ Yes □ No	
				☐ Yes ☐ No ☐ Potentially	☐ Good ☐ Fair ☐ Poor	□ Low □ Medium □ High	□ Yes □ No	
				☐ Yes☐ No☐ Potentially	□ Good □ Fair □ Poor	□ Low □ Medium □ High	□ Yes □ No	
				☐ Yes ☐ No ☐ Potentially	☐ Good ☐ Fair ☐ Poor	□ Low □ Medium □ High	□ Yes □ No	



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



Focused on Results www.amalab.com AIHA (#100470) NVLAP (#101143-0) NY ELAP (10920) 4475 Forbes Blvd. . Lanham, MD 20706

CHAIN OF CUSTODY

(Please Refer To This Number For Inquires)

(301) 459-2540 • (800) 346-0961 • Fax (301) 459-2643 Mailing/Billing Information: Submittal Information: 1. Client Name: National Guard Bureau 1. Job Name: Jamaica RC 2. Job Location: 93-05 16844 St. Tampica NY 2. Address I: 301-IH Old Bay Lane 3. Address 2: Attn: NGB-AVN-SI, State Military Reservation 3. lob# 1061-15 W912K6-09-A-0003 Address 3: Havre de Grace, Maryland 21078 4. Contact Perso Phone #: (410) 942-0273 Fax #: (410) 942-0254 5. Submitted by 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 BUSINESSHOURS REPORT TO: Immediate Date Due:_ ☐ Immediate 23 Day ith Report Results Required By Noon 24 Hours Time Due:_ O Next Day \$15 Day+ X En bonusenvironmental.com Commente Q 2 Day ₹Fa us.army.mi Z Ve us.army.mil Asbestos Analysis TEM Bulk Metals Analysis *PCM Air -- Please Indicate Filter Type: Po Paint Chip. ☐ ELAP 198.4/Chatfield, ☐ NIOSH 7400_ _(OTY) A Pb Dust Wipe (wipe type 6host) 23 NY State PLM/TEM_ ___(QTY) ☐ Fiberglass __ (QTY) Residual Ash O MPO Air (QTY) TEM Air - Please Indicate Filter Type: TEM Dus? ☐Pb Soil/Solid _(QTY) Q AHERA_ _(QTY) Qual. (gres/abs) Vacuum/Dest_ OPS TOLP_ (QTY) ☐ NIOSH 7402 Quan. (s/area) Vacuum DS755-95_ O Drinking Water Q Pb (QTY) Cu (QTY) As (QTY) Other (specify... (QTY) PLM Bulk XEPA 600 - Visual Estimate UNaste Water Q Pb (QTY) QCI (QTY) QAs (QTY) Quan. (s/arca)Dust D6480-99_ (QTY) Pb Famace (Media TEM Water (QTY) EPA Point Count_ Qual (tres/abs)_ Fungal Analysis NY State Friable 191.1. Q ELAP 198 2/EPA 1002____ Collection Apparatus for Spore Traps/Air Samples:_ (QTY) Grav. Reduction ELAP 198.6 Q EPA10).[___ Collection Media Other (specify_ U*Spere-Trap___ Surface Vacuum Dust (OTY) All surples received in good condition unless otherwise noted. MISC *Surface Swab _(QTY) D Culturable D Genus (Media (TEM Watersamples ______°C) 1 Vermicuite Q*Surface Tape. (QTY) Cultrable ID Species (Media Q Ashestos Soil R.M.... (Qual) PLM (Qual) PLM (Qual) PLM (Rem... (Qual) If field class levels are submitted, there is moneted to complete bottom section. Ofter [Specify_ "It is recommended that blank samples to enhanted with all air and perfect samples CLIENT CONTACT SAMPLE INFORMATION YOL (L) CLIENTID# SAMPLE LOCATION ID TIME Wine Area (LABORATORY STAFF ONLY) ¥ Storage Rm 301 10-23 Date/Time: Contact: Janales-LC-ASB-2 Cleaning Supply Area * Jamaica Ri-LW-1-5 LW-23 SEE ATTACHED FIELD DATA SHEETS Tameica PC-PC-1 -> PC-5 10-23 Date/Time: By: 1. Date/Time RCVD: LABORATORY 2. Date/Time Analy STAFF ONLY: (CUSTODY) Initials: 4. Comments:

Appendix D

Photographs



Break Room



Room 216B, peeling beige paint



Room 301, peeling blue paint



Room 216, peeling white paint



Room 301, damaged 9"x(" floor tile



Former indoor firing range



Cleaning supply area, damaged plaster ceiling



Drill hall, looking east



Building exterior, looking SE



Boiler room



Lobby, looking south

Appendix E

References

- 1. Department of Defense Instruction (0001) 6055.1, Department of Defense Occupational Safety and Health (OS H) Program, August 19, 1998.
- 2. Army Regulation (AR) 11-34, The Army Respiratory Protection Program, February 15, 1990.
- 3. DA PAM 40-503, Medical Service, Industrial Hygiene Program, October 30, 2000.
- 4. Technical Manual (T.M) 5-810-1, Mechanical Design, Heating, Ventilation, and Air Conditioning, June 1991.
- 5. Threshold Limit Values (TLVs) and Biological Exposure Indices (BEls), American Conference of Governmental Industrial Hygienists (ACGIH), current edition.
- 6. UFC 3-410-01 FA Heating, Ventilating, and Air Conditioning, 15 May 2003, change 4 January 2010
- 7. Occupational Safety and Health Administration (OSHA) Lead in Construction Standard, 29 CFR 1926.62.
- 8. Army Regulation (AR) 385-10, The Army Safety Program, August 23, 2007/RAR 4 Oct 2011
- 9. RP-1-2004, Office Lighting, Illuminating Engineering Society of North America / American National Standards Institute (IESNA/ANSI).
- 10. RP-7-2001, Industrial Lighting, (IESNA/ANSI).
- 11. The American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE), Standard 62.1-2010, "Ventilation for Acceptable Indoor Air Quality".
- 12. ASHRAE Standard 55-2010 "Thermal Environmental Conditions for Human Occupancy"
- 13. Title 24, CFR, Part 35, Subpart B, Sections 35.110, Definitions of Lead-Based Paint, Housing and Urban Development, U.S. Department of Housing.
- 14. OSHA Permissible Exposure Limit (PEL) for General Industry 29 CFR 1910.1000 Z-1 Table
- 15. Guidelines on Assessment and Remediation of Fungi in Indoor Environments, New York City Department of Health and Mental Hygiene, November 2008.
- 16. Mold Remediation in Schools and Commercial Buildings, U.S. Environmental Protection Agency, March 2001
- 17. Army Facilities Management Information Document on Mold Remediation Issues TG277, February 2002
- 18. NG PAM 420-15, Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges, 3 November 2006.

National Guard Region North

National Guard Readiness Center Industrial Hygiene Evaluation Kingston Readiness Center Kingston, NY. 12401

Prepared for:

National Guard Region North Industrial Hygiene Office 301 Old Bay Lane Havre De Grace, MD 21078

Attn:

Non-Responsive

Prepared by:

Bonus Environmental, LLC P.O. Box 121 Mt. Pleasant, Michigan 48804

> Project No. 1061-15 January 18, 2013

Bonus Environmental, LLC

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APPENDICES

Appendix A Shop Diagram and Air Flow Patterns

Appendix B Lead Sample Results

Appendix C Asbestos Bulk Sample Results

Appendix D Photographs

Appendix E References

January 18, 2013 Project No. 1061-15

National Guard Region North Industrial Hygiene Office 301 Old Bay Lane Havre De Grace, MD 21078-4003

Attn: Non-Responsive

Project: Industrial Hygiene Evaluation

Kingston, NY Readiness Center

1.0 - EXECUTIVE SUMMARY

Bonus Environmental, LLC was contracted by the National Guard Bureau Region North Industrial Hygiene office to identify and measure the existence and extent of potentially hazardous operations or conditions at the Kingston Readiness Center located at 25 Kiersted Avenue in Kingston, NY. The purpose of this evaluation was to generate or to update a previous baseline evaluation so that employee exposure history can be provided to each civilian and military employee. No Health & Safety plans were available at Kingston Readiness Center for review. The following industrial hygiene conditions were evaluated during this industrial hygiene evaluation performed by Bonus Environmental, LLC representative Non-Responsive on November 2, 2012:

- Indoor Air Quality
- Lead Wipe & Bulk Sampling
- Illumination
- Ergonomics

 Evaluation of the physical condition of the facility in regards to peeling paint, asbestos containing materials, water damage or mold problems, and housekeeping practices.

The Kingston Readiness Center is an Army National Guard armory comprised of offices, locker rooms, storage rooms, supply rooms, conference rooms, a gym, a Drill hall, a boiler room, mechanical/electrical rooms, a break room, a lounge, classrooms, a fitness room, and a former indoor firing range. The point of contact for the approximately 88,074 ft² Kingston Readiness Center is Ms. Joann Ferrara. Approximately thirty (30) full-time administrative personnel are employed at the Kingston Readiness Center. A shop diagram depicting the locations of the operations identified during this industrial hygiene evaluation, as well as airflow patterns, is provided as Appendix A.

The National Guard Bureau Region North Industrial Hygiene Office provided governmental furnished equipment and sampling media required to perform the industrial hygiene evaluation. Chain of custody forms for laboratories approved by the National Guard Bureau Region North Industrial Hygiene Office were provided with the sampling media. All samples collected during this industrial hygiene evaluation were sent to the National Guard Bureau Region North Industrial Hygiene Office approved laboratories for analysis.

2.0 – LEAD SAMPLING

2.1 – Lead Wipe Sampling

Lead wipe sampling was performed according to the Environmental Protection Agency (EPA) method 600/R-93/200(M)-7420 (Atomic Absorption - Flame). Twenty two (22) wipe samples and one (1) field blank were sent under chain-of-custody procedures to AMA Analytical Services, Inc., an American Industrial Hygiene Association (AIHA) accredited laboratory located in Lanham, Maryland. The U.S. Department of Labor (USDOL) and the Occupational Safety and Health Administration (OSHA) do not have a promulgated standard for lead surface contamination; however OSHA has provided an interpretive level of 200 micrograms per square foot (μg/ft²) to assess the housekeeping requirements of "as free as reasonably practicable". This interpretation is presented in OSHA Industrial Hygiene Technical Manual (TED 01-00-015; 1/20/1999), and in a letter of interpretations dated 1/13/2003, and subsequently issued to public domain. NG Pam 420-15 addresses the conversion and remediation of former indoor firing ranges. The following table outlines the locations and analytical results for the lead wipe samples collected during this project

		Army National Guard – Kingston Readiness Center Lead Wipe Sample Results		
Sample #	Sample Date	Sample Location	Sample Area (ft²)	Sample Result (µg/ft²)
KingstonRC- LW-1	11-2-12	Field Blank		< 12 μg
KingstonRC- LW-2	11-2-12	Drill hall, northwest end, on floor	0.111	1,400
KingstonRC- LW-3	11-2-12	Drill hall, northeast end, on floor	0.111	1,100
KingstonRC- LW-4	11-2-12	Drill hall, northeast corner, on conduit	0.111	1,700
KingstonRC- LW-5	11-2-12	Drill hall, northeast wall, top of locker	0.111	3,400
KingstonRC- LW-6	11-2-12	Drill hall, northwest corner, top of gray wood ledge	0.111	15,000
KingstonRC- LW-7	11-2-12	Classroom 012, center of room, surface of desk	0.111	170
KingstonRC- LW-8	11-2-12	Boiler room, top of blue tank	0.111	2,400
KingstonRC- LW-9	11-2-12	Room 024, on exhaust fan fin	0.111	4,700
KingstonRC- LW-10	11-2-12	Room 021, top of locker 56	0.111	4,400
KingstonRC- LW-11	11-2-12	Room 038A (former indoor firing range), northeast end, on floor	0.111	320
KingstonRC-	11-2-12	Room 038A (former indoor firing range), center, on light	0.111	1,000

		Army National Guard – Kingston Readiness Center Lead Wipe Sample Results		
Sample #	Sample Date	Sample Location	Sample Area (ft²)	Sample Result (µg/ft²)
LW-12		fixture		
KingstonRC- LW-13	11-2-12	Room 038A (former indoor firing range), southwest end, on floor	0.111	3,300
KingstonRC- LW-14	11-2-12	Room 134, top of copy machine	0.111	< 110
KingstonRC- LW-15	11-2-12	Room 130, top of vending machine	0.111	< 110
KingstonRC- LW-16	11-2-12	Lobby area, top of display case	0.111	< 110
KingstonRC- LW-17	11-2-12	Room 129, on gym floor	0.111	< 110
KingstonRC- LW-18	11-2-12	Room 118, break room, top of refrigerator	0.111	< 110
KingstonRC- LW-19	11-2-12	Room 109, men's locker room, top of key box 1	0.111	< 110
KingstonRC- LW-20	11-2-12	Room 206, southwest end, on supplied air grill	0.111	< 110
KingstonRC- LW-21	11-2-12	Room 212, on window sill	0.111	< 110
KingstonRC- LW-22	11-2-12	Room 228, on heat register	0.111	190
KingstonRC- LW-23	11-2-12	Classroom 236, on computer desk	0.111	< 110

Surface cleanliness threshold = < 200 micrograms per square foot ($\mu g/ft^2$)

The former indoor firing range was being used for storage. It was stated to Bonus Environmental, LLC that it had been remediated of residual lead contamination at some point in the past (date or year unknown), and it is uncertain if it was remediated to the protocols specified in NG Pam 420-15. Remediation wipe sample results were not posted, nor were any signs posted restricting access to the area.

3.0 - PHYSICAL CONDITION OF FACILITY / PERSONNEL CONCERNS

3.1 - Lead Based Paint

During the industrial hygiene evaluation of the Kingston Readiness Center, Bonus Environmental, LLC performed a visual inspection of the facility in regards to lead based paint. Bonus Environmental, LLC identified the following areas of peeling paint which could potentially pose a lead exposure hazard:

- Approximately 10 ft² of peeling beige paint in Room 129;
- Approximately 3 ft² of peeling white paint corridor 026;

- Approximately 25 ft² of peeling white paint in Room 018;
- Approximately 70 ft² of peeling gray paint Room 038;
- Approximately 80 ft² of peeling yellow paint in Room 022;
- Approximately 3 ft² of peeling beige paint in Room 120;
- Approximately 150 ft² of peeling green paint in old supply area;
- Approximately 20 ft² of peeling gray paint in corridor 210, on skylight pipes;

Five (5) paint chip samples were collected and sent under chain-of-custody procedures to AMA Analytical Services, Inc., an AIHA accredited laboratory located in Lanham, MD. Analysis indicated that each of the peeling paints collected contained detectable levels of lead. The paints are therefore considered to be lead-based paint. The OSHA Lead in Construction Standard, 29 CFR 1926.62 does not assign a numerical value of which must be present within the paint to be considered lead based paint. Paints which contain any detectable level of lead shall be treated and handled as lead based paint. Housing and Urban Development (HUD) defines lead based paint as having greater than 0.5% lead by weight. Paint chip sample results are attached to this report as Appendix B.

3.2 – Presumed Asbestos Containing Materials

During the industrial hygiene evaluation of the Kingston Readiness Center, Bonus Environmental, LLC performed a visual inspection to identify presumed asbestos containing materials (PACM) and, if found, to note their condition. Bonus Environmental, LLC identified the following PACM's that were considered to be in poor or damaged condition:

- Approximately 5 ft² damaged plaster ceiling in Room 018;
- Approximately 6 ft² of damaged plaster ceiling in Room 121.

One (1) bulk material sample of ceiling plaster was collected and submitted for analysis. These materials indicated "No Asbestos Detected". Asbestos bulk sample results are attached to this report as Appendix C.

3.3 - Water Damage/Mold Growth

During the industrial hygiene evaluation of the Kingston Readiness Center, Bonus Environmental, LLC performed a visual inspection to report the location and perform an evaluation of any water damaged building materials and/or visible mold problems. Bonus Environmental, LLC identified the following areas of water-damaged building materials:

- Approximately 200 ft² of damaged concrete ceiling in basement mechanical room;
- Approximately 5 ft² of water-damaged plaster ceiling in Room 018;
- Approximately 400 ft² of water-damaged concrete walls in Room 038A;
- Approximately 150 ft² of fungal growth on concrete ceiling in storage room 022;
- Approximately 4 ft² of stained dropped-ceiling tile (DCT) in corridor 132;
- Approximately 15 ft² of water-damaged ceiling in Lounge room 130;
- Approximately 6 ft² of water-damaged plaster ceiling in Room 121;
- Approximately 5 ft² of stained DCT in Room 206;
- Approximately 1 ft² of stained DCT in Room 215;
- Approximately 3 ft² of stained DCT in corridor 229.

3.4 - Housekeeping

During the industrial hygiene evaluation of the Kingston Readiness Center, Bonus Environmental, LLC performed an evaluation of the housekeeping practices. Bonus Environmental, LLC found the housekeeping practices within the Kingston Readiness Center facility to be in good order, with the exception of residual lead dust concentrations.

3.5 – Employee Interviews

During the industrial hygiene evaluation of the Kingston Readiness Center, Bonus Environmental, LLC performed interviews and made observations to determine if the work activities being performed possessed any ergonomic concerns. Following interviews and observations, no ergonomic or indoor air quality concerns were noted.

3.6 – Indoor Air Quality

During the industrial hygiene evaluation of the Kingston Readiness Center, Bonus Environmental, LLC measured temperature, relative humidity, carbon monoxide (CO), and carbon dioxide (CO₂) throughout the facility. A calibrated TSI Q-Trak Plus Model 8554 Indoor Air Quality Monitor equipped with a Q-Trak Probe 982 was utilized to record indoor air quality measurements.

Carbon dioxide is a natural component of air and the amount of CO₂ in a given air sample is commonly expressed as parts per million (ppm). The outdoor air in most locations contains about 380 ppm carbon dioxide. Higher outdoor CO₂ concentrations can be found near vehicle traffic areas, industry and sources of combustion. The concentrations of CO₂ found in most offices are well below the OSHA Permissible Exposure Limit (PEL) of 5,000 ppm when averaged over an 8-hour time period for an industrial workplace. While levels below 5,000 ppm are considered to pose no serious health threat, studies have indicated that individuals in offices with elevated CO₂ concentrations tend to report drowsiness, lethargy and a general sense that the air is stale. Ventilation rates for office spaces are defined by various codes and standards. The most widely accepted standard is the American Society of Heating, Refrigerating, and Air Conditioning Engineers (ASHRAE) Standard 62. According to ASHRAE Standard 62.1-2010, CO₂ concentrations below 700 ppm above the outdoor level are considered to indicate adequate ventilation and provide human comfort. The CO₂ measurements collected during this industrial hygiene evaluation ranged from 372 ppm to 521 ppm and indicate adequate ventilation within the facility.

Carbon monoxide is a colorless, odorless, poisonous gas that results from the incomplete burning of common fuels such as natural or liquefied petroleum gas, oil, wood or coal. When carbon monoxide is inhaled, it enters the blood stream and reduces the ability of the blood to carry oxygen to vital organs, such as the heart and brain. Because it is impossible to see, taste or smell the toxic fumes, CO can harm you before you are aware it is in your work area. At lower levels of exposure, CO causes mild effects that are often mistaken for the flu. These symptoms include headaches, dizziness, disorientation, nausea and fatigue. The effects of CO exposure can vary greatly from person to person depending on age, overall health and the concentration and length of exposure. The OSHA has established a permissible exposure limit (PEL) of 50 parts per million (ppm). OSHA standards prohibit worker exposure to more than 50 parts of the gas per million parts of air averaged during an 8-hour time period. The peak CO level for employees is 200 ppm. The CO measurements collected

during this industrial hygiene evaluation all indicated 0.0 ppm. CO levels were well below the OSHA PEL during this industrial hygiene evaluation.

During the industrial hygiene evaluation of the Kingston Readiness Center, Bonus Environmental, LLC collected temperature measurements. Temperature measurements throughout the common areas of the facility routinely occupied by employees ranged from 55.6°F to 68.0°F and are considered to be within an acceptable range outlined within ASHRAE Standard 55-2010.

During the industrial hygiene evaluation of the Kingston Readiness Center, Bonus Environmental, LLC collected relative humidity measurements. Relative humidity measurements throughout common areas of the facility routinely occupied by employees ranged from 31.1% to 41.0%. Indoor air quality measurements recorded during this industrial hygiene evaluation are summarized in the table below.

Army National Gu Indoor Ai	ard – Kingstor r Quality Meas		'enter	
Location	CO_2 (ppm)	CO (ppm)	Relative Humidity (%)	Temperature (°F)
Outdoors, northeast side of building (overcast, breezy)	372	0.0	58.6	50.2
Classroom 012	411	0.0	39.6	65.3
Fitness room 024	435	0.0	38.7	66.0
Men's locker room 109	388	0.0	35.1	67.3
Break room 118	401	0.0	33.9	67.8
Orderly room 134	420	0.0	32.7	67.8
Drill hall (2 bay door open)	379	0.0	37.1	55.6
Office 206 (3 people in room)	507	0.0	37.7	66.2
Copy room 211	521	0.0	41.0	67.1
Library room 230	393	0.0	31.5	67.6
Classroom 236	414	0.0	31.1	68.0

Required/Recommended Values

 $\overline{CO_2}$ - OSHA PEL = 5,000 parts per million (ppm) and ASHRAE Standard 62.1-2010 = no greater than 700 ppm above outdoor

Temperature - ASHRAE Standard 55-2010 = between approximately 67 and 82 °F.

RH - ASHRAE Standard 62.1-2010 = limited to < 65%

4.0 – LIGHTING

Utilizing a properly calibrated Cooke Corporation cal-Light 400 light meter, Bonus Environmental, LLC collected illumination readings throughout the Kingston Readiness Center. Illumination measurements recorded during this industrial hygiene evaluation are summarized in the table below.

CO - OSHA PEL = 50 ppm and OSHA Ceiling Limit = 200 ppm

•	Guard – Kingston Readi ighting Measurements	ness Center		
Location	Measurement in Foot Candles	Requirement in Foot Candles	Requirement Met?	
Room 030		Inaccessible		
Room 029 (storage)	50.2	Yes		
Room 027	30.2	30 Inaccessible	105	
Corridor 026	47.7	5	Yes	
Room 016	17.7	Inaccessible	103	
Room 014		Inaccessible		
Room 013 (mech. room)	94.6	30	Yes	
Room 012 (classroom)	31.7	30	Yes	
Room 039 (elec. room)	31.7	Inaccessible	103	
Room 039A (emergency elec. room)		Inaccessible		
Room 004 (vault) Inaccessible				
Room 001 (Supply)	31.6	30	Yes	
Room 002 (office)	104.6	50		
Room 002 (office) Room 005 (vault)	104.0	Inaccessible	Yes	
,				
Room 006 (Supply)		Inaccessible		
Room 009 (storage)	25.4	Inaccessible		
Room 017 (boiler room)	27.4	30	No	
Basement mech room	9.5	30	No	
Room 018 (office)	26.9	50	No	
Room 038 (storage)	20.2	30	No	
Room 038A (storage)	7.8	30	No	
Room 021 (locker room)	15.4	7	Yes	
Room 023 (storage)	33.0	30	Yes	
Room 022 (storage)	19.1	30	No	
Room 024 (fitness room)	7.6	30	No	
Room 028 (storage)	19.1	30	No	
Room 134 (Orderly room)	43.3	50	No	
Room 135 (office)		Inaccessible		
Room 141 (office)		Inaccessible		
Room 142 (office)	38.6	50	No	
Room 143 (office)		Inaccessible		
Corridor 132	138.8	5	Yes	
Room 130 (Lounge)	2.2	10	No	
Room 131 (lobby)	52.3	10	Yes	
Room 125 (office)	20.2	50	No	
Room 123 (conference room)	25.4	30	No	
Room 124A (office)	20.6	50	No	
Room 124		Inaccessible		
Room 105 (elec room)	54.8	30	Yes	
Room 104 (storage)	40.7	30	Yes	
Room 103		Inaccessible	_ #0	
Room 102		Inaccessible		
Room 101		Inaccessible		
Room 108 (men's restroom)	31.3	5	Yes	
Room 107 (showers)	43.9	7	Yes	
Room 109 (locker room)	23.6	7	Yes	
Room 111 (locker room)	30.8	7	Yes	
KOOIII I I I (IOCKEI IOOIII)	30.8	/	168	

	l Guard – Kingston Readi Lighting Measurements	ness Center	
Location	Measurement in Foot Candles	Requirement in Foot Candles	Requirement Met?
Room 116 (women's locker room)	29.5	7	Yes
Room 113 (showers)	140.5	7	Yes
Room 114 (restroom)	86.0	5	Yes
Room 118 (break room)	10.8	10	Yes
Room 119 (restroom)	26.4	5	Yes
Room 120 (Janitor's closet)	12.8	30	No
Room 121 (showers)	55.5	7	Yes
Room 129 (Gym)	13.1	30	No
Drill Hall	44.5	30	Yes
Room I	11.5	Inaccessible	105
Room H (storage)	2.5	30	No
Room G	2.0	Inaccessible	110
Room F		Inaccessible	
Room E		Inaccessible	
Room D		Inaccessible	
Room C		Inaccessible	
1 st floor, old Supply area (storage)	22.3	30	No
Room B	22.3	Inaccessible	110
Room A		Inaccessible	
Room 239 (restroom)	41.4	5	Yes
Room 238 (restroom)	44.3	5	Yes
Room 232 (classroom)	41.4	30	Yes
Room 230 (library)	59.8	30	Yes
Room 226 (office)	37.8	Inaccessible	103
Corridor 210	60.0	5	Yes
Room 212 (locker room)	70.7	7	Yes
Room 211 (copy room)	63.3	10	Yes
Room 208 (office)	51.2	50	Yes
Room 208A (office)	93.7	50	Yes
Room 206 (office)	36.9	50	No
Room 206A	30.9	Inaccessible	INO
Room 207B (office)	112.3	50	Yes
	39.1	30	
Room 205 (conference room)	39.1		Yes
Room 205A		Inaccessible	
Room 205B		Inaccessible	
Room 205C		Inaccessible	
Room 205E		Inaccessible	
Room 204 (office)		Inaccessible	
Room 202 (elec room)		Inaccessible	
Room 201	42.2	Inaccessible	NT.
Room 215 (office)	43.2	50	No
Room 216 (office)	32.3	50	No
Room 218 (office)	26.1	50	No
Room 221 (office)	26.3	50	No
Room 223 (restroom)	29.2	5	Yes
Room 228 (office)	36.8	50	No
Room 234 (classroom)	37.2	30	Yes

Army National Guard Lighting	! – Kingston Reading Measurements	ness Center		
Location	Measurement in Foot Candles	Requirement in Foot Candles	Requirement Met?	
Room 236 (classroom)	65.8	30	Yes	
Room 244	Inaccessible			
Room 242		Inaccessible		
Corridor 229	12.2	5	Yes	

Lighting levels were compared to the levels outlined within the American National Standards Institute/Illuminating Engineering Society of North America (ANSI/IESNA) RP-1-04 Office Lighting Handbook, and the ANSI/IESNA RP-7-01 Lighting Industrial Facilities Handbook. Areas within the facility which did not meet the foot candle requirements are identified with a "NO" within the "Requirement Met?" column. It is recommended that illumination be improved in all the areas that did not meet the requirements. Improving illumination can be achieved by replacing burned-out lamps/bulbs, cleaning fixtures, relocating detailed work activities to more illuminated areas, and using supplemental task lighting.

5.0 - CONCLUSION & LIMITATIONS

Bonus Environmental, LLC was contracted by the National Guard Bureau Region North Industrial Hygiene office to identify and measure the existence and extent of potentially hazardous operations or conditions at the Kingston Readiness Center facility located at 25 Kiersted Avenue in Kingston, NY. The purpose of this evaluation was to generate or to update a previous baseline evaluation so that employee exposure history can be provided to each civilian and military employee. Industrial hygiene conditions were evaluated during this industrial hygiene evaluation performed by Bonus Environmental, LLC representative Jeff Walworth on November 2, 2012.

The results/findings of this industrial hygiene evaluation are summarized below.

- 1. Lead wipe sample results collected within the Kingston Readiness Center were above the OSHA interpretive level of 200 μg/ft², as well as the 200 μg/ft² threshold established in NG Pam 420-15.
- 2. Bonus Environmental, LLC identified several areas of peeling paint which contained detectable levels of lead, potentially posing a lead exposure hazard.
- 3. Bonus Environmental, LLC identified PACM's (that analytical results confirmed to be non-asbestos-containing) that were considered to be in poor or damaged condition.
- 4. Bonus Environmental, LLC identified water-damaged and/or moldy building materials including plaster, dropped-ceiling tiles, and concrete in several locations throughout the facility.
- 5. Bonus Environmental, LLC found the housekeeping practices within the Kingston Readiness Center to be in good order, with the exception of residual lead dust concentrations.

- 6. Following the interviews and observations, no ergonomic and or indoor air quality concerns were identified.
- 7. Bonus Environmental, LLC measured temperature, relative humidity, CO, and CO₂ throughout the Kingston Readiness Center. All were found to be below or within their acceptable ranges/limits.
- 8. Areas within the Kingston Readiness Center facility were identified as improperly illuminated.
- 9. No Health & Safety programs were available for review at the Kingston Readiness Center.

Bonus Environmental, LLC has 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 Region North - Industrial Hygiene Office. 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 Bonus Environmental, LLC's inspection of the site.

It has been a pleasure to be of assistance to you. Please contact us if you have any questions concerning this report or if we can be of any further assistance in any other environmental or occupational health matter.

Sincerely,



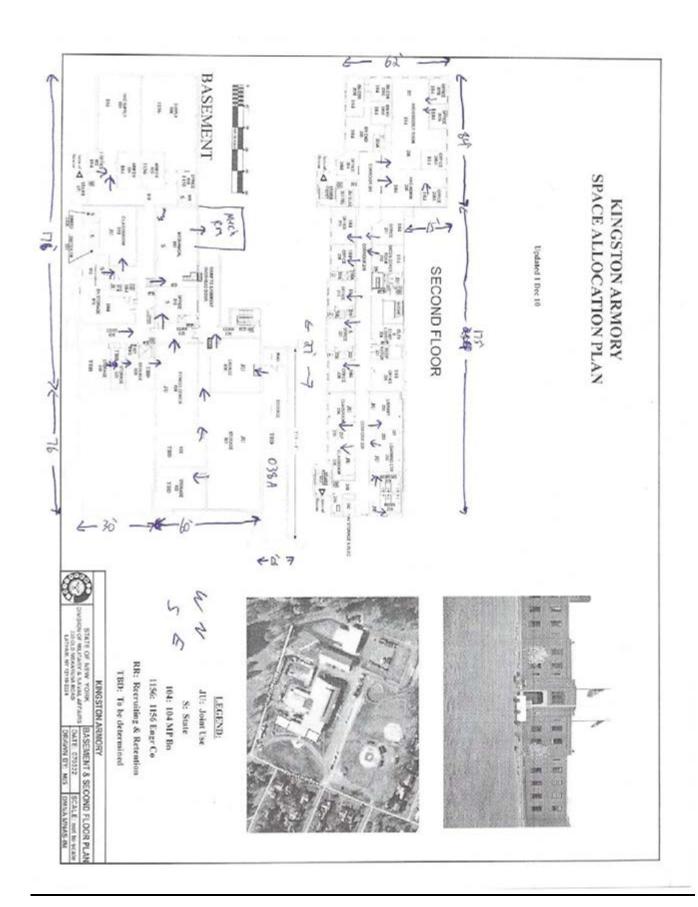
Principal

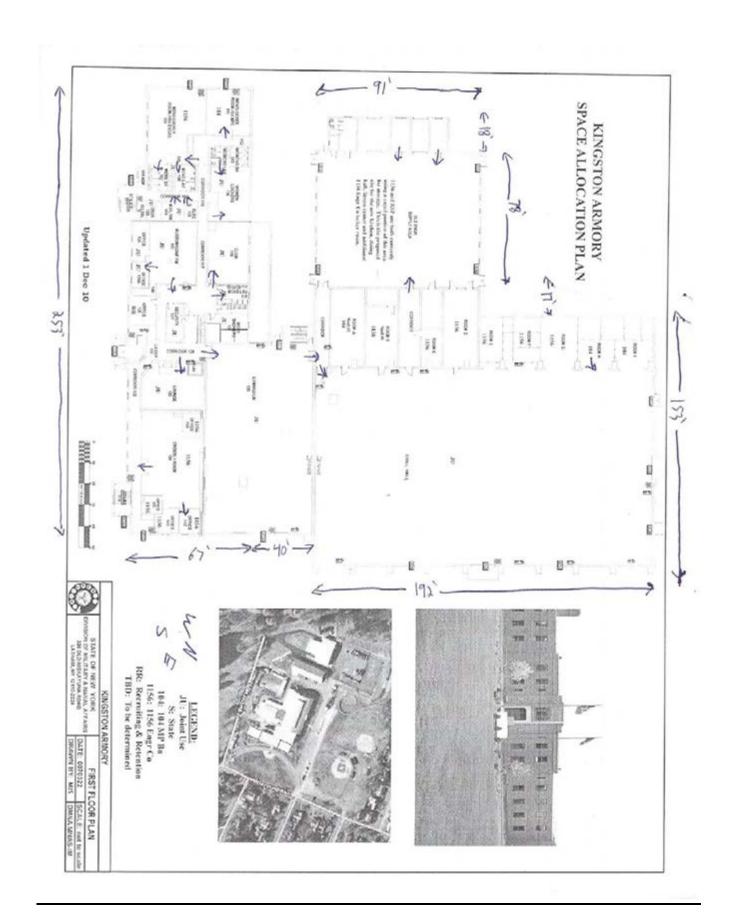
Bonus Environmental, LLC

Kingston RC_12_Report.docx

Appendix A

Shop Diagram and Air Flow Patterns





Appendix B

Lead Sample Results



CERTIFICATE OF ANALYSIS



Client:

National Guard Bureau

Job Name:

Kingston RC

W912K6-09-A-0003

Chain Of Custody:

514427

Address:

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

Job Location:

P.O. Number:

25 Kiersted Avenue, Kingston, NY

Date Submitted:

Date Analyzed:

11/6/2012

State Military Reservation

Havre de Grace, Maryland 21078

Job Number: 1061-15

Person Suhi

Person Submitting:

Non-Responsive

11/13/2012 Report Date: 11/14/2012

Attention:

Non-Responsive

Summary of Atomic Absorption Analysis for Lead

Page 1 of 3

AMA Sample Number	Client Sample Number	Analysis Type	Sample Type	Air Volume (L)	Area Wiped (ft²)		orting imit	Totalug	Final Res	sult	Comments
13011970	KingstonRC-PC-1	Flame	Paint Chip	****	N/A	0.0085	%Pb		3.6	%Pb	
13011971	KingstonRC-PC-2	Flame	Paint Chip	****	N/A	0.0086	%P6		3.4	%Pb	
13011972	KingstonRC-PC-3	Flame	Paint Chip	****	N/A	0.0066	%Pb		8.5	%Pb	
13011973	KingstonRC-PC-4	Flame	Paint Chip	****	N/A	0.0096	%Pb		14	%Pb	
13011974	KingstonRC-PC-5	Flame	Paint Chip	****	N/A	0.011	%Pb		2.7	%Pb	
13011975	KingstonRC-LW-1	Flame	Wipe Blank	****	N/A	12	ug		<12	ug	
13011976	KingstonRC-LW-2	Flame	Wipe	****	0.111	110	ug/ft²	160	1400	ug/ft²	
13011977	KingstonRC-LW-3	Flame	Wipe	****	0.111	110	ug/fl²	120	1100	ug/ft²	
13011978	KingstonRC-LW-4	Flame	Wipe	****	0.111	110	ug/fl²	180	1700	ug/ft²	
13011979	KingstonRC-LW-5	Flane	Wipe	****	0.111	110	ug/ft²	370	3400	ug/N;	
13011980	KingstonRC-LW-6	Flame	Wipe	****	0.111	110	ug/fi²	1600	15000	ug/ft²	
13011981	KingstonRC-LW-7	Flame	Wipe	****	0.111	110	ug/fl ²	19	170	ug/ft²	
13011982	KingstonRC-LW-8	Flame	Wipe	****	0.111	110	ug/fi²	270	2400	ug/fl ²	
13011983	KingstonRC-LW-9	Flame	Wipe	****	0.111	110	ug/fl ²	520	4700	ug/ft²	
13011984	KingstenRC-LW-10	Flame	Wipe	****	0.111	110	ug/fi²	490	4400	ug/ft²	
13011985	KingstenRC-LW-11	Flame	Wipe	****	0.111	110	ug/fi²	36	320	ug/ft²	
13011986	KingstenRC-LW-12	Flame	Wipe	****	0.111	110	ug/fl²	110	1000	ug/ft²	
13011987	KingstonRC-LW-13	Flame	Wipe	****	0.111	110	ug/fl²	370	3300	ug/ft²	
13011988	KingstonRC-LW-14	Flame	Wipe	****	0.111	110	ug/fl²	<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 are publicity matter without prior written authorization from us. Sample types, locations, and collection protects 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 vill be discarded in accordance with the appropriate regulatory guidelines, unless otherwise requested by the dient. This report must not be used to claim, and does not imply product certification, approval, or endorsement by NY ELAP, AHIA, or any agency of the Federal Government. All rights reserved. AMIA Analytical Services, Inc.

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CERTIFICATE OF ANALYSIS



Client:

National Guard Bureau

Job Name:

Kingston RC

W912K6-09-A-0003

Chain Of Custody:

514427

Address:

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

Job Location:

P.O. Number:

25 Kiersted Avenue, Kingston, NY

Date Submitted:

11/6/2012

Havre de Grace, Maryland 21078

State Military Reservation

1061-15

Job Number:

Person Submitting:

Date Analyzed:

11/13/2012 Report Date:

11/14/2012

Attention:

Summary of Atomic Absorption Analysis for Lead

Page 2 of 3

AMA Sample Number	Client Sample Number	Analysis Type	Sample Type	Air Volume (L)	Area Wiped (ft²)	Reporting Limit		1 0		1 0		1 0	1 0	1 0	1 0	1 0	1 0	Total ug	Final Res	ult	Comments
13011989	KingstonRC-LW-15	Flame	Wipe	****	0.111	110	ug/ft²	<12	<110	ug/ft²											
13011990	KingstonRC-LW-16	Flame	Wipe	****	0.111	110	ug/ft²	<12	<110	ug/ft²											
13011991	KingstonRC-LW-17	Flame	Wipe	****	0.111	110	ug/ft²	<12	<110	ug/fl²											
13011992	KingstonRC-LW-18	Flame	Wipe	****	0.111	110	ug/ft²	<12	<[10]	ug/ft²											
13011993	KingstonRC-LW-19	Flame	Wipe	****	0.111	110	ug/ft²	<12	<110	ug/fi²											
13011994	KingstonRC-LW-20	Flame	Wipe	****	0.111	110	11g/ft ²	<12	<110	ug/fi²											
13011995	KingstonRC-LW-21	Flame	Wipe	****	0.111	110	ug/ft²	<12	<110	ug/ft²											
13011996	KingstonRC-LW-22	Flame	Wipe	****	0.111	110	ug/ft²	21	190	ug/fl²											
13011997	KingstonRC-LW-23	Flame	Wipe	****	0.111	110	ug/ft²	<12	<110	ug/fi²											

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 nutual protection to clients, the public, and these Laboratories, this report is submitted and accepted for the exclusive use of the client to whem 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 disclain 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 Covernment. All rights reserved. AMA Analytical Services, Inc.

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CERTIFICATE OF ANALYSIS



Client:

National Guard Bureau

Job Name:

Kingston RC

Chain Of Custody:

514427

Address:

301-IH Old Bay Lanc, Altn: ARNG-CJG-P,

Havre de Grace, Maryland 21078

Job Location:

25 Kiersted Avenue, Kingston, NY

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11/6/2012

State Military Reservation

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P.O. Number:

1061-15

Person Submitting:

W912K6-09-A-0003

Date Analyzed:

11/13/2012 Report Date:

11/14/2012

Attention:

Summary of Atomic Absorption Analysis for Lead

Page 3 of 3

AMA Sample Number

Client Sample

Analysis Type Sample Type

Air Volume

Area Wiped

Reporting

Number

(L)

Limit

Total ug

associated with these

Final Result

See QC Summary for analytical results of quality control samples

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.

Technical Manager:



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Surface Sampling Field Data Sheet

Date Collected: // - 2 - 12	Job Name: Kingston RC	Company: Bonus Environmental, LLd
Job Number: 1061-15	Job Location: 25 Kiersted Ave.	Phone Number: 989 -779 - 7686
Contact Pers Non-Responsive	Address: King Iton, NY	Collected By Non-Responsive
		COC Number:

V4	Sample Number	Sample Location	Surface/Substrate Sampled	Area Wiped (in ² /ft ²)	Collection Media
With the same of t	ank-LW-1	Fittd Blank	_	-	6host wife
	-2	Deill Hall	Floor, NW md	4"*4"	
	-3		floor, NE and		
	_4		NECOMPT, or condit		
	-5		NE Wall, top of locker		
	-6	V	NW comer, top of Eng Wood ledge		
	-7	fin oin classroom	CONR OF KM, TOP OF DENT		
	-8	Boiler RM	top of blue tank		
	-9	RM Od4	on exhaut fan fin		
	-10	for oal	top of Locker 56		
	-1	Run 038A, Former andoor Fring Range	NE end, on Flour		
	-17		ceater, on light Fixture		
V	-13	V	SW end, an Floor		



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Surface Sampling Field Data Sheet

Date Collected: //- 2-12	Jo
Job Number: 1061-15	Jo
Contact Pers	Ac

Job Name;	Kingston RC
Job Location:_	25 Kiersted Ave.
Address:	Kingstun, NY

Company: Bonus Environmental H	LC
Phone Number: 989 -779 - 7686	
Collected By Non-Responsive	/e
COC Number:	Ī

Sample Number	Sample Location	Surface/Substrate Sampled	Area Wiped (in²/ft²)	Collection Media	
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-15	Rm 130	top of vending mechani			
-16	Lobby Arex	top of Display case			
-17	fm ha	on type Floor			
-18	for 118 brok pm	top of Refriguetor			
-19	Mens Locker En +109	top of Key Box \ sw end, on Replied Air grill	11		
-20	fm 206	SW end, on Replied Air gill	**		
-21	Rm air	on Window Sill			
-22	Km 228	on Heat register			
√ √ -27·	Charrown 236, 00	on computer desk			
	1	II		Ψ	
		N. T. S.			



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Appendix C

Asbestos Bulk Sampling Results



A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS



Client:

National Guard Bureau

Job Name:

Kingston RC

Chain Of Custody:

514427

Address:

Attention:

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

Job Location:

25 Kiersted Avenue, Kingston, NY

Date Analyzed:

11/12/2012

State Military Reservation

1061-15

Person Submitting:

Havre de Grace, Maryland 21078

Job Number:

P.O. Number:

W912K6-09-A-0003

Page I of I

Summary of Polarized Light Microscopy

AMA Sample Number	Client Sample #	Total Asbestos	Chrysotile Percent	Amosite Percent	Crocidolite Percent	Asbestos		Percent	 Synthetic Percent			Sample Type	Sample Color	Homogeneity	Analyst ID	Comments
13011998	KingstonRC- Asb-1 PL	NAD	**	380	(**)			; ;		**	100	PL	White	Homogeneous	LBP	
13011999	KingstonRC- Asb-I BC	NAD	•	•	•	•	**		 	•	100	BC	Biown	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 Direc

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 adventising or publicity matter without prior written authorization from us. Sample types, locations, and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information. Residual sample material will be discarded in accordance with the appropriate regulatory guidelines, unless otherwise requested by the client. NYLAP accreditation applies only to polarized light microscopy of bulk samples and transmission electron microscopy of AHERA air samples. This report must not be used to claim, and does not imply product certification, approval, or endorsement by NVIAP or any agency of the Federal Government. All rights reserved. AMA Analytical Services, Inc.

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CHAIN OF CUSTODY

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Bulk Sampling Survey Sheet

Date Collected: 11-2-12	Job Name: Kingston RC	Company: Bonus Environmental, LUC
Job Number: 1061-15	Job Location: 25 Kiersted Aug.	Phone Number: 989 - 779 - 7686
Contact Per Non-Respons	Address: Kingston, NY	Collected By: Non-Responsive
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Please Return Samples To:
AMA Analytical Services, Inc., 4475 Forbes Blvd., Lanham, MD 20706, (800) 346-9961/(301) 459-2640 Fax, www.analab.com, info@amalab.com



Appendix D

Photographs



Building exterior, looking west



Corridor 026, peeling white paint



Boiler room



Room 029, peeling beige paint



Basement hallway



Basement Mech. Room, water-damaged concrete ceiling



Room 038, peeling gray paint



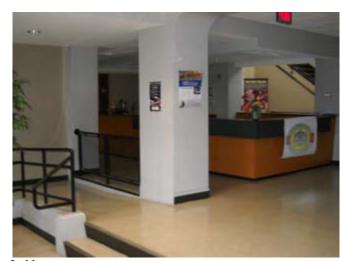
Room 038A, former indoor firing range



Room 022, peeling yellow paint



Room 022, fungal growth on concrete ceiling



Lobby area



Corridor 132, stained dropped-ceiling tile



Room 121, damaged ceiling plaster



Drill Hall



"Old Supply area", peeling green paint



Gymnasium



2nd floor hallway

Appendix E

References

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- 2. Army Regulation (AR) 11-34, The Army Respiratory Protection Program, February 15, 1990.
- 3. DA PAM 40-503, Medical Service, Industrial Hygiene Program, October 30, 2000.
- 4. Technical Manual (T.M) 5-810-1, Mechanical Design, Heating, Ventilation, and Air Conditioning, June 1991.
- 5. Threshold Limit Values (TLVs) and Biological Exposure Indices (BEls), American Conference of Governmental Industrial Hygienists (ACGIH), current edition.
- 6. UFC 3-410-01 FA Heating, Ventilating, and Air Conditioning, 15 May 2003, change 4 January 2010
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- 11. The American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE), Standard 62.1-2010, "Ventilation for Acceptable Indoor Air Quality".
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- 15. Guidelines on Assessment and Remediation of Fungi in Indoor Environments, New York City Department of Health and Mental Hygiene, November 2008.
- 16. Mold Remediation in Schools and Commercial Buildings, U.S. Environmental Protection Agency, March 2001
- 17. Army Facilities Management Information Document on Mold Remediation Issues TG277, February 2002
- 18. NG PAM 420-15, Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges, 3 November 2006.



DEPARTMENT OF THE ARMY

US ARMY CENTER FOR HEALTH PROMOTION AND PREVENTIVE MEDICINE 5158 BLACKHAWK ROAD ABERDEEN PROVING GROUND MD 21010-5403

MCHB-TS-OFS

MAY 1 1 2007

MEMORANDUM FOR National Guard Bureau Region North Industrial Hygiene Office (NGB-ARS-IHNE/Ms. Non-Responsive), 301-IH Old Bay Lane, Havre de Grace, MD 21078

SUBJECT: Industrial Hygiene Field Services Report No. 55-ML-048L-05/07, Industrial Hygiene Baseline Surveys, Leeds Armory, Leeds, New York, 21 September 2005

- 1. We are enclosing a copy of the subject report with an Executive Summary.
- 2. Our point of contact is Mr. Non-Responsive, at commercial (410) 436-5474/3118, DSN 584-5475/3118 or electronic mail: @us.army.mil

FOR THE COMMANDER:

Non-Responsive

Encl

Director, Occupational Health Sciences

CF: (wo/CD-ROMs)

USACHPPM-NORTH (MCHB-AN-IH/MR. Non-Responsive

Readiness thru Health



U.S. Army Center for Health Promotion and Preventive Medicine



INDUSTRIAL HYGIENE SURVEY
REPORT NO. 55-ML-048L-05/07
NEW YORK ARMY NATIONAL GUARD FACILITIES
LEEDS ARMORY
LEEDS, NEW YORK
21 SEPTEMBER 2005







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Readiness Thru Health

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U.S. ARMY CENTER FOR HEALTH PROMOTION AND PREVENTIVE MEDICINE

The U.S. Army Center for Health Promotion and Preventive Medicine (USACHPPM) lineage can be traced back over 50 years to the Army Industrial Hygiene Laboratory. That organization was established at the beginning of World War II and was under the direct jurisdiction of The Army Surgeon General. It was originally located at the Johns Hopkins School of Hygiene and Public Health, with a staff of three and an annual budget not to exceed \$3000. Its mission was to conduct occupational health surveys of Army operated industrial plants, arsenals, and depots. These surveys were aimed at identifying and eliminating occupational health hazards within the Department of Defense's (DOD) industrial production base and proved to be beneficial to the Nation's war effort.

Until 1995, it was nationally and internationally known as the U.S. Army Environmental Hygiene Agency or AEHA. Its mission is expanding to support the worldwide preventive medicine programs of the Army, DOD and other Federal Agencies through consultations/ supportive services; investigations and training.

Today, AEHA is redesignated the U.S. Army Center for Health Promotion and Preventive Medicine. Its mission for the future is to provide worldwide technical support for implementing preventive medicine, public health and health promotion/wellness services into all aspects of America's Army and the Army Community anticipating and rapidly responding to operational needs and adaptable to a changing work environment.

The professional disciplines represented at the Center include chemists, physicists, engineers, physicians, optometrists, audiologists, nurses, industrial hygienists, toxicologists, entomologists, and many other as well as sub-specialties within these professions.

The organization's quest has always been one of excellence and continuous quality improvement; and today its vision, to be the nationally recognized Center for Health Promotion and Preventive Medicine, is clearer than ever. To achieve that end, it holds ever fast to its values which are steeped in its rich heritage:

- ♦ Integrity is the foundation
- ♦ Excellence is the standard
- ♦ Customer satisfaction is the focus
- Its people are the most valued resource
- ♦ Continuous quality improvement is its pathway

The organization, which stands on the threshold of even greater challenges and responsibilities, has General Officer leadership. As it moves into the next century, new programs are being added related to health promotion/wellness, soldier fitness and disease surveillance. As always, its mission focus is centered upon the Army Imperatives so that we are trained and ready to enhance the Army's readiness for war and operations other than war.

It is an organization fiercely proud of its history, yet equally excited about the future. It is destined to continue its development as a world-class organization with expanded services to the Army, DOD, other Federal Agencies, the Nation and the World Community.



DEPARTMENT OF THE ARMY

US ARMY CENTER FOR HEALTH PROMOTION AND PREVENTIVE MEDICINE 5158 BLACKHAWK ROAD ABERDEEN PROVING GROUND MD 21010-5403

MCHB-TS-OFS

EXECUTIVE SUMMARY
INDUSTRIAL HYGIENE SURVEY
REPORT NO. 55-ML-048L-05/07
NEW YORK ARMY NATIONAL GUARD FACILITIES
LEEDS ARMORY
LEEDS, NEW YORK
21 SEPTEMBER 2005

1. PURPOSE. To conduct industrial hygiene surveys at New York Army National Guard (NYARNG) facilities to identify and measure the existence and extent of potentially hazardous operations or conditions. This survey will serve to establish a baseline so that an occupational exposure history can be compiled for each civilian or military employee.

2. CONCLUSIONS.

- a. <u>Lead Exposure</u>. Levels of lead in dust that exceeded safe limits for adults and children were identified. These levels may result in health hazards to adults and to children visiting the Armory. Personnel working in the Armory may have been tracking dust-containing lead throughout the facility. Cleaning areas with elevated levels of lead in dust may further prevent lead from becoming redistributed throughout the Armory.
- b. <u>Asbestos</u>. There was a potential for exposure to friable asbestos in the Armory. The building was originally constructed with asbestos-containing building materials (ACBM) used for insulation on the hot water pipes and the boiler system. Sections of these pipes were damaged. No asbestos management plan (AMP) could be located.
- c. <u>Safety and Occupational Health Programs</u>. Annual Hazard Communication (HAZCOM) training was conducted and documented. The written HAZCOM program was incomplete. The program was a duplicate copy of the Latham Armory program, which had not been updated since April 1994.
- d. <u>Safety Concerns</u>. Fire extinguisher records indicated that fire extinguishers had not been inspected since March 2004. The front entrance door was blocked. Several doors in the building did not open properly.
- e. <u>Lighting</u>. In the professional judgment of the project officer, the lighting levels were adequate.

Readiness thru Health



3. RECOMMENDATIONS.

- a. <u>Lead Exposure</u>. Health Risk Assessment Code (RAC) 3 for child exposure. Health RAC 4 for adult exposure. Clean horizontal surfaces in the administrative areas to the National Guard Bureau (NGB) Region North Industrial Hygiene Office and US Army Center for Health Promotion and Preventive Medicine (USACHPPM) recommended maximum levels. Follow the guidance in Appendix E of the report. Address all potential lead hazards before continuing to extend the use of this facility to children. If children will visit this facility, clean the floors in the Drill Hall to the Environmental Protection Agency and State of New York lead in dust standards for young children, and clean other horizontal surfaces in the Drill Hall and Classroom to the NGB Region Industrial Hygiene Office North and USACHPPM recommended maximum level for lead in dust on frequently contacted surfaces. Ensure that personnel wear disposable gloves and disposable coveralls as extra protection when cleaning in all areas identified as having elevated levels of lead. Consult with the NYARNG Environmental Coordinator concerning waste disposal requirements after clean up.
- b. <u>Asbestos Exposure</u>. Health RAC 3. Review Leeds Armory and the New York State Division of Military and Naval Affairs office records to determine if there is an AMP or records of an asbestos survey for Leeds Armory. If no records are found, perform an asbestos survey to determine the location and amount of ACBM throughout the building. If an AMP is not found, develop, implement, and maintain one at Leeds. Expand the planned abatement for the boiler room to include the locker room pipe insulation and any other areas in the building where ACBM is identified.
- c. <u>Safety and Occupational Health Programs</u>. Health RAC 3. Develop and implement a written HAZCOM program that is specific for Leeds Armory.
- d. <u>Other Building Concerns</u>. Safety RAC 3. Inspect the building fire extinguishers monthly. Mark the tags on the fire extinguishers with the initials of the person conducting the inspection. Remove all objects blocking the entrance door. Fix all doors that do not open properly.
 - e. Lighting. No RAC can be assigned. If lighting seems inadequate, use task lighting.

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INDUSTRIAL HYGIENE SURVEY REPORT NO. 55-ML-048L-05/07 NEW YORK ARMY NATIONAL GUARD FACILITIES LEEDS ARMORY LEEDS, NEW YORK 21 SEPTEMBER 2005

- 1. REFERENCES. See Appendix A.
- 2. PURPOSE OF EVALUATION. To conduct industrial hygiene surveys at New York Army National Guard (NYARNG) facilities to identify and measure the existence and extent of potentially hazardous operations or conditions. This survey will serve to establish a baseline so that an occupational exposure history can be compiled for each civilian or military employee.
- 3. AUTHORITY. Fax, National Guard Bureau Region North Industrial Hygiene Office (NGB-ARS-IHNE/Ms. Non-Responsive), 27 July 2005, subject: SAB.
- 4. BACKGROUND. No floor plan could be located for this report.
 - a. Date of Construction. The construction date was 1961.
 - b. Size of Facility. Approximately 30,000 square feet.
- c. <u>Armory Use by Children</u>. Ms. Hub Superintendent, stated that children visited the facility occasionally.
 - d. Mission. Support of a 105th Infantry Battalion detachment.
- e. <u>Point of Contact (POC)</u>. The POC was Mr. Non-Responsive, Facilities Management Supervisor, 330 Old Niskayuna Road, Latham, NY, 12110-2224, Phone: 518-786-4552.
- 5. FACILITY EVALUATION.
- a. <u>Sampling</u>. Surface lead in dust, lead in air and bulk asbestos sampling was conducted to determine the existence of lead and asbestos hazards. Results are shown in Appendix B.
 - b. Physical Condition of Facilities.
- (1) Paint. The paint was in good condition throughout the facility. All office areas had been recently painted. No chipping or deteriorating paint was observed.
- (2) Asbestos. Ms. Hub Superintendent, stated that some pipe insulation in the boiler room had been identified as asbestos-containing building material (ACBM) and had been

encapsulated. Pipe insulation in the Locker Room (former Indoor Firing Range (IFR)) was damaged and contained suspected ACBM. A sample was collected for identification. No Asbestos Management Plan (AMP) was found.

- (3) Mold and Moisture Problems. No mold or moisture problems were observed or reported.
- (4) Building Physical Condition. The building was in fair to good condition. Major projects planned for 2006 included boiler replacement as well as ACBM pipe insulation abatement in the boiler room. Other projects such as repairing the front door, which does not open properly, were under consideration. Other doors in the building were also difficult to open.
- (5) Former IFR. The IFR had been closed, lead had been abated, and the IFR had been converted to a Locker Room. Abatement documentation was at Latham.
- c. <u>Safety and Occupational Health Programs</u>. Annual Hazard Communication (HAZCOM) training was conducted and documented. The written program was incomplete. The program was a duplicate copy of the Latham facility's program, which had not been updated since April 1994.
- d. <u>Heating, Ventilation, and Air Conditioning Systems</u>. The building utilized a hot water heating system and was not air-conditioned. There was no industrial ventilation system.
- e. <u>Noise Dosimetry</u>. No operations with the potential to generate hazardous noise levels were identified.
- f. <u>Lighting</u>. The scope of work for this survey called for measurement of lighting levels in areas where there may have been a potential problem, based on professional judgment. The National Guard Bureau (NGB) verbally requested that light levels be measured throughout facilities. Due to miscommunication, the project officer visiting this site did not quantify light levels, but did use professional judgment in assessing the lighting levels.
- g. <u>Indoor Air Quality</u>. Temperature in degrees Fahrenheit (°F), Relative Humidity (RH) in percent, and carbon dioxide (CO₂) levels in parts per million (ppm) were sampled in three locations throughout the facility to assess building indoor environmental air quality. There was no industrial operation with the potential to produce carbon monoxide. The results are shown in the Table. The temperature averaged 74° F, RH averaged 58 percent, and CO₂ levels averaged 425 ppm. The American Society of Heating, Refrigerating and Air-conditioning Engineers, Inc. recommends 71-81 °F for an acceptable thermal environment in the summer, 30-60 percent RH, and maintaining CO₂ levels below the value of 700 ppm plus the outdoor ambient level of approximately 380 ppm. All values were within these guidelines.

TABLE. Indoor Air Quality Measurements.

Location	CO ₂ (ppm)	Temp (°F)	RH (%)
Outdoors	425	74	58
Drill Hall	410	74	57
Classroom (basement)	460	74	56
Former IFR	410	74	61

h. Safety Concerns. Fire extinguisher tags had not been initialed for inspection since March maintenance assistant, stated that he inspected the fire extinguishers monthly and kept the records in the office. The front entrance door area was blocked with boxes and other material.

6. ASSESSMENT CRITERIA FOR LEAD.

Posted to NGB FOIA Reading Room

May, 2018

- a. <u>Lead in Air</u>. The Army complies with the Occupational Safety and Health Administration (OSHA) 8-hour time-weighted average (TWA) Permissible Exposure Limit (PEL) of 50 micrograms of lead per cubic meter (µg/m³) of air.
- b. Lead in Dust. The Environmental Protection Agency (EPA) and State of New York limits for lead in dust are 40 micrograms per square foot (μg/ft²) on floors, 250 μg/ft² on windowsills, and 400 µg/ft² in window troughs. These limits apply to pre-1978 Army facilities only if children under 6 years of age occupy them for 60 or more hours per year. The NGB Region North Industrial Hygiene Office concurs with the U.S. Army Center for Health Promotion and Preventive Medicine (USACHPPM) recommended maximum level of 200 µg/ft² on floors and frequently contacted surfaces, which is more stringent for windowsills than the EPA/State standards. This limit was adopted from OSHA guidance in Compliance Letter 02-02-58. Additional information is provided in Appendix C.
- c. Lead in Paint. Paint containing lead levels of 0.5 percent or more by weight in dried solid (also reported as 5,000 milligrams per kilogram) is considered to be lead-based paint according to both Federal and New York State Regulations.
- 7. SAMPLING RESULTS, DISCUSSION, AND CONCLUSIONS. The results with laboratory reports are shown in Appendix B.
- a. Lead in Air. General area lead in air sampling was conducted in the Drill Hall, Locker Room (former IFR), Classroom (4B) and Recreation Room (5B). Results are shown in Table B-2, Appendix B. The air sample results were below the limit of detection of $12 \mu g/m^3$, as well as the OSHA 8-hour TWA and PEL of 50 μg/m³.

- b. Lead in Dust. Lead in dust sample locations and analytical results are shown in Table B-1, Appendix B. Sample results greater than $40~\mu g/ft^2$ for floors or $200~\mu g/ft^2$ for other surfaces are highlighted. One result exceeded the NGB Region North Industrial Hygiene Office and USACHPPM recommended maximum level for lead in dust on floors. Personnel working in this room were potentially exposed to lead, and may have been tracking lead out of the area and redistributing it into adjacent rooms in the Armory. This can result in lead exposures for the general workforce and for children visiting this facility. These levels are hazardous to children exposed to lead dust through physical contact, inhalation, or ingestion of lead dust while visiting the Armory.
- c. <u>Asbestos</u>. There was a potential for exposure to friable asbestos in the Armory. Damaged asbestos insulation may become friable and release asbestos fibers. The sampling result shown in Table B-3, Appendix B, confirms that the pipe insulation in the Locker Room (converted IFR) is ACBM. Army policy requires the Armory to establish and execute an AMP for any asbestos in the facility, and to take immediate corrective action where a possible asbestos hazard has been identified.
- 8. RECOMMENDATIONS. The Department of Defense Instruction 6055.1 provides Risk Assessment Codes (RACs) for health hazards, a procedure which allows assessment of the magnitude of exposure to physical, chemical, and biological agents and the possible medical effects of exposure. The RAC is an expression of the risk associated with the hazard and combines the hazard severity and accident probability into a single number. The RACs enable one to prioritize hazards. They range in magnitude from 1 to 5, with 1 being the highest priority.
- a. <u>Lead Exposure</u>. Health RAC 3 for child exposure. Health RAC 4 for adult exposure. Clean horizontal surfaces in the administrative areas to the NGB Region North Industrial Hygiene Office and USACHPPM recommended maximum level. Follow the guidance in Appendix E. Address all potential lead hazards before continuing to extend the use of this facility to children. If children will visit this facility, clean the floors in the Drill Hall to the EPA lead in dust standards for young children, and clean other horizontal surfaces in the Drill Hall and Classroom to the NGB Region North Industrial Hygiene Office and USACHPPM recommended maximum level for lead in dust on frequently contacted surfaces. Ensure that personnel wear disposable gloves and disposable coveralls as extra protection when cleaning in all areas identified as having elevated levels of lead. Consult with the NYARNG Environmental Coordinator concerning waste disposal requirements after clean up.
- b. <u>Asbestos Exposure</u>. Health RAC 3. Review Leeds Armory and the New York State Division of Military and Naval Affairs office records to determine if there is an AMP or records of an asbestos survey for Leeds Armory. If no records are found, perform an asbestos survey to determine the location and amount of ACBM throughout the building. If an AMP is not found, develop, implement, and maintain one at Leeds. Expand the planned abatement for the boiler

room to include the locker room pipe insulation and any other areas in the building where ACBM is identified.

- c. <u>Safety and Occupational Health Programs</u>. Health RAC 3. Develop and implement a written HAZCOM program that is specific for Leeds Armory.
- d. Other Building Concerns. Safety RAC 3. Inspect the building fire extinguishers monthly. Mark the tags on the fire extinguishers with the initials of the person conducting the inspection. Remove all objects blocking the entrance door. Fix all doors that do not open properly.
 - e. Lighting. No RAC can be assigned. If lighting seems inadequate, use task lighting.
- 9. PHOTOGRAPHS. See Appendix D.
- 10. ADDITIONAL ASSISTANCE. For additional assistance or questions concerning this report, please contact the undersigned at commercial 410-436-3118, DSN 584-3118, or by electronic mail: Non-Responsive @us.army.mil



Industrial Hygienist
Industrial Hygiene Field Services Program

APPROVED:



Program Manager
Industrial Hygiene Field Services Program

APPENDIX A

REFERENCES

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

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- 12. OSHA Directive CPL 02-02-58, Lead Exposure in Construction; Interim Final Rule Inspection and Compliance Procedures, December 13, 1993.

A-1

NYARNG, IH Survey, Leeds Armory, Leeds, NY, Report No. 55-ML-048L-05/07, 21 Sep 05

APPENDIX B

SAMPLING RESULTS

TABLE B-1. Lead in Surface Dust Locations and Analytical Results.

Wipe Sample	Location of Samples	Result (µg/ft²)
Number	-	
LE-W01	Locker Room (Former IFR) – Bullet Trap Area Floor	<mark>87</mark>
LE-W02	Locker Room – Bullet Trap Area Wall	4.3
LE-W03	Locker Room – Top of Locker	310
LE-W04	Locker Room – Light Fixture	410
LE-W05	Locker Room – Door Outside	8.1
LE-W06	Basement Storage	<mark>68</mark>
LE-W07	Kitchen Stove Top Shelf	6.5
LE-W08	Room 5B	<2.7
LE-W09	Classroom 1 st Floor, Room 4B	4.1
LE-W10	Office Desk Top, Room 15	17
LE-W13	Drill Hall – NW Corner	21
LE-W14	Drill Hall – NE Corner	2.9
LE-W15	Drill Hall – SE Corner	13,000
LE-W16	Drill Hall – SW Corner	31
LE-W17	Drill Hall – Center	37
LE-W18	Stairway to Basement	110
LE-W21	FATS Room	8.1

TABLE B-2. Lead in Air Locations and Analytical Results.

Air Sample	Location of Samples	Result (µg/ft³)
Number		
LE-A01	Drill Hall	<12
LE-A02	Locker Room (Former IFR)	<12
LE-A03	Classroom, Room 4B	<13
LE-A04	Recreation Room, Room 5B	<13

TABLE B-3. Bulk Asbestos Sample Location and Analytical Result

Air Sample	Location of Samples	Result, % Total
Number		Asbestos
		(chrysotile)
LE-B01	Locker Room (Former IFR) Pipe Insulation	5

APPENDIX C

ASSESSMENT CRITERIA FOR LEAD

Subject: Recommendations for Surface Lead Dust in Armories

- 1. In armories that do not contain childcare facilities, the National Guard Bureau (NGB) Region North Industrial Hygiene Office recommends cleaning the areas in which sample results are greater than 200 micrograms per square foot ($\mu g/ft^2$). If a special function will be held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function. This guidance is based on professional judgment, risk assessments, adaptation of Occupational Safety and Health Administration (OSHA) guidance, and feasibility of cleaning to a certain level.
- a. Environmental Protection Agency (EPA) standards (40 Code of Federal Regulations (CFR) 745.227(h)(3)) are not directly applicable because they are criteria for dust-lead hazards developed for floors (40 μ g/ft²) and windowsills (250 μ g/ft²) in residential dwellings and child occupied facilities. A child occupied facility is defined as a building, or portion of a building, constructed prior to 1978, visited regularly by the same child, 6 years of age or under, on at least two different days within any week (Sunday through Saturday period), provided that each day's visit lasts at least 3 hours and the combined weekly visit lasts at least 6 hours, and the combined annual visits last at least 60 hours. Most of the wipe samples in armories were collected in undisturbed areas and therefore, results are worst case scenarios and do not correlate to these standards.
- b. OSHA has no specific requirement for work area surfaces. The lead standard (29 CFR 1910.1025(h)) states that all surfaces shall be maintained as free as practicable of accumulations of lead dust. In workplaces where lead dust is generated, surface levels may be much higher, but personnel exposures can be controlled by limiting airborne lead levels and following good cleanup and hygienic practices.
- c. OSHA used to cite a level of 200 μ g/ft² in their Technical Manual and 29 CFR 1926.62 as guidance to its own inspectors for evaluating the cleanliness of lunchroom and locker room surfaces that are supposed to be kept as clean as possible.
 - d. In a report titled Derivation of Wipe Surface Screening Levels for Environmental Chemicals, the US Army Center for Health Promotion and Preventive Medicine (USACHPPM) has determined that $200~\mu\text{g/ft}^2$ is a safe surface contamination level. They have also applied these standards as the decontamination levels for surfaces in administrative offices.
 - e. It should be noted that levels above these recommendations do not necessarily mean

there is a significant hazard to workers who are following good cleaning and hygienic practices since there is no correlation between wipe and air samples. Rather, we recommend these levels as a precautionary measure.

- 2. The NGB Occupational Health Branch is developing guidance for armories that are used as childcare facilities. All states will receive this guidance when it is completed. In the interim, we recommend the following actions:
 - a. Clean all areas that will be accessible to children to the EPA dust-lead standard for children 6 years of age or under $(40 \mu g/ft^2)$ on floors and 250 $\mu g/ft^2$ on windowsills).
- b. Refer to the local authorities' regulations since they can be more stringent than federal regulations.
 - c. Post signs in the area to inform people of the presence of lead dust and its effects.
 - d. If Soldiers clean weapons in the facility change the policy so that they cannot clean their weapons in the facility, or if they are allowed to clean their weapons indoors, they must clean the area by wet wiping and mopping the area when they are done.
 - e. If the paint is peeling, contact the state Environmental Office to test for lead content and provide recommendations.
- 3. Ambient air samples collected in the armory were well below OSHA's permissible exposure limit for lead (29 CFR 1910.1025(c)) of 0.05 mg/m³ averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead dust in this building,

APPENDIX D

PHOTOGRAPHS



Former IFR – bullet trap area floor



Former IFR – bullet trap area wall



Former IFR – door outside



Basement storage – drain pipe (former NCO Club)



Kitchen – stove shelf



"War Room" – room 5B



Classroom 1st floor – room 4B



Office desktop – room 15



Drill Hall - NW corner



Drill Hall – NE corner



Drill Hall – SE corner



Drill Hall - SW corner



Drill Hall – center floor



Locker Room (former IFR) – deteriorating pipe insulation



Asbestos containing insulation



Material blocking front entrance door

NYARNG, IH Survey, Leeds Armory, Leeds, NY, Report No. 55-ML-048L-05/07, 21 Sep 05 APPENDIX E

LEAD CLEANING GUIDANCE





CHAPTER 14: CLEANING

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Step-by-Step Summary



Cleaning: How To Do It

- Include step-by-step procedures for precleaning, cleaning during the job, and daily and final cleanings in project design or specifications.
- 2. Assign responsibilities to specific workers for cleaning and for maintaining cleaning equipment.
- 3. Have sufficient cleaning equipment and supplies before beginning work.
- 4. If contamination is extensive, conduct precleaning of the dwelling unit. Move or cover all furniture and other objects.
- Conduct ongoing cleaning during the job, including regular removal of large and small debris and dust.
 Decontamination of all tools, equipment, and worker protection gear is required before it leaves containment areas. Electrical equipment should be wiped and high-efficiency particulate air (HEPA) vacuumed, not wetted down, to minimize electrocution hazards.
- 6. Schedule sufficient time (usually 30 minutes to an hour) for a complete daily cleaning, starting at the same time near the end of each workday after lead hazard control activity has ceased.
- For final cleaning, wait at least 1 hour after active lead hazard control activity has ceased to let dust particles settle.
- Use a vacuum cleaner equipped with a HEPA exhaust filter. HEPA vacuum all surfaces in the room (ceilings, walls, trim, and floors). Start with the ceiling and work down, moving toward the entry door. Completely clean each room before moving on.
- Wash all surfaces with a lead-specific detergent, high-phosphate detergent, or other suitable cleaning agent to dislodge any ground-in contamination, then rinse. Change the cleaning solution after every room is cleaned.
- 10. Repeat step 8. To meet clearance standards consistently, a HEPA vacuum, wet wash, and HEPA vacuum cycle is recommended. For interim control projects involving dust removal only, the final HEPA vacuuming step is usually not needed (see Chapter 11). Other cleaning methods are acceptable, as long as clearance criteria are met and workers are not overexposed.
- 11. After final cleaning, perform a visual examination to ensure that all surfaces requiring lead hazard control have been addressed and all visible dust and debris have been removed. Record findings and correct any incomplete work. This visual examination should be performed by the owner or an owner's representative who is independent of the lead hazard control contractor.
- 12. If other construction work will disturb the lead-based paint surfaces, it should be completed at this point. If those surfaces are disturbed, repeat the final cleaning step after the other construction work has been completed.
- 13. Paint or otherwise seal treated surfaces and interior floors.
- 14. Conduct a clearance examination (see Chapter 15).
- 15. If clearance is not achieved, repeat the final cleaning.



-Step-by-Step Summary (continued) -



- 16. Continue clearance testing and repeated cleaning until the dwelling achieves compliance with all clearance standards. As an incentive to conduct ongoing cleaning and a thorough final cleaning, the cost of repeated cleaning after failing to achieve clearance should be borne by the contractor as a matter of the job specification, not the owner.
- 17. Do not allow residents to enter the work area until cleaning is completed and clearance is established.
- 18. Cleaning equipment list:
 - HEPA vacuums.
 - Detergent.
 - ♦ Waterproof gloves.
 - Rags.
 - Sponges.
 - Mops.
 - Buckets.
 - ♦ HEPA vacuum attachments (crevice tools, beater bar for cleaning rugs).
 - 6-mil plastic bags.
 - Debris containers.
 - Waste water containers.
 - Shovels.
 - Rakes.
 - Water-misting sprayers.
 - 6-mil polyethylene sheeting (or equivalent).





Chapter 14: Cleaning

I. Introduction

This chapter describes cleaning procedures to be employed following abatement and interim control work. Dust removal as an interim control measure is covered in Chapter 11.

All lead hazard control activities can produce dangerous quantities of leaded dust. Unless this dust is properly removed, a dwelling unit will be more hazardous after the work is completed than it was originally. Once deposited, leaded dust is difficult to clean effectively. Whenever possible, ongoing and daily cleaning of leaded dust during lead hazard control projects is recommended. Ongoing and daily cleaning is also necessary to minimize worker exposures.

Cleaning is the process of removing visible debris and dust particles too small to be seen by the naked eye. Removal of lead-based paint hazards in a dwelling unit will not make the unit safe unless excessive levels of leaded dust are also removed. This is true regardless of whether the dust was present before or generated by the lead hazard control process itself. Improper cleaning can increase the cost of a project considerably because additional cleaning and clearance sampling will be necessary. However, cleaning and clearance can be achieved routinely if care and diligence are exercised.

A. Performance Standard

Although the cleaning methods described in this chapter are feasible and have been shown to be effective in meeting clearance standards, other methods may also be used if they are safe and effective. This performance-oriented approach should stimulate innovation, reduce cost, and ensure safe conditions for both residents and workers.

B. Small Dust Particles

Dust particles that are invisible to the naked eye remain on surfaces after ordinary cleaning procedures. A visibly clean surface may contain high and unacceptable levels of dust particles and require special cleaning procedures.

C. Difficulties in Cleaning

While cleaning is an integral and essential component of any lead hazard control activity, it is also the most likely part of the activity to fail.

Several common reasons for this failure include low clearance standards, worker inexperience, high dust-producing methods, and deadlines.

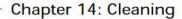
1. Low Clearance Standards

Because very small particles of leaded dust are easily absorbed by the body when ingested or inhaled, a small amount can create a health hazard for young children. Therefore, "clearance standards" are extremely low for acceptable levels of leaded dust particles on surfaces after hazard control activities, and careful cleaning procedures are required. Although it is not possible to remove all leaded dust from a dwelling, it is possible to reduce it to a safe level.

Clearance standards are described more fully in Chapter 15. The permissible amount of leaded dust remaining on each of the following surfaces following lead hazard work is as follows:

- 100 μg/ft² on floors.
- 500 μg/ft² on interior window sills (stools).
- 800 µg/ft² on window troughs (the area where the sash sits when closed).
- 800 μg/ft² on exterior concrete.

These levels are based on wipe sampling.
Clearance testing determines whether the premises or area are clean enough to be reoccupied after the completion of a lead paint hazard control project. A cleaned area may not be reoccupied until compliance with clearance standards has been established. To prevent delays, final testing and final cleaning activities should be coordinated.







2. Worker Inexperience

To understand the level of cleanliness required to meet the established clearance standards for hazard control cleanup, new hazard control personnel often require a significant reorientation to cleaning. Many construction workers are used to cleaning up only dust that they can see, not the invisible dust particles that are also important to remove.

3. High Dust-Producing Methods and/or Inadequate Containment

High dust-generating methods, inadequate containment during hazard control work, and poor work practices can all make achievement of clearance particularly difficult. Work practices necessary to prevent spreading of dust throughout a dwelling (e.g., by tracking dust out of work areas) are essential but sometimes tedious. Essential work practices are sometimes mistakenly considered to be "flexible guidelines" rather than necessary standards that are designed to ensure that the job is completed, not only safely, but also on time and within budget.

4. Deadlines

Daily and final cleanings have sometimes been compromised due to project deadlines, since cleaning comes at the end of the job. Hurried efforts often result in clearance failure. Delayed and over-budget hazard control projects are often the result of repeated, unplanned recleanings that are necessitated by inadequate containment and sloppy work practices.

II. Coordination of Cleaning Activities

A. Checklist

The owner or contractor may use the following cleaning checklist before any lead hazard control activity:

- ✓ Is the critical importance of cleaning in a hazard control project understood?
- ✓ Have all workers been trained and certified for hazard control work?

- ✓ Have the precleaning, daily, and final cleanings been scheduled properly and coordinated with the other participants in the hazard control process?
- ✓ Have cleaning equipment and materials been obtained?
- ✓ Do the workers know how to operate and maintain special cleaning equipment, and do they have directions for the proper use of all cleaning materials?
- ✓ Have all workers carefully studied the step-by-step procedures for precleaning (if needed), in-progress cleaning, and daily and final cleanings?
- ✓ Are all workers properly protected during the cleaning processes (see Chapter9)?
- ✓ Have provisions been made to properly contain and store potentially hazardous debris (see Chapter 10)?
- ✓ Have dust-clearance testing and related visual inspections been arranged (see Chapter 15)?
- ✓ Are the clearance criteria to be met fully understood?
- ✓ Have all appropriate surfaces been properly painted or otherwise sealed?
- ✓ Have appropriate records been maintained that document participants' roles in the hazard control project?

B. Equipment Needed for Cleaning

The following equipment is needed to conduct cleaning: high-efficiency particulate air (HEPA) vacuums and attachments (crevice tools, beater bar for cleaning rugs), detergent, waterproof gloves, rags, sponges, mops, buckets, 6-mil plastic bags, debris containers, waste water containers, shovels, rakes, water-misting sprayers, and 6-mil polyethylene plastic sheeting (or equivalent).

Chapter 14: Cleaning



C. Waste Disposal

Regulations governing hazardous and nonhazardous waste storage, transportation, and disposal affect both the daily and final cleaning procedures. The hazard control contractor and the disposal contractor should work together to establish formal written procedures, specifying selected containers, storage areas, and debris pickups, to ensure that all relevant regulations are met.

III. Cleaning Methods and Procedures

Many of the special cleaning methods and procedures detailed in this chapter are not standard operating procedure for general home improvement contractors. Therefore, project designers, responsible agencies, or owners must ensure that contractors follow the methods and procedures recommended herein or specially designed alternative procedures, even though some may appear to be redundant and unnecessary. These methods have been shown to be feasible and effective in many situations and skipping steps in the cleaning procedures can be counterproductive.

A. Containment

Because of the difficulty involved in the removal of fine dust, dust generated by hazard control work should be contained to the extent possible to the inside of work areas. Inadequately constructed or maintained containment or poor work practices will result in additional cleaning efforts, due to dust that has leaked out or been tracked out of the work area (see Chapter 8).

B. Basic Cleaning Methods: Wet Wash and Vacuum Cleaning Techniques

Because leaded dust adheres tenaciously, especially to such rough or porous materials as weathered or worn wood surfaces and masonry surfaces (particularly concrete), workers should be trained in cleaning methods. As a motivator,

some contractors have awarded bonuses to workers who pass clearance the first time.

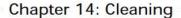
Two basic cleaning methods have proven effective, when used concurrently, in lead-based paint hazard control projects: a special vacuum cleaner equipped with a HEPA exhaust filter, followed by wet washing with special cleaning agents and rinsing, followed by a final pass with the HEPA vacuum.

Although HEPA filtered vacuums and triso-dium phosphate (TSP) cleaners have been considered the standard cleaning tools for lead hazard control projects, new research, discussed under the "Alternatives Methods" section in this chapter, suggests that other tools and products may also be effective in efficiently cleaning dust while providing adequate worker protection from airborne exposure risks. Some of these innovations may even be superior.

1. HEPA Vacuuming

HEPA vacuums differ from conventional vacuums in that they contain high-efficiency filters that are capable of trapping extremely small, micron-sized particles. These filters can remove particles of 0.3 microns or greater from air at 99.97 percent efficiency or greater. (A micron is 1 millionth of a meter, or about 0.00004 inches.) Some vacuums are equipped with an ultra-low penetration air (ULPA) filter that is capable of filtering out particles of 0.13 microns or greater at 99.9995 percent efficiency. However, these ULPA filters are slightly more expensive, and may be less available than HEPA filters.

Vacuuming with conventional vacuum machines is unlikely to be effective, because much of the fine dust will be exhausted back into the environment where it can settle on surfaces. A recent Canadian study revealed that finedust air levels were exceedingly high when a standard portable vacuum with a new bag was used, although partially filled bags were found to be more efficient (CMHC, 1992). Considerations for the proper use of a HEPA vacuum are listed below.







Operating Instructions

There are a numerous manufacturers of HEPA vacuums. Although all HEPA vacuums operate on the same general principle, they may vary considerably with respect to specific procedures, such as how to change the filters. To ensure the proper use of equipment, the manufacturer's operating instructions should be carefully followed and if possible, training sessions arranged with the manufacturer's representative.

Although HEPA vacuums have the same "suction" capacity as ordinary vacuums that are comparably sized, their filters are more efficient. Improper cleaning or changing of HEPA filters may reduce the vacuum's suction capability.

Special Attachments

Because the HEPA vacuum will be used to vacuum surfaces other than floors, operators should buy attachments and appropriate tool kits for use on different surfaces—such as brushes of various sizes, crevice tools, and angular tools.

Selecting Appropriate Size(s)

HEPA vacuums are available in numerous sizes, ranging from a small lunchbucket-sized unit to track-mounted systems. Two criteria for size selection are the size of the job and the type of electrical power available. Manufacturer recommendations should be followed.

Wet-Dry HEPA Vacuums

Some hazard control contractors have found the wet-dry HEPA vacuums to be particularly effective in meeting clearance standards. These vacuums are equipped with a special shut-off float switch to protect the electrical motor from water contact.

Prefilters

HEPA filters are usually used in conjunction with a prefilter or series of prefilters that trap the bulk of the dust in the exhaust airstream, particularly the larger particles. The HEPA filter traps most of the remaining small particles that have passed through the prefilter(s). All filters must be maintained and replaced or

cleaned as specified in the manufacturer's instructions. Failure to do so may cause a reduction in suction power (thus reducing the vacuum's efficiency and effectiveness). Failure to change prefilters may damage the vacuum motor and will also shorten the service life of the HEPA filter, which is far more expensive than the prefilters.

HEPA Vacuuming Procedures

Surfaces frequently vacuumed include ceilings, walls, floors, windows, interior and exterior sills, doors, heating, ventilation, and air conditioning (HVAC) equipment (heating diffusers, radiators, pipes, vents), fixtures of any kind (light, bathroom, kitchen), built-in cabinets, and appliances.

To aid in dislodging and collecting deep dust and lead from carpets, the HEPA vacuum must be equipped with a beater bar (agitator head) that is fixed to the cleaning head. This bar should be used on all passes on the carpet face during dry vacuuming (see Chapter 11 for details on carpet and furniture cleaning).

All rooms and surfaces should be included in the HEPA vacuum process, except for those that (1) were found not to have lead-paint hazards and were properly separated from work areas before the process began (see Chapter 8), or (2) were never entered during the process. Porches, sidewalks, driveways, and other exterior surfaces should be vacuumed if exterior hazard control work was conducted, or if debris was stored or dropped outside. Vacuuming should begin on the ceilings and end on the floors, sequenced to avoid passing through rooms already cleaned, with the dwellings' entryway cleaned last.

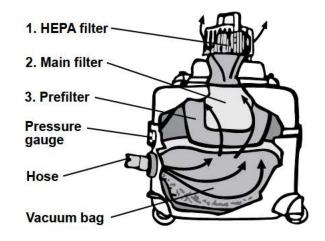
Emptying the HEPA Vacuum

Used filters and vacuumed debris are potentially hazardous waste and should be treated accordingly (see Chapter10). Therefore, operators should use extreme caution when opening the HEPA vacuum for filter replacement or debris removal to avoid accidental release of accumulated dust into the environment. This may occur, for example, if the vacuum's seal has been broken and the vacuum's bag is disturbed.





Figure 14.1a Vacuum With a HEPA Filter.



Parts of a HEPA-vacuum

Most HEPA-vacuums have three filters: HEPA filter, main filter, and prefilter. Debris gets sucked in through the hose into the vacuum bag. The air and dust get filtered through the prefilter, the main filter, and the HEPA filter. The HEPA filter captures the lead dust before the air is released into the work area again.

Operators should also wear a full set of protective clothing and equipment, including appropriate respirators, when performing this maintenance function, which should be done in the containment area or offsite.

2. Wet Detergent Wash

Several types of detergents have been used to remove leaded dust. Those with a highphosphate content (containing at least 5 percent trisodium phosphate, also known as TSP) have been found to be effective when used as part of the final cleaning process (Milar, 1982). TSP detergents are thought to work by coating the surface of dusts with phosphate or polyphosphate groups which reduces electrostatic interactions with other surfaces and thereby permits easier removal. Because of environmental concerns some States have restricted the use of TSP, and some manufacturers have eliminated phosphates from their household detergents. However, high-TSP detergents can usually be found in hardware stores and may be permitted for limited use, such as lead hazard control.

Other non-TSP cleaning agents developed specifically for removing leaded dust have also been found to be effective (possibly more effective than TSP) in limited trials by several

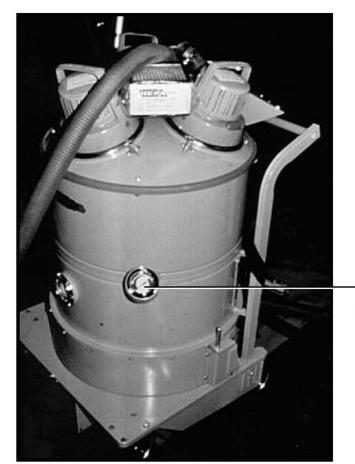


Figure 14.1b Pressure Gauge Indicator Shows When Filters Require Changing.

14-9

Pressure

gauge





Figure 14.2 HEPA Vacuum Sizes and Tools.

investigators (Grawe, 1993; Wilson, 1993) and may also be safer, since TSP is a skin and eye irritant. See section VII for more information on non-TSP detergents. Proper procedures for using high-phosphate detergents also apply to most other types of detergents and include the following steps:

Manufacturer's Dilution Instructions

Users of cleaning agents for leaded dust removal should follow manufacturer's instructions for the proper use of a product, especially the recommended dilution ratio. Even diluted, trisodium phosphate is a skin irritant and users should wear waterproof gloves. Eye protection should also be worn, and portable eyewash facilities should be located in or very near the work area. Consult manufacturer's directions for the use of other detergents.

Appropriate Cleaning Equipment

Because a detergent may be used to clean leaded dust from a variety of surfaces, several types of application equipment are needed, including cleaning solution spray bottles, wringer buckets, mops, variously sized hand sponges, brushes, and rags. Using the proper equipment on each surface is essential to the quality of the wetwash process.

Proper Wet-Cleaning Procedures

At the conclusion of the active lead hazard control process and the initial HEPA vacuuming, all vacuumed surfaces should be thoroughly and completely washed with a high-phosphate solution or other lead-specific cleaning agent (or equivalent) and rinsed. Select a detergent that does not damage existing surface finishes (TSP may damage some finishes). Work should proceed from ceilings to floors and sequenced to avoid passing through rooms already cleaned.

Changing Cleaning Mixture

Many manufacturers of cleaners will indicate the surface area that their cleaning mixture will cover. To avoid recontaminating an area by cleaning it with dirty water, users should follow manufacturer-specified surface-area limits. However, regardless of manufacturers' recommendations, the cleaning mixture should be changed after its use for each room. As a rule of thumb, 5 gallons should be used to clean no

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Figure 14.3 Goggles, Face Shields, Gloves, and Eye Wash Facilities Should Be Available When Used With Chemicals Such as TSP. EMERGENCY EYE WASH STATION Latex Neoprene Nitrile

more than 1,000 square feet. Used cleaning mixture is potentially hazardous waste (see Chapter 10); consult with your local water and sewage utility for directions on its proper disposal. Wash water should never be poured onto the ground. The wash water is usually filtered and then poured down a toilet (if the local water authority approves).

3. The HEPA/Wet Wash/HEPA Cycle

Typical Procedures

The usual cleaning cycle that follows lead hazard control activities is called the HEPA vacuum/wet wash/HEPA cycle and is applied to an entire affected area as follows:

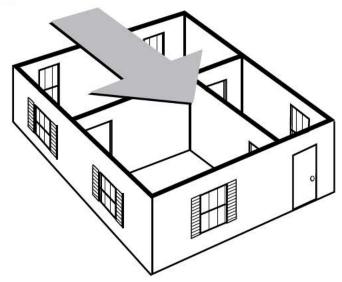
First, the area is HEPA vacuumed.



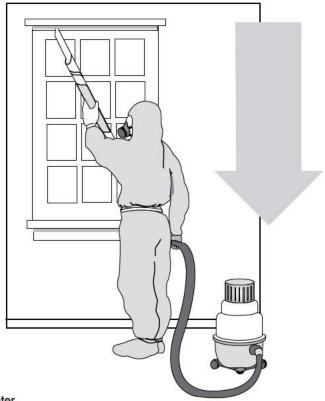


Figure 14.4a The HEPA Vacuum, Wet Wash, HEPA Vacuum Cycle Helps in Meeting Clearance Standards.

HEPA vacuum all surfaces Start at the end farthest from the main entrance/exit. As you vacuum, move towards the main exit and finish there.



Begin at the top of each room and work down. For example, start with the top shelves, the top of the woodwork, and so on, and work down to the floor. Do every inch of the windows, especially the window troughs.



Courtesy: Alice Hamilton Occupational Health Center



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- Next, the area is washed down.
- After drying, the area is again HEPA vacuumed.

The rationale for this three-pass system is as follows:

- The first HEPA vacuum removes as much dust and remaining debris as possible.
- The wet wash further dislodges dust from surfaces.
- The final HEPA cycle removes any remaining particles dislodged but not removed by the wet wash.

Single-Pass Wet Wash/HEPA Vacuum

Some lead hazard control contractors have found HEPA spray cleaner vacuums to be a cost-effective alternative to the three-pass system. Similar to home carpet-cleaning machines, these vacuums simultaneously deliver a solution to the surface and recover the dirty solution. Theoretically, this process combines two of the steps in the HEPA vacuum/wet wash/HEPA cycle into one step. While anecdotal evidence indicates that the spray cleaner wet wash/HEPA is effective for some uses, limitations have been noted in its use for ceilings, vertical surfaces, and hard to reach areas. This device may be used as long as clearance standards are met.

Figure 14.4b (continued)

Use special attachments

Use the rubber cone where the floor meets the baseboard and along all the cracks in the floor boards. Use the brush tool for walls and woodwork.

Use the wheeled floor nozzle for bare floors and the carpet beater for rugs.

Move slowly

Vacuum slowly so the HEPA vacuum can pick up all the lead dust.



Rubber Cone

Dust Brush



Powered Carpet Beater



Wheeled Floor Nozzle





Figure 14.4c (continued)

Wash all surfaces with suitable detergents

Wash all surfaces in the work area with suitable detergents, including areas that had been covered with plastic. Some wallpaper should only be HEPA vacuumed, since it may be damaged by the detergent.



Wipe All Surfaces



Wet Mop Floor



Don't Dry Sweep

Chapter 14: Cleaning



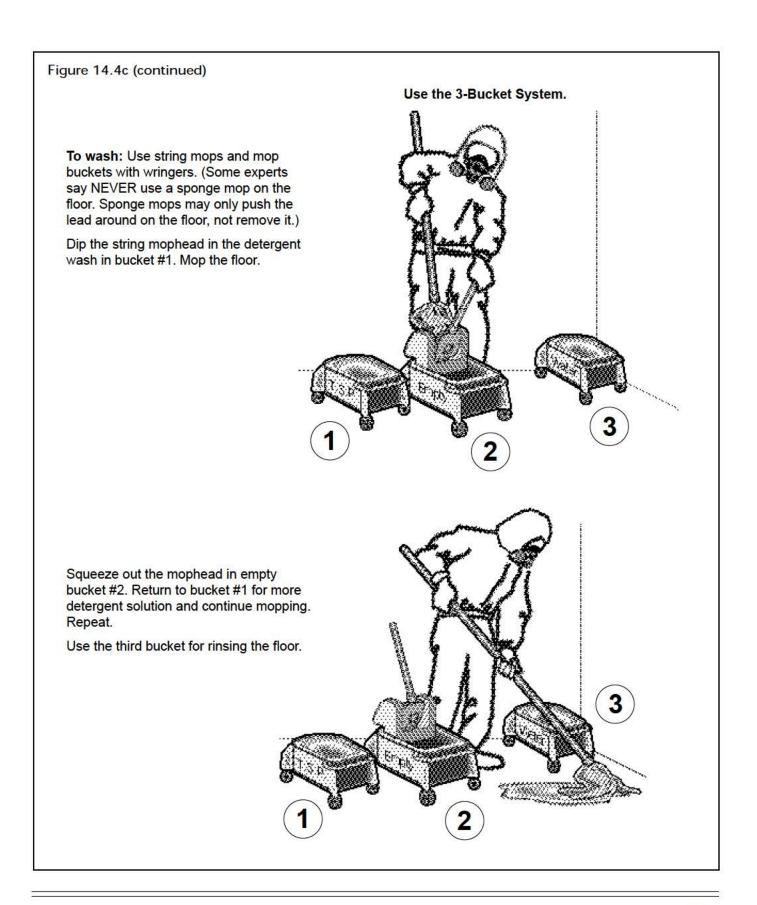


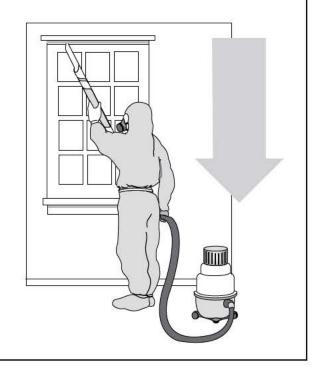




Figure 14.4d (continued)

HEPA vacuum all surfaces a final time HEPA vacuum *all surfaces* in the work area, including areas that had been covered with plastic.

Starting at the far end, work towards the decontamination area. Begin with ceilings or the top of the walls and work down, cleaning the floors last. Do every inch of the windows, especially the troughs. Use the corner tool to clean where the floor meets the baseboard and all the cracks in the floor boards. Use the brush tool for the walls. Move slowly and carefully to get all the dust.



4. Sealing Floors

Before clearance, all floors without an intact, nonporous coating should be coated. Sealed surfaces are easier for residents to clean and maintain over time than those that are not sealed. Wooden floors should be sealed with a clear polyurethane or painted with deck enamel or durable paint. Vinyl tile, linoleum, and other similar floors should be sealed with an appropriate wax. Concrete floors should be sealed with a concrete sealer or other type of concrete deck enamel. However, if these floors are already covered by an effective coat of sealant, it may be possible to skip this step.

As an alternative to sealing, floors may be covered with new vinyl tile, sheet vinyl, linoleum flooring, or the equivalent to create a more permanent cleanable surface. New surfaces should be cleaned with a cleaning solution that is appropriate for that type of surface.

IV. Order of Cleaning Procedures During Lead Hazard Control

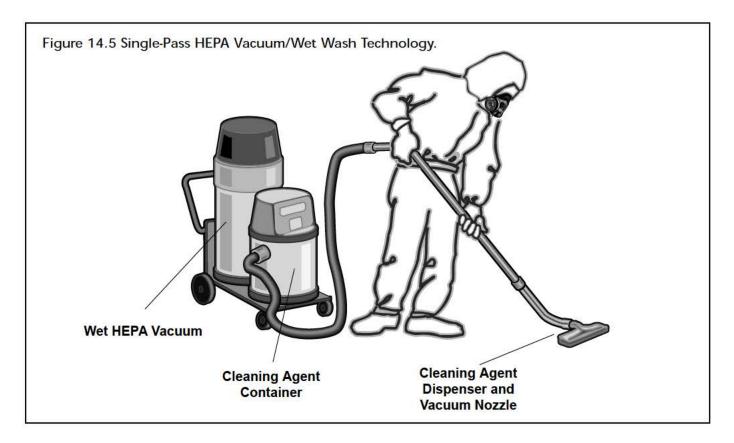
The special cleaning procedures to be followed during a lead-based paint hazard control project are discussed in chronological order below. Skipping steps in the process may result in failure to meet post-lead hazard control clearance standards.

A. Precleaning Procedures

Precleaning (i.e., cleaning conducted before lead hazard control is begun) is necessary only in dwelling units that are heavily contaminated with paint chips. Precleaning involves the removal of large debris and paint chips, followed by HEPA vacuuming. These steps may be followed by removal of occupant personal possessions, furniture, or carpeting, depending on the







Worksite Preparation Level selected (see Chapter 8). If the furniture will not be cleaned, it should be removed from the area or covered with plastic prior to beginning the precleaning procedure. Carpeting should always be misted before its removal to control the generation of hazardous dust.

It is usually the resident's responsibility to remove most of his or her personal possessions. However, if necessary, owners or project management should be prepared to complete this activity before lead hazard control work begins. As a last resort, the contractor may pack any remaining belongings and carefully seal and move the boxes, supplying all necessary boxes, packing materials, and staff to complete the task. Following cleaning and clearance, the contractor should return all packed items to their appropriate places. Leaving these tasks to the contractor may be expensive and inefficient, since the contractor will need to be insured for this function if the occupant's



Figure 14.6 Precleaning Is Needed in Areas Where Contamination and Deterioration Are High.





belongings are damaged. Additionally, moving furniture, rugs, drapes, and other items owned by the occupant could increase leaded dust levels. Clearance should be conducted after cleaning but before resident items are moved back in.

B. Ongoing Cleaning During the Job

Periodic HEPA vacuuming during the lead hazard control work may be necessary to minimize tracking of dust and paint chips from one area to another (e.g., when a large amount of paint chips or dust is being generated).

C. Daily Cleaning Procedures

Cleaning activity should be scheduled at the end of each workday when all active lead hazard control throughout the dwelling has ceased. Sufficient time must be allowed for a thorough and complete cleaning (usually about 30 minutes to an hour). Daily cleaning helps achieve clearance dust levels by minimizing problems that may otherwise occur during final cleaning and limiting worker exposures. While daily cleaning can be skipped in vacant dwelling units, it is required when occupants will



Figure 14.7 Plastic Sheeting Should Be Repaired as Part of Daily Cleanup.

return in the evening. Under no circumstances should debris or plastic be left outside overnight in an unsecured area, even if the dwelling is vacant. Daily cleaning should consist of:

- Removing large debris.
- Removing small debris.
- HEPA vacuuming, wet clean, HEPA vacuuming (horizontal surfaces only).
- Cleaning exterior.
- Patching and repairing plastic sheeting.
- Securing debris/plastic.

1. Large Debris

Large demolition-type debris (e.g., doors, windows, trim) should be wrapped in 6-mil plastic, sealed with tape, and moved to a secure area on the property designated for waste storage. All sharp corners, edges, and nails should be hammered down to prevent injury and minimize the tearing of plastic. It is not necessary to wrap each individual piece of debris in plastic if the entire load can be wrapped. A secure area either outside or inside the property must be designated as a temporary waste-storage area. Covered, secured, and labeled dumpsters placed on or near the property may be used. Proper segregation of waste should be enforced at this time (see Chapter 10).

2. Small Debris

After being misted with water, small debris should be swept up, collected, and disposed of properly. The swept debris should be placed in double 4-mil or single 6-mil polyethylene (or equivalent) plastic bags, properly sealed, and moved to the designated trash storage area. Trash bags should not be overloaded; overloaded bags may rupture or puncture during handling and transport.

3. Exterior Cleaning

Areas potentially affected by exterior lead hazard control should be protected via a containment system (see Chapter 8). Because weather can adversely affect the efficacy of exterior



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containment, the surface plastic of the containment system should be removed at the end of each workday. On a daily basis, as well as during final cleaning, the immediate area should be examined visually to ensure that no debris has escaped containment. Any such debris should be raked or vacuumed and placed in single 6-mil or double 4-mil plastic bags, which should then be sealed and stored along with other contaminated debris. HEPA vacuuming is appropriate for hard exterior surfaces, not soil.

4. Worker Protection Measures

General worker protection measures are discussed in Chapter 9. Studies indicate that during daily cleaning activities, especially while wet sweeping, workers may be exposed to high levels of airborne dust. Therefore, workers should wear protective clothing and equipment, especially appropriate respirators.

5. Maintaining Containment

The integrity of the plastic sheeting used in a lead hazard control project must be maintained. During their daily cleaning activities, workers should monitor the sheeting and immediately repair any holes or rips with 6-mil plastic and duct tape.

V. Order of Final Cleaning Procedures After Lead Hazard Control

Before treated surfaces can be painted or sealed, final cleaning procedures must be completed. Because airborne dust requires time to settle, the final cleaning process should start no sooner than 1 hour after active lead hazard control has ceased in the room. See Appendix 11 for details regarding dust settling.

A. Final Cleaning

As the first stage in the final cleaning, floor plastic should be misted and swept as detailed earlier in this chapter. Upper-level plastic, such as that on cabinets and counters, should be removed first, after it has been misted with water and cleaned. All plastic should be folded

carefully from the corners/ends to the middle to trap any remaining dust. Next, remove both layers of plastic from the floor.

Plastic sheets used to isolate contaminated rooms from noncontaminated rooms should remain in place until after the cleaning and removal of other plastic sheeting; these sheets may then be misted, cleaned, and removed last.

Removed plastic should be placed into double 4-mil or single 6-mil plastic bags, or plastic bags with equivalent (or better) performance characteristics, which are sealed and removed from the premises. As with daily cleanings, this plastic-removal process usually requires workers to use protective clothing and respirators.

After the plastic has been removed from the contaminated area, the entire area should be cleaned using the HEPA/wet wash/HEPA cycle, starting with the ceiling and working down to the floor. After surfaces are repainted or sealed, a final HEPA/wet wash/HEPA cycle may be necessary if accumulated dust caused by other work is visible.

1. Decontamination of Workers, Supplies, and Equipment

Decontamination is necessary to ensure that worker's families, other workers, and subsequent properties do not become contaminated. Specific procedures for proper decontamination of equipment, tools, and materials prior to their removal from lead hazard control containment areas should be implemented, as described below and in Chapters 9 and 10.

Work clothing, work shoes, and tools should not be placed in a worker's automobile unless they have been laundered or placed in sealed bags. All vacuums and tools that were used should be wiped down using sponges or rags with detergent solutions.

Consumable/disposable supplies, such as mop heads, sponges, and rags, should be replaced, after each dwelling is completed. Soiled items should be treated as contaminated debris (see Chapter 10).







Figure 14.8a Pick Up Corners of Plastic Sheeting.



Figure 14.8b Fold Plastic Inward.

Durable equipment, such as power and hand tools, generators, and vehicles, should be cleaned prior to their removal from the site; the cleaning should consist of a thorough HEPA vacuuming followed by washing.

B. Preliminary Visual Examination

After the preliminary final cleaning effort is completed, the certified supervisor should visually evaluate the entire work area to ensure that all work has been completed and all visible dust and debris have been removed. While the preliminary examination may be performed by the lead hazard control supervisor, contractor, or owner as a preparatory step before the final clearance examination, it does not replace the independent visual assessment conducted during clearance.

If the visual examination results are unsatisfactory, affected surfaces must be retreated and/or recleaned. Therefore, it is more cost effective to have the supervisor rather than the clearance examiner perform this initial examination.

C. Surface Painting or Sealing of Nonfloor Surfaces

The next step of the cleaning process is painting or otherwise sealing all treated surfaces except floors.

Surfaces, including walls, ceilings, and woodwork, should be coated with an appropriate primer and repainted. Surfaces enclosed with vinyl, aluminum coil stock, and other materials traditionally not repainted are exempt from the painting provision.

D. Final Inspection

The final clearance evaluation should take place at least 1 hour after the final cleaning. Clearance has three purposes: 1) to ensure that the lead hazard control work is complete, 2) to detect the presence of leaded dust, and 3) to make sure that all treated surfaces have been repainted or otherwise sealed. Clearance is usually performed after the sealant is applied to the floor. See Chapter 15 for information on clearance examination procedures.

E. Recleaning After Clearance Failure

If after passing the final visual examination, the dwelling unit fails the clearance wipe dust tests,





the HEPA/wet wash/HEPA cleaning cycle should be carefully and methodically repeated. Failure is an indication that the cleaning has not been successful. Recleaning should be conducted under the direct supervision of a certified supervisor. Care should be exercised during the recleaning of "failed" surfaces or components to avoid recontaminating "cleared" surfaces or components.

VI. Cleaning Cost Considerations

An important consideration in determining lead hazard control strategies and methods is the cost and difficulty of required daily and final cleanup operations and the ease with which one can meet dust-clearance standards. A general rule of thumb is that lead hazard control strategies that generate the most dust will have higher cleanup costs and higher initial clearance test-failure rates.

A. Initial Clearance Test Failure Rates

The likelihood of passing final dust-clearance tests is highly correlated with the chosen intervention strategy, methods, and care exercised by the contractor. For example, in one study (HUD, 1991) initial wipe-test failure rates were 14 percent for interior window sills, 19 percent for floors, and 33 percent for window troughs. The pass/fail rates for each surface were strongly associated with the dwelling unit abatement strategy employed. Chemical removal and hand-scraping strategies experi-enced higher failure rates than replacement and encapsulation/enclosure strategies (see Table 14.1).

However, results of the HUD demonstration project indicated that clearance failure is not solely related to abatement method. The report stated that "the diligence and effectiveness of an abatement contractor's cleaning process ... had a major impact on ... the likelihood of the dwelling unit to pass the final wipe test clearance" (HUD, 1991).



Figure 14.8c Dispose of Plastic Sheeting in a Plastic Trash Bag.

B. Key Factors In Effective Cleaning

Effective cleaning will be aided by adequate sealing of surfaces with polyethylene sheeting prior to lead hazard control, proper daily cleaning practices, good worker training, and attention to detail. Where poor worksite preparation is employed, additional cleaning may be required to meet clearance.

C. Special Problems

Surfaces such as porous concrete, old porous hardwood floors, and areas such as corners of rooms and window troughs pose especially difficult cleaning challenges. Porous concrete and corners of rooms normally require additional vacuuming to achieve an acceptable level of cleanliness.

The lead hazard control strategy of enclosure is frequently chosen for window troughs and for old porous hardwood floors due to the difficulty of adequately cleaning these surfaces. This





option provides not only a clean surface but a more permanently cleanable surface for dwelling occupants to maintain.

VII. Alternative Methods

Alternatives to the recommended cleaning tools and practices discussed in this chapter are available, some having significant potential for increasing effectiveness and lowering costs.

A recent Canadian study (CMHC, 1992) evaluated the effectiveness of contaminated dust cleanup activities using tools that would generally be available to construction contractors and homeowners. Vinyl flooring and carpeting were cleaned using several wet/dry vacuuming systems, sweeping, and wet mopping. The study found that regular vacuums with empty bags send a steady stream of fine particles into the air, while vacuums with partially filled bags were more efficient. This finding suggests the necessity for HEPA vacuums. Other vacuums may be used if workers do not experience increased exposures, if compliance with clearance standards is achieved, and if a variance from OSHA regulation (29 CFR 1926.62 (h)(4)) is obtained by the contractor or employer (if required).

Agitator heads on vacuums were demonstrated to significantly enhance vacuum effectiveness on carpets in cleaning up fine dust without

increasing airborne dust levels. Table 14.2 suggests that a central vacuum with an agitator head is most efficient at removing dust and minimizing recontamination, probably because the vacuum exhaust is blown away from living areas. Because many houses do not have central vacuuming systems, a portable HEPA vacuum is the next best choice (see Table 14.2). Vacuums without agitator heads appeared to perform relatively poorly on carpets.

A. Vacuums

Regular (non-HEPA) dry vacuums potentially produce hazardous levels of airborne dust and therefore should be avoided. Externally exhausted vacuum units with adequate dustretaining capability may be used. The OSHA lead standard requires the use of HEPA vacuum equipment (see 29 CFR 1926.62 (h)(4), which states, "where vacuuming methods are selected, the vacuums shall be equipped with HEPA filters").

B. Trisodium Phosphate and Other Detergents

TSP detergents have been used successfully for a number of years in lead hazard control work. However, in recent years, other new cleaning agents have been developed specifically for leaded dust removal. The need for alternatives has been fueled by the fact that TSP is an eye

Table 14.1 Initial Cleaning Wipe-Test Failure Rates for Various Abatement Strategies

Dust Test Location	Hand Scrape w/Heat Gun	Chemical Removal	Enclosure	Encapsulation	Replacement	All Methods
Floors	28.8%	22.7%	20.0%	13.8%	12.5%	19%
Sills	24.4%	24.1%	8.2%	4.8%	17.4%	14%
Wells	44.5%	45.7%	23.7%	25.7%	21.0%	33%

Source: U.S. Department of Housing and Urban Development (August 1991) The HUD Lead-Based Paint Abatement Demonstration (FHA)



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and skin irritant and is increasingly restricted from household use and unavailable in many local jurisdictions. TSP also damages some finishes. Recently reported trials of two new products suggest that alternative lead-specific cleaning agents may be more effective and safer than TSP (Grawe, 1993; Wilson, 1993).

These Guidelines do not prohibit the use of non-TSP cleaning agents. HUD encourages further evaluation of alternative cleaning methods. Use of any cleaning agent that results in compliance with clearance criteria is encouraged.

Table 14.2 Mass Removal Efficiency for Extended Vacuuming Cycles

		Mass Removal Effici	iency Percentages	
Cycle Number		Cleaning	Method	
	Central Vacuum—Plain Tool	Central Vacuum—Agitator Head	HEPA Vacuum	Portable Vacuum—Plain Tool
1	34.7	71.0	55.4	17.5
2	47.0	80.2	61.2	23.0
3	51.9	85.9	66.3	26.6
4	56.0	87.8	67.0	29.4
5	59.3	88.9	72.1	32.5
6	61.6	91.2	74.4	34.9
7	63.8	93.1	76.4	36.5
8	67.5	95.4	77.5	38.1
9	67.5	97.7	78.7	40.1
10	67.2	100.0	80.2	41.7
11		102.3	80.2	41.7
12		104.6	84.1	44.8
13		104.6	84.5	46.8
14		103.8	84.5	48.4
15				49.6
16				50.8
17				52.4
18				53.6
19				54.4
20				55.2

Source: Canada Mortgage and Housing Corporation: Saskatchewan Research Council (December 1992) Effectiveness of Clean-up Techniques for Leaded Paint Dust

National Guard Region North

National Guard Readiness Center Industrial Hygiene Evaluation Leeds Readiness Center Leeds, NY 12451

Prepared for:

National Guard Region North Industrial Hygiene Office 301 Old Bay Lane Havre De Grace, MD 21078

Attn:

Non-Responsive

Prepared by:

Bonus Environmental, LLC P.O. Box 121 Mt. Pleasant, Michigan 48804

> Project No. 1061-15 January 18, 2013

Bonus Environmental, LLC

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National Guard Region North Industrial Hygiene Office 301 Old Bay Lane Havre De Grace, MD 21078-4003

Attn: Non-Responsive

Project: Industrial Hygiene Evaluation

Leeds Readiness Center, Leeds, NY 12451

1.0 - EXECUTIVE SUMMARY

Bonus Environmental, LLC was contracted by the National Guard Bureau Region North Industrial Hygiene office to identify and measure the existence and extent of potentially hazardous operations or conditions at the Leeds Readiness Center located at 2515 Route 23 in Leeds, NY. The purpose of this evaluation was to generate or to update a previous baseline evaluation so that employee exposure history can be provided to each civilian and military employee. The following industrial hygiene conditions were evaluated during this industrial hygiene evaluation performed by Bonus Environmental, LLC representative Erica Funnell on November 5, 2012:

- Indoor Air Quality
- Lead Wipe & Bulk Sampling
- Illumination
- Ergonomics

 Evaluation of the physical condition of the facility in regards to peeling paint, asbestos containing materials, water damage or mold problems, and housekeeping practices.

The Leeds Readiness Center is an Army National Guard armory comprised of offices, classrooms, locker rooms, storage rooms, conference rooms, a drill hall, a kitchen, a break room, a fitness room, a boiler room, mechanical/telecomm rooms, a former indoor firing range, and three (3) maintenance bays. The point of contact for the approximately 30,094 ft² Leeds Armory is Ms. Non-Responsive (4) full-time administrative personnel are employed at the Leeds Readiness Center. A shop diagram depicting the locations of the operations and air flow patterns identified during this industrial hygiene evaluation is attached to this report as Appendix A.

The National Guard Bureau Region North Industrial Hygiene Office provided governmental furnished equipment and sampling media required to perform the industrial hygiene evaluation. Chain of custody forms for laboratories approved by the National Guard Bureau Region North Industrial Hygiene Office were provided with the sampling media. All samples collected during this industrial hygiene evaluation were sent to the National Guard Bureau Region North Industrial Hygiene Office approved laboratories for analysis.

2.0 – LEAD SAMPLING

2.1 – Lead Wipe Sampling

Lead wipe sampling was performed according to the Environmental Protection Agency (EPA) method 600/R-93/200(M)-7420 (Atomic Absorption - Flame). Fourteen (14) wipe samples and one (1) field blank were sent under chain-of-custody procedures to AMA Analytical Services, Inc., an American Industrial Hygiene Association (AIHA) accredited laboratory located in Lanham, Maryland. The U.S. Department of Labor (USDOL) and the Occupational Safety and Health Administration (OSHA) do not have a promulgated standard for lead surface contamination; however OSHA has provided an interpretive level of 200 micrograms per square foot (μg/ft²) to assess the housekeeping requirements of "as free as reasonably practicable". This interpretation is presented in OSHA Industrial Hygiene Technical Manual (TED 01-00-015; 1/20/1999), and in a letter of interpretations dated 1/13/2003, and subsequently issued to public domain. NG Pam 420-15 addresses the conversion and remediation of former indoor firing ranges. The following table outlines the locations and analytical results for the lead wipe samples collected during this project.

		Army National Guard – Leeds Readiness Center Lead Wipe Sample Results		
Sample #	Sample Date	Sample Location	Sample Area (ft²)	Sample Result (µg/ft²)
Leeds RC- LW-1	11-5-12	Field Blank		< 12 μg
Leeds RC- LW-2	11-5-12	Drill Hall, on floor, NE end	0.111	< 110
Leeds RC- LW-3	11-5-12	Drill Hall, on floor, SW end	0.111	< 110
Leeds RC- LW-4	11-5-12	Drill Hall, on electrical panel box	0.111	20,000
Leeds RC- LW-5	11-5-12	Drill Hall, on fan on/off box	0.111	600
Leeds RC- LW-6	11-5-12	Drill Hall, on table surface	0.111	< 110
Leeds RC- LW-7	11-5-12	Kitchen, on top of microwave	0.111	< 110
Leeds RC- LW-8	11-5-12	Break Room (118), on window sill	0.111	< 110
Leeds RC- LW-9	11-5-12	Storage (115), on supply air grill	0.111	< 110
Leeds RC- LW-10	11-5-12	Mechanical Room (230), HVAC System, on fan side	0.111	< 110
Leeds RC- LW-11	11-5-12	Mechanical Room (230), HVAC System, on supply side	0.111	< 110
Leeds RC-	11-5-12	Storage (Former Indoor Firing Range), on floor, "bullet trap"	0.111	150

		Army National Guard – Leeds Readiness Center Lead Wipe Sample Results		
Sample #	Sample Date	Sample Location	Sample Area (ft²)	Sample Result (µg/ft²)
LW-12		area		
Leeds RC- LW-13	11-5-12	Storage (Former Indoor Firing Range), on heater grill		1,800
Leeds RC- LW-14	11-5-12	Storage (Former Indoor Firing Range), on light fixture	0.111	730
Leeds RC- LW-15	11-5-12	Maintenance Bay 2, on work table surface	0.111	3,200

Surface cleanliness threshold = < 200 micrograms per square foot ($\mu g/ft^2$)

The former indoor firing range is currently used for storage. It is uncertain whether it was remediated to the protocols specified in NG Pam 420-15. Remediation wipe sample results were not posted, nor were any signs posted restricting access to the area. The bullet trap had been removed from the "bullet trap area".

2.2 – Lead Air Sampling

The purpose of lead air monitoring was to document task-specific activities and corresponding exposures to lead. OSHA 29 CFR 1926.62 requires employers whose employees are exposed to lead in the work place, in any quantity, make a determination whether any employee's exposure exceeds the action level (AL) of 30 micrograms per cubic meter ($\mu g/m^3$) or the maximum permissible exposure limit (PEL) of 50 $\mu g/m^3$ as 8-hour time weighted averages (TWAs). If employee exposures are less than 30 $\mu g/m^3$, training is required under the Hazard Communication 29 CFR 1926.59. Exposures that exceed the AL or PEL require the employer to comply with additional requirements, including air monitoring, additional training, and restricted work practices as outlined in OSHA 29 CFR 1926.62.

Representative fixed area sampling was conducted for potential airborne concentrations of lead in accordance with accepted Industrial Hygiene methods recognized by the National Institute for Occupational Safety and Health (NIOSH) and OSHA. Representative breathing zone samples were not collected from an employee performing administrative tasks.

Lead exposure monitoring was performed in accordance with the EPA method 600/R-93/200(M)-7420 (Atomic Absorption - Flame) with SKC personal air sampling pumps calibrated to 2.0 liters per minute. All samples were collected on 37 mm diameter cassettes with mixed-cellulose ester filters. All sampling pumps were calibrated before and after each use to ensure volume accuracy. Two (2) samples and one (1) field blank were sent under chain-of-custody procedures to AMA Analytical Services, Inc., an AIHA accredited laboratory located in Lanham, Maryland. Analytical results of the lead wipe and air samples are attached to this report as Appendix B.

		Army National Guar Lead Air				Center			
Sample #	Sample Type	Sample Location	Flow Rate	Start	Stop	Vol.	Reprt. Limit (µg/m³)	Results (µg/m³)	8 hr TWA (μg/m³)
November	5, 2012								
Leeds RC- LA-1	FB	Field Blank				0	3	< 3	N/A
Leeds RC- LA-2	GA	Maintenance Bay 1	2.0	0848	1304	512	5.9	< 5.9	N/A
Leeds RC- LA-3	GA	Basement Stairwell	2.0	0920	1308	456	6.6	< 6.6	N/A

PS = Personal sample, GA = General Area, N/A = Not Applicable **Note**: The OSHA PEL of 50 μ g/m³ is averaged over an 8 hr work shift

3.0 - PHYSICAL CONDITION OF FACILITY / PERSONNEL CONCERNS

3.1 - Lead Based Paint

During the industrial hygiene evaluation of the Leeds Readiness Center, Bonus Environmental, LLC performed a visual inspection of the facility in regards to lead based paint. Bonus Environmental, LLC identified a few areas of peeling paint which could potentially pose a lead exposure hazard. Bonus Environmental, LLC identified peeling paint in the following areas:

- Approximately 10 ft² peeling grey paint in Maintenance Bay 1
- Approximately 20 ft² peeling beige paint in the basement Stairwell
- Approximately 4 ft² peeling beige paint in the basement Storage

Two (2) paint chip samples were collected and sent under chain-of-custody procedures to AMA Analytical Services, Inc., an AIHA accredited laboratory located in Lanham, MD. Analysis indicated that both of the peeling paints collected contained detectable levels of lead. The paints are therefore considered to be lead-based paint. The OSHA Lead in Construction Standard, 29 CFR 1926.62 does not assign a numerical value of which must be present within the paint to be considered lead based paint. Paints which contain any detectable level of lead shall be treated and handled as lead based paint. Housing and Urban Development (HUD) defines lead based paint as having greater than 0.5% lead by weight. Paint chip sample results are attached to this report as Appendix B.

3.2 – Presumed Asbestos Containing Materials

During the industrial hygiene evaluation of the Leeds Readiness Center, Bonus Environmental, LLC performed a visual inspection to identify presumed asbestos containing materials (PACM) and, if found, to note their condition. Bonus Environmental, LLC did not identify any PACM that was considered to be in poor or damaged condition.

3.3 - Water Damage/Mold Growth

During the industrial hygiene evaluation of the Leeds Readiness Center, Bonus Environmental, LLC performed a visual inspection to report the location and perform an evaluation of any water damaged

or visible mold problems. Bonus Environmental, LLC identified approximately 29 ft² of stained dropped-ceiling tiles (DCT) in the following locations:

- Approximately 15 ft2 of stained DCT in Dining area 108A;
- Approximately 13 ft2 of stained DCT in classroom 207;
- Approximately 1 ft2 of stained DCT in office 143A.

3.4 - Housekeeping

During the industrial hygiene evaluation of the Leeds Readiness Center, Bonus Environmental, LLC performed an evaluation of the housekeeping practices. Bonus Environmental, LLC found the housekeeping practices within Leeds Readiness Center facility in good order.

3.5 – Employee Interviews

During the industrial hygiene evaluation of the Leeds Readiness Center, Bonus Environmental, LLC performed interviews and made observations to determine if the work activities being performed possessed any ergonomic concerns. Following the interviews and observations, no ergonomic and or indoor air quality concerns were identified.

3.6 – Indoor Air Quality

During the industrial hygiene evaluation of the Leeds Readiness Center, Bonus Environmental, LLC measured temperature, relative humidity, carbon monoxide (CO), and carbon dioxide (CO₂) throughout the facility. A calibrated TSI Q-Trak Plus Model 7575 Indoor Air Quality Monitor equipped with a Q-Trak Probe 982 was utilized to record indoor air quality measurements.

Carbon dioxide is a natural component of air and the amount of CO₂ in a given air sample is commonly expressed as parts per million (ppm). The outdoor air in most locations contains about 380 ppm carbon dioxide. Higher outdoor CO₂ concentrations can be found near vehicle traffic areas, industry and sources of combustion. The concentrations of CO₂ found in most offices are well below the OSHA Permissible Exposure Limit (PEL) of 5,000 ppm when averaged over an 8-hour time period for an industrial workplace. While levels below 5,000 ppm are considered to pose no serious health threat, studies have indicated that individuals in offices with elevated CO₂ concentrations tend to report drowsiness, lethargy and a general sense that the air is stale. Ventilation rates for office spaces are defined by various codes and standards. The most widely accepted standard is the American Society of Heating, Refrigerating, and Air Conditioning Engineers (ASHRAE) Standard 62. According to ASHRAE Standard 62.1-2010, CO₂ concentrations below 700 ppm above the outdoor level are considered to indicate adequate ventilation and provide human comfort. The CO₂ measurements collected during this industrial hygiene evaluation ranged from 379 ppm to 530 ppm and indicate adequate ventilation within the facility.

Carbon monoxide is a colorless, odorless, poisonous gas that results from the incomplete burning of common fuels such as natural or liquefied petroleum gas, oil, wood or coal. When carbon monoxide is inhaled, it enters the blood stream and reduces the ability of the blood to carry oxygen to vital organs, such as the heart and brain. Because it is impossible to see, taste or smell the toxic fumes, CO can harm you before you are aware it is in your work area. At lower levels of exposure, CO causes mild effects that are often mistaken for the flu. These symptoms include headaches, dizziness,

disorientation, nausea and fatigue. The effects of CO exposure can vary greatly from person to person depending on age, overall health and the concentration and length of exposure. The OSHA has established a permissible exposure limit (PEL) of 50 parts per million (ppm). OSHA standards prohibit worker exposure to more than 50 parts of the gas per million parts of air averaged during an 8-hour time period. The peak CO level for employees is 200 ppm. The CO measurements collected during this industrial hygiene evaluation ranged from 2.1 ppm to 6.2 ppm. CO levels were well below the OSHA PEL during this industrial hygiene evaluation.

During the industrial hygiene evaluation of the Leeds Readiness Center, Bonus Environmental, LLC collected temperature measurements. Temperature measurements throughout the common areas of the facility routinely occupied by employees ranged from 60.7°F to 68.8°F and are not considered to be within an acceptable range outlined within ASHRAE Standard 55-2010.

During the industrial hygiene evaluation of the Leeds Readiness Center, Bonus Environmental, LLC collected relative humidity measurements. Relative humidity measurements throughout common areas of the facility routinely occupied by employees ranged from 25.9% to 44.6%. Indoor air quality measurements recorded during this industrial hygiene evaluation are summarized in the table below.

Army National (Indoor A	Guard – Leeds . ir Quality Mea		nter	
Location	CO_2	CO	Relative	Temperature
Locuiton	(ppm)	(ppm)	Humidity (%)	(°F)
Outdoors, northwest side of building (cloudy)	379	6.2	21.8	43.6
Maintenance Bay 1	408	4.6	25.9	62.3
Office (143A)	384	4.5	39.4	64.4
Drill Hall	415	4.5	35.8	64.0
Dining Area (108A)	407	2.1	44.6	60.7
Fitness Area (117)	495	2.5	38.4	63.3
Office (203)	435	4.3	32.7	68.8
Classroom (207)	421	3.9	37.0	68.4
Office (220)	530	4.2	35.6	67.2
Library/Classroom/Learning Center (228)	494	4.1	38.0	65.9
Basement Storage	436	4.4	34.0	68.6

Required/Recommended Values

CO₂ - OSHA PEL = 5,000 parts per million (ppm) and ASHRAE Standard 62.1-2010 = no greater than 700 ppm above outdoor

CO - OSHA PEL = 50 ppm and OSHA Ceiling Limit = 200 ppm

Temperature - ASHRAE Standard 55-2010 = between approximately 67 and 82 °F.

RH - ASHRAE Standard 62.1-2010 = limited to < 65%

4.0 – LIGHTING

Utilizing a properly calibrated Cooke Corporation cal-Light 400 light meter, Bonus Environmental, LLC collected illumination readings throughout the Leeds Armory. Illumination measurements recorded during this industrial hygiene evaluation are summarized in the table below.

Army National Guar Lighting	d – Leeds Reading Measurements	ess Center	
Location	Measurement in Foot Candles	Requirement in Foot Candles	Requirement Met?
Maintenance Bay 1	21.8	75	No
Maintenance Bay 2	19.3	75	No
Maintenance Bay 3	29.3	75	No
Drill Hall	28.4	30	No
Recruiter's Office (103)		Inaccessible	
Hallway (101)	10.1	5	Yes
Women's Restroom (105)	46.4	5	Yes
Recruiting Lounge (106)	14.5	10	Yes
Classroom (107A)	118.1	30	Yes
Dining Area (108A)	157.8	10	Yes
Kitchen (109)	66.2	50	Yes
Elevator Lobby (114)	103.7	10	Yes
Women's Restroom (124)	69.0	5	Yes
Men's Restroom (123)	67.5	5	Yes
Men's Shower (121)	53.6	7	Yes
Men's Locker Room (120)	41.3	7	Yes
Storage (115)	113.4	30	Yes
Classroom (116A)	42.8	30	Yes
Fitness Area (117)	43.8	30	Yes
Break Room (118)	57.4	10	Yes
Storage (126)	31.4	Inaccessible	105
Boiler Room (129)	55.6	30	Yes
Storage (Former Indoor Firing Range)	10.9	30	No
Basement Stairwell	17.8	5	Yes
Basement Storage	12.7	30	No
Conference Room (202)	59.2	30	Yes
Office (203)	71.3	50	Yes
Office (204)	33.4	50	No
Office (205)	63.0	50	Yes
Office (206)	69.2	50	Yes
Hallway (214)	22.1	5	Yes
Women's Restroom/Shower (208)	44.6	5	Yes
Women's Locker Room	22.8	7	Yes
Men's Restroom (209)	32.3	5	Yes
Men's Shower	4.7	7	No
	25.7	30	No
Classroom (207) Janitor Supply Room (Telecommunications Room)	23.1	30	NO
(231)	55.8	30	Yes
Mechanical Room (230)	15.6	30	No
Elevator Lobby (215)	74.3	10	Yes
Machine Room (216)	35.8	75	No
Men's Restroom (229)	59.6	5	Yes
Office Lobby (218)	54.3	10	Yes
Copy Room (219)	56.7	10	Yes
Office (220)	55.1	50	Yes
Office (221)	68.2	50	Yes
Office (222)	50.8	50	Yes

· · · · · · · · · · · · · · · · · · ·	uard – Leeds Readine ing Measurements	ess Center	
Location	Measurement in Foot Candles	Requirement in Foot Candles	Requirement Met?
Office (223)	64.2	50	Yes
Conference Room (224)	57.5	30	Yes
Office (225)	10.6	50	No
Office (226)	66.8	50	Yes
Library/Classroom/Learning Center (228)	18.1	30	No
Office (143A)	57.0	50	Yes
Storage (145)	24.1	30	No
Storage (146	57.4	30	Yes
Storage (147)	49.2	30	Yes

Lighting levels were compared to the levels outlined within the American National Standards Institute/Illuminating Engineering Society of North America (ANSI/IESNA) RP-1-04 Office Lighting Handbook, and the ANSI/IESNA RP-7-01 Lighting Industrial Facilities Handbook. Areas within the facility which did not meet the foot candle requirements are identified with a "NO" within the "Requirement Met?" column. It is recommended that illumination be improved in all the areas that did not meet the requirements. Improving illumination can be achieved by replacing burned-out lamps/bulbs, cleaning fixtures, relocating detailed work activities to more illuminated areas, and using supplemental task lighting.

5.0 - CONCLUSION & LIMITATIONS

Bonus Environmental, LLC was contracted by the National Guard Bureau Region North Industrial Hygiene office to identify and measure the existence and extent of potentially hazardous operations or conditions at the Leeds Readiness Center located at 2515 Route 23 in Leeds, NY. The purpose of this evaluation was to generate or to update a previous baseline evaluation so that employee exposure history can be provided to each civilian and military employee. The following industrial hygiene conditions were evaluated during this industrial hygiene evaluation performed by Bonus Environmental, LLC representative Erica Funnell on November 5, 2012.

The results/findings of this industrial hygiene evaluation are summarized below.

- 1. Lead wipe sample results collected within the Leeds Readiness Center were above the OSHA interpretive level of 200 μ g/ft², as well as the 200 μ g/ft² threshold established in NG Pam 420-15 in the following areas:
 - Drill Hall, on electrical panel box
 - Drill Hall, on fan on/off box
 - Storage (Former Indoor Firing Range), on heater grill
 - Storage (Former Indoor Firing Range), on light fixture
 - Maintenance Bay 2, on work table surface
- 2. Bonus Environmental, LLC identified three (3) areas of peeling paint which contained detectable levels of lead, potentially posing a lead exposure hazard.

- 3. Bonus Environmental, LLC did not identify any PACM that was considered to be in poor or damaged condition.
- 4. Bonus Environmental, LLC identified approximately 29 ft² of water stained dropped-ceiling tile.
- 5. Bonus Environmental, LLC found the housekeeping practices within Leeds Readiness Center in good order.
- 6. Following the interviews and observations, no ergonomic and or indoor air quality concerns were identified.
- 7. Bonus Environmental, LLC measured temperature, relative humidity, CO, and CO₂ throughout the Leeds Readiness Center. All were found to be below or within their acceptable ranges/limits; with the exception of a several temperature measurements that were below required/recommended levels.
- 8. Areas within the Leeds Readiness Center facility were identified as improperly illuminated.
- 9. Air sampling for airborne lead dust indicated concentrations below the detection limit;
- 10. No Health and Safety policies were available for review at the Leeds Readiness Center.
- 11. The maintenance bays within the Leeds Readiness Center were not equipped with a vehicle exhaust system.

Bonus Environmental, LLC has 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 Region North - Industrial Hygiene Office. 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 Bonus Environmental, LLC's inspection of the site.

It has been a pleasure to be of assistance to you. Please contact us if you have any questions concerning this report or if we can be of any further assistance in any other environmental or occupational health matter.

Sincerely,

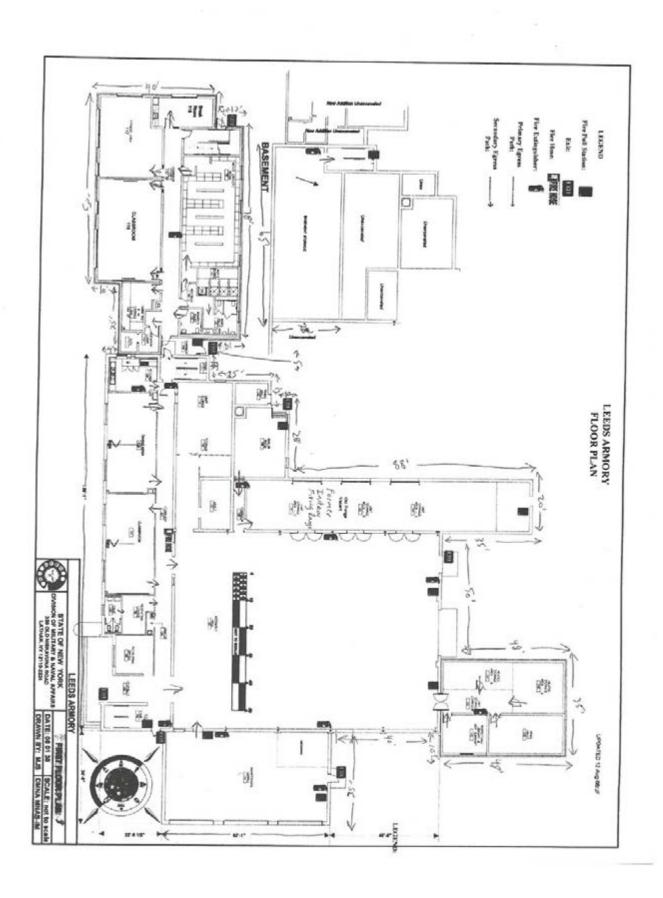


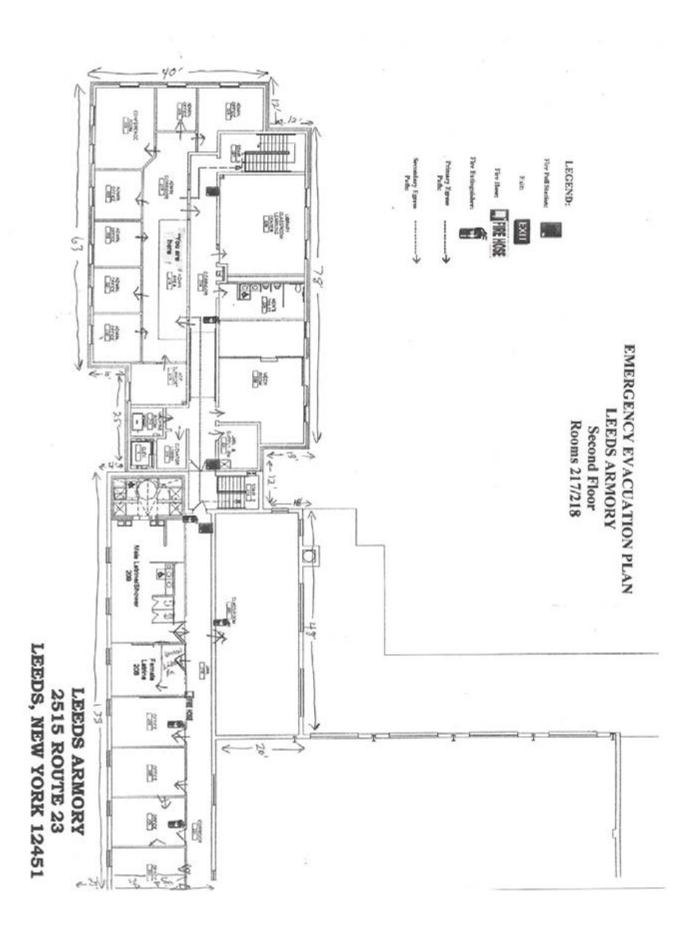
Principal Bonus Environmental, LLC

Leeds RC_12_Report.docx

Appendix A

Shop Diagram and Air Flow Patterns





Appendix B

Lead Sampling Results

AMA Analytical Services, Inc.



A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS



Client:

National Guard Bureau

Job Name:

Leeds RC

Chain Of Custody:

514466

Address:

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

Job Location:

2515 Route 23, Leeds, NY 12451

Date Submitted:

Date Analyzed:

11/12/2012

State Military Reservation

Havre de Grace, Maryland 21078

Job Number: P.O. Number:

1061-15

W912K6-09-A-0003

Person Submitting:

Non-

Non-Responsiv

Report Date:

11/16/2012

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 ^t)	10000	orting imit	Total ug	Final Re	sult	Comments
13014019	LeedsRC-LA-1	Flame	Air Blank	0	N/A	3	ug/m³		3	110	
13014020	LeedsRC-LA-2	Flame	Air	512	N/A	5.9	ug/m³	∢	<5.9	ug ug/m³	
13014021	LeedsRC-LA-3	Flame	Air	456	N/A	6.6	ug/m²	<3	<6.6	ng/m³	
13014022	LeedsRC-PC-1	Flame	Paint Chip	****	N/A	0.0094	%Fb	•	0.42	%Pb	
13014023	LeedsRC-PC-2	Flame	Paint Chip	****	N/A	0.0065	%Pb		0.036	%Pb	
13014024	LeedsRC-LW-1	Flame	Wipe Blank	****	N/A	12	ug		<12	ug	
13014025	LeedsRC-LW-2	Flame	Wipe	****	0.111	110	ug/ft²	<12	<110	ug/ft²	
13014026	LeedsRC-LW-3	Flame	Wipe	****	0.111	110	ug/ft²	<12	<110	ug/fi²	
13014027	LeedsRC-LW-4	Flame	Wipe	****	0.111	110	ug/ft²	2200	20000	ug/ft²	
13014028	LeedsRC-LW-5	Flame	Wipe	****	0.111	110	ug/ft²	67	600	ug/fl²	
13014029	LeedsRC-LW-6	Flame	Wipe	****	0.111	110	ug/ft²	<12	<110	ug/ft²	
13014030	LeedsRC-LW-7	Flame	Wipe	****	0.111	110	ug/ft²	<12	<110	ug/ft ²	
13014031	LeedsRC-LW-8	Flame	Wipe	****	0.111	110	ug/ft²	<12	<110	ug/ft²	
13014032	LeedsRC-LW-9	Flame	Wipe	****	0.111	110	ug/ft²	<12	<110	ug/ft²	
13014033	LeedsRC-LW-10	Flame	Wipe	****	0.111	110	ug/fl²	<12	<110	ug/ft²	
13014034	LeedsRC-LW-11	Flame	Wipe	****	0.111	110	ug/fl²	<12	<110	ug/ft²	
13014035	LeedsRC-LW-12	Flame	Wipe	****	0.111	110	ug/fi²	16	150	ug/ft²	
13014036	LeedsRC-LW-13	Flame	Wipe	****	0.111	110	ug/fi²	200	1800	ug/fl ²	
13014037	LeedsRC-LW-14	Flane	Wipe	****	0.111	110	ug/fi²	81	730	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, this information. Besidual 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, AllIA, or any agency of the Federal Government. All rights reserved. AMA Analytical Services, Inc.

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AMA Analytical Services, Inc.



CERTIFICATE OF ANALYSIS



Client:

National Guard Bureau

Job Name:

Leeds RC

Chain Of Custody:

514466

Address:

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

Job Location:

2515 Route 23, Leeds, NY 12451

D . D . W .

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State Military Reservation

ug/L = parts per billion (ppb)

2717 NOWN 27, 12403, 111 12471

Date Submitted:

11/12/2012

Havre de Grace, Maryland 21078

Job Number: P.O. Number: 1061-15

W912K6-09-A-0003

Person Submitting: Date Analyzed;

11/16/2012 Report Date: 11/16/2012

Attention:

Non-Responsive

Summary of Atomic Absorption Analysis for Lead

Page 2 of 2

MA Sample Number	Client Sample Number	Analysis Type	Sample Type	Air Volume (L)	Area Wiped (ft³)	100	orting Limit	Totalug	Final Result	Comments
13014038	LeedsRC-LW-15	Flame	Wipe	****	0.111	110	ug/ft²	360	3200 ug/l	Ĥ ⁱ
	or Flame: Air, Wipes, F for Furnace: Air, Wipe							ted with these	alytical results of qu	uality control samples

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

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

Note: All results have two significant digits. Any additional digits shown

%Pb = percent lead on a dry weight basis ug = micrograms

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

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 is 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

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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,

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CHAIN OF CUSTODY

(Please Refer To This Number For Inquires)

514466

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CLIENTID# Leeds RC-LA-1 Leeds RC-LA-2 Leeds RC-LA-3 #SEE Leeds RC-PC-1	SAMPLELOCATION ID FIELD BLANK Maintenance Bay I Basement Stairwell ATTACHED FIELD DATA Maintenance Bay I	II/5 SHEETS				****		米米米	*		^			Date/Time:	Contact:	By:
CLIENTID# Leeds RC-LA-1 Leeds RC-LA-2 Leeds RC-LA-3 **SEE Leeds RC-PC-1	SAMPLELOCATION ID FIELD BLANK Maintenance Bay I Basement Stairwell ATTACHED FIELD DATA Maintenance Bay I	II/5 SHEETS				****		米米米	*		<u> </u>			Date/Time: Date/Time: Date/Time:	Contact:	By:
CLIENTID# Leeds RC-LA-1 Leeds RC-LA-3 Leeds RC-LA-3 #SEE Leeds RC-PC-1	SAMPLELOCATION ID Field Blank Maintenance Bay I Basement Stairwell ATTACHED FIELD DATA Maintenance Bay I Basement Stairwell	II/5 SHEETS			/ker	*****		米米米	*					Date/Time: Date/Time: Date/Time:	Contact:	By:
CLIENTID# Leeds RC-LA-1 Leeds RC-LA-3 Leeds RC-LA-3 #SEE Leeds RC-PC-1	SAMPLELOCATION ID Field Blank Maintenance Bay I Basement Stairwell ATTACHED FIELD DATA Maintenance Bay I Basement Stairwell 1. Date(Time RCVD:	II/5 SHEETS		— @	Ken	*** ** ** ** ** ** ** ** ** ** ** ** **	de	米米米	*		\ \ \ \ \			Date/Time: Date/Time:	Contact:	By:
CLIENTID # Leeds RC-LA-1 Leeds RC-LA-3 Leeds RC-LA-3 **SEE Leeds RC-PC-1 Leeds RC-PC-2	SAMPLELOCATION ID Field blank Maintenance Bay I Basement Stairwell ATTACHED FIELD DATA Maintenance Bay I Basement Stairwell 1. Date/Time RCVD: 2. Date/Time Analyzed:	II/5 SHEETS		4_@	V680	*****	JE Wink	***	*		\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\			Date/Time: Date/Time: Date/Time:	Contact:	By:
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Surface Sampling Field Data Sheet

Date Collected: 11-5-12	Job Name: Leads RC	Comment of Page of 2
Job Number: 1061-15	Job Location:	Company: Bonys Environmental L. Phone Number: 989 -779 - 7636
Contact Person	Address: 2575 Route 23, Leeds NY 12451	Non-Responsive Collected By:
20 mm		COC Number:

Sample Number	Sample Location	Surface/Substrate Sampled	Area Wiped (in ² /ft ²)	Collection Media
Leeds RC- LW-1	Field Blank			Ghost Wife
Leeds RC- LW-A	Orill Hall	Floor, NE end	4"×4"	1
Leeds Ri- Lu-3	Prill Hall	Flooi, SW and	1	
Leeds RC- LW-4	Prill Hall	On electrical panel box		
Leeds RC- LW-5	Orill Hall	On Fan Onlost Box		
Leeds Kl- Lw-b	Dall Hall	On table surface		
Leeds RC- LW-7	Kitchen	On top of microwave		
Leeds RC- Lw-8	Break Room (118)	On window sill		
Leeds RC- Lw-9	Storage (115)	On Supply Air Grill		
leeds RC-	Mechanical Rm (230), HVAC System	On Fun side		
eeds RC- Lw-11	Mechanical La (230), HVAC System	On Supply Side		
ecals RC- Lw-12	Storage (Former Indoor Firing Range)	Floor, Bullet Trap Area		
eeds RC- LW-13	Storage (Former Indoor Firing Range)	On Heater grill		$\overline{}$



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



Surf	ace	Samp	ling	Field	Data	Sheet
		~ · · · · · · ·	*****	T ICIU	Data	DHCCL

ET .		
Date Collected: 1/-5-/2	Job Name: Lecds RC	Page 2 of 1
Job Number: 1061-15	Job Location:	Company: Bones Environmental, us
Contact Person	Address: 2515 Route 23 Leeds MY	Phone Number: 989 - 779 - 7686
	Address: 2515 Route 23, Leeds NY	Collected By:
		COC Number:

Sample Number	Sample Location	Surface/Substrate Sampled	Area Wiped (in ¹ /ft ²)	Collection Media
Leeds RC- LW-14	Storage (Former Indoor Firing Range)	On light fixture	4" x 4"	6host Wife
Leeds AC- LW-15	Storage (Former Indoor Firing Range) Maintenance Bay 2	On work table surface	V	V
			0.21	-
				3101-11



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Air Sampling Field Data Sheet

Date Collected: 11-5-12	Job Name: Leeds RC	Page / of _ Company: Bonus Environmental, LLC
Job Number: () - 5	Job Location:	Phone Number: 989-779-7686
Contact Person	Address: 2515 Route 23 Leeds NY 12451	Collected By
		COC Number:

Sample	Sample Type	pe Carrela Lauré	Sampling Pump Data				Comments	
Number (IWA, OWA, FC, ENV, FER, AMB, BLK, etc.)	Sample Location	Time On	Time Off	Total Min.	Flow Rate LPM	Volume L	(for mold samples, must indicate sampling apparatus and/or collection media)	
Leeds RC-	FB	Field Blank	-	-	Ø	ø	ø	
Leeds RC- LA-2	6A	Maintenance Bay 1	0848	1304	25%	2.0	512	
LA-3	6A	Baschent Stairwell	0920	1308	228	2.0	456	
			-					



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/damalab.com, info/



Appendix C

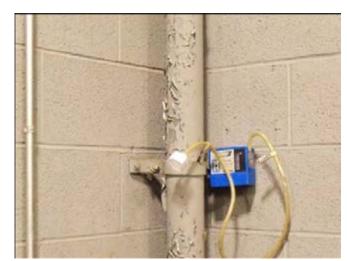
Photographs



Building exterior, looking south



Maintenance bay 1, flammables cabinet



Maintenance bay 1, peeling gray paint



Maintenance bays, looking southwest



Maintenance bay 1, emergency eyewash station



Drill hall, looking southwest



Boiler room



Former indoor firing range



Basement stairwell, peeling beige paint



Kitchen



Classroom 207, stained dropped-ceiling tile



Mechanical room 230

Appendix D

References

- 1. Department of Defense Instruction (0001) 6055.1, Department of Defense Occupational Safety and Health (OS H) Program, August 19, 1998.
- 2. Army Regulation (AR) 11-34, The Army Respiratory Protection Program, February 15, 1990.
- 3. DA PAM 40-503, Medical Service, Industrial Hygiene Program, October 30, 2000.
- 4. Technical Manual (T.M) 5-810-1, Mechanical Design, Heating, Ventilation, and Air Conditioning, June 1991.
- 5. Threshold Limit Values (TLVs) and Biological Exposure Indices (BEls), American Conference of Governmental Industrial Hygienists (ACGIH), current edition.
- 6. UFC 3-410-01 FA Heating, Ventilating, and Air Conditioning, 15 May 2003, change 4 January 2010
- 7. Occupational Safety and Health Administration (OSHA) Lead in Construction Standard, 29 CFR 1926.62.
- 8. Army Regulation (AR) 385-10, The Army Safety Program, August 23, 2007/RAR 4 Oct. 2011
- 9. RP-1-2004, Office Lighting, Illuminating Engineering Society of North America / American National Standards Institute (IESNA/ANSI).
- 10. RP-7-2001, Industrial Lighting, (IESNA/ANSI).
- 11. The American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE), Standard 62.1-2010, "Ventilation for Acceptable Indoor Air Quality".
- 12. ASHRAE Standard 55-2010 "Thermal Environmental Conditions for Human Occupancy"
- 13. Title 24, CFR, Part 35, Subpart B, Sections 35.110, Definitions of Lead-Based Paint, Housing and Urban Development, U.S. Department of Housing.
- 14. OSHA Permissible Exposure Limit (PEL) for General Industry 29 CFR 1910.1000 Z-1 Table
- 15. Guidelines on Assessment and Remediation of Fungi in Indoor Environments, New York City Department of Health and Mental Hygiene, November 2008.
- 16. Mold Remediation in Schools and Commercial Buildings, U.S. Environmental Protection Agency, March 2001
- 17. Army Facilities Management Information Document on Mold Remediation Issues TG277, February 2002
- 18. NG PAM 420-15, Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges, 3 November 2006.



DEPARTMENT OF THE ARMY

US ARMY CENTER FOR HEALTH PROMOTION AND PREVENTIVE MEDICINE 5158 BLACKHAWK ROAD ABERDEEN PROVING GROUND MD 21010-5403

MCHB-TS-OFS

9 JUNE 2006

MEMORANDUM FOR Region North Industrial Hygiene Office (NGB-AVS-SI-IH/Ms. Vanessa Franchere), Army National Guard Bureau, 301-IH Old Bay Lane, Havre de Grace, MD 21078

SUBJECT: New York Army National Guard Facilities, Industrial Hygiene Survey, Report No. 55-ML-048L-05/06, Morrisonville Armory, Morrisonville, New York, 31 October 2005

- 1. We are enclosing a copy of the subject report with an Executive Summary.
- 2. Our point of contact is Mr. Non-Responsive at commercial (410) 436-5475/3118, DSN 584-5475/3118 or electronic mail: Non-Responsive@us.army.mil

FOR THE COMMANDER:

Non-Responsive

Encl

Director, Occupational Health Sciences

CF:

USACHPPM-NORTH (MCHB-AN-IH/MR.

Non-Responsive

Readiness thru Health



U.S. Army Center for Health Promotion and Preventive Medicine



INDUSTRIAL HYGIENE SURVEY
REPORT NO. 55-ML-048L-05/06
NEW YORK ARMY NATIONAL GUARD FACILITIES
MORRISONVILLE ARMORY
MORRISONVILLE, NY
31 OCTOBER 2005







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Readiness Thru Health

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U.S. ARMY CENTER FOR HEALTH PROMOTION AND PREVENTIVE MEDICINE

The U.S. Army Center for Health Promotion and Preventive Medicine (USACHPPM) lineage can be traced back over 50 years to the Army Industrial Hygiene Laboratory. That organization was established at the beginning of World War II and was under the direct jurisdiction of The Army Surgeon General. It was originally located at the Johns Hopkins School of Hygiene and Public Health, with a staff of three and an annual budget not to exceed \$3000. Its mission was to conduct occupational health surveys of Army operated industrial plants, arsenals, and depots. These surveys were aimed at identifying and eliminating occupational health hazards within the Department of Defense's (DOD) industrial production base and proved to be beneficial to the Nation's war effort.

Until 1995, it was nationally and internationally known as the U.S. Army Environmental Hygiene Agency or AEHA. Its mission is expanding to support the worldwide preventive medicine programs of the Army, DOD and other Federal Agencies through consultations/ supportive services; investigations and training.

Today, AEHA is redesignated the U.S. Army Center for Health Promotion and Preventive Medicine. Its mission for the future is to provide worldwide technical support for implementing preventive medicine, public health and health promotion/wellness services into all aspects of America's Army and the Army Community anticipating and rapidly responding to operational needs and adaptable to a changing work environment.

The professional disciplines represented at the Center include chemists, physicists, engineers, physicians, optometrists, audiologists, nurses, industrial hygienists, toxicologists, entomologists, and many other as well as sub-specialties within these professions.

The organization's quest has always been one of excellence and continuous quality improvement; and today its vision, to be the nationally recognized Center for Health Promotion and Preventive Medicine, is clearer than ever. To achieve that end, it holds ever fast to its values which are steeped in its rich heritage:

- ♦ Integrity is the foundation
- ♦ Excellence is the standard
- ♦ Customer satisfaction is the focus
- ♦ Its people are the most valued resource
- ♦ Continuous quality improvement is its pathway

The organization, which stands on the threshold of even greater challenges and responsibilities, has General Officer leadership. As it moves into the next century, new programs are being added related to health promotion/wellness, soldier fitness and disease surveillance. As always, its mission focus is centered upon the Army Imperatives so that we are trained and ready to enhance the Army's readiness for war and operations other than war.

It is an organization fiercely proud of its history, yet equally excited about the future. It is destined to continue its development as a world-class organization with expanded services to the Army, DOD, other Federal Agencies, the Nation and the World Community.



DEPARTMENT OF THE ARMY

US ARMY CENTER FOR HEALTH PROMOTION AND PREVENTIVE MEDICINE 5158 BLACKHAWK ROAD ABERDEEN PROVING GROUND MD 21010-5403

MCHB-TS-OFS

EXECUTIVE SUMMARY
INDUSTRIAL HYGIENE SURVEY
REPORT NO. 55-ML-048L-05/06
NEW YORK ARMY NATIONAL GUARD FACILITIES
MORRISONVILLE ARMORY
MORRISONVILLE, NY
31 OCTOBER 2005

1. PURPOSE. To conduct surveys at the Morrisonville, New York Army National Guard (NYARNG) facility to identify and measure the existence and extent of potentially hazardous operations or conditions.

2. CONCLUSIONS.

- a. <u>Lead Exposure</u>. Levels of lead in dust that exceeded safe limits for adults and children were identified. These levels may result in health hazards to adults and to children visiting the Armory. Personnel working in the Armory may have been tracking dust containing lead throughout the facility. Cleaning areas with elevated levels of lead in dust may further prevent lead from becoming redistributed throughout the Armory.
- b. <u>Asbestos</u>. The building's construction date (1986) indicated that it was unlikely that asbestos-containing building materials (ACBM) were used during construction. No suspected ACBM were identified.
- c. <u>Safety and Occupational Health Programs</u>. The Morrisonville Armory did not have written Hazard Communication (HAZCOM) or Hearing Conservation Programs.
- d. <u>Heating, Ventilation, and Air Conditioning (HVAC) Systems</u>. There was no maintenance program in place for the HVAC system.
- e. <u>Lighting</u>. In the professional judgment of the project lead, the lighting levels were adequate.
- f. <u>Indoor Air Quality (IAQ)</u>. IAQ parameters in the facility met American Society of Heating, Refrigeration, and Air-conditioning Engineers guidelines.

Readiness thru Health



3. RECOMMENDATIONS.

- a. <u>Lead Exposure</u>. Health Risk Assessment Code (RAC) 3 for child exposures. Health RAC 4 for adult exposures. Address all potential lead hazards before continuing to extend the use of this facility to children. If children will visit this facility, clean the floors in the indoor firing range storage area to the Environmental Protection Agency and State of New York lead in dust standards for young children, and clean other horizontal surfaces in the vault to the National Guard Bureau Region North and US Army Center for Health Promotion and Preventive Medicine recommended maximum level for lead in dust on frequently contacted surfaces. Ensure that personnel wear disposable gloves and disposable coveralls as extra protection when working in all areas identified as having elevated levels of lead. Consult with the NYARNG Environmental Coordinator concerning waste disposal requirements after clean up.
 - b. Asbestos Exposure. No recommendation is required.
- c. <u>Safety and Occupational Health Programs</u>. Health RAC 3. Develop written HAZCOM and Hearing Conservation Programs specific to the Morrisonville Armory. Include annual program evaluation and training.
- d. <u>HVAC Systems</u>. Health RAC 4. Develop and implement an HVAC maintenance program. Include provisions for regularly scheduled filter replacement and documentation of maintenance performed.
 - e. <u>Lighting</u>. Health RAC 5. Quantify light levels in follow-on assessments.
 - f. Indoor Air Quality. Health RAC 5. No recommendation is required.

NYARNG, IH Survey, Morrisonville Armory, Morrisonville, NY, Report No. 55-ML-048L-05/06, 31 October 2005

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INDUSTRIAL HYGIENE SURVEY REPORT NO. 55-ML-048L-05/06 NEW YORK ARMY NATIONAL GUARD FACILITIES MORRISONVILLE ARMORY MORRISONVILLE, NY 31 OCTOBER 2005

- 1. REFERENCES. See Appendix A.
- 2. PURPOSE. To conduct surveys at the Morrisonville, New York Army National Guard (NYARNG) facilities to identify and measure the existence and extent of potentially hazardous operations or conditions. This survey will serve to establish a baseline so that an occupational exposure history can be compiled for each civilian or military employee.
- 3. AUTHORITY. Fax, National Guard Bureau Region North Industrial Hygiene Office (NGB-AVS-SI-IH/Ms. Non-Responsive), 27 July 2005, subject: SAB.
- 4. BACKGROUND.
 - a. Date of Construction. The construction date was 1986.
- b. <u>Armory Use by Children</u>. Mr. Building Superintendent, stated that children did not visit the facility regularly.
- c. <u>Size of Facility</u>. The facility is approximately 30,000 square feet. It is a one story building.
 - d. Mission. Support activities for the 108th Infantry, 2nd Battalion.
- e. <u>Point Of Contact (POC)</u>. The POC was Mr. Facilities Management Supervisor, 330 Old Niskayuna Road, Latham, NY, 12110-2224, Phone: 518-786-4552.
- 5. FACILITY EVALUATION.
- a. <u>Sampling</u>. Surface lead in dust and air sampling were conducted to determine the existence of lead hazards. Results are shown in Appendix B.
 - b. <u>Physical Condition of Facilities</u>.
- (1) Paint. The date of construction of the facility indicated that the use of lead in paint was unlikely.

- (2) Asbestos. Mr. Professional reported that no asbestos containing building material had been used in the Armory to his knowledge. The building's construction date (1986) indicated that it was unlikely that asbestos-containing building materials (ACBM) were used during construction. No suspected ACBM were identified.
- (3) Mold and Moisture Problems. No mold or moisture problems were observed or reported.
- (4) Building Physical Condition. The building was in good condition and had been well maintained. No chipping or deteriorating paint was observed.
- c. <u>Safety and Occupational Health Programs</u>. There was a Safety Standard Operating Procedure but there were no formal Hazard Communication (HAZCOM) or Hearing Conservation Programs. No annual training was conducted.
- d. <u>Heating, Ventilation, and Air Conditioning (HVAC) Systems</u>. The building assessment was based upon recommended design criteria. The building utilized a central heating and air conditioning system. The building superintendent reported that a written HVAC maintenance program was being developed. The HVAC filtering systems were individually tagged with the date of replacement and the next scheduled maintenance date written on each.
- e. <u>Noise Dosimetry</u>. No operations with the potential to generate hazardous noise levels were identified.
- f. <u>Lighting</u>. The scope of work for this survey called for measurement of lighting levels in areas where there may have been a potential problem, based on professional judgment. The National Guard Bureau (NGB) verbally requested that light levels be measured throughout facilities. Due to miscommunication, the project lead visiting this site did not quantify light levels, but did use professional judgment in assessing the lighting levels. All areas were visually judged to be adequately lit.
- g. <u>Indoor Air Quality (IAQ)</u>. The IAQ assessment included measuring temperature in degrees Fahrenheit (^OF), relative humidity (RH) in percent (%), and carbon dioxide (CO₂) levels in parts per million (ppm) in different locations throughout the facility.
 - h. Other Building Concerns. None.

6. ASSESSMENT CRITERIA FOR LEAD. See Appendix C.

- a. <u>Lead in Air</u>. The Army complies with the Occupational Safety and Health Administration (OSHA) 8-hour time-weighted average Permissible Exposure Limit of 50 micrograms of lead per cubic meter (µg/m³) of air.
- b. Lead in Dust. The Environmental Protection Agency (EPA) and State of New York limits for lead in dust are 40 micrograms per square foot ($\mu g/ft^2$) on floors, 250 $\mu g/ft^2$ on window sills, and 400 $\mu g/ft^2$ in window troughs. These limits apply to pre-1978 Army facilities only if children under 6 years of age occupy them for 60 or more hours per year. The US Army Center for Health Promotion and Preventive Medicine (USACHPPM) applies these limits to areas of Army National Guard facilities that children may occupy, regardless of the amount of time that children occupy them. The NGB Region North concurs with the USACHPPM recommended maximum level of 200 $\mu g/ft^2$ on floors and frequently contacted surfaces, which is more stringent for windowsills than the EPA/State standards. This limit was adopted from OSHA guidance in Compliance Letter 02-02-58.
- c. <u>Lead in Paint</u>. Paint containing lead levels of 0.5 percent or more by weight in dried solid (also reported as 5000 milligrams per kilogram) is considered to be lead-based paint according to both Federal and New York State Regulations.
- d. <u>Lead Carcinogenicity</u>. The Department of Health and Human Services National Toxicology Program (NTP) released the Report on Carcinogens, Eleventh Edition in February 2005. The NTP report lists "lead and lead compounds" as "reasonably anticipated to be human carcinogens".

7. SAMPLING RESULTS, DISCUSSION, AND CONCLUSIONS.

a. Lead in Dust. Lead in dust sample locations and analytical results are shown in Appendix B. Sample results greater than $40~\mu g/ft^2$ for floors or $200~\mu g/ft^2$ for other surfaces are highlighted. One of the lead in dust sample results exceeded the EPA and the State of New York lead exposure standard for children. These levels are hazardous to children exposed to lead dust through physical contact, inhalation, or ingestion of lead dust while visiting the Armory. Personnel working in this room were potentially exposed to lead, and were possibly tracking lead out of the area and redistributing it into adjacent rooms in the Armory. This can result in lead exposures for the general workforce and for children visiting this facility.

- b. <u>Lead in Air</u>. General area lead in air sampling was conducted in Classroom A, the indoor firing range (IFR) and the Drill Hall (which also serves as a dining area). The air sample results were less than the laboratory reporting limit of $7 \mu g/m^3$, as well as the OSHA standard of $50 \mu g/m^3$ for lead in air over an 8 hour day.
 - c. <u>IAQ</u>. Table 1 summarizes IAQ measurements.

Location	CO ₂	Temp	RH
	(ppm)	(°F)	(%)
Outdoors	380	48	52
Drill Hall	415	62	48
Classroom 1	450	64	47
IED	420	60	40

Table 1. Indoor Air Quality Measurements

- (1) Temperature. The indoor temperatures of all but one of the rooms sampled were within the American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE), Inc. recommended guidelines of 62-72° F for an acceptable thermal environment. These measurements were taken at approximately 0700 before the building's indoor temperatures might have reached optimum temperatures. The room with the low temperature, the IFR, is in an unoccupied section of the building.
- (2) Carbon Dioxide (CO₂). The outdoor CO₂ level was 380 ppm. The ASHRAE recommends, for occupant comfort, maintaining CO₂ levels below the value of 700 ppm plus the outdoor ambient level. Therefore, CO₂ levels should be maintained below 1080 ppm. The CO₂ levels of all rooms measured were well within the ASHRAE recommended guidelines.
- (3) RH. The RH levels in all rooms tested were within the ASHRAE recommended guidelines of 30-60 percent RH.
- 8. RECOMMENDATIONS. The Department of Defense Instruction 6055.1 provides Risk Assessment Codes (RACs) for health hazards, a procedure which allows assessment of the magnitude of exposure to physical, chemical, and biological agents and the possible medical effects of exposure. The RAC is an expression of the risk associated with the hazard and combines the hazard severity and accident probability into a single number. The RACs enable one to prioritize hazards. They range in magnitude from 1 to 5, with 1 being the highest priority.
- a. <u>Lead Exposure</u>. Health RAC 3 for child exposures. Health RAC 4 for adult exposures. Address all potential lead hazards before continuing to extend the use of this facility to children. If children will visit this facility, clean the floors in the IFR storage area to the EPA lead in dust

North and USACHPPM recommended maximum level for lead in dust on frequently contacted surfaces. Ensure that personnel wear disposable gloves and disposable coveralls as extra protection when working in all areas identified as having elevated levels of lead. Consult with the NYARNG Environmental Coordinator concerning waste disposal requirements after clean up.

- b. Asbestos Exposure. No recommendation is required.
- c. <u>Safety and Occupational Health Programs</u>. Health RAC 3. Develop written HAZCOM and Hearing Conservation Programs specific to the Morrisonville Armory . Include annual program evaluation and training.
- d. <u>HVAC systems</u>. Health RAC 4. Develop and implement a HVAC maintenance program. Include provisions for regularly scheduled filter replacement and documentation of maintenance performed.
 - e. Lighting. Health RAC 5. Quantify light levels in follow-on assessments.
 - f. IAQ. Health RAC 5. No recommendation required
- 9. PHOTOGRAPHS. See Appendix D.
- 10. ADDITIONAL ASSISTANCE. For additional assistance or questions concerning this report, please contact the undersigned at DSN 584-3118, commercial 410-436-3118, or by electronic mail: Non-Responsive@us.army.mil



Industrial Hygienist Industrial Hygiene Field Services Program

APPROVED:

Non-Responsive

Program Manager Industrial Hygiene Field Services Program

5

APPENDIX A

REFERENCES

Literature Cited

- 1. Occupational Safety and Health Administration, Title 29, Code of Federal Regulations (CFR), current ed. 1910.1025, Lead. http://www.osha.gov/comp-links.html
- 2. Occupational Safety and Health Administration, Title 29, Code of Federal Regulations (CFR), current ed. 1910.1200, Hazard Communication. http://www.osha.gov/comp-links.html
- 3. DA PAM 40-501, Medical Services, Hearing Conservation Program, 10 December 1998. http://www.usapaarmy.mil/pdfiles/p40-501.pdf
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- 5. EPA 40 CFR Part 745, Lead; Identification of Dangerous Levels of Lead; Final Rule, 5 Jan 2001.
- 6. Department of Health and Human Services National Toxicology Program (NTP) Substance Profiles, Report on Carcinogens, 11th Edition, Lead and Lead Compounds (CAS No. 7439-92-1) February 2005.
- 7. Department of Defense Instruction (DODI) 6055.1, Department of Defense Occupational Safety and Health (OSH) Program, 19 August 1998. http://www.dtic.mil/whs/directives/corres/pdf/i60551_081998/i60551p.pdf
- 8. OSHA Directive CPL 02-02-58, Lead Exposure in Construction; Interim Final Rule Inspection and Compliance Procedures, December 13, 1993.
- 9. Environmental Protection Agency, Title 40 CFR, Part 61, National Emission Standards for Hazardous Air Pollutants, Subpart M-National Emission Standard for Asbestos.
- 10. OSHA Directive CPL 02-02-58, Lead Exposure in Construction; Interim Final Rule Inspection and Compliance Procedures, December 13, 1993.

A-1

APPENDIX B

Lead in Surface Dust Locations and Analytical Results.

Wipe Sample	Location of Samples	Result (μg/ft²)
Number		
MVW-01	IFR-Bullet Trap Area Floor	<mark>760</mark>
MVW-02	IFR – Storage	19
MVW-03	IFR – Storage	120
MVW-04	IFR – Door Outside	<2.7
MVW-06	Drill Hall – NW Corner	28
MVW-07	Drill Hall – NE Corner	7.5
MVW-08	Drill Hall – SE Corner	11
MVW-09	Drill Hall – SW Corner	22
MVW-10	Drill Hall – Center	3.9
MVW-12	Supply Room	25
MVW-13	Kitchen Oven	160
MVW-14	Classroom A	8.6
MVW-16	Community Room	4.1
MVW-17	Counter Drug Program Room 29	7.4
MVW-18	Briefing Room, Room 33	4.1
MVW-19	Orderly Room, Room 4	8.7
MVW-21	1st Sergeant's Office	9.7
MVW-22	Vault	11

Lead in Air Locations and Analytical Results.

Air Sample Number	Location of Samples	Result (μg/m³)
MVA-01	IFR	<6.2
MVA-02	Drill/Dining Hall	<6.2
MVA-03	Classroom A	<6

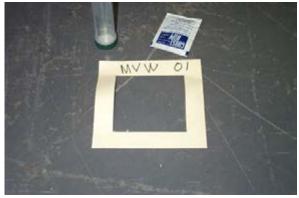
APPENDIX C

SUBJECT: National Guard Bureau Region North Industrial Hygiene Office Proposed Recommendations for Surface Lead in Armories

- 1. In armories that do not contain childcare facilities, the National Guard Bureau (NGB) Region North Industrial Hygiene Office recommends cleaning the areas in which sample results are greater than 200 micrograms per square foot (µg/ft²). If a special function will be held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function. This guidance is based on professional judgment, risk assessments, adaptation of Occupational Safety and Health Administration (OSHA) guidance, and feasibility of cleaning to a certain level.
- a. Environmental Protection Agency (EPA) standards (40 Code of Federal Regulations (CFR) 745.227(h)(3)) are not directly applicable because they are criteria for dust-lead hazards developed for floors (40 µg/ft²) and windowsills (250 µg/ft²) in residential dwellings and child occupied facilities. A child occupied facility is defined as a building, or portion of a building, constructed prior to 1978, visited regularly by the same child, 6 years of age or under, on at least two different days within any week (Sunday through Saturday period), provided that each day's visit lasts at least 3 hours and the combined weekly visit lasts at least 6 hours, and the combined annual visits last at least 60 hours. Most of the wipe samples in armories were collected in undisturbed areas and therefore, results are worst case scenarios and do not correlate to these standards.
- b. OSHA has no specific requirement for work area surfaces. The lead standard (29 CFR 1910.1025(h)) states that all surfaces shall be maintained as free as practicable of accumulations of lead dust. In workplaces where lead dust is generated, surface levels may be much higher, but personnel exposures can be controlled by limiting airborne lead levels and following good cleanup and hygienic practices.
- c. OSHA used to cite a level of 200 µg/ft² in their Technical Manual and 29 CFR 1926.62 as guidance to its own inspectors for evaluating the cleanliness of lunchroom and locker room surfaces that are supposed to be kept as clean as possible.
- d. In a report titled Derivation of Wipe Surface Screening Levels for Environmental Chemicals, the US Army Center for Health Promotion and Preventive Medicine (USACHPPM) has determined that 200 µg/ft² is a safe surface contamination level. They have also applied these standards as the decontamination levels for surfaces in administrative offices.

- e. It should be noted that levels above these recommendations do not necessarily mean there is a significant hazard to workers who are following good cleaning and hygienic practices since there is no correlation between wipe and air samples. Rather, we recommend these levels as a precautionary measure.
- 2. The NGB Occupational Health Branch is developing guidance for armories that are used as childcare facilities. All states will receive this guidance when it is completed. In the interim, we recommend the following actions:
- a. Clean all areas that will be accessible to children to the EPA dust-lead standard for children 6 years of age or under $(40 \mu g/ft^2)$ on floors and $250 \mu g/ft^2$ on windowsills).
- b. Refer to the local authorities' regulations since they can be more stringent than federal regulations.
 - c. Post signs in the area to inform people of the presence of lead dust and its effects.
- d. If soldiers clean weapons in the facility change the policy so that they cannot clean their weapons in the facility, or if they are allowed to clean their weapons indoors, they must clean the area by wet wiping and mopping the area when they are done.
- e. If the paint is peeling, contact the state Environmental Office to test for lead content and provide recommendations.
- 3. Air samples collected on individuals in the armory were well below OSHA's permissible exposure limit for lead (29 CFR 1910.1025(c)) of 0.05 mg/m³ averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead dust in this building,

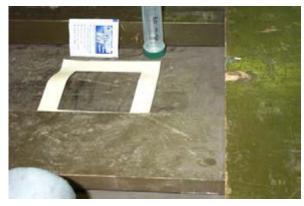
APPENDIX D





IFR – Bullet Trap Area Floor

IFR - Storage





Posted to NGB FOIA Reading Room

May, 2018



IFR - Outside Door



Drill Hall – NW corner



Drill Hall – NE corner





Drill Hall – SE corner

Drill Hall – SW corner





Drill Hall – center

Supply room

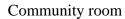




Kitchen – oven top

Classroom A







Room 29





Briefing Room 33

Orderly room 4



1st Sergeant's Office

National Guard Region North

National Guard Readiness Center Industrial Hygiene Evaluation Morrisonville Readiness Center Morrisonville, NY

Prepared for:

National Guard Region North Industrial Hygiene Office 301 Old Bay Lane Havre De Grace, MD 21078

Attn:

Non-Responsive

Prepared by:

Bonus Environmental, LLC P.O. Box 121 Mt. Pleasant, Michigan 48804

> Project No. 1061-15 January 25, 2013

Bonus Environmental, LLC

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APPENDICES

Appendix A Shop Diagram and Air Flow Patterns

Appendix B Lead Sample Results

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January 25, 2013 Project No. 1061-15

National Guard Region North Industrial Hygiene Office 301 Old Bay Lane Havre De Grace, MD 21078-4003

Attn: Non-Responsive

Project: Industrial Hygiene Evaluation

Morrisonville Readiness Center, Morrisonville, NY

1.0 - EXECUTIVE SUMMARY

Bonus Environmental, LLC was contracted by the National Guard Bureau Region North Industrial Hygiene office to identify and measure the existence and extent of potentially hazardous operations or conditions at the Morrisonville Readiness Center located at 16 Fairgrounds Road in Morrisonville, NY. The purpose of this evaluation was to generate or to update a previous baseline evaluation so that employee exposure history can be provided to each civilian and military employee. The following industrial hygiene conditions were evaluated during this industrial hygiene evaluation performed by Bonus Environmental, LLC representative Non-Responsive on November 9, 2012:

- Indoor Air Quality
- Lead Wipe & Bulk Sampling
- Illumination
- Ergonomics

 Evaluation of the physical condition of the facility in regards to peeling paint, asbestos containing materials, water damage or mold problems, and housekeeping practices.

The Morrisonville Readiness Center is an Army National Guard armory comprised of offices, storage rooms, a drill hall, a classroom, a break room, locker rooms, a fitness room, a kitchen, and a former indoor firing range (currently used as storage). The Morrisonville Readiness Center was constructed in the 1970's. The point of contact for the approximately 21,821 ft² Morrisonville Readiness Center is Mr. Non-Responsive. Approximately nine (9) full-time administrative personnel are employed at the Morrisonville Readiness Center. No Health and Safety programs were available to review on site. A shop diagram depicting the locations of the operations and air flow patterns identified during this industrial hygiene evaluation is attached to this report as Appendix A.

The National Guard Bureau Region North Industrial Hygiene Office provided governmental furnished equipment and sampling media required to perform the industrial hygiene evaluation. Chain of custody forms for laboratories approved by the National Guard Bureau Region North Industrial Hygiene Office were provided with the sampling media. All samples collected during this industrial hygiene evaluation were sent to the National Guard Bureau Region North Industrial Hygiene Office approved laboratories for analysis.

2.0 – LEAD SAMPLING

2.1 – Lead Wipe Sampling

Lead wipe sampling was performed according to the Environmental Protection Agency (EPA) method 600/R-93/200(M)-7420 (Atomic Absorption - Flame). Eighteen (18) wipe samples and one (1) field blank were sent under chain-of-custody procedures to AMA Analytical Services, Inc., an American Industrial Hygiene Association (AIHA) accredited laboratory located in Lanham, Maryland. The U.S. Department of Labor (USDOL) and the Occupational Safety and Health Administration (OSHA) do not have a promulgated standard for lead surface contamination; however OSHA has provided an interpretive level of 200 micrograms per square foot (μg/ft²) to assess the housekeeping requirements of "as free as reasonably practicable". This interpretation is presented in OSHA Industrial Hygiene Technical Manual (TED 01-00-015; 1/20/1999), and in a letter of interpretations dated 1/13/2003, and subsequently issued to public domain. NG Pam 420-15 addresses the conversion and remediation of former indoor firing ranges. The following table outlines the locations and analytical results for the lead wipe samples collected during this project.

Army National Guard – Morrisonville Readiness Center Lead Wipe Sample Results					
Sample #	Sample Date	Sample Location	Sample Area (ft²)	Sample Result (µg/ft²)	
MvilleRC-LW-1	11-9-12	Field Blank		< 12 μg	
MvilleRC-LW-2	11-9-12	Drill hall, NW corner, top of amnesty box	0.111	150	
MvilleRC-LW-3	11-9-12	Drill hall, west wall, top of emergency lighting fixture	0.111	1,300	
MvilleRC-LW-4	11-9-12	Drill hall, NE corner, top of vending machine	0.111	< 110	
MvilleRC-LW-5	11-9-12	Drill hall, north end, on floor	0.111	< 110	
MvilleRC-LW-6	11-9-12	Drill hall, south end, on floor	0.111	< 110	
MvilleRC-LW-7	11-9-12	Kitchen, top of microwave oven	0.111	< 110	
MvilleRC-LW-8	11-9-12	Room 28, Gym, SE corner, on window sill	0.111	< 110	
MvilleRC-LW-9	11-9-12	Break room, on counter surface	0.111	< 110	
MvilleRC-LW-10	11-9-12	Classroom B, NW corner, top shelf of bookshelf	0.111	< 110	
MvilleRC-LW-11	11-9-12	Room 33, Briefing room, east wall, on heat register	0.111	< 110	
MvilleRC-LW-12	11-9-12	Room 4, Orderly room, SW corner, top of file cabinet	0.111	< 110	
MvilleRC-LW-13	11-9-12	Room 8, Commander's office, top of bookshelf	0.111	< 110	
MvilleRC-LW-14	11-9-12	Room 13, Men's locker room 2, on supplied air grill	0.111	170	
MvilleRC-LW-15	11-9-12	Storage room, top of light fixture	0.111	590	
MvilleRC-LW-16	11-9-12	Room 39, top of locker #96	0.111	< 110	
MvilleRC-LW-17	11-9-12	Room 44 (former indoor firing range), south end, on floor	0.111	220	
MvilleRC-LW-18	11-9-12	Room 44 (former indoor firing range), north end, on floor	0.111	< 110	
MvilleRC-LW-19	11-9-12	Room 44 (former indoor firing range), center of room,	0.111	1,100	

Army National Guard – Morrisonville Readiness Center Lead Wipe Sample Results						
Sample #	Sample Date	Sample Location	Sample Area (ft²)	Sample Result (µg/ft²)		
		top of light fixture				

Surface cleanliness threshold = < 200 micrograms per square foot ($\mu g/ft^2$)

The former indoor firing range was being used for storage. It was stated to Bonus Environmental, LLC that it had been remediated of residual lead contamination at some point in the past (date or year unknown), and it is uncertain if it was remediated to the protocols specified in NG Pam 420-15. Remediation wipe sample results were not posted, nor were any signs posted restricting access to the area.

3.0 - PHYSICAL CONDITION OF FACILITY / PERSONNEL CONCERNS

3.1 - Lead Based Paint

During the industrial hygiene evaluation of the Morrisonville Readiness Center, Bonus Environmental, LLC performed a visual inspection of the facility in regards to lead based paint. Bonus Environmental, LLC did not identify damaged or peeling paint in the Morrisonville Readiness Center.

3.2 – Presumed Asbestos Containing Materials

During the industrial hygiene evaluation of the Morrisonville Readiness Center, Bonus Environmental, LLC performed a visual inspection to identify presumed asbestos containing materials (PACM) and, if found, to note their condition. Bonus Environmental, LLC did not identify any PACM that was considered to be in poor or damaged condition.

3.3 - Water Damage/Mold Growth

During the industrial hygiene evaluation of the Morrisonville Readiness Center, Bonus Environmental, LLC performed a visual inspection to report the location and perform an evaluation of any water damaged building materials and/or visible mold problems. Bonus Environmental, LLC identified water-damaged and/or moldy building materials in the following locations:

- Approximately 8 ft² of stained dropped-ceiling tile (DCT) in room 28 (gym);
- Approximately 6 ft² of stained DCT in Classroom B;
- Approximately 1 ft² of stained DCT in room 32 (office);
- Approximately 2 ft² of water-damaged drywall ceiling in room 22 (dishwashing room);
- Approximately 1 ft² of stained DCT in Room 33 (Briefing room);
- Approximately 1 ft² of stained DCT in room 4 (Orderly room);
- Approximately 20 ft² of water-damaged cement blocks in room 44 (storage/former indoor firing range).

3.4 - Housekeeping

During the industrial hygiene evaluation of the Morrisonville Readiness Center, Bonus Environmental, LLC performed an evaluation of the housekeeping practices. Bonus Environmental, LLC found the

housekeeping practices within Morrisonville Readiness Center facility in good order, with the exception of residual lead dust concentrations.

3.5 – Employee Interviews

During the industrial hygiene evaluation of the Morrisonville Readiness Center, Bonus Environmental, LLC performed interviews and made observations to determine if the work activities being performed possessed any ergonomic concerns. Following the interviews and observations, no ergonomic and/or indoor air quality concerns were identified.

3.6 – Indoor Air Quality

During the industrial hygiene evaluation of the Morrisonville Readiness Center, Bonus Environmental, LLC measured temperature, relative humidity, carbon monoxide (CO), and carbon dioxide (CO₂) throughout the facility. A calibrated TSI Q-Trak Plus Model 7575 Indoor Air Quality Monitor equipped with a Q-Trak Probe 982 was utilized to record indoor air quality measurements.

Carbon dioxide is a natural component of air and the amount of CO₂ in a given air sample is commonly expressed as parts per million (ppm). The outdoor air in most locations contains about 380 ppm carbon dioxide. Higher outdoor CO₂ concentrations can be found near vehicle traffic areas, industry and sources of combustion. The concentrations of CO₂ found in most offices are well below the OSHA Permissible Exposure Limit (PEL) of 5,000 ppm when averaged over an 8-hour time period for an industrial workplace. While levels below 5,000 ppm are considered to pose no serious health threat, studies have indicated that individuals in offices with elevated CO₂ concentrations tend to report drowsiness, lethargy and a general sense that the air is stale. Ventilation rates for office spaces are defined by various codes and standards. The most widely accepted standard is the American Society of Heating, Refrigerating, and Air Conditioning Engineers (ASHRAE) Standard 62. According to ASHRAE Standard 62.1-2010, CO₂ concentrations below 700 ppm above the outdoor level are considered to indicate adequate ventilation and provide human comfort. The CO₂ measurements collected during this industrial hygiene evaluation ranged from 367 ppm to 742 ppm and indicate adequate ventilation within the facility.

Carbon monoxide is a colorless, odorless, poisonous gas that results from the incomplete burning of common fuels such as natural or liquefied petroleum gas, oil, wood or coal. When carbon monoxide is inhaled, it enters the blood stream and reduces the ability of the blood to carry oxygen to vital organs, such as the heart and brain. Because it is impossible to see, taste or smell the toxic fumes, CO can harm you before you are aware it is in your work area. At lower levels of exposure, CO causes mild effects that are often mistaken for the flu. These symptoms include headaches, dizziness, disorientation, nausea and fatigue. The effects of CO exposure can vary greatly from person to person depending on age, overall health and the concentration and length of exposure. The OSHA has established a permissible exposure limit (PEL) of 50 parts per million (ppm). OSHA standards prohibit worker exposure to more than 50 parts of the gas per million parts of air averaged during an 8-hour time period. The peak CO level for employees is 200 ppm. The CO measurements collected during this industrial hygiene evaluation ranged from 0.0 ppm to 0.6 ppm. CO levels were well below the OSHA PEL during this industrial hygiene evaluation.

During the industrial hygiene evaluation of the Morrisonville Readiness Center, Bonus Environmental, LLC collected temperature measurements. Temperature measurements throughout the common areas of the facility routinely occupied by employees ranged from 54.9°F to 71.8°F and are considered to be outside of an acceptable range outlined within ASHRAE Standard 55-2010.

During the industrial hygiene evaluation of the Morrisonville Readiness Center, Bonus Environmental, LLC collected relative humidity measurements. Relative humidity measurements throughout common areas of the facility routinely occupied by employees ranged from 26.3% to 44.6%. Indoor air quality measurements recorded during this industrial hygiene evaluation are summarized in the table below.

Army National Guard – Morrisonville Readiness Center Indoor Air Quality Measurements							
Location	CO ₂ (ppm)	CO (ppm)	Relative Humidity (%)	Temperature (°F)			
Outdoors, east side of building (sunny)	377	0.0	32.2	41.1			
Room 28, gym	397	0.0	26.3	64.8			
Break room	411	0.0	30.2	63.3			
Classroom B	429	0.2	28.3	62.1			
Room 33, Briefing room	395	0.0	30.6	61.9			
Kitchen	393	0.6	29.2	59.5			
Room 4, Orderly room	742	0.6	30.1	71.8			
Room 8, Commander's office	407	0.0	28.1	60.8			
Room 13, Men's locker room 2	419	0.0	35.4	59.5			
Room 44, storage/former indoor firing range	367	0.0	44.6	54.9			
Drill Hall	400	0.0	30.7	59.9			

Required/Recommended Values

CO₂ - OSHA PEL = 5,000 parts per million (ppm) and ASHRAE Standard 62.1-2010 = no greater than 700 ppm above outdoor

CO - OSHA PEL = 50 ppm and OSHA Ceiling Limit = 200 ppm

Temperature - ASHRAE Standard 55-2010 = between approximately 67 and 82 °F.

RH - ASHRAE Standard 62.1-2010 = limited to < 65%

4.0 – LIGHTING

Utilizing a properly calibrated Cooke Corporation cal-Light 400 light meter, Bonus Environmental, LLC collected illumination readings throughout the Morrisonville Readiness Center. Illumination measurements recorded during this industrial hygiene evaluation are summarized in the table below.

Army National Guard – Morrisonville Readiness Center Lighting Measurements					
Location	Measurement in	Requirement in Foot	Requirement		
	Foot Candles	Candles	Met?		
Community room 28 (gym)	45.6	30	Yes		
Break room	50.3	10	Yes		
Classroom B	38.7	30	Yes		
Room 29		Inaccessible			
Room 30 (storage)	31.8	30	Yes		
Room 31	Inaccessible				
Room 32 (office)	60.2	50	Yes		

Army National Guard – Morrisonville Readiness Center Lighting Measurements					
Location	Measurement in Foot Candles	Requirement in Foot Candles	Requirement Met?		
Room 21 (kitchen)	34.1	50	No		
Room 23 (kitchen storage)	36.7	30	Yes		
Room 22 (dishwashing room)	15.8	30	No		
Room 33 (Briefing room/classroom)	66.3	30	Yes		
Hallway	11.7	5	Yes		
Room 20 (janitor's closet)	15.8	30	No		
Women's restroom	50.1	5	Yes		
Men's restroom	34.7	5	Yes		
Lobby	17.2	10	Yes		
Room 34 (office)		Inaccessible			
Recruiter's office	113.4	50	Yes		
Room 12		Inaccessible			
Room 12A		Inaccessible			
Room 4 (orderly room)	126.1	50	Yes		
Room 5 (office)	49.0	50	No		
Room 6 (office)	52.1	50	Yes		
Room 6A (copy room)	69.3	10	Yes		
Room 9 (Boiler room)		Inaccessible			
Room 8 (office)	23.2	50	No		
Men's shower	11.1	7	Yes		
Men's locker room 1	20.2	7	Yes		
Men's locker room 2	17.7	7	Yes		
Storage room	19.8	30	No		
Room 38 (Supply)	34.6	30	Yes		
Room 38A (vault)	Inaccessible				
Drill Hall	19.0	30	No		
Room 39 (storage)	7.0	30	No		
Room 41 (restroom)	31.4	5	Yes		
Room 40 (elec room)		Inaccessible			
Room 44 (storage/former indoor firing range)	32.4	30	Yes		
Flammables room (storage)		Inaccessible			

Lighting levels were compared to the levels outlined within the American National Standards Institute/Illuminating Engineering Society of North America (ANSI/IESNA) RP-1-04 Office Lighting Handbook, and the ANSI/IESNA RP-7-01 Lighting Industrial Facilities Handbook. Areas within the facility which did not meet the foot candle requirements are identified with a "NO" within the "Requirement Met?" column. It is recommended that illumination be improved in all the areas that did not meet the requirements. Improving illumination can be achieved by replacing burned-out lamps/bulbs, cleaning fixtures, relocating detailed work activities to more illuminated areas, and using supplemental task lighting.

5.0 - CONCLUSION & LIMITATIONS

Bonus Environmental, LLC was contracted by the National Guard Bureau Region North Industrial Hygiene office to identify and measure the existence and extent of potentially hazardous operations or conditions at the Morrisonville Readiness Center located at 16 Fairgrounds Road in Morrisonville, NY.

The purpose of this evaluation was to generate or to update a previous baseline evaluation so that employee exposure history can be provided to each civilian and military employee. Industrial hygiene conditions were evaluated during this industrial hygiene evaluation performed by Bonus Environmental, LLC representative Non-Responsive on November 9, 2012.

The results/findings of this industrial hygiene evaluation are summarized below.

- 1. Bonus Environmental, LLC did not identify any PACM that was considered to be in poor or damaged condition.
- 2. Bonus Environmental, LLC found the housekeeping practices within the Morrisonville Readiness Center in good order, with the exception of residual lead dust concentrations.
- 3. Following the interviews and observations, no ergonomic and or indoor air quality concerns were identified.
- 4. Bonus Environmental, LLC measured temperature, relative humidity, CO, and CO₂ throughout the Morrisonville Readiness Center. All were found to be within their acceptable ranges/limits, with the exception of several low temperature reading.
- 5. Areas within the Morrisonville Readiness Center facility were identified as improperly illuminated.
- 6. Lead wipe sample results collected within the Morrisonville Readiness Center were above the OSHA interpretive level of 200 μ g/ft² in four sampled locations.
- 7. Bonus Environmental, LLC did not identify any areas of peeling paint.
- 8. Bonus Environmental, LLC identified water-damaged and/or moldy building materials in seven locations.
- 9. No Health and Safety programs were available to review on site.

Bonus Environmental, LLC has 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 Region North - Industrial Hygiene Office. 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 Bonus Environmental, LLC's inspection of the site.

It has been a pleasure to be of assistance to you. Please contact us if you have any questions concerning this report or if we can be of any further assistance in any other environmental or occupational health matter.



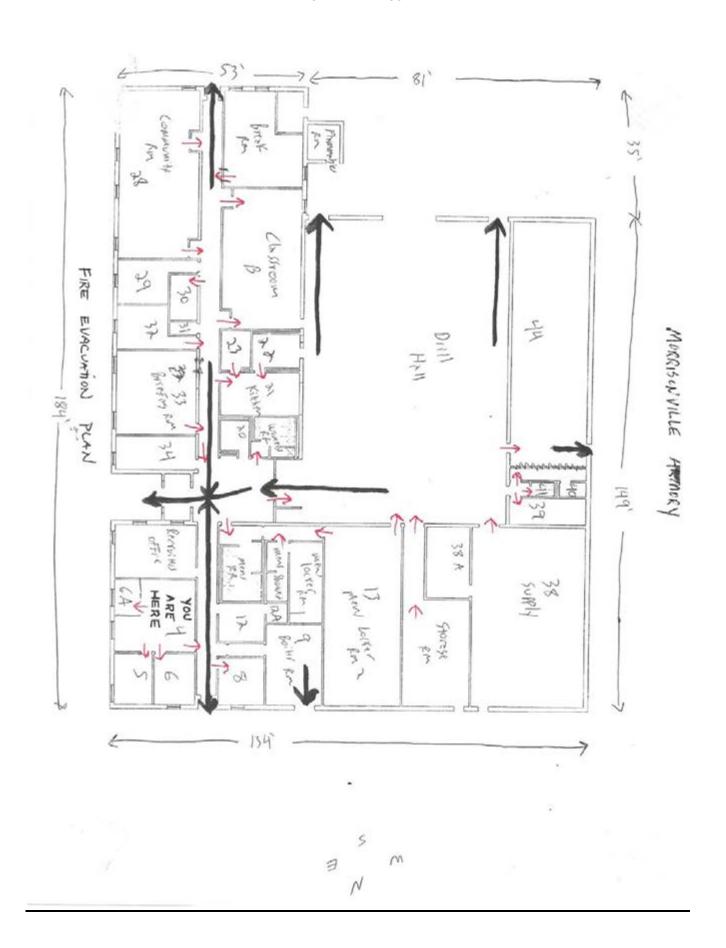


Principal Bonus Environmental, LLC

Morrisonville RC_12_Report.docx

Appendix A

Shop Diagram and Air Flow Patterns



Appendix B

Lead Sampling Results

AMA Analytical Services, Inc.



CERTIFICATE OF ANALYSIS



IAR #100470

Client:

National Guard Bureau

Job Name:

Morrisonville RC

Chain Of Custody:

514483

Address:

301-IH Old Bay Lane, Altn: ARNG-CJG-P, State Military Reservation

Job Location:

Job Number:

P.O. Number:

Morrisonville, NY

W912K6-09-A-0003

Date Submitted:

11/12/2012

Havre de Grace, Maryland 21078

1061-15

Person Submitting: Date Analyzed:

11/19/2012 Report Date:

11/19/2012

Attention:

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 ³)	1000	orting .imit	Total ug	Final Res	sult	Comments
13014205	MvilleRC-LW-1	Flame	Wipe Blank	****	N/A	12	ug		< 2	ug	
13014206	MvilleRC-LW-2	Flame	Wipe	****	0.111	110	ug/ft²	16	150	ug/ft²	
13014207	MvilleRC-LW-3	Flame	Wipe	****	0.111	110	ug/ft²	150	1300	ug/ft²	
13014208	MvilleRC-LW-4	Flame	Wipe	****	0.111	110	ug/ft²	<12	<110	ug/ft²	
13014209	MvilleRC-LW-5	Flame	Wipe	****	0.111	110	ug/it²	<12	<110	ug/ft ^a	
13014210	MvilleRC-LW-6	Flame	Wipe	***	0.111	110	ug/it²	<12	<110	ug/ft²	
13014211	MvilleRC-LW-7	Flame	Wipe	****	0.111	110	ug/it²	<12	<110	ug/ft²	
13014212	MvilleRC-LW-8	Flame	Wipe	****	0.111	110	ug/ft²	<12	<110	ug/ft²	
13014213	MvilleRC-LW-9	Flame	Wipe	****	0.111	110	ug/ft²	<12	<110	ug/ft²	
13014214	MvillaRC-LW-10	Flame	Wipe	****	0.111	110	ug/ft²	<12	<110	ug/ft²	
13014215	MvillaRC-LW-11	Flame	Wipe	****	0.111	110	ug/ft²	<12	<110	ug/ft ⁱ	
13014216	MvilleRC-LW-12	Flame	Wipe	****	0.111	110	ug/ft²	<12	<110	ug/ft²	
13014217	MvilleRC-LW-13	Flame	Wipe	****	0.111	110	ng/ft²	<12	<110	ug/fi ¹	
13014218	MvilleRC-LW-14	Flame	Wipe	****	0.111	110	ug/ft²	19	170	ug/ft1	
13014219	MvilleRC-LW-15	Flame	Wipe	****	0.111	110	ug/A²	65	590	ug/ft²	
13014220	MvilleRC-LW-16	Flame	Wipe	****	0.111	110	ug/ft²	<12	<110	ug/ft¹	
13014221	MvilleRC-LW-17	Flame	Wipe	****	0.111	110	ug/ft²	24	220	ug/ft²	
13014222	MvilleRC-LW-18	Flame	Wipe	****	0.111	110	ug/fl²	<12	<110	ug/ft ²	
13014223	MvilleRC-LW-19	Flame	Wipe	****	0.111	110	ug/fl²	120	1100	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 dues not imply product certification, approval, or endorsement by NY ELAP, AIHA, or any agency of the Federal Government. All rights reserved. AMA Analytical Services, Inc.

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AMA Analytical Services, Inc.



CERTIFICATE OF ANALYSIS



Client:

National Guard Bureau

Job Name:

Morrisonville RC

Chain Of Custody:

514483

Address:

national Guid Duvin

Job Location:

Morrisonville, NY

Date Submitted:

11/12/2012

301-IH Old Bay Lane, Altn: ARNG-CJG-P, State Military Reservation

State Military Reservation

Havre de Grace, Maryland 21078

Job Number:

P.O. Number:

Air Volume

(L)

1061-15

Person Submitting:

Non-Responsive

Final Result

See QC Summary for analytical results of quality control samples

3

W912K6-09-A-0003

Date Analyzed:

Total ug

associated with these

samples.

11/19/2012 Report Date:

Attention:

AMA Sample

Number

Non-Responsive

Client Sample

Number

Summary of Atomic Absorption Analysis for Lead

Area Wiped

(fti)

Page 2 of 2

11/19/2012

Comments

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

Analysis Type Sample Type

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

Reporting

Limit

Non-F Technical Manage

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 whem 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, AHIA, or any agency of the Federal Government. All rights reserved. AMA Analytical Services, Inc.

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CHAIN OF CUSTODY

(Please Refer To This Number For Inquires)

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Surface Sampling Field Data Sheet

Date Collected: 11-9-12	Job Name: Morrison ville RC	Company: Bonus Environmental 43
Job Number: 1061-15	Job Location: 16 Fairgrand Rd	Phone Number: 989 -779 - 7686
Contact Per	Address: Morrisonville, NY	Collected By Non-Responsive
	- 35)	COC Number:

Sample Number	Sample Location	med .	Surface/Substrate Sampled	Area Wiped (in²/ft²)	Collection Media Ghost wife	
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-3	Drill Hell	ıı	west well, top of amergany lighted fixture			
1 -4	Drill Hell		ME corner, top of wending Machine			
-5	Dail Hall		Floor, North end			
-6	Dill Hall	į	Floor, South and			
-7	Kitchen		to) of Microwall Oven			
-8	Rm 28 Gym	ŧ	SE corner, on window sill	- 62		
-9	Broak Am		on counter surface			
-10	Classroom B	, J	NW comer, top shelf of book shelf			
-11	Rin 33 Briefns Pm	ik:	east well, on heat register			
72	Rm 4 orderly kin	141	SW CORNER TOP OF FILE			
V -13	Rm 8 communded office		top of bockshelf			



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



Surface Sampling Field Data Sheet

Date Collected: 11-9-12	Job Name: Mossion Ville RC	Company: Bonus Environmental 40
Job Number: 1061-15	Job Location: 16 Fairgrown Rd	Phone Number: 989 -779 - 7686
Contact Per	Address: Mornion ville, NY	Collected By Non-Responsive
	7)	COC Number:

Sample Number	Sample Location	Surface/Substrate Sampled	Area Wiped (in ² /ft ²)	Collection Media Ghost wife	
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Appendix C

Photographs



Building exterior, east entrance



Room 28, gym, water-stained dropped-ceiling tile



Kitchen



Room 28, gym



Break room



Room 22, dishwashing room, water-damaged drywall ceiling



Lobby





Drill Hall



Drill hall, flammables cabinet

Appendix D

References

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The New York State Armory Ogdensburg, New York 13669

Submitted to:

National Guard Region North Industrial Hygiene Office 301-IH Old Bay Lane Havre de Grace, Maryland 21078



NATIONAL GUARD ARMORY INDUSTRIAL HYGIENE EVALUATION

Consolidated Safety Services, Inc. 10301 Democracy Lane, Suite 300 Fairfax, Virginia 22030 703-691-4612 703-691-4615 Facsimile 800-888-4612 Toll free

www.consolidatedsafety.com

The New York State Armory Ogdensburg, New York

Industrial Hygiene Evaluation

Prepared for:

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

Prepared by:

Consolidated Safety Services, Inc. 10301 Democracy Lane, Suite 300 Fairfax, Virginia 22030

July 8, 2008

Prepared by:		
, ,	Non-Responsive Industrial Hygienist	
Reviewed by:		
nononou 2j.	Non-Responsive, CIH, CSP Senior Project Manager, EHS	

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1. EXECUTIVE SUMMARY

Consolidated Safety Services, Inc. (CSS) contracted with the U.S. Army National Guard to perform an industrial hygiene evaluation at the New York State Armory located at 225 Elizabeth Street in Ogdensburg, New York 13669. Non-Responsive performed the evaluation on July 8, 2008. The point of contact for the facility was Mr Non-Responsive, Maintenance Assistant. The purpose of the evaluation was to assess industrial hygiene concerns in the facility, evaluate workers' personal exposures, and review industrial hygiene and safety programs.

The following industrial hygiene and safety programs were evaluated during the site visit: confined space, hearing conservation, respiratory protection, hazard communication (HAZCOM), and personal protective equipment (PPE).

The following industrial hygiene concerns were evaluated during the site visit:

- Noise exposure;
- Illumination;
- Deteriorated suspect lead-based paints;
- Damaged suspect asbestos-containing materials;
- Water damage and possible mold growth;
- General housekeeping;
- Indoor air quality; and
- Ergonomics.

There were several industrial hygiene concerns identified during the assessment. The Risk Assessment Code (RAC) is presented for each identified concern or deficiency:

- There was visual evidence of minor water damage to several 2 ft x 4 ft suspended ceiling tiles in the first floor restroom. There was standing water in the basement kitchen area reportedly from a back up in the sump pump. The source of water intrusion should be identified and corrected in these areas and water-damaged ceiling tiles should be replaced to minimize the potential for mold growth (RAC 5). 29 CFR 1960.8a
- There was evidence of suspect mold growth identified on a plaster wall in the basement storage area and on the metal entrance door to the old firing range (see Photo 9, Photo 10, and Photo 11). Since both of these surfaces are poor nutrient sources for mold and the contamination is only on the surface, they should be wiped off with a dilute bleach solution. Cleaning should be repeated as needed if additional contamination occurs (RAC 4). 29 CFR 1960.8a
- There are several areas that contain suspect asbestos-containing pipe insulation within the facility and the materials are in good condition. The insulation should be considered asbestos-containing until sampling is conducted to prove otherwise. In the interim, a detailed

operation and maintenance (O&M) plan should be developed to insure that the condition of the pipe fitting insulation is maintained in good condition. Housekeeping and maintenance personnel should be advised of the presence of the suspect asbestos-containing material (RAC 4). 1910.1001(j)(7)(iv) and 29 CFR 1960.8a

- Asbestos-containing 9 inch x 9 inch brown floor tiles with white and red flecks were identified in the state maintenance office and in the first floor hallway outside the drill hall. In addition, there was 9 x 9 inch cream tile with brown and white flecks identified in the administration office and recreation room. Overall, the material is in good condition with some isolated damage. It is recommended that a detailed operations and maintenance (O&M) plan be developed to insure that the condition of the floor tile is maintained in good condition. Housekeeping and maintenance personnel should be advised of the presence of the suspect asbestos-containing material (RAC 4). 1910.1001(j)(7)(iv) and 29 CFR 1960.8a
- There are several locations where lead dust wipe samples were above the NGB Region North IH Office limit of 200 micrograms/square foot (µg/ft²). The highest levels were noted in the old firing range. Currently, the old firing range is not used and access is restricted. Continue to lock and restrict access to the old firing. The range should be cleaned to minimize the lead dust contamination. Anyone that may perform work in these areas, including repair or maintenance activities, must be made aware of the lead contamination and appropriate precautions be taken to minimize exposures to the lead contaminated dust (RAC 4). NGB Region North IH Office limit of 200 micrograms/square foot (µg/ft²)
- Detectable levels of lead were found in all eight paint chip samples collected and therefore considered to be lead-containing paint. OSHA requires that precautions be taken when lead is present, but does not define a threshold below which no action is required. Therefore, anyone that may perform repair or maintenance activities to any surfaces in these areas must be made aware of the lead contamination and appropriate precautions be taken to minimize exposures to the lead-based paint. The Department of Housing and Urban Development (HUD) defines lead-based paint as having greater than 0.5% lead by weight. There are three locations where peeling paint samples contained levels of lead that were above the HUD criteria of 0.5% lead by weight (RAC 4). Occupational Safety Health Administration (OSHA) Lead in Construction Standard, 29 CFR 1926.62 and Title 24, Code of Federal Regulations (CFR), Part 35, Subpart B, Sections 35.110, Definitions of Lead-Based Paint, Housing and Urban Development, U.S. Department of Housing.
- There are several locations where the measured illuminance levels are below those recommended by the Illuminating Engineering Society of North America. Illumination should be improved in deficient areas by replacing burned-out lamps, cleaning fixtures, relocating detailed work to more illuminated areas, and opening window blinds. If illuminance levels still remain deficient, additional light sources should be provided to achieve the recommended illuminance levels (RAC 4). ANSI/IESNA RP-1-04 (Office Lighting) and ANSI ANSI/IESNA RP-7-01 (Lighting Industrial Facilities)
- Housekeeping was good overall throughout the facility, with the exception of a communication cable extending across a walkway in the commander's office. A cord protector or tape should

be placed over the cable to eliminate the trip hazard. In addition, a drainage cover that was partially removed in the basement mess hall also presents a trip hazard. It is recommended to drill a hole in the drainage cover for the dehumidifier drainage hose. This will allow the drainage hose to drain properly without the need to partially remove the drain cover. In the interim, an orange cone should be placed over the drain when the drain cover is removed. (RAC 4). 1910.22(b)(1)

- The Material Safety Data Sheets (MSDS) were in order and all chemicals found in the facility
 were listed in the materials list (or chemical inventory) at the beginning of the MSDS
 notebook. However, many chemicals listed in the chemical inventory list did not have a
 corresponding MSDS. It is recommended that an MSDS for each item on the chemical
 inventory list be placed in the MSDS notebook RAC 4. 1910.1200(g)
- Indoor relative humidity measurements were in excess of the maximum humidity level of 60% recommended by ASHRAE. Humidity levels should be reduced in areas with levels in excess of 60% for the control microbial growth. Note: Seven portable dehumidifiers have been placed in various locations of the basement to help reduce the humidity levels. (RAC 4). ASHRAE Standard 62.1-2004

2. INTRODUCTION

Consolidated Safety Services, Inc. (CSS) contracted with the U.S. Army National Guard (USARNG) to perform an industrial hygiene evaluation at the New York State Armory located at 225 Elizabeth Street in Ogdensburg, New York. Scott Shultz performed the evaluation on July 8, 2008. The point of contact for the facility was Mr. George Hays, Maintenance Assistant. The purpose of the evaluation was to review industrial hygiene and safety programs, evaluate potential exposures to physical and chemical hazards, and evaluate exposure control strategies and equipment. The building was visually inspected and evaluated for: damaged suspect asbestos-containing materials (ACM), water-damaged building materials, possible mold growth, housekeeping, deteriorated suspect lead-based paints, and poor indoor air quality.

The New York State Armory currently has one unit assigned to the facility: Company B-2-108. The operations conducted at the facility are primarily administrative activities, equipment maintenance and storage, and training in preparation for potential deployment for combat operations. The building that houses the New York State Armory was constructed in 1898 and consists of multiple offices, restrooms, locker rooms, supply areas, an exercise room, a kitchen, a mess hall, an old firing range, a drill hall, and a separate garage. The garage is used for parking vehicles and storing items. No maintenance activities were reported to be performed in the garage. A diagram of the building layout was not available.

The findings, discussion and interpretation of results are provided in Section 5. The conclusions are provided in Section 9. A diagram of the building layout was not available. Sampling sheets and laboratory results for possible ACM, Lead Paint, Lead in Air, and Lead dust are provided in Appendix A. Selected photographs taken during the evaluation are provided in Appendix B. An explanation of how the Risk Assessment Code (RAC) was determined is located in Appendix C. A list of references used during the evaluation is provided in Appendix D.

This report is for the sole use of the USARNG. The results presented in this report are only indicative of conditions during the time of the evaluation. This evaluation does not purport to include all occupational hazards at this facility, and only those areas and exposures specifically mentioned were evaluated.

3. EVALUATION METHODS

3.1 Noise Survey

Sound pressure levels were measured using a Casella sound level meter. The sound level meter was calibrated before and after the survey period using a Casella CEL acoustical calibrator, factory calibrated in October 2007.

3.2 Illumination

Illumination measurements were taken using a Cal-Light 400, calibrated on February 22, 2008, and compared to the American National Standards Institute/Illumination Engineering Society of North America (ANSI/IESNA) Standard RP-1-04 (Office Lighting) and ANSI/IESNA Standard RP-7-01 (Lighting Industrial Facilities).

3.3 Indoor Air Quality Measurements

Indoor air quality parameters (i.e., carbon dioxide concentration, carbon monoxide concentration, temperature and relative humidity) were measured using a TSI Q-Trak Plus Model 8554, calibrated in January 2008. Carbon dioxide, temperature and relative humidity measurements were compared to the recommended levels established by the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE). CO levels were compared to Occupational Safety and Health Administration Permissible Exposure Limit, the American Conference of Governmental Industrial Hygienists Threshold Limit Value (TLV) for CO and the Environmental Protection Agency's National Ambient Air Quality Standard (NAAQS) for CO.

4. OPERATIONS DESCRIPTIONS

4.1 Facility Operations

There is currently one unit assigned to the facility: Company B-2-108. The operations conducted at the facility are primarily administrative activities, equipment maintenance and storage, and training in preparation for potential deployment for combat operations.

4.1.a. Noise Measurements

A sound level survey was performed to determine if there were any hazardous noise areas at the facility that could possibly result in exposures to personnel in excess of the Permissible Noise Dose. Sound pressure levels were measured throughout the facility. Measurements ranged from 48 dBA to 73 dBA within the facility. Exposure to sound pressure levels of this magnitude would not result in exposures equal to or in excess of the Permissible Noise Dose over an eight hour period.

4.1.b. Lighting Survey

Illumination levels were measured in all areas within the facility. The measurements indicate that several areas did not meet the illuminance levels recommended by the Illuminating Engineering Society of North America. The measurement results are presented in Table 1.

4.1.c. Additional Information

N/A

4.1.d. Recommendations

Illumination should be improved in deficient areas by replacing burned-out lamps, cleaning fixtures, relocating detailed work to more illuminated areas, and opening window blinds. If illuminance levels still remain deficient, additional light sources should be provided to achieve the recommended illuminance levels.

5. PHYSICAL CONDITION OF THE FACILITY

5.1 Visual Inspection – Peeling Paint – Lead

A visual inspection was performed to determine if any areas of peeling or deteriorated paint at the facility could pose a lead exposure hazard. There were six areas identified where paint was peeling that may result in a potential exposure hazard. These areas include the first floor bathroom, the Mess Hall, the old firing range, the classroom, the chemical storage room and the exterior garage door. Eight samples of the paint were collected and submitted to AMA Analytical Services, Inc. to be analyzed in accordance with Environmental Protection Agency (EPA) Method 7420.

The results, presented in Table 3, indicated detectable levels of lead in all of the samples collected. The paint is therefore considered to be lead-containing paint. All construction activities that involve lead-containing coatings are regulated by the Occupational Safety Health Administration (OSHA) Lead in Construction Standard, 29 CFR 1926.62. The standard currently does not define a specific concentration of lead, which must be present within paint for it to be considered "lead-containing." Therefore, painted and glazed surfaces that contain detectable concentrations of lead must be handled in accordance with the OSHA Lead in Construction Standard. Any contractor performing work that could impact paint films or glazing that have detectable concentrations of lead must be informed of the testing results, and must take appropriate actions to comply with OSHA Standard 29 CFR 1926.62. These appropriate actions include performing air monitoring to measure worker exposure; assuring that the workers are provided with adequate respiratory protection; and assuring that workers are provided with appropriate training.

The Department of Housing and Urban Development (HUD) defines lead-based paint as having greater than 0.5% lead by weight. The peeling green paint on the exterior garage door, the light blue peeling paint on the second floor classroom wall, and the gray peeling paint on the floor of the old firing range contained more than 0.5% lead by weight and are therefore considered lead-based paint.

5.2 Visual Inspection – Dust – Lead

Due to concerns with lead contamination, wipe samples were collected from various surfaces throughout the facility. Twenty samples were collected from the walls, floors, and other surfaces. The samples were collected using "Ghost Wipes" using the prescribed NIOSH method for conducting surface wipe samples. The samples were collected and placed in new plastic containers and submitted to AMA Analytical Services, Inc. to be analyzed in accordance with Environmental Protection Agency (EPA) 600/R-93/200 Lead in Surface Wipe Samples. The results for the wipe samples, presented in Appendix B indicate that there were 12 samples from the drill hall, kitchen, firing range, and the commander's office that were above the NGB Region North IH Office limit of 200 micrograms/square foot (µg/ft²). It is recommended that signage be posted in the old firing range warning of the lead hazard and access should continue to be restricted. Each of the other areas should be cleaned to eliminate the lead dust contamination. Anyone that may perform work in these areas, including repair or maintenance activities, must be made aware of the lead contamination and appropriate precautions be taken to minimize exposures to the lead contaminated dust. Also, prior to

designating the old firing range to another function, all lead contamination needs to be properly cleaned up. According to the Maintenance Assistant, the old firing range has not been properly cleaned or decontaminated. The old firing range is locked at all times and restricted for entry. The old firing range was empty during the survey.

5.3 Visual Inspection – Asbestos

A visual inspection was performed to determine if there was any suspect asbestos-containing material (ACM) at the facility and its condition. There were several types of suspect ACM identified in the facility. There was approximately 600 square feet (ft2) of 9 inch x 9 inch brown floor tile with white and red flecks, identified in the state maintenance office and in the first floor hallway outside the drill hall. There was also approximately 500 ft² of 9 x 9 inch cream tile with brown and white flecks, identified in the administration office and recreation room. Overall, the material was in good condition with a few areas of minor, isolated damage. Two samples of floor tile were collected and submitted to AMA Analytical Services, Inc., to be analyzed by Polarized Light Microscopy (PLM) and Transmission Electron Microscopy (TEM), to determine if the tiles are asbestos-containing. The result of the samples, presented in Table 4, indicate that the floor tile is asbestos-containing. In addition, there were pipe fittings identified in areas throughout the facility (see Photo 5). All fittings were in good condition and no samples were collected. These fittings should be presumed to contain asbestos unless sampling is conducted to prove otherwise. According to Mr. George Hays, old pipe fittings have been replaced on approximately two thirds of the pipes in the facility. It is recommended that anyone conducting work on any asbestos-containing material or presumed asbestos-containing material be made aware of the asbestos and the appropriate precautions be taken to minimize exposures. In addition, a detailed operation and maintenance (O&M) plan should be developed to insure that the materials are not damaged.

5.4 Visual Inspection – Water Damage and Mold Growth

A visual inspection was performed to determine if there was any water damage or visible mold growth at the facility. There was evidence of suspect mold growth on a plaster wall in the basement storage room where water reportedly enters. There was also suspect mold identified on the metal entrance door to the old firing range. The plaster wall and metal door are not good nutrient sources for mold growth and should be wiped off with a dilute bleach solution. Also, there was evidence of water damage to several 2 ft x 4 ft suspended ceiling tiles in the first floor restroom. Standing water was noted in the basement kitchen area which was reportedly caused from a sump pump back up. The sources of water intrusion should be identified and corrected and water-damaged ceiling tiles should be replaced to minimize the potential for mold growth.

5.5 Visual Inspection – Housekeeping

A visual inspection was performed to assess the state of housekeeping in the facility. Housekeeping was good overall with the exception of a communication cable that extends across a walkway (See Photo 17) in the commander's office presenting a trip hazard. A cord protector or tape is recommended to be placed over the cable to eliminate the trip hazard. In addition, a drainage

cover located in the basement was slightly removed presenting a potential trip hazard (See Photo 16). It is recommended to drill a hole in the drainage cover for the dehumidifier drainage hose. This will allow the drainage hose to drain properly without the need to partially remove the drain cover.

6. BUILDING CONCERNS

6.1 Ergonomic Concerns

Interviews of employees were conducted and observations made to determine if there were work activities that result in any ergonomic concerns in the facility. No ergonomic concerns were identified.

6.2 Illumination Issue

Illumination levels were measured in all areas of the facility and the results indicate that some illuminance levels do not meet the levels recommended by the Illuminating Engineering Society of North America. The measurements ranged from a low of 2 foot candles (fc) to a high of 83 fc. The complete results of the evaluation can be found in Table 1, including whether or not the measured levels met ANSI/IESNA RP-1-04 (Office Lighting) and ANSI/IESNA RP-7-01 (Lighting Industrial Facilities) recommendations for illumination.

6.3 Indoor Air Quality (IAQ)

Temperature, relative humidity, carbon monoxide (CO), and carbon dioxide (CO₂) were evaluated in the facility and compared with recognized "comfort factors." Currently, there are no enforceable regulatory IAQ standards. However, ASHRAE defines acceptable IAQ as air (1) in which there are no known contaminants at harmful levels, as determined by cognizant authorities, and (2) about which a substantial majority (80% or more) of the people exposed do not express dissatisfaction. ASHRAE Standard 62.1-2004, "Ventilation for Acceptable Indoor Air Quality," represents the state of-the-art in ventilation design requirements for commercial, institutional, and residential buildings. It was developed "to specify minimum ventilation rates and indoor air quality that will be acceptable to human occupants and are intended to minimize the potential for adverse health effects." The standard also considers chemical, physical, and biological contaminants and other factors that impact IAQ and affect occupant health and comfort.

A digital IAQ meter (TSI Q-Trak Plus, model #8554) was used to collect temperature, relative humidity, CO_2 , and CO measurements in several areas throughout the facility. Results are provided in Table 2. These measurements were compared with current ASHRAE consensus standards and were found to be within acceptable limits.

6.3.a. Carbon Dioxide (CO₂)

Building occupants generate CO_2 as a product of respiration. Concentrations of CO_2 are often used during indoor air quality investigations to determine the effectiveness of ventilation systems in removing common indoor pollutants. The indoor CO_2 concentration will increase in a given space with fixed ventilation output in proportion to the number of building occupants and their activity level. ASHRAE Standard 62.1-2004 uses CO_2 as a surrogate indicator of building ventilation; namely, an indoor-outdoor CO_2 concentration differential of less than 700 parts per million (ppm) is considered to indicate adequate ventilation. This level is not considered an indication of a health risk, but rather an indicator for human comfort.

Indoor levels of CO_2 ranged from 330 parts per million (ppm) in the basement kitchen to 820 ppm in the classroom. Outdoor CO_2 levels were approximately 350 ppm during the monitored period. The indoor CO_2 levels were less than 1050 ppm (the outdoor CO_2 levels plus 700 ppm), which indicates adequate ventilation.

6.3.b. Carbon Monoxide (CO)

The Occupational Safety and Health Administration has established a Permissible Exposure Limit for carbon monoxide of 50 ppm averaged over an eight-hour work day. Similarly, the American Conference of Governmental Industrial Hygienists has established a Threshold Limit Value of 25 ppm averaged over an eight-hour work day. The CO measurements in the facility ranged from 0.2 ppm to 3 ppm. These levels are well below established occupational exposure limits. Elevated levels of CO are not anticipated at this facility based on the reported activities and observed conditions.

6.3.c. Temperature

Indoor temperature measurements in the facility ranged from 76.2 °F in the recreation room to 78.8 °F in the kitchen. The garage temperature ranged from 83 °F to 84 °F. Most of the temperature measurements were on the upper end or slightly above the acceptable temperature ranges according to ASHRAE. No central air conditioning exists at the facility.

6.3.d. Relative Humidity

Indoor relative humidity (RH) measurements ranged from 50% in room basement armory and supply room to 66% in the second floor classroom. The relative humidity was 69% in the garage. Relative humidity levels were in excess of the maximum humidity level of 60% recommended by ASHRAE for the control of microbial growth. Elevated humidity levels (60% or greater) alone will not ensure the microbial growth such as mold. A moist nutrient source (including sheetrock and suspended ceiling tiles that have become wet through roof leaks, pipe bursts, etc.) and elevated temperatures are also required for mold growth. Humidity levels should be reduced in areas with levels in excess of 60%. Note: Seven portable dehumidifiers have been placed in various locations of the basement to help reduce the humidity levels.

Acceptable Ranges of Temperature and Relative Humidity during Summer and Winter Months (in degrees Fahrenheit (°F))						
Relative Humidity	Winter Temperature	Summer Temperature				
30%	68.5 – 76.0	74.0 – 80.0				
40%	68.5 – 75.5	73.5 – 79.5				
50%	68.5 – 74.5	73.0 – 79.0				
60%	68.0 – 74.0	72.5 – 78.0				
,	hould be maintained below 60% to reduction hould be maintained above 30% to prevent	•				

6.3.e. Lead Air Sampling

Due to concerns with lead contamination, air samples were collected from two areas in the facility; the recruiting office and the unit administration office. The samples were collected using SKC brand personal sampling pumps with the appropriate sampling media. Pumps were calibrated both before and after use with a Dry-Cal calibrator, which is considered a primary standard. General area samples were collected as close to breathing zone height as could be achieved. The samples were shipped to AMA Analytical Services, Inc. and Analysis was conducted in accordance with the Environmental Protection Agency (EPA) 600/R-93/200 Lead in Air Samples. Both air samples were below the OSHA PEL and ACGIH TLV.

7. INDUSTRIAL HYGIENE AND SAFETY PROGRAMS

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

- Confined Space;
- Hearing Conservation;

lead to sinus problems

- Respiratory Protection;
- Hazard Communication (HAZCOM); and
- Personal Protective Equipment (PPE).

It was determined that all industrial hygiene and safety programs are managed at the unit level and there are no specific facility based programs; therefore, no programs were reviewed for the facility.

8. VEHICLE, EQUIPMENT AND HAZARDOUS MATERIALS LIST

The use of the items on the equipment and hazardous materials lists were evaluated and it appears that all the items are used at the facility. The Material Safety Data Sheets (MSDS) were in order and all chemicals found in the facility were listed in the materials list (or chemical inventory) at the beginning of the MSDS notebook. However, many chemicals listed in the chemical inventory list do

not have a corresponding MSDS. It is recommended that an MSDS for each item on the chemical inventory list be placed in the MSDS notebook. In addition, all chemicals that do not contain a MSDS should continue to be stored in a locked area (See Photo 13). According to Mr. George Hays, there are no vehicles assigned specifically to the facility. All vehicles at the facility are assigned to specific units for the use only.

9. CONCLUSION

Industrial hygiene concerns associated with some minor water damage to several 2 ft x 4 ft suspended ceiling tiles were identified at the facility. Suspect mold concerns were identified at two areas of the facility. Some minor housekeeping problems were identified. Asbestos-containing materials were identified in two areas of the facility. Detectable levels of lead were found in eight lead paint chip samples from seven locations. There were several locations where lead dust wipe samples were above the NGB Region North IH Office limit of 200 micrograms/square foot (µg/ft²). MSDS should be available for each chemical on the chemical inventory list. There were several locations where the measured illuminance levels are below those recommended by the Illuminating Engineering Society of North America. Humidity levels should be reduced in areas with levels in excess of 60%. These concerns are discussed in Sections 4 through 8.

Tables

Table 1. Illumination Measurements
The New York State Armory
Ogdensburg, New York
Date of Sampling: July 8, 2008

Location	Luminance (fc)¹	Standard (fc)	Standard Met (Y/N)
Mess Hall (basement)	15 - 33	30	N
Kitchen (basement)	16 – 38	50	N
Storage Room (basement)	6 – 18	30	N
Old Firing Range (basement)	3 - 12	30	N
Exercise Room (basement)	2 - 15	30	N
Electrical Room (basement)	10 - 83	30	N
Change Room/Shower Room (basement)	6 - 33	7	N
Armory and Supply Room (basement)	10 - 37	5	Y
Drill Hall (first floor)	31 – 35	30	Υ
Unit Administration Office (first floor)	14 – 25	30	N
Recreation Room (first floor)	32 – 49	30	Υ
Recruiting Office (first floor)	34	30	Y
State Maintenance Office (first floor)	73	30	Υ
Locker Room (first floor)	10 – 54	7	Y
Bathroom (first floor)	14 – 37	5	Y
Classroom (second floor)	37 – 40	30	Y
Commanders Office (second floor)	19 – 49	30	N
Officers Locker Room (second floor)	14 – 39	30	N
Garage	16 - 34	75	N

¹ fc = foot candles

The readings were taken with a Cal-Light 400, factory calibrated on February 22, 2008.

The standards listed in Table 1 are from ANSI/IESNA RP-1-04 (Office Lighting) and ANSI/IESNA RP-7-01 (Lighting Industrial Facilities

Table 2. Indoor Air Quality Measurements The New York State Armory Ogdensburg, New York Date of Sampling: July 8, 2008

Location	Occupants Present in Area	CO ₂ (ppm) ¹	CO (ppm)	Relative Humidity (%)	Temperature (° F)
Mess Hall (basement)	2	380 – 395	2.7	54 - 55	78 – 78.5
Kitchen (basement)	2	330 – 380	2.6	50 – 51	78 – 78.8
Storage Room (basement)	2	390- 415	2.4	55 – 56	77 – 78
Old Firing Range (basement)	2	74 – 75	2.4	64 – 65	74 – 75
Exercise Room (basement)	2	450 – 510	1.7	62 – 63	77 – 78
Electrical Room (basement)	2	405 – 460	2.4	63 – 65	77 – 77.5
Change Room/Shower Room (basement)	2	410 – 480	2.3	59 – 60	76.5 – 77
Armory and Supply Room (basement)	2	450 – 520	2.1	50 – 51	76.8 – 77
Drill Hall (first floor)	2	405 – 415	0.4	57 – 58	78
Unit Administration Office (first floor)	2	630 – 660	0.5	62 – 63	78
Recreation Room (first floor)	2	440 – 480	0.2	67 – 68	76.2 – 77
Recruiting Office (first floor)	2	420 – 440	0.6	53 – 54	78 – 78.5
State Maintenance Office (first floor)	2	390 – 494	0.8	60 - 61	77.7 – 77.8
Locker Room (first floor)	2	485 – 515	0.4	54 - 55	77 - 78
Bathroom (first floor)	1	460 – 475	0.4	61 – 62	78
Classroom (second floor)	2	760 – 820	2.2	64 – 66	76.8 - 77
Commanders Office (second floor)	2	690 – 730	2.2	63 – 64	77 - 78
Officers Locker Room (second floor)	2	690 – 710	2.1	64 - 65	77 - 78
Garage	2	390 – 435	3.0	68 – 69	83 - 84
Outside	1	350	3.5	51 – 52	91

¹ ppm = parts per million

CO₂, CO, relative humidity and temperature measurements were taken with a TSI Q-Trak Plus Model 8554, calibrated January 2008.

American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) recommends that indoor CO₂ concentration be maintained at a level that is less than 700 ppm above outdoor concentration.

National Ambient Air Quality Standard (NAAQS) recommendation for ambient CO: below 9 ppm

Occupational Safety and Health Administration Permissible Exposure Limit for CO: 50 ppm

American Conference of Governmental Industrial Hygienists Threshold Limit Value for CO: 25 ppm

Table 3. Peeling Paint Chip Sample Results The New York State Armory Ogdensburg, New York Date of Sampling: July 8, 2008

Sample Number	Location	Results (%)¹
07082008 - 201	Brown peeling paint on the floor of the first floor restroom	0.026
07082008 - 202	Gray peeling paint in the basement mess hall floor	0.17
07082008 - 203	Brown peeling paint on basement mess hall table top	0.086
07082008 - 204	Yellow peeling paint on wall in the old firing range	3.9
07082008 - 205	Gray peeling paint on floor in the old firing range	20
07082008 - 206	Yellow peeling paint on wall in the basement chemical storage room	0.014
07082008 - 207	Light blue peeling paint on second floor classroom wall.	13
07082008 - 208	Green peeling paint on exterior garage door.	15

¹ Results cited as % lead by weight

AMA Analytical Services, Inc conducted the analysis in accordance with the Environmental Protection Agency (EPA) 7420

Table 4. Bulk Suspect Asbestos Containing Material (ACM) Samples National Guard, the New York State Armory Ogdensburg, New York Date of Sampling: July 8, 2008

Sample Number	Location	Results (%)/Type¹
07082008 - 300	9 in x 9 in brown floor tile with white and red flex in the first floor main hallway outside of the unit administration office.	2% Chrysotile
07082008 - 301	9 in x 9 in cream floor tile with white and black flex in the first floor recreation room.	8% Chrysotile

¹Results cited as % asbestos

Table 5.Lead Wipe Samples New York State Armory Ogdensburg, New York Date of Sampling: July 8, 2008

Sample Number	Location	Sample Area ¹	Results (µg/ft²)²	NGB Standard (µg/ft²)³
07082008 – 001	Drill Hall – back left corner floor	12 in x 12 in	700	<200
07082008 - 002	Drill Hall – back left radiant heat vent	12 in x 12 in	87	<200
07082008 - 003	Drill Hall – floor at bottom of staircase	12 in x 12 in	480	<200
07082008 - 004	Drill Hall – floor under staircase	12 in x 12 in	420	<200
07082008 - 005	Drill Hall – rear radiant heat vent	12 in x 12 in	400	<200
07082008 - 006	Mess hall – table top	12 in x 12 in	28	<200
07082008 - 007	Kitchen – counter top	12 in x 12 in	420	<200
07082008 - 008	Old Firing Range – bullet trap	12 in x 12 in	57000	<200
07082008 - 009	Old Firing Range – left wall by target	12 in x 12 in	790	<200
07082008 - 10	Old Firing Range – stored files	12 in x 12 in	92	<200
07082008 - 11	Old Firing Range – center front floor near target	12 in x 12 in	4500	<200
07082008 - 12	Old Firing Range – right wall by target	12 in x 12 in	580	<200
07082008 - 13	Old Firing Range – lighting fixture	12 in x 12 in	680	<200
07082008 - 14	Old Firing Range – ventilation unit in rear of room	12 in x 12 in	390	<200
07082008 - 15	Electrical Room – top of battery rack	12 in x 12 in	56	<200
07082008 - 16	Electrical Room – wall behind charging rack	12 in x 12 in	<12	<200
07082008 - 17	Classroom – Desk	12 in x 12 in	44	<200
07082008 - 18	Commanders Office - top of file cabinet	12 in x 12 in	400	<200
07082008 - 19	Foyer – first floor floor	12 in x 12 in	64	<200
07082008 - 20	State Maintenance Office – desk top	12 in x 12 in	100	<200

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- Sample area was 12 in x 12 in with a total sample area of 144 in² or at total of 1 ft²
- ² Results are presented as microgram per square feet (µg/ft²)
- ³ Standard is based on the NGB Region North IH office policy

AMA Analytical Services, Inc conducted the analysis in accordance with the Environmental Protection Agency (EPA) 600/R-93/200.

The sample results were compared to the NGB Region North IH Office Policy of maintaining <200 µg/ft²

Table 6.General Area Air Samples for Lead New York State Armory Ogdensburg, New York

Date of Sampling: July 8, 2008

0		Sam	ple Information		Results
Sample Number	Location	Time Sampled / Minutes	Flow Rate (lpm) ¹	Volume (liters)	(ug/m³) ²
07082008-050	First floor Unit Administration Office	287	2	574	<5.3
07082008-051	First floor Recruiting Office	285	2	570	<5.2
	OSHA PE	L (8-hour TWA) ⁴		•	50
	ACGIH TL	.V (8-hour TWA) ⁵			50

- 1 lpm = liters of air per minute
- ² ug/m³ = micrograms per cubic meter
- ND = Parameter not detected above LOD
- 4 U.S. Occupational Safety and Health Administration Permissible Exposure Limit (8-hour Time-Weighted Average)
- ⁵ American Conference of Governmental Industrial Hygienists Threshold Limit Value (8-hour Time-Weighted Average)

Appendix A

Sampling Sheets and Laboratory Results for Suspect Asbestos-containing Material Samples, Lead Paint Chip Samples, Lead Dust Wipe Samples, and Lead Air Samples.

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CERTIFICATE OF ANALYSIS **AMA Analytical Services, Inc.**

A Specialized Environmental Laboratory

Posted to NGB FOIA Reading Room

May, 2018



NY ELAP 100470

7/15/2008 178307

Date Submitted:

Chain Of Custody:

New York State Armory Ogdensburg, NY

Ogdensburg, NY Not Provided

Job Location: Job Number:

301-H Old Bay Lane, Attn; NGB-AVN-SI, State Military Reservation

Address:

Client:

National Guard Bureau

Havre de Grace, Maryland 21078

Job Name:

Report Date:

Page 1 of 3

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Page 799 of 1350

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Person Submitting: Date Analyzed:





Attention:

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for
SIS



Summary of Atomic Absorption Analy





AMA Sample Number







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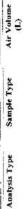
This report applies only to the sample, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public, and these Laboratories, this report is submitted and accepted for the exclusive use of the client 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 its addressed and 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 completelises this information. Retained samples material will be discarded in accordance with the appropriate regulatory guidelines, unless otherwise requested by the circu. NVLAP accreditation applies only to polarized light microscopy of built samples. All rights reserved.

AMA Analytical Services, Inc.

4475 Forbes Bivd. · Lanham, MD, 20706 · (301) 459-2640 · Toll Free (800) 346-0961 · Fax (301) 459-3443

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





Final Result

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



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178307	7/15/2008	on-Res	7/21/2008 Report Date:
Chain Of Custody:	Date Submitted:	Person Submitting:	Date Analyzed:

New York State Armory Ogdensburg, NY

Ogdensburg, NY Not Provided Not Provided

Job Location:

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

Address:

Client:

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

Job Name:

P.O. Number: Job Number:

100470



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Page 2 of 3

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Final Result

Summary of Atomic Absorption Analysis for Lead

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Sample Type

Analysis Type

Client Sample Number

AMA Sample Number

Attention:

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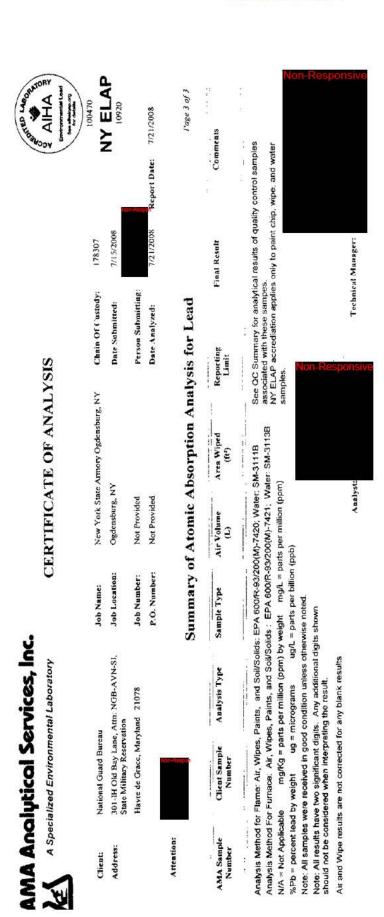
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This report applies only to the samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public, and these Laboratories, this report is submitted and accepted for the exclusive use of the client on whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advectising or publicity matter without prior written authorization from us. Sample types, locations, and collection protected are based upon the information provided by the persons submitting them and, not be persons submitting them and, notes collected by personned of these Laboratories, we expressly disclaim any knowledge and inability for the accordance with the appropriate regulatory guidelines, unless otherwise requested by the client. NVLAP accretising apples only to polarized light microscopy of bulk samples and Amad Amadytical Services, Inc.

AMA Analytical Services, Inc.

4475 Forbes Blvd. · Lanham, MB, 26706 · (301) 459-2646 · Toll Free (800) 346-0961 · Fax (301) 459-2643 An Allia (#100470), NVLAP (101143-0), and NY ELAP (#10920) Accredited Laboratory



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An AIHA (#100470), NVLAP (101143-0), and NV ELAP (#10920) Accredited Laboratory 4475 Forbes Blvd. - Lanham, MD, 20706 - (301) 459-2640 - Toll Free (800) 346-0961 - Fax (301) 459-2643

Appendix B	
Selected Photographs of the Ogdensburg New York State Armo	ory



Photo 1: The exterior front of the building that houses the Ogdensburg New York State Armory.



Photo 3: Brown 9 in x 9 inch floor tile with white and red flecks, located in the first floor corridor outside of the main Drill Hall.



Photo 5: Suspected asbestos-containing pipe insulation on approximately 6 inch pipe in the basement change room.



Photo 2: The exterior front of the associated garage at the Ogdensburg New York State Armory that is used for storing items and parking vehicles. No maintenance activities were reported to be performed in the garage.



Photo 4: Cream 9 inch x 9 inch floor tile with brown and white flecks located in the recreation room.



Photo 6: Water stained 2ft by 4ft suspended ceiling tile in the first floor bathroom.



Photo 7: Water stained suspended ceiling tile in the first floor bathroom



Photo 9: Suspect mold is located on a plaster wall in the basement storage area.



Photo 11: Suspect mold is located on the metal entrance door to the firing range.



Photo 8: Water accumulation on the floor of the kitchen is reportedly from a back-up in the sump pump.

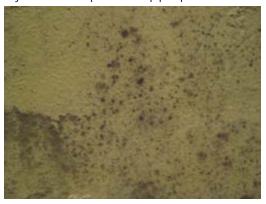


Photo 10: Suspect mold is located on a plaster wall in the basement storage area.



Photo 12: Storage of routine cleaning chemicals in the basement chemical storage room.



Photo 13: Chemicals that are awaiting MSDSs are stored inside a locked cage area of the chemical storage area.



Photo 15: A view of the old firing range located in the basement.



Photo 17: Communication cable across a walkway presents a trip hazard in the Commanders off.



Photo 14: An old battery charging area that is located in the electrical room.



Photo 16: A partially removed drain cover presents a trip hazard in the basement kitchen area.

Appendix C Risk Assessment Code Determination

RISK ASSESSMENT CODE DETERMINATION

A Risk Assessment Code (RAC) for each hazard identified is provided at the end of each hazard description. The RAC codes are derived using the matrix provided by the National Guard (reference DOD Instruction 6055.1). This process includes three steps:

• Step 1: Determine the Health Hazard Severity Code (HHSC)

A. Exposure Points Assessed

			Exposure Conditions	;	
		<ct< th=""><th>Occasionally >CT Always <std< th=""><th>>CT ≤STD</th><th>>STD</th></std<></th></ct<>	Occasionally >CT Always <std< th=""><th>>CT ≤STD</th><th>>STD</th></std<>	>CT ≤STD	>STD
AER	No	0	3	5	7
Possible?	Yes	1-2	4	6	8

AER – Alternate exposure route, such as skin absorption, ingestion

CT – DoD component threshold that triggers surveillance actions, such as microwatts/cm², dB, parts per million (ppm)

STD – DoD exposure limit, such as Threshold Limit Value (TLV) and Permissible Exposure Limit (PEL)

B. Medical Effects Points Assessed

Condition	Points
No medical effect, such as nuisance noise and nuisance odor	2
Temporary reversible illness requiring supportive treatment, such as eye irritation and sore throat	1-2
Temporary reversible illness with a variable but limited period of disability such as metal fume fever	3-4
Permanent, nonsevere illness or loss of capacity, such as permanent hearing loss	5-6
Permanent, severe, disabling, irreversible illness or death, such as asbestosis and lung cancer	7-8

C. Determine the HHSC by totaling the points assessed and using the following guide:

Total Points (sum of A and B)	HHSC
13-16	I
9-12	II
5-8	III
0-4	IV

• Step 2: Determine the Mishap Probability Category (MPC)

A. Duration of Exposure Points Assessed

		Length of Exposure					
		1-8 hr/week >8hr/week not continuous					
Type of	Irregular, intermittent	1-2	4-6				
Exposure	Regular, periodic	2-3	5-7	8			

B. Number of Exposed Personnel Points Assessed

Number of Exposed Personnel	Points
<5	1-2
5-9	3-4
9-49	5-6
>49	7-8

C. Determine the MPC for health hazards by totaling the points assessed and using the following guide:

Total Points (sum A and B)	MPC
14-16	А
10-13	В
5-9	С
<5	D

Step 3: Determine the RAC using the following matrix;

	Mishap Probability Category (MPC)					
		A	В	С	D	
Health	I	1	1	2	3	
Hazard	II	1	2	3	4	
Severity Code	III	2	3	4	5	
Code	IV	3	4	5	5	

Appendix D References

References

- 1. Title 29, Code of Federal Regulations (CFR), Part 1910, Occupational Safety and Health Administration, current edition.
- 2. Title 24, Code of Federal Regulations (CFR), Part 35, Subpart B, Sections 35.110, Definitions of Lead-Based Paint, Housing and Urban Development, U.S. Department of Housing.
- 3. Department of Defense Instruction (DODI) 6055.1, Department of Defense Occupational Safety and Health (OSH) Program, August 19, 1998.
- 4. Army Regulation (AR) 11-34, The Army Respiratory Protection Program, February 15, 1990.
- 5. Army Regulation (AR) 40-5, Medical Service, Preventive Medicine, October 15, 1990.
- 6. Army Regulation (AR) 385-10, The Army Safety Program, February 29, 2000.
- 7. Department of the Army Pamphlet (DA PAM) 40-501, Medical Service, Hearing Conservation Program, December 10, 1998.
- 8. Department of the Army Pamphlet (DA PAM) 40-503, Medical Service, Industrial Hygiene Program, October 30, 2000.
- 9. Technical Manual (TM) 5-810-1, Mechanical Design, Heating, Ventilation, and Air Conditioning, June 1991.
- 10. Threshold Limit Values (TLVs) and Biological Exposure Indices (BEIs), American Conference of Governmental Industrial Hygienists (ACGIH), current edition.
- 11. Industrial Ventilation A Manual of Recommended Practices, American Conference of Governmental Industrial Hygienists (ACGIH), current edition.
- 12. ANSI Z358.1 2004, Emergency Eyewash and Shower Equipment.
- 13. RP-1-2004, Office Lighting, Illuminating Engineering Society of North America (IESNA)/ANSI.
- 14. RP-7-2001, Industrial Lighting, Illuminating Engineering Society of North America (IESNA)/ANSI.
- 15. The American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE), Standard 62.1-2004, "Ventilation for Acceptable Indoor Air Quality".

National Guard Region North

National Guard Readiness Center Industrial Hygiene Evaluation Ogdensburg Readiness Center Ogdensburg, NY. 13669-1603

Prepared for:

National Guard Region North Industrial Hygiene Office 301 Old Bay Lane Havre De Grace, MD 21078

Attn:

Non-Responsive

Prepared by:

Bonus Environmental, LLC P.O. Box 121 Mt. Pleasant, Michigan 48804

> Project No. 1061-15 January 27, 2013

Bonus Environmental, LLC

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APPENDICES

Appendix A Shop Diagram and Air Flow Patterns

Appendix B Lead Sample Results

Appendix C Asbestos Bulk Sample Results

Appendix D Photographs

Appendix E References

January 27, 2013 Project No. 1061-15

National Guard Region North Industrial Hygiene Office 301 Old Bay Lane Havre De Grace, MD 21078-4003

Attn: Non-Responsive

Project: Industrial Hygiene Evaluation

Ogdensburg, NY Readiness Center

1.0 - EXECUTIVE SUMMARY

Bonus Environmental, LLC was contracted by the National Guard Bureau Region North Industrial Hygiene office to identify and measure the existence and extent of potentially hazardous operations or conditions at the Ogdensburg Readiness Center located at 225 Elizabeth Street in Ogdensburg, NY. The purpose of this evaluation was to generate or to update a previous baseline evaluation so that employee exposure history can be provided to each civilian and military employee. No Health & Safety plans were available at Ogdensburg Readiness Center for review. The following industrial hygiene conditions were evaluated during this industrial hygiene evaluation performed by Bonus Environmental, LLC representative Non-Responsive on November 13, 2012:

- Indoor Air Quality
- Lead Wipe & Bulk Sampling
- Illumination
- Ergonomics

 Evaluation of the physical condition of the facility in regards to peeling paint, asbestos containing materials, water damage or mold problems, and housekeeping practices.

The Ogdensburg Readiness Center is an Army National Guard armory, constructed in 1898, comprised of offices, locker rooms, storage rooms, a Drill hall, a boiler room, a break room, a classroom, a mess hall, and a former indoor firing range (currently used for storage). The point of contact for the approximately 25,992 ft² Ogdensburg Readiness Center is Mr. Non-Responsive Approximately two (2) full-time administrative personnel and one (1) maintenance personnel are employed at the Ogdensburg Readiness Center. A shop diagram depicting the locations of the operations identified during this industrial hygiene evaluation, as well as airflow patterns, is provided as Appendix A.

The National Guard Bureau Region North Industrial Hygiene Office provided governmental furnished equipment and sampling media required to perform the industrial hygiene evaluation. Chain of custody forms for laboratories approved by the National Guard Bureau Region North Industrial Hygiene Office were provided with the sampling media. All samples collected during this industrial hygiene evaluation were sent to the National Guard Bureau Region North Industrial Hygiene Office approved laboratories for analysis.

2.0 – LEAD SAMPLING

2.1 – Lead Wipe Sampling

Lead wipe sampling was performed according to the Environmental Protection Agency (EPA) method 600/R-93/200(M)-7420 (Atomic Absorption - Flame). Fourteen (14) wipe samples and one (1) field blank were sent under chain-of-custody procedures to AMA Analytical Services, Inc., an American Industrial Hygiene Association (AIHA) accredited laboratory located in Lanham, Maryland. The U.S. Department of Labor (USDOL) and the Occupational Safety and Health Administration (OSHA) do not have a promulgated standard for lead surface contamination; however OSHA has provided an interpretive level of 200 micrograms per square foot ($\mu g/ft^2$) to assess the housekeeping requirements of "as free as reasonably practicable". This interpretation is presented in OSHA Industrial Hygiene Technical Manual (TED 01-00-015; 1/20/1999), and in a letter of interpretations dated 1/13/2003, and subsequently issued to public domain. NG Pam 420-15 addresses the conversion and remediation of former indoor firing ranges. The following table outlines the locations and analytical results for the lead wipe samples collected during this project

Army National Guard – Ogdensburg Readiness Center Lead Wipe Sample Results							
Sample #	Sample Date	Sample Location	Sample Area (ft²)	Sample Result (µg/ft²)			
OburgRC-LW-1	11-13-12	Field Blank		< 12 μg			
OburgRC-LW-2	11-13-12	Drill hall, west end, on floor	0.111	< 110			
OburgRC-LW-3	11-13-12	Drill hall, east end, on floor	0.111	< 110			
OburgRC-LW-4	11-13-12	Drill hall, northeast corner, on heat register	0.111	3,600			
OburgRC-LW-5	11-13-12	Drill hall, southeast corner, top of vending machine	0.111	580			
OburgRC-LW-6	11-13-12	Drill hall, west wall, center, on window sill	0.111	4,600			
OburgRC-LW-7	11-13-12	Former indoor firing range, west end, on floor	0.111	2,200			
OburgRC-LW-8	11-13-12	Former indoor firing range, east end, on floor	0.111	1,400			
OburgRC-LW-9	11-13-12	Room 6, mess hall, top of Amnesty box	0.111	1,600			
OburgRC-LW-10	11-13-12	1 st floor, lobby, top of AED case	0.111	220			
OburgRC-LW-11	11-13-12	Room 11, office, top of copy machine	0.111	260			
OburgRC-LW-12	11-13-12	Break room, top of dart board video game	0.111	1,800			
OburgRC-LW-13	11-13-12	Room 20, office, northeast corner, on window sill	0.111	2,200			
OburgRC-LW-14	11-13-12	2 nd floor, lobby, on heat register	0.111	360			
OburgRC-LW-15	11-13-12	Classroom 24, northwest corner, top of light fixture	0.111	40,000			

Surface cleanliness threshold = < 200 micrograms per square foot ($\mu g/ft^2$)

The former indoor firing range was being used for storage. It is unknown whether it had been previously remediated of residual lead contamination and it is uncertain if it was remediated to the protocols specified in NG Pam 420-15. Remediation wipe sample results were not posted, nor were

any signs posted restricting access to the area. Former range structures (such as the bullet trap) had been removed.

3.0 - PHYSICAL CONDITION OF FACILITY / PERSONNEL CONCERNS

3.1 - Lead Based Paint

During the industrial hygiene evaluation of the Ogdensburg Readiness Center, Bonus Environmental, LLC performed a visual inspection of the facility in regards to lead based paint. Bonus Environmental, LLC identified the following areas of peeling paint which could potentially pose a lead exposure hazard:

- Approximately 20 ft² of peeling gray paint in basement, northeast storage room;
- Approximately 400 ft² of peeling yellow paint in basement, room 3;
- Approximately 100 ft² of peeling white paint in basement, room 3;
- Approximately 20 ft² of peeling white paint in basement lobby;
- Approximately 300 ft² of peeling white paint in basement, southeast storage room;
- Approximately 300 ft² of peeling brown paint in basement, southeast storage room;
- Approximately 175 ft² of peeling yellow paint in basement, southwest storage room;
- Approximately 20 ft² of peeling blue paint in basement, room 10;
- Approximately 10 ft² of peeling white paint on the ceiling in room 14;
- Approximately 4 ft² of peeling white paint on the ceiling in room 13;
- Approximately 2 ft² of peeling white paint on the ceiling in the 2nd floor lobby;
- Approximately 80 ft² of peeling white paint on the ceiling in room 22;
- Approximately 20 ft² of peeling white paint on the ceiling in room 20;
- Approximately 20 ft² of peeling white paint in 2nd floor, northeast locker room;
- Approximately 40 ft² of peeling white paint in the 2nd floor restroom.

Five (5) paint chip samples was collected and sent under chain-of-custody procedures to AMA Analytical Services, Inc., an AIHA accredited laboratory located in Lanham, MD. See table below for sample information:

Army National Guard – Ogdensburg Readiness Center Paint Chip Samples						
Sample #	Sample Location	Color	Analytical Reporting Limit (%)	Analytical Results (%)		
OburgRC-PC-1	Basement, northeast storage	Gray	0.0073	11		
OburgRC-PC-2	2 nd floor locker room	Yellow	0.0064	4.2		
OburgRC-PC-3	Basement, southeast storage	Brown	0.0065	0.19		
OburgRC-PC-4	Basement, room 10	Blue	0.0059	3.1		
OburgRC-PC-5	2 nd floor, room 20	White	0.0058	0.093		

Analysis indicated that each of the peeling paints collected contained detectable levels of lead. The paints are therefore each considered to be lead-based paint. The OSHA Lead in Construction Standard, 29 CFR 1926.62 does not assign a numerical value of which must be present within the paint to be considered lead based paint. Paints which contain any detectable level of lead shall be treated

and handled as lead based paint. Housing and Urban Development (HUD) defines lead based paint as having greater than 0.5% lead by weight. Paint chip sample results are attached to this report as Appendix B.

3.2 – Presumed Asbestos Containing Materials

During the industrial hygiene evaluation of the Ogdensburg Readiness Center, Bonus Environmental, LLC performed a visual inspection to identify presumed asbestos containing materials (PACM) and, if found, to note their condition. Bonus Environmental, LLC identified the following PACM's that were considered to be in poor or damaged condition:

- Approximately 25 ft² damaged plaster in basement restroom;
- Approximately 375 ft² of damaged plaster in the basement, southwest storage room;
- Approximately 125 ft² of damaged plaster in classroom 24.

One (1) bulk material sample of plaster was collected and submitted for analysis. Analytical results for these materials indicated "No Asbestos Detected". Asbestos bulk sample results are attached to this report as Appendix C.

3.3 - Water Damage/Mold Growth

During the industrial hygiene evaluation of the Ogdensburg Readiness Center, Bonus Environmental, LLC performed a visual inspection to report the location and perform an evaluation of any water damaged building materials and/or visible mold problems. Bonus Environmental, LLC identified the following areas of water-damaged building materials:

- Approximately 25 ft² damaged plaster in basement restroom;
- Approximately 375 ft² of damaged plaster in the basement, southwest storage room;
- Approximately 125 ft² of damaged plaster in classroom 24;
- Approximately 250 ft² of damaged brick walls in basement room 4;
- Approximately 450 ft² of damaged concrete floor in basement room 4;
- Approximately 600 ft² of damaged brick walls in basement, southeast storage room;
- Approximately 300 ft² of damaged concrete floor in basement, southeast storage room;
- Approximately 500 ft² of damaged stone walls in basement room 5B;
- Approximately 90 ft² of damaged brick walls in basement room 8A;
- Approximately 4 ft² of stained dropped-ceiling tile (DCT) in restroom 11A;
- Approximately 325 ft² of damaged brick walls in the Drill hall.

3.4 - Housekeeping

During the industrial hygiene evaluation of the Ogdensburg Readiness Center, Bonus Environmental, LLC performed an evaluation of the housekeeping practices. Bonus Environmental, LLC found the housekeeping practices within the Ogdensburg Readiness Center facility to be in fair-poor condition, based on residual lead dust concentrations as well as un-cleared piles of debris on the floors resultant from decaying walls.

3.5 – Employee Interviews

During the industrial hygiene evaluation of the Ogdensburg Readiness Center, Bonus Environmental, LLC performed interviews and made observations to determine if the work activities being performed possessed any ergonomic concerns. Following interviews and observations, no ergonomic or indoor air quality concerns were noted.

3.6 – Indoor Air Quality

During the industrial hygiene evaluation of the Ogdensburg Readiness Center, Bonus Environmental, LLC measured temperature, relative humidity, carbon monoxide (CO), and carbon dioxide (CO₂) throughout the facility. A calibrated TSI Q-Trak Plus Model 8554 Indoor Air Quality Monitor equipped with a Q-Trak Probe 982 was utilized to record indoor air quality measurements.

Carbon dioxide is a natural component of air and the amount of CO₂ in a given air sample is commonly expressed as parts per million (ppm). The outdoor air in most locations contains about 380 ppm carbon dioxide. Higher outdoor CO₂ concentrations can be found near vehicle traffic areas, industry and sources of combustion. The concentrations of CO₂ found in most offices are well below the OSHA Permissible Exposure Limit (PEL) of 5,000 ppm when averaged over an 8-hour time period for an industrial workplace. While levels below 5,000 ppm are considered to pose no serious health threat, studies have indicated that individuals in offices with elevated CO₂ concentrations tend to report drowsiness, lethargy and a general sense that the air is stale. Ventilation rates for office spaces are defined by various codes and standards. The most widely accepted standard is the American Society of Heating, Refrigerating, and Air Conditioning Engineers (ASHRAE) Standard 62. According to ASHRAE Standard 62.1-2010, CO₂ concentrations below 700 ppm above the outdoor level are considered to indicate adequate ventilation and provide human comfort. The CO₂ measurements collected during this industrial hygiene evaluation ranged from 383 ppm to 442 ppm and indicate adequate ventilation within the facility.

Carbon monoxide is a colorless, odorless, poisonous gas that results from the incomplete burning of common fuels such as natural or liquefied petroleum gas, oil, wood or coal. When carbon monoxide is inhaled, it enters the blood stream and reduces the ability of the blood to carry oxygen to vital organs, such as the heart and brain. Because it is impossible to see, taste or smell the toxic fumes, CO can harm you before you are aware it is in your work area. At lower levels of exposure, CO causes mild effects that are often mistaken for the flu. These symptoms include headaches, dizziness, disorientation, nausea and fatigue. The effects of CO exposure can vary greatly from person to person depending on age, overall health and the concentration and length of exposure. The OSHA has established a permissible exposure limit (PEL) of 50 parts per million (ppm). OSHA standards prohibit worker exposure to more than 50 parts of the gas per million parts of air averaged during an 8-hour time period. The peak CO level for employees is 200 ppm. The CO measurements collected during this industrial hygiene evaluation ranged from 0.4 ppm to 31.1 ppm. CO levels were below the OSHA PEL during this industrial hygiene evaluation.

During the industrial hygiene evaluation of the Ogdensburg Readiness Center, Bonus Environmental, LLC collected temperature measurements. Temperature measurements throughout the common areas of the facility routinely occupied by employees ranged from 70.9°F to 74.3°F and are considered to be within an acceptable range outlined within ASHRAE Standard 55-2010.

During the industrial hygiene evaluation of the Ogdensburg Readiness Center, Bonus Environmental, LLC collected relative humidity measurements. Relative humidity measurements throughout common areas of the facility routinely occupied by employees ranged from 25.6% to 37.1%. Indoor air quality measurements recorded during this industrial hygiene evaluation are summarized in the table below.

Army National Guard – Ogdensburg Readiness Center Indoor Air Quality Measurements						
Location	$CO_2 \ (ppm)$	CO (ppm)	Relative Humidity (%)	Temperature (°F)		
Outdoors, east side of building (partly sunny, breezy)	383	0.4	29.2	42.3		
Basement, room 6	404	5.2	34.1	71.2		
Basement, boiler room	406	31.1	25.6	71.8		
Drill Hall	395	3.2	34.3	72.9		
Office room 11	420	4.6	32.6	74.3		
Break room 14	430	3.4	30.9	73.4		
1 st floor lobby	414	4.7	31.9	73.0		
2 nd floor lobby	442	3.6	33.9	72.3		
Office room 20	441	3.7	33.6	70.9		
Classroom 24	432	3.5	37.1	70.9		
2 nd floor, west side locker room	392	3.1	32.8	73.9		

Required/Recommended Values

CO₂ - OSHA PEL = 5,000 parts per million (ppm) and ASHRAE Standard 62.1-2010 = no greater than 700 ppm above outdoor

CO - OSHA PEL = 50 ppm and OSHA Ceiling Limit = 200 ppm

Temperature - ASHRAE Standard 55-2010 = between approximately 67 and 82 °F.

RH - ASHRAE Standard 62.1-2010 = limited to < 65%

4.0 – LIGHTING

Utilizing a properly calibrated Cooke Corporation cal-Light 400 light meter, Bonus Environmental, LLC collected illumination readings throughout the Ogdensburg Readiness Center. Illumination measurements recorded during this industrial hygiene evaluation are summarized in the table below.

Army National Guard – Ogdensburg Readiness Center Lighting Measurements						
Location	Measurement in	Requirement in Foot	Requirement			
	Foot Candles	Candles	Met?			
Basement restroom	10.9	5	Yes			
Basement shower's	13.2	7	Yes			
Basement, northeast storage	19.1	30	No			
Room 2 (storage)	18.1	30	No			
Room 3 (storage)	25.2	30	No			
Basement lobby	6.2	10	No			
Room 4 (storage)	8.2	30	No			
Basement, southeast storage	9.1	30	No			
Room 5 (storage)	0.6	30	No			
Room 5A (storage)	36.2	30	Yes			
Room 5B (storage)	19.5	30	No			
Room 6 (mess hall)	23.3	10	Yes			

Army National Guard – Ogdensburg Readiness Center Lighting Measurements						
Location	Measurement in Foot Candles	Requirement in Foot Candles	Requirement Met?			
Vault 1		Inaccessible				
Vault 2		Inaccessible				
Room 8A (storage)	25.3	30	No			
Basement, southwest storage	8.4	30	No			
Boiler room	56.4	30	Yes			
Room 10 (storage)	16.0	30	No			
Basement, northwest storage	12.9	30	No			
1 st floor lobby	24.2	10	Yes			
Room 14 (break room)	63.5	10	Yes			
Room 15 (recruiter's office)		Inaccessible				
Room 13 (office)	56.2	50	Yes			
Room 11 (office)	11.2	50	No			
Room 11A (restroom)	14.8	5	Yes			
Room 12 (storage)	5.8	30	No			
Drill Hall	21.6	30	No			
Locker room (west side of Drill Hall)	3.2	7	No			
Classroom 24	91.8	30	Yes			
2 nd floor lobby	5.6	10	No			
Room 22 (office)	35.2	50	No			
Room 20 (office)	39.9	50	No			
2 nd floor, northeast locker room	4.1	7	No			
2 nd floor restroom	15.0	5	Yes			
Balcony	2.2	10	No			

Lighting levels were compared to the levels outlined within the American National Standards Institute/Illuminating Engineering Society of North America (ANSI/IESNA) RP-1-04 Office Lighting Handbook, and the ANSI/IESNA RP-7-01 Lighting Industrial Facilities Handbook. Areas within the facility which did not meet the foot candle requirements are identified with a "NO" within the "Requirement Met?" column. It is recommended that illumination be improved in all the areas that did not meet the requirements. Improving illumination can be achieved by replacing burned-out lamps/bulbs, cleaning fixtures, relocating detailed work activities to more illuminated areas, and using supplemental task lighting.

5.0 - CONCLUSION & LIMITATIONS

Bonus Environmental, LLC was contracted by the National Guard Bureau Region North Industrial Hygiene office to identify and measure the existence and extent of potentially hazardous operations or conditions at the Ogdensburg Readiness Center facility located at 225 Elizabeth Street in Ogdensburg, NY. The purpose of this evaluation was to generate or to update a previous baseline evaluation so that employee exposure history can be provided to each civilian and military employee. Industrial hygiene conditions were evaluated during this industrial hygiene evaluation performed by Bonus Environmental, LLC representative Non-Responsive on November 13, 2012.

The results/findings of this industrial hygiene evaluation are summarized below.

- 1. Lead wipe sample results collected within the Ogdensburg Readiness Center were above the OSHA interpretive level of 200 μ g/ft², as well as the 200 μ g/ft² threshold established in NG Pam 420-15.
- 2. Bonus Environmental, LLC identified several areas of peeling paint which contained detectable levels of lead, potentially posing a lead exposure hazard.
- 3. Bonus Environmental, LLC identified PACM's (that analytical results confirmed to be non-asbestos-containing) that were considered to be in poor or damaged condition.
- 4. Bonus Environmental, LLC identified water-damaged and/or moldy building materials including plaster, bricks, stone walls, dropped-ceiling tiles, and concrete in several locations throughout the facility.
- 5. Bonus Environmental, LLC found the housekeeping practices within the Ogdensburg Readiness Center to be in fair-poor condition.
- 6. Following the interviews and observations, no ergonomic and or indoor air quality concerns were identified.
- 7. Bonus Environmental, LLC measured temperature, relative humidity, CO, and CO₂ throughout the Ogdensburg Readiness Center. All were found to be within their acceptable ranges/limits.
- 8. Areas within the Ogdensburg Readiness Center facility were identified as improperly illuminated.
- 9. No Health & Safety programs were available for review at the Ogdensburg Readiness Center.

Bonus Environmental, LLC has 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 Region North - Industrial Hygiene Office. 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 Bonus Environmental, LLC's inspection of the site.

It has been a pleasure to be of assistance to you. Please contact us if you have any questions concerning this report or if we can be of any further assistance in any other environmental or occupational health matter.

Sincerely,

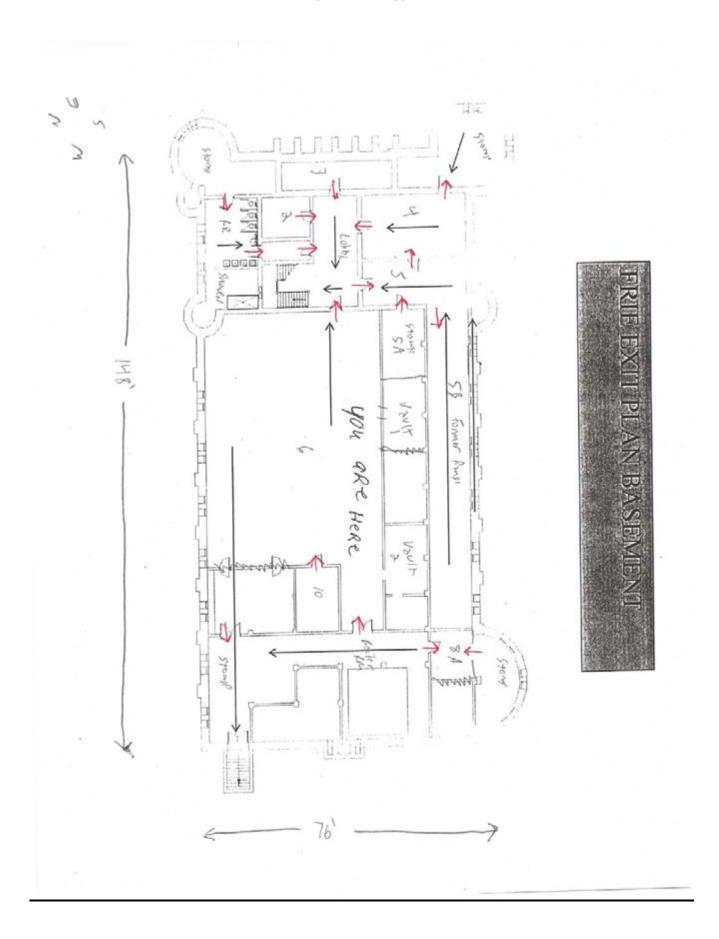


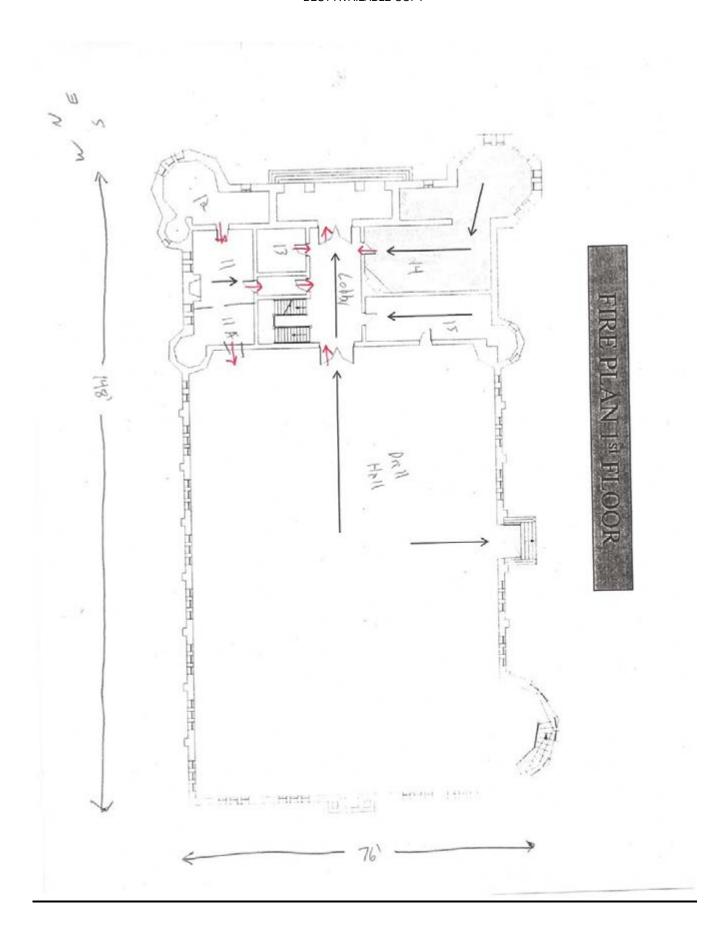
Principal Bonus Environmental, LLC

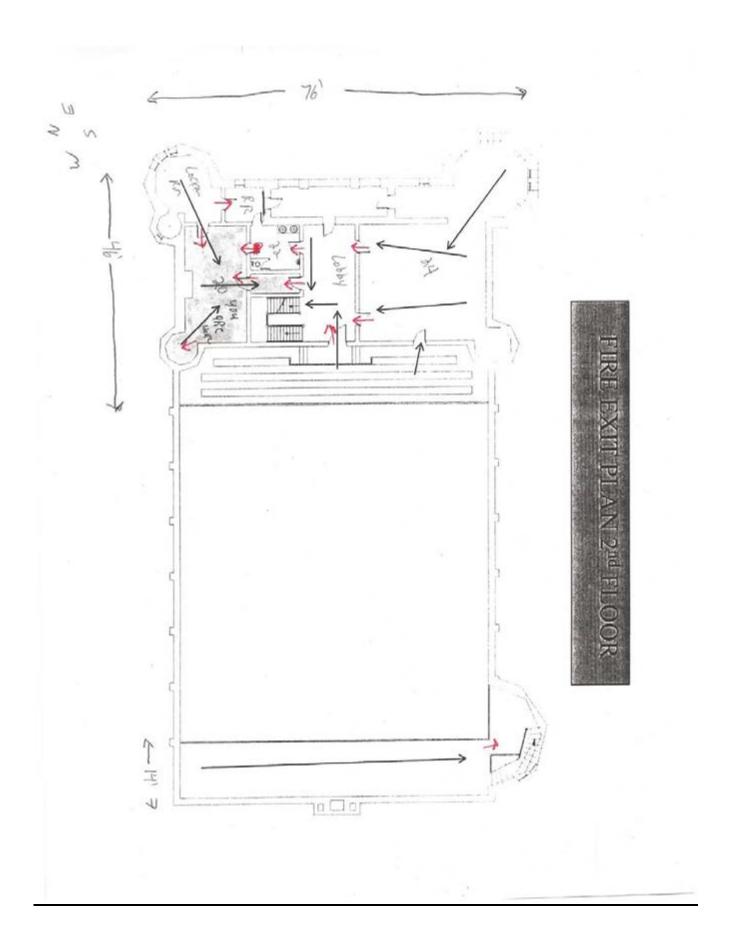
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Appendix A

Shop Diagram and Air Flow Patterns







BEST AVAILABLE COPY

Appendix B

Lead Sample Results

AMA Analytical Services, Inc.



CERTIFICATE OF ANALYSIS



Client:

National Guard Bureau

Job Name:

Ogdensburg RC

Chain Of Custody:

514545

Address:

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

Job Location:

Ogdensburg, NY

W912K6-09-A-0003

Date Submitted:

11/21/2012

Havre de Grace, Maryland 21078

Job Number: P.O. Number:

1061-15

Person Submitting: Date Analyzed:

11/29/2012 Report Date: 11/29/2012

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*)	1.100	orting imit	Total ug	Final Res	sult	Comments
13016453	OburgRC-PC-1	Flame	Paint Chip	****	N/A	0.0073	%Pb		11	%Pb	
13016454	OburgRC-PC-2	Flame	Paint Chip	****	N/A	0.0064	%Pb		42	%Pb	
13016455	OburgRC-PC-3	Flame	Paint Chip	****	N/A	0.0065	%Pb		0.19	%Pb	
13016456	OburgRC-PC-4	Flame	Paint Chip	****	N/A	0.0059	%Pb		3.1	%Pb	
13016457	OburgRC-PC-5	Flame	Paint Chip	****	N/A	0.0058	%Pb		0.093	%Pb	
13016458	OburgRC-LW-1	Flame	Wipe Blank	****	N/A	12	ug		<12	ug	
13016459	OburgRC-LW-2	Flame	Wipe	****	0.111	110	ug/ft²	<12	<110	ug/ft²	
13016460	OburgRC-LW-3	Flame	Wipe	****	0.111	110	ug/ft²	<12	<110	ug/ft²	
13016461	OburgRC-LW-4	Flame	Wipe	****	0.111	110	ng/II3	400	3600	ug/ft²	
13016462	OburgRC-LW-5	Flame	Wipc	****	0.111	110	ug/ft²	64	580	ug/ft²	
13016463	OburgRC-LW-6	Flame	Wipe	****	0.111	110	ug/ft²	510	4600	ug/fl ^t	
13016464	OburgRC-LW-7	Flame	Wipe	****	0.111	110	ug/ft²	250	2200	ug/ft ^r	
13016465	OburgRC-LW-8	Flame	Wipe	****	0.111	110	ug/fl²	160	1400	ug/ft²	
13016466	OburgRC-LW-9	Flame	Wipe	****	0.111	110	ug/ft²	170	1600	ug/ft ²	
13016467	OburgRC-LW-10	Flame	Wipe	****	0.111	110	ug/fl²	25	220	ug/ft²	
13016468	OburgRC-LW-11	Flame	Wipe	****	0.111	110	ug/ft²	29	260	ug/ft²	
13016469	OburgRC-LW-12	Flame	Wipe	****	0.111	110	ug/fl²	200	1800	ug/ft²	
13016470	OburgRC-LW-13	Flame	Wipe	****	0.111	110	ug/fl²	240	2200	ug/ft²	
13016471	OburgRC-LW-14	Flame	Wipe	****	0.111	110	ug/ft²	40	360	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 whele 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 enforsement by NY ELAP, AIHA, or any agency of the Federal Government. All rights reserved. AMA Analytical Services, Inc.

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

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AMA Analytical Services, Inc.



CERTIFICATE OF ANALYSIS



Client:

National Guard Bureau

Job Name:

Ogdensburg RC

Chain Of Custody:

514545

Address:

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

Job Location:

Ogdensburg, NY

W912K6-09-A-0003

Date Submitted:

11/21/2012

State Military Reservation

Job Number:

P.O. Number:

1061-15

Person Submitting: Date Analyzed:

Report Date:

11/29/2012

Attention:

Havre de Grace, Maryland 21078

Summary of Atomic Absorption Analysis for Lead

Page 2 of 2

11/29/2012

AMA Sample Number	Client Sample Number	Analysis Type	Sample Type	Air Volume (L)	Area Wiped (ft ⁱ)	3000	orting .imit	Total ug	Final Result	Comments
13016472	OburgRC-LW-15	Flame	Wipe	****	0.111	110	ug/ft²	4400	40000 ug/fi²	
	for Flame: Air, Wipes, I For Furnace: Air, Wipe able mg/Kg = part		il/Solids: EPA 6	00/R-93/200(M)-7		-3113B		ted with these	alytical results of quali	ly control samples

%Pb = percent lead on a dry weight basis ug = micrograms ug/L = parts per billion (ppb) Note: All samples were received in good condition unless otherwise noted.

Note: All results have two significant digits. Any additional digits shown

should not be considered when interpreting the result.

Air and Wipe results are not corrected for any blank results Final results for air and wipe samples are based on client supplied information nor verified by this laboratory.

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

Technical Manage

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparenty identical or similar products. As a nutual protection to clients, the public, and these Laboratories, this report is submitted and accepted for the exclusive use of the client to whem it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from us. Sample types, locations, and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information. Residual sample material will be discarded in accordance with the appropriate regulatory guidelines, unless otherwise requested by the client. This report must not be used to claim, and does not imply product certification, approval, or endorsement by NY ELAP, AIHA, or any agency of the Federal Government. All rights reserved. AMA Analytical Services, Inc.

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(301) 459-2640 • (800) 346-(961 • Fax (301) 459-2643

CHAIN OF CUSTODY

(Please Refer To This Number For Inquires)

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Address 3: Havre de Grace, Maryland					4.	Cor	ntact P	erson	NO	on-	Re	sp	on	SiV	E No	n-Responsive	
Phone #:(410) 942-0273															gnature:		<u></u>
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Surface Sampling Field Data Sheet

Date Collected: 11-13-12	Job Name: Og Lew burg LC	Company: Bonys Environmental 4
Job Number: 1061-15	lob Location: 225 Elizabeth St	Phone Number: 989 -779, 769/
Contact Person	ddress: agdewburg, NY	Collected By
\$		COC Number:

Sample Numbe	· 91	Sample Location	Surface/Substrate Sampled	Area Wiped (in ² /ft ²)	Collection Media
obrgRc-U	w-1	Filld Blank	_	-	Ghast wife
	-J	PMI HII	Floor, west end	4" * 4"	
	-3	Doin Hall	Flour, Past and		
	4	Doily Hall	116 corner, an heat register		
	ナ	Drit Hall	SE Compr, top of vanding maching		
	-6	Delil Hall	Westwall, ranger on umdow si	1	
	-7	Former Indoor Formy Prinst	Floor, west and		
	-8	Former Indoor Formy Rue	Flour, Post and		
	-9	Por 6 Mess Holl	top of Amnesty box		
	-10	18 Fl Lobby	top of AEO Case		
	-11	Rm 11 office	top of copy machine		
	-12	Break Loom	for OF Dart board Video Game		
	-13	Rm ao office	NE corner lumbor SII		



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: //-/3-/2	Job Name:	Ordensburg KC	Company: Bony Environmental Mc
Job Number: 1061-15	Job Location:	225 Elizabeth St	Phone Number: 989 -779 - 7686
Contact Person	Address:	Og dens lurg, MY	Collected By: Non-Responsive
	-		COC Number:

Sample Location	11 1 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Surface/Substrate Sampled	Area Wiped (in²/ft²)	Collection Media
god Flox Lobby	100	on heat register	4">4"	Ghost will
Classroan 24		NW corner, top of light Fixture		
200				
	H K			
				
	945 - E - E - E - E - E - E - E - E - E -			
V	1			
-	*.			
	2nd Flox Lobby Classroon 24	And Flor Weby Classroan 24	July Flox When register Claurogn 24 Wight Fixture	Surfaces constrate sampled (m²/n²) and Flox Wolf and Lett register www.corner, top of Ight Fixture



Please Return Samples To:

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Appendix C

Asbestos Bulk Sampling Results

AMA Analytical Services, Inc.



A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS



Client:

National Guard Rureau

Job Name:

Ogdensburg RC

Chain Of Custody:

514545

Address:

Attention:

301-JH Old Bay Lane, Atm; ARNG-CJG-P.

Job Location:

Ogdensburg, NY

Date Analyzed:

11/30/2012

State Military Reservation

Job Number:

P.O. Number:

1061-15

Person Submitting:

Havre de Grace, Maryland 21078

W912K6-09-A-0003

Page I of I

Summary of Polarized Light Microscopy

AMA Sample Number		Total Asbestos			Crocidolite Percent	Asbestos	Percent					Sample Type	Sample Color	Homogeneity	Analyst ID	Comments
13016473	OburgRC-Asb- 1 PL	NAD					 w.				100	PL	White	Homogeneous	PC	
13016474	OburgRC-Asb- IBC	NAD	*	**	*	••	**	**	•	**	100	BC	Gray	Homogeneous	PC	

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

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

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

NAD = "No Asbestos Detected"

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

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

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

Technical Director

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 numbral protection to clients, the public, and these Laboratories, this report is submitted and accepted for the exclusive use of the client to whem 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

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Duin bumping but to bucc	k Sampling Survey S	hee	e
--------------------------	---------------------	-----	---

			Pageof
Date Collected: 11-13-12	Job Name:	ogdenslung RC	Company: bonus Envison mental, LLC
Job Number: <u>/06/-/5</u>	Job Location:_	agreet 225 Elizabah St	Phone Number: 989-779-7686
Contact Per	Address:	ogdowburg, NY	Collected By Non-Responsive
8 .	-	,	COC Number:

Sample Number	Homogenous Area ID	Type of Material	Sample Location	Friable	Condition of Material	Accessibility	Photo	Comments
obungac- 1818-1	Surf	Plaster	Balement Restroom	☐ Yes ☐ No ☑ Potentially	□ Good □ Fair ☑ Poor	□ Low □ Medium ⊠ High	⊠Yes □ No	
				☐ Yes ☐ No ☐ Potentially	□ Good □ Fair □ Poor	☐ Low ☐ Medium ☐ High	□ Yes	4.40
			- 1 3 3 3 4 6 6 7 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	☐ Yes ☐ No ☐ Potentially	□ Good □ Fair □ Peor	□ Low □ Medium □ High	□ Yes	7074000
				☐ Yes ☐ No ☐ Potentially	□ Good □ Fair □ Peor	□ Low □ Medium □ High	□ Yes	
				☐ Yes ☐ No ☐ Potentially	□ Good □ Fair □ Pcor	☐ Low ☐ Medium ☐ High	□ Yes □ No	
				☐ Yes ☐ No ☐ Potentially	□ Good □ Fair □ Peor	□ Low □ Medium □ High	□ Yes	7,000
				☐ Yes ☐ No ☐ Potentially	□ Good □ Fair □ Poor	□ Low □ Medium □ High	☐ Yes ☐ No	
				☐ Yes ☐ No ☐ Potentially	□ Good □ Fair □ Poor	□ Low □ Medium □ High	□ Yes □ No	
				☐ Yes☐ No☐ Potentially	□ Good □ Fair □ Poor	☐ Low ☐ Medium ☐ High	□ Yes □ No	
				☐ Yes ☐ No ☐ Potentially	□ Good □ Fair □ Poor	☐ Low ☐ Medium ☐ High	□ Yes □ No	



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

Focused on Results www.amelab.com AIHA (#100470) NVLAP (#101143-0) NY ELAP (10920) 4475 Forbes Blvd. • Lanham, MD 20706 (301) 459-2610 • (800) 346-0961 • Fax (301) 459-2643

CHAIN OF CUSTODY

(Please Refer To This Number For Inquires)

514545

Mailing/Billing Information:		84	Submittal Infor	mations			314345
. Client Name: National Guard Bureau			1. Job Name:		ensburg R	(
TIL 1 ANIBLAND			2. Job Location		Whyn, N	¥	
. Address 2: Attn: NGB-AVN-SI, State Mil			3. Job#:/		71	División es	
. Address 3: Havie de Grace, Maryland 2	1070		J. JOD#:/	Non-Re	sponsi	W912K6-09-	
Phore # (/10) 0/2,0272	W. /440\ 040 0	004	4. Contact Perso		ороно	@ phone#	Posnonsivo
Phone #: (410) 942-0273 Pr	1X #: <u>(4.10) 942-0</u>	204	5. Submitted by			nature:	responsive
Reporting Info (Results provided as soc AFTER HOURS (must be pre-scheduled)	on as technically lea	Isible). Il no IAI/	Reporting Info is	provided, AMA	vill assign defat	ilts of 5-Day and emai	n/tax to contacts on file.
Inmediate Date Due:	Q Immediate	D 3 Day	BUSINESS HOURS		A5	100,000	ORT TO:
24 Hours Time Due:	Next Day	OG 5 Day +	. DR	esults Required By N	Voon & In	Ion-Responsi	VCh Report
Commonts:	Q 2 Day	Ø 5 Day + Date Duc:	30/12		(X-Fa		bonusenvironmental.com Is.army.mil
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shestos Analysis	TEM B	ılk :			Metals Analys		7,500
PCM Air – Please Indicate Filter Type: ☐ NIOSH 7400(QTY)	O I	LAP 198.4/Charfield	(QT	'n			e 1
D Piberglass(OTY)	01	Y State PLM/TEM_	(OTY	K.	Pb Dust	Vipe (wife type 6/10)+	
EM Air* - Please Indicate Filter Type:	TEMD	lesidual Ash	(QTY)		☐ Pb Soil/So	(QTY)	
□ AHERA (QTY) □ NIOSH 7402 (QTY)		pal. (pres/abs);Vacun	m/Dust	(OTY)	DP5 TCLP.		
Other (specify) (QT)	n 0(luan. (s/area) Vacuun	D5755-95	(YTO)	O Drinking 1	Water Q Pb (OTY) C) Cu(QTY) O As(QTY)
M Bulk	. 00	luan. (s/area)Dust D6	480-99	_(QTY)	₩aste Wat	er U Pb(OTY) 🔾 (UTY) As (OTY)
EPA 600 - Visual Bstimate (QTY) EPA Point Count (QTY)	TEMW	ual (presiabs)	(0770)		Q Pb Furneo	e (Media)	(QTY)
NY State Friable 198.1 (QTY)	O.E	LAP 198.2/EPA 100.	(VIY)	v)	Fungal Analysis Collection	Annarotus for Soura Trees	Air Samples:
Grav. Reduction ELAP 198.6 (QTY)	DR	PA 100.1	(QTY)	"/	Collection	Media	avar samples:
Other (specify)(QTY) <u>s</u>	Il samples received in	n annd condition unle	oce otherwise nated	☐ *Spore-Tra	ip(QTY) Dis	urface Vacuum Dust(QTY)
Q Verniculite	(TE	M Water samples	°C]	35 Outerwise Holed.	U *Surface S	wab(QTY) 🗓 Ci	olturable ID Genus (Media)(QT
Asbestos Soil PIM_(Qual) PIM_(Qual) PIM/TEM_(Qual	PLM/TEM_(Quan) 11 fic	ld data sheets are submit	ted, there is no need to co	molete hottom section	Other (Specifi	ape(QTY)	Itamble ID Species (Media)(Q1
"It is recommended that blank samples be submitted with all air and surface SAMPLE INFORMATION	samples	ANAL					Truth course
CLIENT ID # SAMPLE LOCATION ID	DATE/ VOL(L	1 2 2 2 1 2	SSIS \frac{3}{9} \frac{3}{8} \frac{4}{8}	13/5/5		5 /	TENT CONTACT .
bright-16-1 Fret But	TIME WipeAr	84 E E E	7 2 3		1 8 E B	(LABOR	ATORY STAFF ONLY)
1 1-2 Yellow	1 1	+++		*		Date/Time:	Contact; By:
		++-+	*	*		-	11
-3 brown	-	+	*	1			
- SEE ATTACHED FIELD DATA	SHEETS	1	1	X			
+ 1-5 white 1			4	X		Date/Time;	Contact: By:
		120				Dato Line,	Contact: By:
obing R-AB- Player - Balance RA	11-3-12 PURC			*	-	 	
7	110	7	 	7			
hup 01-111-1 215	11.0.0	1.43	.,				
bugge-LW-1-915	11-13-12	+ $+$ $+$ $+$	*	*		Date/Time;	Contact: By:
							50
1. Date/Time RCVD:	1/21/	2 @125 V	in: FEDE)	Vor		Ach	onsive
LABORATORY 2. Date/Time Analyzed:	11/30/	12 @	By (Print):	VU		LOP	OHOIVE
Z. Date/ time Analyzed:							
STAFF ONLY: (CUSTODY) 2. Date time Analyzed: 3. Results Reported To:	· · · · · · · · · · · · · · · · · · ·	7	Via:	n <u>e</u> con.	11 12.	1 / 12 Time:_	Initials: PC

Appendix D

Photographs



Building exterior, looking southwest



Drill Hall



Basement, northeast storage, peeling gray paint



1st floor lobby



Basement restroom, damaged plaster



Basement, room 3, water-damaged wall and peeling paints



Basement, southeast storage, peeling brown paint



Basement, former indoor firing range



Boiler room



Boiler room, emergency eyewash



Basement, room 10, peeling blue paint



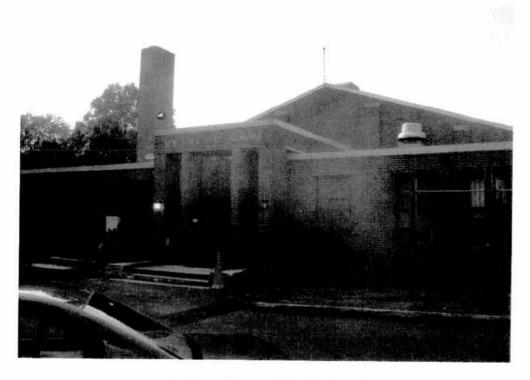
Room 20, peeling white paint

Appendix E

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INDUSTRIAL HYGIENE SURVEY

Conducted on

READINESS CENTER 84 OLD ORANGEBURG ROAD ORANGEBURG, NEW YORK 10962

ECS Project No. 14-4876

For

National Guard Bureau Region North Industrial Hygiene Office 301-IH Old Bay Lane Havre de Grace, Maryland 21078



November 18, 2008



ECS CAROLINAS Geotechnical • Construction Materials • Environmental

November 18, 2008

Ms Non-Responsive

National Guard Bureau Region North 301-IH Old Bay Lane Havre de Grace, Maryland 21078

Reference:

Industrial Hygiene Survey Readiness Centers (RC)

Orangeburg, New York ECS Project No. 14-4876

Dear Ms

ECS Carolinas, LLP (ECS) is pleased to provide the results of our Industrial Hygiene survey for the referenced facility. Our services were provided in accordance with Army National Guard work order number W912K6-08-F-0063, dated June 12, 2008 and the requirements of the National Guard Bureau Region North Industrial Hygiene Office "Statement of Work".

If there are questions regarding this report, or a need for further information, please contact us.

Respectfully submitted,



Industrial Hygiene Project Manager



Principal Scientist

I:\Environ\Report\4800\4876 ANG IH\Orangeburg\4876 Orangeburg Report.doc

68 Global Drive Greenville, South Carolina 29607 (864) 987-1610 FAX (864) 987-1615 www.ecslimited.com

Aberdeen, MD* • Atlanta, GA • Baltimore, MD • Chantilly, VA • Charlotte, NC • Chicago, IL • Cornelia, GA* • Dallas, TX

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*Testing Services Only

INDUSTRIAL HYGIENE SURVEY READINESS CENTER 84 OLD ORANGEBURG ROAD ORANGEBURG, NEW YORK 10962

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Asbestos Results

INDUSTRIAL HYGIENE SURVEY READINESS CENTER 84 OLD ORANGEBURG ROAD ORANGEBURG, NEW YORK

1.0 EXECUTIVE SUMMARY

ECS Carolinas, LLP (ECS) has completed an Industrial Hygiene Survey at the facility located at 84 Old Orangeburg Road in Orangeburg, New York. The report was prepared in general accordance with the *Statement of Work* provided by the National Guard Bureau Industrial Hygiene Region North. The objective of the survey was to identify and measure the existence and extent of potentially hazardous operations or conditions at the Army National Guard (ARNG) facilities identified in the work order. The surveys were performed to establish a baseline of workplace conditions or to update a previous survey and employee exposure histories.

The survey involved a facility reconnaissance and sampling of the Readiness Center. Readiness Centers perform limited field level maintenance of various ARNG vehicles and equipment required for the supported units. Orangeburg RC included a five (5) bay maintenance area, a parts supply area, offices and a break room. Of the five maintenance bays, only four (4) were usable. At the time of the survey, several members of the unit were deployed and the shop was not operating at full capacity. The point of contact for the Orangeburg RC facility was Jeffery Caston.

Lighting measurements conducted during the survey indicated the illumination levels in the vehicle maintenance area, Orderly Room, Washroom, NCO Hallway, and in the Entryway are below the required lighting levels.

The physical facility and the site health and safety plans were reviewed. Some written safety programs were missing or not provided to ECS. This missing information should be prepared for the facility and provided during the next facility survey. During the physical assessment of the facility, the following items were noted:

Vehicle Maintenance Area:

- · Peeling and chipped paint present.
- Two (2) Local Exhaust Ventilation (LEV) drops present out of the four (4) working bays.
- PPE present in work area for workers use-
 - Ear Protection: Earplugs
 - Proper protective clothing: (steel-toed shoes, long sleeves)
 - Safety glasses are not required.
- Material Safety Data Sheets (MSDS) were observed in the area.

Industrial Hygiene Survey Readiness Center Orangeburg, New York 10962 ECS Project No. 14-4876

Fire extinguishers are present and are current with routine inspections.

Parts Supply Room:

- General parts and supply storage area.
- No general ventilation system is present.
- Generally clean work area.

Tools Storage:

- Tool storage area.
- No general ventilation is present.
- Generally clean storage area.

Storage Room:

- General materials storage room.
- Fire extinguisher inspection has expired.
- No general ventilation is present.
- Generally clean work and storage area.

Administrative Areas (Office's, Break room, Men's and Women's Restrooms):

- Administrative controls present (posted training documents, warning signs, best work practices, fire evacuation plans)
- Fire extinguishers present and are current with routine inspections with the exception of one.
- One (1) window air conditioning unit is located in the Recruiter's office.
- No general ventilation is present.
- Generally clean areas.

2.0 INTRODUCTION

2.1 Scope of Work

ECS Carolinas, LLP (ECS) has completed an Industrial Hygiene Survey at the facility located at 84 Old Orangeburg Road, in Orangeburg, New York. The report was prepared in general accordance with the *Statement of Work* provided by the National Guard Bureau Industrial Hygiene Region North. The objective of the survey was to identify and measure the existence and extent of potentially hazardous operations or conditions at the Army National Guard (ARNG) facilities identified in the work order. The surveys were performed to establish a baseline of workplace conditions or update a previous survey and employee exposure histories.

2.2 <u>Facility Information and Description</u>

The survey involved a facility reconnaissance and sampling of Orangeburg RC. Readiness Centers (RC) serve as recruitment facilities and administration offices that maintain a garage or mechanic shop to perform simple repairs on various ARNG vehicles and equipment for the supported units. Orangeburg RC included a five (5) bay maintenance area, a parts supply area, offices and break room, equipment and storage rooms. The mechanic shop conducts limited vehicle maintenance for unit support. At the time of the survey, several members of the unit were deployed, approximately four (4) persons were in the center and the shop was not operating at full capacity. The point of contact for the Orangeburg RC facility was Jeffery Caston.

3.0 SAMPLING

3.1 Lead Wipes

Wipe samples were collected for lead dust in the administrative areas and mechanic shop of the garage in the facility. Sampling was conducted to determine if cross contamination was occurring in the non-maintenance areas of the facility. The Indoor Firing Range (IFR) at this facility has been converted to another use on the site. Lead wipes were collected according to the scope of work for the items still present in the IFR. The lead wipe results can be seen in the following table:

	Table 3.1.1 Lead Wipe Re	sults
Sample	Sample Location	Results (µg/ft²)
Number		4.5
LW-1	Drill Hall-Left front corner	210
LW-2	Drill Hall-Behind Soda machine	180
LW-3	Back exit door floor	320
LW-4	Drill Hall-Floor at Fire Hose	1,100
LW-5	Drill Hall-Center Floor	490

Sample Number	Sample Location	Results (μg/ft²)
LW-6	Drill Hall-Supply Room	<110
LW-7	Garage Floor-Front	2,100
LW-8	Garage-Parts Cage	120
LW-9	Garage Parts Cage-Floor	1,000
LW-10	Company Commander's Office	<110
LW-11	Hallway outside Recruiting Office	<110
LW-12	Outside Firing Range-Back	1,700
LW-13	Mop Room Main Hallway	520
LW-14	Orderly Room	<110
LW-15	First Sergeant's Office	<110
LW-16	Old Firing Pit-Floor	23,000
LW-17	Kitchen	<110
LW-18	NCO Club	<110
LW-19	Basement Storage-Janitor's Closet	15,000
LW-20	Mess Room	<110

3.2 Additional Sampling Information

Since welding operations and parts washing, are not conducted at this facility samples were not collected for welding fumes, volatile organic compounds or acid gases during the survey.

Indoor air quality measurements including temperature, relative humidity and carbon dioxide were collected in various locations throughout the facility and are presented in the following table:

Table 3.2.1 Ind	oor Air Quality	(IAQ) Meter Measur	ements
Location	Temperature (°F)	Relative Humidity (%)	Carbon Dioxide (ppm)
Basement Bullet Shop	73.8	63.7	
Hallway Outside Janitor's Closet	74.5	62.1	385
Server Room Work Station	75.0	60.7	392
Orderly's Office	76.7	45.1	432
Recruiter's Office	74.5	39.6	490
Drill Hall	84	44.9	400
Shop	82.4	52.4	452

The American Society for Heating, Refrigeration, and Air Conditioning Engineers (ASHRAE) has determined that a carbon dioxide level greater than 1000 ppm indicates that not enough outdoor air is coming into the building to dilute the carbon dioxide level. The carbon dioxide

levels measured at the Orangeburg RC facility are below those limits, indicating that air is being circulated properly throughout the building.

ASHRAE standards state that systems within the building should establish a relative humidity in occupied space to be 60% or less. The levels measured at the Orangeburg RC facility indicate that the relative humidity is below the required standard for indoor air quality.

Personnel samples measuring airborne lead levels were collected from within the breathing zone of two staff members on site at the Orangeburg RC facility. Each employee was monitored for approximately six hours. Laboratory analytical results indicate that both air samples were below the OSHA permissible exposure limit (PEL) of 0.05mg/m³. Results have been listed in the following table:

		Table 3.2.2 Pe	rsonnel San	nples-Lead	
Staff Member being Monitored	Pump ID	Sample Collection Times (Hours)	Total Time (minutes)	Total Liters (L) collected	Lab Results Above Permissible Exposure Limit
Non-Responsive	5134	1030-1630	360	885.6	No
	3051	1030-1630	360	921.6	No

4.0 VENTILATION ASSESSMENT

4.1 General Ventilation

General building ventilation is provided to the administrative areas of the building through wall uni-vent units. In the maintenance areas cooling is provided by the roll-up doors and fans.

5.0 NOISE DOSIMETRY

Noise sampling was not conducted during the survey; active heavy vehicle maintenance does not occur on site.

6.0 LIGHTING EVALUATION

Illumination levels were recorded in each area in closed door conditions and compared to the ANSI minimum lighting requirement (ANSI/IESNA RP-1-04). Recorded illumination measurements are presented in the following table and are presented on the illumination plan in Appendix I.

Table 6.1	Illumination Measureme	nts	
Location	Measured Illumination	Required	Requirement
Location	Level in Foot Candles	Illumination	Met?

Industrial Hygiene Survey Readiness Center

Orangeburg, New York 10962 ECS Project No. 14-4876

	(FC)	Level	_
First Sergeant's Office - Desk	13.1	50	No
Administration Training Room Desk	26,6	50	No.
Vehicle Maintenance Area - Walkway	20.6	75	No
Orderly Room - Desk	32.1	50	No
Company Commander's Office - Desk	27.9	50	No
Entryway Hallway	10.0	10	Yes
Washroom	3.9	5	No
NCO Room	11.2	50	No
Dining Room	81.7	10	Yes
Kitchen	64.1	50	Yes
Rear Hallway to Exit	18.3	5	Yes
Main Hallway	13.3	5	Yes
Main Entryway	23.9	10	Yes
Recruiting Office	39.8	5	Yes
Basement- Storage	2.1	30	No
Hallway Outside Janitor's Closet	31.9	5	Yes
Boiler Room	4.5	30	No
Locker Room	15.0	7	Yes
Server Room Work Station	2.0	30-50	No
Supply Room	25.3	30	No
Drill Hall	40.2	50	No
Vehicle Maintenance Area – Work Station	25.2	75	No

7.0 RÉVIEW OF SAFETY PLANS AND POLICIES.

7.1 Written Safety Plans

ECS reviewed on-site health and safety plans during our site visit. Plans were not available for review during the site visit. Below, is a list of plans recommended for this facility:

Personal Protective Equipment (PPE) Requirements
Fire Evacuation Plans

7.2 Personal Protective Equipment (PPE)

Written information could not be made available when requested for review by ECS during the site visit. Hearing protection: ear plugs, have been provided to staff and may be used at their own discretion. Long sleeved shirts and steel-toed boots are recommended for staff members working in the vehicle maintenance area. No additional information was available for review indicating what PPE was a requirement for the site.

8.0 PHYSICAL CONDITIONS & EMPLOYEE INTERVIEWS

ECS observed damaged and peeling paint in the garage area. One paint chip bulk sample was collected and sent to AMA Analytical Laboratories lead analysis.

Oily rags and spill pads were noted in regular trash receptacles. A designated receptacle properly labeled with "Flammable Materials" should be made available. A designated smoking area with proper eigarette receptacles should also be made available to prevent fire hazards.

ECS observed few materials in the Orangeburg RC facility that have the potential to be asbestos containing of materials identified to be in damaged condition. A description of the materials, location(s), and approximate quantities are presented below:

Ta	ible 8.1 Asbestos Su	mmary Table
Description of Material	Location(s)	Approximate Quantity
White 9"x9" Floor	Front Entry	120 SF
Tile/Mastic	Walkway	
Boiler Jacket Insulation	Boiler Room	100 SF

The results of the materials sampled were:

Table 8.2	Bulk Sample Results for Asbestos
Sample Description	Results
9" x 9" White Floor Tile	2% Chrysotile asbestos
& Mastic	
Boiler jacket insulation	No Asbestos Detected

9.0 FINDINGS AND CONCLUSIONS

Following are the findings of this Industrial Hygiene Survey:

- Wipe samples collected for lead dust in the administrative areas of the facility indicated that >200 μg/ft² of lead was detected in nine (9) out of the twenty (20) wipe samples collected. These results are above the NBG Region North IH office Guidelines of the acceptable level of 200 μg/ft². The areas with higher levels of lead dust were located in the new/old firing ranges, the drill hall, the garage area, and the basement and janitor/mop closets. Administrative office areas did not seem to have clevated levels of lead dust.
- Oily rags and spill pads were noted in regular trash receptacles. A designated receptacle properly labeled with "Flammable Materials" should be made available. Risk assessment rankings are as follows:.
- Lighting measurements conducted during the survey indicated the illumination levels in the vehicle maintenance and other work areas are below the required levels for workplace lighting.
- A fire extinguisher noted in the storage room did not have a current inspection. Fire
 extinguishers should be inspected regularly on the site and inspections should be kept
 current.
- Written safety programs were missing or not provided to ECS. This missing
 information should be prepared for the facility and provided during the next facility
 survey.

10.0 REFERENCES

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

Lead - (29 CFR 1910,1025(h))

American Conference of Governmental Industrial Hygienists (ACGIH) - Threshold Limit Values and Biological Exposure Indices, 2008 Edition

Industrial Ventilation: A Manual of Recommended Practice for Design, 25th Edition

Georgia Army National Guard: Standard Army Safety and Occupational Health Inspection Checklist; I October 1999 Edition

American Society of Heating, Refrigerating and Air-Conditioning Engineers, Ventilation for Acceptable Indoor Air Quality, 62-1-2007.

National Emission Standard Hazardous Air Pollutants (NESHAP) - The standards for asbestos are contained in 40 CFR 61.140 through 61.157.

Environmental Protection Agency (EPA) standards (40 Code of Federal Regulations (CFR) 745.227(h)(3))

Derivation of Wipe Surface Screening Levels for Environmental Chemicals, the US Army Center for Health Promotion and Preventive Medicine (USACHPPM)

The US Army Technical Guide 277 Army Facilities Management Information Document on Mold Remediation

29 CFR 1910.1000 <u>Air Contaminants</u>, Table Z-1, Occupational Safety and Health Administration, US DOL, Washington, DC

ANSI RP-1-04, American National Standard Practice for Office Lighting, 2004

ANSI RP-7-01, Lighting Industrial Facilities, 2001

Industrial Ventilation, A Manual of Recommended Practice, 25th Edition, ACGIH, 2004

2008 TLVs and BEIs, ACGIH, 2006

DA PAM 40-501, Hearing Conservation Program, Department of the Army, 1998

ANSI/ASHRAE 55-204

ANSI/ASHRAE 62.1-2007

APPENDIX I FIGURES

UNAVAILABLE

APPENDIX II PHOTOGRAPHS

APPENDIX III LEAD RESULTS

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Cleat	National Guard Bureau	Job Name:	National Guard Armory	Chain Of Custody:	159404	
Address:	301-IH Old Bay Lane, Attn: NGB-AVNSI, State Military Reservation	Job Location:	84 Old Orangeburgh Road; Orangeburgh, New York	Date Submitted:	7/28/2008	
	Havre de Grace, Maryland 21078	Job Number:	14-4876	Person Submitting:	Non-f	
		P.O. Number:	Not Provided	Date Analyzed:	8/1/2008 Rcpo	Report Date:
Attention:	North					

Client	National Guard Bureau	Job Name:	National Guard Armory	Chain Of Custody:	159404		100470
Address:	301-IH Old Bay Lanc, Attn: NGB-AVIVSI, State Military Reservation	Job Location:	84 Old Orangeburgh Road; Orangeburgh, New York	Date Submitted:	7/28/2008	_	NY ELAF 10920
	Havre de Grace, Maryland 21078	Job Number:	14-4876	Person Submitting:		biose	
		P.O. Number:	Not Provided	Date Analyzed:	8/1/2008	8/1/2008 Report Date: 8/1/2008	8/1/204)8
Attention:	No. of Principles						
		Summary of	mary of Atomic Absorption Analysis for Lead	sis for Lead			Page 1 of 2

Pag	Comments	
pa	Final Result	
Summary of Atomic Absorption Analysis for Lead	Reporting	
Absorption A	Area Wiped (ft²)	
of Atomic	Air Volume (L)	The second secon
Summary	Sample Type	The state of the s
	Client Sample Analysis Type Sample Type Number	THE PERSON AND ADDRESS OF THE PERSON AS A
ŞÇÇ	Client Sample Number	
	AMA Sample Number	71 1 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

	The state of the s	THE RESERVE THE PERSON NAMED IN COLUMN 1 AND THE PERSON NAMED IN C					****				
AMA Sample Number	Client Sample Number	Analysis Type	Sample Type	Air Volume (L)	Area Wiped (ft²)	Rep L	Reporting Limit		Final Result		Comments
0873448	IA	Flame	Air	922	N/A	3.25	ug/m³	· v		us/m³	# 000 A 000
0873449	2A	Flame	Aìr	988	N/A	3.39	ns/m,	· v	4	ru/an	
0873450	3A	Flame	Air Blank	0	N/A	3.00	ne/m,	v	, m	i g	
0873451	4 A	Flame	Paint Chip	***	N/A	0.01			0.42	%hp	
0873452	-	Flame	Wipe	***	0.108	111.52	ug/fi²		210	ug/ft²	
0873453	2	Flame	Wipe	**	0.108	111.52	ug/ft²		180	ug/ft²	
0873454	m	Flame	Wipe	:	0.108	111.52	ug/ft²		320	ug/ft²	
0873455	4	Flame	Wipe	***	0.108	111.52	ug/ft²		001	ug/ft²	
0873456	S	Flame	Wipe	:	0.108	111.52	ug/ft²		490	ug/ft²	
0873457	9	Fiame	Wipe	* * *	0.108	111.52	ug/ft²	٧	110	ug/ff²	
0873458	7	Flame	Wipe	:	0.108	111.52	ug/ft²		2100	ug/ft²	
0873459	∞	Flame	Wipe	:	0.108	111.52	ug/ft²		120	ug/ft²	
0873460	6	Flame	Wipe	***	0.108	111.52	ug/fl²		1000	ug/ft²	
0873461	0.	Flame	Wipe	***	0.108	111.52	ug/fit²	٧	110	ug/ft²	
0873462	=	Flame	Wipe	:	0.108	111.52	ug/ft²	٧	110	ug/ft²	
0873463	12	Fiame	Wipe	:	0.108	111.52	ug/ft²		1700	ug/ft²	
0873464	23	Flame	Wipe	:	0.108	111.52	ug/ft²		520	ug/ft²	
0873465	1.4	Flame	Wipe	****	0.108	111.52	ug/ft²	٧	110	ug/ft²	
0873466	15	Flame	Wine	***	0.108	05 111		٧	9	7H/011	

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 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 disclaims any knowledge and liability for the accuracy and complete regulatory guidelines, unless otherwise requested by the client. NVLAP accreditation applies only to polarized light microacopy of built samples and transmission electron microacopy 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. and accepted for the exchance 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

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Client:	National Guard Bureau	Job Name:	National Guard Armory	Chain Of Custody:	159404		100470
Address:	301-IH Old Bay Lane, Attn: NGB-AVINSI, State Military Reservation	Job Location:	84 Old Orangeburgh Road; Orangeburgh, New York	Date Submitted;	7/28/2008	_	】 ₹
	Havre de Grace, Maryland 21078	Job Number:	14-4876	Person Submitting:	Non-F		
		P.O. Number:	Not Provided	Date Analyzed: 8/1/2008 Report Date: 8/1/2008	9007/1/9	Report Date:	8/1/2008

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Summary of Atomic Absorption Analysis for Lead

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Page	

AMA Sample Number	Client Sample Number	Analysis Type	Sample Type	Air Volume (L)	Area Wiped (ft²)	R S Z	Reporting Limit	Ē	Final Result		Comments	
0873467	91	Flame	Wipe	**	0.108	111.52	ue/ft²		23000	ше/ft²	***************************************	-
0873468	1.1	Flame	Wipe	:	0.108	25 111	100/U	V				
0873469	81	Flame	Wipe	***	0.108	111 52	-Woll	· ·		;U/oH		
0873470	61	Flame	Wipe	****	0.108	25 111	10/Hz		_	10/H2		
0873471	20	Flame	Wipe	:	0.108	11 53		: ~		10/ft2		
Analysis Method for	v Flame: Air, Wipes	Analysis Method for Flame: Air, Wipes, Paints, and Soil/Solids: EPA 600/R-93/200/M)-7420; Water: SM-3111B	ids: EPA 600/R-93/2	:00(M)-7420; Water:	SM-3111B	See OC	Summary fo	ranalytical	De come	ugur Afonsliiv Ar	See OC Summary for apainting passifle of quality control camples	
Analysis Method Fi	or Furnace: Air, Wi	Analysis Method For Furnace: Air, Wipes, Paints, and Soil/Solids: EPA 600/R-93/200(M)-7421; Water, SM-3113B	Solids: EPA 600/R-	93/200(M)-7421; W	later: SM-3113B	associate	associated with these sampes.	e sampes	2	o duent o	and sandones	
N/A = Not Applicable	ole mg/Kg = pa	mg/Kg = parts per million (ppm) by weight mg/L = parts per million (ppm)	by weight mg/L = 1	parts per million (pp	E	NY ELA	accrediatio	n applies or	ily to pa	lint chip, wip	NY ELAP accrediation applies only to paint chip, wipe, and water	
%Pb = percent leav	%Pb = percent lead by weight ug = micrograms	= micrograms ug	ug/L = parts per billion (ppb)	(qdd)		sambles.						
Note: All samples t	were received in gov	Note: All samples were received in good condition unless otherwise noted.	herwise noted.									

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Analyst

Note: All results have two significant digits. Any additional digits shown

Air and Wipe results are not corrected for any blank results should not be considered when interpreting the result.

Technical Manager:

on-Responsi

locations, and collection protocols are based upon the information provided by the persons submitting these and unless collected by personnel of these Laboratories, we expressly disclaims any knowledge and liability for the accuracy and completeness 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 built samples and This report applies only to the samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public, and these Laboratories, this report is irasamissica electros microscopy of AHERA air samples. This report must not be used to claim, and does not imply product certification, approval, or endonement by NVLAP, NIST, or any agency of the Federal Government. All rights reserved 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, AMA Analytical Services, Inc

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Attention:

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@ ECSING HEL-CON AVAILÂBÊE ÇÇ Night* (*must be pre-scheduled) 3 360 By: By: (LABORATORY STAFF ONLY) (OTY) Surface Vacuum Dust ーカバカーカ CLIENT CONTACT 11 mg/2001 2000 Contact: 18 -- (QTY) L Other (Specify. Contact: Contact: L(QT) U Bulk (673) Dust Wipe Furnace (wipe type. イインスに手 Mold - Direct Microscopic Analysis _(QTY) (OT) Dust Wipe (wipe type Pate/Time: Date/Time Signature Drinking Water J. Surface Tape. Surface Swah 🗀 Spore-Trap ... Waste Water, Reporting Information (Results will be provided as 500m as ucuntum, reasond); 3 Disol/Solid PO. # Email (S. J. S. J. Lead Analysis 8FHS White 9"x9"FT AdVIINCH! Network MATRIX MATRIX 1. Job Name: NC+13~ C. All samples received in good condition unless otherwise noted. (QTY) (QTY) 9 Submittal Information: $y_{\eta_{\Omega_{B}}}$ (QTX) Job #: 14-Contact Person: Submitted by: 414 @ fax# 5 (STS) q_{ION} Ouan. (s/area) Vacuum D5755-95 (QTY) O Qual. (pres/abs) Vacuum/Dust. Quan. (s/area)Dust D6480-99. avay ANALYSIS ☐ ELAP 198.2/EPA 100.2. C ELAP 198.4/Chatfield D NY State PLM/TEM Oual. (pres/abs) Besidual Ash. Northern Carit BPA 100.1 NAI D Fax Copy: TEM Water TEM Dust 100 SP 75000/ 4026 WIPE AREA ₹ 7 VOLUME (LITERS) 283 7/15/922 Fax #. 7 7/15 2//5 DATE (013) (01X)_(QTY) SAMPLE INFORMATION (QTY) Partitioner care CATACA Cont Community front tom wa Baile Tolke Tru SAMPLE LOCATION A STOR Wease include COC/field data sheets with Date & Time Results Required: TEM Air - Please Indicate Filter Type:
PC MCE Porosity in a 25mm 37mm in a 25mm 37mm (OTY) (013) Client Name: Ale tionel # ||30 ⊕ (OTX) _(QTY) 5 PCM Air - Please Indicate Filter Type: Grav. Reduction ELAP 198.6 Mailing/Billing Information: PLM Bulk MEPA 600 - Visual Estimate_ NY State Friable 198.1 C EPA Point Count_ PC MCE Porosity Other (specify, Other (specify Asbestos Analysis ☐ NIOSH 7400_ UNIOSH 7402. CLIENT ID NUMBER Fiberglass Address 1: Address 2: Address 3: O AHERA Phone # O Verbals:

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Initials:

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By (Print): _

LABORATORY STAFF ONLY: (CUSTODY)

2. Date/Time Analyzed: 3. Results Reported To:

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APPENDIX IV ASBESTOS RESULTS



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Chain Of Custody: Date Analyzed: 84 Old Orangeburgh Road; Orangeburgh, New National Guard Armory Job Name: 301-IH Old Bay Lane, Attn: NGB-AVN-SI, National Guard Bureau

Not Provided 14-4876 York Job Location: P.O. Number: Job Number:

> Havre de Grace, Maryland 21078 State Military Reservation

> > Attention:

Person Submitting:

8/1/2008 159404

Page 1 of 2

Summary of Polarized Light Microscopy

	MA Sample Client Total Number Sample# Asbestos	Chrysotile Percent	Amosite	rocidolite Percent	Other Asbestos Percent	Mineral Wool Percent	Mineral Fiberglass Wool Percent	Organic Percent	Synthetic	Other Percent	Particulate Percent	Sample	Mineral Fiberglass Organic Synthetic Other Particulate Sample Homogeneity Analyst Wool Percent Percent Percent Percent Color Percent	Analyst ID	Comments
1	2		1	E B	1	•	A VAINTER AND A	:	1		86	Off-White	Off-White Homogeneous	LBP	n sancial a la companya de la compan
	7	2	ı	ı	1	;	١	1	ŀ	ı	86	Off-White	Off-White Homogeneous	LBP	
	NAD	ł	:	1	ı	:	;	1	ı	:	100	Black	Homogeneous	LBP	
	NAD	:	ı	:	1	;	;	i	1	;	8	Black	Homogeneous	LBP	
	NAD	;	:	1	ı	30	ı	t	;	1	70	White	Homogeneous	LBP	
	NAD	ı	:	:	ı	30	1	t	1	1	70	White	Homogeneous	LBP	
	NAD	ŧ	;	:	ł	25	1	i	1		7,	W/hite	Homogeneous	100	

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Address: Client

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8/1/2008 159404 Chain Of Custody: Person Submitting: Date Analyzed: 84 Old Orangeburgh Road; Orangeburgh, New National Guard Armony Not Provided 14-4876 York Job Location: P.O. Number: Job Number: Job Name: 301-IH Old Bay Lane, Attn: NGB-AVN-SI, Havre de Grace, Maryland 21078 State Military Reservation National Guard Bureau Address: Cient

Summary of Polarized Light Microscopy

Page 2 of 2

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- Francis - Control of the Control o		A DESCRIPTION OF THE PERSON OF
AND COLUMN TO THE PROPERTY OF	e Other Mineral Fiberglass Organic Synthetic Other Particulate Sample Homogeneity Analyst Asbestos Wool Percent Percent Percent Percent Color ID Percent Percent	ALCOHOLOGICA TOTAL CONTRACTOR CON
	Sample Color	, idea (a
	Other Mineral Fiberglass Organic Synthetic Other Particulate Asbestos Wool Percent Percent Percent Percent Percent	
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	Crocidolite Percent	
EL CARROLLE A. L.	Amosite Percent	Mar. 1.1
	Chrysotile Percent	
	Total Asbestos	
	Client Total Chrysotile Amossie Crocidolite Sample# Asbestos Percent Percent Percent	
The state of the s	AMA Sample Client Total Chrysotile Amosite Crocidolite Number Sample# Asbestos Percent Percent Percent	Management () to management (

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

or trace (<1%) for asbestos may contain a significant quantity of asbestos. It is recommended that the additional analytical technique of TEM be used to check for asbestos fibers below the resolution limits TEM RECOMMENDATION - Please note, due to resolution limitations with optical microscopy and/or interference from matrix components of this sample, results which are reported via PLM as negative

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 d

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

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

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



submitted and accepted for the exclusive use of the chiral 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 as. 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 disclaims any have being and tiability for the accuracy and completeness of This report applies only to the samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a number to clients, the public, and these Laboratories, this report is this information. Residual sample material will be discarded in accordance with the appropriate regulatory guidelines, unless otherwise requested by the effect. NVIAP accreditation applies only to potarized light microscopy of built 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.

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CLA (CIS) 3 ate-Night* (*must be pre-scheduled) ŝ @ C1 1. Cut ZSSE (LABORATORY STAFF ONLY) 27V) ☐ Bulk (QTY) ☐ Surface Vieuum Dust ∞ CLIENT CONTACT (Q) Y : D Other (Specify. Control 356 45S Spore-Trap. (OTV) DBulk (OTY) Doust Wipe Formace (wipo type. Mold - Direct Microscopic Analysis 🦼 shone 🗱 (00) Dust Wipe (wipe type, O Orinking Veter Marchine. Signature:_ O Surface Swab D Waste Word – Dimmd. □24hr □48hr □72hr X 5 Day + □Immd, After-Hours" □24hr Afte Email Cop Paint Chip P.O. #: 🗀 Soil/Solid Lead Analysis O ICLP. A Air avas: Special LIT Reporting Information (Results will be provided as soon as technically feasible); 2177 PHONE XAII samples received in good condition unless otherwise noted. (TEM Water samples _______°C) Submittal Information: (OTV) (QTY) (717) X BULK ℹ × (OTY) (OTY) (STS) Job Location; Submitted by: Contact Perso @fax# (OTS) (Q1.Y) σ_{TOW} Job # 🗗 Quan. (s/area) Vacuum DS755-95 (OTY) Qual. (pres/abs) Vacuum/Dust. 3 Quan. (s/area)Dust D6480-99 OVIT ANALYSIS LI ELAP 198.2/EPA 100.2. D ELAP 198.4/Charfield w_{7d} O NY State PLM/TEM. Qual. (pres/abs). D Residual Ash. ☐ EPA 100.1 Wal O Fax Copy: TEM Water TEM Dust WIPE AREA Ţ VOI JUNE 108.2 (LITERS) ١ Dease include COC/field data specis with regular Fax# Burs 7/21/00 DATE (QTY) (QTV) 600 (OTY) SAMPLE INFORMATION (OTV) SAMPLE LOCATION/ PCM Air - Please Indicate Filter Type: PC MCE Porosity in a 25mm 37mm Grish _in a 25mm 37mm DENTHACATION 33.66 Cellis, T.1. (S) Old 13c-y 2558 (OTV) (OTY) @ cell # ない十 C'Y TEM Air - Please Indicate Filter Type: (017) Grav. Reduction ELAP 198.6 Mailing/Billing Information: Client Name: Northorn ğ FPA 600 - Visual Estimate, Phone #: 356 455 C NY State Friable 198.1 Address 2: Herve Ā PC MCTE Porosity Other (specify, 817-8-1 Asbestos Analysis C NIOSH 7400 UNIOSH 7402 Other (specify 817 - 8ŧ 27-4-CLIENTID C Fiberglass_ Address 1: NUMBER Address 3: 85 - CB L AHERA O Verbals:

ž <u>~</u> Contact: Comfact Lente/Thine Dare/Line: SCCVarticped 360 2 7.1007 7.75 168.1 7 ၁ 1109.3 j ŧ LR/Kuns 47/RENJE Kitchin 4456 Blent 100 2. Date/Time Analyzed: 3. Results Reported for 1. Date/Time RCVD: ABDIESTORY STAFF OF 2000

findink

4. Comments:

National Guard Region North

National Guard Readiness Center Industrial Hygiene Evaluation Orangeburg Readiness Center Orangeburg, NY 10962-1128

Prepared for:

National Guard Region North Industrial Hygiene Office 301 Old Bay Lane Havre De Grace, MD 21078

Attn:

Non-Responsive

Prepared by:

Bonus Environmental, LLC P.O. Box 121 Mt. Pleasant, Michigan 48804

> Project No. 1061-15 January 10, 2013

Bonus Environmental, LLC

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APPENDICES

Appendix A Shop Diagram and Air Flow Patterns

Appendix B Lead Sample Results

Appendix C Photographs

Appendix D References

January 10, 2013 Project No. 1061-15

National Guard Region North Industrial Hygiene Office 301 Old Bay Lane Havre De Grace, MD 21078-4003

Attn: Non-Responsive

Project: Industrial Hygiene Evaluation

Orangeburg Readiness Center, Orangeburg, NY 10962-1128

1.0 - EXECUTIVE SUMMARY

Bonus Environmental, LLC was contracted by the National Guard Bureau Region North Industrial Hygiene office to identify and measure the existence and extent of potentially hazardous operations or conditions at the Orangeburg Readiness Center, located at 84 Old Orangeburg Road in Orangeburg, NY. The purpose of this evaluation was to generate or to update a previous baseline evaluation so that employee exposure history can be provided to each civilian and military employee. The following industrial hygiene conditions were evaluated during this industrial hygiene evaluation performed by Bonus Environmental, LLC representative Non-Responsive on October 31, 2012:

- Indoor Air Quality
- Lead Wipe & Bulk Sampling
- Illumination
- Ergonomics

Evaluation of the physical condition of the facility in regards to peeling paint, asbestos containing materials, water damage or mold problems, and housekeeping practices.

The Orangeburg Readiness Center is an Army National Guard armory comprised of offices, classrooms, locker rooms, storage rooms, a drill hall, supply rooms, a boiler room, maintenance bays, a kitchen, a mess hall, and a former indoor firing range. The point of contact for the approximately 26,750 ft² Orangeburg Readiness Center is Mr. Non-Responsive Five (5) full-time administrative personnel are employed at the Orangeburg Readiness Center. No Health and Safety programs were available for review during the survey, although Superintendant Mr. Stated that he believed current applicable programs include Hazcom, personal protective equipment (PPE), and Respiratory Protection. A shop diagram depicting the locations of the operations and air flow patterns identified during this industrial hygiene evaluation is attached to this report as Appendix A.

The National Guard Bureau Region North Industrial Hygiene Office provided governmental furnished equipment and sampling media required to perform the industrial hygiene evaluation. Chain of custody forms for laboratories approved by the National Guard Bureau Region North Industrial Hygiene Office were provided with the sampling media. All samples collected during this industrial hygiene evaluation were sent to the National Guard Bureau Region North Industrial Hygiene Office approved laboratories for analysis.

2.0 – LEAD SAMPLING

2.1 – Lead Wipe Sampling

Lead wipe sampling was performed according to the Environmental Protection Agency (EPA) method 600/R-93/200(M)-7420 (Atomic Absorption - Flame). Twelve (12) wipe samples and one (1) field blank were sent under chain-of-custody procedures to AMA Analytical Services, Inc., an American Industrial Hygiene Association (AIHA) accredited laboratory located in Lanham, Maryland. The U.S. Department of Labor (USDOL) and the Occupational Safety and Health Administration (OSHA) do not have a promulgated standard for lead surface contamination; however OSHA has provided an interpretive level of 200 micrograms per square foot (μg/ft²) to assess the housekeeping requirements of "as free as reasonably practicable". This interpretation is presented in OSHA Industrial Hygiene Technical Manual (TED 01-00-015; 1/20/1999), and in a letter of interpretations dated 1/13/2003, and subsequently issued to public domain. NG Pam 420-15 addresses the conversion and remediation of former indoor firing ranges. The following table outlines the locations and analytical results for the lead wipe samples collected during this project.

	A	rmy National Guard – Orangeburg Readiness Cent Lead Wipe Sample Results	er	
Sample #	Sample Date	Sample Location	Sample Area (ft²)	Sample Result (µg/ft²)
Orangeburg RC-LW-1	10-31-12	Field Blank		< 12 μg
Orangeburg RC-LW-2	10-31-12	Drill Hall, on center of floor	0.111	190
Orangeburg RC-LW-3	10-31-12	Drill Hall, on window sill	0.111	150
Orangeburg RC-LW-4	10-31-12	Drill Hall, on filing cabinet	0.111	< 110
Orangeburg RC-LW-5	10-31-12	Drill Hall, on top of electrical panel #1	0.111	12,000
Orangeburg RC-LW-6	10-31-12	Drill Hall, on top of work table	0.111	< 110
Orangeburg RC-LW-7	10-31-12	Kitchen, on top of heater	0.111	330
Orangeburg RC-LW-8	10-31-12	Former Indoor Firing Range, bullet trap area	0.111	18,000
Orangeburg RC-LW-9	10-31-12	Former Indoor Firing Range, on top of light fixture	0.111	21,000
Orangeburg RC-LW-10	10-31-12	Former Indoor Firing Range, on exhaust fan grill	0.111	8,000
Orangeburg RC-LW-11	10-31-12	Women's Locker Room, on top of locker #68	0.111	< 110
Orangeburg	10-31-12	Company Commander's Office, on air conditioning unit	0.111	< 110

	A	rmy National Guard – Orangeburg Readiness Cente Lead Wipe Sample Results	r	
Sample #	Sample Date	Sample Location	Sample Area (ft²)	Sample Result (µg/ft²)
RC-LW-12				
Orangeburg RC-LW-13	10-31-12	Maintenance Bay 2, on top of flammables cabinet	0.111	1,000

Surface cleanliness threshold = < 200 micrograms per square foot ($\mu g/ft^2$)

The former indoor firing range is currently used for storage. It is uncertain whether it was remediated to the protocols specified in NG Pam 420-15. Remediation wipe sample results were not posted, nor were any signs posted restricting access to the area. The bullet trap was not still in the "bullet trap area".

3.0 - PHYSICAL CONDITION OF FACILITY / PERSONNEL CONCERNS

3.1 - Lead Based Paint

During the industrial hygiene evaluation of the Orangeburg Readiness Center, Bonus Environmental, LLC performed a visual inspection of the facility in regards to lead based paint. Bonus Environmental, LLC identified several areas of peeling paint which could potentially pose a lead exposure hazard. Bonus Environmental, LLC identified peeling white paint in the Kitchen and the Hallway; peeling beige paint in the Drill Hall, Women's Locker Room, Locker Room and the Hallway; peeling green paint in the Former Indoor Firing Range. Three (3) paint chip samples were collected and sent under chain-of-custody procedures to AMA Analytical Services, Inc., an AIHA accredited laboratory located in Lanham, MD. Analysis indicated that each of the peeling paints collected contained detectable levels of lead. The paints are therefore considered to be lead-based paint. The OSHA Lead in Construction Standard, 29 CFR 1926.62 does not assign a numerical value of which must be present within the paint to be considered lead based paint. Paints which contain any detectable level of lead shall be treated and handled as lead based paint. Housing and Urban Development (HUD) defines lead based paint as having greater than 0.5% lead by weight. Paint chip sample results are attached to this report as Appendix B.

3.2 – Presumed Asbestos Containing Materials

During the industrial hygiene evaluation of the Orangeburg Readiness Center, Bonus Environmental, LLC performed a visual inspection to identify presumed asbestos containing materials (PACM) and, if found, to note their condition. Bonus Environmental, LLC did not identify any PACM that was considered to be in poor or damaged condition.

3.3 - Water Damage/Mold Growth

During the industrial hygiene evaluation of the Orangeburg Readiness Center, Bonus Environmental, LLC performed a visual inspection to report the location and perform an evaluation of any water damaged building materials and/or visible mold problems. Bonus Environmental, LLC identified approximately 10 ft² of water-stained dropped-ceiling tiles, approximately 27 ft² of water damaged (brick and drywall) walls and ceiling and approximately 1 ft² of moldy brick located in the Locker Room.

3.4 - Housekeeping

During the industrial hygiene evaluation of the Orangeburg Readiness Center, Bonus Environmental, LLC performed an evaluation of the housekeeping practices. Bonus Environmental, LLC found the housekeeping practices within Orangeburg Readiness Center facility in good order.

3.5 – Employee Interviews

During the industrial hygiene evaluation of the Orangeburg Readiness Center, Bonus Environmental, LLC did not perform any interviews, as there were no employees onsite on the day of the industrial hygiene evaluation (due to Hurricane Sandy mobilizations). Therefore, no indoor air quality concerns were identified. No ergonomics issues were noted by Bonus Environmental, LLC.

3.6 – Indoor Air Quality

During the industrial hygiene evaluation of the Orangeburg Readiness Center, Bonus Environmental, LLC measured temperature, relative humidity, carbon monoxide (CO), and carbon dioxide (CO₂) throughout the facility. A calibrated TSI Q-Trak Plus Model 7575 Indoor Air Quality Monitor equipped with a Q-Trak Probe 982 was utilized to record indoor air quality measurements.

Carbon dioxide is a natural component of air and the amount of CO₂ in a given air sample is commonly expressed as parts per million (ppm). The outdoor air in most locations contains about 380 ppm carbon dioxide. Higher outdoor CO₂ concentrations can be found near vehicle traffic areas, industry and sources of combustion. The concentrations of CO₂ found in most offices are well below the OSHA Permissible Exposure Limit (PEL) of 5,000 ppm when averaged over an 8-hour time period for an industrial workplace. While levels below 5,000 ppm are considered to pose no serious health threat, studies have indicated that individuals in offices with elevated CO₂ concentrations tend to report drowsiness, lethargy and a general sense that the air is stale. Ventilation rates for office spaces are defined by various codes and standards. The most widely accepted standard is the American Society of Heating, Refrigerating, and Air Conditioning Engineers (ASHRAE) Standard 62. According to ASHRAE Standard 62.1-2010, CO₂ concentrations below 700 ppm above the outdoor level are considered to indicate adequate ventilation and provide human comfort. The CO₂ measurements collected during this industrial hygiene evaluation ranged from 396 ppm to 536 ppm and indicate adequate ventilation within the facility.

Carbon monoxide is a colorless, odorless, poisonous gas that results from the incomplete burning of common fuels such as natural or liquefied petroleum gas, oil, wood or coal. When carbon monoxide is inhaled, it enters the blood stream and reduces the ability of the blood to carry oxygen to vital organs, such as the heart and brain. Because it is impossible to see, taste or smell the toxic fumes, CO can harm you before you are aware it is in your work area. At lower levels of exposure, CO causes mild effects that are often mistaken for the flu. These symptoms include headaches, dizziness, disorientation, nausea and fatigue. The effects of CO exposure can vary greatly from person to person depending on age, overall health and the concentration and length of exposure. The OSHA has established a permissible exposure limit (PEL) of 50 parts per million (ppm). OSHA standards prohibit worker exposure to more than 50 parts of the gas per million parts of air averaged during an 8-hour time period. The peak CO level for employees is 200 ppm. The CO measurements collected during this industrial hygiene evaluation ranged from 3.8 ppm to 5.1 ppm. CO levels were well below the OSHA PEL during this industrial hygiene evaluation.

During the industrial hygiene evaluation of the Orangeburg Readiness Center, Bonus Environmental, LLC collected temperature measurements. Temperature measurements throughout the common areas of the facility routinely occupied by employees ranged from 65.4°F to 72.3°F and are considered to be within an acceptable range outlined within ASHRAE Standard 55-2010.

During the industrial hygiene evaluation of the Orangeburg Readiness Center, Bonus Environmental, LLC collected relative humidity measurements. Relative humidity measurements throughout common areas of the facility routinely occupied by employees ranged from 40.4% to 52.5%. Indoor air quality measurements recorded during this industrial hygiene evaluation are summarized in the table below.

Army National Gua Indoor A	ırd – Orangebu ir Quality Mea		Center	
Location	CO ₂ (ppm)	CO (ppm)	Relative Humidity (%)	Temperature (°F)
Outdoors, Southwest side of Building (overcast)	411	3.9	39.4	59.7
Company Commander's Office	431	4.0	45.3	69.3
Orderly Room	436	3.9	46.9	69.0
Office	454	3.8	48.7	68.2
N.C.O. Den	536	5.0	45.5	71.8
Kitchen	472	4.8	42.3	71.6
Drill Hall	430	4.5	43.1	69.3
Maintenance Bay 3	396	5.1	40.4	65.4
Boiler Room	471	4.8	42.9	72.3
Women's Locker Room	425	4.9	45.7	69.5
Former Indoor Firing Range (Storage)	452	4.2	52.5	70.7

Required/Recommended Values

CO₂ - OSHA PEL = 5,000 parts per million (ppm) and ASHRAE Standard 62.1-2010 = no greater than 700 ppm above outdoor

CO - OSHA PEL = 50 ppm and OSHA Ceiling Limit = 200 ppm

Temperature - ASHRAE Standard 55-2010 = between approximately 67 and 82 °F.

RH - ASHRAE Standard 62.1-2010 = limited to < 65%

4.0 - VENTILATION SYSTEM EVALUATION

4.1.1 - Vehicle Exhaust System

An exhaust hood ventilation system was identified in the Orangeburg Readiness Center during the industrial hygiene evaluation. The ventilation system consisted of a central exhaust fan and series of flexible ductwork. The exhaust fan was mounted at the ceiling and exhausted directly to the outdoors through the roof of the building. The exhaust ventilation system was installed for the purpose of removing diesel exhaust fumes. A TSI VelociCalc Air Velocity Meter Model 9555-P was utilized to collect measurements of each exhaust ventilation "snorkel" duct. The table below details the results of the ventilation system evaluation in the Maintenance Shop.

Orangeburg Readiness Center							
Ventilation	System Evaluation -	Vehicle Exhaust	System				
Location	Measured Average Face Velocity (fpm)	Calculated Volumetric Flow (cfm)	Area of the Opening (ft²)	Sufficient Air Flow			
North	113	23	0.20	N/A			
South	55	11	0.20	N/A			

cfm = cubic feet per minute, calculated by multiplying the measured face velocity by the area of the opening, **fpm** = feet per minute.

Figure VS-85-02 on page 13-151 of the ACGIH "A Manual of Recommended Practice for Design, 27th Edition" specifies that tailpipe exhaust ventilation volumes for operating engines connected directly to a tailpipe exhaust system are to be determined by the engine displacement, the engine RPM, and tailpipe exhaust temperature, plus a 20% safety factor. Bonus Environmental, LLC was informed while onsite that there is no vehicle maintenance performed at the Orangeburg Readiness Center.

5.0 – LIGHTING

Utilizing a properly calibrated Cooke Corporation cal-Light 400 light meter, Bonus Environmental, LLC collected illumination readings throughout the Orangeburg Readiness Center. Illumination measurements recorded during this industrial hygiene evaluation are summarized in the table below.

Army National Guard Lightin	– Orangeburg Reading Measurements	liness Center	
Location	Measurement in Foot Candles	Requirement in Foot Candles	Requirement Met?
Commander's Office	18.8	50	No
Women's Locker Room	30.3	7	Yes
Women's Restroom	82.0	5	Yes
Recruiting Sergeant's Office	31.4	50	No
Orderly Room	37.6	50	No
Office	28.4	50	No
First Sergeant's Office	33.3	50	No
Office	50.8	50	Yes
Unisex Restroom	19.0	5	Yes
Men's Locker Room	26.5	7	Yes
Men's Restroom	161.8	5	Yes
N.C.O. Den	60.5	10	Yes
Classroom	26.6	30	No
Mess Hall	23.7	10	Yes
Kitchen	32.4	50	No
Hallway	15.7	5	Yes
Drill Hall	17.2	30	No
Office	11.6	50	No
Storage 1	20.3	30	No
Storage 2	13.9	30	No
Storage 3		Inaccessible	
Electronic Maintenance	16.2	30	No
Supply		Inaccessible	

Army National Guard – Orangeburg Readiness Center Lighting Measurements								
Location	Measurement in Foot Candles	Requirement in Foot Candles	Requirement Met?					
Maintenance Bay 1	17.0	75	No					
Maintenance Bay 2	28.6	75	No					
Maintenance Bay 3	34.1	75	No					
Maintenance Bay 4	15.6	75	No					
Maintenance Bay 5	18.9	75	No					
Women's Locker Room		Lighting Inoperable						
Storage		Inaccessible						
Women's Restroom	11.2	5	Yes					
Women's Shower		Lighting Inoperable						
Locker Room	5.8	7	No					
Boiler Room	99.2	30	Yes					
Storage	14.1	30	No					
Locker Room	17.8	7	Yes					
Storage Room	10.5	30	No					
Former Indoor Firing Range (storage)	29.3	30	No					
Hallway	29.1	5	Yes					
Former Indoor Firing Range, storage area	23.4	30	No					

Lighting levels were compared to the levels outlined within the American National Standards Institute/Illuminating Engineering Society of North America (ANSI/IESNA) RP-1-04 Office Lighting Handbook, and the ANSI/IESNA RP-7-01 Lighting Industrial Facilities Handbook. Areas within the facility which did not meet the foot candle requirements are identified with a "NO" within the "Requirement Met?" column. It is recommended that illumination be improved in all the areas that did not meet the requirements. Improving illumination can be achieved by replacing burned-out lamps/bulbs, cleaning fixtures, relocating detailed work activities to more illuminated areas, and using supplemental task lighting.

6.0 - CONCLUSION & LIMITATIONS

Bonus Environmental, LLC was contracted by the National Guard Bureau Region North Industrial Hygiene office to identify and measure the existence and extent of potentially hazardous operations or conditions at the Orangeburg Readiness Center, located at 84 Old Orangeburg Road in Orangeburg, NY. The purpose of this evaluation was to generate or to update a previous baseline evaluation so that employee exposure history can be provided to each civilian and military employee. Industrial hygiene conditions were evaluated during this industrial hygiene evaluation performed by Bonus Environmental, LLC representative Non-Responsive on October 31, 2012.

The results/findings of this industrial hygiene evaluation are summarized below.

- 1. Lead wipe sample results collected within the Orangeburg Readiness Center were above the OSHA interpretive level of 200 μ g/ft², as well as the 200 μ g/ft² threshold established in NG Pam 420-15 in the following areas:
 - Drill Hall, on top of the electrical panel #1
 - Kitchen, on top of heater

- Former Indoor Firing Range, bullet trap area
- Former Indoor Firing Range, on top of light fixture
- Former Indoor Firing Range, on exhaust fan grill
- Maintenance Bay 2, on top of flammables cabinet
- 2. Bonus Environmental, LLC identified several areas of peeling paint which contained detectable levels of lead, potentially posing a lead exposure hazard.
- 3. Bonus Environmental, LLC did not identify any PACM that was considered to be in poor or damaged condition.
- 4. Bonus Environmental, LLC identified approximately 27 ft² of water damaged drywall.
- 5. Bonus Environmental, LLC identified approximately 10 ft² of stained drop ceiling tile from three locations in the Orangeburg Readiness Center.
- 6. Bonus Environmental, LLC identified approximately 1 ft² of moldy brick in the Locker Room.
- 7. Bonus Environmental, LLC found the housekeeping practices within Orangeburg Readiness Center in good order.
- 8. No ergonomic concerns were identified.
- 9. Bonus Environmental, LLC measured temperature, relative humidity, CO, and CO₂ throughout the Orangeburg Readiness Center. All were found to be below or within their acceptable ranges/limits.
- 10. Areas within the Orangeburg Readiness Center facility were identified as improperly illuminated.
- 11. No Health and Safety policies were available for review.
- 12. Exhaust ventilation was measured in the maintenance bays, although vehicle maintenance does not occur within the Orangeburg Readiness Center.

Bonus Environmental, LLC has 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 Region North - Industrial Hygiene Office. 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 Bonus Environmental, LLC's inspection of the site.

It has been a pleasure to be of assistance to you. Please contact us if you have any questions concerning this report or if we can be of any further assistance in any other environmental or occupational health matter.

Sincerely,

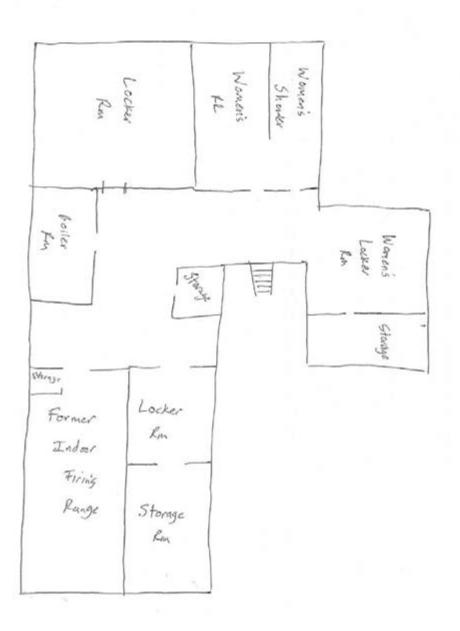


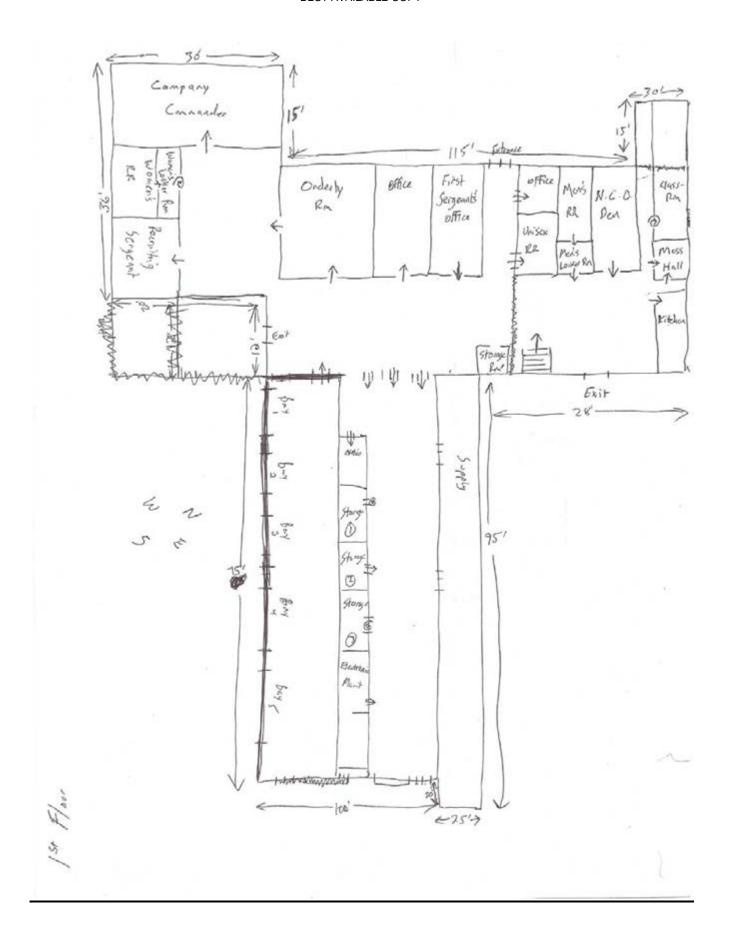
Principal Bonus Environmental, LLC

Orangeburg RC_12_Report.docx

Appendix A

Shop Diagram and Air Flow Patterns





Appendix B

Lead Sampling Results

AMA Analytical Services, Inc.



CERTIFICATE OF ANALYSIS



Client:

National Guard Bureau

Job Name:

Orangeburg RC

W912K6-09-A-0003

Chain Of Custody:

514423

Address:

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

Job Location:

84 Old Orangeburg Road, Orangeburg, NY 10962-1128

Date Submitted:

11/6/2012

State Military Reservation

Job Number:

P.O. Number:

Havre de Grace, Maryland 21078

1061-15

Person Submitting:

Date Analyzed:

11/13/2012 Report Date: 11/13/2012

Attention:

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 (ff ²)		orting imit	Total ug	Final Res	sult	Comments
13011845	OrangeburgRC-PC-1	Flame	Paint Chip	****	N/A	0.011	%Pb		0.035	%Pb	
13011846	OrangeburgRC-PC-2	Flame	Paint Chip	****	N/A	0.0066	%Pb		0.36	%Pb	
13011847	OrangeburgRC-PC-3	Flame	Paint Chip	****	N/A	0.0074	%Pb		0.1	%Pb	
13011848	OrangeburgRC-LW-	Flame	Wipe Blank	****	N/A	12	ug		<12	ug	
13011849	OrangeburgRC-LW- 2	Flame	Wipe	****	0.111	110	ug/ft²	21	190	ng/ft²	
13011850	OrangeburgRC-LW- 3	Flame	Wipe	****	0.111	110	ug/ft²	17	150	ug/fl²	
13011851	OrangeburgRC-LW- 4	Flame	Wipe	****	0.111	110	ug/ft²	<12	<110	ug/fl²	
13011852	OrangeburgRC-LW- 5	Flame	Wipe	****	0.111	110	ug/Ĥ²	1300	12000	ug/ft²	
13011853	OrangeburgRC-LW-	Flame	Wipe	****	0.111	110	ug/it²	<12	<110	ug/ft²	
13011854	OrangeburgRC-LW-	Flame	Wipe	****	0.111	110	ug/ft²	37	330	ug/ft³	
13011855	OrangeburgRC-LW- 8	Flame	Wipe	****	0.111	110	ug/it²	2000	18000	ug/ft²	
13011856	OrangeburgRC-LW- 9	Flune	Wipe	****	0.111	110	ug/ft²	2400	21000	tig/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 nutural protection to clients, the public, and these Laboratories, this report is submitted and accepted for the exclusive use of the client to when 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 confifcation, approval, or endorsement by NY ELAP, AlHA, or any agency of the Federal Government. All rights reserved. AMA Analytical Services, Inc.

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

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AMA Analytical Services, Inc.



CERTIFICATE OF ANALYSIS



Client:

National Guard Bureau

Job Name:

P.O. Number:

Orangeburg RC

Chain Of Custody: 514423

Address:

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

84 Old Orangeburg Road, Orangeburg, NY

Date Submitted:

State Military Reservation

Job Location:

10962-1128

W912K6-09-A-0003

11/6/2012

Havre de Grace, Maryland 21078

Job Number: 1061-15

Person Submitting: Date Analyzed:

11/13/2012 Report Date:

Attention:

N/A = Not Applicable

Summary of Atomic Absorption Analysis for Lead

Page 2 of 2

11/13/2012

AMA Sample Number	Client Sample Analysis Type Sample Type Air Volume Area Wiped Number (L) (R2)		Area Wiped (ft²)	ed Reporting Limit		Total ug	Final Result		Total ug Final Result	Comments	
13011857	OrangeburgRC-LW-	Flune	Wipe	****	0.111	110	ug/ft²	890	8000	ug/ff²	
13011858	OrangeburgRC-LW- 11	Flune	Wipe	****	0.111	110	ug/ft²	<12	<110	ug/fl²	
13011859	OrangeburgRC-LW- 12	Flame	Wipe	****	0.111	110	ug/ft²	<12	<110	ug/fl²	
13011860	OrangeburgRC-LW- 13	Flame	Wipe	****	0.111	110	ug/ît²	110	1000	ug/ft²	

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

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

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.



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 elicint 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 personned 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.

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

CHAIN OF CUSTODY

(Please Refer To This Number For Inquires)

514423

2 Address 1. 20							1. Job Name Orangehury RC												
2. Address I: 301-IH Old Bay Lane					2 1	2. Job Location: 34 Old Orangelorg Rd, Orangeborg, NY 10962-1128													
d Address Is He	III NOD-AVIN-	N-date Will	aly Nesel	Valium			_ 3, Ji	3. Job #:											
4. Address 3: H2	vie de Grace,	, Maryland 21	0/8	V 010 000			- 4. C	onlact	Perso	INC	// /-	10	Sh	UII	511	@ phone	Reenoneive		
5. Phone #: <u>(410) 9</u>											253,455		661	VO. 200	N. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.	ature:	responsive		
Reporting I	ito (Results pr	ovided as soor	ı as techni	cally feasil	ole). If	no T/	T/Repor	ing In	fo is 1	provid	ed, Al	IA w	ill ass	ign de	fault	s of 5-Day and em	ail/fax to contacts	on file.	
AFTER HOURS (must be pre-scheduled) Immediate Date Due:			☐ Immediate ☐ 3 Day				AL BUSIN	BUSINESS HOURS								REPORT TO:			
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Surface Sampling Field Data Sheet

Date Collected: 10-31-12	Job Name: Orangebury RC	Company: Bonys Environmental 40
Job Number: 1061-15 Contact Perso Non-Responsive	Job Location: Address: St. Ed. Decar by a d.d. a	Phone Number 999 -779 7191
	Address: 84 Old Orangeburg Ad, Orangeburg, NY 10962-1128	Collected By: Non-Responsive

Sample Number	Sample Location	Surface/Substrate Sampled	Area Wiped (in²/ft²)	Collection
Orangeburg RC- LW-1	Field Blank		(10/11)	Media Ghost
Orangeburg RL- LW-J	Drill Hall	Du Center of Floor	1/4 5.111	wife
Orangeburg RC- LW-3	Orill Hall	On Wildow Sill	4" * 4"	
Orangeburg Re- LW-4	Irill Hall	On Filing Cabinet		
Organebusy Al- LW-5	Drill Hall			
Orangeburg Ac- LW-6	Drill Hall	On top of Electrical lanes #1 On top of work table		
Orangebury Re- LW-7	Kitchen	On top of Heater		
Oceangeburg RC-LV-8		Bullet trup Area		
Orangebug LC- LW-9	Former Indoor Firing Lange	On top of light fixture		
Orangeburg Re- Lw-10	Former Index Firing Range	On Exhaust Fan Dail		
Oigngeburg Rc- Llw-11	Wanen's Locker An	On top of Locker # 68		
Drangeborg RC- LU-12	Company Commander's Office	On Air Conditioning Unit		
Drangebry RC- LW-13	Charren Maintenner Bay 2	On top of Flau ables Cabinet	$\overline{}$	



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



Appendix C

Photographs



Building exterior, west side



Office next to 1st Sgt office, stained dropped-ceiling tile



Drill Hall



Building exterior, SW side



Hallway, looking NW



Maintenance Bays 1-5 (storage)



Maintenance Bay 2, flammables cabinets



Maintenance Bay 4, vehicle exhaust ventilation



Hallway, water-damaged wall and ceiling



Kitchen



Basement locker room, suspected mold growth on wall



Boiler room



Former indoor firing range (storage)



Basement hallway, peeling beige paint



Former indoor firing range, peeling green paint



Basement hallway, peeling white paint

Appendix D

References

- 1. Department of Defense Instruction (0001) 6055.1, Department of Defense Occupational Safety and Health (OS H) Program, August 19, 1998.
- 2. Army Regulation (AR) 11-34, The Army Respiratory Protection Program, February 15, 1990.
- 3. DA PAM 40-503, Medical Service, Industrial Hygiene Program, October 30, 2000.
- 4. Technical Manual (T.M) 5-810-1, Mechanical Design, Heating, Ventilation, and Air Conditioning, June 1991.
- 5. Threshold Limit Values (TLVs) and Biological Exposure Indices (BEls), American Conference of Governmental Industrial Hygienists (ACGIH), current edition.
- 6. UFC 3-410-01 FA Heating, Ventilating, and Air Conditioning, 15 May 2003, change 4 January 2010
- 7. Occupational Safety and Health Administration (OSHA) Lead in Construction Standard, 29 CFR 1926.62.
- 8. Army Regulation (AR) 385-10, The Army Safety Program, August 23, 2007/RAR 4 Oct 2011.
- 9. RP-1-2004, Office Lighting, Illuminating Engineering Society of North America / American National Standards Institute (IESNA/ANSI).
- 10. RP-7-2001, Industrial Lighting, (IESNA/ANSI).
- 11. The American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE), Standard 62.1-2010, "Ventilation for Acceptable Indoor Air Quality".
- 12. ASHRAE Standard 55-2010 "Thermal Environmental Conditions for Human Occupancy"
- 13. Title 24, CFR, Part 35, Subpart B, Sections 35.110, Definitions of Lead-Based Paint, Housing and Urban Development, U.S. Department of Housing.
- 14. OSHA Permissible Exposure Limit (PEL) for General Industry 29 CFR 1910.1000 Z-1 Table
- 15. Guidelines on Assessment and Remediation of Fungi in Indoor Environments, New York City Department of Health and Mental Hygiene, November 2008.
- 16. Mold Remediation in Schools and Commercial Buildings, U.S. Environmental Protection Agency, March 2001
- 17. Army Facilities Management Information Document on Mold Remediation Issues TG277, February 2002
- 18. NG PAM 420-15, Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges, 3 November 2006.



DEPARTMENT OF THE ARMY

US ARMY CENTER FOR HEALTH PROMOTION AND PREVENTIVE MEDICINE 5158 BLACKHAWK ROAD ABERDEEN PROVING GROUND MD 21010-5403

MCHB-TS-OFS

8 MAY 2006

MEMORANDUM FOR Region North Industrial Hygiene Office (NGB-AVS-SI-IH/Ms.Non-Responsive), Army National Guard Bureau, 301-IH Old Bay Lane, Havre de Grace, MD 21078

SUBJECT: New York Army National Guard Facilities Industrial Hygiene Survey, Rochester Armory, Rochester, New York, Report No. 55-ML-048L-05/06

- 1. We are enclosing a copy of the subject report with an Executive Summary.
- 2. Our point of contact is Mr. Non-Responsive, at commercial (410) 436-5475/3118, DSN 584-5475/3118 or electronic mail: Non-Responsive @us.army.mil

FOR THE COMMANDER:

Non-Responsive

Encl

Director, Occupational Health Sciences

Readiness thru Health



U.S. Army Center for Health Promotion and Preventive Medicine



INDUSTRIAL HYGIENE SURVEY REPORT NO. 55-ML-048L-05/06 NEW YORK NATIONAL GUARD FACILITIES ROCHESTER ARMORY ROCHESTER, NEW YORK **4 OCTOBER 2005**







The U.S. Army Center for Health Promotion and Preventive Medicine (USACHPPM) lineage

Until 1995, it was nationally and internationally known as the U.S. Army Environmental Hygiene Agency or AEHA. Its mission is expanding to support the worldwide preventive medicine programs of the Army, DOD and other Federal Agencies through consultations/ supportive services; investigations and training.

Today, AEHA is redesignated the U.S. Army Center for Health Promotion and Preventive Medicine. Its mission for the future is to provide worldwide technical support for implementing preventive medicine, public health and health promotion/wellness services into all aspects of America's Army and the Army Community anticipating and rapidly responding to operational needs and adaptable to a changing work environment.

The professional disciplines represented at the Center include chemists, physicists, engineers, physicians, optometrists, audiologists, nurses, industrial hygienists, toxicologists, entomologists, and many other as well as sub-specialties within these professions.

The organization's quest has always been one of excellence and continuous quality improvement; and today its vision, to be the nationally recognized Center for Health Promotion and Preventive Medicine, is clearer than ever. To achieve that end, it holds ever fast to its values which are steeped in its rich heritage:

- ♦ Integrity is the foundation
- ♦ Excellence is the standard
- ♦ Customer satisfaction is the focus
- ♦ Its people are the most valued resource
- ♦ Continuous quality improvement is its pathway

The organization, which stands on the threshold of even greater challenges and responsibilities, has General Officer leadership. As it moves into the next century, new programs are being added related to health promotion/wellness, soldier fitness and disease surveillance. As always, its mission focus is centered upon the Army Imperatives so that we are trained and ready to enhance the Army's readiness for war and operations other than war.

It is an organization fiercely proud of its history, yet equally excited about the future. It is destined to continue its development as a world-class organization with expanded services to the Army, DOD, other Federal Agencies, the Nation and the World Community.

CHPPM FORM 433-E (MCHB-CS-IPD), OCT 03 (reverse



DEPARTMENT OF THE ARMY

US ARMY CENTER FOR HEALTH PROMOTION AND PREVENTIVE MEDICINE 5158 BLACKHAWK ROAD ABERDEEN PROVING GROUND MD 21010-5403

MCHB-TS-OFS

EXECUTIVE SUMMARY
INDUSTRIAL HYGIENE SURVEY
REPORT NO. 55-ML-048L-05/06
NEW YORK NATIONAL GUARD FACILITIES
ROCHESTER ARMORY
ROCHESTER, NEW YORK
4 OCTOBER 2005

1. PURPOSE. To conduct surveys at the New York Army National Guard (NYARNG) facility, Rochester Armory to identify and measure the existence and extent of potentially hazardous operations or conditions. This survey will serve to establish a baseline so that an occupational exposure history can be compiled for each civilian or military employee.

2. CONCLUSIONS.

- a. <u>Lead Exposure</u>. Levels of lead in dust that exceeded safe limits for adults and children were identified. These levels may result in health hazards to adults and to children visiting the Armory. Personnel working in the Armory may have been tracking dust-containing lead throughout the facility. Cleaning areas with elevated levels of lead in dust may further prevent lead from becoming redistributed throughout the Armory.
- b. <u>Asbestos</u>. The date of construction (1991) indicated that the use of asbestos-containing building materials was unlikely. No potential asbestos-containing materials were identified.
- c. <u>Safety and Occupational Health Programs</u>. The Rochester Armory did not have an updated written Hazard Communication Program (HAZCOM).
- d. <u>Heating, Ventilation, and Air Conditioning (HVAC) Systems</u>. There was no maintenance program in place for the HVAC system.
- e. <u>Lighting</u>. In the professional judgment of the project lead, the lighting levels were adequate.
 - f. Other Building Concerns. Fire extinguishers were not maintained properly.

Readiness thru Health



EXSUM, NYARNG, Industrial Hygiene Survey, Rochester Armory, Rochester, NY, Report No. 55-ML-048L-05/06, 4 October 2005

3. RECOMMENDATIONS.

- a. <u>Lead Exposure</u>. Health Risk Assessment Code (RAC) 3 for child exposures. Health RAC 4 for adult exposures. Address all potential lead hazards before continuing to extend the use of this facility to children. Clean horizontal surfaces in the Indoor Firing Range (IFR) to the National Guard Bureau (NGB) Region North and US Army Center for Health Promotion and Preventive Medicine (USACHPPM) recommended maximum level. If children will visit this facility, clean the floors in the Drill Hall and IFR bullet trap area to the Environmental Protection Agency and New York State lead in dust standards for young children, and clean other horizontal surfaces in the vault to the NGB Region North and USACHPPM recommended maximum level. Ensure that personnel wear disposable gloves and disposable coveralls as extra protection when working in all areas identified as having elevated levels of lead. Consult with the NYARNG Environmental Coordinator concerning waste disposal requirements after clean up.
 - b. <u>Asbestos Exposure</u>. No recommendation required.
- c. <u>HAZCOM Program</u>. Health RAC 3. Develop and implement a written program that is specific to the Rochester Armory.
- d. <u>HVAC System</u>. Health RAC 4. Develop and implement an HVAC maintenance program. Include provisions for regularly scheduled filter replacement and documentation of maintenance performed.
 - e. <u>Lighting</u>. Quantify light levels in follow-on assessments.
 - f. Indoor Air Quality. Health RAC 5. No recommendation required.
- g. Other Building Concerns. Safety RAC 3. Inspect building fire extinguishers monthly. Mark tags kept on the extinguishers with the initials of the person conducting the inspection. Wall mount fire extinguishers in appropriate locations and ensure that they are not obstructed.

NYARNG, Industrial Hygiene Survey, Rochester Armory, Rochester, NY, Report No. 55-ML-048L-05/06, 4 October 2005

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INDUSTRIAL HYGIENE SURVEY REPORT NO. 55-ML-048L-05/06 NEW YORK NATIONAL GUARD FACILITIES ROCHESTER ARMORY ROCHESTER, NEW YORK 4 OCTOBER 2005

- 1. REFERENCES. See Appendix A.
- 2. PURPOSE. To conduct surveys at the New York Army National Guard (NYARNG) facilities, Rochester Armory, to identify and measure the existence and extent of potentially hazardous operations or conditions. This survey will serve to establish a baseline so that an occupational exposure history can be compiled for each civilian or military employee.
- 3. AUTHORITY. Electronic mail, National Guard Bureau Region North, Industrial Hygiene Office (NGB-AVS-SI-IH/Ms. Non-Responsive), 27 July 2005, subject: SAB.
- 4. BACKGROUND.
 - a. <u>Date of Construction</u>. The construction date was 1991.
- b. <u>Size of Facility</u>. The facility had a floor area of approximately 86,000 square foot. It was a two-story building.
 - c. <u>Mission</u>. Support activities for the 105th Military Police Company.
- d. <u>Armory Use by Children</u>. The point of contact (POC) stated that children occupied the facility occasionally during special events.
- e. <u>Point of Contact</u>. The POC was Mr Facilities Management Supervisor, 250 Weidner Road, Rochester, NY 14020-1275, Phone: (585) 783-5300.
- 5. FACILITY EVALUATION.
- a. <u>Sampling</u>. Surface lead in dust and air sampling was conducted to determine the existence of lead hazards based on regulatory guidelines. Results are shown in Appendix B.
 - b. Physical Condition of Facilities.
- (1) Paint. The date of construction of the facility indicated that the use of lead in paint was unlikely.

- (2) Asbestos. The POC reported that the building had no history of asbestos-containing material or suspected asbestos containing material. The date of construction made its presence unlikely.
- (3) Mold and Moisture Problems. No mold or moisture problems were observed or reported.
- (4) Building Physical Condition. The building was in good condition and had been well maintained.
- (5) Indoor Firing Range (IFR). The POC reported that lead abatement in the IFR had been completed and that the area was being used for storage.
- c. <u>Safety and Occupational Health Programs</u>. The POC stated that a Hazard Communication (HAZCOM) Program was in place. A written program was not available.
- d. <u>Heating, Ventilation, and Air Conditioning (HVAC) Systems</u>. The building utilized a gas heating system and central air system for cooling. The POC stated that the building's HVAC system was being updated as part of building renovations being conducted at the time of the site visit. There was no HVAC maintenance plan other than putting tags on filters that needed replacing.
- e. <u>Noise Dosimetry</u>. No operations with the potential to generate hazardous noise levels were identified.
- f. <u>Lighting</u>. The scope of work for this survey called for measurement of lighting levels in areas where there may have been a potential problem, based on professional judgment. The National Guard Bureau (NGB) verbally requested that light levels be measured throughout facilities. Due to miscommunication, the project lead visiting this site did not quantify light levels, but did use professional judgment in assessing the lighting levels.
- g. <u>Indoor Air Quality (IAQ)</u>. The IAQ assessment included measuring temperature in degrees Fahrenheit (° F), relative humidity (RH) in percent, and carbon dioxide (CO₂) levels in parts per million (ppm) in different locations throughout the facility. Measurements were taken in the Classroom, Drill Hall, Dining Hall, and IFR. The American Society of Heating, Refrigeration, and Air-conditioning Engineers (ASHRAE) recommends maintaining 71-81° F in the summer, CO₂ levels below the value of 700 ppm plus the outdoor ambient level (approximately 380 ppm), and 30-60 percent RH.

h. Other Building Concerns. Fire extinguishers. One extinguisher had electrical wire wrapped around it, and two others were kept in the corner on the floor. One had no inspection tags. See photographs in Appendix D.

6. ASSESSMENT CRITERIA FOR LEAD. See Appendix C.

- a. <u>Lead in Air</u>. The Army complies with the Occupational Safety and Health Administration (OSHA) 8-hour time-weighted average Permissible Exposure Limit of 50 micrograms of lead per cubic meter (µg/m³) of air.
- b. <u>Lead in Dust</u>. The Environmental Protection Agency (EPA) and State of New York limits for lead in dust are 40 micrograms per square foot ($\mu g/ft^2$) on floors, 250 $\mu g/ft^2$ on windowsills, and 400 $\mu g/ft^2$ in window troughs. These limits apply to pre-1978 Army facilities only if children under 6 years of age occupy them for 60 or more hours per year. The NGB Region North concurs with the U.S. Army Center for Health Promotion and Preventive Medicine (USACHPPM) recommended maximum level of 200 $\mu g/ft^2$ on floors and frequently contacted surfaces, which is more stringent for windowsills than the EPA/State standards. This limit was adopted from OSHA guidance in Compliance Letter 02-02-58.
- c. <u>Lead in Paint</u>. Paint containing lead levels of 0.5 percent or more by weight in dried solid (also reported as 5,000 milligrams per kilogram) is considered lead-based paint according to both Federal and New York State Regulations.
- d. <u>Lead Carcinogenicity</u>. The Department of Health and Human Services National Toxicology Program (NTP) released the Report on Carcinogens, Eleventh Edition in February 2005. The NTP report lists "lead and lead compounds" as "reasonably anticipated being human carcinogens".

7. SAMPLING RESULTS, DISCUSSION, AND CONCLUSIONS.

- a. <u>Lead in Dust</u>. Lead in dust sample locations and analytical results are shown in Appendix B. Sample results greater than $40 \,\mu\text{g/ft}^2$ on floors or $200 \,\mu\text{g/ft}^2$ on frequently contacted surfaces are highlighted.
- b. <u>Lead in Air</u>. General area lead in air sampling was conducted in the Drill Hall, Dining Hall, Classroom, and IFR. The air sample results were less than $17 \,\mu\text{g/m}^3$, and were below the laboratory analytical reporting limit for lead in air of $16 \,\mu\text{g/sample}$, as well as the OSHA standard of $50 \,\mu\text{g/m}^3$ for lead in air over an 8-hour day.

- c. IAQ. The temperature averaged 74° F, RH averaged 59 percent, and CO₂ levels averaged 438 ppm. All values were within ASHRAE recommendations.
- d. Asbestos. The date of construction (1991) indicated that the use of asbestos-containing building materials was unlikely. No potential asbestos-containing building materials were identified.
- e. Safety and Occupational Health Programs. The Rochester Armory did not have an updated written HAZCOM Program.
 - f. <u>HVAC Systems</u>. There was no maintenance program in place for the HVAC system.
- g. Lighting. In the professional judgment of the project lead, the lighting levels were adequate.
 - h. Other Building Concerns. Fire extinguishers were not maintained properly.
- 8. RECOMMENDATIONS. The Department of Defense Instruction 6055.1 provides Risk Assessment Codes (RACs) for health hazards, a procedure which allows assessment of the magnitude of exposure to physical, chemical, and biological agents and the possible medical effects of exposure. The RAC is an expression of the risk associated with the hazard and combines the hazard severity and accident probability into a single number. The RACs enable one to prioritize hazards. They range in magnitude from 1 to 5, with 1 being the highest priority.
- a. Lead Exposure. Health RAC 3 for child exposures. Health RAC 4 for adult exposures. Address all potential lead hazards before continuing to extend the use of this facility to children. Clean horizontal surfaces in the IFR to the NGB Region North and USACHPPM recommended maximum level. If children will visit this facility, clean the floors in the Drill Hall and IFR bullet trap area to the EPA and New York State lead in dust standards for young children, and clean other horizontal surfaces in the vault to the NGB Region North and USACHPPM recommended maximum level. Ensure that personnel wear disposable gloves and disposable coveralls as extra protection when working in all areas identified as having elevated levels of lead. Consult with the NYARNG Environmental Coordinator concerning waste disposal requirements after clean up.
 - b. <u>IAQ</u>. Health RAC 5. No recommendation required.
 - c. Asbestos Exposure. No recommendation required.

- d. <u>Hazard Communication</u>. Health RAC 3. Develop and implement a written program that is specific to the Rochester Armory.
- e. <u>HVAC Systems</u>. Health RAC 4. Develop and implement an HVAC maintenance program. The plan should include provisions for regularly scheduled filter replacement and documentation of maintenance performed.
 - f. <u>Lighting</u>. Quantify light levels in follow-on assessments.
- g. Other Building Concerns. Safety RAC 3. Inspect building fire extinguishers monthly. Mark tags kept on the extinguishers with the initials of the person conducting the inspection. Wall mount fire extinguishers in appropriate locations and ensure that they are not obstructed.
- PHOTOGRAPHS. See Appendix D.
- 10. ADDITIONAL ASSISTANCE. For additional assistance or questions concerning this report; please contact the undersigned at commercial 410-436-3118, DSN 584-3118, or by electronic mail: Non-Responsive @us.army.mil



Industrial Hygienist
Industrial Hygiene Field Services Program

APPROVED:

Non-Responsive

Program Manager Industrial Hygiene Field Services Program

APPENDIX A

REFERENCES

Literature Cited

- 1. Occupational Safety and Health Administration, Title 29, Code of Federal Regulations (CFR), Part 1910, current ed.
- http://www.osha.gov/comp-links.html
- 2. American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. (ASHRAE) 62-2002, Ventilation for Acceptable Indoor Air Quality. http://www.ashrae.org
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- 6. EPA 40 CFR Part 745, Lead; Identification of Dangerous Levels of Lead; Final Rule, 5 Jan 2001.
- 7. American Conference of Governmental Industrial Hygienists (ACGIH), Industrial Ventilation, 25th edition, 2004.
- 8. Department of Defense Instruction (DODI) 6055.1, Department of Defense Occupational Safety and Health (OSH) Program, 19 August 1998. http://www.dtic.mil/whs/directives/corres/pdf/i60551_081998/i60551p.pdf
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- 10. Environmental Protection Agency, Title 40 CFR, Part 61, National Emission Standards for Hazardous Air Pollutants, Subpart M-National Emission Standard for Asbestos.

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NYARNG Industrial Hygiene Survey, Rochester Armory, Rochester, NY Report No. 55-ML-048L-05/06, 4 October 2005

11. OSHA Directive CPL 02-02-58, Lead Exposure in Construction; Interim Final Rule – Inspection and Compliance Procedures, December 13, 1993.

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NYARNG Industrial Hygiene Survey, Rochester Armory, Rochester, NY Report No. 55-ML-048L-05/06, 4 October 2005

APPENDIX B

SAMPLING RESULTS

APPENDIX B Lead in Surface Dust Locations and Analytical Results

Wipe Sample	Location	Results
Number		(ug/ft^2)
ROW-01	Drill Hall – NW Corner	36
ROW-02	Drill Hall – NE Corner	18
ROW-03	Drill Hall – SE Corner	<mark>110</mark>
ROW-04	Drill Hall – SW Corner	11
ROW-06	Drill Hall - Center	<mark>77</mark>
ROW-07	IFR – Bullet Trap Floor	180
ROW-08	IFR – Storage Area	8.3
ROW-09	IFR – HVAC, Not Currently Operational	450
ROW-11	Kitchen Stove Top Shelf	<2.7
ROW-12	Dining Hall – Table Top	<2.7
ROW-13	Class Room, Room 192	<2.7
ROW-14	Stairway, Front Lobby	11
ROW-16	Office Bookshelf, Room 205	11
ROW-17	Office Conference Table, Room 205	140
ROW-18	Office Supply Grille, Room 223	77
ROW-19	Office Desk, FTEE, Room 223	3.5
ROW-21	Classroom, Room 222	<2.7
ROW-22	Vault, Co G, Table Top Next to Door	4.6
ROW-23	Vault #16	18
ROW-24	Office Room 287	7.4

Lead in Air Locations and Analytical Results.

Air Sample Number	Location of Samples	Result (µg/m ³)
RO-A01	Indoor Firing Range (IFR)	<17
RO-A02	Classroom	<17
RO-A03	Dining Hall	<17
RO-A04	Drill Hall	<17

APPENDIX C

ASSESSMENT CRITERIA FOR LEAD

SUBJECT: National Guard Bureau Region North Industrial Hygiene Office Proposed Recommendations for Surface Lead in Armories

- 1. In armories that do not contain childcare facilities, the National Guard Bureau (NGB) Region North Industrial Hygiene Office recommends cleaning the areas in which sample results are greater than 200 micrograms per square foot ($\mu g/ft^2$). If a special function will be held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function. This guidance is based on professional judgment, risk assessments, adaptation of Occupational Safety and Health Administration (OSHA) guidance, and feasibility of cleaning to a certain level.
- a. Environmental Protection Agency (EPA) standards (40 Code of Federal Regulations (CFR) 745.227(h)(3)) are not directly applicable because they are criteria for dust-lead hazards developed for floors (40 μ g/ft²) and windowsills (250 μ g/ft²) in residential dwellings and child occupied facilities. A child occupied facility is defined as a building, or portion of a building, constructed prior to 1978, visited regularly by the same child, 6 years of age or under, on at least two different days within any week (Sunday through Saturday period), provided that each day's visit lasts at least 3 hours and the combined weekly visit lasts at least 6 hours, and the combined annual visits last at least 60 hours. Most of the wipe samples in armories were collected in undisturbed areas and therefore, results are worst case scenarios and do not correlate to these standards.
- b. OSHA has no specific requirement for work area surfaces. The lead standard (29 CFR 1910.1025(h)) states that all surfaces shall be maintained as free as practicable of accumulations of lead dust. In workplaces where lead dust is generated, surface levels may be much higher, but personnel exposures can be controlled by limiting airborne lead levels and following good cleanup and hygienic practices.
- c. OSHA used to cite a level of 200 μ g/ft² in their Technical Manual and 29 CFR 1926.62 as guidance to its own inspectors for evaluating the cleanliness of lunchroom and locker room surfaces that are supposed to be kept as clean as possible.
- d. In a report titled Derivation of Wipe Surface Screening Levels for Environmental Chemicals, the US Army Center for Health Promotion and Preventive Medicine (USACHPPM) has determined that $200~\mu\text{g/ft}^2$ is a safe surface contamination level. They have also applied these standards as the decontamination levels for surfaces in administrative offices.

- e. It should be noted that levels above these recommendations do not necessarily mean there is a significant hazard to workers who are following good cleaning and hygienic practices since there is no correlation between wipe and air samples. Rather, we recommend these levels as a precautionary measure.
- 2. The NGB Occupational Health Branch is developing guidance for armories that are used as childcare facilities. All states will receive this guidance when it is completed. In the interim, we recommend the following actions:
- a. Clean all areas that will be accessible to children to the EPA dust-lead standard for children 6 years of age or under ($40 \mu g/ft^2$ on floors and $250 \mu g/ft^2$ on windowsills).
- b. Refer to the local authorities' regulations since they can be more stringent than federal regulations.
 - c. Post signs in the area to inform people of the presence of lead dust and its effects.
- d. If soldiers clean weapons in the facility change the policy so that they cannot clean their weapons in the facility, or if they are allowed to clean their weapons indoors, they must clean the area by wet wiping and mopping the area when they are done.
- e. If the paint is peeling, contact the state Environmental Office to test for lead content and provide recommendations.
- 3. Air samples collected on individuals in the armory were well below OSHA's permissible exposure limit for lead (29 CFR 1910.1025(c)) of 0.05 mg/m³ averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead dust in this building,

APPENDIX D

PHOTOGRAPHS



Drill Hall – NW corner



Drill Hall – NE corner



Drill Hall – SE corner



Drill Hall – SW corner

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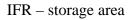




Drill Hall – center

IFR – Bullet trap area floor







IFR – ductwork

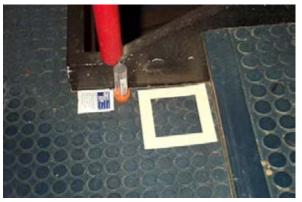




Kitchen – above stove shelf

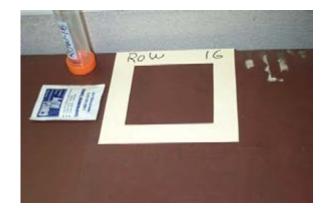
Dining Hall





Classroom

Front lobby stairway





Office common area bookshelf, Room 205

Office common area, Room 205

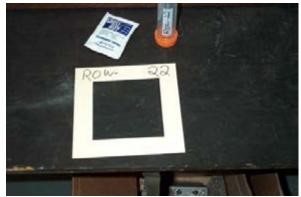


Office area air supply grille, Room 223



Office desk, Room 223





Classroom 222 Vault Co. 6







Fire extinguisher wrapped with wires



Fire extinguishers on floor

National Guard Region North

National Guard Readiness Center Industrial Hygiene Evaluation Rochester Readiness Center Rochester, NY 14624

Prepared for:

National Guard Region North Industrial Hygiene Office 301 Old Bay Lane Havre De Grace, MD 21078

Attn:

Non-Responsive

Prepared by:

Bonus Environmental, LLC P.O. Box 121 Mt. Pleasant, Michigan 48804

> Project No. 1061-15 February 12, 2013

Bonus Environmental, LLC

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APPENDICES

Appendix A Shop Diagram and Air Flow Patterns

Appendix B Lead Sample Results

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February 2, 2013 Project No. 1061-15

National Guard Region North Industrial Hygiene Office 301 Old Bay Lane Havre De Grace, MD 21078-4003

Attn: Non-Responsive

Project: Industrial Hygiene Evaluation

Rochester Readiness Center, Rochester, NY 14624

1.0 - EXECUTIVE SUMMARY

Bonus Environmental, LLC was contracted by the National Guard Bureau Region North Industrial Hygiene office to identify and measure the existence and extent of potentially hazardous operations or conditions at the Rochester Readiness Center located at 42 Patriot Way in Rochester, NY. The purpose of this evaluation was to generate or to update a previous baseline evaluation so that employee exposure history can be provided to each civilian and military employee. The following industrial hygiene conditions were evaluated during this industrial hygiene evaluation performed by Bonus Environmental, LLC representative Non-Responsive on November 28, 2012:

- Indoor Air Quality
- Lead Wipe & Bulk Sampling
- Illumination
- Ergonomics

 Evaluation of the physical condition of the facility in regards to peeling paint, asbestos containing materials, water damage or mold problems, and housekeeping practices.

The Rochester Readiness Center is an Army National Guard armory comprised of offices, classrooms, locker rooms, storage rooms, an auditorium, a drill hall, kitchens, conference rooms, a Mess hall, a boiler room, a break room, telecom/mechanical rooms, a fitness room, a garage, and a former indoor firing range (used for storage). The point of contact for the approximately 76,421 ft² Rochester Readiness Center is Mr. Michael Donovan. No Health and Safety programs were available to review during the survey. Thirty (30) full-time administrative personnel are employed at the Rochester Readiness Center. A shop diagram depicting the locations of the operations and air flow patterns identified during this industrial hygiene evaluation is attached to this report as Appendix A.

The National Guard Bureau Region North Industrial Hygiene Office provided governmental furnished equipment and sampling media required to perform the industrial hygiene evaluation. Chain of custody forms for laboratories approved by the National Guard Bureau Region North Industrial Hygiene Office were provided with the sampling media. All samples collected during this industrial hygiene evaluation were sent to the National Guard Bureau Region North Industrial Hygiene Office approved laboratories for analysis.

2.0 – LEAD SAMPLING

2.1 – Lead Wipe Sampling

Lead wipe sampling was performed according to the Environmental Protection Agency (EPA) method 600/R-93/200(M)-7420 (Atomic Absorption - Flame). Twenty four (24) wipe samples and one (1) field blank were sent under chain-of-custody procedures to AMA Analytical Services, Inc., an American Industrial Hygiene Association (AIHA) accredited laboratory located in Lanham, Maryland. The U.S. Department of Labor (USDOL) and the Occupational Safety and Health Administration (OSHA) do not have a promulgated standard for lead surface contamination; however OSHA has provided an interpretive level of 200 micrograms per square foot (μg/ft²) to assess the housekeeping requirements of "as free as reasonably practicable". This interpretation is presented in OSHA Industrial Hygiene Technical Manual (TED 01-00-015; 1/20/1999), and in a letter of interpretations dated 1/13/2003, and subsequently issued to public domain. NG Pam 420-15 addresses the conversion and remediation of former indoor firing ranges. The following table outlines the locations and analytical results for the lead wipe samples collected during this project.

Army National Guard – Rochester Readiness Center Lead Wipe Sample Results				
Sample #	Sample # Sample Date Sample Location		Sample Area (ft²)	Sample Result (µg/ft²)
Rochester RC- LW-1	11-28-12	Field Blank		< 12 μg
Rochester RC- LW-2	11-28-12	Drill Hall, on floor, South end	0.111	< 110
Rochester RC- LW-3	11-28-12	Drill Hall, on floor, North end	0.111	< 110
Rochester RC- LW-4	11-28-12	Drill Hall, on top of Amnesty box	0.111	< 110
Rochester RC- LW-5	11-28-12	Drill Hall, on top of the Fire Alarm System box	0.111	< 110
Rochester RC- LW-6	11-28-12	Drill Hall, on basketball hoop, West side	0.111	< 110
Rochester RC- LW-7	11-28-12	Kitchen, on paper towel dispenser	0.111	< 110
Rochester RC- LW-8	11-28-12	Storage (Former Indoor Firing Range), on floor, North end	0.111	1,300
Rochester RC- LW-9	11-28-12	Storage (Former Indoor Firing Range), on floor, South end	0.111	520
Rochester RC- LW-10	11-28-12	Storage (Former Indoor Firing Range), on top of emergency lighting	0.111	< 110
Rochester RC- LW-11	11-28-12	Mess Hall, on window sill	0.111	< 110
Rochester RC-	Rochester RC- 11-28-12 Break Room, on top of microwave 0.111 < 110			

Army National Guard – Rochester Readiness Center Lead Wipe Sample Results					
		Sample Area (ft²)	Sample Result (µg/ft²)		
LW-12					
Rochester RC- LW-13	11-28-12	Women's Locker Room, on top of locker # H-16	0.111	< 110	
Rochester RC- LW-14	11-28-12	2 nd Floor Kitchen, on heater grill	0.111	< 110	
Rochester RC- LW-15	11-28-12	Office 4-205, on window sill	0.111	< 110	
Rochester RC- LW-16	11-28-12	Classroom 4-213, on top of TV	0.111	< 110	
Rochester RC- LW-17	11-28-12	2 nd Floor Hallway, on top of AED box	0.111	< 110	
Rochester RC- LW-18	11-28-12	Office 267, on top of shelf	0.111	< 110	
Rochester RC- LW-19	11-28-12	Classroom 263, on top of podium	0.111	< 110	
Rochester RC- LW-20	11-28-12	Club 275, on top of ice machine	0.111	< 110	
Rochester RC- LW-21	11-28-12	Lobby 241-C, on top of filing cabinet	0.111	< 110	
Rochester RC- LW-22	11-28-12	Office 231, on window sill	0.111	260	
Rochester RC- LW-23	11-28-12	Office 213, on top of paper shredder	0.111	< 110	
Rochester RC- LW-24	11-28-12	Classroom 282, on top of TV	0.111	< 110	
Rochester RC- LW-25	11-28-12	Conference Room 280, on window sill	0.111	< 110	

Surface cleanliness threshold = < 200 micrograms per square foot ($\mu g/ft^2$)

The former indoor firing range is currently used as a storage room. It is uncertain whether it was remediated to the protocols specified in NG Pam 420-15. Remediation wipe sample results were not posted, nor were any signs posted restricting access to the area. It was reported to Bonus Environmental, LLC that the former indoor firing range is referred to as the "range" but was never used as one.

3.0 - PHYSICAL CONDITION OF FACILITY / PERSONNEL CONCERNS

3.1 - Lead Based Paint

During the industrial hygiene evaluation of the Rochester Readiness Center, Bonus Environmental, LLC performed a visual inspection of the facility in regards to lead based paint. Bonus Environmental, LLC did not identify any areas of peeling paint.

3.2 – Presumed Asbestos Containing Materials

During the industrial hygiene evaluation of the Rochester Readiness Center, Bonus Environmental, LLC performed a visual inspection to identify presumed asbestos containing materials (PACM) and, if found, to note their condition. Bonus Environmental, LLC did not identify any PACM that was considered to be in poor or damaged condition.

3.3 - Water Damage/Mold Growth

During the industrial hygiene evaluation of the Rochester Readiness Center, Bonus Environmental, LLC performed a visual inspection to report the location and perform an evaluation of any water damaged or visible mold problems. Bonus Environmental, LLC identified water-damaged and/or moldy building materials in the following locations:

- Approximately 2 ft² of stained/moldy dropped-ceiling tile (DCT) in the Mess hall;
- Approximately 1 ft² of stained DCT in Recruiter's office 126;
- Approximately 3 ft² of stained DCT in classroom 127;
- Approximately 1 ft² of stained DCT in office 4-205;
- Approximately 1 ft² of stained DCT in 2nd floor storage room;
- Approximately 4 ft² of stained DCT in 2nd floor, women's restroom;
- Approximately 1 ft² of stained DCT in classroom 282.

3.4 - Housekeeping

During the industrial hygiene evaluation of the Rochester Readiness Center, Bonus Environmental, LLC performed an evaluation of the housekeeping practices. Bonus Environmental, LLC found the housekeeping practices within Rochester Readiness Center facility in good order, with the exception of residual lead dust concentrations.

3.5 – Employee Interviews

During the industrial hygiene evaluation of the Rochester Readiness Center, Bonus Environmental, LLC performed interviews and made observations to determine if the work activities being performed possessed any ergonomic concerns. Following the interviews and observations, no ergonomic and or indoor air quality concerns were identified.

3.6 – Indoor Air Quality

During the industrial hygiene evaluation of the Rochester Readiness Center, Bonus Environmental, LLC measured temperature, relative humidity, carbon monoxide (CO), and carbon dioxide (CO₂) throughout the facility. A calibrated TSI Q-Trak Plus Model 7575 Indoor Air Quality Monitor equipped with a Q-Trak Probe 982 was utilized to record indoor air quality measurements.

Carbon dioxide is a natural component of air and the amount of CO₂ in a given air sample is commonly expressed as parts per million (ppm). The outdoor air in most locations contains about 380 ppm carbon dioxide. Higher outdoor CO₂ concentrations can be found near vehicle traffic areas, industry and sources of combustion. The concentrations of CO₂ found in most offices are well below the OSHA Permissible Exposure Limit (PEL) of 5,000 ppm when averaged over an 8-hour time period for an industrial workplace. While levels below 5,000 ppm are considered to pose no serious health threat, studies have indicated that individuals in offices with elevated CO₂ concentrations tend to report drowsiness, lethargy and a general sense that the air is stale. Ventilation rates for office spaces are defined by various codes and standards. The most widely accepted standard is the American Society of Heating, Refrigerating, and Air Conditioning Engineers (ASHRAE) Standard 62. According to ASHRAE Standard 62.1-2010, CO₂ concentrations below 700 ppm above the outdoor level are considered to indicate adequate ventilation and provide human comfort. The CO₂ measurements collected during this industrial hygiene evaluation ranged from 394 ppm to 564 ppm and indicate adequate ventilation within the facility.

Carbon monoxide is a colorless, odorless, poisonous gas that results from the incomplete burning of common fuels such as natural or liquefied petroleum gas, oil, wood or coal. When carbon monoxide is inhaled, it enters the blood stream and reduces the ability of the blood to carry oxygen to vital organs, such as the heart and brain. Because it is impossible to see, taste or smell the toxic fumes, CO can harm you before you are aware it is in your work area. At lower levels of exposure, CO causes mild effects that are often mistaken for the flu. These symptoms include headaches, dizziness, disorientation, nausea and fatigue. The effects of CO exposure can vary greatly from person to person depending on age, overall health and the concentration and length of exposure. The OSHA has established a permissible exposure limit (PEL) of 50 parts per million (ppm). OSHA standards prohibit worker exposure to more than 50 parts of the gas per million parts of air averaged during an 8-hour time period. The peak CO level for employees is 200 ppm. The CO measurements collected during this industrial hygiene evaluation ranged from 2.6 ppm to 8.9 ppm. CO levels were below the OSHA PEL during this industrial hygiene evaluation.

During the industrial hygiene evaluation of the Rochester Readiness Center, Bonus Environmental, LLC collected temperature measurements. Temperature measurements throughout the common areas of the facility routinely occupied by employees ranged from 60.1 °F to 67.7°F and are considered to be outside of an unacceptable range outlined within ASHRAE Standard 55-2010.

During the industrial hygiene evaluation of the Rochester Readiness Center, Bonus Environmental, LLC collected relative humidity measurements. Relative humidity measurements throughout common areas of the facility routinely occupied by employees ranged from 20.4% to 31.2%. Indoor air quality measurements recorded during this industrial hygiene evaluation are summarized in the table below.

Army National Guard – Rochester Readiness Center Indoor Air Quality Measurements					
Location	CO ₂ (ppm)	CO (ppm)	Relative Humidity (%)	Temperature (°F)	
Outdoors, south side of building (mostly cloudy)	394	8.9	36.4	39.1	
Mess Hall (112)	399	2.6	31.2	60.1	
Break Room (133) (3 people in room)	564	3.4	28.7	62.8	
Classroom (127)	414	4.1	26.1	62.4	
Men's Locker Room	409	4.0	24.4	63.6	
Office (4-205)	432	3.7	25.9	66.6	
Office (4-212)	408	4.3	21.9	67.3	
Conference Room (205)	419	4.0	23.3	67.1	
Classroom (282)	421	4.4	21.6	67.3	
Office (273)	416	4.7	20.4	67.7	
Drill Hall	422	5.0	25.0	61.3	

Required/Recommended Values

 $\overrightarrow{CO_2}$ - OSHA PEL = 5,000 parts per million (ppm) and ASHRAE Standard 62.1-2010 = no greater than 700 ppm above outdoor

CO - OSHA PEL = 50 ppm and OSHA Ceiling Limit = 200 ppm

Temperature - ASHRAE Standard 55-2010 = between approximately 67 and 82 °F.

RH - ASHRAE Standard 62.1-2010 = limited to < 65%

4.0 - LIGHTING

Utilizing a properly calibrated Cooke Corporation cal-Light 400 light meter, Bonus Environmental, LLC collected illumination readings throughout the Rochester Readiness Center. Illumination measurements recorded during this industrial hygiene evaluation are summarized in the table below.

Army National Guard – Rochester Readiness Center Lighting Measurements					
Location	Measurement in	Requirement in Foot	Requirement		
Location	Foot Candles	Candles	Met?		
Mess Hall (112)	139.3	10	Yes		
Storage Room (114)	12.4	30	No		
Paint Room		Inaccessible			
Telecommunications Room (122)	19.8	30	No		
Boiler Room (124)	8.2	30	No		
Kitchen Storage (125)	50.0	30	Yes		
Kitchen	97.8	50	Yes		
Dish Wash Area	59.1	30	Yes		
Break Room (133)	89.7	10	Yes		
Drill Hall	28.9	30	No		
Office (106)	26.8	50	No		
Women's Restroom (105)	49.7	5	Yes		
Men's Restroom (104)	21.2	5	Yes		
Office (102)	71.3	50	Yes		
Recruiters Office (126)	24.1	50	No		
Office (126A)	51.8	50	Yes		
Office (126B)	54.8	50	Yes		
Office (126C)	69.4	50	Yes		
Classroom (127)	106.9	30	Yes		

Army National Guard – Rochester Readiness Center Lighting Measurements					
Location	Measurement in Foot Candles	Requirement in Foot Candles	Requirement Met?		
Storage (132)	18.1	30	No		
Supply Room (131)	1011	Inaccessible			
Supply Room (133)		Inaccessible			
Supply Room (134)		Inaccessible			
Supply Room (135)		Inaccessible			
Supply Room (160)		Inaccessible			
Supply Room (152)		Inaccessible			
Supply Room (154)		Inaccessible			
Supply Room (140)		Inaccessible			
Supply Room (144)		Inaccessible			
Supply Room (144) Supply Room (142)		Inaccessible			
Supply Room (129)	40.0	Inaccessible	X 7		
Mechanical Room (3-103)	40.8	30	Yes		
Men's Locker Room	69.9	7	Yes		
Men's Restroom	14.2	5	Yes		
Men's Shower	69.6	7	Yes		
Men's Locker Room	26.8	7	Yes		
Fitness Room (3-118)		Inaccessible			
Janitors Room (3-107)	17.7	30	No		
Classroom (3-109)		Inaccessible			
Women's Restroom	28.9	5	Yes		
Women's Shower	21.7	7	Yes		
Women's Locker Room	45.8	7	Yes		
State Maintenance Room (3-117)	34.9	30	Yes		
Office (3-116)	46.7	50	No		
State Storage	82.9	30	Yes		
Vault (3-108)		Inaccessible			
Maintenance Garage (3-112) (storage)	5.8	30	No		
Office (3-115)	60.4	50	Yes		
Mechanical Room (3-110)	16.3	30	No		
Men's Restroom	10.7	5	Yes		
Women's Restroom	13.8	5	Yes		
Kitchen S Residoon	47.2	50	No		
Office (4-202)	40.3	50	No		
Office (4-202)	36.0	50	No		
Office (4-203)	25.7	50	No		
Office (4-204)	42.4	50	No		
Office (4-205)		50	No No		
` '	41.8				
Office (4-206)	34.0	50	No No		
Office (4-207)	43.3 50 No				
Office (4-208)	36.9 50 No				
Office (4-209)	30.3 50 No				
Janitor Room (4-210)	24.3 30 No				
Auditorium (4-216)	18.2 30 No				
Mechanical Room (4-211)	70.8 30 Yes				
Office (4-212)	51.9 50 Yes				
Office (4-212A)	54.5	50	Yes		

Army National Guard – Rochester Readiness Center Lighting Measurements					
Location	Measurement in Foot Candles	Requirement in Foot Candles	Requirement Met?		
Office (4-212B)	51.8	50	Yes		
Conference Room (4-212C)	56.2	30	Yes		
Classroom (4-213)	51.9	30	Yes		
Club (275)	28.1	10	Yes		
Classroom (264)	44.2	30	Yes		
Office (265)	11.7	50	No		
Office (273)	17.2	50	No		
Office	25.1	50	No		
Office (269)	37.6	50	No		
Office (1)	32.0	50	No		
Office (1)	12.5	50	No		
Computer Room (272)	28.4	30	No		
Office (273)	21.6	50	No		
Office (273)	34.5	50	No		
Office (268)	3.4	50	No		
Storage Room (274)	3.4	Inaccessible	110		
Office (277)	41.3	50	No		
Office (253)	17.3	50	No		
Office (254)	15.6	50	No		
Conference Room (249)	25.5	30	No		
Office (250)	23.2	50	No		
Office (250)	8.4	50	No		
Lobby (241A)	11.8	10	Yes		
Office (248)	37.9	30	Yes		
Office (247)	40.9	50	No		
Lobby (241B)	22.7	10	Yes		
Office (246)	19.4	50	No		
Office (245)	39.7	50	No		
Lobby (241C)	4.8	10	No		
Office (244)	19.9	50	No		
	33.8	30	Yes		
Storage (243) Office (242)	23.5	50	No		
	22.4	30	No		
Telecommunications Room (234)	12.2	7	Yes		
Men's Locker Room (238)		50			
Office (231)	28.5	50	No		
Office (223)	81.0		Yes		
Office (222)	36.9	50	No		
Women's Locker Room	38.5	· ·	Yes		
Conference Room (205)	69.7	30	Yes		
Office (221)	13.0	50	No		
Office (220)	28.5	50	No		
Office (219)	15.1	50	No		
Office (218)	24.6	50	No		
Office (217)	21.8	50	No		
Office (216)	37.9	50	No		
Office (214)	36.5	50	No		
Office (213)	42.7	50	No		

Army National Guard – Rochester Readiness Center Lighting Measurements					
Location	Measurement in Foot Candles	Requirement in Foot Candles	Requirement Met?		
Office (212)	11.8	50	No		
Storage Room	24.7	30	No		
Office (215)	34.6	50	No		
Office (211)	19.2	50	No		
Women's Restroom	49.3	5	Yes		
Men's Restroom	34.5	5	Yes		
Men's Locker Room	13.6	7	Yes		
Office (219)	25.7	50	No		
Office (219A)	20.8	50	No		
Office (219B)	35.0	50	No		
Classroom (282)	74.8	30	Yes		
Office (291)	26.9	50	No		
Office (292)	24.9	50	No		
Office (293)	25.8	50	No		
Office (294)	36.4	50	No		
Conference Room (280)	22.3	30	No		
Storage Room (Former Indoor Firing Range)	8.9	30	No		

Lighting levels were compared to the levels outlined within the American National Standards Institute/Illuminating Engineering Society of North America (ANSI/IESNA) RP-1-04 Office Lighting Handbook, and the ANSI/IESNA RP-7-01 Lighting Industrial Facilities Handbook. Areas within the facility which did not meet the foot candle requirements are identified with a "NO" within the "Requirement Met?" column. It is recommended that illumination be improved in all the areas that did not meet the requirements. Improving illumination can be achieved by replacing burned-out lamps/bulbs, cleaning fixtures, relocating detailed work activities to more illuminated areas, and using supplemental task lighting.

5.0 - CONCLUSION & LIMITATIONS

Bonus Environmental, LLC was contracted by the National Guard Bureau Region North Industrial Hygiene office to identify and measure the existence and extent of potentially hazardous operations or conditions at the Rochester Readiness Center located at 42 Patriot Way in Rochester, NY. The purpose of this evaluation was to generate or to update a previous baseline evaluation so that employee exposure history can be provided to each civilian and military employee. The following industrial hygiene conditions were evaluated during this industrial hygiene evaluation performed by Bonus Environmental, LLC representative Erica Funnell on November 28, 2012.

The results/findings of this industrial hygiene evaluation are summarized below.

- 1. Lead wipe sample results collected within the Rochester Readiness Center were above the OSHA interpretive level of 200 μ g/ft², as well as the 200 μ g/ft² threshold established in NG Pam 420-15 in the following areas:
 - Storage (Former Indoor Firing Range), on floor, north end;

- Storage (Former Indoor Firing Range), on floor, south end;
- Office 231, on window sill.
- 2. Bonus Environmental, LLC did not identify any areas of peeling paint within the Rochester Readiness Center.
- 3. Bonus Environmental, LLC did not identify any PACM that was considered to be in poor or damaged condition.
- 4. Bonus Environmental, LLC identified approximately 13 ft² of stained dropped-ceiling tile across seven locations, with approximately 2 ft² harboring suspected fungal growth in the Rochester Readiness Center.
- 5. Bonus Environmental, LLC found the housekeeping practices within Rochester Readiness Center in good order, with the exception of residual lead dust concentrations.
- 6. Following the interviews and observations, no ergonomic and or indoor air quality concerns were identified.
- 7. Bonus Environmental, LLC measured temperature, relative humidity, CO, and CO₂ throughout the Rochester Readiness Center. All were found to be within their acceptable ranges/limits; with the exception of several low temperature readings.
- 8. Areas within the Rochester Readiness Center facility were identified as improperly illuminated.
- 9. No Health and Safety programs were available for review at the Rochester Readiness Center.
- 10. The Maintenance Garage is used for storage. No maintenance is performed in the garage, and no vehicle exhaust ventilation system exists in the garage.

Bonus Environmental, LLC has 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 Region North - Industrial Hygiene Office. 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 Bonus Environmental, LLC's inspection of the site.

It has been a pleasure to be of assistance to you. Please contact us if you have any questions concerning this report or if we can be of any further assistance in any other environmental or occupational health matter.

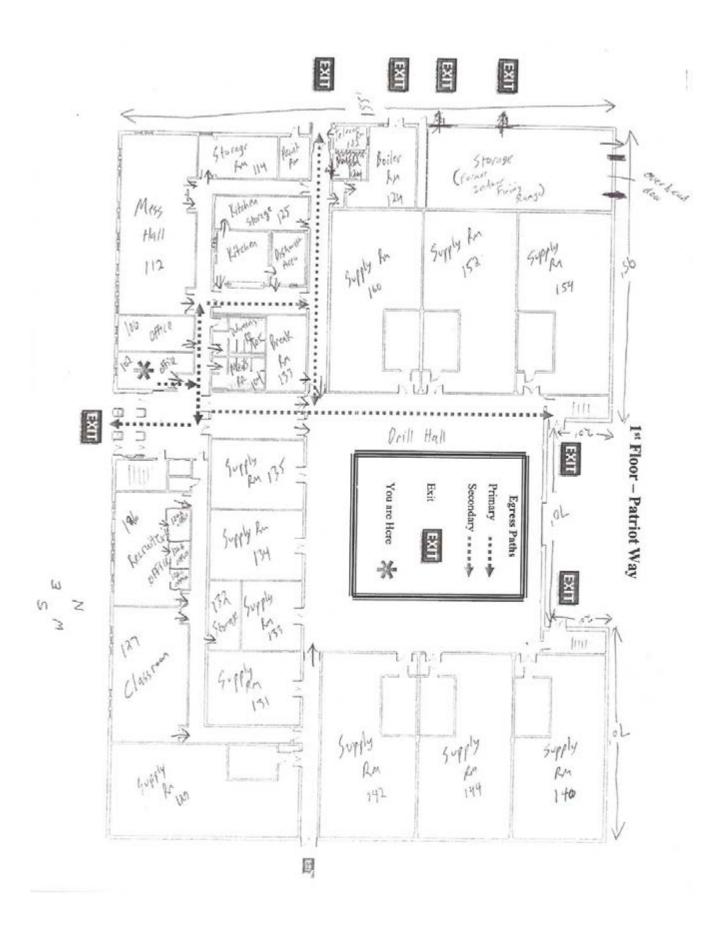
Sincerely,

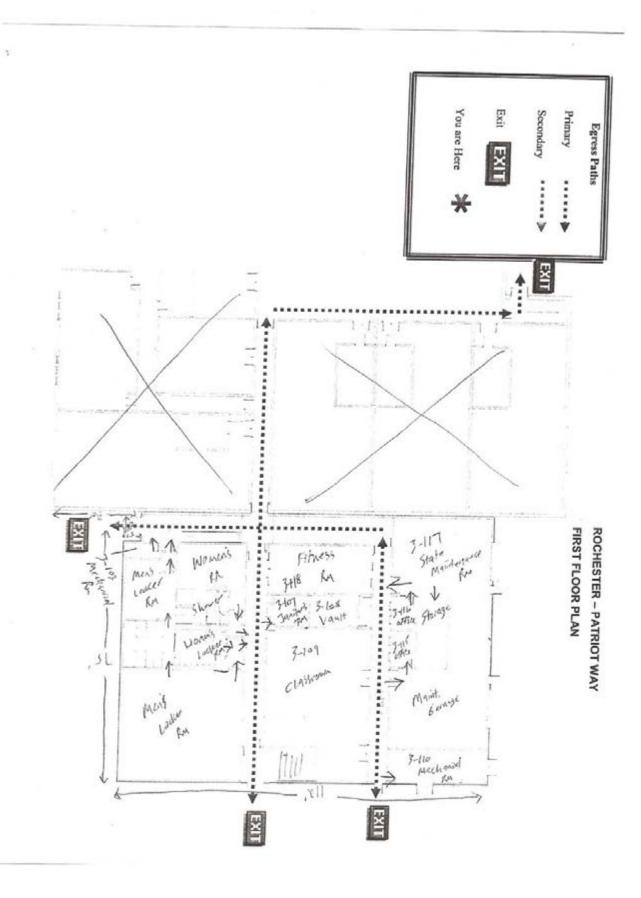


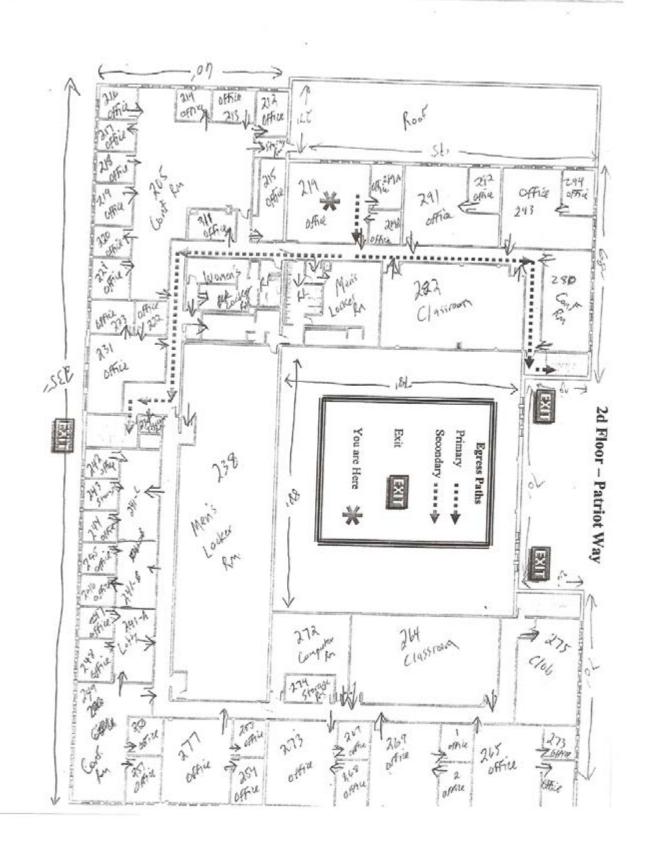
Principal Bonus Environmental, LLC

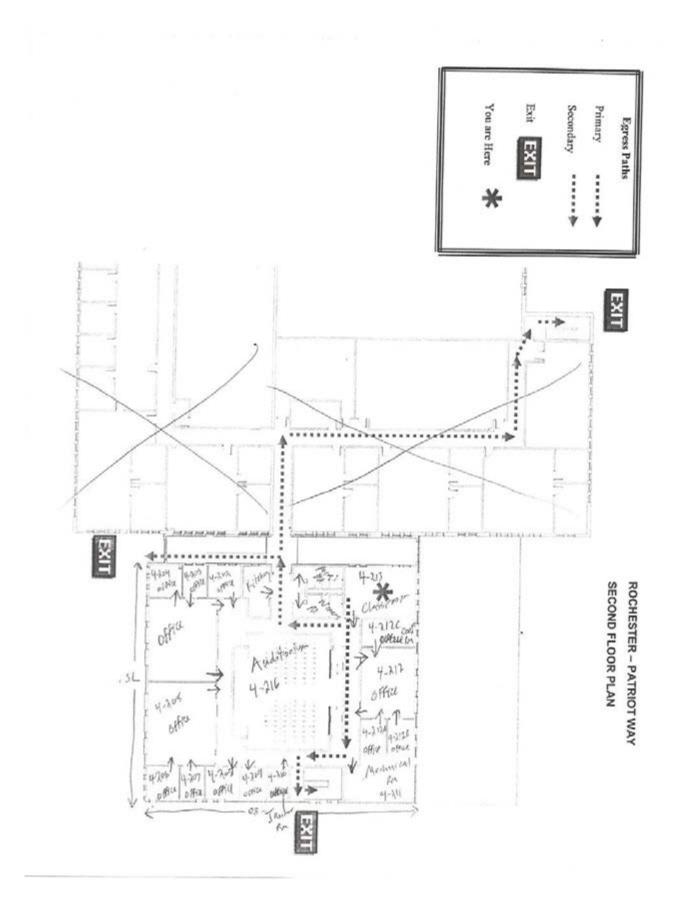
Appendix A

Shop Diagram and Air Flow Patterns









BEST AVAILABLE COPY

Appendix B

Lead Sampling Results

AMA Analytical Services, Inc.



CERTIFICATE OF ANALYSIS



Client:

National Guard Bureau

Job Name:

Rochester RC

Chain Of Custody:

514680

Address:

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

Job Location:

45 Patriot Way, Rochester, NY 14624

Date Submitted:

12/4/2012

State Military Reservation Havre de Grace, Maryland 21078

Job Number: P.O. Number: 1061-15

W912K6-09-A-0003

Person Submitting: Date Analyzed:

12/13/2012 Report Date:

12/17/2012

Attention:

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')	11000	porting Limit	Total ug	Final Res	sult	Comments
13019645	RochesterRC-LW-1	Flame	Wipe Blank	****	N/A	12	ug		<12	ug	
13019646	RochesterRC-LW-2	Flame	Wipe	****	0.111	110	ug/ft²	<12	<110	ug/fl²	
13019647	RochesterRC-LW-3	Flame	Wipe	****	0.111	110	ug/lt²	<12	<110	ug/fl²	
13019648	RochesterRC-LW-4	Flame	Wipe	****	0.111	110	ug/ft²	<12	<110	ug/fl²	
13019649	RochesterRC-LW-5	Flame	Wipe	****	0.111	110	ug/ft²	<12	<110	ug/fl²	
13019650	RochesterRC-LW-6	Flame	Wipe	****	0.111	110	ug/\hbar^2	<12	<110	ug/fl²	
13019651	RochesterRC-LW-7	Flame	Wipe	****	0.111	110	ug/ft²	<12	<110	ug/fl²	
13019652	RochesterRC-LW-8	Flame	Wipe	****	0.111	110	ug/ft²	140	1300	ug/fl²	
13019653	RochesterRC-LW-9	Flame	Wipe	****	0.111	110	ug/lt²	58	520	ug/fl²	
13019654	RochesterRC-LW-10	Flame	Wipe	****	0.111	110	ug/it²	<12	<110	ug/ft³	
13019655	RochesterRC-LW-11	Flame	Wipe	****	0.111	110	ug/ft²	<12	<110	ug/ft²	
13019656	RochesterRC-LW-12	Flame	Wipe	****	0.111	110	ug/ft²	<12	<110	ug/ft²	
13019657	RochesterRC-LW-13	Flame	Wipe	****	0.111	110	ug/ft²	<12	<110	ug/ft²	
13019658	RochesterRC-LW-14	Flame	Wipe	****	0.111	110	ug/ft²	<12	<110	ug/ft²	
13019659	RochesterRC-LW-15	Flame	Wipe	****	0.111	110	ug/ft²	<12	<110	ug/ft²	
13019660	RochesterRC-LW-16	Flame	Wipe	****	0.111	110	tig/ft²	<12	<110	ug/ft²	
13019661	RochesterRC-LW-17	Flame	Wipe	****	0.111	110	ng/ft²	<12	<110	ug/ft!	
13019662	RochesterRC-LW-18	Flame	Wipe	****	0.111	110	ug/fl²	<12	<110	ug/ft²	
13019663	RochesterRC-LW-19	Flame	Wipe	****	0.111	110	ug/ft²	<12	<110	ug/fl¹	

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 whem 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 enforsement 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

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AMA Analytical Services, Inc.



CERTIFICATE OF ANALYSIS



Client:

National Guard Bureau

Job Name:

Rochester RC

1061-15

Chain Of Custody:

514680

Address:

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

Job Location:

Job Number:

P.O. Number:

45 Patriot Way, Rochester, NY 14624

State Military Reservation

W912K6-09-A-0003

Date Submitted:

Person Submitting:

Date Analyzed:

12/4/2012

12/13/2012

Report Date: 12/17/2012

Attention:

N/A = Not Applicable

Havre de Grace, Maryland 21078

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 (ft³)	2000	oorting Limit	Total ug	Final Res	sult	Comments
13019664	RochesterRC-LW-20	Flame	Wipe	****	0.111	110	ug/ft²	<12	<110	ug/ft²	
13019665	RochesterRC-LW-21	Flame	Wipe	****	0.111	110	ug/A²	<12	<110	ug/fl²	
13019666	RochesterRC-LW-22	Flame	Wipc	****	0.111	110	ug/ft²	29	260	ug/ft²	
13019667	RochesterRC-LW-23	Flame	Wipe	****	0.111	110	ug/ft²	<12	<110	ug/ft²	
13019668	RochesterRC-LW-24	Flame	Wipe	****	0.111	110	ug/il ²	<12	<110	ug/fl²	
13019669	RochesterRC-LW-25	Flame	Wipe	****	0.111	110	ug/ft²	<12	<110	ug/ft²	
nalysis Method	for Flame: Air, Wipes, P	aints, and Soil/S	olids: EPA 600/F	R-93/200(M)-7000	B; Water: SM-31	11B	See QC	Summary for an	alytical result	s of quality co	ntrol samples

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

associated with these samples.

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

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

supplied information nor verified by this laboratory.

Analyz

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 writen authorization from us. Sample types, locations, and collection protoculs 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, urless otherwise requested by the client. This report must not be used to claim, and dies not imply product certification, approval, or endorsement by NY ELAP, AIIIA, or any agency of the Federal Government. All rights reserved. AMA Analytical Services, Inc.

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CHAIN OF CUSTODY

(Please Refer To This Number For Inquires)

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i. Phone #: (410) 9	42-0273 Far	k#:(41)	0) 942-02	54		_ 5.	Submit	ed by:							N	on-Res	ponsive	
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Surface Sampling Field Data Sheet

Date Collected: 11-28-13	Job Name: Rochester K	Company: Bonus Environmental 4
Job Number: 1061-15	Job Location:	Phone Number: 989 -779 - 7686
Contact Persc	Address: 42 Patriot Way	Collected By:
	Rochester NY 14624	COC Number

Sample Number	Sample Location	Surface/Substrate Sampled	Area Wiped (in ² /ft ²)	Collection Media
Rochester fi- Lw-1	Field Blank	-	- (m /1)	Chost
Rochester RC- LW-2	Drill Hall	On Floor, South and	4"x4"	wipe
Lochester RC- LW-3	Prill Hall	Da Floor, North and	1	
Lochester RC- LW-4	Drill Hall	On top of the Amnesty box		
lochester R(- Lw-S	Pril Hall	On top of the Fire Alarm System Box		
Rochester RC- LW-6	Drill Agli	On Baskethall Loop, West Side		
Rochester RC- LW-7	Kitchen	on paper towel dispenses		
Rochester FC- Lw-9	Storage (Former Indoor firing Range)	on flow, North and		
lochester AC- 6W-9	Storage (Former Indoor Firing Large)	On Floor, South end		
Rochister RC- LW70	Storage (Former Indoor Firing Knage)	On top of Energency Lightning		
Rochester RC- LW-11	Mess Hall	On window sill		
Fochester RC- LW-17	breek An	On top of microwave		
Rochester Re- Lw-13	Women's Locker Pm	Da top of Locker # H-16	\bigvee	1



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/damalab.com



Surface Sampling Field Data Sheet

Date Collected: 11-28-12	Job Name: Rochester RC	Company: Bonus Environmental, 440
Job Number: 1061-15	Job Location:	Phone Number: 984 - 779 - 7686
Contact Person	Address: 41 Patriot Way	Collected By:
	Rochester NY 14624	COC Number:

Sample Number	Sample Location	Surface/Substrate Sampled	Area Wiped (in²/ft²)	Collection Media
Rochester RC- LW-14	2nd Floor, Kitchen	On Heater Grill	4"×4"	Chost Wife
Rochester RC- LW-15	Office 4-205	On window SII		
fochester R(- LW-1b	Classroom 4-213	On top of TV		
Rochester RC- LW-17	2nd Floor Hallway	On top of AED Box		
Lu-18	OFFICE 2004, 267	on top or shaf		
Rochester RC- LW-19	Clasiroom 243	On top of fodium		
Lochester Re- LW-20	Club 275	On top of the Ice Machine		
ochester RC- LW-21	Labby 241-C	On top of Filing Cabinet		
ochester RC- LW-11	Office 231	On window Sill		
Lochester RC* W-27	office 213	On top of laper Schredder		
Lochester RC- LW-XH	Classroom 292	an top of TV		
lochustu RC- LW-25	Conterence Pm 280	On unadow sill		$\overline{}$



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

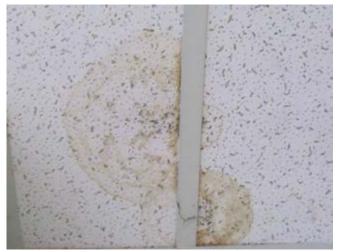


Appendix C

Photographs



Building exterior, looking northwest



Mess Hall, stained/moldy dropped-ceiling tile



Boiler room



Drill Hall, looking northwest



Kitchen



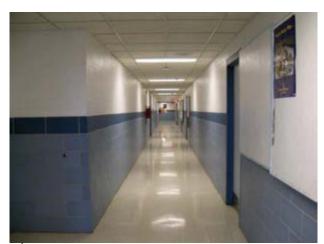
Former indoor firing range



Conference room 280



1st floor hallway



2nd floor hallway

Appendix D

References

- 1. Department of Defense Instruction (DODI) 6055.1, Department of Defense Occupational Safety and Health (OS H) Program, August 19, 1998.
- 2. Army Regulation (AR) 11-34, The Army Respiratory Protection Program, February 15, 1990.
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ECS CAROLINAS

Geotechnical . Construction Materials . Environmental

November 26, 2008

National Guard Bureau Region North 301-IH Old Bay Lane Havre de Grace, Maryland 21078

Reference:

Industrial Hygiene Survey

Readiness Centers (RC) Staten Island, New York ECS Project No. 14-4876

Dear Ms.

ECS Carolinas, LLP (ECS) is pleased to provide the results of our Industrial Hygiene survey for the referenced facility. Our services were provided in accordance with Army National Guard work order number W912K6-08-F-0063, dated June 12, 2008 and the requirements of the National Guard Bureau Region North Industrial Hygiene Office "Statement of Work".

If there are questions regarding this report, or a need for further information, please contact us.

Respectfully submitted,

ECS CAROLINAS, LLP

Industrial Hygiene Project Manager

Principal Scientist

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68 Global Drive Greenville, South Carolina 29607 (864) 987-1610 FAX (864) 987-1615 www.ecslimited.com Aberdeen, MD* • Atlanta, GA • Baltimore, MD • Chantilly, VA • Charlotte, NC • Chicago, IL • Cornelia, GA* • Dallas, TX Danville, VA • Frederick, MD • Fredericksburg, VA • Greensboro, NC • Greenville, SC • Norfolk, VA • Orlando, FL • Research Triangle Park, NC Richmond, VA • Roanoke, VVA • San Antonio, TX • Williamsburg, VA • Wilmington, NC • Winchester, VA • York PA *Testing Services Only

INDUSTRIAL HYGIENE SURVEY

Conducted on

READINESS CENTER 321 MANOR ROAD STATEN ISLAND, NEW YORK 10314

ECS Project No. 14-4876

For

National Guard Bureau Region North Industrial Hygiene Office 301-IH Old Bay Lane Havre de Grace, Maryland 21078



November 26, 2008

INDUSTRIAL HYGIENE SURVEY **READINESS CENTER 321 MANOR ROAD** STATEN ISLAND, NEW YORK 10314

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INDUSTRIAL HYGIENE SURVEY READINESS CENTER 321 MANOR ROAD STATEN, NEW YORK 10314

1.0 EXECUTIVE SUMMARY

ECS Carolinas, LLP (ECS) has completed an Industrial Hygiene Survey at the facility located at 321 Manor Road in Staten Island, New York. The report was prepared in general accordance with the *Statement of Work* provided by the National Guard Bureau Industrial Hygiene Region North. The objective of the survey was to identify and measure the existence and extent of potentially hazardous operations or conditions at the Army National Guard (ARNG) facilities identified in the work order. The surveys were performed to establish a baseline of workplace conditions or to update a previous survey and employee exposure histories.

The survey involved a facility reconnaissance and sampling of the Readiness Center. Readiness Centers (RC) serve as recruitment facilities, administration offices with a small facility able to maintain a garage or mechanics shop to fix and maintain various ARNG vehicles and equipment for the supported units when necessary. Staten Island RC included a twelve (12) bay maintenance area, a part supply area, administration offices, battery room, compressor room, arms room, instrument room, vault, and a utility room. At the time of the survey, several members of the unit were deployed and the shop was not operating at full capacity. The point of contact for the Staten Island RC facility was Felix Ramos.

Lighting measurements conducted during the survey indicated the illumination levels in vehicle maintenance and office areas are below the required levels.

The physical facility and the site health and safety plans were reviewed. Some written safety programs were missing or not provided to ECS. This missing information should be prepared for the facility and provided during the next facility survey. During the physical assessment of the facility, the following items were noted:

Vehicle Maintenance Area:

- Peeling and chipped paint present.
- Twelve (12) Local Exhaust Ventilation (LEV) drops present.
 - o Some of these LEVs were not in full working order.
- PPE present in work area for workers use
 - o Ear Protection: Earplugs
 - o Proper protective clothing: (Closed-toe shoes, long sleeves)
- Material Safety Data Sheets (MSDS) were observed in the area.
- Fire extinguishers are present and are current with routine inspections.

Parts Supply Room:

- General parts and supply storage area.
- No general ventilation system is present.
- Generally clean work area.

Tools Storage:

- Tool storage area.
- No general ventilation is present.
- Generally clean storage area.

Storage Room:

- General materials storage room.
- No general ventilation is present.
- Generally clean work and storage area.

Administrative Areas (Office's, Break room, Men's and Women's Restrooms):

- Posted training documents, warning signs, best work practices, fire evacuation plans.
- Fire extinguishers present and current with routine inspections.
- Window air conditioning units located in several of the administration offices.
- No general ventilation is present.
- Generally clean areas.

Battery Charging and Storage Area:

- No battery charging operations take place in this area.
- Battery storage and supply storage area.
- One (1) eye wash station is present.
- MSDS present.
- Generally clean and safe storage area.

2.0 INTRODUCTION

2.1 Scope of Work

ECS Carolinas, LLP (ECS) has completed an Industrial Hygiene Survey at the facility located at 321 Manor Road, in Staten Island, New York. The report was prepared in general accordance with the *Statement of Work* provided by the National Guard Bureau Industrial Hygiene Region North. The objective of the survey was to identify and measure the existence and extent of potentially hazardous operations or conditions at the Army National Guard (ARNG) facilities identified in the work order. The surveys were performed to establish a baseline of workplace conditions or to update a previous survey and employee exposure histories.

At the time of the survey, 22 members of the unit were present. Six (6) maintenance personnel were in the garage, and three (3) members of the administrative staff were present at the facility. Several members of the unit were deployed and the shop was not operating at full capacity. The point of contact for the Staten Island RC facility was Felix Ramos.

2.2 Facility Information and Description

The survey involved a facility reconnaissance and sampling of Staten Island RC. Readiness Centers (RC) serve as recruitment facilities and administration offices that maintain a garage or mechanics shop to perform simple repairs on various ARNG vehicles and equipment for the supported units. Staten Island RC included a twelve (12) bay maintenance area, a part supply area, administration offices, battery room, compressor room, arms room, instrument room, vault, and a utility room. The mechanics shop conducts vehicle maintenance for unit support. The garage is not an FMS and is not manned full time. At the time of the survey, several members of the unit were deployed, approximately twenty-two (22) persons were in the center and the shop was not operating at full capacity.

3.0 SAMPLING

3.1 <u>Lead Wipes</u>

Wipe samples were collected for lead dust in the administrative areas, Drill Hall, POP Room, Allied Trade Building, Mess Hall and Garage Instrument Room, and the Mechanics Shop. Sampling was conducted to determine if cross contamination was occurring in the non-maintenance areas of the facility. Since an Indoor Firing Range (IFR) has not been in existence at this particular facility nor has one been converted to any other use on the site, lead wipes were collected according to the scope of work. The lead wipe results can be seen in the following table:

Table 3.1.1 Lead Wipe Sample Results						
Sample	Location	Results (µg/ft ²)				
Number						
LW-1	Office #14-Top of Cubby	120				
LW-2	Office #2-Top of Door	<110				
LW-3	Room #15-Outside of door on the floor	<110				
LW-4	Room #4-Top of AC Unit	590				
LW-5	Room #11-Top of Bookcase	190				
LW-6	Room #31-Window Sill	870				
LW-7	Room #60-Top of Door Sill	670				
LW-8	Room #34-Window Sill	1100				
LW-9	POP Room-Window Sill	880				
LW-10	Room #90F-2 nd Floor	<110				
LW-11	Mess Hall 2 nd Floor-Window Sill),	530				
LW-12	Drill Hall-Floor by TAC Supply Room	510				
LW-13	Drill Hall-Electrical Conduit-Left	1600				
LW-14	Drill Hall-Top of Electrical Panel	1000				
LW-15	Drill Hall-Floor by Kitchen	800				
LW-16	Right Side Conduit	4300				
LW-17	Garage-Bay #3	2100				
LW-18	Shop B Garage-Heater Unit #7	<110				
LW-19	Garage Instrument Room on Shelf	170				
LW-20	Allied Trade Building-Work Bench	220				
LW-21	Allied Trades Building-Top of Supervisor Bookcase	<110				

3.2 Additional Sampling Information

Since welding operations and parts washing, are not conducted at this facility samples were not collected for welding fumes, volatile organic compounds or acid gases during the survey.

Indoor air quality measurements including temperature, relative humidity and carbon dioxide were collected in various locations throughout the facility and are presented in the following table:

Table 3.2.1 Indoor Air Quality (IAQ) Meter Measurements							
Location	Temperature	Relative Humidity	Carbon Dioxide				
	(°F)	(%)	(ppm)				
Administrative Offices	80.0	33.9	657				
Shop Office	76.5	47.5	512				
Room #4	75.6	52.2	481				
Room #14	72.6	41.6	1155				

Since outside air readings were not required to be collected, the results were compared to the ASHRAE standards for ventilation of acceptable indoor air quality.

The American Society for Heating, Refrigeration, and Air Conditioning Engineers (ASHRAE) has determined that a carbon dioxide (CO₂) level greater than 1000 ppm indicate that not enough outdoor air is coming into the building to dilute the carbon dioxide level. The CO₂ levels measured in Room#14 were elevated at the time of the survey; fresh air should to be increased to this location.

ASHRAE standards state that systems within the building should establish a relative humidity in occupied space to be 65% or less. The levels measured at the Staten Island RC facility indicate that the relative humidity is below the required standard for indoor air quality.

Personnel samples measuring airborne lead levels were collected from within the breathing zone of two staff members on site at the Staten Island RC facility. Each employee was monitored for their full time on-site the day the site visit was conducted, which was approximately five hours. Samples analyzed indicate that the results were below the OSHA permissible exposure limit of 50 ug/m³. Results have been listed in the following table:

	Table 3.2.2 Personnel Samples-Lead							
Staff	Pump	Sample	Total	Concentration	Lab Results Above			
Member	ID	Collection	Liters (L)	Ug/m³	Permissible Exposure			
being		Times (Hours)	collected		Limit			
Monitored								
Non-Responsive	5134	1130-1630	734.4	<6.8 ug/m³	No			
SGT								
PF Non-Respons	3051	1130-1630	776.1	<6.4 ug/m³	No			

4.0 VENTILATION ASSESSMENT

4.1 General Ventilation

General building ventilation is provided to the administrative areas of the building through wall uni-vent units. In the maintenance areas cooling is provided by the roll-up doors and fans. Twelve LEVs are located in the vehicle maintenance area. Some of these units were not in full working order at the time of the site assessment.

The velocity meter was not calibrated by Staten Island staff prior to ECSs site visit; therefore measurements were not collected during the site walkthrough.

Ventilation measurements were not collected in the battery storage room. Roll-up doors located in the vehicle maintenance area provide fresh air to the room when the door remains open. Direct ventilation is not present.

5.0 NOISE DOSIMETRY

Noise sampling was not conducted during the survey; active vehicle maintenance does not occur on site.

6.0 LIGHTING EVALUATION

Illumination levels were recorded in each area in closed door conditions and compared to the ANSI minimum lighting requirement (ANSI/IESNA RP-7-01). Recorded illumination measurements are presented in the following table and are presented on the illumination plan in Appendix I.

Table 6.1 Illumination Measurements							
Location	Measured Illumination Level in Foot Candles (FC)	Required Illumination Level	Requirement Met?				
Garage Restroom	73.7	5	Yes				
Supply Room	4.9	30	No				
Instrument Room	43.0	30-50	Yes				
Bay 1, 2, & 3	21.3	75	No				
Shop Surplus	36.7	30-50	Yes				
Production Control	49.5	75	No				
Bay 4 & 5	4.9	75	No				
Break Room	21.5	10	Yes				
Vehicle Storage	11.8	10	Yes				
Mess Hall	18.8	10	Yes				
Kitchen	22.4	50	No				
Break Room/Conference Room	69.6	50	Yes				
Office in Shop	18.2	50	No				
Room #2 (Office)	75	50	Yes				
Room #4 (Office)	81	50	Yes				
Room #5 (Office)	46.6	50	No				
Room #7 (Office)	23.7	50	No				

Location	Measured Illumination Level in Foot Candles (FC)	Required Illumination Level	Requirement Met?
Room #8 (Office)	35	50	No
Room #9 (Office)	32	50	No
Room #11 (Office)	37.1	50	No
Room #12 (Office)	46.1	50	No
Room #14 (Office)	27.4	50	No
Room #15 (Office)	20.4	50	No
Room #16 (Office)	39.0	50	No
Room #17 (Office)	48	50	No
Room #18 (Office)	33.9	50	No
Room #19 (Office)	27	50	No
Room #27C (Office)	19.8	50	No
Room #31 (Office)	32.4	50	No
Room #32 (Office)	7.6	50	No
Room #33 (Office)	25.1	50	No
Room #34 (Office)	11.5	50	No
Room #35 (Office)	25.2	50	No
Room #50 (Office)	120	50	Yes
Room #51 (Office)	71	50	Yes
Room #55 (Office)	101	50	Yes
Room #56 (Office)	79.4	50	Yes
Room #60 (Office)	100	50	Yes
Room #63A (Office)	33.7	50	No

7.0 REVIEW OF SAFETY PLANS AND POLICIES

7.1 Written Safety Plans

ECS reviewed on-site health and safety plans during our site visit. Below are the listed plans available and the plans recommended for these facilities.

Plans Available:

• Fire Evacuation Plan

Plans Recommended:

- Hazard Communication
- Hearing Conservation

7.2 Personal Protective Equipment (PPE)

Written information could not be made available when requested for review by ECS during the site visit. Hearing protection: ear plugs, have been provided to staff and may be used at their own discretion. Proper protective clothing such as long sleeved shirts and steel-toed boots are recommended for use in the vehicle maintenance area. No additional information was available for review.

8.0 PHYSICAL CONDITIONS & EMPLOYEE INTERVIEWS

ECS observed damaged and peeling paint throughout Room #31. Approximately ten (10) ten square feet of paint was noted as being significantly damaged. One paint chip sample was collected at eye level from the peeling paint on the wall and sent to AMA Analytical Laboratories, Inc. to measure the lead content. Laboratory results indicate that this paint chip sample contains 4.6% lead. The Environmental Protection Agency (EPA) states that lead-based paint with results over 0.05% is considered to be hazardous to human health.

ECS did not observe potential asbestos containing materials (ACM) in the Staten Island RC facility.

Hydraulic fluid or some type of hydrocarbon based substance was located along the left side of the Drill Hall floor during the ECS walkthrough. The liquid substance is collecting on floor and creating a slip-hazard.

9.0 FINDINGS AND CONCLUSIONS

Following are the findings of this Industrial Hygiene Survey:

- Two personnel samples were collected for lead dust in the air. The concentration of lead detected was $<6.8 \mu g/m^3$ and $<6.4 \mu g/m^3$. This is below the OSHA PELs.
- One bulk sample of paint was sent to AMA Analytical Laboratories and found to contain 4.6% lead.
- LEVs were noted as being out of service or not in full working order in the vehicle maintenance area.
- Wipe samples collected for lead dust in the administrative areas of the facility indicated that lead was detected in approximately thirteen (13) of the samples collected. These results are above the NGB Region North IH office guidelines acceptable level of 200 µg/ft². The lead dust appears to be scattered throughout the facility in administrative offices and hallways. The Drill Hall appears to be contaminated throughout as does the garage area.
- Lighting measurements conducted during the survey indicated the illumination levels in several areas are below the required levels.
- Elevated carbon dioxide levels were measured in Room#14 during the survey.
- Some written safety programs were missing or not provided to ECS. This missing information should be prepared for the facility and provided during the next facility survey.
 - Hazard Communication
 - o Hearing Conservation

10.0 REFERENCES

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

Lead - (29 CFR 1910.1025(h))

American Conference of Governmental Industrial Hygienists (ACGIH) – Threshold Limit Values and Biological Exposure Indices, 2008 Edition

Industrial Ventilation: A Manual of Recommended Practice for Design, 25th Edition

Georgia Army National Guard: Standard Army Safety and Occupational Health Inspection Checklist; 1 October 1999 Edition

American Society of Heating, Refrigerating and Air-Conditioning Engineers, Ventilation for Acceptable Indoor Air Quality, 62-1-2007.

National Emission Standard Hazardous Air Pollutants (NESHAP) - The standards for asbestos are contained in 40 CFR 61.140 through 61.157.

Environmental Protection Agency (EPA) standards (40 Code of Federal Regulations (CFR) 745.227(h)(3))

Derivation of Wipe Surface Screening Levels for Environmental Chemicals, the US Army Center for Health Promotion and Preventive Medicine (USACHPPM)

The US Army Technical Guide 277 Army Facilities Management Information Document on Mold Remediation

29 CFR 1910.1000 <u>Air Contaminants</u>, Table Z-1, Occupational Safety and Health Administration, US DOL, Washington, DC

ANSI RP-1-04, American National Standard Practice for Office Lighting, 2004

ANSI RP-7-01, Lighting Industrial Facilities, 2001

Industrial Ventilation, A Manual of Recommended Practice, 25th Edition, ACGIH, 2004

2008 TLVs and BEIs, ACGIH, 2006

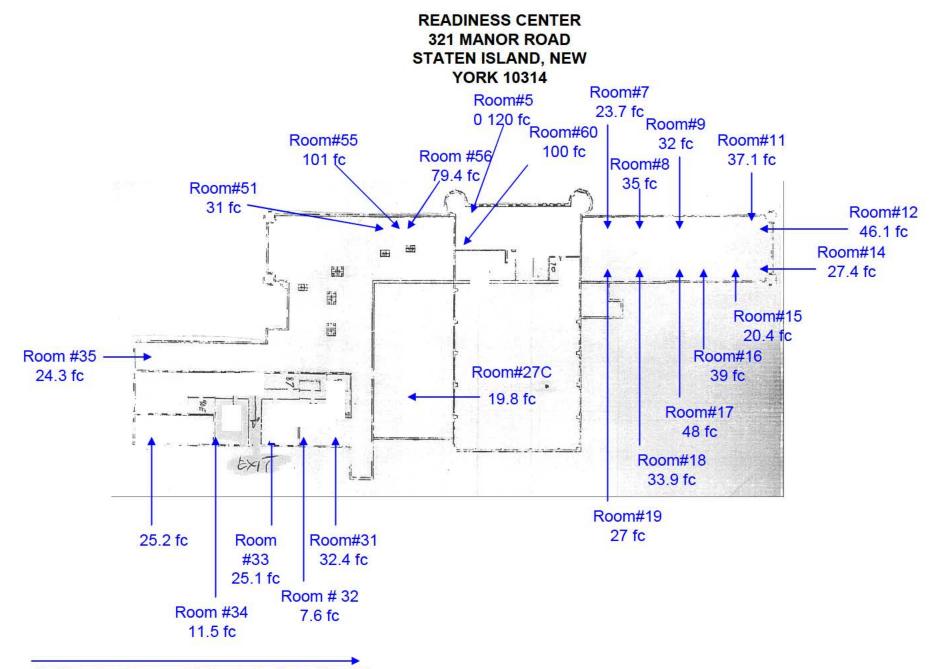
DA PAM 40-501, Hearing Conservation Program, Department of the Army, 1998

ANSI/ASHRAE 55-204

ANSI/ASHRAE 62.1-2007

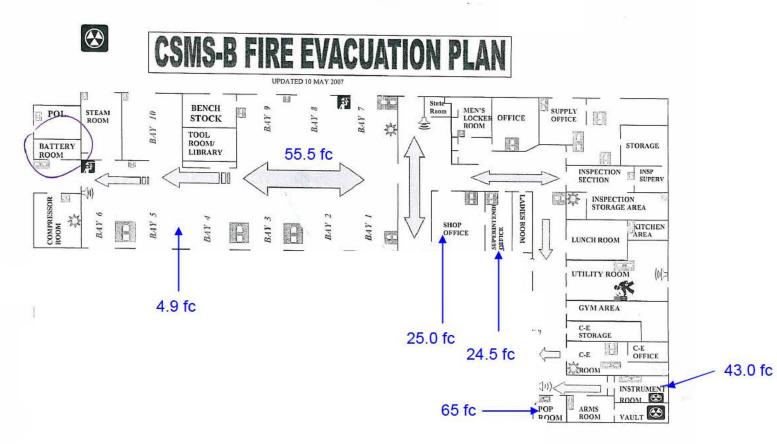
APPENDIX I

FIGURES



Lighting measurement taken in foot candles (fc)

READINESS CENTER 321 MANOR ROAD STATEN ISLAND, NEW YORK 10314 Garage



APPENDIX II PHOTOGRAPHS

Industrial Hygiene Survey Readiness Center Staten Island, New York ECS Project No. 14-4876



Photo 1: Staten Island Readiness Center



Photo 2: Out of date fire extinguisher inspection record.

Industrial Hygiene Survey Readiness Center Staten Island, New York ECS Project No. 14-4876



Photo 3: Example of peeling paint

APPENDIX III LEAD WIPE RESULTS

AMA Analytical Services, Inc.



A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS

Environmental Lead See ashaligap.org

100470 Ш

Address: Client: Attention: Havre de Grace, Maryland 21078 State Military Reservation 301-IH Old Bay Lane, Attn: NGB-AVNSI, National Guard Bureau P.O. Number: Job Location: Job Name: Job Number:

321 Manor Road; Staten Island, NY Not Provided 14-4876 National Guard Date Analyzed: Person Submitting: Date Submitted: Chain Of Custody: 8/1/2008 7/28/2008

159391

Report Date:

8/1/2008

Page 1 of 2 FOIA Requested Record #55-0085 (NY)
Released by National Guard Bureau
Page 969 of 1350

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	esult
							::	:
0873308	IA	Flame	Air	441	N/A	6.80 ug/m³	< 6.8	ug/ m³
0873309	2A	Flame	Air	466	N/A	6.44 ug/m³	< 6.4	6.4 ug/m³

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												BE	:ST	AV	AIL	ABL		COP
0873326	0873325	0873324	0873323	0873322	0873321	0873320	0873319	0873318	0873317	0873316	0873315	0873314	0873313	0873312	0873311	0873310	0873309	0873308
15	74	13	12	==	10	9	8	7	6	5	4	3	2	1	4A	3A	2A	IA
Flame	Flame	Flame	Flame	Flame	Flame	Flame	Flame	Flame	Flame	Flame	Flame	Flame	Flame	Flame	Flame	Flame	Flame	Flame
Wipe	Wipe	Wipe	Wipe	Wipe	Wipe	Wipe	Wipe	Wipe	Wipe	Wipe	Wipe	Wipe	Wipe	Wipe	Paint Chip	Air Blank	Air	Air
***	***	***	***	***	***	***	***	***	***	***	* * *	***	***	***	***	0	466	44
								0.108	0.108	0.108	0.108	0.108	0.108	0.108	N/A	N/A	N/A	N/A
111.52	111.52	111.52	111.52	111.52	111.52	111.52	111.52	111.52	111.52	111.52	111.52	111.52	111.52	111.52	0.01	3.00	6.44	6.80
ug/ft²	ug/ft ⁻	ug/ft²	ug/ft²	ug/f}²	ug/ft	ug∕l)÷	ug∕ft²	ug/ft ^a	ug/ft²	ug/it	ug/ft:	ug/tt²	ug/ft²	ug/ft²	%РЬ	ug/m³	ug/m³	ug/m³
					٨							۸	٨			٨	٨	٨
800	000	0091	510	530	110	880	1100	670	87 0	190	590	110	110	120	4.6	زيا	6.4	6.8
111.52 ug/ft² 800 ug/ft² So	ug/ft²	ug/ft²	ug/ft²	ug/ft²	ug/ft²	ug/ft²	ug/ft²	ug/ft²	ug/ft²	ug/ft²	սք/ਜੋ²	ug/ft²	ug/ft²	ug/ft²	%Pb	ug	ug/m³	ug/m³
NC 8	3B I	FOI	A R	ead	ling	Roo	om					ВЕ	EST	AV	AIL	ABI	_E (COP

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 reports of 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, of 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 completenessly 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 nicroscopy 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.

AMA Analytical Services, Inc.



A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS

ACCAROLIES LA

Client: National Guard Bureau Job Name: National Guard Chain Of Custody: 159391

State Military Reservation Havre de Grace, Maryland 21078

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

Address:

P.O. Number: Job Number:

Not Provided 14-4876 Job Location:

321 Manor Road; Staten Island, NY

Date Submitted:

7/28/2008

Person Submitting:

Date Analyzed:

8/1/2008

Report Date:

8/1/2008

FOIA Requested Record #1 5-0085 (NY)
Released by National Guard Bureau
Page 970 of 1350

Summary of Atomic Absorption Analysis for Lead

Page 2 of 2

MA Sample Number	Client Sample Number	Analysis Type	Sample Type	Air Volume (L)	Area Wiped (ft²)	Reporting Limit	rting		Final Result	#III	Comments	
0873327	16	Flame	Wipe	***	0.108	111.52	ug/ft²		4300	ug/ft²	:	OPY
0873328	17	Flame	Wipe	* *	0.108	1111.52	ug/ft²		21000	ug/ft²		.E C
0873329	18	Flame	Wipe	****	0.108	111.52	ug/ft²	Λ	110	ug/ft²		ABL
0873330	19	Flame	Wipe	***	0.108	111.52	ug/ft²		170	ug/ft²		AIL
0873331	20	Flame	Wipe	* * *	0.108	111.52	ug/lt²		220	ug/ft²		AV
0873332	21	Flame	Wipe	* * * *	0.108	111.52	ս <i>ջ/Ո</i> 2	٨	011	ug/ft²		ST
alysis Method for I	Flame: Air, Wipes, f	alysis Method for Flame: Air, Wipes, Paints, and Soil/Solids: EPA 600/R-93/200(M)-7420; Water: SM-3111B	ids: EPA 600/R-93/2	200(M)-7420; Wate	:: SM-3111B	See QC S	iummary for	analyti	cal resul	ts of quality	See QC Summary for analytical results of quality control samples	BE
alysis Method For	Furnace: Air, Wipe	alysis Method For Furnace: Air, Wipes, Paints, and Soil/Solids:EPA 600/R-93/200(M)-7421; Water: SM-3113B	Solids: EPA 600/R-	93/200(M)-7421; V	Vater: SM-3113B	associate	associated with these sampes	sampe	S	<u>.</u>	•	
۱ = Not Applicable		mg/Kg = parts per million (ppm) by weight mg/L = parts per million (ppm)	owweight mg/L=	parts per million (p	om)	NY ELAT	accrediation	applie	s only to	paint chip,	NY ELAP accrediation applies only to paint chip, wipe, and water	

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AMA Sample

Attention:

Anal

%Pb = percent lead by weight N/A = Not Applicable mg/Kg = parts per million (ppm) by weight <math>mg/L = parts per million (ppm)ug = micrograms ug/L = parts per billion (ppb)

Note: All results have two significant digits. Any additional digits shown Note: All samples were received in good condition unless otherwise noted

samples.

Should not be considered when interpreting the results

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Anir and Wipe results are not corrected for any blank results

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May, 2018

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(Please Refer To This Number For Inquires)

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CHAIN OF CUSTODY

National Guard Region North

National Guard Readiness Center Industrial Hygiene Evaluation Staten Island Readiness Center Staten Island, NY. 10314-2407

Prepared for:

National Guard Region North Industrial Hygiene Office 301 Old Bay Lane Havre De Grace, MD 21078

Attn:

Non-Responsive

Prepared by:

Bonus Environmental, LLC P.O. Box 121 Mt. Pleasant, Michigan 48804

> Project No. 1061-15 December 20, 2012

Bonus Environmental, LLC

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Appendix D Photographs

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December 20, 2012 Project No. 1061-15

National Guard Region North Industrial Hygiene Office 301 Old Bay Lane Havre De Grace, MD 21078-4003

Attn: Non-Responsive

Project: Industrial Hygiene Evaluation

Staten Island, NY Readiness Center

1.0 - EXECUTIVE SUMMARY

Bonus Environmental, LLC was contracted by the National Guard Bureau Region North Industrial Hygiene office to identify and measure the existence and extent of potentially hazardous operations or conditions at the Staten Island Readiness Center located at 321 Manor Road in Staten Island, NY. The purpose of this evaluation was to generate or to update a previous baseline evaluation so that employee exposure history can be provided to each civilian and military employee. Health & Safety plans available for review at Staten Island Readiness Center included Hazcom (the Superintendent stated that several others, including respiratory protection, PPE, and hearing conservation exist, but that he couldn't find them), which was determined to meet the minimum requirements. The following industrial hygiene conditions were evaluated during this industrial hygiene evaluation performed by Bonus Environmental, LLC representative Non-Responsive on October 25, 2012:

- Indoor Air Quality
- Lead Wipe & Bulk Sampling
- Illumination
- Ergonomics

• Evaluation of the physical condition of the facility in regards to peeling paint, asbestos containing materials, water damage or mold problems, and housekeeping practices.

The Staten Island Readiness Center is an Army National Guard armory comprised of offices, locker rooms, storage rooms, a drill hall, supply rooms, conference rooms, a gym, a museum, classrooms, 2 kitchens, a mess hall, and a former indoor firing range (currently used for storage). The point of contact for the approximately 43,828 ft² Staten Island Readiness Center is Mr. Non-Responsive, along with Superintendent Orlando Pinnock. Twelve (12) full-time administrative personnel are employed at the Staten Island Readiness Center. A shop diagram depicting the locations of the operations identified during this industrial hygiene evaluation, as well as airflow patterns, is provided as Appendix A.

The National Guard Bureau Region North Industrial Hygiene Office provided governmental furnished equipment and sampling media required to perform the industrial hygiene evaluation. Chain of custody forms for laboratories approved by the National Guard Bureau Region North Industrial Hygiene Office were provided with the sampling media. All samples collected during this industrial

hygiene evaluation were sent to the National Guard Bureau Region North Industrial Hygiene Office approved laboratories for analysis.

2.0 – LEAD SAMPLING

2.1 – Lead Wipe Sampling

Lead wipe sampling was performed according to the Environmental Protection Agency (EPA) method 600/R-93/200(M)-7420 (Atomic Absorption - Flame). Twenty five (25) wipe samples and one (1) field blank were sent under chain-of-custody procedures to AMA Analytical Services, Inc., an American Industrial Hygiene Association (AIHA) accredited laboratory located in Lanham, Maryland. The U.S. Department of Labor (USDOL) and the Occupational Safety and Health Administration (OSHA) do not have a promulgated standard for lead surface contamination; however OSHA has provided an interpretive level of 200 micrograms per square foot (μg/ft²) to assess the housekeeping requirements of "as free as reasonably practicable". This interpretation is presented in OSHA Industrial Hygiene Technical Manual (TED 01-00-015; 1/20/1999), and in a letter of interpretations dated 1/13/2003, and subsequently issued to public domain. NG Pam 420-15 addresses the conversion and remediation of former indoor firing ranges. The following table outlines the locations and analytical results for the lead wipe samples collected during this project

	Army National Guard – Staten Island Readiness Center Lead Wipe Sample Results									
Sample #	Sample Date	Sample Location	Sample Area (ft²)	Sample Result (µg/ft²)						
SIRC-LW-1	10-25-12	Field Blank		< 12 μg						
SIRC-LW-2	10-25-12	Drill Hall, east end, on floor	0.111	< 110						
SIRC-LW-3	10-25-12	Drill Hall, west end, on floor	0.111	< 110						
SIRC-LW-4	10-25-12	Drill Hall, west wall, top of AED case	0.111	110						
SIRC-LW-5	10-25-12	Drill Hall, south wall, top of fire hose housing	0.111	1,900						
SIRC-LW-6	10-25-12	Drill Hall, NE corner, top of circuit breaker box	0.111	460						
SIRC-LW-7	10-25-12	Kitchen, east wall, top of paper towel dispenser	0.111	< 110						
SIRC-LW-8	10-25-12	Former indoor firing range, east end, on floor	0.111	7,700						
SIRC-LW-9	10-25-12	Former indoor firing range, west end, on floor	0.111	2,300						
SIRC-LW-10	10-25-12	Former indoor firing range, center of room, on light fixture	0.111	340						
SIRC-LW-11	10-25-12	Boiler room, on slop sink	0.111	450						
SIRC-LW-12	10-25-12	Room 35, SW corner, on storage shelf	0.111	330						
SIRC-LW-13	10-25-12	Room 33, NE corner, on window sill	0.111	< 110						
SIRC-LW-14	10-25-12	Room 31, south wall, on thermostat	0.111	300						
SIRC-LW-15	10-25-12	Room 42A, SW corner, top of piano	0.111	< 110						
SIRC-LW-16	10-25-12	Room 60, center of conference table	0.111	< 110						
SIRC-LW-17	10-25-12	Room 4, east wall, top of desk shelf	0.111	< 110						

	Army National Guard – Staten Island Readiness Center Lead Wipe Sample Results									
Sample #	Sample Date	Sample Location	Sample Area (ft²)	Sample Result (µg/ft²)						
SIRC-LW-18	10-25-12	Room 20, east wall, top of paper towel dispenser	0.111	< 110						
SIRC-LW-19	10-25-12	Room 9, SE corner, top of desk shelf	0.111	< 110						
SIRC-LW-20	10-25-12	Room 16, SE corner, top of file cabinet	0.111	< 110						
SIRC-LW-21	10-25-12	Mess hall, north end, on heat register	0.111	130						
SIRC-LW-22	10-25-12	Room 65, south end, on window sill	0.111	< 110						
SIRC-LW-23	10-25-12	Room 96, west wall, on heat register	0.111	< 110						
SIRC-LW-24	10-25-12	Room 88, SE corner, top of file cabinet	0.111	500						
SIRC-LW-25	10-25-12	Room 90F, center of room, top of printer	0.111	< 110						
SIRC-LW-26	10-25-12	Room 90D, north end, top of telecom box	0.111	< 110						

Surface cleanliness threshold = < 200 micrograms per square foot ($\mu g/ft^2$)

It is uncertain whether the former indoor firing range was remediated to the protocols specified in NG Pam 420-15. Remediation occurred approximately ten years previous. Remediation wipe sample results were not posted, nor were any signs posted restricting access to the area.

3.0 - PHYSICAL CONDITION OF FACILITY / PERSONNEL CONCERNS

3.1 - Lead Based Paint

During the industrial hygiene evaluation of the Staten Island Readiness Center, Bonus Environmental, LLC performed a visual inspection of the facility in regards to lead based paint. Bonus Environmental, LLC identified the following area of peeling paint which could potentially pose a lead exposure hazard:

• Approximately 60 ft² of peeling white paint in room 26, electrical room;

One (1) paint chip sample was collected and sent under chain-of-custody procedures to AMA Analytical Services, Inc., an AIHA accredited laboratory located in Lanham, MD. Analysis indicated that the peeling paint collected did not contain detectable levels of lead. The paint is therefore not considered to be lead-based paint. The OSHA Lead in Construction Standard, 29 CFR 1926.62 does not assign a numerical value of which must be present within the paint to be considered lead based paint. Paints which contain any detectable level of lead shall be treated and handled as lead based paint. Housing and Urban Development (HUD) defines lead based paint as having greater than 0.5% lead by weight. Paint chip sample results are attached to this report as Appendix B.

3.2 – Presumed Asbestos Containing Materials

During the industrial hygiene evaluation of the Staten Island Readiness Center, Bonus Environmental, LLC performed a visual inspection to identify presumed asbestos containing materials (PACM) and, if found, to note their condition. Bonus Environmental, LLC identified the following PACM that were considered to be in poor or damaged condition:

• Approximately 1 lf of damaged thermal systems insulation (TSI) in the Drill Hall;

Sample analysis indicated this mudded pipe elbow fitting material to be non-detect for asbestos content. Asbestos bulk sample results are attached to this report as Appendix C

3.3 - Water Damage/Mold Growth

During the industrial hygiene evaluation of the Staten Island Readiness Center, Bonus Environmental, LLC performed a visual inspection to report the location and perform an evaluation of any water damaged building materials or visible mold problems. Bonus Environmental, LLC identified the following areas of water-damaged and/or moldy building materials:

- Approximately 3 ft² of moldy fiberglass pipe insulation in the Boiler room;
- Approximately 1 ft² of stained dropped-ceiling tile (DCT) in office room 30A;
- Approximately 6 ft² water-damaged ceiling in room 58, restroom;
- Approximately 3 ft² of stained DCT in office room 4A;

3.4 - Housekeeping

During the industrial hygiene evaluation of the Staten Island Readiness Center, Bonus Environmental, LLC performed an evaluation of the housekeeping practices. Bonus Environmental, LLC found the housekeeping practices within Staten Island Readiness Center facility in good order.

3.5 – Employee Interviews

During the industrial hygiene evaluation of the Staten Island Readiness Center, Bonus Environmental, LLC performed interviews and made observations to determine if the work activities being performed possessed any ergonomic concerns. Following the interviews and observations, no ergonomic and/or indoor air quality concerns were identified.

3.6 – Indoor Air Quality

During the industrial hygiene evaluation of the Staten Island Readiness Center, Bonus Environmental, LLC measured temperature, relative humidity, carbon monoxide (CO), and carbon dioxide (CO₂) throughout the facility. A calibrated TSI Q-Trak Plus Model 8554 Indoor Air Quality Monitor equipped with a Q-Trak Probe 982 was utilized to record indoor air quality measurements.

Carbon dioxide is a natural component of air and the amount of CO₂ in a given air sample is commonly expressed as parts per million (ppm). The outdoor air in most locations contains about 380 ppm carbon dioxide. Higher outdoor CO₂ concentrations can be found near vehicle traffic areas, industry and sources of combustion. The concentrations of CO₂ found in most offices are well below the OSHA Permissible Exposure Limit (PEL) of 5,000 ppm when averaged over an 8-hour time period for an industrial workplace. While levels below 5,000 ppm are considered to pose no serious health threat, studies have indicated that individuals in offices with elevated CO₂ concentrations tend to report drowsiness, lethargy and a general sense that the air is stale. Ventilation rates for office spaces are defined by various codes and standards. The most widely accepted standard is the American Society of Heating, Refrigerating, and Air Conditioning Engineers (ASHRAE) Standard 62. According to ASHRAE Standard 62.1-2010, CO₂ concentrations below 700 ppm above the outdoor level are considered to indicate adequate ventilation and provide human comfort. The CO₂ measurements

collected indoors during this industrial hygiene evaluation ranged from 374 ppm to 542 ppm and indicate adequate ventilation within the facility.

Carbon monoxide is a colorless, odorless, poisonous gas that results from the incomplete burning of common fuels such as natural or liquefied petroleum gas, oil, wood or coal. When carbon monoxide is inhaled, it enters the blood stream and reduces the ability of the blood to carry oxygen to vital organs, such as the heart and brain. Because it is impossible to see, taste or smell the toxic fumes, CO can harm you before you are aware it is in your work area. At lower levels of exposure, CO causes mild effects that are often mistaken for the flu. These symptoms include headaches, dizziness, disorientation, nausea and fatigue. The effects of CO exposure can vary greatly from person to person depending on age, overall health and the concentration and length of exposure. The OSHA has established a permissible exposure limit (PEL) of 50 parts per million (ppm). OSHA standards prohibit worker exposure to more than 50 parts of the gas per million parts of air averaged during an 8-hour time period. The peak CO level for employees is 200 ppm. The CO measurements collected indoors during this industrial hygiene evaluation ranged from 0.0 ppm to 0.7. CO levels were well below the OSHA PEL during this industrial hygiene evaluation.

During the industrial hygiene evaluation of the Staten Island Readiness Center, Bonus Environmental, LLC collected temperature measurements. Temperature measurements throughout the common areas of the facility routinely occupied by employees ranged from 66.2°F to 70.2°F and are considered to be within an acceptable range outlined within ASHRAE Standard 55-2010.

During the industrial hygiene evaluation of the Staten Island Readiness Center, Bonus Environmental, LLC collected relative humidity measurements. Relative humidity measurements throughout common areas of the facility routinely occupied by employees ranged from 58.9% to 64.8%. Indoor air quality measurements recorded during this industrial hygiene evaluation are summarized in the table below.

Army National Guard – Staten Island Readiness Center Indoor Air Quality Measurements									
Location	CO ₂	CO (nnm)	Relative Humidity (%)	Temperature (°F)					
	(ppm)	(ppm)	£ \ /	(/					
Outdoors, west side of building (overcast, mild)	367	1.3	67.2	65.8					
Basement, NCO Club	396	0.0	60.4	69.4					
Room 35, Maintenance office	441	0.6	64.8	66.5					
Room 33, Male locker room	386	0.4	61.1	66.2					
Gym	374	0.6	61.4	68.2					
Room 51, Commander's office	441	0.0	58.9	69.4					
Room 60, Conference room	403	0.0	63.4	68.0					
Room 4, AGR office	542	0.5	59.2	70.2					
Room 16, Supply office	507	0.7	58.9	70.0					
Drill Hall	389	0.5	61.3	68.0					
2nd floor, Mess Hall	409	0.3	62.2	68.4					

Required/Recommended Values

CO₂ - OSHA PEL = 5,000 parts per million (ppm) and ASHRAE Standard 62.1-2010 = no greater than 700 ppm above outdoor

CO - OSHA PEL = 50 ppm and OSHA Ceiling Limit = 200 ppm

Temperature - ASHRAE Standard 55-2010 = between approximately 67 and 82 °F.

RH - ASHRAE Standard 62.1-2010 = limited to < 65%

4.0 - LIGHTING

Utilizing a properly calibrated Cooke Corporation cal-Light 400 light meter, Bonus Environmental, LLC collected illumination readings throughout the Staten Island Readiness Center. Illumination measurements recorded during this industrial hygiene evaluation are summarized in the table below.

· · · · · · · · · · · · · · · · · · ·	Army National Guard – Staten Island Readiness Center Lighting Measurements								
Location	Measurement in Foot Candles	Requirement in Foot Candles	Requirement Met?						
Room 75 (Boiler room)	13.3	30	No						
Room 77 (Mechanical room)	5.9	30	No						
Room 74 (NCO Club)	12.1	10	Yes						
Room 74A (Kitchen)	20.9	50	No						
Room 74B		Inaccessible							
Room 73 (Supply)		Inaccessible							
Room 72 (restroom)	29.4	5	Yes						
Room 81 (Former indoor firing range)	6.3	150	No						
Room 86 (locker room)	3.4	7	No						
Room 85 (locker room)	7.9	7	Yes						
Room 35 (office)	67.6	50	Yes						
Room 35A (storage)	11.6	30	No						
Room 35B (storage)	13.4	30	No						
Room 34 (locker room)	7.7	7	Yes						
Room 33 (locker room)	6.0	7	No						
Room 32 (classroom)	9.8	30	No						
Room 38 (restroom)	85.1	5	Yes						
Room 31 (gym)	13.5	30	No						
Room 30 (office)	74.1	50	Yes						
Room 30A (office)	15.8	50	No						
Room 41 (locker room)	76.4	7	Yes						
Room 41A (closet)		Inaccessible							
Room 41B (restroom)	63.2	5	Yes						
Room 42 (foyer)	99.0	10	Yes						
Room 42A (museum)	13.9	50	No						
Room 43 (storage)	44.5	30	Yes						
Hallway	13.3	5	Yes						
Room 51 (office)	15.6	50	No						
Room 55 (office)	15.1	50	No						
Room 56 (office)	28.3	50	No						
Room 58 (restroom)	91.6	5	Yes						
Room 60 (conference room)	71.6	30	Yes						
Room 61 (storage)	22.2	30	No						
Room 49 (office)	15.1	50	No						
Room 50 (office)	68.1	50	Yes						
Room 62A (office)	35.9	50	No						
Room 2 (office)	23.4	50	No						
Room 4 (office)	79.6	50	Yes						
Room 4A (office)	40.2	50	No						
Room 4B (office)	24.3	50	No						
Room 22 (locker room)	9.8	7	Yes						

Army National Guard – Staten Island Readiness Center Lighting Measurements								
Location	Measurement in Foot Candles	Requirement in Foot Candles	Requirement Met?					
Room 22A (restroom)	68.8	5	Yes					
Room 20 (restroom)	44.2	5	Yes					
Room 5 (office)	92.0	50	Yes					
Room 19 (office)	21.3	50	No					
Room 7 (office)	26.8	50	No					
Room 8 (office)	41.0	50	No					
Room 18 (office)	18.8	50	No					
Room 17 (office)	44.0	50	No					
Room 9 (office)	36.0	50	No					
Room 16 (office)	76.4	50	Yes					
Room 10 (conference room)	23.4	30	No					
Room 15 (office)	65.8	50	Yes					
Room 11 (office)	26.4	50	No					
Room 12 (office)	29.8	50	No					
Room 14 (office)	82.1	50	Yes					
Drill Hall	25.2	30	No					
Room 27A		Inaccessible						
Room 27B (Supply)	35.4	30	Yes					
Room 27C		Inaccessible						
Room 27D		Inaccessible						
Room 25 (Kitchen)	79.4	50	Yes					
Room 26 (electrical room)	8.0	30	No					
Room 69 (storage)	53.6	30	Yes					
Room 70 (storage)	54.2	30	Yes					
Room 65 (office)	17.7	50	No					
Mess Hall	101.4	10	Yes					
Room 96 (storage)	75.5	30	Yes					
Room 87		Inaccessible						
Room 88 (workshop)	132.5	75	Yes					
Room 89 (storage)	4.0	30	No					
Room 90A (office)	45.6	50	No					
Room 90C (storage)	73.6	30	Yes					
Room 90D (office)	34.3	50	No					
Room 90E (storage)	99.7	30	Yes					
Room 90F (office)	12.1	50	No					
Room 92 (office)	12.4	50	No					
Room 93 (office)	28.3	50	No					
Room 94 (storage)	74.3	30	Yes					

Lighting levels were compared to the levels outlined within the American National Standards Institute/Illuminating Engineering Society of North America (ANSI/IESNA) RP-1-04 Office Lighting Handbook, and the ANSI/IESNA RP-7-01 Lighting Industrial Facilities Handbook. Areas within the facility which did not meet the foot candle requirements are identified with a "NO" within the "Requirement Met?" column. It is recommended that illumination be improved in all the areas that did not meet the requirements. Improving illumination can be achieved by replacing burned-out

lamps/bulbs, cleaning fixtures, relocating detailed work activities to more illuminated areas, and using supplemental task lighting.

5.0 - CONCLUSION & LIMITATIONS

Bonus Environmental, LLC was contracted by the National Guard Bureau Region North Industrial Hygiene office to identify and measure the existence and extent of potentially hazardous operations or conditions at the Staten Island Readiness Center located at 321 Manor Road in Staten Island, NY. The purpose of this evaluation was to generate or to update a previous baseline evaluation so that employee exposure history can be provided to each civilian and military employee. Health & Safety plans available for review at Staten Island Readiness Center included Hazcom (the Superintendent stated that several others, including respiratory protection, PPE, and hearing conservation exist, but that he couldn't find them). The following industrial hygiene conditions were evaluated during this industrial hygiene evaluation performed by Bonus Environmental, LLC representative Non-Responsive on October 25, 2012:

The results/findings of this industrial hygiene evaluation are summarized below.

- 1. Lead wipe sample results collected within the Staten Island Readiness Center were above the OSHA interpretive level of 200 μ g/ft², as well as the 200 μ g/ft² threshold established in NG Pam 420-15.
- 2. Bonus Environmental, LLC identified an area of peeling paint which did not contain detectable levels of lead, potentially posing a lead exposure hazard.
- 3. Bonus Environmental, LLC identified a PACM (that analytical results confirmed to contain >1% asbestos-content) that was considered to be in poor or damaged condition.
- 4. Bonus Environmental, LLC identified approximately 3 ft² of moldy fiberglass pipe insulation in the Boiler room.
- 5. Bonus Environmental, LLC identified approximately 10 ft² of water-damaged/stained drop ceiling tile and/or ceiling material from three locations.
- 6. Bonus Environmental, LLC found the housekeeping practices within the Staten Island Readiness Center to be in good order.
- 7. Following the interviews and observations, no ergonomic and or indoor air quality concerns were identified.
- 8. Bonus Environmental, LLC measured temperature, relative humidity, CO, and CO₂ throughout the Staten Island Readiness Center. All were found to be below or within their acceptable ranges/limits.
- 9. Areas within the Staten Island Readiness Center facility were identified as improperly illuminated.

 A Hazcom Health & Safety program was available for review at the Staten Island Readiness Center.

Bonus Environmental, LLC has 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 Region North - Industrial Hygiene Office. 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 Bonus Environmental, LLC's inspection of the site.

It has been a pleasure to be of assistance to you. Please contact us if you have any questions concerning this report or if we can be of any further assistance in any other environmental or occupational health matter.

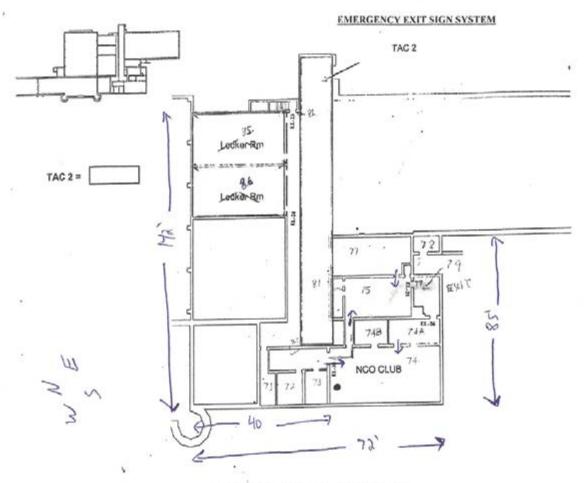


Principal Bonus Environmental, LLC

Staten Island RC_12_Report.docx

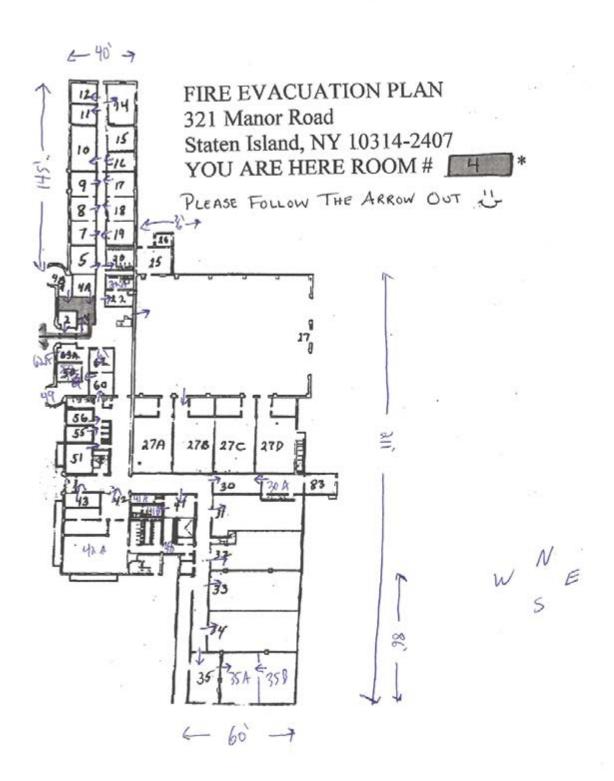
Appendix A

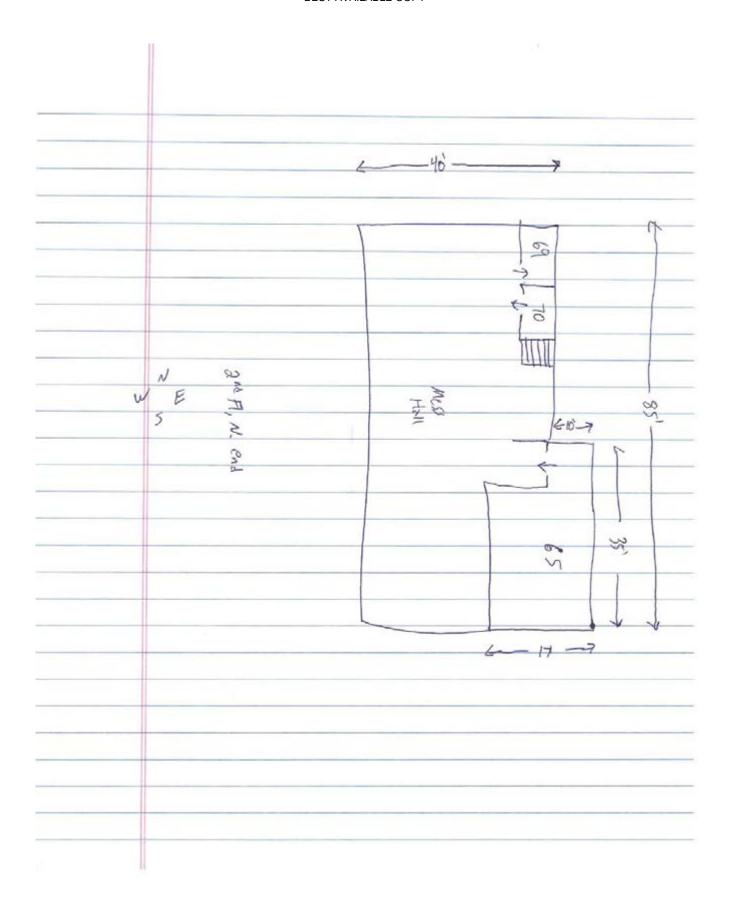
Shop Diagram and Air Flow Patterns

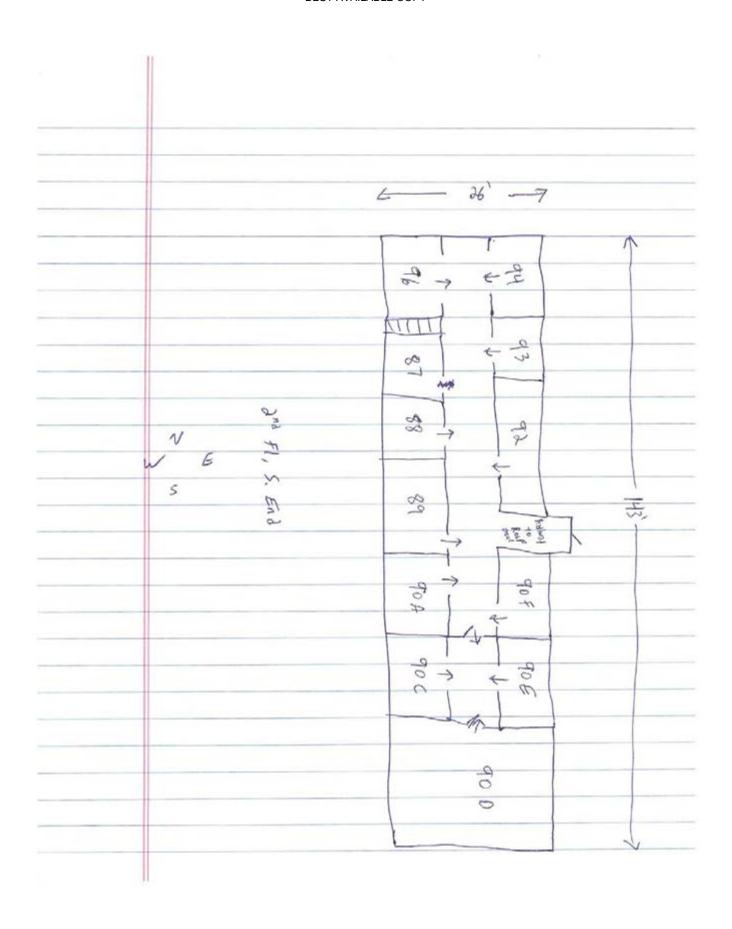


STATEN ISLAND ARMORY BASEMENT PLAN

FIRE EVACUATION PLAN 321 MANOR ROAD STATEN ISLAND, N.Y. 10314 YOU RRE HERE ROOM # [75]







Appendix B

Lead Sample Results



CERTIFICATE OF ANALYSIS



Client:

National Guard Bureau

Job Name:

Staten Island RC

Chain Of Custody:

514362

Address:

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

Job Location:

Staten Island, NY

W912K6-09-A-0003

Date Submitted:

11/2/2012

State Military Reservation

Job Number:

P.O. Number:

1061-15

Person St

Person Submitting: Date Analyzed: Non-Responsive

Report Date: 11/9/2012

Attention:

Non-Responsive

Havre de Grace, Maryland 21078

Summary of Atomic Absorption Analysis for Lead

Page 1 of 3

AMA Sample Number	Client Sample Number	Analysis Type	Sample Type	Air Volume (L)	Area Wiped (ft²)		orting imit	Totalug	Final Res	ult	Comments
13010534	SI-PC-I	Flune	Paint Chip	****	N/A	0.008	%Pb		<0.008	%Pb	
13010535	SI-LW-1	Flune	Wipe Blank	****	N/A	12	ug		<12	ug	
13010536	SI-LW-2	Flame	Wipe	****	0.111	110	ug/ft²	<12	<110	ug/ft²	
13010537	SI-LW-3	Flime	Wipe	****	0.111	110	ug/ft²	<12	<110	ug/ft²	
13010538	SI-LW-4	Flame	Wipe	****	0.111	110	ug/ft²	12	110	ug/ft²	
13010539	SI-LW-5	Flame	Wipe	****	0.111	110	ug/ft²	210	1900	ug/ft²	
13010540	SI-LW-6	Flame	Wipe	****	0.111	110	ug/ft²	51	460	ug/ft²	
13010541	SI-LW-7	Flame	Wipe	****	0.111	110	ug/ft²	<12	<110	ug/fl²	
13010542	SI-LW-8	Flame	Wipe	****	0.111	110	ug/ft²	860	7700	ug/ft²	
13010543	SI-LW-9	Flame	Wipe	****	0.111	110	ug/ft²	250	2300	ug/ft²	
13010544	SI-LW-10	Flame	Wipe	****	0.111	110	ug/ft²	38	340	ug/fit	
13010545	SI-LW-11	Flame	Wipe	****	0.111	110	ug/ft²	50	450	ug/fit	
13010546	SI-LW-12	Flame	Wipe	****	0.111	110	ng/ft²	37	330	ug/ft²	
13010547	SI-LW-13	Flame	Wipe	****	0.111	110	ug/ft²	<12	<110	ng/ft²	
13010548	SI-LW-14	Flame	Wipe	****	0.111	110	ug/fl²	33	300	ug/fl²	
13010549	SI-LW-15	Flame	Wipe	****	0.111	110	ng/ft²	<12	<110	ug/fl²	
13010550	SI-LW-16	Flame	Wipe	****	0.111	110	ug/ft²	<12	<110	ug/fl²	
13010551	SI-LW-17	Flame	Wipe	****	0.111	110	ug/fi²	<12	<110	ug/ft²	
13010552	SI-LW-18	Flame	Wipe	****	0.111	110	ug/ft²	<12	<110	ug/fl ¹	

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 prorided 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 chim, and does not imply product certification, approval, or endorsement by NY ELAP, AHIA, or any agency of the Federal Government. All rights reserved. AMA Analytical Services, Inc.

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



Client:

National Guard Bureau

Job Name:

Staten Island RC

Chain Of Custody:

514362

Address:

Job Location:

Staten Island, NY

W912K6-09-A-0003

Date Submitted:

11/2/2012

11/8/2012

3000

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

Havre de Grace, Maryland 21078

Job Number:

P.O. Number:

1061-15

Person Submitting: Date Analyzed:

Non-R

Report Date: 11/9/2012

Attention:

Non-Responsive

Summary of Atomic Absorption Analysis for Lead

Page 2 of 3

AMA Sample Number	Client Sample Number	Analysis Type	Sample Type	Air Volume (L)	Area Wiped (ft ²)	0000	oorting .imit	Totalug	Final Res	ult	Comments
13010553	SI-LW-19	Flame	Wipe	****	0.111	110	ug/it²	<12	<110	ug/ft²	
13010554	SI-LW-20	Flame	Wipe	****	0.111	110	ug/ñ²	<12	<110	ug/ft²	
13010555	SI-LW-21	Flame	Wipe	****	0.111	110	ug/lt²	15	130	ug/ft ^a	
13010556	SI-LW-22	Flame	Wipe	****	0.111	110	ug/ft²	<12	<110	ug/ft²	
13010557	SI-LW-23	Flame	Wipe	****	0.111	110	ug/ft²	<12	<110	ug/ft²	
13010558	SI-LW-24	Flame	Wipe	****	0.111	110	ug/it²	55	500	ug/ft2	
13010559	SI-LW-25	Flame	Wipe	****	0.111	110	ug/ft²	<12	<110	ug/ft²	
13010560	SI-LW-26	Flame	Wipe	****	0.111	110	ug/ft²	<12	<110	ug/ft'	

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CERTIFICATE OF ANALYSIS



Client:

National Guard Bureau

Job Name:

Staten Island RC

Chain Of Custody:

514362

Address:

Job Location:

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

Staten Island, NY

W912K6-09-A-0003

Date Submitted:

11/2/2012

Havre de Grace, Maryland 21078

Job Number: P.O. Number: 1061-15

Person Submitting: Date Analyzed:

11/8/2012

Report Date: 11/9/2012

Attention:

Summary of Atomic Absorption Analysis for Lead

Page 3 of 3

AMA Sample

Client Sample

Analysis Type Sample Type

Air Volume

Area Wiped Reporting Total ug Final Result

Number

Number

(L)

(ft³)

Limit

See QC Summary for analytical results of quality control samples

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

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

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

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.

associated with these

samples.

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 when 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 dies not imply product certification, approval, or endorsement by NY ELAP, AIHA, or any agency of the Federal Government. All rights reserved. AMA Analytical Services, Inc.

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

CHAIN OF CUSTODY

(Please Refer To This Number For Inquires

514362

Mailing/Billing Infor																	
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	lational Guard Bureau					CO CO	merca .	126			HPV				KC		
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. Address 3;H	avre de Grace, Maryland 2°	078		_		4. C	ontact	Perso	NO	1-1	10	9	UI	101	@ ph	ogie #/_	
. Phone #: _(410) 9	942-0273 Fa	x #:(41(0) 942-025	4	_	5. St	ıbmitt	ed by							(1545-m2 (1545-m2)	Non-Respon	sive
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O NY State Friable 1 Grav. Reduction E			DEPA	100.1	/EPA 160	2	vn	_(QT)	0				Collec	tion /	Apparatus for Spor Media	re Traps/Air Samples:	
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D Ashestos Soil MM	White and was a march with	DESCRIPTION OF		Valer sa		°C)						· u	*Surfa	ice Ta	pe(QTY)	Culturable ID Genus (Media Culturable ID Species (Media	
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O Asbestos Soil PLM_ *Teis recommended that Han CLIENT ID #	SAMPLE INFORMATION	DATE/	VOL (L)/ Vipe Area	data sheets	ANAI	VSIS	is to nee		nplete bo	tom sec	ction.	נו מ X	*Surfa Other (S	oce Ta	(QTY) (QTY)	CLIENT CONTACT ABORATORY STAFF ON	(QTY)(\text{QTY}
O Asbestos Soil PLAL *It is recommended that Wan CLIENT ID # I & C-ASB-	SAMPLE INFORMATION SAMPLE LOCATION ID	DATE/ TIME	VOL (L)/ Vipe Area	data sheets	are submi	YSIS	is to nee	ed to con	plete bo	tom sec	tion.	נו מ X	*Surfa Other (S	oce Ta	(QTY) (QTY)	CLIENT CONTACT	·(T)
O Asbestos Soil PLAL *It is recommended that Wan CLIENT ID # I & C-ASB-	SAMPLE INFORMATION SAMPLE LOCATION ID MANAGE COLOR	DATE/ TIME	VOL (L)/ Vipe Area	data sheets	ANAI	VSIS	is to nee	ed to con	nplete bo	tom sec	tion.	נו מ X	*Surfa Other (S	oce Ta	(QTY) (QTY)	CLIENT CONTACT ABORATORY STAFF ON	(QTY)(\text{QTY}
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Date Collected: 10-25-12	Job Name: Staten Island RC	Company: Bonys Environmental H
Job Number: 1061-15	Job Location: 32 Manes Rd	Phone Number: 989 -779- 7684
Contact Personnaive	Address: Statin Island, NY	Collected By
		COC Number;

Sample Number	Sample Location	Surface/Substrate Sampled	Area Wiped (in ² /ft ²)	Collection Media Ghost wife	
SIRC-LW-	Field Blank	-			
-2	Orin Hall	Floor, east end	4"×4"		
-3		Floor, west end			
-4		West wall, top of AED COJP			
-5		South wall, top of fire have hoving			
-6		NECOMET, to 1 of CITCUIT			
-7	Kitchen	Exit wall, top of loter touch			
-8	Former Andorr Firmy Pange	Floor, east and			
-9		Floor, west end			
70		higher fraktura, conten of room			
-11	Boiler Rm	on slop sink			
-12	Rm 35	sw comp, on stonge shelf			
J J -13	ln 33	NE comer, on umdas sill			



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Surface Sampling Field Data Sheet

Date Collected	: 10-25-12
Job Number:	1001-15
Contact Perso	

Job Name:	State	n Islam	nd RC	
Job Location:	321	Manor	Ri	
Address:	Staten	Island	NY	

Company:_	Bonus	Environ	ige <u>d</u> of	a uc
Phone Num			- 7686	
Collected B	Non	-Resp	onsi	/e
COC Numb	er:			

Sample Number	Sample Location	Surface/Substrate Sampled	Area Wiped (in ² /ft ²)	Collection Media
IRC-LW-14	Rm 31	on Southwell thermostet	4" ~ 4"	Ghost Wipe
-15	RM 4LA	sulcomen tol of piano		
-16	Rm 60	center of coaf table		
17	Rm 4	ext wall, toll of dux shelf		
-18	Rm do	Cast wall, top of Paper towell SE corner, top of alsk shelf		
-19	An 9	SE corner, top of disk melf		
-20	Rm /h	SE comer, top of file cabinet		
-21	Mess Hal	North end, on hert register		
-22	lm 6T	South Pad, window sill		
-23	Lm 96	westwell, on heat register		
-24	Rm 88	SE comes, top of File		
-35	km 90 f	center of Rm, top of finish		
v -26	ln 90 0	north end, top of telecom		



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Appendix C

Asbestos Bulk Sampling Results

A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS



	Havre de Grace, Maryland 114	301-IF Old Bay Lane, Attn: ARNG-CIG-P, State Military Reservation	National Guard Burein
P.O. Namber:	Job Number:	Job Location:	Job Name:
W912K6-09A-0003	1061-15	Staten Island, NY	Staten Island RC
	Person Submitting:	Date Analyzed:	Chain Of Castody:
	e e	11.772012	-

						Summ	агу о	Folari	Zed L	M 1081	licros	copy					
AMA Sample	Clent	Total	Chrysotik	Amesite	Crecidolite	Other	Mineral	Fiberglass	Organic	Symbetic	Other	Particulate	Sample	Sample	Homogeneity	Analyst	Comments
Number	Sample #	Asbesas	fercest	Percent	Percen	Ashestos	s Wool	Percent	Percent	Percent Percent Percent	Percent	Percent	Type	Cdor		Ħ	

Ashestos Wool Percent

H

MUD

Gay

Homogeneous LBP

Page 1 of 1

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

13010561

SPAST!

MAN

Percent Percent

- EM RECOMMENDATION Please note, due to resolution instations with optical microscopy, and/or interference from matrix components of this sample, results which are reported in PLM as negative in trace (41%) for suberious may contain a significant quantity of subsettos. It is recommended that the additional analysical inchange of TBM be used to decide for advertes fibers below the resolution limits
- 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 (41%) for adventor may obscuring effects of matrix components, followed by manulysis by PLM and/ir TEM contain a significant quantity of address which is obscured from view. It is recommended that the additional preparation technique of graviments reduction be performed on this sample to minimize the

unless signed by the Technical Director or Deputy. All results are to be considered preliminary and subject to change the CV is 0.43, 11-35% CV=0.55, >35 CV=0.23

Technical Director

Poeravut Charleonee

NAD = "No Asbestos Detected"

TR = Trace equals less than 1% of this component

Analysis Method - EPA/600/R-93/11/6 dated July 1993

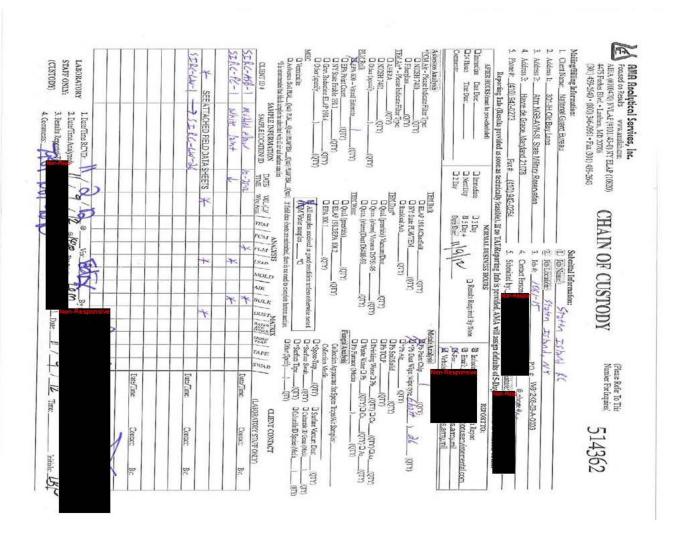
Uncertainty. For samples containing assessos in range of 1-10%



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NYLAP (101143-0) Accredited Laboratory

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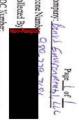


Please Return Samples Tu:

AMA Asalytical Services, Inc., 4477 Feebes Blvd., Lanham, MD 20706 (200) 346-086 (/500) 459-2640 Fee, www.smalib.com jitho@amadei.com

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										Comments







Appendix D

Photographs



Building exterior, west side



Room 31, Gym



Room 75, Boiler room, fungal growth on FG pipe insulation



Room 35A, flammables cabinet



Room 75, Boiler room



Room 58, restroom, water-damaged ceiling



Drill Hall, looking SE



Room 26, electrical room, peeling white paint



Drill Hall, SE corner, damaged PACM (TSI)

Appendix E

References

- 1. Department of Defense Instruction (0001) 6055.1, Department of Defense Occupational Safety and Health (OS H) Program, August 19, 1998.
- 2. Army Regulation (AR) 11-34, The Army Respiratory Protection Program, February 15, 1990.
- 3. DA PAM 40-503, Medical Service, Industrial Hygiene Program, October 30, 2000.
- 4. Technical Manual (T.M) 5-810-1, Mechanical Design, Heating, Ventilation, and Air Conditioning, June 1991.
- 5. Threshold Limit Values (TLVs) and Biological Exposure Indices (BEls), American Conference of Governmental Industrial Hygienists (ACGIH), current edition.
- 6. UFC 3-410-01 FA Heating, Ventilating, and Air Conditioning, 15 May 2003, change 4 January 2010
- 7. Occupational Safety and Health Administration (OSHA) Lead in Construction Standard, 29 CFR 1926.62.
- 8. Army Regulation (AR) 385-10, The Army Safety Program, August 23, 2007/RAR 4 Oct 2011
- 9. RP-1-2004, Office Lighting, Illuminating Engineering Society of North America / American National Standards Institute (IESNA/ANSI).
- 10. RP-7-2001, Industrial Lighting, (IESNA/ANSI).
- 11. The American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE), Standard 62.1-2010, "Ventilation for Acceptable Indoor Air Quality".
- 12. ASHRAE Standard 55-2010 "Thermal Environmental Conditions for Human Occupancy"
- 13. Title 24, CFR, Part 35, Subpart B, Sections 35.110, Definitions of Lead-Based Paint, Housing and Urban Development, U.S. Department of Housing.
- 14. OSHA Permissible Exposure Limit (PEL) for General Industry 29 CFR 1910.1000 Z-1 Table
- 15. Guidelines on Assessment and Remediation of Fungi in Indoor Environments, New York City Department of Health and Mental Hygiene, November 2008.
- 16. Mold Remediation in Schools and Commercial Buildings, U.S. Environmental Protection Agency, March 2001
- 17. Army Facilities Management Information Document on Mold Remediation Issues TG277, February 2002
- 18. NG PAM 420-15, Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges, 3 November 2006.



DEPARTMENT OF THE ARMY

US ARMY CENTER FOR HEALTH PROMOTION AND PREVENTIVE MEDICINE 5158 BLACKHAWK ROAD ABERDEEN PROVING GROUND MD 21010-5403

MCHB-TS-OFS

MAY 0 7 2007

MEMORANDUM FOR National Guard Bureau Region North Industrial Hygiene Office (NGB-ARS-IHNE/Ms. Non-Responsive), 301-IH Old Bay Lane, Havre de Grace, MD 21078

SUBJECT: Industrial Hygiene Field Services Report No. 55-ML-048L-05/07, Industrial Hygiene Baseline Survey, Syracuse Armory, New York State Armory, 14 September 2005

- 1. Enclosed is a copy of subject report with two CD-ROMS.
- at commercial (410) 436-3118, DSN 584-3118 or 2. Our point of contact is Mr. electronic mail: Non-Responsive @us.army.mil

FOR THE COMMANDER:

Encl

Director, Occupational Health Sciences

CF: (wo/CD-ROMs) USACHPPM-NORTH (MCHB-AN-IH/MR.Non-Re

U.S. Army Center for Health Promotion and Preventive Medicine



INDUSTRIAL HYGIENE FIELD SERVICES REPORT NO. 55-ML-048L-05/07 NEW YORK ARMORY NATIONAL GUARD FACILITIES SYRACUSE ARMORY, SYRACUSE, NY 14 SEPTEMBER 2005







Distribution limited to U.S. Government agencies only. Requests for this document must be referred to the National Guard Bureau Region North Industrial Hygiene Office (NGB-ARS-IHNE/Ms.

301-IH Old Bay Lane, Havre de Grace, MD 21078



Readiness Thru Health

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U.S. ARMY CENTER FOR HEALTH PROMOTION AND PREVENTIVE MEDICINE

The U.S. Army Center for Health Promotion and Preventive Medicine (USACHPPM) lineage can be traced back over 50 years to the Army Industrial Hygiene Laboratory. That organization was established at the beginning of World War II and was under the direct jurisdiction of The Army Surgeon General. It was originally located at the Johns Hopkins School of Hygiene and Public Health, with a staff of three and an annual budget not to exceed \$3000. Its mission was to conduct occupational health surveys of Army operated industrial plants, arsenals, and depots. These surveys were aimed at identifying and eliminating occupational health hazards within the Department of Defense's (DOD) industrial production base and proved to be beneficial to the Nation's war effort.

Until 1995, it was nationally and internationally known as the U.S. Army Environmental Hygiene Agency or AEHA. Its mission is expanding to support the worldwide preventive medicine programs of the Army, DOD and other Federal Agencies through consultations/ supportive services; investigations and training.

Today, AEHA is redesignated the U.S. Army Center for Health Promotion and Preventive Medicine. Its mission for the future is to provide worldwide technical support for implementing preventive medicine, public health and health promotion/wellness services into all aspects of America's Army and the Army Community anticipating and rapidly responding to operational needs and adaptable to a changing work environment.

The professional disciplines represented at the Center include chemists, physicists, engineers, physicians, optometrists, audiologists, nurses, industrial hygienists, toxicologists, entomologists, and many other as well as sub-specialties within these professions.

The organization's quest has always been one of excellence and continuous quality improvement; and today its vision, to be the nationally recognized Center for Health Promotion and Preventive Medicine, is clearer than ever. To achieve that end, it holds ever fast to its values which are steeped in its rich heritage:

- ♦ Integrity is the foundation
- ♦ Excellence is the standard
- ♦ Customer satisfaction is the focus
- ♦ Its people are the most valued resource
- ♦ Continuous quality improvement is its pathway

The organization, which stands on the threshold of even greater challenges and responsibilities, has General Officer leadership. As it moves into the next century, new programs are being added related to health promotion/wellness, soldier fitness and disease surveillance. As always, its mission focus is centered upon the Army Imperatives so that we are trained and ready to enhance the Army's readiness for war and operations other than war.

It is an organization fiercely proud of its history, yet equally excited about the future. It is destined to continue its development as a world-class organization with expanded services to the Army, DOD, other Federal Agencies, the Nation and the World Community.

CHPPM FORM 433-E (MCHB-CS-IPD), OCT 03 (reverse)



DEPARTMENT OF THE ARMY

US ARMY CENTER FOR HEALTH PROMOTION AND PREVENTIVE MEDICINE
5158 BLACKHAWK ROAD
ABERDEEN PROVING GROUND MD 21010-5403

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EXECUTIVE SUMMARY
INDUSTRIAL HYGIENE FIELD SERVICES
REPORT NO. 55-ML-048L-05/07
NEW YORK ARMY NATIONAL GUARD FACILITIES
SYRACUSE ARMORY, SYRACUSE, NY
14 SEPTEMBER 2005

- 1. PURPOSE. Conduct an industrial hygiene survey of the New York Army National Guard (NYARNG) Syracuse Armory, Syracuse, NY, to identify and measure the existence and extent of potentially hazardous operations or conditions. This survey will serve to establish a baseline so that an occupational exposure history can be compiled for each civilian or military employee.
- 2. CONCLUSIONS. Very high levels of lead in surface dust in the former Indoor Firing Range (IFR) indicated that abatement was inadequate. Dust could be tracked from this room to other areas of the Armory. There were no other significant occupational safety and health concerns.

3. RECOMMENDATIONS.

a. <u>Lead Exposure</u>. Health Risk Assessment Code (RAC) 3 for children. Health RAC 4 for adults. Address all potential lead hazards before continuing to extend the use of this facility to children. Follow the guidance in NG Pamphlet 420-15 and in Appendix F of this report. If children will visit this facility, clean the floors in the Drill Hall near to, and rooms adjacent to, the Storage Room (converted IFR) to the Environmental Protection Agency (EPA) lead in dust standards for young children. The Storage Room should be cleaned to the EPA lead in dust standards for young children if the area is to be used to store toys or equipment used by children. At minimum, clean floors and other frequently contacted surfaces to the US Army Center for Health Promotion and Preventive Medicine recommended level. Ensure that personnel wear disposable gloves and disposable coveralls as extra protection when cleaning in all areas identified as having elevated levels of lead. Consult with the NYARNG Environmental Coordinator concerning waste disposal requirements after clean up.

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INDUSTRIAL HYGIENE FIELD SERVICES REPORT NO. 55-ML-048L-05/07 NEW YORK ARMY NATIONAL GUARD FACILITIES SYRACUSE ARMORY, SYRACUSE, NY 14 SEPTEMBER 2005

- 1. REFERENCES. See Appendix A.
- 2. PURPOSE. Conduct an industrial hygiene survey of the New York Army National Guard (NYARNG) Syracuse Armory to identify and measure the existence and extent of potentially hazardous operations or conditions. This survey will serve as a baseline so that an occupational exposure history can be compiled for each civilian or military employee.
- 3. AUTHORITY. Fax, National Guard Bureau (NGB) Region North Industrial Hygiene Office (NGB-ARS-IHNE/Ms. Non-Responsive), June 2005, subject: SAB.
- 4. GENERAL.
- a. <u>Personnel Contacted</u>. The point of contact (POC) was Mr. Non-Responsive, Armory Regional Manager, 6900 Thompson Road, Syracuse, NY, Phone: (315) 438-3304.
- b. <u>Survey Personnel</u>. This survey was conducted on 14 September 2005 by Mr. Non-Responsive, Industrial Hygienist, US Army Center for Health Promotion and Preventive Medicine (USACHPPM).
- c. <u>Risk Assessment Codes (RACs)</u>. The Department of Defense Instruction (DODI) 6055.1 provides a method for assigning RACs to health hazards that are based on the magnitude of exposures to physical, chemical, and biological agents and the possible medical effects. The DODI 6055.1 also provides RACs for safety and ergonomic hazards. A RAC is an expression of the risk associated with a hazard that combines the hazard severity and accident probability into a single numeral. The RACs enable one to prioritize hazards. They range in magnitude from 1 to 5, with 1 being the highest priority.
- d. <u>Background</u>. The Armory mission was to support the 108th Infantry, 1st Brigade (L1), Company D; 127th Infantry, 1st Brigade, Company D; and 204th Engineering Brigade, Detachment 1, Company B. The construction date of the original facility was 1992. An

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addition was completed in 2002. Both sections of the Armory were primarily office and classroom space used by the Brigades. The Drill Hall and former indoor firing range (IFR) were part of the original 1992 facility. Children had used the Drill Hall, Office and Classrooms during occasional visits. It was not expected that the facility would be used for day care or after school functions.

5. METHODOLOGY.

- a. <u>Assessment Criteria</u>. Army Regulation 40-5 contains the requirement that airborne chemical exposures in Army facilities must comply with the lower of the Occupational Safety and Health Administration (OSHA) Permissible Exposure Limit (PEL) or the American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Value®. The NGB criterion for lead in surface dust is discussed in Appendix C. The ACGIH provides criteria for industrial ventilation systems. The American Society of Heating, Refrigeration, and Airconditioning Engineers (ASHRAE) publishes criteria for indoor air quality (IAQ). The National Fire Protection Association National Fire Codes provides standards for fire and life safety. The Illumination Engineering Society North America (IESNA) provides standards for minimum light levels.
- b. <u>Calibration</u>. All instruments were calibrated in accordance with manufacturers' instructions using National Institute of Standards and Testing-traceable method.
- c. <u>Methodology</u>. The survey consisted of the collection of IAQ and ventilation measurements, sampling surface dust and air for lead, observation of work practices and procedures, and employee interviews.

6. FINDINGS AND DISCUSSION

- a. <u>Description of Operations</u>. The Armory contained a Drill Hall, Classroom Offices, and storage space.
- b. <u>Occupational Safety and Health Programs</u>. Hazard awareness training programs covered occupational heath topics including lead and asbestos hazards, noise, personal protective equipment, Hazard Communication, OSHA right-to-know requirements, lockout/tagout, and other topics required for State employees. Employee training records were up to date and located onsite.

c. Building Condition.

(1) Physical Condition. The wall surfaces were freshly painted and the building was in very good condition.

(2) Housekeeping. No housekeeping deficiencies were observed.

d. Indoor Environmental Quality.

- (1) Heating, Ventilation, and Air-Conditioning Systems. The building had separate air handling systems for the two main areas. The air handling systems for the original office building and the new addition provided central heating and cooling. The Drill Hall was supplied with conditioned air through ceiling mounted ducts. The Storage Room (former IFR) was not supported by the building's air handling systems. It was ventilated by an exhaust fan located on its roof.
- (2) Temperature, Humidity, and Air Exchange Rate. Temperature in degrees Fahrenheit (° F), Relative Humidity (RH) in percent, carbon dioxide (CO₂) in parts per million (ppm), and carbon monoxide (CO) in ppm were sampled to assess building indoor environmental air quality. The ASHRAE recommends maintaining 71-81° F in the summer, CO₂ levels below the value of 700 ppm plus the outdoor ambient level (approximately 380 ppm), and 30-60 percent RH. Temperatures averaged 71° F, RH levels averaged 48 percent, and CO₂ levels averaged 580 ppm. All values met ASHRAE recommendations.
- (3) Mold. No mold or moisture problems were observed or reported by building occupants.
 - e. Water Quality. No water quality problems/concerns were reported.
- f. <u>Lead Hazards</u>. The IFR had been closed since 1993. The POC stated that a lead abatement project was completed in 2001, along with the removal of the bullet trap and firing line fixtures and documentation was located at the Latham Armory, Latham, NY. The IFR was converted to a Storage Room for Brigade company equipment. No signs of deteriorating paint were observed. The date of construction indicates that leaded paint was unlikely to have been used.

(1) Lead Criteria.

(a) Lead in surface dust. The Environmental Protection Agency (EPA) limits for lead in dust are 40 micrograms per square foot ($\mu g/ft^2$) on floors, 250 $\mu g/ft^2$ on windowsills, and 400 $\mu g/ft^2$ in window troughs. These limits apply to pre-1978 Army facilities only if children under 6 years of age occupy them for 60 or more hours per year. The NGB Region North Industrial Hygiene Office concurs with the USACHPPM recommended maximum level of 200 $\mu g/ft^2$ on floors and frequently contacted surfaces, which is more stringent for windowsills than the EPA/State standards. This level was adopted from OSHA Compliance Letter 02-02-58. Further information is provided in Appendix C.

(b) Lead in air. The Army has adopted the 8-hour OSHA PEL of 50 micrograms per cubic meter ($\mu g/m^3$).

(2) Lead Results.

(a) Lead in Dust. Sampling locations and analytical results are shown in the Table. Sample results greater than 40 $\mu g/ft^2$ for floors or 200 $\mu g/ft^2$ for other surfaces are highlighted. There were very high levels of lead in the Storage Room (former IFR), indicating that it had been inadequately abated. Personnel working in this room were exposed to lead and were tracking lead out of the range area and redistributing it into adjacent rooms in the Armory. Six results exceeded the EPA and the State of New York standard for children of 40 $\mu g/ft^2$ on floors. These levels could be hazardous to children visiting the Armory.

TABLE. Lead in Surface Dust Sampling Locations and Analytical Results.

Wipe Sample Number	Location of Samples	Result (µg/ft²)
SYW01	Converted IFR bullet trap area, floor at right corner	4,200
SYW02	Converted IFR, floor at west wall halfway down range	3,600
SYW03	Converted IFR, exhaust grille in bullet trap area	100,000
SYW04	Converted IFR, top of light fixture	190
SYW05	Converted IFR, floor near firing line behind exit door	1,600
SYW06	Field blank	< 0.3
SYW07	Room 152 floor behind door	<mark>58</mark>
SYW08	Drill Hall floor at east wall outside converted IFR	19
SYW09	Drill Hall, top of vending machine on west wall	41
SYW10	Converted IFR floor at entrance from Drill Hall	130
SYW11	Drill Hall floor at south wall near door to Supply Room	110
SYW12	Field blank	0.85

(b) Lead in Air. General area sampling was conducted in the Storage Room (former IFR) used for storage of Brigade equipment, and in the Drill Hall. The results were less than 4 micrograms per cubic meter ($\mu g/m^3$), and were below the laboratory analytical reporting limit of 1 $\mu g/s$ ample, as well as the OSHA standard of 50 $\mu g/m^3$ over an 8-hour day.

g. Other Chemical Hazards.

- (1) Asbestos. The POC stated that the building was constructed without asbestos-containing building materials (ACBM). The date of the building indicated that ACBM was unlikely to have been used.
- (2) CO. The Army has adopted the ACGIH 8-hour exposure limit for CO of 25 ppm. The CO levels measured in conjunction with IAQ parameters were all less than 0.1 ppm.
- h. <u>Industrial Ventilation Systems</u>. There were no longer any operating industrial ventilation systems in the Armory.
- i. <u>Noise Hazards</u>. There appeared to be no operations within the facility that would generate hazardous noise levels above the Army-adopted occupational exposure limits of 85 decibels A-weighted (dBA) with 3 db exchange rate.
- j. <u>Lighting</u>. There were no complaints concerning lighting. The measured level in the State Office for the Armory on the first floor was 94 foot candles (fc); the Classroom, first floor, was measured at 90 fc, and the second floor hallway of the new addition was 76 fc. These values fall above the IESNA recommended minimum of 50 fc for medium visual tasks such as office work and reading.
 - k. Other issues. No other problems were observed or reported.
- 7. CONCLUSIONS. Very high levels of lead in surface dust in the former IFR indicated that abatement was inadequate. Dust could be tracked from this room to other areas of the Armory. There were no other significant occupational safety and health concerns.
- 8. RECOMMENDATIONS. Lead Exposure. Health RAC 3 for children. Health RAC 4 for adults. Address all potential lead hazards before continuing to extend the use of this facility to children. Follow the guidance in NG Pamphlet 420-15 and in Appendix F. If children will visit this facility, clean the floors in the Drill Hall near to, and rooms adjacent to, the Storage Room (converted IFR) to the EPA lead in dust standards for young children. The Storage Room should be cleaned to the EPA lead in dust standards for young children if the area is to be used to store toys or equipment used by children. At minimum, clean floors and other frequently contacted surfaces to the USACHPPM recommended level. Ensure that personnel wear disposable gloves and disposable coveralls as extra protection when cleaning in all areas identified as having elevated levels of lead. Consult with the NYARNG Environmental Coordinator concerning waste disposal requirements after clean up.

9. ADDITIONAL ASSISTANCE. For additional assistance or questions concerning this report, please contact the undersigned at commercial (410) 436-4938/3118, DSN 584-4938/3118 or electronic mail: Non-Responsive @us.army.mil

Non-Responsive

Industrial Hygienist
Industrial Hygiene Field Services Program

APPROVED:

Non-Responsive

MAJ, MS Program Manager Industrial Hygiene Field Services Program

APPENDIX A

REFERENCES

- 1. Occupational Safety and Health Administration, Title 29, Code of Federal Regulations (CFR), Part 1910 for General Industry, 2005 revisions. http://www.osha.gov/comp-links.html
- 2. American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. (ASHRAE) Standard 62.1-2004, Ventilation for Acceptable Indoor Air Quality. http://www.ashrae.org
- 3. DA PAM 40-501, Medical Services, Hearing Conservation Program, 10 Dec 98. http://www.usapaarmy.mil/pdffiles/p40-501.pdf
- 4. Illuminating Engineering Society of North America, ANSI/IESNA Standard RP-1-2004, Office Lighting.
- 5. Department of Health and Human Services National Toxicology Program (NTP) Substance Profiles, Report on Carcinogens, 11th Edition, Lead and Lead Compounds (CAS No. 7439-92-1) Feb 05.
- 6. U.S. Environmental Protection Agency (EPA), 40 CFR Part 745, Lead; Identification of Dangerous Levels of Lead; Final Rule, 5 Jan 01.
- 7. Department of Defense Instruction (DODI) 6055.1, Department of Defense Occupational Safety and Health (OSH) Program, 19 Aug 98. http://www.dtic.mil/whs/directives/corres/pdf/i60551_081998/i60551p.pdf
- 8. NG Pam 420-15, Facilities Engineering, Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges, 3 Nov 06.

APPENDIX B

LABORATORY REPORTS

AMA Analytical Services, Inc.

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CERTIFICATE OF ANALYSIS

Client:

National Guard Bureau

Job Name:

P.O. Number:

Syracuse NY

Chain Of Custody:

116954

Address:

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

Job Location:

Not Provided

Date Submitted:

9/23/2005

State Military Reservation

Havre de Grace, Maryland 21078 Job Number: Not Provided Not Provided

Person Submitting: Date Analyzed:

9/28/2005

Report Date: 28-Sep-05

Attention:

Summary of Atomic Absorption Analysis for Lead

Page 1 of 1

AMA Sample Number	Client Sample Number	Analysis Type	Sample Type	Air Volume (L)	Area Wiped (ft²)	Reporting Limit								Final	Result	Comments
0567367	SY-W-01	Flame	Wipe	***	0.111	108.01	ug/ft²	420	0 ug/ft²	A						
0567368	SY-W-02	Flame	Wipe	***	0.111	108.01	ug/ft²	360	•							
0567369	SY-W-03	Flame	Wipe	****	0.111	108.01	ug/ft²	1000	00 ug/ft²							
0567370	SY-W-04	Furnace	Wipe	****	0.111	67.51	ug/ft²	19	ug/ft²							
0567371	SY-W-05	Flame	Wipe	****	0.111	108.01	ug/ft²	160	0 ug/ft²							
0567372	SY-W-06	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 See QC Summary for analytical results of quality control samples associated with these samples.

N/A = Not Applicable

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

%Pb = percent lead by weight

ug = micrograms

ug/L = parts per billion (ppb)

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

Note: All results have two significant digits. Any additional digits shown

should not be considered when interpreting the result.

Air and Wipe results are not corrected for any blank results

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

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CERTIFICATE OF ANALYSIS

NY ELAP

AIHA 100470

Client:

National Guard Bureau

Job Name:

Syracuse NY

Chain Of Custody:

116955

Address:

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

Job Location:

Not Provided

Date Submitted:

9/23/2005

State Military Reservation

Havre de Grace, Maryland 21078

Job Number:
P.O. Number:

Not Provided Not Provided Person Submitting

9/28/2005

Report Date: 28-Se

28-Sep-05

Attention:

lon-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 (ft²)		orting imit	Final Resu	ılt	Comments
0567373	ev w oz	P	Wine	***	0.111			50	nσ/θ²	
	SY-W-07	Furnace	Wipe			13.50	ug/ft²	36	ug/ft²	
0567374	SY-W-08	Furnace	Wipe	****	0.111	2.70	ug/ft²	19	ug/ft²	
0567375	SY-W-09	Furnace	Wipe	****	0.111	13.50	ug/ft²	41	ug/ft²	
0567376	SY-W-10	Furnace	Wipe	****	0.111	67.51	ug/ft²	130	ug/ft²	
0567377	SY-W-11	Furnace	Wipe	****	0.111	67.51	ug/ft²	110	ug/ft²	
0567378	SY-W-12	Furnace	Wipe Blank	****	N/A	0.30	ug	0.85	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

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

N/A = Not Applicable

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

ug/L = parts per billion (ppb)

%Pb = percent lead by weight

ug = micrograms

agin parta par annois (p)

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

Non-Responsive

Analyst:

Non-Responsive

Technical Manager:

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Page 1019 of 1350

AMA Analytical Services, Inc.

A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS

BEST AVAILABLE COPY

Client:

National Guard Bureau

Job Name:

Syracuse NY

Chain Of Custody:

144152

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

Job Location:

Not Provided

Date Submitted:

Date Analyzed:

associated with these samples.

9/23/2005

State Military Reservation

Havre de Grace, Maryland 21078

Job Number: P.O. Number: Not Provided Not Provided Person Submitting:

9/23/2005

Report Date:

23-Sep-05

Attention:

Summary of Atomic Absorption Analysis for Lead

Page 1 of 1

AMA Sample Number	Client Sample Number	Analysis T	ype Sample Type	Air Volume (L)	Area Wiped (ft²)	Reporting Limit				Fi	nal Res	sult Comments	
0567379	SY-A-01	Flame	Air	1044	N/A	2.87 u	ug/m³	<	2.9	ug/m³			
0567380	SY-A-02	Flame	Air	1068	N/A	2.81 u	ug/m³	<	2.8	ug/m³			
0567381	SY-A-03	Flame	Air	1018	N/A	2.95 u	ug/m³	<	2.9	ug/m³			
0567382	SY-A-04	Flame	Air	1044	N/A	2.87 u	ug/m³	<	2.9	ug/m³			
0567383	SY-A-05	Flame	Air Blank	0	N/A	3.00 u	ug/m³	<	3	ug			
Analysis Method fo	er: SM-3111B	See QC Su	ımmary fo	r analytica	al result	s of quality control samples							

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

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

%Pb = percent lead by weight

ug = micrograms

ug/L = parts per billion (ppb)

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

Note: All results have two significant digits. Any additional digits shown

should not be considered when interpreting the result.

Air and Wipe results are not corrected for any blank results



on-Respons Technical Manager

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APPENDIX C

SUBJECT: National Guard Bureau Region North Industrial Hygiene Office Proposed Recommendations for Surface Lead in Armories

- 1. In armories that do not contain childcare facilities, the NGB Region North Industrial Hygiene Office recommends cleaning the areas in which sample results are greater than $200 \,\mu\text{g/ft}^2$. This guidance is based on professional judgment, risk assessments, adaptation of OSHA guidance, and feasibility of cleaning to a certain level.
- a. EPA standards (40 CFR 745.227(e) (8) (viii)) and State of New York standards are not directly applicable because they are developed for floors (40 μ g/ft²), windowsills (250 μ g/ft²) and window troughs (400 μ g/ft²) in residential and childcare facilities. Most of the wipe samples in armories were collected in undisturbed areas and, therefore, results are worst case scenarios and do not correlate to these standards.
- b. OSHA has no specific requirement for work area surfaces. The OSHA lead standard (29 CFR 1910.1025(h)) states that all surfaces shall be maintained as free as practicable of accumulations of lead. In workplaces where lead is generated, surface levels may be much higher, but personnel exposures can be controlled by limiting airborne lead levels and following good cleanup and hygienic practices.
- c. OSHA cites a level of 200 μ g/ft² in OSHA Instruction CPL 2-2.58 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, USACHPPM has determined that $200 \,\mu g/ft^2$ is a safe surface contamination level for adult exposures. They have also applied these standards as the decontamination levels for surfaces in administrative offices.
- e. It should be noted that levels higher than those recommended above 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.

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3. Ambient air samples collected in the armory were well below OSHA's permissible exposure limit for lead (29 CFR 1910.1025(c)) of 50 µg/m³ averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead in this building.

APPENDIX D

PHOTOGRAPHS

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View of the Armory



Rear of the Armory. The forklift is at the overhead door of the Drill Hall.

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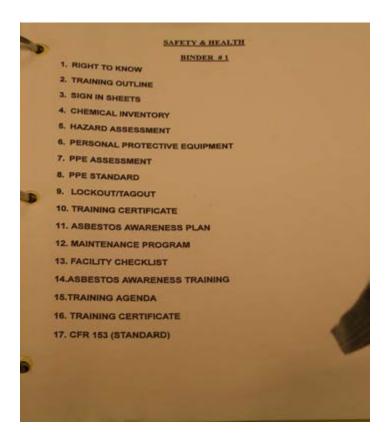


Drill Hall facing west wall.

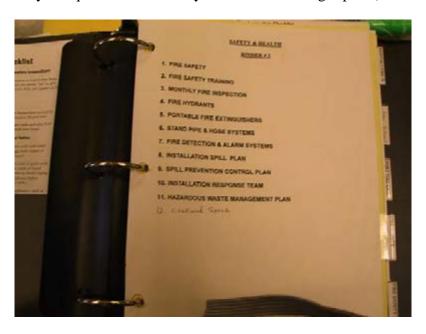


Former IFR facing north towards the bullet trap area.

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The Armory's required annual safety and health training topics (Binder 1).



The Armory's required annual safety and health training topics (Binder 2).

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SYW01. Former IFR, bullet trap area at east corner.



SYW02. Former IFR, west wall halfway down range.

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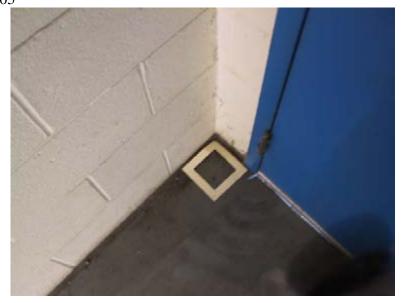


SYW03. Former IFR, exhaust grille.



SYW04. Former IFR, sample taken from top of light fixture.

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SYW05. Former IFR, near firing line behind exit door.



SYW07. Room 152, adjacent to former IFR.

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SYW08. Drill Hall, entrance to IFR to the left and stairway to the right.



SYW09. Sample taken from top of vending machine at west wall of Drill Hall. Pump for air sampling can be seen on top of the vending machine. The filter was placed at breathing zone height on the opposite side facing the open Drill Hall area.



SYW10. Entrance to IFR from Drill Hall. Sample collected behind door leading into IFR. Arrow shows location of the sample.

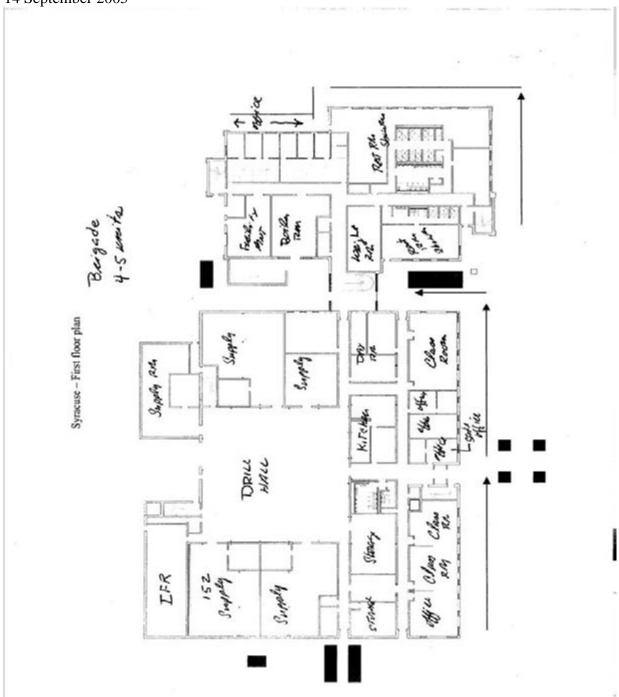


SYW11. Drill Hall, south wall at door to Supply Room.

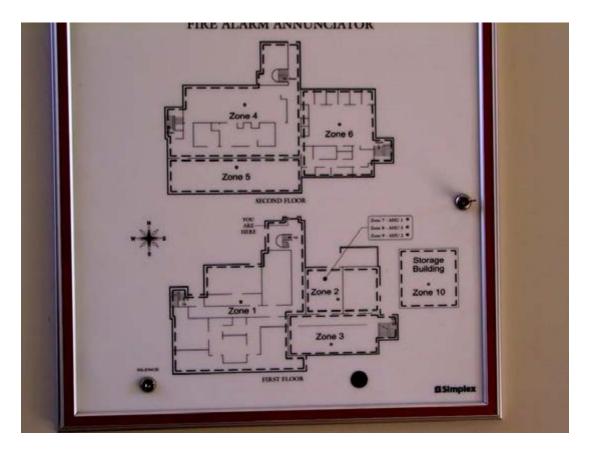
APPENDIX E

FLOOR PLAN

NYARNG IH Survey, Report No. 55-ML-048L-05/07, Syracuse Armory, Syracuse, NY, 14 September 2005



The second floor of the original building, to the left, is similar to the first floor. The Drill Hall and the Firing Range extend up to roof level.



Floor plan for the 2002 addition to the Armory. No other schematics were available at the time of this survey.

APPENDIX F LEAD CLEANING GUIDANCE





CHAPTER 14: CLEANING

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Chapter 14: Cleaning



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Step-by-Step Summary



Cleaning: How To Do It

- Include step-by-step procedures for precleaning, cleaning during the job, and daily and final cleanings in project design or specifications.
- 2. Assign responsibilities to specific workers for cleaning and for maintaining cleaning equipment.
- 3. Have sufficient cleaning equipment and supplies before beginning work.
- 4. If contamination is extensive, conduct precleaning of the dwelling unit. Move or cover all furniture and other objects.
- Conduct ongoing cleaning during the job, including regular removal of large and small debris and dust.
 Decontamination of all tools, equipment, and worker protection gear is required before it leaves containment areas. Electrical equipment should be wiped and high-efficiency particulate air (HEPA) vacuumed, not wetted down, to minimize electrocution hazards.
- 6. Schedule sufficient time (usually 30 minutes to an hour) for a complete daily cleaning, starting at the same time near the end of each workday after lead hazard control activity has ceased.
- For final cleaning, wait at least 1 hour after active lead hazard control activity has ceased to let dust particles settle.
- Use a vacuum cleaner equipped with a HEPA exhaust filter. HEPA vacuum all surfaces in the room (ceilings, walls, trim, and floors). Start with the ceiling and work down, moving toward the entry door. Completely clean each room before moving on.
- Wash all surfaces with a lead-specific detergent, high-phosphate detergent, or other suitable cleaning agent to dislodge any ground-in contamination, then rinse. Change the cleaning solution after every room is cleaned.
- 10. Repeat step 8. To meet clearance standards consistently, a HEPA vacuum, wet wash, and HEPA vacuum cycle is recommended. For interim control projects involving dust removal only, the final HEPA vacuuming step is usually not needed (see Chapter 11). Other cleaning methods are acceptable, as long as clearance criteria are met and workers are not overexposed.
- 11. After final cleaning, perform a visual examination to ensure that all surfaces requiring lead hazard control have been addressed and all visible dust and debris have been removed. Record findings and correct any incomplete work. This visual examination should be performed by the owner or an owner's representative who is independent of the lead hazard control contractor.
- 12. If other construction work will disturb the lead-based paint surfaces, it should be completed at this point. If those surfaces are disturbed, repeat the final cleaning step after the other construction work has been completed.
- 13. Paint or otherwise seal treated surfaces and interior floors.
- 14. Conduct a clearance examination (see Chapter 15).
- 15. If clearance is not achieved, repeat the final cleaning.



-Step-by-Step Summary (continued) -



- 16. Continue clearance testing and repeated cleaning until the dwelling achieves compliance with all clearance standards. As an incentive to conduct ongoing cleaning and a thorough final cleaning, the cost of repeated cleaning after failing to achieve clearance should be borne by the contractor as a matter of the job specification, not the owner.
- 17. Do not allow residents to enter the work area until cleaning is completed and clearance is established.
- 18. Cleaning equipment list:
 - HEPA vacuums.
 - Detergent.
 - ♦ Waterproof gloves.
 - Rags.
 - Sponges.
 - Mops.
 - Buckets.
 - ◆ HEPA vacuum attachments (crevice tools, beater bar for cleaning rugs).
 - 6-mil plastic bags.
 - Debris containers.
 - Waste water containers.
 - Shovels.
 - Rakes.
 - Water-misting sprayers.
 - ♦ 6-mil polyethylene sheeting (or equivalent).





Chapter 14: Cleaning

I. Introduction

This chapter describes cleaning procedures to be employed following abatement and interim control work. Dust removal as an interim control measure is covered in Chapter 11.

All lead hazard control activities can produce dangerous quantities of leaded dust. Unless this dust is properly removed, a dwelling unit will be more hazardous after the work is completed than it was originally. Once deposited, leaded dust is difficult to clean effectively. Whenever possible, ongoing and daily cleaning of leaded dust during lead hazard control projects is recommended. Ongoing and daily cleaning is also necessary to minimize worker exposures.

Cleaning is the process of removing visible debris and dust particles too small to be seen by the naked eye. Removal of lead-based paint hazards in a dwelling unit will not make the unit safe unless excessive levels of leaded dust are also removed. This is true regardless of whether the dust was present before or generated by the lead hazard control process itself. Improper cleaning can increase the cost of a project considerably because additional cleaning and clearance sampling will be necessary. However, cleaning and clearance can be achieved routinely if care and diligence are exercised.

A. Performance Standard

Although the cleaning methods described in this chapter are feasible and have been shown to be effective in meeting clearance standards, other methods may also be used if they are safe and effective. This performance-oriented approach should stimulate innovation, reduce cost, and ensure safe conditions for both residents and workers.

B. Small Dust Particles

Dust particles that are invisible to the naked eye remain on surfaces after ordinary cleaning

procedures. A visibly clean surface may contain high and unacceptable levels of dust particles and require special cleaning procedures.

C. Difficulties in Cleaning

While cleaning is an integral and essential component of any lead hazard control activity, it is also the most likely part of the activity to fail.

Several common reasons for this failure include low clearance standards, worker inexperience, high dust-producing methods, and deadlines.

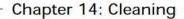
1. Low Clearance Standards

Because very small particles of leaded dust are easily absorbed by the body when ingested or inhaled, a small amount can create a health hazard for young children. Therefore, "clearance standards" are extremely low for acceptable levels of leaded dust particles on surfaces after hazard control activities, and careful cleaning procedures are required. Although it is not possible to remove all leaded dust from a dwelling, it is possible to reduce it to a safe level.

Clearance standards are described more fully in Chapter 15. The permissible amount of leaded dust remaining on each of the following surfaces following lead hazard work is as follows:

- 100 μg/ft² on floors.
- 500 µg/ft² on interior window sills (stools).
- 800 µg/ft² on window troughs (the area where the sash sits when closed).
- 800 μg/ft² on exterior concrete.

These levels are based on wipe sampling.
Clearance testing determines whether the premises or area are clean enough to be reoccupied after the completion of a lead paint hazard control project. A cleaned area may not be reoccupied until compliance with clearance standards has been established. To prevent delays, final testing and final cleaning activities should be coordinated.







2. Worker Inexperience

To understand the level of cleanliness required to meet the established clearance standards for hazard control cleanup, new hazard control personnel often require a significant reorientation to cleaning. Many construction workers are used to cleaning up only dust that they can see, not the invisible dust particles that are also important to remove.

3. High Dust-Producing Methods and/or Inadequate Containment

High dust-generating methods, inadequate containment during hazard control work, and poor work practices can all make achievement of clearance particularly difficult. Work practices necessary to prevent spreading of dust throughout a dwelling (e.g., by tracking dust out of work areas) are essential but sometimes tedious. Essential work practices are sometimes mistakenly considered to be "flexible guidelines" rather than necessary standards that are designed to ensure that the job is completed, not only safely, but also on time and within budget.

4. Deadlines

Daily and final cleanings have sometimes been compromised due to project deadlines, since cleaning comes at the end of the job. Hurried efforts often result in clearance failure. Delayed and over-budget hazard control projects are often the result of repeated, unplanned recleanings that are necessitated by inadequate containment and sloppy work practices.

II. Coordination of Cleaning Activities

A. Checklist

The owner or contractor may use the following cleaning checklist before any lead hazard control activity:

- ✓ Is the critical importance of cleaning in a hazard control project understood?
- ✓ Have all workers been trained and certified for hazard control work?

- Have the precleaning, daily, and final cleanings been scheduled properly and coordinated with the other participants in the hazard control process?
- ✓ Have cleaning equipment and materials been obtained?
- ✓ Do the workers know how to operate and maintain special cleaning equipment, and do they have directions for the proper use of all cleaning materials?
- ✓ Have all workers carefully studied the step-by-step procedures for precleaning (if needed), in-progress cleaning, and daily and final cleanings?
- ✓ Are all workers properly protected during the cleaning processes (see Chapter9)?
- ✓ Have provisions been made to properly contain and store potentially hazardous debris (see Chapter 10)?
- ✓ Have dust-clearance testing and related visual inspections been arranged (see Chapter 15)?
- ✓ Are the clearance criteria to be met fully understood?
- ✓ Have all appropriate surfaces been properly painted or otherwise sealed?
- ✓ Have appropriate records been maintained that document participants' roles in the hazard control project?

B. Equipment Needed for Cleaning

The following equipment is needed to conduct cleaning: high-efficiency particulate air (HEPA) vacuums and attachments (crevice tools, beater bar for cleaning rugs), detergent, waterproof gloves, rags, sponges, mops, buckets, 6-mil plastic bags, debris containers, waste water containers, shovels, rakes, water-misting sprayers, and 6-mil polyethylene plastic sheeting (or equivalent).

Chapter 14: Cleaning



C. Waste Disposal

Regulations governing hazardous and nonhazardous waste storage, transportation, and disposal affect both the daily and final cleaning procedures. The hazard control contractor and the disposal contractor should work together to establish formal written procedures, specifying selected containers, storage areas, and debris pickups, to ensure that all relevant regulations are met.

III. Cleaning Methods and Procedures

Many of the special cleaning methods and procedures detailed in this chapter are not standard operating procedure for general home improvement contractors. Therefore, project designers, responsible agencies, or owners must ensure that contractors follow the methods and procedures recommended herein or specially designed alternative procedures, even though some may appear to be redundant and unnecessary. These methods have been shown to be feasible and effective in many situations and skipping steps in the cleaning procedures can be counterproductive.

A. Containment

Because of the difficulty involved in the removal of fine dust, dust generated by hazard control work should be contained to the extent possible to the inside of work areas. Inadequately constructed or maintained containment or poor work practices will result in additional cleaning efforts, due to dust that has leaked out or been tracked out of the work area (see Chapter 8).

B. Basic Cleaning Methods: Wet Wash and Vacuum Cleaning Techniques

Because leaded dust adheres tenaciously, especially to such rough or porous materials as weathered or worn wood surfaces and masonry surfaces (particularly concrete), workers should be trained in cleaning methods. As a motivator,

some contractors have awarded bonuses to workers who pass clearance the first time.

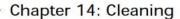
Two basic cleaning methods have proven effective, when used concurrently, in lead-based paint hazard control projects: a special vacuum cleaner equipped with a HEPA exhaust filter, followed by wet washing with special cleaning agents and rinsing, followed by a final pass with the HEPA vacuum.

Although HEPA filtered vacuums and triso-dium phosphate (TSP) cleaners have been considered the standard cleaning tools for lead hazard control projects, new research, discussed under the "Alternatives Methods" section in this chapter, suggests that other tools and products may also be effective in efficiently cleaning dust while providing adequate worker protection from airborne exposure risks. Some of these innovations may even be superior.

1. HEPA Vacuuming

HEPA vacuums differ from conventional vacuums in that they contain high-efficiency filters that are capable of trapping extremely small, micron-sized particles. These filters can remove particles of 0.3 microns or greater from air at 99.97 percent efficiency or greater. (A micron is 1 millionth of a meter, or about 0.00004 inches.) Some vacuums are equipped with an ultra-low penetration air (ULPA) filter that is capable of filtering out particles of 0.13 microns or greater at 99.9995 percent efficiency. However, these ULPA filters are slightly more expensive, and may be less available than HEPA filters.

Vacuuming with conventional vacuum machines is unlikely to be effective, because much of the fine dust will be exhausted back into the environment where it can settle on surfaces. A recent Canadian study revealed that finedust air levels were exceedingly high when a standard portable vacuum with a new bag was used, although partially filled bags were found to be more efficient (CMHC, 1992). Considerations for the proper use of a HEPA vacuum are listed below.







Operating Instructions

There are a numerous manufacturers of HEPA vacuums. Although all HEPA vacuums operate on the same general principle, they may vary considerably with respect to specific procedures, such as how to change the filters. To ensure the proper use of equipment, the manufacturer's operating instructions should be carefully followed and if possible, training sessions arranged with the manufacturer's representative.

Although HEPA vacuums have the same "suction" capacity as ordinary vacuums that are comparably sized, their filters are more efficient. Improper cleaning or changing of HEPA filters may reduce the vacuum's suction capability.

Special Attachments

Because the HEPA vacuum will be used to vacuum surfaces other than floors, operators should buy attachments and appropriate tool kits for use on different surfaces—such as brushes of various sizes, crevice tools, and angular tools.

Selecting Appropriate Size(s)

HEPA vacuums are available in numerous sizes, ranging from a small lunchbucket-sized unit to track-mounted systems. Two criteria for size selection are the size of the job and the type of electrical power available. Manufacturer recommendations should be followed.

Wet-Dry HEPA Vacuums

Some hazard control contractors have found the wet-dry HEPA vacuums to be particularly effective in meeting clearance standards. These vacuums are equipped with a special shut-off float switch to protect the electrical motor from water contact.

Prefilters

HEPA filters are usually used in conjunction with a prefilter or series of prefilters that trap the bulk of the dust in the exhaust airstream, particularly the larger particles. The HEPA filter traps most of the remaining small particles that have passed through the prefilter(s). All filters must be maintained and replaced or

cleaned as specified in the manufacturer's instructions. Failure to do so may cause a reduction in suction power (thus reducing the vacuum's efficiency and effectiveness). Failure to change prefilters may damage the vacuum motor and will also shorten the service life of the HEPA filter, which is far more expensive than the prefilters.

HEPA Vacuuming Procedures

Surfaces frequently vacuumed include ceilings, walls, floors, windows, interior and exterior sills, doors, heating, ventilation, and air conditioning (HVAC) equipment (heating diffusers, radiators, pipes, vents), fixtures of any kind (light, bathroom, kitchen), built-in cabinets, and appliances.

To aid in dislodging and collecting deep dust and lead from carpets, the HEPA vacuum must be equipped with a beater bar (agitator head) that is fixed to the cleaning head. This bar should be used on all passes on the carpet face during dry vacuuming (see Chapter 11 for details on carpet and furniture cleaning).

All rooms and surfaces should be included in the HEPA vacuum process, except for those that (1) were found not to have lead-paint hazards and were properly separated from work areas before the process began (see Chapter 8), or (2) were never entered during the process. Porches, sidewalks, driveways, and other exterior surfaces should be vacuumed if exterior hazard control work was conducted, or if debris was stored or dropped outside. Vacuuming should begin on the ceilings and end on the floors, sequenced to avoid passing through rooms already cleaned, with the dwellings' entryway cleaned last.

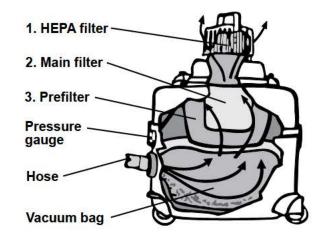
Emptying the HEPA Vacuum

Used filters and vacuumed debris are potentially hazardous waste and should be treated accordingly (see Chapter10). Therefore, operators should use extreme caution when opening the HEPA vacuum for filter replacement or debris removal to avoid accidental release of accumulated dust into the environment. This may occur, for example, if the vacuum's seal has been broken and the vacuum's bag is disturbed.





Figure 14.1a Vacuum With a HEPA Filter.



Parts of a HEPA-vacuum

Most HEPA-vacuums have three filters: HEPA filter, main filter, and prefilter. Debris gets sucked in through the hose into the vacuum bag. The air and dust get filtered through the prefilter, the main filter, and the HEPA filter. The HEPA filter captures the lead dust before the air is released into the work area again.

Operators should also wear a full set of protective clothing and equipment, including appropriate respirators, when performing this maintenance function, which should be done in the containment area or offsite.

2. Wet Detergent Wash

Several types of detergents have been used to remove leaded dust. Those with a highphosphate content (containing at least 5 percent trisodium phosphate, also known as TSP) have been found to be effective when used as part of the final cleaning process (Milar, 1982). TSP detergents are thought to work by coating the surface of dusts with phosphate or polyphosphate groups which reduces electrostatic interactions with other surfaces and thereby permits easier removal. Because of environmental concerns some States have restricted the use of TSP, and some manufacturers have eliminated phosphates from their household detergents. However, high-TSP detergents can usually be found in hardware stores and may be permitted for limited use, such as lead hazard control.

Other non-TSP cleaning agents developed specifically for removing leaded dust have also been found to be effective (possibly more effective than TSP) in limited trials by several



Figure 14.1b Pressure Gauge Indicator Shows When Filters Require Changing.

Pressure

gauge





Figure 14.2 HEPA Vacuum Sizes and Tools.

investigators (Grawe, 1993; Wilson, 1993) and may also be safer, since TSP is a skin and eye irritant. See section VII for more information on non-TSP detergents. Proper procedures for using high-phosphate detergents also apply to most other types of detergents and include the following steps:

Manufacturer's Dilution Instructions

Users of cleaning agents for leaded dust removal should follow manufacturer's instructions for the proper use of a product, especially the recommended dilution ratio. Even diluted, trisodium phosphate is a skin irritant and users should wear waterproof gloves. Eye protection should also be worn, and portable eyewash facilities should be located in or very near the work area. Consult manufacturer's directions for the use of other detergents.

Appropriate Cleaning Equipment

Because a detergent may be used to clean leaded dust from a variety of surfaces, several types of application equipment are needed, including cleaning solution spray bottles, wringer buckets, mops, variously sized hand sponges, brushes, and rags. Using the proper equipment on each surface is essential to the quality of the wetwash process.

Proper Wet-Cleaning Procedures

At the conclusion of the active lead hazard control process and the initial HEPA vacuuming, all vacuumed surfaces should be thoroughly and completely washed with a high-phosphate solution or other lead-specific cleaning agent (or equivalent) and rinsed. Select a detergent that does not damage existing surface finishes (TSP may damage some finishes). Work should proceed from ceilings to floors and sequenced to avoid passing through rooms already cleaned.

Changing Cleaning Mixture

Many manufacturers of cleaners will indicate the surface area that their cleaning mixture will cover. To avoid recontaminating an area by cleaning it with dirty water, users should follow manufacturer-specified surface-area limits. However, regardless of manufacturers' recommendations, the cleaning mixture should be changed after its use for each room. As a rule of thumb, 5 gallons should be used to clean no

Chapter 14: Cleaning



Figure 14.3 Goggles, Face Shields, Gloves, and Eye Wash Facilities Should Be Available When Used With Chemicals Such as TSP. EMERGENCY EYE WASH STATION

more than 1,000 square feet. Used cleaning mixture is potentially hazardous waste (see Chapter 10); consult with your local water and sewage utility for directions on its proper disposal. Wash water should never be poured onto the ground. The wash water is usually filtered and then poured down a toilet (if the local water authority approves).

Latex

3. The HEPA/Wet Wash/HEPA Cycle

Typical Procedures

Neoprene

The usual cleaning cycle that follows lead hazard control activities is called the HEPA vacuum/wet wash/HEPA cycle and is applied to an entire affected area as follows:

First, the area is HEPA vacuumed.

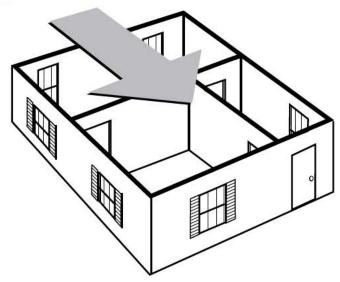
Nitrile



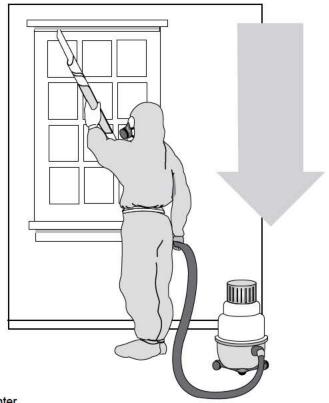


Figure 14.4a The HEPA Vacuum, Wet Wash, HEPA Vacuum Cycle Helps in Meeting Clearance Standards.

HEPA vacuum all surfaces Start at the end farthest from the main entrance/exit. As you vacuum, move towards the main exit and finish there.



Begin at the top of each room and work down. For example, start with the top shelves, the top of the woodwork, and so on, and work down to the floor. Do every inch of the windows, especially the window troughs.



Courtesy: Alice Hamilton Occupational Health Center



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- Next, the area is washed down.
- After drying, the area is again HEPA vacuumed.

The rationale for this three-pass system is as follows:

- The first HEPA vacuum removes as much dust and remaining debris as possible.
- The wet wash further dislodges dust from surfaces.
- The final HEPA cycle removes any remaining particles dislodged but not removed by the wet wash.

Single-Pass Wet Wash/HEPA Vacuum

Some lead hazard control contractors have found HEPA spray cleaner vacuums to be a cost-effective alternative to the three-pass system. Similar to home carpet-cleaning machines, these vacuums simultaneously deliver a solution to the surface and recover the dirty solution. Theoretically, this process combines two of the steps in the HEPA vacuum/wet wash/HEPA cycle into one step. While anecdotal evidence indicates that the spray cleaner wet wash/HEPA is effective for some uses, limitations have been noted in its use for ceilings, vertical surfaces, and hard to reach areas. This device may be used as long as clearance standards are met.

Figure 14.4b (continued)

Use special attachments

Use the rubber cone where the floor meets the baseboard and along all the cracks in the floor boards. Use the brush tool for walls and woodwork.

Use the wheeled floor nozzle for bare floors and the carpet beater for rugs.

Move slowly

Vacuum slowly so the HEPA vacuum can pick up all the lead dust.



Rubber Cone

Dust Brush



Powered Carpet Beater



Wheeled Floor Nozzle





Figure 14.4c (continued)

Wash all surfaces with suitable detergents

Wash all surfaces in the work area with suitable detergents, including areas that had been covered with plastic. Some wallpaper should only be HEPA vacuumed, since it may be damaged by the detergent.



Wipe All Surfaces



Wet Mop Floor



Don't Dry Sweep





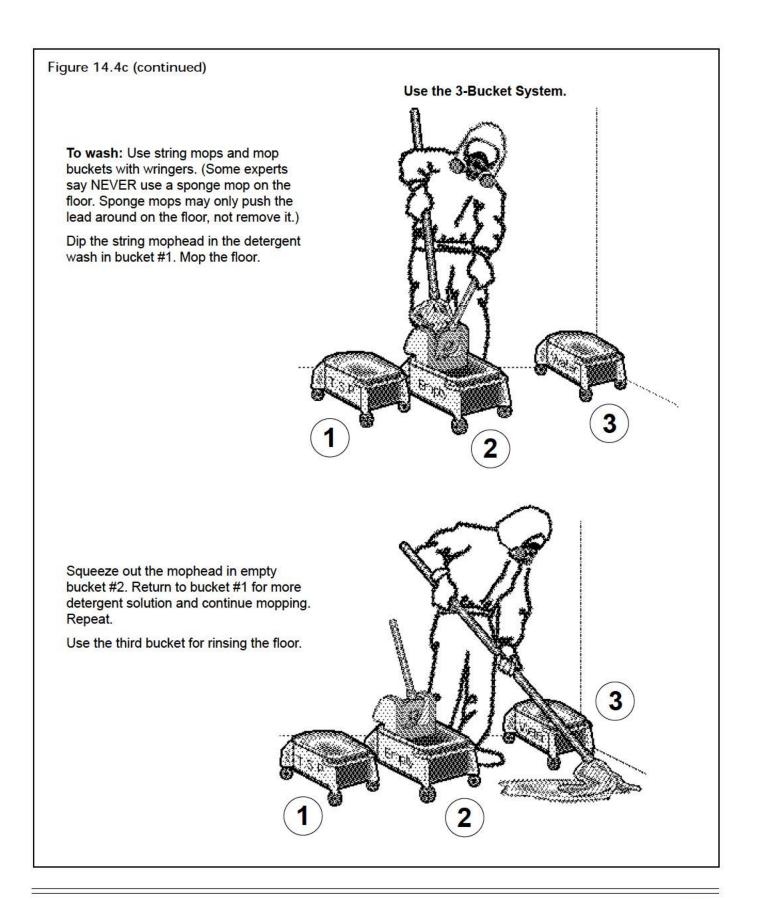


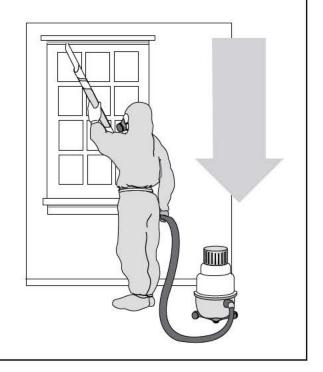




Figure 14.4d (continued)

HEPA vacuum all surfaces a final time HEPA vacuum *all surfaces* in the work area, including areas that had been covered with plastic.

Starting at the far end, work towards the decontamination area. Begin with ceilings or the top of the walls and work down, cleaning the floors last. Do every inch of the windows, especially the troughs. Use the corner tool to clean where the floor meets the baseboard and all the cracks in the floor boards. Use the brush tool for the walls. Move slowly and carefully to get all the dust.



4. Sealing Floors

Before clearance, all floors without an intact, nonporous coating should be coated. Sealed surfaces are easier for residents to clean and maintain over time than those that are not sealed. Wooden floors should be sealed with a clear polyurethane or painted with deck enamel or durable paint. Vinyl tile, linoleum, and other similar floors should be sealed with an appropriate wax. Concrete floors should be sealed with a concrete sealer or other type of concrete deck enamel. However, if these floors are already covered by an effective coat of sealant, it may be possible to skip this step.

As an alternative to sealing, floors may be covered with new vinyl tile, sheet vinyl, linoleum flooring, or the equivalent to create a more permanent cleanable surface. New surfaces should be cleaned with a cleaning solution that is appropriate for that type of surface.

IV. Order of Cleaning Procedures During Lead Hazard Control

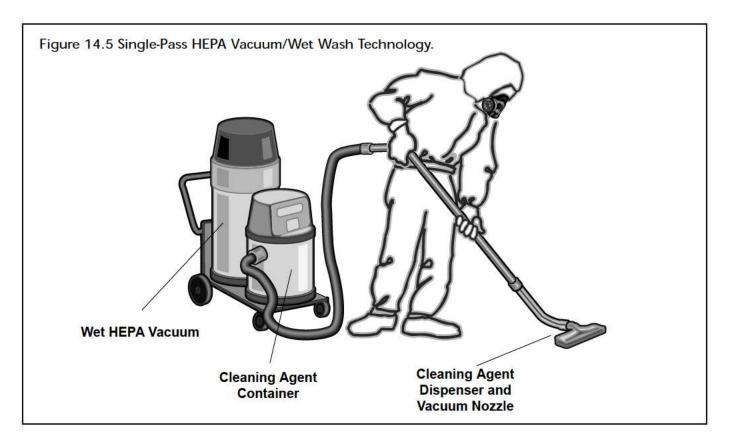
The special cleaning procedures to be followed during a lead-based paint hazard control project are discussed in chronological order below. Skipping steps in the process may result in failure to meet post-lead hazard control clearance standards.

A. Precleaning Procedures

Precleaning (i.e., cleaning conducted before lead hazard control is begun) is necessary only in dwelling units that are heavily contaminated with paint chips. Precleaning involves the removal of large debris and paint chips, followed by HEPA vacuuming. These steps may be followed by removal of occupant personal possessions, furniture, or carpeting, depending on the







Worksite Preparation Level selected (see Chapter 8). If the furniture will not be cleaned, it should be removed from the area or covered with plastic prior to beginning the precleaning procedure. Carpeting should always be misted before its removal to control the generation of hazardous dust.

It is usually the resident's responsibility to remove most of his or her personal possessions. However, if necessary, owners or project management should be prepared to complete this activity before lead hazard control work begins. As a last resort, the contractor may pack any remaining belongings and carefully seal and move the boxes, supplying all necessary boxes, packing materials, and staff to complete the task. Following cleaning and clearance, the contractor should return all packed items to their appropriate places. Leaving these tasks to the contractor may be expensive and inefficient, since the contractor will need to be insured for this function if the occupant's



Figure 14.6 Precleaning Is Needed in Areas Where Contamination and Deterioration Are High.





belongings are damaged. Additionally, moving furniture, rugs, drapes, and other items owned by the occupant could increase leaded dust levels. Clearance should be conducted after cleaning but before resident items are moved back in.

B. Ongoing Cleaning During the Job

Periodic HEPA vacuuming during the lead hazard control work may be necessary to minimize tracking of dust and paint chips from one area to another (e.g., when a large amount of paint chips or dust is being generated).

C. Daily Cleaning Procedures

Cleaning activity should be scheduled at the end of each workday when all active lead hazard control throughout the dwelling has ceased. Sufficient time must be allowed for a thorough and complete cleaning (usually about 30 minutes to an hour). Daily cleaning helps achieve clearance dust levels by minimizing problems that may otherwise occur during final cleaning and limiting worker exposures. While daily cleaning can be skipped in vacant dwelling units, it is required when occupants will



Figure 14.7 Plastic Sheeting Should Be Repaired as Part of Daily Cleanup.

return in the evening. Under no circumstances should debris or plastic be left outside overnight in an unsecured area, even if the dwelling is vacant. Daily cleaning should consist of:

- Removing large debris.
- Removing small debris.
- HEPA vacuuming, wet clean, HEPA vacuuming (horizontal surfaces only).
- Cleaning exterior.
- Patching and repairing plastic sheeting.
- Securing debris/plastic.

1. Large Debris

Large demolition-type debris (e.g., doors, windows, trim) should be wrapped in 6-mil plastic, sealed with tape, and moved to a secure area on the property designated for waste storage. All sharp corners, edges, and nails should be hammered down to prevent injury and minimize the tearing of plastic. It is not necessary to wrap each individual piece of debris in plastic if the entire load can be wrapped. A secure area either outside or inside the property must be designated as a temporary waste-storage area. Covered, secured, and labeled dumpsters placed on or near the property may be used. Proper segregation of waste should be enforced at this time (see Chapter 10).

2. Small Debris

After being misted with water, small debris should be swept up, collected, and disposed of properly. The swept debris should be placed in double 4-mil or single 6-mil polyethylene (or equivalent) plastic bags, properly sealed, and moved to the designated trash storage area. Trash bags should not be overloaded; overloaded bags may rupture or puncture during handling and transport.

3. Exterior Cleaning

Areas potentially affected by exterior lead hazard control should be protected via a containment system (see Chapter 8). Because weather can adversely affect the efficacy of exterior



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containment, the surface plastic of the containment system should be removed at the end of each workday. On a daily basis, as well as during final cleaning, the immediate area should be examined visually to ensure that no debris has escaped containment. Any such debris should be raked or vacuumed and placed in single 6-mil or double 4-mil plastic bags, which should then be sealed and stored along with other contaminated debris. HEPA vacuuming is appropriate for hard exterior surfaces, not soil.

4. Worker Protection Measures

General worker protection measures are discussed in Chapter 9. Studies indicate that during daily cleaning activities, especially while wet sweeping, workers may be exposed to high levels of airborne dust. Therefore, workers should wear protective clothing and equipment, especially appropriate respirators.

5. Maintaining Containment

The integrity of the plastic sheeting used in a lead hazard control project must be maintained. During their daily cleaning activities, workers should monitor the sheeting and immediately repair any holes or rips with 6-mil plastic and duct tape.

V. Order of Final Cleaning Procedures After Lead Hazard Control

Before treated surfaces can be painted or sealed, final cleaning procedures must be completed. Because airborne dust requires time to settle, the final cleaning process should start no sooner than 1 hour after active lead hazard control has ceased in the room. See Appendix 11 for details regarding dust settling.

A. Final Cleaning

As the first stage in the final cleaning, floor plastic should be misted and swept as detailed earlier in this chapter. Upper-level plastic, such as that on cabinets and counters, should be removed first, after it has been misted with water and cleaned. All plastic should be folded

carefully from the corners/ends to the middle to trap any remaining dust. Next, remove both layers of plastic from the floor.

Plastic sheets used to isolate contaminated rooms from noncontaminated rooms should remain in place until after the cleaning and removal of other plastic sheeting; these sheets may then be misted, cleaned, and removed last.

Removed plastic should be placed into double 4-mil or single 6-mil plastic bags, or plastic bags with equivalent (or better) performance characteristics, which are sealed and removed from the premises. As with daily cleanings, this plastic-removal process usually requires workers to use protective clothing and respirators.

After the plastic has been removed from the contaminated area, the entire area should be cleaned using the HEPA/wet wash/HEPA cycle, starting with the ceiling and working down to the floor. After surfaces are repainted or sealed, a final HEPA/wet wash/HEPA cycle may be necessary if accumulated dust caused by other work is visible.

1. Decontamination of Workers, Supplies, and Equipment

Decontamination is necessary to ensure that worker's families, other workers, and subsequent properties do not become contaminated. Specific procedures for proper decontamination of equipment, tools, and materials prior to their removal from lead hazard control containment areas should be implemented, as described below and in Chapters 9 and 10.

Work clothing, work shoes, and tools should not be placed in a worker's automobile unless they have been laundered or placed in sealed bags. All vacuums and tools that were used should be wiped down using sponges or rags with detergent solutions.

Consumable/disposable supplies, such as mop heads, sponges, and rags, should be replaced, after each dwelling is completed. Soiled items should be treated as contaminated debris (see Chapter 10).







Figure 14.8a Pick Up Corners of Plastic Sheeting.



Figure 14.8b Fold Plastic Inward.

Durable equipment, such as power and hand tools, generators, and vehicles, should be cleaned prior to their removal from the site; the cleaning should consist of a thorough HEPA vacuuming followed by washing.

B. Preliminary Visual Examination

After the preliminary final cleaning effort is completed, the certified supervisor should visually evaluate the entire work area to ensure that all work has been completed and all visible dust and debris have been removed. While the preliminary examination may be performed by the lead hazard control supervisor, contractor, or owner as a preparatory step before the final clearance examination, it does not replace the independent visual assessment conducted during clearance.

If the visual examination results are unsatisfactory, affected surfaces must be retreated and/or recleaned. Therefore, it is more cost effective to have the supervisor rather than the clearance examiner perform this initial examination.

C. Surface Painting or Sealing of Nonfloor Surfaces

The next step of the cleaning process is painting or otherwise sealing all treated surfaces except floors.

Surfaces, including walls, ceilings, and woodwork, should be coated with an appropriate primer and repainted. Surfaces enclosed with vinyl, aluminum coil stock, and other materials traditionally not repainted are exempt from the painting provision.

D. Final Inspection

The final clearance evaluation should take place at least 1 hour after the final cleaning. Clearance has three purposes: 1) to ensure that the lead hazard control work is complete, 2) to detect the presence of leaded dust, and 3) to make sure that all treated surfaces have been repainted or otherwise sealed. Clearance is usually performed after the sealant is applied to the floor. See Chapter 15 for information on clearance examination procedures.

E. Recleaning After Clearance Failure

If after passing the final visual examination, the dwelling unit fails the clearance wipe dust tests,





the HEPA/wet wash/HEPA cleaning cycle should be carefully and methodically repeated. Failure is an indication that the cleaning has not been successful. Recleaning should be conducted under the direct supervision of a certified supervisor. Care should be exercised during the recleaning of "failed" surfaces or components to avoid recontaminating "cleared" surfaces or components.

VI. Cleaning Cost Considerations

An important consideration in determining lead hazard control strategies and methods is the cost and difficulty of required daily and final cleanup operations and the ease with which one can meet dust-clearance standards. A general rule of thumb is that lead hazard control strategies that generate the most dust will have higher cleanup costs and higher initial clearance test-failure rates.

A. Initial Clearance Test Failure Rates

The likelihood of passing final dust-clearance tests is highly correlated with the chosen intervention strategy, methods, and care exercised by the contractor. For example, in one study (HUD, 1991) initial wipe-test failure rates were 14 percent for interior window sills, 19 percent for floors, and 33 percent for window troughs. The pass/fail rates for each surface were strongly associated with the dwelling unit abatement strategy employed. Chemical removal and hand-scraping strategies experi-enced higher failure rates than replacement and encapsulation/enclosure strategies (see Table 14.1).

However, results of the HUD demonstration project indicated that clearance failure is not solely related to abatement method. The report stated that "the diligence and effectiveness of an abatement contractor's cleaning process ... had a major impact on ... the likelihood of the dwelling unit to pass the final wipe test clearance" (HUD, 1991).



Figure 14.8c Dispose of Plastic Sheeting in a Plastic Trash Bag.

B. Key Factors In Effective Cleaning

Effective cleaning will be aided by adequate sealing of surfaces with polyethylene sheeting prior to lead hazard control, proper daily cleaning practices, good worker training, and attention to detail. Where poor worksite preparation is employed, additional cleaning may be required to meet clearance.

C. Special Problems

Surfaces such as porous concrete, old porous hardwood floors, and areas such as corners of rooms and window troughs pose especially difficult cleaning challenges. Porous concrete and corners of rooms normally require additional vacuuming to achieve an acceptable level of cleanliness.

The lead hazard control strategy of enclosure is frequently chosen for window troughs and for old porous hardwood floors due to the difficulty of adequately cleaning these surfaces. This





option provides not only a clean surface but a more permanently cleanable surface for dwelling occupants to maintain.

VII. Alternative Methods

Alternatives to the recommended cleaning tools and practices discussed in this chapter are available, some having significant potential for increasing effectiveness and lowering costs.

A recent Canadian study (CMHC, 1992) evaluated the effectiveness of contaminated dust cleanup activities using tools that would generally be available to construction contractors and homeowners. Vinyl flooring and carpeting were cleaned using several wet/dry vacuuming systems, sweeping, and wet mopping. The study found that regular vacuums with empty bags send a steady stream of fine particles into the air, while vacuums with partially filled bags were more efficient. This finding suggests the necessity for HEPA vacuums. Other vacuums may be used if workers do not experience increased exposures, if compliance with clearance standards is achieved, and if a variance from OSHA regulation (29 CFR 1926.62 (h)(4)) is obtained by the contractor or employer (if required).

Agitator heads on vacuums were demonstrated to significantly enhance vacuum effectiveness on carpets in cleaning up fine dust without

increasing airborne dust levels. Table 14.2 suggests that a central vacuum with an agitator head is most efficient at removing dust and minimizing recontamination, probably because the vacuum exhaust is blown away from living areas. Because many houses do not have central vacuuming systems, a portable HEPA vacuum is the next best choice (see Table 14.2). Vacuums without agitator heads appeared to perform relatively poorly on carpets.

A. Vacuums

Regular (non-HEPA) dry vacuums potentially produce hazardous levels of airborne dust and therefore should be avoided. Externally exhausted vacuum units with adequate dustretaining capability may be used. The OSHA lead standard requires the use of HEPA vacuum equipment (see 29 CFR 1926.62 (h)(4), which states, "where vacuuming methods are selected, the vacuums shall be equipped with HEPA filters").

B. Trisodium Phosphate and Other Detergents

TSP detergents have been used successfully for a number of years in lead hazard control work. However, in recent years, other new cleaning agents have been developed specifically for leaded dust removal. The need for alternatives has been fueled by the fact that TSP is an eye

Table 14.1 Initial Cleaning Wipe-Test Failure Rates for Various Abatement Strategies

Dust Test Location	Hand Scrape w/Heat Gun	Chemical Removal	Enclosure	Encapsulation	Replacement	All Methods
Floors	28.8%	22.7%	20.0%	13.8%	12.5%	19%
Sills	24.4%	24.1%	8.2%	4.8%	17.4%	14%
Wells	44.5%	45.7%	23.7%	25.7%	21.0%	33%

Source: U.S. Department of Housing and Urban Development (August 1991) The HUD Lead-Based Paint Abatement Demonstration (FHA)



Chapter 14: Cleaning



and skin irritant and is increasingly restricted from household use and unavailable in many local jurisdictions. TSP also damages some finishes. Recently reported trials of two new products suggest that alternative lead-specific cleaning agents may be more effective and safer than TSP (Grawe, 1993; Wilson, 1993).

These Guidelines do not prohibit the use of non-TSP cleaning agents. HUD encourages further evaluation of alternative cleaning methods. Use of any cleaning agent that results in compliance with clearance criteria is encouraged.

Table 14.2 Mass Removal Efficiency for Extended Vacuuming Cycles

	Mass Removal Efficiency Percentages								
Cycle Number		Cleaning Method							
	Central Vacuum—Plain Tool	Central Vacuum—Agitator Head	HEPA Vacuum	Portable Vacuum—Plain Tool					
1	34.7	71.0	55.4	17.5					
2	47.0	80.2	61.2	23.0					
3	51.9	85.9	66.3	26.6					
4	56.0	87.8	67.0	29.4					
5	59.3	88.9	72.1	32.5					
6	61.6	91.2	74.4	34.9					
7	63.8	93.1	76.4	36.5					
8	67.5	95.4	77.5	38.1					
9	67.5	97.7	78.7	40.1					
10	67.2	100.0	80.2	41.7					
11		102.3	80.2	41.7					
12		104.6	84.1	44.8					
13		104.6	84.5	46.8					
14		103.8	84.5	48.4					
15				49.6					
16				50.8					
17				52.4					
18				53.6					
19				54.4					
20				55.2					

Source: Canada Mortgage and Housing Corporation: Saskatchewan Research Council (December 1992) Effectiveness of Clean-up Techniques for Leaded Paint Dust

National Guard Region North

National Guard Readiness Center Industrial Hygiene Evaluation Syracuse Readiness Center Syracuse, NY 13211

Prepared for:

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Attn:

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> Project No. 1061-15 January 26, 2013

Bonus Environmental, LLC

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APPENDICES

Appendix A Shop Diagram and Air Flow Patterns

Appendix B Lead Sample Results

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January 26, 2013 Project No. 1061-15

National Guard Region North Industrial Hygiene Office 301 Old Bay Lane Havre De Grace, MD 21078-4003

Attn: Non-Responsive

Project: Industrial Hygiene Evaluation

Syracuse Readiness Center, Syracuse, NY 13211

1.0 - EXECUTIVE SUMMARY

Bonus Environmental, LLC was contracted by the National Guard Bureau Region North Industrial Hygiene office to identify and measure the existence and extent of potentially hazardous operations or conditions at the Syracuse Readiness Center located at 6900 Thompson Road in Syracuse, NY. The purpose of this evaluation was to generate or to update a previous baseline evaluation so that employee exposure history can be provided to each civilian and military employee. The following industrial hygiene conditions were evaluated during this industrial hygiene evaluation performed by Bonus Environmental, LLC representative Non-Responsive on November 12, 2012:

- Indoor Air Quality
- Lead Wipe & Bulk Sampling
- Illumination
- Ergonomics

 Evaluation of the physical condition of the facility in regards to peeling paint, asbestos containing materials, water damage or mold problems, and housekeeping practices.

The Syracuse Readiness Center is an Army National Guard armory comprised of offices, classrooms, locker rooms, storage rooms, a drill hall, kitchens, conference rooms, electrical/mechanical/telecom rooms, Supply rooms, a boiler room, a fitness room, and a former indoor firing range (currently used as a locker room). The point of contact for the approximately 88,548 ft² Syracuse Readiness Center is Mr. Non-Responsive. Sixty (60) full-time administrative personnel and six (6) maintenance personnel are employed at the Syracuse Readiness Center. A shop diagram depicting the locations of the operations and air flow patterns identified during this industrial hygiene evaluation is attached to this report as Appendix A.

The National Guard Bureau Region North Industrial Hygiene Office provided governmental furnished equipment and sampling media required to perform the industrial hygiene evaluation. Chain of custody forms for laboratories approved by the National Guard Bureau Region North Industrial Hygiene Office were provided with the sampling media. All samples collected during this industrial hygiene evaluation were sent to the National Guard Bureau Region North Industrial Hygiene Office approved laboratories for analysis.

2.0 – LEAD SAMPLING

2.1 – Lead Wipe Sampling

Lead wipe sampling was performed according to the Environmental Protection Agency (EPA) method 600/R-93/200(M)-7420 (Atomic Absorption - Flame). Twenty four (24) wipe samples and one (1) field blank were sent under chain-of-custody procedures to AMA Analytical Services, Inc., an American Industrial Hygiene Association (AIHA) accredited laboratory located in Lanham, Maryland. The U.S. Department of Labor (USDOL) and the Occupational Safety and Health Administration (OSHA) do not have a promulgated standard for lead surface contamination; however OSHA has provided an interpretive level of 200 micrograms per square foot (μg/ft²) to assess the housekeeping requirements of "as free as reasonably practicable". This interpretation is presented in OSHA Industrial Hygiene Technical Manual (TED 01-00-015; 1/20/1999), and in a letter of interpretations dated 1/13/2003, and subsequently issued to public domain. NG Pam 420-15 addresses the conversion and remediation of former indoor firing ranges. The following table outlines the locations and analytical results for the lead wipe samples collected during this project.

	Army National Guard – Syracuse Readiness Center Lead Wipe Sample Results								
Sample #	Sample # Sample Date Sample Location								
Syracuse RC- LW-1	11-12-12	Field Blank		< 12 μg					
Syracuse RC - LW-2	11-12-12	Drill Hall, on floor, West end	0.111	< 110					
Syracuse RC - LW-3	11-12-12	Drill Hall, on floor, East end	0.111	< 110					
Syracuse RC - LW-4	11-12-12	Drill Hall, on first aid cabinet	0.111	< 110					
Syracuse RC - LW-5	11-12-12	Drill Hall, on top of vending machine	0.111	< 110					
Syracuse RC - LW-6	11-12-12	Drill Hall, on top of Amnesty box	0.111	140					
Syracuse RC - LW-7	11-12-12	Locker Room 153 (Former Indoor Firing Range), on floor Southeast end	0.111	990					
Syracuse RC - LW-8	11-12-12	Locker Room 153 (Former Indoor Firing Range), on locker # F-2	0.111	410					
Syracuse RC - LW-9	11-12-12	Locker Room 153 (Former Indoor Firing Range), on top of breaker box #28	0.111	2,100					
Syracuse RC - LW-10	11-12-12	Kitchen, on top of warmer	0.111	< 110					
Syracuse RC - LW-11	11-12-12	1st Floor Hallway, on top of AED box	0.111	< 110					
Syracuse RC -	11-12-12	Classroom 113, on window sill	0.111	< 110					

		Army National Guard – Syracuse Readiness Center Lead Wipe Sample Results		
Sample #	Sample Date	Sample Location	Sample Area (ft²)	Sample Result (µg/ft²)
LW-12				
Syracuse RC - LW-13	11-12-12	Storage 114, on table surface	0.111	130
Syracuse RC- LW-14	11-12-12	Classroom 111, on window sill	0.111	< 110
Syracuse RC- LW-15	11-12-12	Office 211, on top of printer	0.111	< 110
Syracuse RC- LW-16	11-12-12	Women's Restroom, on top of paper towel dispenser	0.111	< 110
Syracuse RC- LW-17	11-12-12	Office 212, on top of locker #1	0.111	< 110
Syracuse RC- LW-18	11-12-12	Office, on top of computer tower	0.111	< 110
Syracuse RC - LW-19	11-12-12	Office, on top of filing cabinet	0.111	< 110
Syracuse RC - LW-20	11-12-12	Office, on top of book shelf	0.111	< 110
Syracuse RC - LW-21	11-12-12	Office 217, on top of filing cabinet	0.111	< 110
Syracuse RC - LW-22	11-12-12	2 nd Floor Hallway, on window sill	0.111	< 110
Syracuse RC - LW-23	11-12-12	Men's Locker Room, on locker #E-19	0.111	160
Syracuse RC - LW-24	11-12-12	HVAC Unit, on fan side	0.111	120
Syracuse RC - LW-25	11-12-12	HVAC Unit, on supply side	0.111	160

Surface cleanliness threshold = < 200 micrograms per square foot ($\mu g/ft^2$)

The former indoor firing range is currently used as a locker room. It is uncertain whether it was remediated to the protocols specified in NG Pam 420-15. Remediation wipe sample results were not posted, nor were any signs posted restricting access to the area. The bullet trap had been removed from in the "bullet trap area".

3.0 - PHYSICAL CONDITION OF FACILITY / PERSONNEL CONCERNS

3.1 - Lead Based Paint

During the industrial hygiene evaluation of the Syracuse Readiness Center, Bonus Environmental, LLC performed a visual inspection of the facility in regards to lead based paint. Bonus Environmental, LLC did not identify any areas of damaged or peeling paint.

3.2 – Presumed Asbestos Containing Materials

During the industrial hygiene evaluation of the Syracuse Readiness Center, Bonus Environmental, LLC performed a visual inspection to identify presumed asbestos containing materials (PACM) and, if found, to note their condition. Bonus Environmental, LLC did not identify any PACM that was considered to be in poor or damaged condition.

3.3 - Water Damage/Mold Growth

During the industrial hygiene evaluation of the Syracuse Readiness Center, Bonus Environmental, LLC performed a visual inspection to report the location and perform an evaluation of any water damaged building materials and/or visible mold problems. Bonus Environmental, LLC identified water-damaged and/or moldy building materials in the following locations:

- Approximately 2 ft² of stained dropped-ceiling tile (DCT) in classroom 113;
- Approximately 1 ft² of stained DCT in classroom 111;
- Approximately 1 ft² of stained DCT in classroom 122;
- Approximately 1 ft² of stained DCT in office 219;
- Approximately 1 ft² of stained DCT in office 218;
- Approximately 3 ft² of stained/moldy DCT in office 234;
- Approximately 1 ft² of stained DCT in office 234A
- Approximately 1 ft² of stained DCT in office next to Supply room 242;
- Approximately 2 ft² of stained DCT in 2nd floor hallway;
- Approximately 4 ft² of stained DCT in 1st floor hallway.

3.4 - Housekeeping

During the industrial hygiene evaluation of the Syracuse Readiness Center, Bonus Environmental, LLC performed an evaluation of the housekeeping practices. Bonus Environmental, LLC found the housekeeping practices within Syracuse Readiness Center facility in good order, with the exception of residual lead dust concentrations in locker room 153 (former indoor firing range).

3.5 – Employee Interviews

During the industrial hygiene evaluation of the Syracuse Readiness Center, Bonus Environmental, LLC performed interviews and made observations to determine if the work activities being performed possessed any ergonomic concerns. Following the interviews and observations, no ergonomic and or indoor air quality concerns were identified.

3.6 – Indoor Air Quality

During the industrial hygiene evaluation of the Syracuse Readiness Center, Bonus Environmental, LLC measured temperature, relative humidity, carbon monoxide (CO), and carbon dioxide (CO₂)

throughout the facility. A calibrated TSI Q-Trak Plus Model 7575 Indoor Air Quality Monitor equipped with a Q-Trak Probe 982 was utilized to record indoor air quality measurements.

Carbon dioxide is a natural component of air and the amount of CO₂ in a given air sample is commonly expressed as parts per million (ppm). The outdoor air in most locations contains about 380 ppm carbon dioxide. Higher outdoor CO₂ concentrations can be found near vehicle traffic areas, industry and sources of combustion. The concentrations of CO₂ found in most offices are well below the OSHA Permissible Exposure Limit (PEL) of 5,000 ppm when averaged over an 8-hour time period for an industrial workplace. While levels below 5,000 ppm are considered to pose no serious health threat, studies have indicated that individuals in offices with elevated CO₂ concentrations tend to report drowsiness, lethargy and a general sense that the air is stale. Ventilation rates for office spaces are defined by various codes and standards. The most widely accepted standard is the American Society of Heating, Refrigerating, and Air Conditioning Engineers (ASHRAE) Standard 62. According to ASHRAE Standard 62.1-2010, CO₂ concentrations below 700 ppm above the outdoor level are considered to indicate adequate ventilation and provide human comfort. The CO₂ measurements collected during this industrial hygiene evaluation ranged from 384 ppm to 507 ppm and indicate adequate ventilation within the facility.

Carbon monoxide is a colorless, odorless, poisonous gas that results from the incomplete burning of common fuels such as natural or liquefied petroleum gas, oil, wood or coal. When carbon monoxide is inhaled, it enters the blood stream and reduces the ability of the blood to carry oxygen to vital organs, such as the heart and brain. Because it is impossible to see, taste or smell the toxic fumes, CO can harm you before you are aware it is in your work area. At lower levels of exposure, CO causes mild effects that are often mistaken for the flu. These symptoms include headaches, dizziness, disorientation, nausea and fatigue. The effects of CO exposure can vary greatly from person to person depending on age, overall health and the concentration and length of exposure. The OSHA has established a permissible exposure limit (PEL) of 50 parts per million (ppm). OSHA standards prohibit worker exposure to more than 50 parts of the gas per million parts of air averaged during an 8-hour time period. The peak CO level for employees is 200 ppm. The CO measurements collected during this industrial hygiene evaluation ranged from 4.0 ppm to 4.5 ppm. CO levels were below the OSHA PEL during this industrial hygiene evaluation.

During the industrial hygiene evaluation of the Syracuse Readiness Center, Bonus Environmental, LLC collected temperature measurements. Temperature measurements throughout the common areas of the facility routinely occupied by employees ranged from 67.6°F to 70.9°F and are considered to be within an acceptable range outlined within ASHRAE Standard 55-2010.

During the industrial hygiene evaluation of the Syracuse Readiness Center, Bonus Environmental, LLC collected relative humidity measurements. Relative humidity measurements throughout common areas of the facility routinely occupied by employees ranged from 46.6% to 50.1%. Indoor air quality measurements recorded during this industrial hygiene evaluation are summarized in the table below.

Army National Guard – Syracuse Readiness Center Indoor Air Quality Measurements								
Location	CO_2 (ppm)	CO (ppm)	Relative Humidity (%)	Temperature (°F)				
Outdoors, northwest side of building (partly cloudy)	384	4.5	55.8	66.9				
Supervisor's Office (100)	507	4.3	49.5	67.6				
Women's Restroom	406	4.1	46.7	68.6				
Weight Room (103)	388	4.0	50.1	69.5				
Office (104)	404	4.4	49.7	69.6				
Drill Hall	394	4.2	49.5	69.0				
Office (221)	408	4.1	48.8	69.8				
Conference Room (223)	425	4.4	48.9	70.1				
Copy Room (212)	402	4.2	48.9	70.5				
Office	439	4.1	48.4	70.9				
Office	399	4.1	46.6	70.9				

Required/Recommended Values

CO₂ - OSHA PEL = 5,000 parts per million (ppm) and ASHRAE Standard 62.1-2010 = no greater than 700 ppm above outdoor

CO - OSHA PEL = 50 ppm and OSHA Ceiling Limit = 200 ppm

Temperature - ASHRAE Standard 55-2010 = between approximately 67 and 82 °F.

RH - ASHRAE Standard 62.1-2010 = limited to < 65%

4.0 – LIGHTING

Utilizing a properly calibrated Cooke Corporation cal-Light 400 light meter, Bonus Environmental, LLC collected illumination readings throughout the Syracuse Readiness Center. Illumination measurements recorded during this industrial hygiene evaluation are summarized in the table below.

Army National Guard – Syracuse Readiness Center Lighting Measurements								
Location	Measurement in	Requirement in Foot	Requirement					
Locuiton	Foot Candles	Candles	Met?					
Classroom (113)	22.0	30	No					
Storage (114)	17.3	30	No					
Classroom (112)	59.5	30	Yes					
Classroom (111)	21.3	30	No					
NY Guard Office (120)	23.3	50	No					
Maintenance Room	35.1	30	Yes					
Classroom (122)	33.8	30	Yes					
Storage (124)	25.6	30	No					
Storage (124A)	17.2	30	No					
Storage (125)	12.8	30	No					
Kitchen	15.3	50	No					
Dish Wash Area	21.2	30	No					
Kitchen Storage	18.0	30	No					
Women's Restroom	35.7	5	Yes					
Men's Restroom	14.2	5	Yes					
Drill Hall (102)	12.5	30	No					
Telecommunication's Room (133)	37.8	30	Yes					
Electrical Room (132)	11.5	30	No					

Army National Guar Lightin	d – Syracuse Readi ng Measurements	ness Center	
Location	Measurement in Foot Candles	Requirement in Foot Candles	Requirement Met?
Supervisor's Office (100)	99.4	50	Yes
Mechanical Room (131) (Boiler Room)	24.3	30	No
Locker Room (153) (Former Indoor Firing Range)	31.4	7	Yes
Bar/Dining Area (142)	31.2	10	Yes
Electrical Room (101)	33.2	30	Yes
Telecommunication's Room (102)	28.5	30	No
Weight Room (103)	47.4	30	Yes
Women's Restroom	8.2	5	Yes
Women's Locker Room	13.9	7	Yes
Men's Restroom	48.6	5	Yes
Men's Locker Room	7.1	7	Yes
Storage Room	10.3	30	No
Office (104)	26.6	50	No
Office (106)	69.7	50	Yes
Office (107)	59.7	50	Yes
Office (108)	62.6	50	Yes
Boiler Room (115)	2.6	30	No
Supply Room (114)	23.7	30	No
Office (109)	33.5	50	No
Office (110)	40.2	50	No
Office (111)	51.0	50	Yes
Office (112)	72.9	50	Yes
Engraving Room (113)	27.0	75	No
Supply Room (151)	27.0	Inaccessible	110
Supply Room (151)		Inaccessible	
Supply Room (152)		Inaccessible	
Supply Room (156)		Inaccessible	
Supply Room (150)		Inaccessible	
Supply Room (158)		Inaccessible	
Office (224)	24.1	50	No
Office (224)	41.9	50	No
Office (231)	29.4	50	No
Office (229)	36.0	50	No
Office (228)	32.0	50	No
Office (227)	30.4	50	No
Office (226)	50.3	50	Yes
Hallway (217)	63.4	5	Yes
Unisex Restroom	31.6	5	Yes
Office (221)	75.9	50	Yes
Copy Room (222)	156.8	10	Yes
Office (220)	23.7	50	No
Office (220)	59.0	50	Yes
Conference Room (223)	154.5	30	Yes
Office (218)	139.4	50	Yes
Classroom (201)	28.5	30	No
Kitchen	19.5	50	No
Women's Restroom	62.8	5	Yes
women s kestroom	02.8)	ı es

Army National Guard – Syracuse Readiness Center Lighting Measurements								
Location	Measurement in Foot Candles	Requirement in Foot Candles	Requirement Met?					
Men's Restroom	69.6	5	Yes					
Office (207)	94.3	50	Yes					
Office (216)	37.0	50	No					
Office (215)	36.7	50	No					
Office (214)	58.5	50	Yes					
Storage (213)	39.5	30	Yes					
Copy Room (212)	99.1	10	Yes					
Office (211)	46.2	50	No					
Office (210)	55.6	50	Yes					
Office (209)	69.1	50	Yes					
Office (208)	64.2	50	Yes					
Office (236)	40.5	50	No					
Office (237)	15.4	50	No					
Classroom (238)	123.6	30	Yes					
Office (234)	13.9	50	No					
Office (234A)	38.5	50	No					
Office (234B)	29.2	50	No					
Office (233)	13.8	50	No					
Office (233A)	20.7	50	No					
Office (233B)	26.7	50	No					
Conference Room (240)	15.8	30	No					
Office (241)	19.2	50	No					
Library	80.4	30	Yes					
Office	42.2	50	No					
Office	46.7	50	No					
Conference Room	38.8	30	Yes					
Office	57.3	50	Yes					
Office	52.0	50	Yes					
Office	53.1	50	Yes					
Office	69.3	50	Yes					
Supply Room (242)	19.6	30	No					
Supply Room (243)	15.5	30	No					
Men's Locker Room (244)	•	7	No					
` /	23.8 54.9	5	Yes					
Men's Restroom	34.9	7						
Men's Locker Room		7	Yes					
Men's Locker Room (220)	31.6		Yes					
Conference Room (200)	45.6	30	Yes					
Office	45.5	50	No					
Office (211)	32.6	50	No					
Office (211A)	65.4	50	Yes					
Office (211B)	58.1	50	Yes					
Women's Restroom	72.5	5	Yes					
Women's Locker Room	8.3	7	Yes					
Telecommunication's Room (221)	29.4	30	No					
Office	69.5	50	Yes					
Office	50.2	50	Yes					
Office	129.8	50	Yes					

Army National Guard – Syracuse Readiness Center Lighting Measurements								
Location	Measurement in Foot Candles	Requirement in Foot Candles	Requirement Met?					
Office	40.3	50	No					
Office	58.4	50	Yes					
2 nd Floor Hallway	6.0	5	Yes					
Office (214)	65.1	50	Yes					
Office	55.6	50	Yes					
Office	54.2	50	Yes					
Office	16.7	50	No					
Office	30.8	50	No					
Office	75.4	50	Yes					
HVAC Room	29.8	30	No					
1 st Floor Hallway	12.4	5	Yes					

Lighting levels were compared to the levels outlined within the American National Standards Institute/Illuminating Engineering Society of North America (ANSI/IESNA) RP-1-04 Office Lighting Handbook, and the ANSI/IESNA RP-7-01 Lighting Industrial Facilities Handbook. Areas within the facility which did not meet the foot candle requirements are identified with a "NO" within the "Requirement Met?" column. It is recommended that illumination be improved in all the areas that did not meet the requirements. Improving illumination can be achieved by replacing burned-out lamps/bulbs, cleaning fixtures, relocating detailed work activities to more illuminated areas, and using supplemental task lighting.

5.0 - CONCLUSION & LIMITATIONS

Bonus Environmental, LLC was contracted by the National Guard Bureau Region North Industrial Hygiene office to identify and measure the existence and extent of potentially hazardous operations or conditions at the Syracuse Readiness Center, located at 6900 Thompson Road in Syracuse, NY. The purpose of this evaluation was to generate or to update a previous baseline evaluation so that employee exposure history can be provided to each civilian and military employee. The following industrial hygiene conditions were evaluated during this industrial hygiene evaluation performed by Bonus Environmental, LLC representative Non-Responsive on November 12, 2012.

The results/findings of this industrial hygiene evaluation are summarized below.

- 1. Lead wipe sample results collected within the Syracuse Readiness Center were above the OSHA interpretive level of 200 μ g/ft², as well as the 200 μ g/ft² threshold established in NG Pam 420-15 in the following areas:
 - Locker Room 153 (Former Indoor Firing Range), on floor, Southeast end
 - Locker Room 153 (Former Indoor Firing Range), on locker #F-2
 - Locker Room 153 (Former Indoor Firing Range), on top of breaker box #28
- 2. Bonus Environmental, LLC did not identify any areas of peeling paint within the Syracuse Readiness Center.

- 3. Bonus Environmental, LLC did not identify any PACM that was considered to be in poor or damaged condition.
- 4. Bonus Environmental, LLC identified approximately 17 ft² of stained drop ceiling tile with approximately 3 ft² harboring suspected fungal growth across ten locations within the Syracuse Readiness Center.
- 5. Bonus Environmental, LLC found the housekeeping practices within Syracuse Readiness Center in good order, with the exception of residual lead dust concentrations in locker room 153 (former indoor firing range).
- 6. Following the interviews and observations, no ergonomic and or indoor air quality concerns were identified.
- 7. Bonus Environmental, LLC measured temperature, relative humidity, CO, and CO₂ throughout the Syracuse Readiness Center. All were found to be within their acceptable ranges/limits.
- 8. Areas within the Syracuse Readiness Center facility were identified as improperly illuminated.
- 9. No Health and Safety programs were available to review on site, although the Superintendent stated that they have a current PPE program.

Bonus Environmental, LLC has 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 Region North - Industrial Hygiene Office. 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 Bonus Environmental, LLC's inspection of the site.

It has been a pleasure to be of assistance to you. Please contact us if you have any questions concerning this report or if we can be of any further assistance in any other environmental or occupational health matter.

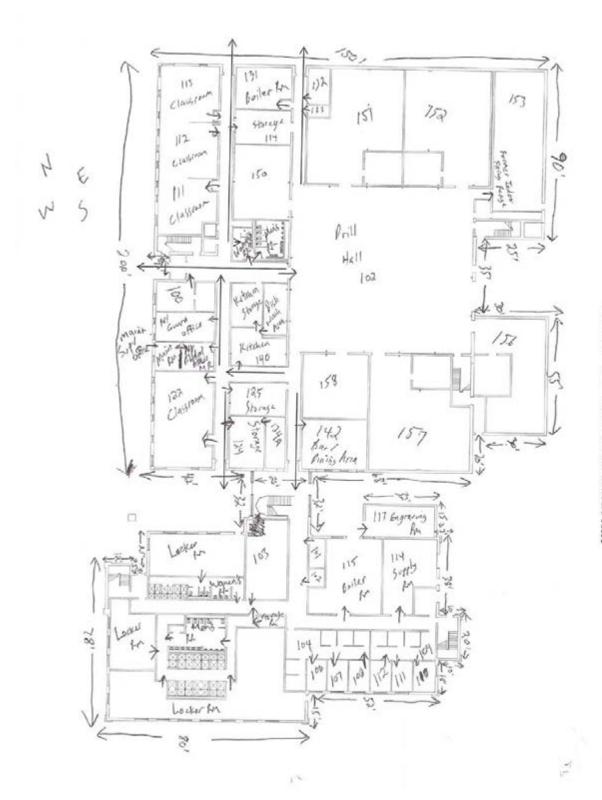
Sincerely,



Principal Bonus Environmental, LLC

Appendix A

Shop Diagram and Air Flow Patterns





Syracuse Second Floor Plan You Are Here

BEST AVAILABLE COPY

Appendix B

Lead Sampling Results

AMA Analytical Services, Inc.



A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS



Job Name: Syracuse RC Chain Of Custody: 514544 National Guard Bureau Client: 301-JH Old Bay Lane, Attn: ARNG-CJG-P, Job Location: 6900 Thompson Road, Syracuse, NY 13211 Address: Date Submitted: 11/21/2012

State Military Reservation

Havre de Grace, Maryland 21078

Job Number: 1061-15

P.O. Number:

Person Submitting:

Date Analyzed:

11/29/2012 Report Date: 11/29/2012

Attention:

Summary of Atomic Absorption Analysis for Lead

W912K6-09-A-0003

Page 1 of 2

AMA Sample Number	Client Sample Number	Analysis Type	Sample Type	Air Volume (L)	Area Wiped (ft²)		orting .imit	Total ug	Final Res	ult	Comments
13016552	SyracuseRC-LW-I	Flame	Wipe Blank	****	N/A	12	ug		<12	ug	
13016553	SyncuscRC-LW-2	Flame	Wipe	****	0.111	110	ug/lt²	<12	<110	ug/ft²	
13016554	SyracuseRC-LW-3	Flame	Wipe	****	0.111	110	ug/ft²	<12	<110	ug/ft²	
13016555	SyracuseRC-LW-4	Flame	Wipe	****	0.111	110	ug/ft²	<12	<110	ug/ft²	
13016556	SyracuseRC-LW-5	Flame	Wipe	****	0.111	110	ug/lt²	<12	<110	ug/ft²	
13016557	SyracuseRC-LW-6	Flame	Wipe	****	0.111	110	ug/lt²	15	140	ug/ft²	
13016558	SymcuseRC-LW-7	Flame	Wipe	****	0.111	110	ug/N²	110	990	ug/ft²	
13016559	SyracuseRC-LW-8	Flame	Wipe	****	0.111	110	ug/ft²	46	410	ug/ft²	
13016560	SymcuseRC-LW-9	Flame	Wipe	****	0.111	110	ug/lt²	230	2100	ug/ft²	
13016561	SyncuseRC-LW-10	Flame	Wipe	****	0.111	110	ug/N²	<12	<110	ug/ft²	
13016562	SyncuseRC-LW-11	Flame	Wipe	****	0.111	110	ug/M²	<12	<110	ug/ft²	
13016563	SyracuseRC-LW-12	Flame	Wipe	****	0.111	110	ug/ft²	<12	<110	ug/ft²	
13016564	SyncuseRC-LW-13	Flame	Wipe	****	0.111	110	ug/ft²	15	130	ug/ft²	
13016565	SyracuseRC-LW-14	Flame	Wipe	****	0.111	110	ug/N²	<12	<110	ug/ft²	
13016566	SyracuseRC-LW-15	Flame	Wipe	****	0.111	110	ug/N²	<12	<110	ug/ft²	
13016567	SyracuseRC-LW-16	Flame	Wipe	****	0.111	110	ug/N²	<12	<110	ug/ft²	
13016568	SyncuseRC-LW-17	Hame	Wipe	****	0.111	110	ug/ft²	<12	<110	ug/ft²	
13016569	SyracuseRC-LW-18	Flame	Wipe	****	0.111	110	ug/ft²	<12	<110	ug/ft²	
13016570	SyracuseRC-LW-19	Hame	Wipe	****	0.111	110	ug/ft²	<12	<110	ug/fl²	

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 profection to clients, the public, and fuses 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 disdaim any knowledge and liability for the accuracy and completeness of this information. Residual sample material will be discarded in accordance with the appropriate regulatory guidelines, unless otherwise requested by the client. This report must not be used to claim, and does not imply product certification, approval, or endorsement by NY ELAP, AIHA, or any agency of the Federal Government. All rights reserved. AMA Analytical Services, Inc.

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AMA Analytical Services, Inc.



CERTIFICATE OF ANALYSIS



Client:

National Guard Bureau

Job Name:

Syracuse RC

Chain Of Custody:

514544

Address:

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

Job Location:

6900 Thompson Road, Syracuse, NY 13211

Date Submitted:

11/21/2012

State Military Reservation Havre de Grace, Maryland 21078

Job Number:

1061-15

Person Submitting:

See QC Summary for analytical results of quality control samples

associated with these

samples.

P.O. Number:

W912K6-09-A-0003

Date Analyzed:

Report Date:

11/29/2012

Attention:

Summary of Atomic Absorption Analysis for Lead

Page 2 of ?

AMA Sample Number	Client Sample Number	Analysis Type	Sample Type	Air Volume (L)	Area Wiped (ft²)		porting Limit	Total ug	Final Res	ult	Comments		
13016571	SyracuseRC-LW-20	Flame	Wipe	Wipe	Wipe	****	*** 0.111	110	ug/il²	<12	<110	ug/ft²	
13016572	SyracuseRC-LW-21	Flame	Wipe	****	0.111	110	ug/lt²	<12	<110	ug/ft²			
13016573	SyracuseRC-LW-22	Plame	Wipe	****	0.111	110	ug/it²	<12	<110	ug/ft²			
13016574	SyracuseRC-LW-23	Flame	Wipe	****	0.111	110	ug/11 ²	17	160	ug/ft²			
13016575	SyracuseRC-LW-24	Flame	Wipe	****	0.111	110	ug/ft²	14	120	ug/ft²			
13016576	SymouseRC-LW-25	Flame	Wipe	****	0.111	110	ug/fl ²	18	160	ug/ft²			

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

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

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





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 presons submitting them and, unless collected by personnel of these Laboratories, we expressly disciain any knowledge and liability for the accuracy and completeness of this information. Residual sample material will be discarded in accordance with the appropriate regulatory guidelines, unless otherwise requested by the client. This report must not be used to claim, and does not imply product certification, approval, or endorsement by NY ELAP, AIHA, or any agency of the Federal Government. All rights reserved. AMA Analytical Services, Inc.

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CHAIN OF CUSTODY

(Please Refer To This Number For Inquires)

514544

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Address 2:A	tn: NGB-AVN-SI, Slate Milli	ary Rese	rvation			_ 3.	Joh	#:_	100	1-15		301.5	7		D	0 #- W912KF	6-09-4-0003	
Address 3: Ha	avre de Grace, Maryland 21	078				_ 4.	Co	ntact I	ers	lo	n-	Re	sp	on	Si	Ve @nh	6-09-A-(003	
Phone #: (410) 5	142-0273 Fax	#:_ (41)	0) 942-02	54		5.	Sul	mitte	d be							NO	n-Responsive	
Reporting I	nfo (Results provided as soon	as techni	ically feasi	ble), I	f no T	AT/Rei	porti	ng Inf	o is n	rovid	ed. Al	MA	rill ac	don d	efan	te of 5. Day (vel)	L. Aur.	<i>a</i>
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Surface Sampling Field Data Sheet

Date Collected: 11-12-13	Job Name: Syracuse RC	Page of 2
Job Number: 1061-15	Job Location:	Company: Bonus Environmental, 4
Contact Pers	Address: 6900 Thompson Rd	Phone Number: 989 - 779 - 7686
	Syracus; NY 13211	COC Number:

Sample Number Syracuse Re-	Sample Location	Surface/Substrate Sampled	Area Wiped (in²/ft²)	Collection Media
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Syracuse Ac-	Pill Hall	On Floor, West. Gil	4" *4"	wife
Junear KC-	Prill Hall	DA Floor, Gast God	1 79	
Syracuse RC- LW-4	Drill Hall	on First Aid Cabinet		
Symuse AC- LW-5	Prill Hall	On top of vending Machine		
lyrawse AC- LW-6	Prill Hall	On top of Americal Box		
Syracust Re- LV-7	Locker Rm 153 (Former Indust Firing Range)			+
Symacuse RC- LW-8	Locker Am 150 (Former Indoor Firing Range)	On Hoor, SE End On Locker # F-2		
Syracusa Ll- LW-9	Locker An 157 (Ferner Indoor Firing Range)			
Symouse AC- LW-10	Kitchen	On top of breaker box #28		-
Syncuse RC.	1st Floor Hallway	On top of warmer		
Syrneuse Al-	Classroom 113	On top of help bex		
lw72 Imeuse RC	//	On window sill		
Uv-13	Storage 114	Ou table surface	V	V



Please Return Samples To:
AMA Analytical Services, Inc., 4475 Forbes Blvd., Lanham, MD 20706, (800) 346-(961/(301) 459-2640 Fax, www.amalab.com, info@amalab.com



Surface Sampling Field Data Sheet

T.		
Date Collected: 11-18-13	Job Name; Syrycuse KC	Company: Boars Environmental 4
Job Number: [06]-15	Job Location:	
Contact Perso	Address: 6900 Thompson Ro	Phone Number: 989 - 779 - 7151
	Symouse, NY 13211	Collected I
	- Jylmone, NI DZII	COC Number:

Sample Number	Sample Location	Surface/Substrate Sampled	Area Wiped (in²/ft²)	Collection
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Symouse Ri- Lu-16	Womin's Al	On top of Puper Parel Pispansey		
Syracuse Ac- Lw-17	attie 212	On top of locker #1		
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Syracuk RC- Lur-19	ofhie	On top of filing about		
ymeuse Ke-	Office			+
Syncuse Rt- Lu-21	othe 217	On top of Book Shelf		_
lyneux RC- LV-27	2nd Floor Hallway	On top of filling Collinat On window sill		
yracuso RC- LW-13	Men's Locker Ra			-
yricose RC+ Lw-24	HVac Unit	On locker # E-19		
ymouse Re- LW-25	HVAC VAIT	Fan side Supply side	V	-
		,,,		



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AMA Analytical Services, Inc., 4475 Forbes Blvd., Lasham, MD 20706, (800) 346-0961/(301) 459-2610 Fex, www.amslab.com, info@amalab.com



Appendix C

Photographs



Building exterior, northwest entrance



Storage room, flammables cabinet



Office 234, stained/moldy dropped-ceiling tile



Building exterior, looking south



Boiler room



Mechanical room, air handling unit



Locker room 153 (former indoor firing range)



Drill Hall

Appendix D

References

- 1. Department of Defense Instruction (0001) 6055.1, Department of Defense Occupational Safety and Health (OS H) Program, August 19, 1998.
- 2. Army Regulation (AR) 11-34, The Army Respiratory Protection Program, February 15, 1990.
- 3. DA PAM 40-503, Medical Service, Industrial Hygiene Program, October 30, 2000.
- 4. Technical Manual (T.M) 5-810-1, Mechanical Design, Heating, Ventilation, and Air Conditioning, June 1991.
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- 9. RP-1-2004, Office Lighting, Illuminating Engineering Society of North America / American National Standards Institute (IESNA/ANSI).
- 10. RP-7-2001, Industrial Lighting, (IESNA/ANSI).
- 11. ANSI/The American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE), Standard 62.1-2010, "Ventilation for Acceptable Indoor Air Quality".
- 12. ANSI/ASHRAE Standard 55-2010 "Thermal Environmental Conditions for Human Occupancy"
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- 14. OSHA Permissible Exposure Limit (PEL) for General Industry 29 CFR 1910.1000 Z-1 Table
- 15. Guidelines on Assessment and Remediation of Fungi in Indoor Environments, New York City Department of Health and Mental Hygiene, November 2008.
- 16. Mold Remediation in Schools and Commercial Buildings, U.S. Environmental Protection Agency, March 2001
- 17. Army Facilities Management Information Document on Mold Remediation Issues TG277, February 2002

18.	NG PAM 420-15, Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges, 3 November 2006.



DEPARTMENT OF THE ARMY

US ARMY CENTER FOR HEALTH PROMOTION AND PREVENTIVE MEDICINE 5158 BLACKHAWK ROAD ABERDEEN PROVING GROUND MD 21010-5403

MCHB-TS-OFS

MEMORANDUM FOR National Guard Bureau Region North Industrial Hygiene Office (NGB-ARS-IHNE/Ms. Non-Responsive), 301-IH Old Bay Lane, Havre de Grace, MD 21078

SUBJECT: New York Army National Guard Facilities, Industrial Hygiene Survey, Report No. 55-ML-048L-05/07, Troy Armory, Troy, New York, 20 September 2005

- 1. Enclosed is a copy of the subject report and two CD-ROMs.
- Our point of contact is Mr. Non-Responsive at commercial (410) 436-5474/3118, DSN 584-5475/3118, or electronic mail: wus.army.mil

FOR THE COMMANDER:

Director, Occupational Health Sciences

Encl

CF: (w/o CD ROMs)

USACHPPM-NORTH (MCHB-AN-IH/MR. Non-Responsive

Readiness thru Health



U.S. Army Center for Health Promotion and Preventive Medicine



INDUSTRIAL HYGIENE SURVEY REPORT NO. 55-ML-048L-05/07 NEW YORK ARMY NATIONAL GUARD FACILITIES TROY ARMORY TROY, NEW YORK **20 SEPTEMBER 2005**





Distribution limited to U.S. Government agencies only document must be referred to the National Guard Bu Industrial Hygiene Office NE/Ms. IH Old Bay Lane, Havre de Grace, MD 21078



Readiness Thru Health

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U.S. ARMY CENTER FOR HEALTH PROMOTION AND PREVENTIVE MEDICINE

The U.S. Army Center for Health Promotion and Preventive Medicine (USACHPPM) lineage can be traced back over 50 years to the Army Industrial Hygiene Laboratory. That organization was established at the beginning of World War II and was under the direct jurisdiction of The Army Surgeon General. It was originally located at the Johns Hopkins School of Hygiene and Public Health, with a staff of three and an annual budget not to exceed \$3000. Its mission was to conduct occupational health surveys of Army operated industrial plants, arsenals, and depots. These surveys were aimed at identifying and eliminating occupational health hazards within the Department of Defense's (DOD) industrial production base and proved to be beneficial to the Nation's war effort.

Until 1995, it was nationally and internationally known as the U.S. Army Environmental Hygiene Agency or AEHA. Its mission is expanding to support the worldwide preventive medicine programs of the Army, DOD and other Federal Agencies through consultations/ supportive services; investigations and training.

Today, AEHA is redesignated the U.S. Army Center for Health Promotion and Preventive Medicine. Its mission for the future is to provide worldwide technical support for implementing preventive medicine, public health and health promotion/wellness services into all aspects of America's Army and the Army Community anticipating and rapidly responding to operational needs and adaptable to a changing work environment.

The professional disciplines represented at the Center include chemists, physicists, engineers, physicians, optometrists, audiologists, nurses, industrial hygienists, toxicologists, entomologists, and many other as well as sub-specialties within these professions.

The organization's quest has always been one of excellence and continuous quality improvement; and today its vision, to be the nationally recognized Center for Health Promotion and Preventive Medicine, is clearer than ever. To achieve that end, it holds ever fast to its values which are steeped in its rich heritage:

- ♦ Integrity is the foundation
- ♦ Excellence is the standard
- ♦ Customer satisfaction is the focus
- ♦ Its people are the most valued resource
- ♦ Continuous quality improvement is its pathway

The organization, which stands on the threshold of even greater challenges and responsibilities, has General Officer leadership. As it moves into the next century, new programs are being added related to health promotion/wellness, soldier fitness and disease surveillance. As always, its mission focus is centered upon the Army Imperatives so that we are trained and ready to enhance the Army's readiness for war and operations other than war.

It is an organization fiercely proud of its history, yet equally excited about the future. It is destined to continue its development as a world-class organization with expanded services to the Army, DOD, other Federal Agencies, the Nation and the World Community.



DEPARTMENT OF THE ARMY

US ARMY CENTER FOR HEALTH PROMOTION AND PREVENTIVE MEDICINE
5158 BLACKHAWK ROAD
ABERDEEN PROVING GROUND MD 21010-5403

MCHB-TS-OFS

EXECUTIVE SUMMARY
INDUSTRIAL HYGIENE SURVEY
REPORT NO. 55-ML-048L-05/07
NEW YORK ARMY NATIONAL GUARD FACILITIES
TROY ARMORY
TROY, NEW YORK
20 SEPTEMBER 2005

- 1. PURPOSE. To conduct an industrial hygiene survey at the New York Army National Guard (NYARNG) Troy Armory, Troy, NY to identify and measure the existence and extent of potentially hazardous operations or conditions. This survey will serve as a baseline so that an occupational exposure history can be compiled for each civilian or military employee.
- 2. CONCLUSIONS. The significant health and safety concerns at the Armory were: high lead levels in surface dust in several locations; potential asbestos, noise, and ergonomic exposures; an inadequate exhaust ventilation system; and the lack of a site-specific Hazard Communication Program.
- 3. RECOMMENDATIONS. The Department of Defense Instruction 6055.1 provides Risk Assessment Codes (RACs) for health hazards, a procedure which allows assessment of the magnitude of exposure to physical, chemical, and biological agents and the possible medical effects of exposure. The RAC is an expression of the risk associated with the hazard and combines the hazard severity and accident probability into a single number. The RACs enable one to prioritize hazards. They range in magnitude from 1 to 5, with 1 being the highest priority.
- a. <u>Lead Exposure</u>. Health RAC 3 for child exposure. Health RAC 4 for adult exposure. Clean horizontal surfaces in the administrative areas to the National Guard Bureau (NGB) Region North Industrial Hygiene Office and U.S. Army Center for Health Promotion and Preventive Medicine (USACHPPM) recommended levels. Follow the guidance in National Guide Pamphlet 420-15 and in Appendix E of the report. Address all potential lead hazards before continuing to extend the use of this facility to children. If children will visit this facility, clean the floors in the former indoor firing range (IFR) to the Environmental Protection Agency and State of New York lead in dust standards for young children, and clean other horizontal

Readiness thru Health



surfaces in the former IFR and Organizational Maintenance Shop to the NGB Region North Industrial Hygiene Office and USACHPPM recommended maximum level for lead in dust on frequently contacted surfaces. The former IFR was being used as a general storage area. Personnel entering this area may have been tracking lead contamination throughout the building and into their homes. Ensure that personnel are notified of the potential exposure. Ensure that personnel wear disposable gloves and disposable coveralls as extra protection when cleaning in all areas identified as having elevated levels of lead. Consult with the NYARNG Environmental Coordinator concerning waste disposal requirements after clean up.

- b. <u>Asbestos Exposure</u>. Health RAC 3 if asbestos is present.
- (1) Asbestos-Containing Building Materials. Review Armory and the New York State Division of Military and Naval Affairs office records to determine if there is an Asbestos Management Plan (AMP) for Troy Armory. Perform an asbestos survey if no records are located. If asbestos is found, develop and implement an AMP if there is not one for the Armory.
- (2) Brake pad replacement. Ensure that personnel follow the NGB Standard Operating Procedures.
- c. <u>Safety and Occupational Health Programs</u>. Health RAC 3. Develop a written Hazard Communication program that is specific to the Troy facility. Review it annually to ensure any changes in policies, procedures or operations have been evaluated.
 - d. Vehicle Exhaust Ventilation. Health RAC 3.
- (1) Evaluate existing exhaust provisions and modify or provide a new system. Ensure that the system can provide at least 1,500 cubic feet per minute per drop to accommodate large turbocharged diesel engines.
- (2) Evaluate the systems to ensure that exhaust generated by the engine is removed. Test each engine type serviced in the Armory. Ensure that an industrial hygienist conducts sampling the first time this operation is performed to ensure that the systems are functioning properly.
- (3) Ensure preventive maintenance on the ventilation system is performed on a regular basis.
 - e. <u>Lighting</u>. Health RAC 5. If lighting seems inadequate, use task lighting.

EXSUM, NYARNG, IH Survey, Troy Armory, Troy, NY, Report No. 55-ML-048L-05/07, 20 September 2005

- f. <u>Noise Hazards</u>. No RAC can be assigned. Assess noise hazards and implement control measures as appropriate.
- g. <u>Ergonomic Hazards</u>. No RAC can be assigned. Assess ergonomic hazards and implement control measures as appropriate.

NYARNG, IH Survey, Troy Armory, Troy, NY, Report No. 55-ML-048L-05/07, 20 September 2005

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INDUSTRIAL HYGIENE SURVEY REPORT NO. 55-ML-048L-05/07 NEW YORK ARMY NATIONAL GUARD FACILITIES TROY ARMORY TROY, NEW YORK 20 SEPTEMBER 2005

- 1. REFERENCES. See Appendix A.
- 2. PURPOSE. To conduct an industrial hygiene survey at the New York Army National Guard (NYARNG) Troy Armory, Troy, NY, to identify and measure the existence and extent of potentially hazardous operations or conditions. This survey will serve as a baseline so that an occupational exposure history can be compiled for each civilian or military employee.
- 3. AUTHORITY. Electronic mail, National Guard Bureau (NGB) Region North Industrial Hygiene Office (NGB-ARS-IHNE/Ms. Non-Responsive), 27 July 2005, subject: SAB.
- 4. BACKGROUND. No floor plan could be located for this report.
 - a. Date of Construction. The construction date was 1971.
- b. <u>Size of Facility</u>. The facility had 68,400 square feet of floor space. The Armory had an attached automotive shop with 3-4 bays. Each bay had individual ventilation tailpipe exhaust drops.
 - c. <u>Mission</u>. To support Major Command training.
- d. <u>Armory Use by Children</u>. Mr. Mon-Responsive, Hub Superintendent, stated that children seldom visit the facility.
- e. <u>Point of Contact (POC)</u>. The POC was Mr. Facilities Management Supervisor, 330 Old Niskayuna Road, Latham, NY 12110-2224, Phone: 518-786-4552.
- 5. FACILITY EVALUATION.
- a. <u>Sampling</u>. Surface lead in dust and air sampling was conducted to determine the existence of lead hazards. Results are shown in Appendix B.
 - b. Physical Condition of Facilities.
- (1) Paint. The paint was in good condition throughout the facility. No chipping or deteriorated paint was observed.

- (2) Asbestos. Mr. Non-Responsive reported that a small section of pipe insulation (elbows) located above the ceiling in the hallway had been abated within the last six months. He also reported that all records pertaining to asbestos containing building materials were kept at the Latham Headquarters Office. Based on experience with similar facilities, personnel may have been exposed to asbestos during brake pad replacement. It was not determined whether personnel followed the NGB standard operating procedures (SOPs) for this operation, if it was performed.
- (3) Mold and Moisture Problems. No mold or moisture problems were observed or reported.
- (4) Building Physical Condition. The building was in good condition and had been well maintained.
- (5) Indoor Firing Range (IFR). The POC reported that the IFR had been closed, lead had been abated, and the IFR had been converted to a storage area. Mr. Non-Responsive stated that all documentation pertaining to lead abatement was kept at Latham.
- c. <u>Safety and Occupational Health Programs</u>. Annual Hazard Communication training was conducted and documented. There was a written Hazard Communication Program (HCP), but it was not specific to the Troy facility as required by the Occupational Safety and Health Administration (OSHA) Hazard Communication Standard. The program was a duplicate copy of the Latham facility's program, which had not been updated since April 1994.
- d. <u>Heating, Ventilation, and Air Conditioning (HVAC) Systems</u>. The building was heated with hot water. The building was cooled using a combination of central air and window mounted air conditioning units.
- e. <u>Vehicle Exhaust Ventilation System</u>. Airflow measurements were conducted using a thermoanemometer.
- f. <u>Noise Dosimetry</u>. The POC stated that there were no high noise operations at this facility. No operations with the potential to create noise hazards were observed during the site visit, so no noise monitoring was performed. However, experience with similar vehicle maintenance facilities indicates that noise hazards may be present and should be evaluated.
- g. <u>Lighting</u>. The statement of work called for professional judgment to document observed low light levels. Verbal communication between the NGB and U.S. Army Center for Health Promotion and Preventive Medicine (USACHPPM) decided that all identified light levels should be measured. Due to miscommunication, the project lead visiting this site did not quantify light levels, but did use professional judgment in conducting the lighting survey.

- h. <u>Indoor Air Quality (IAQ)</u>. Measurements were conducted to determine if IAQ parameters met the American Society of Heating, Refrigerating, and Air-conditioning Engineers, (ASHRAE) recommended guidelines, and the American Conference of Governmental Industrial Hygienists (ACGIH) exposure limit for carbon monoxide adopted by the Army. An air quality monitor was used for the measurements.
- i. <u>Ergonomic Hazards</u>. No operations with the potential to create ergonomic hazards were observed during the site visit. However, experience with similar vehicle maintenance facilities indicates that ergonomic hazards may be present and should be evaluated.
 - j. Other Building Concerns. None.
- 6. ASSESSMENT CRITERIA FOR LEAD. See Appendix C.
- a. <u>Lead in Air</u>. The Army complies with the OSHA 8-hour time-weighted average Permissible Exposure Limit of 50 micrograms of lead per cubic meter ($\mu g/m^3$) of air.
- b. <u>Lead in Dust</u>. The Environmental Protection Agency (EPA) and State of New York limits for lead in dust are 40 micrograms per square foot ($\mu g/ft^2$) on floors, 250 $\mu g/ft^2$ on windowsills, and 400 $\mu g/ft^2$ in window troughs. These limits apply to pre-1978 Army facilities only if children under 6 years of age occupy them for 60 or more hours per year. The NGB Region North Industrial Hygiene Office concurs with the USACHPPM recommended maximum level of 200 $\mu g/ft^2$ on floors and frequently contacted surfaces, which is more stringent for windowsills than the EPA/State standards. This level was adopted from OSHA Compliance Letter CPL 02-02-58.
- c. <u>Lead in Paint</u>. Paint containing lead levels of 0.5 percent or more by weight in dried solid (also reported as 5,000 milligrams per kilogram) is considered to be lead-based paint according to both Federal and New York State Regulations. Any paint containing detectable amounts of lead is potentially hazardous to children if it is disturbed or deteriorating.

7. SAMPLING RESULTS AND DISCUSSION.

a. Lead in Dust. Lead in dust sample locations and analytical results are shown in Appendix B. Sample results greater than 40 µg/ft² for floors and 200 µg/ft² for frequently contacted surfaces are highlighted. Lead in dust results significantly exceeded the EPA and State of New York limits for young children. Six lead in dust results exceeded the NGB Region North Industrial Hygiene Office and USACHPPM recommended maximum levels for lead in dust on frequently contacted surfaces. The highest levels were found in the former IFR on the HVAC supply air diffuser, light fixtures, and floor. Personnel working in this room were potentially exposed to lead, and may have been tracking lead out of the area and redistributing it into

adjacent rooms in the Armory. This can result in lead exposures for the general workforce and for children visiting this facility. One of the lead in dust sample results exceeded the EPA and the State of New York lead exposure standard for children of $40~\mu g/ft^2$ on floors and $250~\mu g/ft^2$ on windowsills. These levels are hazardous to children exposed to lead dust through physical contact, inhalation, or ingestion of lead dust while visiting the Armory.

- b. <u>Lead in Air</u>. General area lead in air sampling was conducted in the Drill Hall, Dining Hall, Classroom and former IFR. The air sample results were less than $4 \mu g/m^3$, and were below the laboratory analytical reporting limit for lead in air of $1 \mu g/s$ ample, as well as the OSHA standard of $50 \mu g/m^3$ for lead in air over an 8-hour day.
- c. <u>Vehicle Exhaust System Ventilation</u>. Table 1 summarizes the vehicle exhaust system measurements.

Average Face Calculated Flow Exhaust Fan Velocity Duct Opening Diameter (in) / Rate (cubic feet per (feet per minute) Area (ft²) Unit minute) (cfm) (fpm) Tailpipe 2800 6"/0.1963 550 Exhaust 1 Tailpipe 6"/0.1963 3000 590 Exhaust 2 Tailpipe 3200 6"/0.1963 630 Exhaust 3 Tailpipe 2900 6"/0.1963 570 Exhaust 4

TABLE 1. Summary of Vehicle Exhaust Ventilation Flow Rates.

- (1) Sampling methodology. Face velocities of the tailpipe exhaust intakes were measured using a thermoanemometer. Tailpipe exhaust ducts were 6 inches in diameter. Tailpipe 1 was at the far end of the building from the vehicle doors. Flow rates were calculated from the measured velocities.
- (2) The exhaust system should provide at least 1,500 cubic feet per minute (cfm) exhaust at each drop in accordance with the ACGIH Industrial Ventilation Manual recommendation for 9 liter displacement turbocharged diesel engines run at 1,000 revolutions per minute. This exhaust rate is intended to accommodate large turbocharged diesel engines that are, or may be,

maintained at this Organizational Maintenance Shop (OMS). None of the drops met this criterion.

d. Indoor Air Quality (IAQ). Table 2 summarizes IAQ measurements.

TABLE 2. Indoor Air Quality Measurements.

Location	CO ₂ (ppm)	Temp (°F)	RH (%)	CO (ppm)	CO ACGIH Standard (ppm)
Outdoors	380	78	75	0	25
OMS	513	77.7	62.6	0	25
Drill Hall	390	75	74	0	25
Dining Hall	390	75	74	0	25
Classroom Upstairs	420	73	66	0	25
Former IFR	480	74	59	0	25

- (1) Temperature. The indoor temperatures of all rooms sampled were within the ASHRAE recommended guidelines of 71-81 degrees Fahrenheit for an acceptable thermal environment in the summer.
- (2) Carbon Dioxide. The outdoor carbon dioxide level was 380 parts per million (ppm). The ASHRAE recommends, for occupant comfort, maintaining carbon dioxide levels below the value of 700 ppm plus the outdoor ambient level. Therefore, carbon dioxide levels should be maintained below 1,080 ppm (700 ppm plus 380 ppm). The carbon dioxide levels in all rooms were well within the ASHRAE recommended guidelines.
- (3) Relative Humidity (RH). The RH levels in all rooms tested were slightly above the ASHRAE recommended guidelines of 30-60 percent RH. These readings are not considered to indicate a significant problem, as the outdoor RH was 74.4 percent, and most doors to the facility were open.
- (4) Carbon Monoxide. Carbon monoxide levels were well below the ACGIH 8-hour exposure limit of 25 ppm used by the Army.

- 8. CONCLUSIONS. The significant health and safety concerns at the Armory were: high lead levels in surface dust in several locations; potential asbestos, noise, and ergonomic exposures; an inadequate exhaust ventilation system; and the lack of a site-specific HCP.
- 9. RECOMMENDATIONS. The Department of Defense Instruction 6055.1 provides Risk Assessment Codes (RACs) for health hazards, a procedure which allows assessment of the magnitude of exposure to physical, chemical, and biological agents and the possible medical effects of exposure. The RAC is an expression of the risk associated with the hazard and combines the hazard severity and accident probability into a single number. The RACs enable one to prioritize hazards. They range in magnitude from 1 to 5, with 1 being the highest priority.
- a. <u>Lead Exposure</u>. Health RAC 3 for child exposure. Health RAC 4 for adult exposure. Clean horizontal surfaces in the administrative areas to the NGB Region North Industrial Hygiene Office and USACHPPM recommended levels. Follow the guidance in National Guard Pamphlet 420-15 and in Appendix E. Address all potential lead hazards before continuing to extend the use of this facility to children. If children will visit this facility, clean the floors in the former IFR to the EPA and State of New York lead in dust standards for young children, and clean other horizontal surfaces in the former IFR and OMS to the NGB Region North Industrial Hygiene Office and USACHPPM recommended maximum level for lead in dust on frequently contacted surfaces. The former IFR was being used as a general storage area. Personnel entering this area may have been tracking lead contamination throughout the building and into their homes. Ensure that personnel are notified of the potential exposure. Ensure that personnel wear disposable gloves and disposable coveralls as extra protection when cleaning in all areas identified as having elevated levels of lead. Consult with the NYARNG Environmental Coordinator concerning waste disposal requirements after clean up.
 - b. Asbestos Exposure. Health RAC 3 if asbestos is present.
- (1) The Asbestos Containing Building Material. Review Armory and the New York State Division of Military and Naval Affairs office records to determine if there is an Asbestos Management Plan (AMP) for Troy Armory. Perform an asbestos survey if no records are located. If asbestos is found, develop and implement an AMP if there is not one for the Armory.
 - (2) Brake pad replacement. Ensure that personnel follow the NGB SOPs.
- c. <u>Safety and Occupational Health Programs</u>. Health RAC 3. Develop a written Hazard Communication program that is specific to the Troy facility. Review it annually to ensure any changes in policies, procedures or operations have been evaluated.
 - d. Vehicle Exhaust Ventilation. Health RAC 3.

- (1) Evaluate existing exhaust provisions and modify or provide a new system. Ensure that the system can provide at least 1,500 cfm per drop to accommodate large turbocharged diesel engines.
- (2) Evaluate the systems to ensure that exhaust generated by the engine is removed. Test each engine type serviced in the Armory. Ensure that an industrial hygienist conducts sampling the first time this operation is performed to ensure that the systems are functioning properly.
- (3) Ensure preventive maintenance on the ventilation system is performed on a regular basis.
 - e. Lighting. Health RAC 5. If lighting seems inadequate, use task lighting.
- f. <u>Noise Hazards</u>. No RAC can be assigned. Assess noise hazards and implement control measures as appropriate.
- g. <u>Ergonomic Hazards</u>. No RAC can be assigned. Assess ergonomic hazards and implement control measures as appropriate.
- 10. PHOTOGRAPHS. See Appendix D.
- 11. ADDITIONAL ASSISTANCE. For additional assistance or questions concerning this report, please contact the undersigned at DSN 584-3118, commercial 410-436-3118, or by electronic mail: Non-Responsive @us.army.mil



Industrial Hygienist Industrial Hygiene Field Services Program

APPROVED:



Program Manager Industrial Hygiene Field Services Program

APPENDIX A

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- 11. NG Pam 420-15, Facilities Engineering, Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges, 3 Nov 06.

A-1

APPENDIX B

TABLE B-1. Lead in Surface Dust Sampling Locations and Analytical Results.

Wipe Sample	Location of Samples	Result (µg/ft²)
Number		
TR-W01	Former IFR – Bullet Trap Area, Center Floor	1,000
TR-W02	Former IFR – Bullet Trap Area, Center Shelf, Back Wall	340
TR-W03	Former IFR – HVAC Supply Grille	<mark>8,700</mark>
TR-W04	Former IFR – Light Fixture	<mark>4,900</mark>
TR-W05	Former IFR – Door, Outside Surface	3.3
TR-W06	Storage Area Downstairs	4.6
TR-W08	Dining Hall	20
TR-W09	Kitchen	19
TR-W10	G1 – Personnel Area, Desk Shelf Top	7.4
TR-W11	G3 – Training Area, Office HVAC Supply Grille, FTE	6.9
TR-W13	Drill Hall – NW corner	3.9
TR-W14	Drill Hall – NE corner	<2.7
TR-W16	Drill Hall – SE corner	6.5
TR-W17	Drill Hall – SW corner	34
TR-W18	Drill Hall	<2.7
TR-W19	OMS – Top of Tool Box	<mark>260</mark>
TR-W20	OMS – Storage Area	70
TR-W21	Upstairs Locker Room	8.7
TR-W22	Stairway – To Upstairs Locker Room	<2.7
TR-W23	Classroom – Upstairs	6.2
TR-W24	Recreation Center – Bar	8.1
TR-W26	Vault – Rifle Rack	34
TR-W27	HVAC Bldg Supply, Rooftop	<mark>270</mark>

TABLE B-2. Lead in Air Sampling Locations and Analytical Results.

Air Sample Number	Location of Samples	Result (µg/m³)
TR-A01	Drill Hall	<13
TR-A02	Dining Hall	<13
TR-A03	Class Room	<13
TR-A04	Former IFR	<13

Posted to NGB FOIA Reading Room

May, 2018

APPENDIX C

Subject: Recommendations for Surface Lead Dust in Armories

- 1. In armories that do not contain childcare facilities, the National Guard Bureau (NGB) Region North Industrial Hygiene Office recommends cleaning the areas in which sample results are greater than 200 micrograms per square foot (µg/ft²). If a special function will be held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function. This guidance is based on professional judgment, risk assessments, adaptation of Occupational Safety and Health Administration (OSHA) guidance, and feasibility of cleaning to a certain level.
- a. Environmental Protection Agency (EPA) standards (40 Code of Federal Regulations (CFR) 745.227(h)(3)) are not directly applicable because they are criteria for dust-lead hazards developed for floors (40 µg/ft²) and windowsills (250 µg/ft²) in residential dwellings and child occupied facilities. A child occupied facility is defined as a building, or portion of a building, constructed prior to 1978, visited regularly by the same child, 6 years of age or under, on at least two different days within any week (Sunday through Saturday period), provided that each day's visit lasts at least 3 hours and the combined weekly visit lasts at least 6 hours, and the combined annual visits last at least 60 hours. Most of the wipe samples in armories were collected in undisturbed areas and therefore, results are worst case scenarios and do not correlate to these standards.
- b. The 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. The OSHA used to cite a level of 200 µg/ft² in their Technical Manual and 29 CFR 1926.62 as guidance to its own inspectors for evaluating the cleanliness of lunchroom and locker room surfaces that are supposed to be kept as clean as possible.
- d. In a report titled Derivation of Wipe Surface Screening Levels for Environmental Chemicals, the US Army Center for Health Promotion and Preventive Medicine (USACHPPM) has determined that 200 µg/ft² is a safe surface contamination level. They have also applied these standards as the decontamination levels for surfaces in administrative offices.
- e. It should be noted that levels above these recommendations do not necessarily mean there is a significant hazard to workers who are following good cleaning and hygienic practices since there is no correlation between wipe and air samples. Rather, we recommend these levels as a precautionary measure.

May, 2018

- 2. The NGB Occupational Health Branch is developing guidance for armories that are used as childcare facilities. All states will receive this guidance when it is completed. In the interim, we recommend the following actions:
- a. Clean all areas that will be accessible to children to the EPA dust-lead standard for children 6 years of age or under ($40 \mu g/ft^2$ on floors and $250 \mu g/ft^2$ on windowsills).
- b. Refer to the local authorities' regulations since they can be more stringent than federal regulations.
 - c. Post signs in the area to inform people of the presence of lead dust and its effects.
- d. If Soldiers clean weapons in the facility, change the policy so that they cannot clean their weapons in the facility, or if they are allowed to clean their weapons indoors, they must clean the area by wet wiping and mopping the area when they are done.
- e. If the paint is peeling, contact the state Environmental Office to test for lead content and provide recommendations.
- 3. General area air samples collected in the armory were well below OSHA's permissible exposure limit for lead (29 CFR 1910.1025(c)) of 0.05 mg/m³ averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead dust in this building.

APPENDIX D PHOTOGRAPHS



Indoor Firing Range (IFR)



IFR – Bullet Trap Area – Center Floor



IFR – Bullet Trap Area – Storage Shelf



IFR – Supply Grille & Light Fixture



Dining Hall



Kitchen – Top Of Microwave



G1 – Personnel Area – Desk Top



G3 – Training Area – HVAC Supply Grille



Drill Hall – NW Corner



Drill Hall – NE Corner



Drill Hall – SE Corner



D-4

Drill Hall - Center



OMS – Tool Box Top



OMS – Storage Shelf



Upstairs locker room – floor



Locker Room Stairway



D-6

Upstairs Classroom



Recreation Center Bar

APPENDIX E

LEAD CLEANING GUIDANCE





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Chapter 14: Cleaning



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Step-by-Step Summary



Cleaning: How To Do It

- Include step-by-step procedures for precleaning, cleaning during the job, and daily and final cleanings in project design or specifications.
- 2. Assign responsibilities to specific workers for cleaning and for maintaining cleaning equipment.
- 3. Have sufficient cleaning equipment and supplies before beginning work.
- 4. If contamination is extensive, conduct precleaning of the dwelling unit. Move or cover all furniture and other objects.
- Conduct ongoing cleaning during the job, including regular removal of large and small debris and dust.
 Decontamination of all tools, equipment, and worker protection gear is required before it leaves containment areas. Electrical equipment should be wiped and high-efficiency particulate air (HEPA) vacuumed, not wetted down, to minimize electrocution hazards.
- 6. Schedule sufficient time (usually 30 minutes to an hour) for a complete daily cleaning, starting at the same time near the end of each workday after lead hazard control activity has ceased.
- For final cleaning, wait at least 1 hour after active lead hazard control activity has ceased to let dust particles settle.
- Use a vacuum cleaner equipped with a HEPA exhaust filter. HEPA vacuum all surfaces in the room (ceilings, walls, trim, and floors). Start with the ceiling and work down, moving toward the entry door. Completely clean each room before moving on.
- Wash all surfaces with a lead-specific detergent, high-phosphate detergent, or other suitable cleaning agent to dislodge any ground-in contamination, then rinse. Change the cleaning solution after every room is cleaned.
- 10. Repeat step 8. To meet clearance standards consistently, a HEPA vacuum, wet wash, and HEPA vacuum cycle is recommended. For interim control projects involving dust removal only, the final HEPA vacuuming step is usually not needed (see Chapter 11). Other cleaning methods are acceptable, as long as clearance criteria are met and workers are not overexposed.
- 11. After final cleaning, perform a visual examination to ensure that all surfaces requiring lead hazard control have been addressed and all visible dust and debris have been removed. Record findings and correct any incomplete work. This visual examination should be performed by the owner or an owner's representative who is independent of the lead hazard control contractor.
- 12. If other construction work will disturb the lead-based paint surfaces, it should be completed at this point. If those surfaces are disturbed, repeat the final cleaning step after the other construction work has been completed.
- 13. Paint or otherwise seal treated surfaces and interior floors.
- 14. Conduct a clearance examination (see Chapter 15).
- 15. If clearance is not achieved, repeat the final cleaning.



-Step-by-Step Summary (continued) -



- 16. Continue clearance testing and repeated cleaning until the dwelling achieves compliance with all clearance standards. As an incentive to conduct ongoing cleaning and a thorough final cleaning, the cost of repeated cleaning after failing to achieve clearance should be borne by the contractor as a matter of the job specification, not the owner.
- 17. Do not allow residents to enter the work area until cleaning is completed and clearance is established.
- 18. Cleaning equipment list:
 - ♦ HEPA vacuums.
 - Detergent.
 - ♦ Waterproof gloves.
 - Rags.
 - Sponges.
 - Mops.
 - Buckets.
 - ♦ HEPA vacuum attachments (crevice tools, beater bar for cleaning rugs).
 - 6-mil plastic bags.
 - Debris containers.
 - Waste water containers.
 - Shovels.
 - Rakes.
 - Water-misting sprayers.
 - 6-mil polyethylene sheeting (or equivalent).





I. Introduction

This chapter describes cleaning procedures to be employed following abatement and interim control work. Dust removal as an interim control measure is covered in Chapter 11.

All lead hazard control activities can produce dangerous quantities of leaded dust. Unless this dust is properly removed, a dwelling unit will be more hazardous after the work is completed than it was originally. Once deposited, leaded dust is difficult to clean effectively. Whenever possible, ongoing and daily cleaning of leaded dust during lead hazard control projects is recommended. Ongoing and daily cleaning is also necessary to minimize worker exposures.

Cleaning is the process of removing visible debris and dust particles too small to be seen by the naked eye. Removal of lead-based paint hazards in a dwelling unit will not make the unit safe unless excessive levels of leaded dust are also removed. This is true regardless of whether the dust was present before or generated by the lead hazard control process itself. Improper cleaning can increase the cost of a project considerably because additional cleaning and clearance sampling will be necessary. However, cleaning and clearance can be achieved routinely if care and diligence are exercised.

A. Performance Standard

Although the cleaning methods described in this chapter are feasible and have been shown to be effective in meeting clearance standards, other methods may also be used if they are safe and effective. This performance-oriented approach should stimulate innovation, reduce cost, and ensure safe conditions for both residents and workers.

B. Small Dust Particles

Dust particles that are invisible to the naked eye remain on surfaces after ordinary cleaning

procedures. A visibly clean surface may contain high and unacceptable levels of dust particles and require special cleaning procedures.

C. Difficulties in Cleaning

While cleaning is an integral and essential component of any lead hazard control activity, it is also the most likely part of the activity to fail.

Several common reasons for this failure include low clearance standards, worker inexperience, high dust-producing methods, and deadlines.

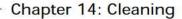
1. Low Clearance Standards

Because very small particles of leaded dust are easily absorbed by the body when ingested or inhaled, a small amount can create a health hazard for young children. Therefore, "clearance standards" are extremely low for acceptable levels of leaded dust particles on surfaces after hazard control activities, and careful cleaning procedures are required. Although it is not possible to remove all leaded dust from a dwelling, it is possible to reduce it to a safe level.

Clearance standards are described more fully in Chapter 15. The permissible amount of leaded dust remaining on each of the following surfaces following lead hazard work is as follows:

- 100 μg/ft² on floors.
- 500 μg/ft² on interior window sills (stools).
- 800 µg/ft² on window troughs (the area where the sash sits when closed).
- 800 μg/ft² on exterior concrete.

These levels are based on wipe sampling.
Clearance testing determines whether the premises or area are clean enough to be reoccupied after the completion of a lead paint hazard control project. A cleaned area may not be reoccupied until compliance with clearance standards has been established. To prevent delays, final testing and final cleaning activities should be coordinated.







2. Worker Inexperience

To understand the level of cleanliness required to meet the established clearance standards for hazard control cleanup, new hazard control personnel often require a significant reorientation to cleaning. Many construction workers are used to cleaning up only dust that they can see, not the invisible dust particles that are also important to remove.

3. High Dust-Producing Methods and/or Inadequate Containment

High dust-generating methods, inadequate containment during hazard control work, and poor work practices can all make achievement of clearance particularly difficult. Work practices necessary to prevent spreading of dust throughout a dwelling (e.g., by tracking dust out of work areas) are essential but sometimes tedious. Essential work practices are sometimes mistakenly considered to be "flexible guidelines" rather than necessary standards that are designed to ensure that the job is completed, not only safely, but also on time and within budget.

4. Deadlines

Daily and final cleanings have sometimes been compromised due to project deadlines, since cleaning comes at the end of the job. Hurried efforts often result in clearance failure. Delayed and over-budget hazard control projects are often the result of repeated, unplanned recleanings that are necessitated by inadequate containment and sloppy work practices.

II. Coordination of Cleaning Activities

A. Checklist

The owner or contractor may use the following cleaning checklist before any lead hazard control activity:

- ✓ Is the critical importance of cleaning in a hazard control project understood?
- ✓ Have all workers been trained and certified for hazard control work?

- ✓ Have the precleaning, daily, and final cleanings been scheduled properly and coordinated with the other participants in the hazard control process?
- ✓ Have cleaning equipment and materials been obtained?
- ✓ Do the workers know how to operate and maintain special cleaning equipment, and do they have directions for the proper use of all cleaning materials?
- ✓ Have all workers carefully studied the step-by-step procedures for precleaning (if needed), in-progress cleaning, and daily and final cleanings?
- ✓ Are all workers properly protected during the cleaning processes (see Chapter9)?
- ✓ Have provisions been made to properly contain and store potentially hazardous debris (see Chapter 10)?
- ✓ Have dust-clearance testing and related visual inspections been arranged (see Chapter 15)?
- ✓ Are the clearance criteria to be met fully understood?
- ✓ Have all appropriate surfaces been properly painted or otherwise sealed?
- ✓ Have appropriate records been maintained that document participants' roles in the hazard control project?

B. Equipment Needed for Cleaning

The following equipment is needed to conduct cleaning: high-efficiency particulate air (HEPA) vacuums and attachments (crevice tools, beater bar for cleaning rugs), detergent, waterproof gloves, rags, sponges, mops, buckets, 6-mil plastic bags, debris containers, waste water containers, shovels, rakes, water-misting sprayers, and 6-mil polyethylene plastic sheeting (or equivalent).



C. Waste Disposal

Regulations governing hazardous and nonhazardous waste storage, transportation, and disposal affect both the daily and final cleaning procedures. The hazard control contractor and the disposal contractor should work together to establish formal written procedures, specifying selected containers, storage areas, and debris pickups, to ensure that all relevant regulations are met.

III. Cleaning Methods and Procedures

Many of the special cleaning methods and procedures detailed in this chapter are not standard operating procedure for general home improvement contractors. Therefore, project designers, responsible agencies, or owners must ensure that contractors follow the methods and procedures recommended herein or specially designed alternative procedures, even though some may appear to be redundant and unnecessary. These methods have been shown to be feasible and effective in many situations and skipping steps in the cleaning procedures can be counterproductive.

A. Containment

Because of the difficulty involved in the removal of fine dust, dust generated by hazard control work should be contained to the extent possible to the inside of work areas. Inadequately constructed or maintained containment or poor work practices will result in additional cleaning efforts, due to dust that has leaked out or been tracked out of the work area (see Chapter 8).

B. Basic Cleaning Methods: Wet Wash and Vacuum Cleaning Techniques

Because leaded dust adheres tenaciously, especially to such rough or porous materials as weathered or worn wood surfaces and masonry surfaces (particularly concrete), workers should be trained in cleaning methods. As a motivator,

some contractors have awarded bonuses to workers who pass clearance the first time.

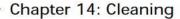
Two basic cleaning methods have proven effective, when used concurrently, in lead-based paint hazard control projects: a special vacuum cleaner equipped with a HEPA exhaust filter, followed by wet washing with special cleaning agents and rinsing, followed by a final pass with the HEPA vacuum.

Although HEPA filtered vacuums and triso-dium phosphate (TSP) cleaners have been considered the standard cleaning tools for lead hazard control projects, new research, discussed under the "Alternatives Methods" section in this chapter, suggests that other tools and products may also be effective in efficiently cleaning dust while providing adequate worker protection from airborne exposure risks. Some of these innovations may even be superior.

1. HEPA Vacuuming

HEPA vacuums differ from conventional vacuums in that they contain high-efficiency filters that are capable of trapping extremely small, micron-sized particles. These filters can remove particles of 0.3 microns or greater from air at 99.97 percent efficiency or greater. (A micron is 1 millionth of a meter, or about 0.00004 inches.) Some vacuums are equipped with an ultra-low penetration air (ULPA) filter that is capable of filtering out particles of 0.13 microns or greater at 99.9995 percent efficiency. However, these ULPA filters are slightly more expensive, and may be less available than HEPA filters.

Vacuuming with conventional vacuum machines is unlikely to be effective, because much of the fine dust will be exhausted back into the environment where it can settle on surfaces. A recent Canadian study revealed that finedust air levels were exceedingly high when a standard portable vacuum with a new bag was used, although partially filled bags were found to be more efficient (CMHC, 1992). Considerations for the proper use of a HEPA vacuum are listed below.







Operating Instructions

There are a numerous manufacturers of HEPA vacuums. Although all HEPA vacuums operate on the same general principle, they may vary considerably with respect to specific procedures, such as how to change the filters. To ensure the proper use of equipment, the manufacturer's operating instructions should be carefully followed and if possible, training sessions arranged with the manufacturer's representative.

Although HEPA vacuums have the same "suction" capacity as ordinary vacuums that are comparably sized, their filters are more efficient. Improper cleaning or changing of HEPA filters may reduce the vacuum's suction capability.

Special Attachments

Because the HEPA vacuum will be used to vacuum surfaces other than floors, operators should buy attachments and appropriate tool kits for use on different surfaces—such as brushes of various sizes, crevice tools, and angular tools.

Selecting Appropriate Size(s)

HEPA vacuums are available in numerous sizes, ranging from a small lunchbucket-sized unit to track-mounted systems. Two criteria for size selection are the size of the job and the type of electrical power available. Manufacturer recommendations should be followed.

Wet-Dry HEPA Vacuums

Some hazard control contractors have found the wet-dry HEPA vacuums to be particularly effective in meeting clearance standards. These vacuums are equipped with a special shut-off float switch to protect the electrical motor from water contact.

Prefilters

HEPA filters are usually used in conjunction with a prefilter or series of prefilters that trap the bulk of the dust in the exhaust airstream, particularly the larger particles. The HEPA filter traps most of the remaining small particles that have passed through the prefilter(s). All filters must be maintained and replaced or

cleaned as specified in the manufacturer's instructions. Failure to do so may cause a reduction in suction power (thus reducing the vacuum's efficiency and effectiveness). Failure to change prefilters may damage the vacuum motor and will also shorten the service life of the HEPA filter, which is far more expensive than the prefilters.

HEPA Vacuuming Procedures

Surfaces frequently vacuumed include ceilings, walls, floors, windows, interior and exterior sills, doors, heating, ventilation, and air conditioning (HVAC) equipment (heating diffusers, radiators, pipes, vents), fixtures of any kind (light, bathroom, kitchen), built-in cabinets, and appliances.

To aid in dislodging and collecting deep dust and lead from carpets, the HEPA vacuum must be equipped with a beater bar (agitator head) that is fixed to the cleaning head. This bar should be used on all passes on the carpet face during dry vacuuming (see Chapter 11 for details on carpet and furniture cleaning).

All rooms and surfaces should be included in the HEPA vacuum process, except for those that (1) were found not to have lead-paint hazards and were properly separated from work areas before the process began (see Chapter 8), or (2) were never entered during the process. Porches, sidewalks, driveways, and other exterior surfaces should be vacuumed if exterior hazard control work was conducted, or if debris was stored or dropped outside. Vacuuming should begin on the ceilings and end on the floors, sequenced to avoid passing through rooms already cleaned, with the dwellings' entryway cleaned last.

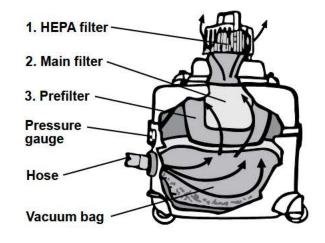
Emptying the HEPA Vacuum

Used filters and vacuumed debris are potentially hazardous waste and should be treated accordingly (see Chapter10). Therefore, operators should use extreme caution when opening the HEPA vacuum for filter replacement or debris removal to avoid accidental release of accumulated dust into the environment. This may occur, for example, if the vacuum's seal has been broken and the vacuum's bag is disturbed.





Figure 14.1a Vacuum With a HEPA Filter.



Parts of a HEPA-vacuum

Most HEPA-vacuums have three filters: HEPA filter, main filter, and prefilter. Debris gets sucked in through the hose into the vacuum bag. The air and dust get filtered through the prefilter, the main filter, and the HEPA filter. The HEPA filter captures the lead dust before the air is released into the work area again.

Operators should also wear a full set of protective clothing and equipment, including appropriate respirators, when performing this maintenance function, which should be done in the containment area or offsite.

2. Wet Detergent Wash

Several types of detergents have been used to remove leaded dust. Those with a highphosphate content (containing at least 5 percent trisodium phosphate, also known as TSP) have been found to be effective when used as part of the final cleaning process (Milar, 1982). TSP detergents are thought to work by coating the surface of dusts with phosphate or polyphosphate groups which reduces electrostatic interactions with other surfaces and thereby permits easier removal. Because of environmental concerns some States have restricted the use of TSP, and some manufacturers have eliminated phosphates from their household detergents. However, high-TSP detergents can usually be found in hardware stores and may be permitted for limited use, such as lead hazard control.

Other non-TSP cleaning agents developed specifically for removing leaded dust have also been found to be effective (possibly more effective than TSP) in limited trials by several

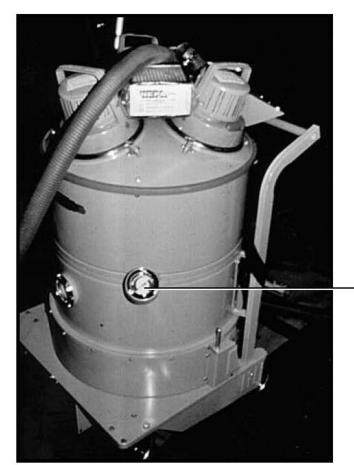


Figure 14.1b Pressure Gauge Indicator Shows When Filters Require Changing.

Pressure

gauge





Figure 14.2 HEPA Vacuum Sizes and Tools.

investigators (Grawe, 1993; Wilson, 1993) and may also be safer, since TSP is a skin and eye irritant. See section VII for more information on non-TSP detergents. Proper procedures for using high-phosphate detergents also apply to most other types of detergents and include the following steps:

Manufacturer's Dilution Instructions

Users of cleaning agents for leaded dust removal should follow manufacturer's instructions for the proper use of a product, especially the recommended dilution ratio. Even diluted, trisodium phosphate is a skin irritant and users should wear waterproof gloves. Eye protection should also be worn, and portable eyewash facilities should be located in or very near the work area. Consult manufacturer's directions for the use of other detergents.

Appropriate Cleaning Equipment

Because a detergent may be used to clean leaded dust from a variety of surfaces, several types of application equipment are needed, including cleaning solution spray bottles, wringer buckets, mops, variously sized hand sponges, brushes, and rags. Using the proper equipment on each surface is essential to the quality of the wetwash process.

Proper Wet-Cleaning Procedures

At the conclusion of the active lead hazard control process and the initial HEPA vacuuming, all vacuumed surfaces should be thoroughly and completely washed with a high-phosphate solution or other lead-specific cleaning agent (or equivalent) and rinsed. Select a detergent that does not damage existing surface finishes (TSP may damage some finishes). Work should proceed from ceilings to floors and sequenced to avoid passing through rooms already cleaned.

Changing Cleaning Mixture

Many manufacturers of cleaners will indicate the surface area that their cleaning mixture will cover. To avoid recontaminating an area by cleaning it with dirty water, users should follow manufacturer-specified surface-area limits. However, regardless of manufacturers' recommendations, the cleaning mixture should be changed after its use for each room. As a rule of thumb, 5 gallons should be used to clean no

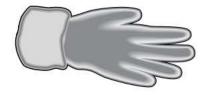


Figure 14.3 Goggles, Face Shields, Gloves, and Eye Wash Facilities Should Be Available When Used With Chemicals Such as TSP.

EMERGENCY EYE WASH STATION







Latex

Neoprene

Nitrile

more than 1,000 square feet. Used cleaning mixture is potentially hazardous waste (see Chapter 10); consult with your local water and sewage utility for directions on its proper disposal. Wash water should never be poured onto the ground. The wash water is usually filtered and then poured down a toilet (if the local water authority approves).

3. The HEPA/Wet Wash/HEPA Cycle

Typical Procedures

The usual cleaning cycle that follows lead hazard control activities is called the HEPA vacuum/wet wash/HEPA cycle and is applied to an entire affected area as follows:

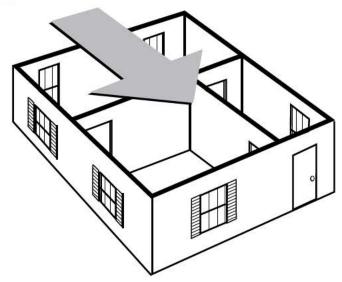
First, the area is HEPA vacuumed.



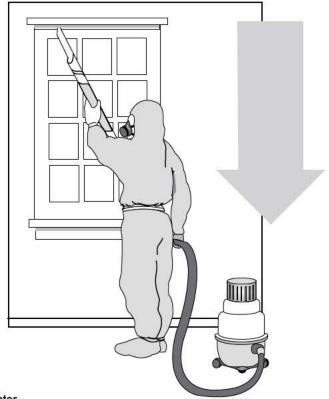


Figure 14.4a The HEPA Vacuum, Wet Wash, HEPA Vacuum Cycle Helps in Meeting Clearance Standards.

HEPA vacuum all surfaces Start at the end farthest from the main entrance/exit. As you vacuum, move towards the main exit and finish there.



Begin at the top of each room and work down. For example, start with the top shelves, the top of the woodwork, and so on, and work down to the floor. Do every inch of the windows, especially the window troughs.



Courtesy: Alice Hamilton Occupational Health Center





- Next, the area is washed down.
- After drying, the area is again HEPA vacuumed.

The rationale for this three-pass system is as follows:

- The first HEPA vacuum removes as much dust and remaining debris as possible.
- The wet wash further dislodges dust from surfaces.
- The final HEPA cycle removes any remaining particles dislodged but not removed by the wet wash.

Single-Pass Wet Wash/HEPA Vacuum

Some lead hazard control contractors have found HEPA spray cleaner vacuums to be a cost-effective alternative to the three-pass system. Similar to home carpet-cleaning machines, these vacuums simultaneously deliver a solution to the surface and recover the dirty solution. Theoretically, this process combines two of the steps in the HEPA vacuum/wet wash/HEPA cycle into one step. While anecdotal evidence indicates that the spray cleaner wet wash/HEPA is effective for some uses, limitations have been noted in its use for ceilings, vertical surfaces, and hard to reach areas. This device may be used as long as clearance standards are met.

Figure 14.4b (continued)

Use special attachments

Use the rubber cone where the floor meets the baseboard and along all the cracks in the floor boards. Use the brush tool for walls and woodwork.

Use the wheeled floor nozzle for bare floors and the carpet beater for rugs.

Move slowly

Vacuum slowly so the HEPA vacuum can pick up all the lead dust.



Rubber Cone

Dust Brush



Powered Carpet Beater



Wheeled Floor Nozzle





Figure 14.4c (continued)

Wash all surfaces with suitable detergents

Wash all surfaces in the work area with suitable detergents, including areas that had been covered with plastic. Some wallpaper should only be HEPA vacuumed, since it may be damaged by the detergent.



Wipe All Surfaces



Wet Mop Floor



Don't Dry Sweep



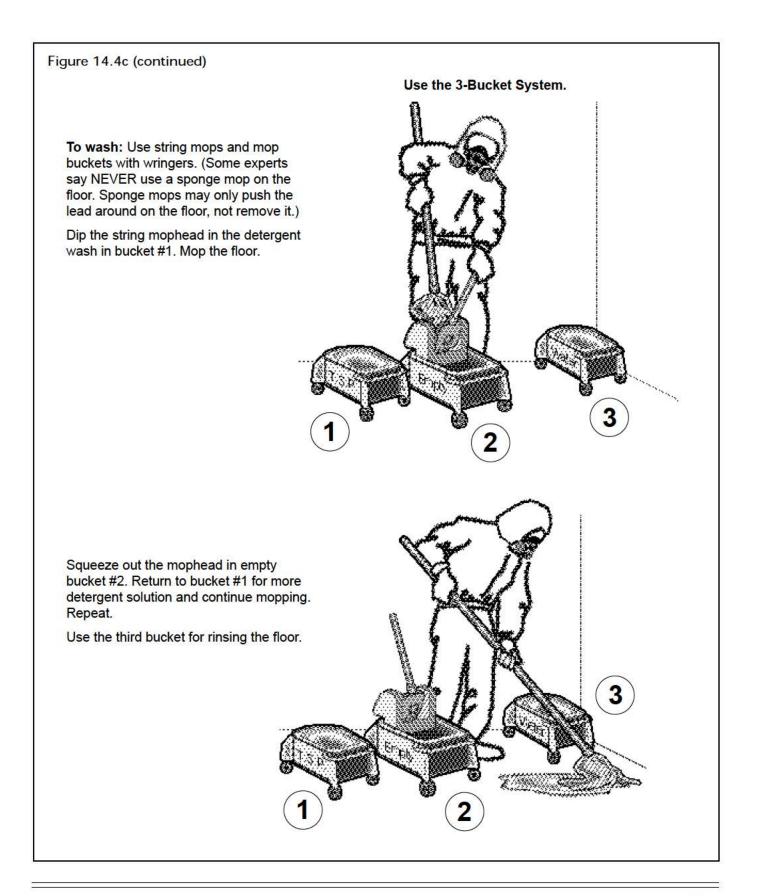


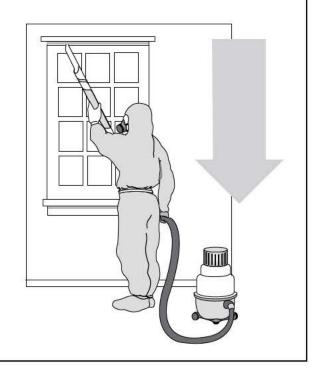




Figure 14.4d (continued)

HEPA vacuum all surfaces a final time HEPA vacuum *all surfaces* in the work area, including areas that had been covered with plastic.

Starting at the far end, work towards the decontamination area. Begin with ceilings or the top of the walls and work down, cleaning the floors last. Do every inch of the windows, especially the troughs. Use the corner tool to clean where the floor meets the baseboard and all the cracks in the floor boards. Use the brush tool for the walls. Move slowly and carefully to get all the dust.



4. Sealing Floors

Before clearance, all floors without an intact, nonporous coating should be coated. Sealed surfaces are easier for residents to clean and maintain over time than those that are not sealed. Wooden floors should be sealed with a clear polyurethane or painted with deck enamel or durable paint. Vinyl tile, linoleum, and other similar floors should be sealed with an appropriate wax. Concrete floors should be sealed with a concrete sealer or other type of concrete deck enamel. However, if these floors are already covered by an effective coat of sealant, it may be possible to skip this step.

As an alternative to sealing, floors may be covered with new vinyl tile, sheet vinyl, linoleum flooring, or the equivalent to create a more permanent cleanable surface. New surfaces should be cleaned with a cleaning solution that is appropriate for that type of surface.

IV. Order of Cleaning Procedures During Lead Hazard Control

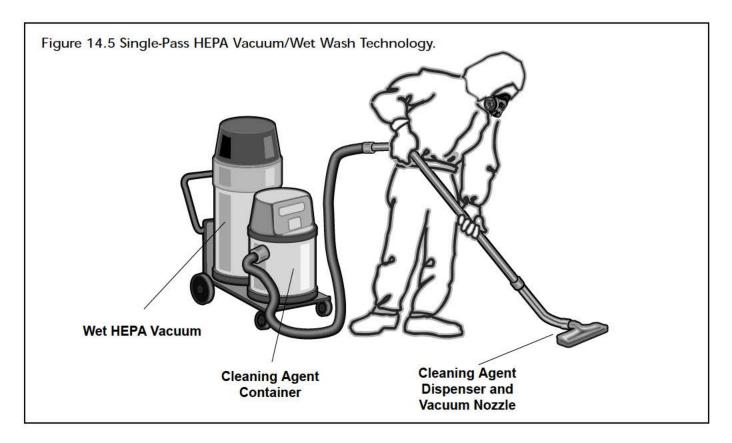
The special cleaning procedures to be followed during a lead-based paint hazard control project are discussed in chronological order below. Skipping steps in the process may result in failure to meet post-lead hazard control clearance standards.

A. Precleaning Procedures

Precleaning (i.e., cleaning conducted before lead hazard control is begun) is necessary only in dwelling units that are heavily contaminated with paint chips. Precleaning involves the removal of large debris and paint chips, followed by HEPA vacuuming. These steps may be followed by removal of occupant personal possessions, furniture, or carpeting, depending on the







Worksite Preparation Level selected (see Chapter 8). If the furniture will not be cleaned, it should be removed from the area or covered with plastic prior to beginning the precleaning procedure. Carpeting should always be misted before its removal to control the generation of hazardous dust.

It is usually the resident's responsibility to remove most of his or her personal possessions. However, if necessary, owners or project management should be prepared to complete this activity before lead hazard control work begins. As a last resort, the contractor may pack any remaining belongings and carefully seal and move the boxes, supplying all necessary boxes, packing materials, and staff to complete the task. Following cleaning and clearance, the contractor should return all packed items to their appropriate places. Leaving these tasks to the contractor may be expensive and inefficient, since the contractor will need to be insured for this function if the occupant's



Figure 14.6 Precleaning Is Needed in Areas Where Contamination and Deterioration Are High.





belongings are damaged. Additionally, moving furniture, rugs, drapes, and other items owned by the occupant could increase leaded dust levels. Clearance should be conducted after cleaning but before resident items are moved back in.

B. Ongoing Cleaning During the Job

Periodic HEPA vacuuming during the lead hazard control work may be necessary to minimize tracking of dust and paint chips from one area to another (e.g., when a large amount of paint chips or dust is being generated).

C. Daily Cleaning Procedures

Cleaning activity should be scheduled at the end of each workday when all active lead hazard control throughout the dwelling has ceased. Sufficient time must be allowed for a thorough and complete cleaning (usually about 30 minutes to an hour). Daily cleaning helps achieve clearance dust levels by minimizing problems that may otherwise occur during final cleaning and limiting worker exposures. While daily cleaning can be skipped in vacant dwelling units, it is required when occupants will



Figure 14.7 Plastic Sheeting Should Be Repaired as Part of Daily Cleanup.

return in the evening. Under no circumstances should debris or plastic be left outside overnight in an unsecured area, even if the dwelling is vacant. Daily cleaning should consist of:

- Removing large debris.
- Removing small debris.
- HEPA vacuuming, wet clean, HEPA vacuuming (horizontal surfaces only).
- Cleaning exterior.
- Patching and repairing plastic sheeting.
- Securing debris/plastic.

1. Large Debris

Large demolition-type debris (e.g., doors, windows, trim) should be wrapped in 6-mil plastic, sealed with tape, and moved to a secure area on the property designated for waste storage. All sharp corners, edges, and nails should be hammered down to prevent injury and minimize the tearing of plastic. It is not necessary to wrap each individual piece of debris in plastic if the entire load can be wrapped. A secure area either outside or inside the property must be designated as a temporary waste-storage area. Covered, secured, and labeled dumpsters placed on or near the property may be used. Proper segregation of waste should be enforced at this time (see Chapter 10).

2. Small Debris

After being misted with water, small debris should be swept up, collected, and disposed of properly. The swept debris should be placed in double 4-mil or single 6-mil polyethylene (or equivalent) plastic bags, properly sealed, and moved to the designated trash storage area. Trash bags should not be overloaded; overloaded bags may rupture or puncture during handling and transport.

3. Exterior Cleaning

Areas potentially affected by exterior lead hazard control should be protected via a containment system (see Chapter 8). Because weather can adversely affect the efficacy of exterior





containment, the surface plastic of the containment system should be removed at the end of each workday. On a daily basis, as well as during final cleaning, the immediate area should be examined visually to ensure that no debris has escaped containment. Any such debris should be raked or vacuumed and placed in single 6-mil or double 4-mil plastic bags, which should then be sealed and stored along with other contaminated debris. HEPA vacuuming is appropriate for hard exterior surfaces, not soil.

4. Worker Protection Measures

General worker protection measures are discussed in Chapter 9. Studies indicate that during daily cleaning activities, especially while wet sweeping, workers may be exposed to high levels of airborne dust. Therefore, workers should wear protective clothing and equipment, especially appropriate respirators.

5. Maintaining Containment

The integrity of the plastic sheeting used in a lead hazard control project must be maintained. During their daily cleaning activities, workers should monitor the sheeting and immediately repair any holes or rips with 6-mil plastic and duct tape.

V. Order of Final Cleaning Procedures After Lead Hazard Control

Before treated surfaces can be painted or sealed, final cleaning procedures must be completed. Because airborne dust requires time to settle, the final cleaning process should start no sooner than 1 hour after active lead hazard control has ceased in the room. See Appendix 11 for details regarding dust settling.

A. Final Cleaning

As the first stage in the final cleaning, floor plastic should be misted and swept as detailed earlier in this chapter. Upper-level plastic, such as that on cabinets and counters, should be removed first, after it has been misted with water and cleaned. All plastic should be folded

carefully from the corners/ends to the middle to trap any remaining dust. Next, remove both layers of plastic from the floor.

Plastic sheets used to isolate contaminated rooms from noncontaminated rooms should remain in place until after the cleaning and removal of other plastic sheeting; these sheets may then be misted, cleaned, and removed last.

Removed plastic should be placed into double 4-mil or single 6-mil plastic bags, or plastic bags with equivalent (or better) performance characteristics, which are sealed and removed from the premises. As with daily cleanings, this plastic-removal process usually requires workers to use protective clothing and respirators.

After the plastic has been removed from the contaminated area, the entire area should be cleaned using the HEPA/wet wash/HEPA cycle, starting with the ceiling and working down to the floor. After surfaces are repainted or sealed, a final HEPA/wet wash/HEPA cycle may be necessary if accumulated dust caused by other work is visible.

1. Decontamination of Workers, Supplies, and Equipment

Decontamination is necessary to ensure that worker's families, other workers, and subsequent properties do not become contaminated. Specific procedures for proper decontamination of equipment, tools, and materials prior to their removal from lead hazard control containment areas should be implemented, as described below and in Chapters 9 and 10.

Work clothing, work shoes, and tools should not be placed in a worker's automobile unless they have been laundered or placed in sealed bags. All vacuums and tools that were used should be wiped down using sponges or rags with detergent solutions.

Consumable/disposable supplies, such as mop heads, sponges, and rags, should be replaced, after each dwelling is completed. Soiled items should be treated as contaminated debris (see Chapter 10).







Figure 14.8a Pick Up Corners of Plastic Sheeting.



Figure 14.8b Fold Plastic Inward.

Durable equipment, such as power and hand tools, generators, and vehicles, should be cleaned prior to their removal from the site; the cleaning should consist of a thorough HEPA vacuuming followed by washing.

B. Preliminary Visual Examination

After the preliminary final cleaning effort is completed, the certified supervisor should visually evaluate the entire work area to ensure that all work has been completed and all visible dust and debris have been removed. While the preliminary examination may be performed by the lead hazard control supervisor, contractor, or owner as a preparatory step before the final clearance examination, it does not replace the independent visual assessment conducted during clearance.

If the visual examination results are unsatisfactory, affected surfaces must be retreated and/or recleaned. Therefore, it is more cost effective to have the supervisor rather than the clearance examiner perform this initial examination.

C. Surface Painting or Sealing of Nonfloor Surfaces

The next step of the cleaning process is painting or otherwise sealing all treated surfaces except floors.

Surfaces, including walls, ceilings, and woodwork, should be coated with an appropriate primer and repainted. Surfaces enclosed with vinyl, aluminum coil stock, and other materials traditionally not repainted are exempt from the painting provision.

D. Final Inspection

The final clearance evaluation should take place at least 1 hour after the final cleaning. Clearance has three purposes: 1) to ensure that the lead hazard control work is complete, 2) to detect the presence of leaded dust, and 3) to make sure that all treated surfaces have been repainted or otherwise sealed. Clearance is usually performed after the sealant is applied to the floor. See Chapter 15 for information on clearance examination procedures.

E. Recleaning After Clearance Failure

If after passing the final visual examination, the dwelling unit fails the clearance wipe dust tests,





the HEPA/wet wash/HEPA cleaning cycle should be carefully and methodically repeated. Failure is an indication that the cleaning has not been successful. Recleaning should be conducted under the direct supervision of a certified supervisor. Care should be exercised during the recleaning of "failed" surfaces or components to avoid recontaminating "cleared" surfaces or components.

VI. Cleaning Cost Considerations

An important consideration in determining lead hazard control strategies and methods is the cost and difficulty of required daily and final cleanup operations and the ease with which one can meet dust-clearance standards. A general rule of thumb is that lead hazard control strategies that generate the most dust will have higher cleanup costs and higher initial clearance test-failure rates.

A. Initial Clearance Test Failure Rates

The likelihood of passing final dust-clearance tests is highly correlated with the chosen intervention strategy, methods, and care exercised by the contractor. For example, in one study (HUD, 1991) initial wipe-test failure rates were 14 percent for interior window sills, 19 percent for floors, and 33 percent for window troughs. The pass/fail rates for each surface were strongly associated with the dwelling unit abatement strategy employed. Chemical removal and hand-scraping strategies experi-enced higher failure rates than replacement and encapsulation/enclosure strategies (see Table 14.1).

However, results of the HUD demonstration project indicated that clearance failure is not solely related to abatement method. The report stated that "the diligence and effectiveness of an abatement contractor's cleaning process ... had a major impact on ... the likelihood of the dwelling unit to pass the final wipe test clearance" (HUD, 1991).



Figure 14.8c Dispose of Plastic Sheeting in a Plastic Trash Bag.

B. Key Factors In Effective Cleaning

Effective cleaning will be aided by adequate sealing of surfaces with polyethylene sheeting prior to lead hazard control, proper daily cleaning practices, good worker training, and attention to detail. Where poor worksite preparation is employed, additional cleaning may be required to meet clearance.

C. Special Problems

Surfaces such as porous concrete, old porous hardwood floors, and areas such as corners of rooms and window troughs pose especially difficult cleaning challenges. Porous concrete and corners of rooms normally require additional vacuuming to achieve an acceptable level of cleanliness.

The lead hazard control strategy of enclosure is frequently chosen for window troughs and for old porous hardwood floors due to the difficulty of adequately cleaning these surfaces. This





option provides not only a clean surface but a more permanently cleanable surface for dwelling occupants to maintain.

VII. Alternative Methods

Alternatives to the recommended cleaning tools and practices discussed in this chapter are available, some having significant potential for increasing effectiveness and lowering costs.

A recent Canadian study (CMHC, 1992) evaluated the effectiveness of contaminated dust cleanup activities using tools that would generally be available to construction contractors and homeowners. Vinyl flooring and carpeting were cleaned using several wet/dry vacuuming systems, sweeping, and wet mopping. The study found that regular vacuums with empty bags send a steady stream of fine particles into the air, while vacuums with partially filled bags were more efficient. This finding suggests the necessity for HEPA vacuums. Other vacuums may be used if workers do not experience increased exposures, if compliance with clearance standards is achieved, and if a variance from OSHA regulation (29 CFR 1926.62 (h)(4)) is obtained by the contractor or employer (if required).

Agitator heads on vacuums were demonstrated to significantly enhance vacuum effectiveness on carpets in cleaning up fine dust without

increasing airborne dust levels. Table 14.2 suggests that a central vacuum with an agitator head is most efficient at removing dust and minimizing recontamination, probably because the vacuum exhaust is blown away from living areas. Because many houses do not have central vacuuming systems, a portable HEPA vacuum is the next best choice (see Table 14.2). Vacuums without agitator heads appeared to perform relatively poorly on carpets.

A. Vacuums

Regular (non-HEPA) dry vacuums potentially produce hazardous levels of airborne dust and therefore should be avoided. Externally exhausted vacuum units with adequate dustretaining capability may be used. The OSHA lead standard requires the use of HEPA vacuum equipment (see 29 CFR 1926.62 (h)(4), which states, "where vacuuming methods are selected, the vacuums shall be equipped with HEPA filters").

B. Trisodium Phosphate and Other Detergents

TSP detergents have been used successfully for a number of years in lead hazard control work. However, in recent years, other new cleaning agents have been developed specifically for leaded dust removal. The need for alternatives has been fueled by the fact that TSP is an eye

Table 14.1 Initial Cleaning Wipe-Test Failure Rates for Various Abatement Strategies

Dust Test Location	Hand Scrape w/Heat Gun	Chemical Removal	Enclosure	Encapsulation	Replacement	All Methods
Floors	28.8%	22.7%	20.0%	13.8%	12.5%	19%
Sills	24.4%	24.1%	8.2%	4.8%	17.4%	14%
Wells	44.5%	45.7%	23.7%	25.7%	21.0%	33%

Source: U.S. Department of Housing and Urban Development (August 1991) The HUD Lead-Based Paint Abatement Demonstration (FHA)





and skin irritant and is increasingly restricted from household use and unavailable in many local jurisdictions. TSP also damages some finishes. Recently reported trials of two new products suggest that alternative lead-specific cleaning agents may be more effective and safer than TSP (Grawe, 1993; Wilson, 1993).

These Guidelines do not prohibit the use of non-TSP cleaning agents. HUD encourages further evaluation of alternative cleaning methods. Use of any cleaning agent that results in compliance with clearance criteria is encouraged.

Table 14.2 Mass Removal Efficiency for Extended Vacuuming Cycles

	Mass Removal Efficiency Percentages					
Cycle Number	Cleaning Method					
	Central Vacuum—Plain Tool	Central Vacuum—Agitator Head	HEPA Vacuum	Portable Vacuum—Plain Tool		
1	34.7	71.0	55.4	17.5		
2	47.0	80.2	61.2	23.0		
3	51.9	85.9	66.3	26.6		
4	56.0	87.8	67.0	29.4		
5	59.3	88.9	72.1	32.5		
6	61.6	91.2	74.4	34.9		
7	63.8	93.1	76.4	36.5		
8	67.5	95.4	77.5	38.1		
9	67.5	97.7	78.7	40.1		
10	67.2	100.0	80.2	41.7		
11		102.3	80.2	41.7		
12		104.6	84.1	44.8		
13		104.6	84.5	46.8		
14		103.8	84.5	48.4		
15				49.6		
16				50.8		
17				52.4		
18				53.6		
19				54.4		
20				55.2		

Source: Canada Mortgage and Housing Corporation: Saskatchewan Research Council (December 1992) Effectiveness of Clean-up Techniques for Leaded Paint Dust



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February 10, 2009

Ms. Shirley Chapman NGB Region North IH Office 301 – IH Old Bay Lane Havre De Grace, MD 21078 Non-Responsive @us.army.mil

Re: Results of Industrial Hygiene Survey, 99 South Lake Avenue, Troy, NY – EORM® Project No. NATL0009

Dear Ms. Non-Responsive

At your request, on September 4, 2008, Environmental & Occupational Risk Management, Inc. (EORM®) performed an industrial hygiene survey at the National Guard Readiness Center located at 99 South Lake Avenue, Troy, NY 12180. The observations, methodology, results and discussion are provided in the sections that follow. Should you have any questions please do not hesitate to contact me

Regards,

Non-Responsive

Non-Responsive, MPH
Associate EHS Consultant
EORM, Inc.
Telephone 781.756.3813
E-mail: @eorm.com

Attachments

Reviewed by:

Non-Responsive

Senior EHS Consultant EORM, Inc.

Industrial Hygiene Survey

National Guard Readiness Center 99 South Lake Avenue Troy, NY 12180

Project No. NATL0009

4 September 2008

Prepared by:

E O Environmental and Occupational Risk Management®

400 West Cummings Park Suite 5850 Woburn, MA 01801

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Executive Summary

Environmental and Occupational Risk Management, Inc. (EORM®) was contracted by the National Guard Bureau Industrial Hygiene Region North Office (NGB IH Office) to perform a baseline industrial hygiene (IH) survey of selected Readiness Centers and administrative buildings located in New York. This report summarizes the results of the Troy Readiness Center located at 99 South Lake Avenue, which occurred on September 4, 2008.

During the IH survey, EORM collected surface wipe samples and personal breathing zone samples for lead. The results indicated surface lead contamination throughout much of the basement, first floor, second floor, and third floor of the building. The surface lead contamination did not translate into detectable concentrations of lead in the area air samples on the day of EORM's site visit. However, it is recommended that all rooms with detectable concentrations of surface lead be decontaminated by a contractor specializing in lead decontamination.

Overall the Troy Readiness Center appeared dusty/dirty. There was a lot of peeling paint and water damaged and/or missing ceiling tiles throughout the facility. Three of the four samples of peeling paint indicated lead-based paint.

The lighting in the facility was fairly good. There were some locations on all four floors that have insufficient lighting. The kitchen, several offices on the second floor, and office 3004 on the third floor should have additional lighting installed. The burned out light bulbs in the basement boiler room and storage room should be replaced. In addition, a light switch should be installed in the second floor storage room.

Introduction

Environmental and Occupational Risk Management, Inc. (EORM) was contracted by National Guard Bureau Industrial Hygiene Region North Office (NGB IH Office) to perform an industrial hygiene (IH) survey of selected National Guard Armories located in New York. This report summarizes the results of the Readiness Center located at 99 South Lake Avenue, Troy, New York. The IH survey was performed on September 4, 2008 by Mr Non-Responsive, Associate EHS Consultant. Ms. CIH, Senior EHS Consultant, reviewed this report and provided project support. The scope of work completed during this survey included the following:

- Collect wipe samples for lead from surfaces within the drill hall, administration building, and the converted indoor firing range, if present
- Collect personal or general area full-shift samples for lead on National Guard members during normal activities
- Inspect the physical condition of the facility and personnel concerns
- Evaluate the heating, ventilating, and air conditioning system
- Conduct a lighting survey in all areas of the facility
- Evaluate the attached garage, if present
- Collect photographs of the interior and exterior conditions of the Readiness Center
- Provide a diagram of the shop layout
- Prepare a detailed report of findings and sampling results, including recommendations for improvement in any areas of concern and conclusion

Industrial Hygiene Survey Details

The wipe samples were collected and analyzed in accordance with the Occupational Safety and Health Administration (OSHA) method ID-125G. The samples were analyzed for lead by AMA Analytical Services, Inc. in Lanham, Maryland. AMA is accredited by the American Industrial Hygiene Association.

The analytical laboratory results and chain-of-custody forms corresponding to these samples are provided in Appendix 3. Table 1 includes the results in micrograms of lead per square foot (µg/ft2).

Table 1: Wipe sample results, September 4, 2008.

Sample Number	Location	Description	Area (ft2)	Results (µg/ft2)
TRY-01	Drill Hall	Top of locker	0.108	< 110
TRY-02	Drill hall	Floor by kitchen	0.108	< 110
TRY-03	Drill hall	Louver on suspended unit ventilator	0.108	1,200
TRY-04	Kitchen	Shelf under counter	0.108	< 110
TRY-05	Drill hall	PT area floor	0.108	200
TRY-06	Outside of drill hall	Floor	0.108	< 110
TRY-07	1st floor conference room	Top of baseboard heater	0.108	260
TRY-08	1st floor hall by G2 (42nd Infantry Office)	Floor	0.108	180
TRY-09	Basement-boiler room	Shelf	0.108	290
TRY-10	Basement-locker room	Top of locker	0.108	200
TRY-11	Basement-electrical room	Electrical panel	0.108	13,000
TRY-12	Basement-locker room	Floor	0.108	1,000
TRY-13	2nd floor hallway	Shelf	0.108	590
TRY-14	2nd floor copy/breakroom	Floor	0.108	< 110
TRY-15	2nd floor office 204	Top of book case	0.108	< 110
TRY-16	2nd floor office 205	Floor	0.108	< 110
TRY-17	2nd floor Commanders office (10th Brigade)	Top of book case	0.108	130
TRY-18	3rd floor hallway	Top of shelving	0.108	< 110
TRY-19	3rd floor office 307	Desk	0.108	< 110
TRY-20	3rd floor office 304	Top of window A/C	0.108	2,200

There was no lead detected on the field blank

The results indicate the surface lead remains on many surfaces throughout the facility. Surface lead was identified on a shelf, locker, electrical panel and floor of the basement. The unit ventilator suspended from the ceiling in the drill hall, the floor of the PT area, a baseboard heater, and the floor in a hallway has surface lead. The top of a book case on the second floor and a third floor window A/C also had surface lead.

Personal Air Sample Results

The personal breathing zone samples were collected and analyzed in accordance with OSHA Method ID-125G. The samples were analyzed for lead by AMA Analytical Services, Inc. in Lanham, Maryland. AMA is accredited by the American Industrial Hygiene Association.

The air samples were collected using a SKC AirChek® sampling pump. Pre- and post-calibration of air flow rates were measured and recorded for the sample using the BIOS DryCal Model DC-I. The sample was collected by sampling air in the employee's breathing zone, or the hemisphere forward of the shoulders with a radius of approximately 6 to 9 inches from the inhalation area.

Two members of the National Guard wore air monitors during normal operations. Mr. Eric Catalano and Mr. Anthony Tremblay performed day-to-day administrative operations throughout the monitoring period. The field notes and analytical laboratory results and chain-of-custody forms corresponding to these samples are provided in Appendix 3. Table 2 includes the results and a comparison to the respective PEL.

Table 2: Personal Breathing Zone Sample Results, September 2, 2008.

Sample Number	Employee	Concentration	OSHA Action Level	OSHA PEL	Exceed PEL or TLV? (Yes / No)
TRY-A1	Mr. Non-Responsive	$<3.0~\mu g/m3$	$30 \mu g/m3$	50 μg/m3	No
TRY-A2	Non-Responsive	$<3.0~\mu g/m3$	$30 \mu g/m3$	$50~\mu\text{g/m}3$	No

There was no lead detected on the field blank

The results of the area air samples indicated that no detectable airborne concentrations of lead was present on the day of EORM's site visit

Facility Inspection and Employee Concerns

The Troy – South Lake Readiness Center is three stories in height and has a basement. The building houses 3 different units (56th PSD, 42nd ISR, and counter drug). Generally, the building appeared dirty/dusty and there were stained and/or missing ceiling tiles throughout the facility. The overall conditions of each floor were as follows:

Basement

- The basement had a noticeably musty odor
- There was exposed earth at a couple locations in the basement, including the storage area and in the hallway
- There were missing ceiling tiles in the small locker room
- There was apparent mold growth on the ceiling in the 56th Personal Services Battalion locker room (large locker room) - See photograph 6 in Appendix 2
- The pipe insulation was intact no samples were taken

First Floor

- The first floor appeared dusty/dirty
- The paint in the drill hall and PT area is peeling. See photograph 3 in Appendix 2
- There are stained and/or missing ceiling tiles in the hallway by the 42nd ISR offices
- The pipe insulation is all intact no samples were collected
- There is dust and crumbs on surfaces in the kitchen Photograph 4 of Appendix 2 shows the condition of the kitchen
- There are missing and/or damaged ceiling tiles in the kitchen and adjacent storage room

Second Floor

- The second floor appeared dusty/dirty
- There are missing and/or stained ceiling tiles in rooms 205 and 206 See photograph 8, Appendix 2.
- There are only two exit maps posted on the second floor, one of which is in a closet

Third Floor

- The third floor appeared to be less dusty/dirty than the rest of the building
- The ceiling tiles are all in place and undamaged
- There are no exit maps posted on the third floor

Table 3: Paint Chip Results, September 2, 2008.

Sample Number	Location/Description	Concentration (% Pb)
TRY-B1	Basement locker room - peeling paint on window sill	0.45
TRY-B2	Office 213 – peeling paint on window	0.11
TRY-B3	Drill hall PT area – peeling paint on wall	0.0091
TRY-B4	Basement electrical room – peeling paint on pipe	1.1

The results of the paint chip samples indicated that the paint on the window sill in the basement locker room, office 213 window, and basement electrical room pipe contain more than 0.06% or 600 ppm lead, which is the level of which is considered lead based paint by the U.S. Consumer Products Safety Commission 16 CFR 1303 Consumer Products Bearing Lead-Containing Paint.

Ventilation System Evaluation

There are no rooms, such as a battery room, film room, or attached garage that would require specialized ventilation.

The general heating, ventilating, and air-conditioning (HVAC) for the Troy – South Lake Readiness Center is accomplished through a combination of a boiler system for heating and window mounted air-conditioners.

Direct-reading measurements for temperature, relative humidity, and carbon dioxide (CO2) were performed using a Q-Trak Plus Indoor Air Quality Monitor (Model #s 8551). This instrument detects CO₂ using a selective infrared absorption method and displays airborne concentrations in units of ppm. This instrument also measures temperature and relative humidity using electrical sensing methods. It displays temperature in degrees Fahrenheit and relative humidity in percent. The manufacturer's recommended yearly calibration was last performed in January 2008.

Table 4: Indoor door air quality measurements, September 4, 2008.

Location	Number of Occupants	Temp (0F)	RH (% RH)	CO2 (ppm)
Basement electrical room	0	76	69	461
Basement small locker room	0	74	68	402
1st floor drill hall	1	75	68	425
1st floor recruiting office	1	76	67	446
2nd floor	1	78	58	502
2nd floor room 206	3	76	54	558
3RD floor room 303	3	78	56	680
Outdoors		80	66	357

The primary cursors for indoor thermal comfort are temperature and relative humidity. Air temperature is recommended to range from 73 to 79°F during summer and from 68 to 75°F during winter (ASHRAE 55-2004) for indoor office environments. This assumes that building occupants are dressed in normal garments and perform mainly sedentary activities. The results indicated that the indoor temperature ranged from 74 to 78°F, which was within the recommended ranges.

The relative humidity (RH) inside buildings should be maintained between 30 and 60% (ASHRAE – 62-2007). When the RH in indoor environments exceeds 60%, microbial growth may occur; whereas, relative humidity below 30% may cause the drying of mucous membranes and discomfort. The results indicated that the indoor relative humidity ranged from 54% to 69% indoors, which exceeded the recommended guideline

The ASHRAE Standard 62-2007, Ventilation for Acceptable Indoor Air Quality, has established a reference level based upon human comfort criteria of a maximum CO_2 concentration of 700 ppm above existing outdoor concentrations, below which is suggestive of an adequate quantity of outdoor air supply ventilation to the occupied space. The results indicated the indoor concentration of CO_2 ranged from 402 ppm to 680 pmm and the concurrent outdoor concentration was 357 ppm. This indicates there was sufficient outdoor air supply to the occupied space.

Lighting Survey

The lighting at the Troy-South Readiness Center consists of fluorescent lights and incandescent lights. The fluorescent lights provide the lighting in the drill hall and offices and the incandescent lights are used in the restrooms and storage rooms. A lighting survey was conducted using a Cooke Corporation Cal-Light 400L, serial number 1C040084L. The Cal-Light was calibrated by the manufacturer.

The lighting measurements were compared to the Recommended Practice for Lighting Industrial Facilities RP-7-01 and for Office Building RP-1-04. Both RP-7 and RP-1 are approved by the American National Standards Institute (ANSI) and the Illuminating Engineering Society of North America (IESNA). Table 5 below, summarizes the results of the lighting survey.

Table 5: Lighting Survey Results, September 4, 2008

Location	Measurement (fc)	RP-7 Recommended Illuminance Values ¹ (fc)	Meets RP-7 Values? (Yes/No)	Comments
Basement – electrical room	18-55	30	Yes	Low in nonworking areas
Basement – large locker room	6-41	7	Yes	
Basement – sump room	4-6	4	Yes	
Basement – hallway by electrical room	2-12	5	Yes	Average was over 7
Basement – storage room	2	7	No	
Basement – boiler room	1-15	30	No	Light bulbs out
Basement – medium locker room	1-50	7	Yes	Some light bulbs out
Basement – small locker room	30-47	7	Yes	
1st floor – drill hall	30-70	30	Yes	
1st floor – hall by 42nd ISR	8-53	5	Yes	
1st floor – hall by recruiting office	8-32	5	Yes	
1st floor – conference room	26-75	30	Yes	
1st floor – recruiting office	52-71	50	Yes	
1st floor – kitchen	5-55	30-50	No	
2nd floor- recruiting office	33-46	50	No	
2nd floor – room 215	51-94	50	Yes	
2nd floor – room 213	37-46	50	No	
2nd floor – room 214	21-42	50	No	
2nd floor – women's room	14	7	Yes	
2nd floor – room 212	54-102	50	Yes	
2nd floor – storage	2-4	5	No	No working switch
2nd floor – room 204	28-34	50	No	
2nd floor – room 205	51-55	50	Yes	
2nd floor – men's room	10-45	7	Yes	
2nd floor – room 206/break room	50-71	10	Yes	
2nd floor – room 206/office	62-81	50	Yes	
2nd floor – room 208	42-72	50	Yes	Low at non working areas
2nd floor – room 208A	62-83	50	Yes	
2nd floor – hall by 206	26-60	7	Yes	
2nd floor – room 207	60-72	50	Yes	
3rd floor – hallway	23-55	7	Yes	
3rd floor – room 307	61-75	50	Yes	
3rd floor – room 306 (filing)	22-51	30	Yes	Low at nonworking area
3rd floor – copy room	14-44	30	Yes	Low at nonworking area
3rd floor – room 304	29-43	50	No	_
3rd floor – room 303	30-81	50	Yes	Low at nonworking area

fc = footcandles

¹ The recommended illuminance values were obtained from the ANSI/IESNA RP-1-04 (Office Lighting) and RP-7-01 (Industrial Lighting)

According to RP-1-04 and RP-7-01, the lighting survey results indicate insufficient lighting in areas of the basement, first floor, second floor, and third floor. Insufficient lighting was detected in the basement storage room and boiler room, the first floor kitchen, the second floor recruiting office, office 204, office 213, office 214, and storage room, and the third floor office 303. There were burned out light bulbs in the basement boiler room and basement locker room. In addition, the second floor storage room had no working switch to turn the lights on.

Evaluation of Attached Garage

The Troy Readiness Center does not have an attached garage.

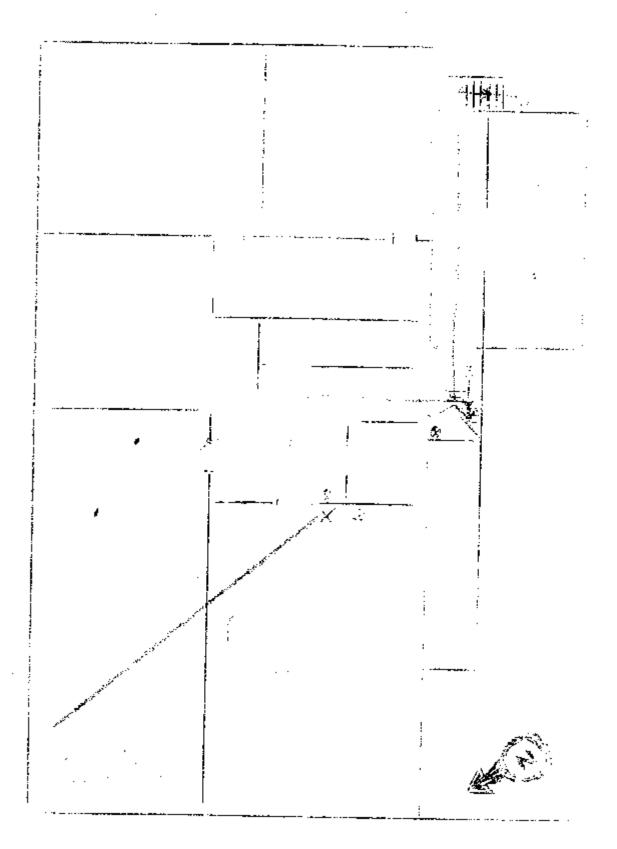
Conclusions and Recommendations

Based on the observations and results of the industrial hygiene survey, EORM has concluded the following:

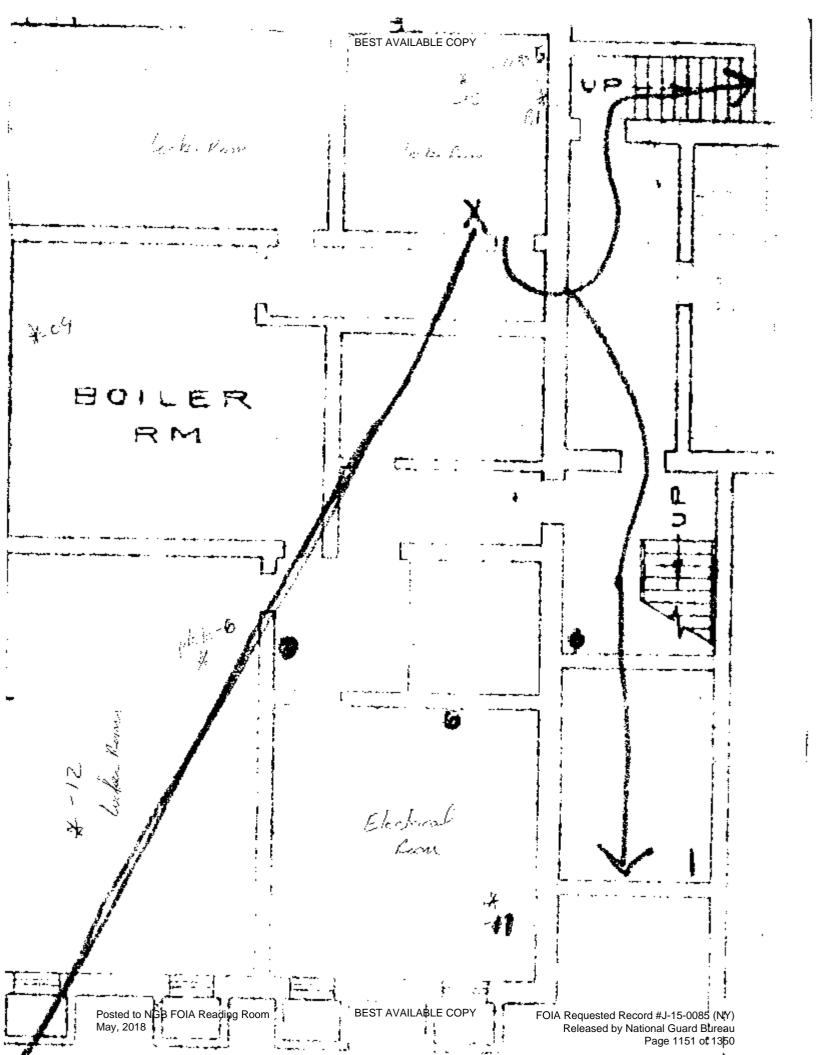
- The surface wipe sample results indicate that lead remains on many surfaces throughout the facility. Surface lead was identified on a shelf, locker, electrical panel and floor of the basement. The unit ventilator suspended from the ceiling in the drill hall, the floor of the PT area, a baseboard heater, and the floor in a hallway has surface lead. The top of a book case on the second floor and a third floor window A/C also had surface lead. EORM recommends that all rooms where lead was identified on surfaces be cleaned by a contractor specializing in lead decontamination.
- The personal breathing zone samples indicated that the surface lead was not airborne on the day of EORM's site visit.
- The lighting survey results indicate insufficient lighting in areas of the basement, first floor, second floor, and third floor. Insufficient lighting was detected in the basement storage room and boiler room, the first floor kitchen, the second floor recruiting office, office 204, office 213, office 214, and storage room, and the third floor office 303. There were burned out light bulbs in the basement boiler room and basement locker room. In addition, the second floor storage room had no working switch to turn the lights on. EORM recommends that the burned out light bulbs be replaced and that a light switch be installed in the second floor storage room. Additional lighting should be provided to the second and third floor offices that have insufficient lighting.

The results of this survey should be communicated to the participants as well as other people who perform similar job duties that did not participate.

Appendix 1 – Troy Readiness Center Floor Plan



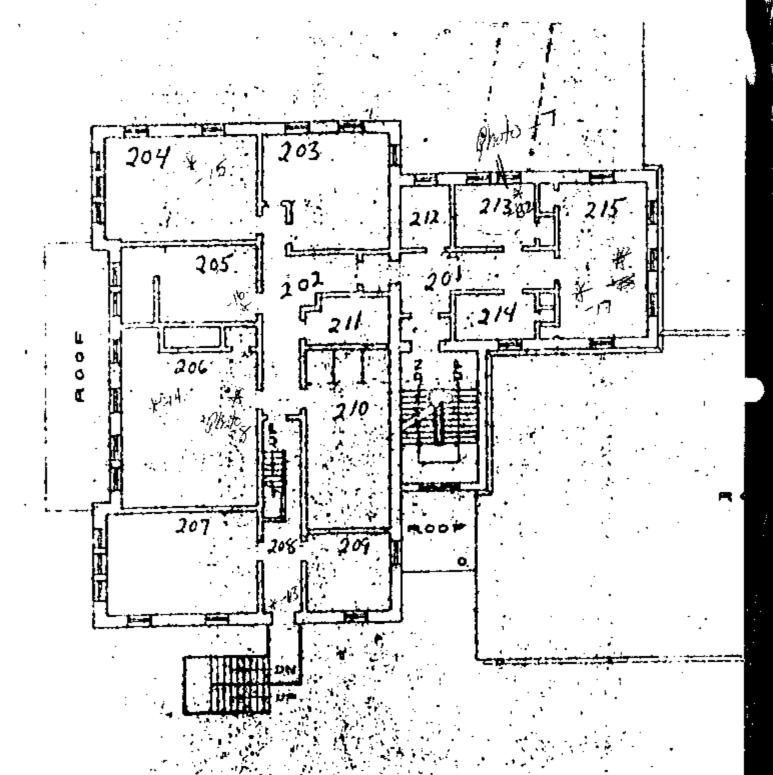
EACE MENT





Troy - South Lake

First floor Plan



Posted to NGB FOIA Reading Room May, 2018 FOIA Requested Record # I-15-0085 (NY)

Released by National Guard Bureau

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Appendix 2 – Photographs

Photograph 1: Exterior of building



Photograph 2: Drill hall



Photograph 3: Peeling paint in PT area of drill hall



Photograph 4: Kitchen



Photograph 5: Peeling paint on window sill of basement locker room



Photograph 6: Suspect mold growth on ceiling in basement locker room



Photograph 7: Deputy Commander 10th Brigade, office window



Photograph 8: Office 206 missing ceiling tiles



Appendix 3 – Laboratory Analytical Results

AMA Analytical Services, Inc.

A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS



Client:

National Guard Bureau

Job Name: Job Location: National Guard Armory-Troy South Lake

Chain Of Custody:

503197

NY ELAP

Address:

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

State Military Reservation

Havre de Grace, Maryland 21078

Job Number:
P.O. Number:

NATL0004 Not Provided

99 S. Lake Troy NY

Person Submitting:

Date Submitted:

Non-Responsiv

10/3/2008

net Dates 10/1

Attention:

Non-Responsive

Date Analyzed:

ntyzeu:

10/7/2008

Report Date:

10/13/2008

Revision Number:

.

Revised Date:

10/13/2008

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)		orting .imit]	inal Res	ult	Comments
0900879	TRY-01	Flame	Wipe	***	0.108	110	ug/ft²	<	110	ug/ft²	
0900880	TRY-02	Flame	Wipe	****	0.108	110	ug/ft²	<	110	ug/ft²	
0900881	TRY-03	Flame	Wipe	****	0.108	110	ug/ft²		1200	ug/ft²	
0900882	TRY-04	Flame	Wipe	****	0.108	110	ug/ft²	<	110	ug/ft²	
0900883	TRY-05	Flame	Wipe	****	0.108	110	ug/ft²		200	ug/ft²	
0900884	TRY-06	Flame	Wipe	****	0.108	110	ug/ft²	<	110	ug/ft²	
0900885	TRY-07	Flame	Wipe	****	0.108	110	ug/ft²		260	ug/ft²	
0900886	TRY-08	Flame	Wipe	****	0.108	110	ug/ft²		180	ug/ft²	
0900887	TRY-09	Flame	Wipe	****	0.108	110	ug/ft²		290	ug/ft²	
0900888	TRY-10	Flame	Wipe	****	0.108	110	ug/ft²		200	ug/ft²	
0900889	TRY-11	Flame	Wipe	****	0.108	110	ug/ft²		13000	ug/ft²	
0900890	TRY-12	Flame	Wipe	****	0.108	110	ug/ft²		1000	ug/ft²	
0900891	TRY-13	Flame	Wipe	****	0.108	110	ug/ft²		590	ug/ft²	
0900892	TRY-14	Flame	Wipe	****	0.108	110	$\mu g/ft^2$	<	110	ug/ft²	
0900893	TRY-15	Flame	Wipe	****	0.108	110	ug/ft²	<	110	ug/ft²	
0900894	TRY-16	Flame	Wipe	****	0.108	110	ug/ft²	<	110	ug/ft²	
0900895	TRY-17	Flame	Wipe	***	0.108	110	ug/ft²		130	ug/ft²	
0900896	TRY-18	Flame	Wipe	****	0.108	110	ug/ft²	<	110	ug/ft²	
0900897	TRY-19	Flame	Wipe	****	0.108	110	ug/ft²	<	110	ug/ft²	

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public, and these Laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from us. Sample types, locations, and collection protocols are based upon the information provided by the persons submitting them and, anless 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.

AMA Analytical Services, Inc.



A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS



Client:

National Guard Bureau

Job Name: Job Location: National Guard Armory-Troy South Lake

Chain Of Custody:

503197

10/3/2008

NY ELAP 10920

Address:

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

State Military Reservation

Havre de Grace, Maryland 21078

Job Number: P.O. Number: NATL0004

Not Provided

99 S. Lake, Troy NY

Person Submitting:

Date Submitted:

Attention:

Date Analyzed:

10/7/2008

NY ELAP accrediation applies only to paint chip, wipe, and water

Report Date:

10/13/2008

Revision Number:

associated with these sampes.

Revised Date:

10/13/2008

Summary of Atomic Absorption Analysis for Lead

Page 2 of 2

AMA Sample Number	Client Sample Number	Analysis Type	Sample Type	Air Volume (L)	Area Wiped (ft²)		orting imit		Final Res	ult	Comments
0900898	TRY-20	Flame	Wipe	***	0.108	110	ug/ft²		2200	ug/ft²	
0900899	TRY-FB	Flame	Wipe Blank	****	N/A	12	ug	<	12	ug	
0900900	TRY-A1	Flame	Air	0	N/A	3	ug/m³	<	3	ug	
0900901	TRY-A2	Flame	Air	0	N/A	3	ug/m³	<	3	ug	
0900902	TRY-AFB	Flame	Air Blank	0	N/A	3	ug/m³	<	3	ug	
0900903	TRY-BI	Flame	Paint Chip	****	N/A	0.0096	%Pb		0.45	%Pb	
0900904	TRY-B2	Flame	Paint Chip	****	N/A	0.011	%Pb		0.11	%Pb	
0900905	TRY-B3	Flame	Paint Chip	****	N/A	0.0083	%Pb		0.0091	%Pb	
0900906	TRY-B4	Flame	Paint Chip	****	N/A	0.01	%Pb		1.1	%Pb	
alvsis Method fo	r Flame: Air, Wipes,	Paints, and Soil/Sol	ids: EPA 600/R-93/2	200(M)-7420; Wate	r: SM-3111B	See QC	Summary fo	r analytic	cal results	of quality co	ntrol samples

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

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

%Pb = percent lead by weight

ug = micrograms

ug/L = parts per billion (ppb)

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

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

Air and Wipe results are not corrected for any blank results

Analy

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. This report must not be used to claim, and does not imply product certification, approval, or endorsement by NVLAP, NIS1, or any agency of the Federal Government. All rights reserved. AMA Analytical Services, Inc.

Appendix 4 – References

American Conference of Governmental Industrial Hygienists (ACGIH). 2007. Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices.

American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. (ASHRAE) 62.1-2007, Ventilation for Acceptable Indoor Air Quality.

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DODI 6055.1, DOD SO4 Program, 19 August 1998.

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

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

UFC 3-410-01FA, Unified Facilities Criteria (UFC) for Heating, Ventilating, and Air Conditioning, Department of Defense, 15 May 2003.

National Guard Region North

National Guard Readiness Center Industrial Hygiene Evaluation Troy-South Lake Avenue Readiness Center Troy, NY. 12180-3124

Prepared for:

National Guard Region North Industrial Hygiene Office 301 Old Bay Lane Havre De Grace, MD 21078

Attn:

Non-Responsive

Prepared by:

Bonus Environmental, LLC P.O. Box 121 Mt. Pleasant, Michigan 48804

> Project No. 1061-15 January 18, 2013

Bonus Environmental, LLC

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APPENDICES

Appendix A Shop Diagram and Air Flow Patterns

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Appendix C Asbestos Bulk Sample Results

Appendix D Photographs

Appendix E References

January 18, 2013 Project No. 1061-15

National Guard Region North Industrial Hygiene Office 301 Old Bay Lane Havre De Grace, MD 21078-4003

Attn: Non-Responsive

Project: Industrial Hygiene Evaluation

Troy-South Lake Avenue, NY Readiness Center

1.0 - EXECUTIVE SUMMARY

Bonus Environmental, LLC was contracted by the National Guard Bureau Region North Industrial Hygiene office to identify and measure the existence and extent of potentially hazardous operations or conditions at the Troy-South Lake Avenue Readiness Center located at 99 South Lake Avenue in Troy, NY. The purpose of this evaluation was to generate or to update a previous baseline evaluation so that employee exposure history can be provided to each civilian and military employee. No Health & Safety plans were available at Troy-South Lake Avenue Readiness Center for review. The following industrial hygiene conditions were evaluated during this industrial hygiene evaluation performed by Bonus Environmental, LLC representative Non-Responsive on November 5, 2012:

- Indoor Air Quality
- Lead Wipe & Bulk Sampling
- Illumination
- Ergonomics

 Evaluation of the physical condition of the facility in regards to peeling paint, asbestos containing materials, water damage or mold problems, and housekeeping practices.

The Troy-South Lake Avenue Readiness Center is an Army National Guard armory comprised of offices, locker rooms, storage rooms, supply rooms, conference rooms, a drill hall, mechanical/electrical rooms, and a kitchen. No former indoor firing range exists at the Troy-South Lake Avenue Readiness Center. The point of contact for the approximately 16,644 ft² Troy-South Lake Avenue Readiness Center is Mr. Non-Responsive. Approximately twelve (12) full-time administrative personnel are employed at the Troy-South Lake Avenue Readiness Center. A shop diagram depicting the locations of the operations identified during this industrial hygiene evaluation, as well as airflow patterns, is provided as Appendix A.

The National Guard Bureau Region North Industrial Hygiene Office provided governmental furnished equipment and sampling media required to perform the industrial hygiene evaluation. Chain of custody forms for laboratories approved by the National Guard Bureau Region North Industrial Hygiene Office were provided with the sampling media. All samples collected during this industrial hygiene evaluation were sent to the National Guard Bureau Region North Industrial Hygiene Office approved laboratories for analysis.

2.0 – LEAD SAMPLING

2.1 – Lead Wipe Sampling

Lead wipe sampling was performed according to the Environmental Protection Agency (EPA) method 600/R-93/200(M)-7420 (Atomic Absorption - Flame). Eighteen (18) wipe samples and one (1) field blank were sent under chain-of-custody procedures to AMA Analytical Services, Inc., an American Industrial Hygiene Association (AIHA) accredited laboratory located in Lanham, Maryland. The U.S. Department of Labor (USDOL) and the Occupational Safety and Health Administration (OSHA) do not have a promulgated standard for lead surface contamination; however OSHA has provided an interpretive level of 200 micrograms per square foot (μg/ft²) to assess the housekeeping requirements of "as free as reasonably practicable". This interpretation is presented in OSHA Industrial Hygiene Technical Manual (TED 01-00-015; 1/20/1999), and in a letter of interpretations dated 1/13/2003, and subsequently issued to public domain. The following table outlines the locations and analytical results for the lead wipe samples collected during this project

	Army Nat	ional Guard – Troy-South Lake Avenue Readiness Lead Wipe Sample Results	Center	
Sample #	Sample Date	Sample Location	Sample Area (ft²)	Sample Result (µg/ft²)
TroyRC-LW-1	11-5-12	Field Blank		< 12 μg
TroyRC-LW-2	11-5-12	Drill hall, center, on floor	0.111	< 110
TroyRC-LW-3	11-5-12	Drill hall, west corner, on heater fin	0.111	1,000
TroyRC-LW-4	11-5-12	Drill hall, south corner, top of pay phone	0.111	130
TroyRC-LW-5	11-5-12	Drill hall, east wall, top of AED case	0.111	< 110
TroyRC-LW-6	11-5-12	Drill hall, east corner, top of locker	0.111	< 110
TroyRC-LW-7	11-5-12	Kitchen, east corner, top of mixing machine	0.111	480
TroyRC-LW-8	11-5-12	Room B7, north corner of room, top of locker	0.111	1,200
TroyRC-LW-9	11-5-12	Conference room, on southwest window sill	0.111	< 110
TroyRC-LW-10	11-5-12	1 st floor hallway, on mail desk	0.111	< 110
TroyRC-LW-11	11-5-12	DEP G2 office, top of bookshelf	0.111	< 110
TroyRC-LW-12	11-5-12	42D-ACE Admin area, top of copy machine	0.111	< 110
TroyRC-LW-13	11-5-12	Room 215, on radiant heater	0.111	580
TroyRC-LW-14	11-5-12	Room 202, on east window sill	0.111	390
TroyRC-LW-15	11-5-12	Room 204, top of bookshelf	0.111	< 110
TroyRC-LW-16	11-5-12	Room 209, top of microwave oven	0.111	< 110
TroyRC-LW-17	11-5-12	Room 303, top of television	0.111	< 110
TroyRC-LW-18	11-5-12	Room 305, on light fixture	0.111	200
TroyRC-LW-19	11-5-12	Room 307, on window sill	0.111	250

Surface cleanliness threshold = < 200 micrograms per square foot ($\mu g/ft^2$)

3.0 - PHYSICAL CONDITION OF FACILITY / PERSONNEL CONCERNS

3.1 - Lead Based Paint

During the industrial hygiene evaluation of the Troy-South Lake Avenue Readiness Center, Bonus Environmental, LLC performed a visual inspection of the facility in regards to lead based paint. Bonus Environmental, LLC identified the following areas of peeling paint which could potentially pose a lead exposure hazard:

- Approximately 20 ft² of peeling green paint in the basement pump room;
- Approximately 8 ft² of peeling white paint in basement electrical room;
- Approximately 50 ft² of peeling white paint in storage room A2;
- Approximately 40 ft² of peeling blue paint in office 2;
- Approximately 2 ft² of peeling white paint in restroom 212;
- Approximately 1 ft² of peeling white paint in restroom 210.

In addition, room B6 was posted as "No unauthorized access" due to lead contamination resultant from peeling paint in the room.

Three (3) paint chip samples were collected and sent under chain-of-custody procedures to AMA Analytical Services, Inc., an AIHA accredited laboratory located in Lanham, MD. Analysis indicated that each of the peeling paints collected and submitted contained detectable levels of lead. The paints are therefore considered to be lead-based paints. The OSHA Lead in Construction Standard, 29 CFR 1926.62 does not assign a numerical value of which must be present within the paint to be considered lead based paint. Paints which contain any detectable level of lead shall be treated and handled as lead based paint. Housing and Urban Development (HUD) defines lead based paint as having greater than 0.5% lead by weight. Paint chip sample results are attached to this report as Appendix B.

3.2 – Presumed Asbestos Containing Materials

During the industrial hygiene evaluation of the Troy-South Lake Avenue Readiness Center, Bonus Environmental, LLC performed a visual inspection to identify presumed asbestos containing materials (PACM) and, if found, to note their condition. Bonus Environmental, LLC identified the following PACM's that were considered to be in poor or damaged condition:

- Approximately 12 ft² of damaged drywall ceiling in electrical room B8;
- Approximately 10 ft² of damaged drywall ceiling in locker room B7.

One (1) bulk material sample of ceiling drywall was collected and submitted for analysis. These materials indicated "No Asbestos Detected". Asbestos bulk sample results are attached to this report as Appendix C.

3.3 - Water Damage/Mold Growth

During the industrial hygiene evaluation of the Troy-South Lake Avenue Readiness Center, Bonus Environmental, LLC performed a visual inspection to report the location and perform an evaluation of any water damaged building materials and/or visible mold problems. Bonus Environmental, LLC identified the following areas of water-damaged building materials:

- Approximately 200 ft² of damaged concrete floor in storage room B5;
- Approximately 12 ft² of water-damaged drywall ceiling in electrical room B8;

- Approximately 10 ft² of water-damaged drywall ceiling in locker room B7;
- Approximately 5 ft² of stained/moldy dropped-ceiling tile (DCT) in men's restroom;
- Approximately 8 ft² of stained DCT in hallway;
- Approximately 2 ft² of stained DCT in kitchen;
- Approximately 1 ft² of stained DCT in G2 Intel Operations Center;
- Approximately 3 ft² of stained DCT in DEP G2 office;
- Approximately 2 ft² of stained DCT in G2X office;
- Approximately 4 ft² of water-damaged concrete wall in office 214;
- Approximately 1 ft² of stained DCT in conference room 206;
- Approximately 2 ft² of water-damaged metal ceiling in office 305.

3.4 - Housekeeping

During the industrial hygiene evaluation of the Troy-South Lake Avenue Readiness Center, Bonus Environmental, LLC performed an evaluation of the housekeeping practices. Bonus Environmental, LLC found the housekeeping practices within the Troy-South Lake Avenue Readiness Center facility to be in good order.

3.5 – Employee Interviews

During the industrial hygiene evaluation of the Troy-South Lake Avenue Readiness Center, Bonus Environmental, LLC performed interviews and made observations to determine if the work activities being performed possessed any ergonomic concerns. Following interviews and observations, no ergonomic or indoor air quality concerns were noted.

3.6 – Indoor Air Quality

During the industrial hygiene evaluation of the Troy-South Lake Avenue Readiness Center, Bonus Environmental, LLC measured temperature, relative humidity, carbon monoxide (CO), and carbon dioxide (CO₂) throughout the facility. A calibrated TSI Q-Trak Plus Model 8554 Indoor Air Quality Monitor equipped with a Q-Trak Probe 982 was utilized to record indoor air quality measurements.

Carbon dioxide is a natural component of air and the amount of CO₂ in a given air sample is commonly expressed as parts per million (ppm). The outdoor air in most locations contains about 380 ppm carbon dioxide. Higher outdoor CO₂ concentrations can be found near vehicle traffic areas, industry and sources of combustion. The concentrations of CO₂ found in most offices are well below the OSHA Permissible Exposure Limit (PEL) of 5,000 ppm when averaged over an 8-hour time period for an industrial workplace. While levels below 5,000 ppm are considered to pose no serious health threat, studies have indicated that individuals in offices with elevated CO₂ concentrations tend to report drowsiness, lethargy and a general sense that the air is stale. Ventilation rates for office spaces are defined by various codes and standards. The most widely accepted standard is the American Society of Heating, Refrigerating, and Air Conditioning Engineers (ASHRAE) Standard 62. According to ASHRAE Standard 62.1-2010, CO₂ concentrations below 700 ppm above the outdoor level are considered to indicate adequate ventilation and provide human comfort. The CO₂ measurements collected during this industrial hygiene evaluation ranged from 368 ppm to 535 ppm and indicate adequate ventilation within the facility.

Carbon monoxide is a colorless, odorless, poisonous gas that results from the incomplete burning of common fuels such as natural or liquefied petroleum gas, oil, wood or coal. When carbon monoxide is inhaled, it enters the blood stream and reduces the ability of the blood to carry oxygen to vital organs, such as the heart and brain. Because it is impossible to see, taste or smell the toxic fumes, CO can harm you before you are aware it is in your work area. At lower levels of exposure, CO causes mild effects that are often mistaken for the flu. These symptoms include headaches, dizziness, disorientation, nausea and fatigue. The effects of CO exposure can vary greatly from person to person depending on age, overall health and the concentration and length of exposure. The OSHA has established a permissible exposure limit (PEL) of 50 parts per million (ppm). OSHA standards prohibit worker exposure to more than 50 parts of the gas per million parts of air averaged during an 8-hour time period. The peak CO level for employees is 200 ppm. The CO measurements collected during this industrial hygiene evaluation all indicated 0.0 ppm. CO levels were well below the OSHA PEL during this industrial hygiene evaluation.

During the industrial hygiene evaluation of the Troy-South Lake Avenue Readiness Center, Bonus Environmental, LLC collected temperature measurements. Temperature measurements throughout the common areas of the facility routinely occupied by employees ranged from 64.4°F to 69.8°F and are considered to be within an acceptable range outlined within ASHRAE Standard 55-2010.

During the industrial hygiene evaluation of the Troy-South Lake Avenue Readiness Center, Bonus Environmental, LLC collected relative humidity measurements. Relative humidity measurements throughout common areas of the facility routinely occupied by employees ranged from 35.8% to 63.4%. Indoor air quality measurements recorded during this industrial hygiene evaluation are summarized in the table below.

· · · · · · · · · · · · · · · · · · ·	Army National Guard – Troy-South Lake Avenue Readiness Center Indoor Air Quality Measurements									
Location	CO ₂ (ppm)	CO (ppm)	Relative Humidity (%)	Temperature (°F)						
Outdoors, southwest side of building (overcast)	368	0.0	27.4	49.1						
Drill Hall	434	0.0	47.4	64.4						
Men's locker room B7	438	0.0	63.4	64.8						
Kitchen	429	0.0	47.0	64.6						
Recruiter's office	455	0.0	36.4	67.1						
G2 Intel Ops Center	427	0.0	39.1	68.9						
42D-ACE Admin office	413	0.0	35.8	68.7						
Room 215	526	0.0	37.1	69.8						
Room 206	535	0.0	39.9	69.6						
Room 302	506	0.0	40.1	69.4						
Room 306	487	0.0	40.4	69.1						

Required/Recommended Values

CO₂ - OSHA PEL = 5,000 parts per million (ppm) and ASHRAE Standard 62.1-2010 = no greater than 700 ppm above outdoor

CO - OSHA PEL = 50 ppm and OSHA Ceiling Limit = 200 ppm

Temperature - ASHRAE Standard 55-2010 = between approximately 67 and 82 °F.

RH - ASHRAE Standard 62.1-2010 = limited to < 65%

4.0 - LIGHTING

Utilizing a properly calibrated Cooke Corporation cal-Light 400 light meter, Bonus Environmental, LLC collected illumination readings throughout the Troy-South Lake Avenue Readiness Center. Illumination measurements recorded during this industrial hygiene evaluation are summarized in the table below.

	l – Troy-South Lake Avenu Lighting Measurements	ue Readiness Center	
Location	Measurement in Foot Candles	Requirement in Foot Candles	Requirement Met?
Basement, south hallway B1	20.5	5	Yes
Supply room B2		Inaccessible	
Room B4 (storage)	34.9	30	Yes
Room B5 (storage)	18.2	30	No
Room B6	Inaccess	sible, due to lead contamir	nation
Room B17 (mech. room)	14.0	30	No
Basement, pump room	11.3	30	No
Room B8 (elec room)	33.9	30	Yes
Room B7 (locker room)	46.9	7	Yes
Drill hall	76.8	30	Yes
Room A2 (storage)	3.9	30	No
Men's restroom	33.1	5	Yes
Hallway	67.3	5	Yes
Room 1		Inaccessible	
Room 2		Inaccessible	
Room 3		Inaccessible	
Room 4		Inaccessible	
Room 5		Inaccessible	
Room 6		Inaccessible	
Kitchen	50.6	50	Yes
Restroom	101.8	5	Yes
Recruiter's office	27.6	50	No
Recruiter's office 2	33.4	50	No
Conference room	41.8	30	Yes
Women's restroom	36.7	5	Yes
G2 Intel Ops Center office	52.3	50	Yes
DEP G2 office	66.7	50	Yes
SGM (office)	73.7	50	Yes
4sD-ACE Admin (office)	46.2	50	No
Office 2	30.1	50	No
G2X (office)	75.3	50	Yes
Room 215 (office)	39.4	50	No
Room 213 (office)	51.9	50	Yes
Room 214 (office)	42.6	50	No
Room 212 (restroom)	16.8	5	Yes
Hallway 201	90.2	5	Yes
Room 202 (office)	24.9	50	No
Room 203A (203A)	127.2	50	Yes
Room 204 (office)	13.5	50	No
Room 205 (office)	46.3	50	No

•	l – Troy-South Lake Avenu Lighting Measurements	e Readiness Center	
Location	Measurement in Foot Candles	Requirement in Foot Candles	Requirement Met?
Room 211 (storage)	55.0	30	Yes
Room 210 (restroom)	21.8	5	Yes
Room 206 (conference room)	115.8	30	Yes
Room 206A (office)	114.5	50	Yes
Room 208A (office)	68.0	50	Yes
Room 207 (copy room)	52.0	10	Yes
Room 209 (office)	45.2	50	No
Room 302 (office)	31.4	50	No
Room 303 (office)	30.7	50	No
Room 304 (storage)	47.3	30	Yes
Room 305 (office)	90.2	50	Yes
Room 306 (storage)	33.9	30	Yes
Room 307 (office)	40.1	50	No
3 rd floor hallway	35.0	5	Yes

Lighting levels were compared to the levels outlined within the American National Standards Institute/Illuminating Engineering Society of North America (ANSI/IESNA) RP-1-04 Office Lighting Handbook, and the ANSI/IESNA RP-7-01 Lighting Industrial Facilities Handbook. Areas within the facility which did not meet the foot candle requirements are identified with a "NO" within the "Requirement Met?" column. It is recommended that illumination be improved in all the areas that did not meet the requirements. Improving illumination can be achieved by replacing burned-out lamps/bulbs, cleaning fixtures, relocating detailed work activities to more illuminated areas, and using supplemental task lighting.

5.0 - CONCLUSION & LIMITATIONS

Bonus Environmental, LLC was contracted by the National Guard Bureau Region North Industrial Hygiene office to identify and measure the existence and extent of potentially hazardous operations or conditions at the Troy-South Lake Avenue Readiness Center facility located at 99 South Lake Avenue in Troy, NY. The purpose of this evaluation was to generate or to update a previous baseline evaluation so that employee exposure history can be provided to each civilian and military employee. Industrial hygiene conditions were evaluated during this industrial hygiene evaluation performed by Bonus Environmental, LLC representative Non-Responsive on November 5, 2012.

The results/findings of this industrial hygiene evaluation are summarized below.

- 1. Lead wipe sample results collected within the Troy-South Lake Avenue Readiness Center were above the OSHA interpretive level of 200 μg/ft².
- 2. Bonus Environmental, LLC identified several areas of peeling paint which contained detectable levels of lead, potentially posing a lead exposure hazard.

- 3. Bonus Environmental, LLC identified PACM's (that analytical results confirmed to be non-asbestos-containing) that were considered to be in poor or damaged condition.
- 4. Bonus Environmental, LLC identified water-damaged and/or moldy building materials including drywall, dropped-ceiling tiles, and concrete in several locations throughout the facility.
- 5. Bonus Environmental, LLC found the housekeeping practices within the Troy-South lake Avenue Readiness Center to be in good order.
- 6. Following the interviews and observations, no ergonomic and or indoor air quality concerns were identified.
- 7. Bonus Environmental, LLC measured temperature, relative humidity, CO, and CO₂ throughout the Troy-South Lake Avenue Readiness Center. All were found to be below or within their acceptable ranges/limits.
- 8. Areas within the Troy-South Lake Avenue Readiness Center facility were identified as improperly illuminated.
- 9. No Health & Safety programs were available for review at the Troy-South Lake Avenue Readiness Center.

Bonus Environmental, LLC has 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 Region North - Industrial Hygiene Office. 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 Bonus Environmental, LLC's inspection of the site.

It has been a pleasure to be of assistance to you. Please contact us if you have any questions concerning this report or if we can be of any further assistance in any other environmental or occupational health matter.

Sincerely,

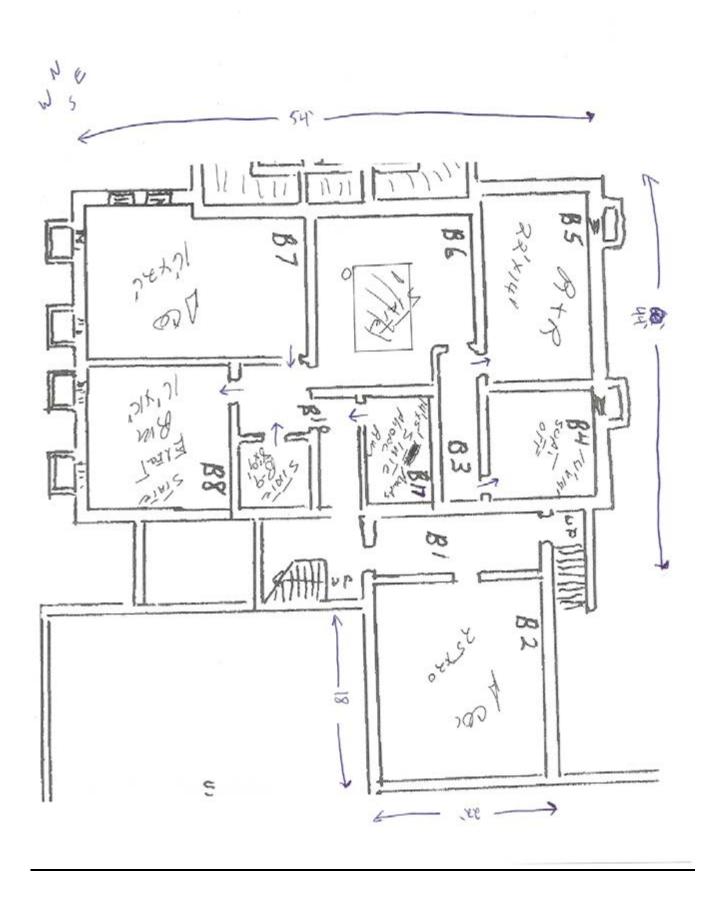


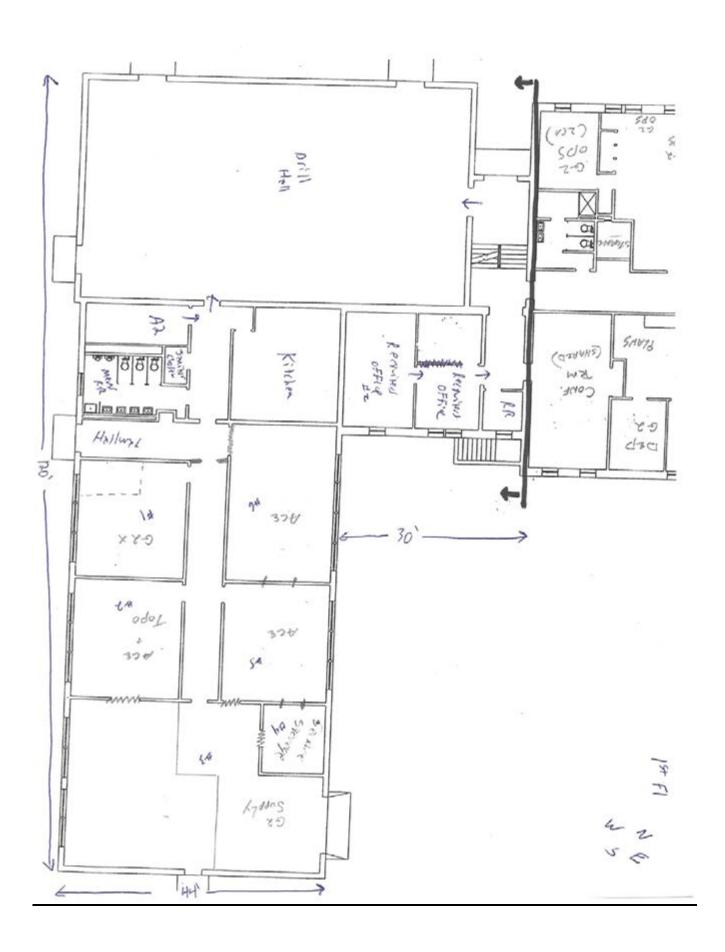
Principal Bonus Environmental, LLC

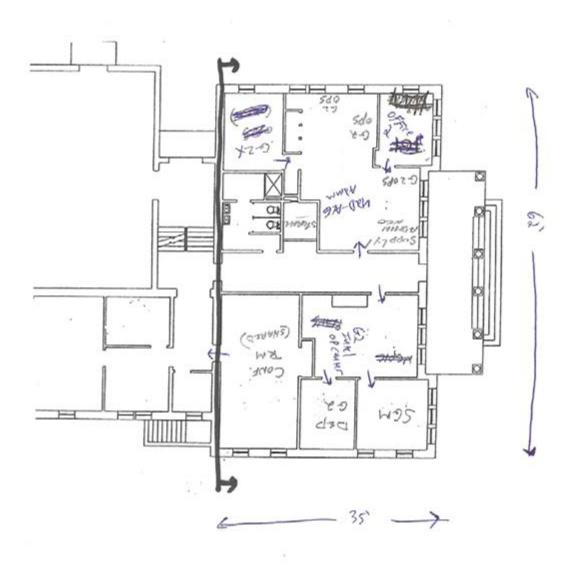
Troy-South Lake Avenue RC_12_Report.docx

Appendix A

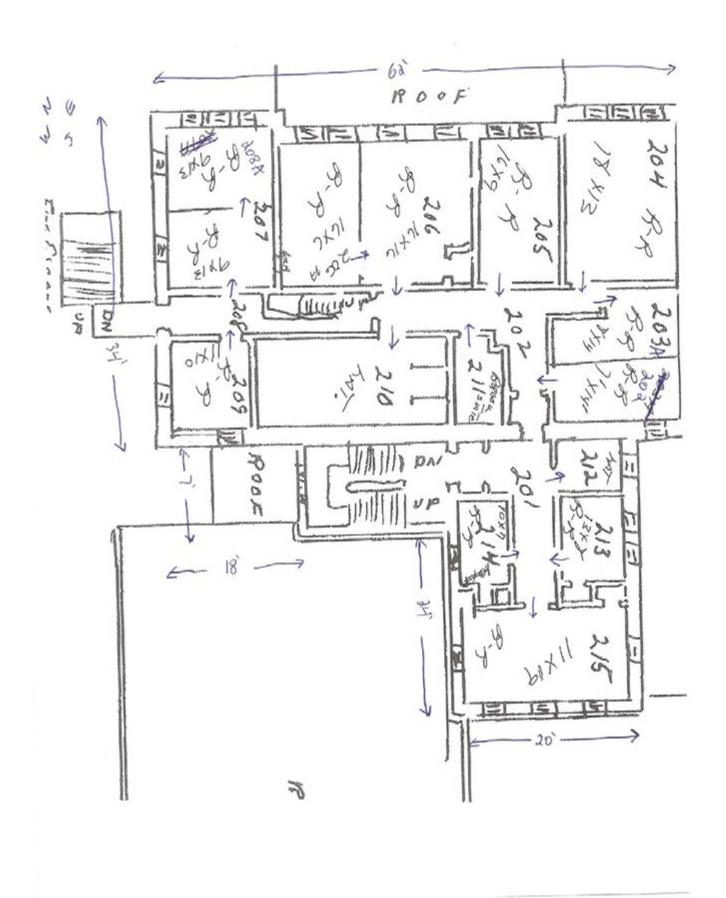
Shop Diagram and Air Flow Patterns

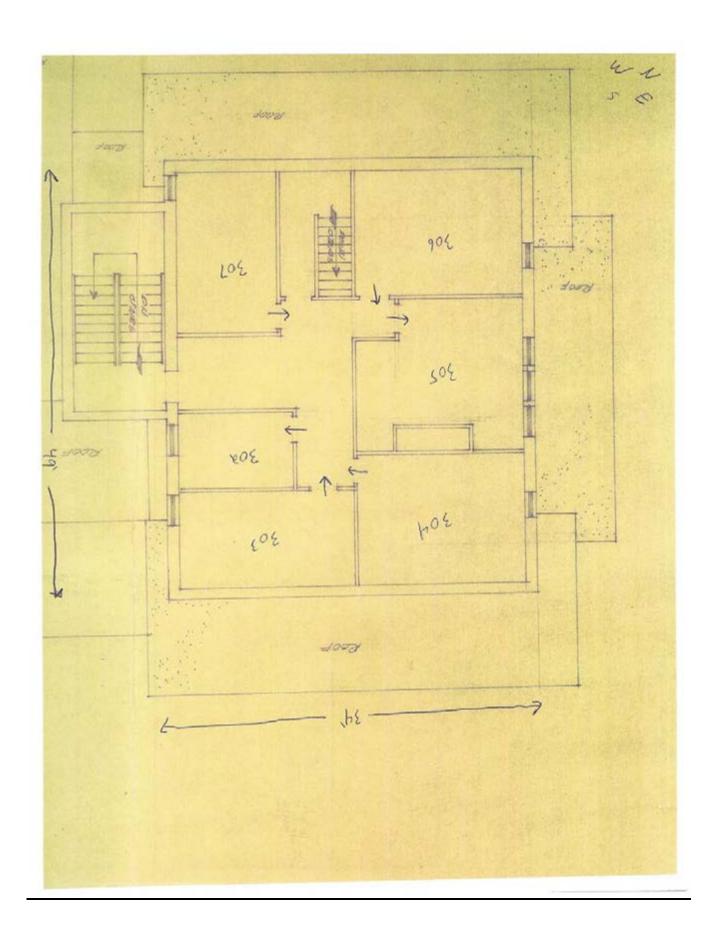












BEST AVAILABLE COPY

Appendix B

Lead Sample Results

AMA Analytical Services, Inc.



CERTIFICATE OF ANALYSIS



Client:

National Guard Bureau

Job Name:

Troy RC

Chain Of Custody:

514426

Address:

Intionial Court Distant

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

Job Location:

Troy, NY

Date Submitted:

11/6/2012

State Military Reservation

Job Number: P.O. Number: 1061-15

W912K6-09-A-0003

Person Submitting: Date Analyzed:

Non-Respon

11/13/2012 Report Date: 11/14/2012

Attention:

Non-Responsive

Havre de Grace, Maryland 21078

Summary of Atomic Absorption Analysis for Lead

Page 1 oj 2

AMA Sample Number	Client Sample Number	Analysis Type	Sample Type	Air Volume (L)	Area Wiped (ft³)		orting imit	Total ug	Final Re	sult	Comments
13011895	TroyRC-PC-1	Flame	Paint Chip	****	N/A	0.0078	%Pb		7.1	%Pb	
13011896	TroyRC-PC-2	Flame	Paint Chip	****	N/A	0.006	%Pb		1.2	%Pb	
13011897	TroyRC-PC-3	Flame	Paint Chip	****	N/A	0.0081	%Pb		52	%Pb	
13011898	TroyRC-LW-1	Flame	Wipe Blank	****	N/A	12	ug		<12	ug	
13011899	TroyRC-LW-2	Flame	Wipe	****	0.111	110	ug/ft²	<12	<110	ug/fl³	
13011900	TroyRC-LW-3	Flime	Wipe	****	0.111	110	ug/it²	110	1000	ug/ft²	
13011901	TroyRC-LW-4	Flame	Wipe	****	0.111	110	ug/it²	14	130	ug/ft²	
13011902	TroyRC-LW-5	Flune	Wipe	****	0.111	110	ug/ll²	<12	<110	ug/ft ²	
13011903	TroyRC-LW-6	Flame	Wipe	****	0.111	110	ug/ft²	<12	<110	ug/ft²	
13011904	TroyRC-LW-7	Flame	Wipe	****	0.111	110	ug/ft²	53	480	ug/ft²	
13011905	TroyRC-LW-8	Flame	Wipe	****	0.111	110	ug/ft²	140	1200	ug/ft²	
13011906	TroyRC-LW-9	Flame	Wipe	****	0.111	110	ug/ft²	<12	<110	ug/ft²	
13011907	TroyRC-LW-10	Flame	Wipe	****	0.111	110	ug/ft²	<12	<110	ug/ft!	
13011908	TroyRC-LW-11	Flame	Wipe	****	0.111	110	ug/fl²	<12	<110	ug/ft²	
13011909	TroyRC-LW-12	Flame	Wipe	****	0.111	110	ug/fl²	<12	<110	ug/ft²	
13011910	TroyRC-LW-13	Flame	Wipe	****	0.111	110	ug/fl²	64	580	ug/ft³	
13011911	TroyRC-LW-14	Flame	Wipe	****	0.111	110	ug/fi²	43	390	ug/ft²	
13011912	TroyRC-LW-15	Flame	Wipe	****	0.111	110	ug/ft²	<12	<110	ug/ft²	
13011913	TroyRC-LW-16	Flame	Wipe	****	0.111	110	ug/fl²	<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, AHIA, or any agency of the Federal Government. All rights reserved. AMA Analytical Services, Inc.

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

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AMA Analytical Services, Inc.



CERTIFICATE OF ANALYSIS



Client

National Guard Bureau

Job Name:

Troy RC

Chain Of Custody:

514426

Address:

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

Job Location:

P.O. Number:

Troy, NY

W912K6-09-A-0003

Date Submitted:

State Military Reservation

Job Number:

11/6/2012

Havre de Grace, Maryland 21078

1061-15

Person Submitting:

associated with these

samples.

Date Analyzed:

11/13/2012 Report Date: 11/14/2012

Attention:

Summary of Atomic Absorption Analysis for Lead

Page 2 of 2

AMA Sample Number	Client Sample Number	Analysis Type	Sample Type	Air Volume (L)	Area Wiped (ft¹)	,	orting .imit	Total ug	Final Res	ult	Comments
13011914	TroyRC-LW-17	Flame	Wipe	****	0.111	110	ug/ft²	<12	<110	ug/fi²	
13011915	TroyRC-LW-18	Flame	Wipe	****	0.111	110	ug/ft²	22	200	ug/fi²	
13011916	TroyRC-LW-19	Flame	Wipe	****	0.111	110	ug/lt²	27	250	ug/fl²	
	TroyRC-LW-19 or Flame: Air, Wipes,						ug/it²	27 Summary for an		- M	

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; Waler: SM-3113B

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

%Pb = percent lead on a dry weight basis ug = micrograms

ug/L = parts per billion (ppb)

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

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

Air and Wipe results are not corrected for any blank results Final results for air and wipe samples are based on client supplied information nor verified by this laboratory.

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

Technical Manage

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 nutual protection to clients, the public, and these Laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from us. Sample types, locations, and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information. Residual sample material will be discarded in accordance with the appropriate regulatory guidelines, unless otherwise requested by the client. This report must not be used to claim, and does not imply product certification, approval, or endorsement by NY ELAP, AIHA, or any agency of the Federal Government. All rights reserved. AMA Analytical Services, Inc.

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

CHAIN OF CUSTODY

(Please Refer To This Number For Inquires)

Client Name: National Guard Bureau Address 1: 301-IH Cld Bay Lane Address 2: Attn: NGB-AVN-SI. State Address 3: Havte de Grace, Marylani Phone #: (410) 942-0273 Reporting Info (Results provided as					. Job . Job	Name: Location	n:	10	Troy	DY	KC	16.55			
3. Address 2: Attr; NGB-AVN-SI, State	Miltary Resen	ation		_ 3	. Job	#:	1061	-17	/ · · · / ·			P.O. #: W91	2K6-09-	4-0003	
 Address 3: <u>Havre de Grace, Marylan</u> 	d 21078			_ 4	. Cor	ntact Pen	so NC	n-	Ke	spo	ons	ive	phone #	sponsive	
5. Phone #: <u>(410) 942-0273</u>	_Fax #:(410	942-0254	10	_ 5	. Sub	mitted b	y:					atu		Sportsive	
recporting time (resums provided as	soon as technic	ally feasible	i nu mo i	MIM	chorm	ig timo t	2 brosse	led, Al	MA wil	l assi	gn defa	ults of 5-Day	andemai	Max to contacts of	n file.
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Asbestos Analysis *PCM Air - Please Indicate Filter Type: NIOSH 7400	QTY) Y)	☐ NY St ☐ Residu TEM Dus!* ☐ Qual. ☐ Quan. ☐ Quan. ☐ Quan. ☐ Quan. ☐ Quan. ☐ ELAP	198.4/Clarate PLM/1 ual Ash (pres/abs) (s/area) Va (s/area) Du (pres/abs) 198.2/EP/	Vacuum I D648	(Q \/Dust_ D5755- 80-99_	(QTY) (QTY)	(QT	QTY)		ungal	Pb Air_ Pb Soil/S Pb TCLP Drinking Waste Wi Pb Furna Analysis follection	Chip 3 Wipe (wipe type told (Chip (Ch	(QTY) QTY)(QTY)(QTY)(QTY) \(\text{QTY}\) \(\text{QTY}\) \(\text{QTY}\) \(\text{QTY}\) \(\text{QTY}\) \(\text{QTY}\) \(\text{QTY}\) \(\text{QTY}\) \(\text{QTY}\)		As(QTY) (QTY)
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Surface Sampling Field Data Sheet

Date Collected: //-5-12	Job Name: Troy RC	Company: Bonus Environmental LLC
Job Number: 1061-15	Job Location: 99 S. Lake Ave.	Phone Number: 989 -779 - 7686
Contact Pers	Address: Troy, NY	Collected By Non-Responsive
		COC Number:

Sample Number	Sample Location	Surface/Substrate Sampled	Area Wiped (in ² /ft ²)	Collection Media	
troyRC-LW-1	Fireld blank	-	_	thost wipe	
-λ	orin Hell	Center, on floor	4"+4"		
-3		west comer, on heeter Fiv			
-4		South corner, top of fet those			
-5		East unll, top of AED Cast			
-6		East corner, to 1 of locker		+	
-7	Kitchen	East coiner, tol of mixing Machine			
-8	RM 67	top of Locker, North comer of	In		
-9	couf Am	on Siv window Sill			
70	In El Hollmat	on Mail Nesk			
-11	DEP 62 OFFICE	top of bookshelf			
-12	420-ACE Admin AND	top of copy maching			
V V -13	Rm als	on Collegetter	,		



Please Return Samples To:
AMA Analytical Services, Inc., 4475 Forbes Blvd., Lanham, MD 20796, (800) 346-0961/(301) 459-2640 Fax, www.amalab.com, info/aramalab.com



Surface Sampling Field Data Sheet

Date Collected: 11-5-11	Job Name: Troy fC	Company: Bones Environmental 11
Job Number: 1061-15	Job Location: 99 & Lake Ave.	Phone Number: 989 -779 - 7586
Contact Per	Address: Troy, NY	Collected By Non-Responsive
		COC Number:

Sample Number		Sample Location	1	Surface/Substrate Sampled	Area Wiped (in²/ft²)	Collection Media		
TroyRC-LW-14	Par 909			on test window sill	4" * 4"			
-15	Rm 204		1	top of bookshelf				
-16	Rp 209) V	top of Microway				
-17	Rn 303			top of relevision				
18	Rm 305			on light Fixture				
1 -19	Rm 307			ar window sill				
		77	15		4			
			14. 14.			-,		
			W.					
			Y					
			1		-			



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Appendix C

Asbestos Bulk Sampling Results

AMA Analytical Services, Inc.



A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS



Client:

National Guard Bureau

Job Name:

Troy RC

Chain Of Custody:

514426

Address:

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

Job Location:

Troy, NY

Date Analyzed:

11/12/2012

State Military Reservation

Person Submitting:

Havre de Grace, Maryland 21078

Job Number:

1061-15

W912K6-09-A-0003 P.O. Number:

Attention:

Page I of I

Summary of Polarized Light Microscopy

AMA Sample Number	Client Sample #	Total Asbestos	Chrysolile Percent	Amosite Percent	Crocidolite Percent	Other Asbestos Percent	Mineral Wool Percent	Percent	Organic Percent	7.50	Particulate Percent	Sample Type	Sample Color	Homogeneity	Analyst ID	Comments
13011917	TroyRC-Asb-1	NAD			350		•		10	÷	90	DW	Multi	Layered	SW	
The foll	lowing footnotes	only apply	to those sam	ples which	the total asbe	sios result i	s flagged w	rith a note nu	mber.							
or trace														reported via PL ers below the re		

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.

Amlysis 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(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 clicatto 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 hability 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

Bulk Sampling Survey Sheet

Date Collected: //-5-12	Job Name: Troy RC	Company: Boyus EnvironMental, LUC
Job Number: 1061-15	Job Location: 99 S. Lake Ave.	Phone Number: 989-779-7686
Contact Pers	Address: Trof NY	Collected By Non-Responsive
		COC Number:

Sample Number	Homogenous Area ID	Type of Material	Sample Location	Friable	Condition of Material	Accessibility	Photo	Comments
rroy RC- ASB-1	Misc	Drywill	Rm B8, ceilms	☐ Yes ☐ No ☐ Potentially	□ Good □ Fair ⊠ Poor	Low Medium	Yes No	
				☐ Yes ☐ No ☐ Potentially	☐ Good ☐ Fair ☐ Poor	□ Low □ Medium □ High	□ Yes	
				☐ Yes ☐ No ☐ Potentially	☐ Good ☐ Fair ☐ Poor	□ Low □ Medium □ High	□ Yes	
				☐ Yes☐ No☐ Potentially	☐ Good ☐ Fair ☐ Poor	□ Low □ Medium □ High	□ Yes	
				☐ Yes ☐ No ☐ Potentially	☐ Good ☐ Fair ☐ Poor	□ Low □ Medium □ High	☐ Yes ☐ No	
				☐ Yes ☐ No ☐ Potentially	☐ Good ☐ Fair ☐ Poor	□ Low □ Medium □ High	□ Yes	
				☐ Yes☐ No☐ Potentially	☐ Good ☐ Fair ☐ Poor	☐ Low ☐ Medium ☐ High	□ Yes □ No	
				☐ Yes ☐ No ☐ Potentially	☐ Good ☐ Fair ☐ Pcor	□ Low □ Medium □ High	□ Yes □ No	
				□ Yes □ No □ Potentially	☐ Good ☐ Fair ☐ Poor	□ Low □ Medium □ High	□ Yes □ No	
				☐ Yes ☐ No ☐ Potentially	☐ Good ☐ Fair ☐ Poor	☐ Low ☐ Medium ☐ High	☐ Yes ☐ No	



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Focused on Results www.amslab.com
AIHA (#100470) NVLAP (#101143-0) NY ELAP (10920) 4475 Forbes Blvd. • Lanham, MD 20706

CHAIN OF CUSTODY

(Please Refer To This Number For Inquires)

(301) 459-2640 • (800) 346-0961 • Fax (301)			. 8											¥	34	**
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Appendix D

Photographs



Building exterior, looking east



Kitchen



Basement pump room, peeling green paint



Drill Hall



Room B5, water-damaged concrete floor



Room B8, peeling white paint



Room B7, damaged drywall ceiling



Room 305, water-damaged metal ceiling



Room 42D-ACE area, office 2, peeling blue paint



1st floor men's rest room (near kitchen), moldy droppedceiling tile

Appendix E

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The New York State Armory Utica, New York 13501

Submitted to:

National Guard Region North Industrial Hygiene Office 301-IH Old Bay Lane Havre de Grace, Maryland 21078



NATIONAL GUARD ARMORY INDUSTRIAL HYGIENE EVALUATION

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The New York State Armory Utica, New York 13501

Industrial Hygiene Evaluation

Prepared for:

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

Prepared by:

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July 10, 2008

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1. EXECUTIVE SUMMARY

Consolidated Safety Services, Inc. (CSS) was contracted by the U.S. Army National Guard to perform an industrial hygiene evaluation at the Utica New York State Armory located at 1700 Parkway East in Utica, New York 13501 Performed the evaluation on July 10, 2008. The point of contact for the facility was Mr. Maintenance Assistant. The purpose of the evaluation was to assess industrial hygiene concerns in the facility, evaluate workers' personal exposures, and review industrial hygiene and safety programs.

The following industrial hygiene and safety programs were evaluated during the site visit: confined space, hearing conservation, respiratory protection, hazard communication (HAZCOM), and personal protective equipment (PPE).

The following industrial hygiene concerns were evaluated during the site visit:

- Noise exposure;
- Illumination:
- Deteriorated suspect lead-based paints;
- Damaged suspect asbestos-containing materials;
- Water damage and possible mold growth;
- General housekeeping;
- Indoor air quality; and
- Ergonomics.

There were several industrial hygiene concerns identified during the assessment. The Risk Assessment Code (RAC) is presented for each identified concern or deficiency:

- Suspect asbestos-containing pipe insulation was noted in the atrium area of the facility. The
 insulation, which is green and is located on the fittings for the pipes, is in very good condition.
 The insulation should be considered asbestos-containing until sampling is conducted to prove
 otherwise. The condition of the pipe fitting insulation should be maintained in good condition.
 Housekeeping and maintenance personnel should be advised of the presence of the suspect
 asbestos-containing material. (RAC 4). 1910.1001(j)(7)(iv) and 29 CFR 1960.8a
- There are several locations where the measured illuminance levels are below those recommended by the Illuminating Engineering Society of North America. Illumination should be improved in deficient areas by replacing burned-out lamps, cleaning fixtures, relocating detailed work to more illuminated areas, and opening window blinds. If illuminance levels still remain deficient, additional light sources should be provided to achieve the recommended illuminance levels (RAC 4). ANSI/IESNA RP-1-04 (Office Lighting) and ANSI ANSI/IESNA RP-7-01 (Lighting Industrial Facilities)

- Housekeeping was good overall throughout the facility, with the exception of the stored items in the old supply room. Items (unit equipment, boxes, etc.) in these areas were stored in disarray and in some cases obstructed access to emergency exits. It is recommended that this area be organized so equipment and other items in storage are not obstructing pedestrian aisles. In addition, a fire extinguisher located in the atrium area was stored on top of a flammable cabinet. The fire extinguisher should be mounted to the wall in an accessible location. (RAC 5) 1910.22(a)(1)
- There is one location in the Atrium where a lead dust wipe samples was above the NGB Region North IH Office limit of 200 micrograms/square foot (µg/ft²). This area should be cleaned to eliminate the lead dust contamination. Anyone that may perform work in this area, including repair or maintenance activities, must be made aware of the lead contamination and appropriate precautions be taken to minimize exposures to the lead contaminated dust (RAC 4). NGB Region North IH Office limit of 200 micrograms/square foot (µg/ft²)
- Detectable levels of lead were found in all eight paint chip samples collected and therefore considered to be lead-containing paint. OSHA requires that precautions be taken when lead is present, but does not define a threshold concentration below which no action is required. Therefore, anyone that may perform repair or maintenance activities to any surfaces in these areas must be made aware of the lead contamination and appropriate precautions be taken to minimize exposures to the lead-containing paint. The Department of Housing and Urban Development (HUD) defines lead-based paint as having greater than 0.5% lead by weight. There are two locations where peeling paint samples contained levels of lead that were above the HUD criteria of 0.5% lead by weight (RAC 4). Occupational Safety Health Administration (OSHA) Lead in Construction Standard, 29 CFR 1926.62 and Title 24, Code of Federal Regulations (CFR), Part 35, Subpart B, Sections 35.110, Definitions of Lead-Based Paint, Housing and Urban Development, U.S. Department of Housing.
- Some Indoor relative humidity measurements were in excess of the maximum humidity level of 60% recommended by ASHRAE for the control of microbial growth. Humidity levels should be reduced in areas with levels in excess of 60% (RAC 4). ASHRAE Standard 62.1-2004
- There was visual evidence of minor water damage to several suspended ceiling tiles and fixed ceilings throughout the facility. In addition, a water damaged carpet and evidence of water infiltration through a wall were noted. There was no evidence of suspect mold growth identified in the facility. The sources of the water intrusion should be identified and corrected and water-damaged ceiling tiles should be replaced to minimize the potential for mold growth. (RAC 5). 29 CFR 1960.8a

2. INTRODUCTION

Consolidated Safety Services, Inc. (CSS) was contracted by the U.S. Army National Guard (USARNG) to perform an industrial hygiene evaluation at the Utica New York State Armory at 1700 Parkway East in Utica, New York.

Non-Responsive performed the evaluation on July 10, 2008. The point of contact for the facility was Mr. Non-Responsive performed the evaluation on July 10, 2008. The evaluation was to review industrial hygiene and safety programs, evaluate potential exposures to physical and chemical hazards, and evaluate exposure control strategies and equipment. The building was visually inspected and evaluated for: damaged suspect asbestos-containing materials (ACM), water-damaged building materials, possible mold growth, housekeeping, deteriorated suspect lead-based paints, and poor indoor air quality.

The Utica New York State Armory currently has three units assigned to the facility: HQ-2-108 INF, HHC 2-108 INF, and 107 MP Company. The operations conducted at the facility are primarily administrative activities, equipment maintenance and storage, and training in preparation for potential deployment for combat operations. The building that houses the Utica New York State Armory was constructed in 1929 and consists of multiple offices, conference rooms, break rooms, men's and women's restrooms, locker rooms, supply areas, and a drill hall. An addition was added onto the original building in 2005 and 2006. A separate garage is located on the property and is used for storage and to park vehicles.

The findings, discussion and interpretation of results are provided in Section 4 through Section 8. The conclusions are provided in Section 9. A diagram of the building layout is provided in Appendix A. Sampling sheets and laboratory results for Lead Paint, Lead in Air, and Lead dust are provided in Appendix B. Selected photographs taken during the evaluation are provided in Appendix C. An explanation of how the Risk Assessment Code (RAC) was determined is located in Appendix D. A list of references used during the evaluation is provided in Appendix E.

This report is for the sole use of the USARNG. The results presented in this report are only indicative of conditions during the time of the evaluation. This evaluation does not purport to include all occupational hazards at this facility, and only those areas and exposures specifically mentioned were evaluated.

3. EVALUATION METHODS

3.1 Noise Survey

Sound pressure levels were measured using a Casella sound level meter. The sound level meter was calibrated before and after the survey period using a Casella CEL acoustical calibrator, factory calibrated in October 2007.

3.2 Illumination

Illumination measurements were taken using a Cal-Light 400, calibrated on February 22, 2008, and compared to the American National Standards Institute/Illumination Engineering Society of North America (ANSI/IESNA) Standard RP-1-04 (Office Lighting) and ANSI/IESNA Standard RP-7-01 (Lighting Industrial Facilities).

3.3 Indoor Air Quality Measurements

Indoor air quality parameters (i.e., carbon dioxide concentration, carbon monoxide concentration, temperature and relative humidity) were measured using a TSI Q-Trak Plus Model 8554, calibrated in January 2008. Carbon dioxide, temperature and relative humidity measurements were compared to the recommended levels established by the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE). CO levels were compared to Occupational Safety and Health Administration Permissible Exposure Limit, the American Conference of Governmental Industrial Hygienists Threshold Limit Value (TLV) for CO and the Environmental Protection Agency's National Ambient Air Quality Standard (NAAQS) for CO.

4. OPERATIONS DESCRIPTIONS

4.1 Facility Operations

There are currently three units assigned to the facility: HQ-2-108 INF, HHC 2-108 INF, and 107 MP Company. The operations conducted at the facility are primarily administrative activities, equipment maintenance and storage, and training in preparation for potential deployment for combat operations.

4.1.a. Noise Measurements

A sound level survey was performed to determine if there were any hazardous noise areas at the facility that could possible result in exposures to personnel in excess of the Permissible Noise Dose. Sound pressure levels were measured throughout the facility. No noise generating equipment was noted at the facility. Measurements ranged from 61 dBA to 73 dBA within the facility. Exposure to sound pressure levels of this magnitude would not result in exposures equal to or in excess of the Permissible Noise Dose over an eight hour period.

4.1.b. Lighting Survey

Illumination levels were measured in all areas within the facility. The measurements indicate that several areas did not meet the illuminance levels recommended by the Illuminating Engineering Society of North America. The measurement results are presented in Table 1.

4.1.c. Additional Information

N/A

4.1.d. Recommendations

Illumination should be improved in deficient areas by replacing burned-out lamps, cleaning fixtures, relocating detailed work to more illuminated areas, and opening window blinds. If illuminance levels still remain deficient, additional light sources should be provided to achieve the recommended illuminance levels.

5. PHYSICAL CONDITION OF THE FACILITY

5.1 Visual Inspection – Peeling Paint – Lead

A visual inspection was performed to determine if any areas of peeling or deteriorated paint at the facility could pose a lead exposure hazard. There were seven areas identified where paint was peeling and may result in a potential exposure hazard. These areas include a first floor hallway door frame, the first floor stairwell door, the old supply room, the old club room, the old firing range, room 219, and the basement boiler room. Eight paint chip samples were collected and submitted to AMA Analytical Services, Inc. to be analyzed in accordance with Environmental Protection Agency (EPA) Method 7420.

The results, presented in Table 3, indicated detectable levels of lead were present in all of the samples collected. The paint is therefore considered to be lead-containing paint. All construction activities that involve lead-containing coatings are regulated by the Occupational Safety Health Administration (OSHA) Lead in Construction Standard, 29 CFR 1926.62. The standard currently does not define a specific concentration of lead, which must be present within paint for it to be considered "lead-containing." Therefore, painted and glazed surfaces that contain detectable concentrations of lead must be handled in accordance with the OSHA Lead in Construction Standard. Anyone performing work that could impact paint films or glazing that have detectable concentrations of lead must be informed of the testing results, and must take appropriate actions to comply with OSHA Standard 29 CFR 1926.62. These appropriate actions include performing air monitoring to measure worker exposure; assuring that the workers are provided with adequate respiratory protection; and assuring that workers are provided with appropriate training.

The Department of Housing and Urban Development (HUD) defines lead-based paint as having greater than 0.5% lead by weight. The peeling black paint on the first floor hallway door frame and the brown peeling paint from the first floor stairwell door contained more than 0.5% lead by weight and are therefore considered lead-based paint.

5.2 Visual Inspection – Dust – Lead

Due to concerns with lead contamination, wipe samples were collected from various surfaces throughout the facility. Nineteen samples were collected from the walls, floors, and other surfaces. The samples were collected using "Ghost Wipes" using the prescribed NIOSH method for conducting surface wipe samples. The samples were collected and placed in new plastic containers and submitted to AMA Analytical Services, Inc. to be analyzed in accordance with Environmental Protection Agency (EPA) 600/R-93/200 Lead in Surface Wipe Samples. The results for the wipe samples, presented in Appendix B indicate that there was one sample collected from the Atrium that was above the NGB Region North IH Office limit of 200 micrograms/square foot (µg/ft²). It is recommended that this area be cleaned to eliminate the lead dust contamination. Anyone that may perform work in this area, including repair or maintenance activities, must be made aware of the lead contamination and appropriate precautions be taken to minimize exposures to the lead contaminated dust. Note: The Old Firing Range has reportedly been properly cleaned and now functions as a ventilation room. The four samples from the Old Firing Range were below the NGB Region North IH Office limit of 200 micrograms/square foot (µg/ft²).

5.3 Visual Inspection – Asbestos

A visual inspection was performed to determine if there was any suspect asbestos-containing material (ACM) at the facility and its condition. Pipe fittings were identified in the Atrium (See Photo 3). Based on observation, it appears that the pipes are not normally accessible, and therefore not normally subject to damage. All fittings were in good condition and no samples were collected. These fittings should be presumed to contain asbestos unless sampling is conducted to prove otherwise. It is recommended that anyone conducting work on any asbestos-containing material or presumed asbestos-containing material be made aware of the asbestos and the appropriate precautions be taken to minimize exposures. The condition of the pipe insulation should be monitored on a routine basis to insure that the materials are not damaged.

5.4 Visual Inspection – Water Damage and Mold Growth

A visual inspection was performed to determine if there was any water damage or visible mold growth at the facility. There was no evidence of mold growth, but some evidence of minor water damage to several suspended ceiling tiles in the mess hall, 1st floor administration office, office 160, office 219, and room 202. Evidence of water damaged fixed ceilings were noted in office 219, room 208a and room 214. Evidence of water infiltration through a wall was noted in the old firing range. In addition, a water soaked carpet was observed in office 219. The sources of the water intrusion should be identified and corrected and water-damaged ceiling tiles should be replaced to minimize the potential for mold growth.

5.5 Visual Inspection – Housekeeping

A visual inspection was performed to assess the state of housekeeping in the facility. Housekeeping was good overall, with the exception of stored items in the old supply room. Items (unit equipment, boxes, etc.) in these areas were stored in disarray and in some cases obstructed access to emergency exits. It is recommended that these areas be organized so that equipment and other items in storage are not obstructing pedestrian aisles. In addition, a fire extinguisher was located ontop of a flammable storage locker in the Atrium and should be mounted to the wall.

6. BUILDING CONCERNS

6.1 Ergonomic Concerns

Interviews of employees were conducted and observations made to determine if there were work activities that result in any ergonomic concerns in the facility. No ergonomic concerns were identified.

6.2 Illumination Issue

Illumination levels were measured in all areas of the facility and the results indicate that some illuminance levels do not meet the levels recommended by the Illuminating Engineering Society of North America. The measurements ranged from a low of 8 foot candles (fc) to a high of 104 fc. The

complete results of the evaluation can be found in Table 1, including whether or not the measured levels met ANSI/IESNA RP-1-04 (Office Lighting) and ANSI/IESNA RP-7-01 (Lighting Industrial Facilities) recommendations for illumination.

6.3 Indoor Air Quality (IAQ)

Temperature, relative humidity, carbon monoxide (CO), and carbon dioxide (CO₂) were evaluated in the facility and compared with recognized "comfort factors." Currently, there are no enforceable regulatory IAQ standards. However, ASHRAE defines acceptable IAQ as air (1) in which there are no known contaminants at harmful levels, as determined by cognizant authorities, and (2) about which a substantial majority (80% or more) of the people exposed do not express dissatisfaction. ASHRAE Standard 62.1-2004, "Ventilation for Acceptable Indoor Air Quality," represents the state-of-the-art in ventilation design requirements for commercial, institutional, and residential buildings. It was developed "to specify minimum ventilation rates and indoor air quality that will be acceptable to human occupants and are intended to minimize the potential for adverse health effects." The standard also considers chemical, physical, and biological contaminants and other factors that impact IAQ and affect occupant health and comfort.

A digital IAQ meter (TSI Q-Trak Plus, model #8554) was used to collect temperature, relative humidity, CO_2 , and CO measurements in several areas throughout the facility. Results are provided in Table 2. These measurements were compared with current ASHRAE consensus standards and were found to be within acceptable limits.

6.3.a. Carbon Dioxide (CO₂)

Building occupants generate CO_2 as a product of respiration. Concentrations of CO_2 are often used during indoor air quality investigations to determine the effectiveness of ventilation systems in removing common indoor pollutants. The indoor CO_2 concentration will increase in a given space with fixed ventilation output in proportion to the number of building occupants and their activity level. ASHRAE Standard 62.1-2004 uses CO_2 as a surrogate indicator of building ventilation; namely, an indoor-outdoor CO_2 concentration differential of less than 700 parts per million (ppm) is considered to indicate adequate ventilation. This level is not considered an indication of a health risk, but rather an indicator for human comfort.

Indoor levels of CO_2 ranged from 278 parts per million (ppm) in the boiler room to 620 ppm in the kitchen. Outdoor CO_2 levels were approximately 305 ppm during the monitored period. The indoor CO_2 levels were less than 1005 ppm (the outdoor CO_2 levels plus 700 ppm), which indicates adequate ventilation.

6.3.b. Carbon Monoxide (CO)

The Occupational Safety and Health Administration has established a Permissible Exposure Limit for carbon monoxide of 50 ppm averaged over an eight-hour work day. Similarly, the American Conference of Governmental Industrial Hygienists has established a Threshold Limit Value of 25 ppm averaged over an eight-hour work day. The CO measurements in the facility ranged from 0.9

ppm to 3.6 ppm. These levels are well below established occupational exposure limits and CO does not present a hazard to employees at this facility.

6.3.c. Temperature

Indoor temperature measurements in the facility ranged from 74°F in the drill hall to 79.5°F in the basement classroom. Most of the temperature measurements were on the upper end or slightly above the acceptable temperature ranges according to ASHRAE. No central air conditioning exists at the facility.

6.3.d. Relative Humidity

Indoor relative humidity (RH) measurements ranged from 39% in the boiler room to 67% in the drill hall. Although relative humidity levels were not considered hazardous in the locations surveyed, some areas were in excess of the maximum humidity level of 60% recommended by ASHRAE for the control of microbial growth. Elevated humidity levels (60% or greater) alone will not ensure the microbial growth such as mold. A moist nutrient source (including sheetrock and suspended ceiling tiles that have become wet through roof leaks, pipe bursts, etc.) and elevated temperatures are also required for mold growth. Humidity levels should be reduced in areas with levels in excess of 60%.

Acceptable Ranges of Temperature and Relative Humidity during Summer and Winter Months (in degrees Fahrenheit (°F))				
Relative Humidity	Winter Temperature	Summer Temperature		
30%	68.5 – 76.0	74.0 – 80.0		
40%	68.5 – 75.5	73.5 – 79.5		
50%	68.5 – 74.5	73.0 – 79.0		
60%	68.0 – 74.0	72.5 – 78.0		

• The humidity level should be maintained above 30% to prevent irritation of sinus linings, which can lead to sinus problems

6.3.e. Lead Air Sampling

Due to concerns with lead contamination, air samples were collected from two areas in the facility: the recruiting office and the unit administration office. The samples were collected using SKC brand personal sampling pumps with the appropriate sampling media. Pumps were calibrated both before and after use with a Dry-Cal calibrator, which is considered a primary standard. General area samples were collected as close to breathing zone height as could be achieved. The samples were shipped to AMA Analytical Services, Inc. and Analysis was conducted in accordance with the Environmental Protection Agency (EPA) 600/R-93/200 Lead in Air Samples. The results from the air samples collected over the 7.8 hour period were compared directly to the OSHA PEL, which is based on an 8-hour Time-Weighted Average, because the airborne concentration of lead is not expected to change in the office areas sampled. Both air samples were below the limit of detection of 3.2 micrograms per cubic meter, and therefore well below the OSHA PEL and ACGIH TLV.

7. INDUSTRIAL HYGIENE AND SAFETY PROGRAMS

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

- Confined Space;
- Hearing Conservation;
- Respiratory Protection;
- Hazard Communication (HAZCOM); and
- Personal Protective Equipment (PPE).

It was determined that all industrial hygiene and safety programs are managed at the unit level and there are no specific facility based programs according to the Maintenance Assistant. Based on the observed conditions and reported operations at the facility, Hazcom and PPE programs would be required for personnel at this facility. A separate garage was located on the property and was only used for storage and parking vehicles. No maintenance activities were reportedly performed in the separate garage.

8. VEHICLE, EQUIPMENT AND HAZARDOUS MATERIALS LIST

The use of the items on the equipment and hazardous materials lists were evaluated and it appears that all the items are used at the facility. The Material Safety Data Sheets (MSDS) were in order and all chemicals found in the facility were listed in the materials list (or chemical inventory) at the beginning of the MSDS notebook. According to the Maintenance Assistant there are no vehicles assigned specifically to the facility. All vehicles at the facility are assigned to specific units for the use only.

9. CONCLUSION

Industrial hygiene concerns associated with some minor water damage to several suspended ceiling tiles, fixed ceilings, and a carpet was identified at the facility. Illumination levels were low in some areas of the facility. One lead dust wipe sample was above the NGB Region North IH Office limit of 200 micrograms/square foot (µg/ft²). Detectable levels of lead were found in eight lead paint chip samples from seven locations. Some minor housekeeping problems were identified. Suspect asbestos-containing materials were identified in the atrium of the facility. Some indoor relative humidity measurements were in excess of the maximum humidity level of 60%. These concerns are discussed in Sections 4 through Section 8.

Tables

Table 1. Illumination Measurements The New York State Armory Utica, New York

Date of Sampling: July 10, 2008

	Date of Sampling. July 10, 2000							
Location	Luminance (fc) ¹	Standard (fc)	Standard Met (Y/N)					
Drill Hall	20 - 48	30	N					
Mess Hall	63 - 79	30	Υ					
First floor Men's Room	24 – 28	30	N					
Gym (Room 114)	34 – 36	30	Y					
Office (Room 116)	41 – 80	30	Y					
First Floor Women's Room	28 – 36	7	Y					
First floor Hallway	8 – 32	30	N					
Fitness Center (Room 181)	31	30	Y					
Men's Locker Room 175	39 – 54	30	Y					
Classroom 150	40 – 65	30	Y					
Break Room 152	46 – 52	10	Y					
Mechanical Room 145	59 – 79	30	Y					
Classroom 148	62 – 80	30	Y					
Janitor Closet (Room151)	62	7	Y					
Maintenance Office	47 – 50	30	Y					
Administration Office (first floor)	60 – 70	30	Y					
Office 160	41	30	Y					
Office 159	42	30	Y					
Conference Room 158	70	30	Y					
Kitchen	63 – 70	50	Y					
Old Supply Room	8 – 15	30	N					
SGT Non-Responsive office	30 – 35	30	Y					
SGT Non-Responsive office	25- 26	30	N					
Old Club Room	30 – 48	30	Y					
Old Conference Room 104B	14 – 18	30	N					
Room 105	30 - 40	30	Y					
Old Firing Range	30 - 90	30	Y					
Office 219	53 – 54	30	Y					
Office 221	17 – 18	30	N					

Table 1. Illumination Measurements The New York State Armory Utica, New York

Date of Sampling: July 10, 2008

Location	Luminance (fc) ¹	Standard (fc)	Standard Met (Y/N)
Office 217	80	30	Υ
Office 206B	75 – 104	30	Υ
Room 201	36 - 37	30	Υ
Office 202	43	30	Y
Office 213	46	30	Υ
Office 208A	56	30	Υ
Office 214	62	30	Υ
Boiler Room	15 – 18	30	N
Basement Classroom	40 – 61	30	Y
Separate Garage	15-35	75	N

¹ fc = foot candles

The readings were taken with a Cal-Light 400, factory calibrated on February 22, 2008.

The standards listed in Table 1 are from ANSI/IESNA RP-1-04 (Office Lighting) and ANSI/IESNA RP-7-01 (Lighting Industrial Facilitie

Table 2. Indoor Air Quality Measurements The New York State Armory Utica, New York Date of Sampling: July 10, 2008

Location	Occupants Present in Area	CO ₂ (ppm) ¹	CO (ppm)	Relative Humidity (%)	Temperature (° F)
	First Floor				
Drill Hall	5	340 - 490	1.8	56 – 67	74 - 75
Kitchen	2	550 – 620	3.6	51 – 52	78 - 79
	Second Floor				
Old Firing Range	2	360 – 380	3.6	47 – 48	76 – 77
Office 219	3	390 – 410	0.9	45 – 46	78 - 79
	Basement				
Boiler Room	2	278 – 350	1.4	39 – 40	77 – 78
Basement Classroom	2	350 – 400	1.2	41 – 42	79 – 79.5

CO₂, CO, relative humidity and temperature measurements were taken with a TSI Q-Trak Plus Model 8554, calibrated January 2008.

American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) recommends that the indoor CO₂ concentration be maintained at a level that is less than 700 ppm above the outdoor concentration.

National Ambient Air Quality Standard (NAAQS) recommendation for ambient CO: below 9 ppm

Occupational Safety and Health Administration Permissible Exposure Limit for CO: 50 ppm

American Conference of Governmental Industrial Hygienists Threshold Limit Value for CO: 25 ppm

Table 3. Peeling Paint Chip Sample Results The New York State Armory Utica, New York

Date of Sampling: July 10, 2008

Sample Number	Location	Results (%)¹
07102008 - 31	Black peeling paint from first floor hallway door frame near gym 114	17
07102008 - 32	Brown peeling paint from first floor stairwell door	49
07102008 - 33	White peeling paint from old supply room rear wall	0.037
07102008 - 34	Cream peeling paint from old club room wall	0.013
07102008 - 35	White peeling paint from right wall in old firing range	0.012
07102008 - 36	Cream peeling paint from right wall in old firing range	0.01
07102008 - 37	Blue peeling paint from office 219 wall.	0.082
07102008 - 38	Green peeling paint from basement boiler room wall	0.07

¹ Results cited as % lead by weight

AMA Analytical Services, Inc conducted the analysis in accordance with the Environmental Protection Agency (EPA) 7420

Table 4.Lead Wipe Samples New York State Armory Utica, New York

Date of Sampling: July 10, 2008

	Date of Samp	ling: July 10, 200	8	
Sample Number	Location	Sample Area ¹	Results	NGB Standard
			(µg/ft²)²	(µg/ft²)³
07102008 - 01	Drill Hall – base of basketball hoop	12 in x 12 in	55	<200
07102008 - 02	Drill Hall – back right corner floor	12 in x 12 in	100	<200
07102008 - 03	Drill Hall – center right floor	12 in x 12 in	38	<200
07102008 - 04	Drill Hall – front left corner on ledge	12 in x 12 in	70	<200
07102008 - 05	Drill Hall – middle left floor	12 in x 12 in	44	<200
07102008 - 06	Mess Hall – radiator vent	12 in x 12 in	110	<200
07102008 - 07	Office 114 – storage cabinet top	12 in x 12 in	20	<200
07102008 - 08	First Floor Hallway – near drill hall entrance	12 in x 12 in	27	<200
07102008 - 09	Room 145 – air filter supply side	12 in x 12 in	< 12	<200
07102008 - 10	Atrium – table top	12 in x 12 in	790	<200
07102008 - 11	Kitchen – table surface	12 in x 12 in	< 12	<200
07102008 - 12	SGT Non-Responsive Office – desk	12 in x 12 in	< 12	<200
07102008 - 13	*Old Firing Range – radiator	12 in x 12 in	83	<200
07102008 - 14	*Old Firing Range – light fixture	12 in x 12 in	18	<200
07102008 - 15	*Old Firing Range – bullet trap area	12 in x 12 in	120	<200
07102008 - 16	*Old Firing Range – inside duct work (return air)	12 in x 12 in	< 12	<200
07102008 - 17	Second Floor Hallway – outside firing range	12 in x 12 in	67	<200
07102008 - 18	Basement Classroom – desk top	12 in x 12 in	180	<200
07102008 - 19	Headquarters Cubical Area (second floor) – desk top	12 in x 12 in	< 12	<200

- * The Old Firing Range has reportedly been properly cleaned and now functions as a ventilation room.
- Sample area was 12 in x 12 in with a total sample area of 144 in² or at total of 1 ft²
- Results are presented as microgram per square feet (µg/ft2)
- Standard is based on the NGB Region North IH office policy

AMA Analytical Services, Inc conducted the analysis in accordance with the Environmental Protection Agency (EPA) 600/R-93/200.

The sample results were compared to the NGB Region North IH Office Policy of maintaining <200 µg/ft²

Table 5.General Area Air Samples for Lead New York State Armory Utica, New York

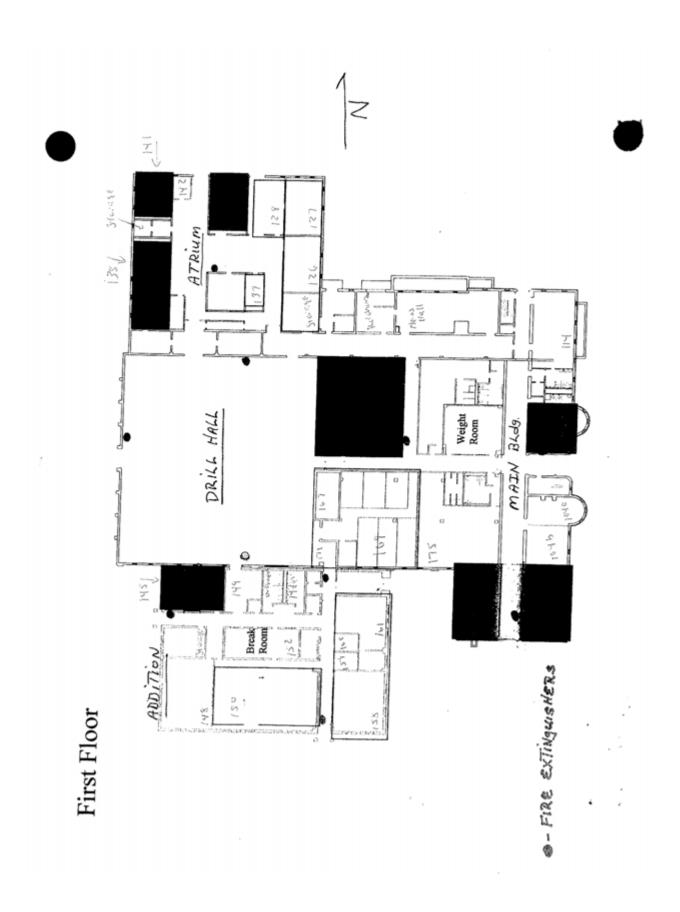
Date of Sampling: July 10, 2008

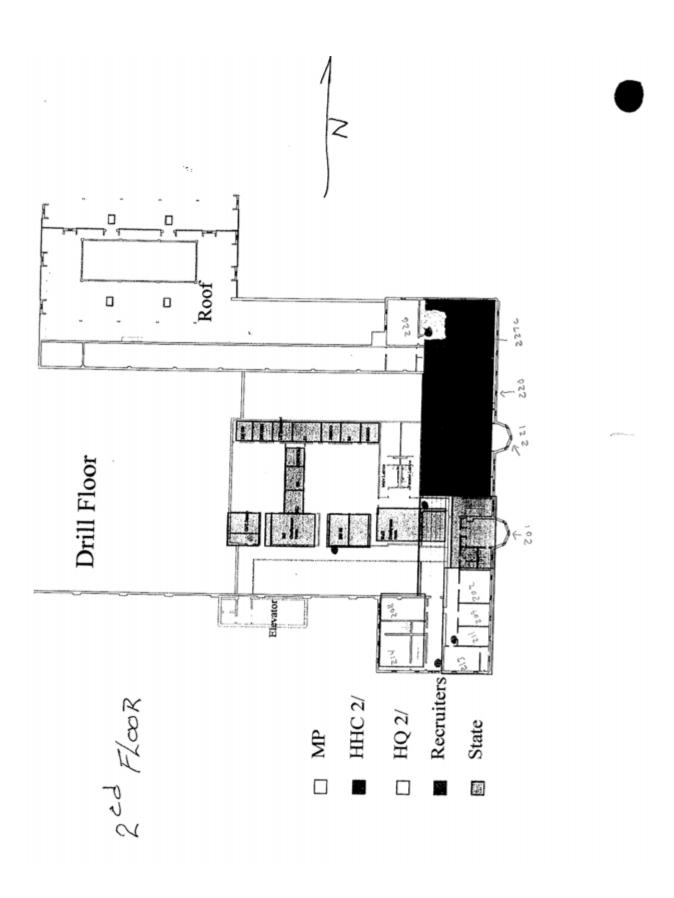
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Sample Number	Location	Time Sampled (Minutes)	Flow Rate (Ipm) ¹	Sample Volume (liters)	Results (µg/m³) ²
07102008-60	Headquarters Cubical Section (second floor)	466	2	932	<3.2
07102008-61	HHC Office Area	470	2	940	<3.2
	OSHA PEL (8-	hour TWA)4			50
	ACGIH TLV (8-	-hour TWA)5			50

The results from the air samples collected over the 7.8 hour period were compared directly to the OSHA PEL, which is based on an 8-hour Time-Weighted Average, because the airborne concentration of lead is not expected to change in the office areas sampled.

- ¹ lpm = liters of air per minute
- 2 μ g/m 3 = micrograms per cubic meter
- 3 ND = Parameter not detected above LOD
- ⁴ U.S. Occupational Safety and Health Administration Permissible Exposure Limit (8-hour Time-Weighted Average)
- ⁵ American Conference of Governmental Industrial Hygienists Threshold Limit Value (8-hour Time-Weighted Average)

Appendix A Building Layout





Appendix B Sampling Sheets and Laboratory Results for Lead Paint Chip Samples, Lead Dust Wipe Samples, and Lead Air Samples

acceptation properties and man

AINA (#100470) NVLAP (#101143-0) NY ELAP (10920) 4475 Forbes Blvd - Lanham, MD 20706 (301) 499-2640 - (800) 346-0961 - Fax (301) 459-2643	5, Inc. -0) NY EL/ 0706 Fax (301) 42	AP (10920)	0	CHAIN OF CUSTODY	Ž	OF		USTOI	8	>		ēź	Poles (Please Refer To This Number For Inquires)	es) 178314	
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CERTIFICATE OF ANALYSIS

AMA Analytical Services, Inc. A Specialized Environmental Laboratory

National Guard Bureau	Job Name:	New York State Armory	Chain Of Custody:	178314	•
301-IH Old Bay Lanc, Attn. NGB-AVN-SI, State Military Reservation	Job Location:	Utica NY	Date Submitted:	7/15/2008	
Have de Grace, Maryland 21078	Job Number:	Not Provided	Person Submitting:	NG D-PN	
	P.O. Number:	Not Provided	Date Analyzed:	7/21/2008	7/21/2008 Report Date:

NY ELAP

Summary of Atomic Absorption Analysis for Lead

Attention:

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Page 1 of 3

7/21/2008

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0869487	07102008-06	Flame	Wipe	**	1.000	12.00	ng/ft		110	ug/Ra
0869488	07102008-07	Flame	Wipe	:	1.000	12.00	ug/ft?		20	ug/fi²
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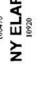
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4475 Forbes Bivd . Lanham, MD, 20706 · (301) 459-2640 · Toll Free (800) 346-0961 · Fax (3n1) 459-2643 An AIHA (#100470), NVLAP (101143-0), and NY ELAP (#10920) Accredited Laboratory







7/15/2008 178314

Date Submitted:

Chain Of Custody:

New York State Armony

Utica NY

Job Location: Job Number: P.O. Number:

301-IH Old Bay Lane, Atm. NGB-AVN-SI,

Address:

Client

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

Job Name:

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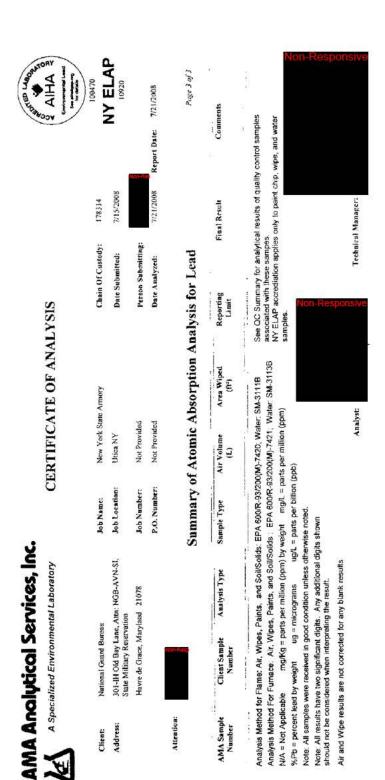
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Appendix C
Selected Photographs of the Utica New York State Armory



Photo 1: The exterior front of the building that houses the Utica New York State Armory.



Photo 3: Suspect asbestos-containing pipe insulation located in Photo 4: Water stained ceiling tile located in the mess hall. the Atrium area.



Photo 5: Water stained ceiling tile located in the administration office.



Photo 2: The exterior north side of the Utica New York State Armory.





Photo 6: Water stained ceiling tile located in office 160.



Photo 7: A water damaged ceiling and wall located in Office 219.



Photo 9: Evidence of water incursion in the Old Firing Range that now functions as a Ventilation Room.



Photo 11: An interior view of the drill hall.



Photo 8: A water damaged ceiling located in Room 201.



Photo 10: A water soaked carpet is located in Office 219.



Photo 12: A fire extinguisher is not properly mounted to the wall in the Atrium area.



Photo 13: Materials are stored in disarray in the Old Supply Room



Photo 14: An exterior view of the garage that is used for storage and vehicle parking.

Appendix D Risk Assessment Code Determination

RISK ASSESSMENT CODE DETERMINATION

A Risk Assessment Code (RAC) for each hazard identified is provided at the end of each hazard description. The RAC codes are derived using the matrix provided by the National Guard (reference DOD Instruction 6055.1). This process includes three steps:

• Step 1: Determine the Health Hazard Severity Code (HHSC)

A. Exposure Points Assessed

			Exposure Conditions	;	
		<ct< th=""><th>Occasionally >CT Always <std< th=""><th>>CT ≤STD</th><th>>STD</th></std<></th></ct<>	Occasionally >CT Always <std< th=""><th>>CT ≤STD</th><th>>STD</th></std<>	>CT ≤STD	>STD
AER	No	0	3	5	7
Possible?	Yes	1-2	4	6	8

AER – Alternate exposure route, such as skin absorption, ingestion

CT – DoD component threshold that triggers surveillance actions, such as microwatts/cm², dB, parts per million (ppm)

STD – DoD exposure limit, such as Threshold Limit Value (TLV) and Permissible Exposure Limit (PEL)

B. Medical Effects Points Assessed

Condition	Points
No medical effect, such as nuisance noise and nuisance odor	2
Temporary reversible illness requiring supportive treatment, such as eye irritation and sore throat	1-2
Temporary reversible illness with a variable but limited period of disability such as metal fume fever	3-4
Permanent, nonsevere illness or loss of capacity, such as permanent hearing loss	5-6
Permanent, severe, disabling, irreversible illness or death, such as asbestosis and lung cancer	7-8

C. Determine the HHSC by totaling the points assessed and using the following guide:

Total Points (sum of A and B)	HHSC
13-16	I
9-12	II
5-8	III
0-4	IV

• Step 2: Determine the Mishap Probability Category (MPC)

A. Duration of Exposure Points Assessed

	Length of Exposure				
		1-8 hr/week >8hr/week continuous			
Type of	Irregular, intermittent	1-2	4-6		
Exposure	Regular, periodic	2-3	5-7	8	

B. Number of Exposed Personnel Points Assessed

Number of Exposed Personnel	Points
<5	1-2
5-9	3-4
9-49	5-6
>49	7-8

C. Determine the MPC for health hazards by totaling the points assessed and using the following guide:

Total Points (sum A and B)	MPC
14-16	А
10-13	В
5-9	С
<5	D

Step 3: Determine the RAC using the following matrix;

	Mishap Probability Category (MPC)					
		А	В	С	D	
Health	I	1	1	2	3	
Hazard	II	1	2	3	4	
Severity	III	2	3	4	5	
Code	IV	3	4	5	5	

Appendix E References

References

- 1. Title 29, Code of Federal Regulations (CFR), Part 1910, Occupational Safety and Health Administration, current edition.
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- 4. Army Regulation (AR) 11-34, The Army Respiratory Protection Program, February 15, 1990.
- 5. Army Regulation (AR) 40-5, Medical Service, Preventive Medicine, October 15, 1990.
- 6. Army Regulation (AR) 385-10, The Army Safety Program, February 29, 2000.
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- 11. Industrial Ventilation A Manual of Recommended Practices, American Conference of Governmental Industrial Hygienists (ACGIH), current edition.
- 12. ANSI Z358.1 2004, Emergency Eyewash and Shower Equipment.
- 13. RP-1-2004, Office Lighting, Illuminating Engineering Society of North America (IESNA)/ANSI.
- 14. RP-7-2001, Industrial Lighting, Illuminating Engineering Society of North America (IESNA)/ANSI.
- The American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE), Standard 62.1-2004, "Ventilation for Acceptable Indoor Air Quality".

National Guard Region North

National Guard Readiness Center Industrial Hygiene Evaluation Utica Readiness Center Utica, NY 13501-4216

Prepared for:

National Guard Region North Industrial Hygiene Office 301 Old Bay Lane Havre De Grace, MD 21078

Attn:

Non-Responsive

Prepared by:

Bonus Environmental, LLC P.O. Box 121 Mt. Pleasant, Michigan 48804

> Project No. 1061-15 January 25, 2013

Bonus Environmental, LLC

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APPENDICES

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May, 2018

January 25, 2013 Project No. 1061-15

National Guard Region North Industrial Hygiene Office 301 Old Bay Lane Havre De Grace, MD 21078-4003

Attn: Non-Responsive

Project: Industrial Hygiene Evaluation

Utica Readiness Center, Utica, NY 13501-4216

1.0 - EXECUTIVE SUMMARY

Bonus Environmental, LLC was contracted by the National Guard Bureau Region North Industrial Hygiene office to identify and measure the existence and extent of potentially hazardous operations or conditions at the Utica Readiness Center located at 1700 Parkway East in Utica, NY. The purpose of this evaluation was to generate or to update a previous baseline evaluation so that employee exposure history can be provided to each civilian and military employee. The following industrial hygiene conditions were evaluated during this industrial hygiene evaluation performed by Bonus Environmental, LLC representative on November 9, 2012:

- Indoor Air Quality
- Lead Wipe & Bulk Sampling
- Illumination
- Ergonomics

 Evaluation of the physical condition of the facility in regards to peeling paint, asbestos containing materials, water damage or mold problems, and housekeeping practices.

The Utica Readiness Center is an Army National Guard armory comprised of offices, conference rooms, classrooms, fitness rooms, locker rooms, storage rooms, a drill hall, a kitchen, mechanical rooms, a break room, a boiler room, a dining hall, and a former indoor firing range. The point of contact for the approximately 86,346 ft² Utica Readiness Center is Mr. Richard Baumann. Twenty nine (29) full-time administrative personnel are employed at the Utica Readiness Center. A shop diagram depicting the locations of the operations and air flow patterns identified during this industrial hygiene evaluation is attached to this report as Appendix A.

The National Guard Bureau Region North Industrial Hygiene Office provided governmental furnished equipment and sampling media required to perform the industrial hygiene evaluation. Chain of custody forms for laboratories approved by the National Guard Bureau Region North Industrial Hygiene Office were provided with the sampling media. All samples collected during this industrial hygiene evaluation were sent to the National Guard Bureau Region North Industrial Hygiene Office approved laboratories for analysis.

2.0 – LEAD SAMPLING

2.1 – Lead Wipe Sampling

Lead wipe sampling was performed according to the Environmental Protection Agency (EPA) method 600/R-93/200(M)-7420 (Atomic Absorption - Flame). Twenty four (24) wipe samples and one (1) field blank were sent under chain-of-custody procedures to AMA Analytical Services, Inc., an American Industrial Hygiene Association (AIHA) accredited laboratory located in Lanham, Maryland. The U.S. Department of Labor (USDOL) and the Occupational Safety and Health Administration (OSHA) do not have a promulgated standard for lead surface contamination; however OSHA has provided an interpretive level of 200 micrograms per square foot (μg/ft²) to assess the housekeeping requirements of "as free as reasonably practicable". This interpretation is presented in OSHA Industrial Hygiene Technical Manual (TED 01-00-015; 1/20/1999), and in a letter of interpretations dated 1/13/2003, and subsequently issued to public domain. NG Pam 420-15 addresses the conversion and remediation of former indoor firing ranges. The following table outlines the locations and analytical results for the lead wipe samples collected during this project.

Army National Guard – Utica Readiness Center Lead Wipe Sample Results						
Sample #	Sample Date	Sample Location	Sample Area (ft²)	Sample Result (µg/ft²)		
Utica RC-LW-	11-9-12	Field Blank		< 12 μg		
Utica RC-LW-	11-9-12	Drill Hall, on floor, West end	0.111	< 110		
Utica RC-LW-	11-9-12	Drill Hall, on floor, East end	0.111	< 110		
Utica RC-LW-	11-9-12	Drill Hall, on top of Pepsi machine	0.111	120		
Utica RC-LW-	11-9-12	Drill Hall, on top of AED box	0.111	430		
Utica RC-LW-	11-9-12	Drill Hall, on top of Amnesty box	0.111	< 110		
Utica RC-LW-	11-9-12	Break Room, on top of microwave	0.111	< 110		
Utica RC-LW-	11-9-12	Mechanical Room 232, HVAC, on fan side	0.111	120		
Utica RC-LW-	11-9-12	Mechanical Room 232, HVAC, on supply side	0.111	130		
Utica RC-LW- 10	11-9-12	Kitchen, on top of freezer	0.111	< 110		
Utica RC-LW- 11	11-9-12	Storage (Former Indoor Firing Range), on floor, bullet trap area	0.111	840		
Utica RC-LW-	11-9-12	Mechanical Room 232 (Former Indoor Firing Range), on top	0.111	2,200		

Army National Guard – Utica Readiness Center Lead Wipe Sample Results						
Sample #	Sample Date	Sample Location	Sample Area (ft²)	Sample Result (µg/ft²)		
12		of heater				
Utica RC-LW-	11-9-12	Mechanical Room 232 (Former Indoor Firing Range), on light fixture	0.111	380		
Utica RC-LW- 14	11-9-12	Basement, Classroom 2, on window sill	0.111	460		
Utica RC-LW-	11-9-12	Basement, Storage Room, on storage shelf	0.111	1,000		
Utica RC-LW- 16	11-9-12	Women's Locker Room 176, on top of locker #113	0.111	< 110		
Utica RC-LW- 17	11-9-12	Bar/Dining Room 104, on top of storage cabinet	0.111	160		
Utica RC-LW-	11-9-12	Dining Hall 119, on window sill	0.111	4,700		
Utica RC-LW-	11-9-12	Hallway, 1 st Floor, on drinking fountain	0.111	< 110		
Utica RC-LW- 20	11-9-12	Hallway, 2 nd Floor, on AED box	0.111	< 110		
Utica RC-LW- 21	11-9-12	Military Police Office, on filing cabinet	0.111	< 110		
Utica RC-LW- 22	11-9-12	Battalion Commander Office, on storage cabinet	0.111	< 110		
Utica RC-LW- 23	11-9-12	Office 256, on filing cabinet	0.111	< 110		
Utica RC-LW- 24	11-9-12	Office 244, on corner of table surface	0.111	< 110		
Utica RC-LW- 25	11-9-12	Restroom, on window sill	0.111	5,800		

Surface cleanliness threshold = < 200 micrograms per square foot ($\mu g/ft^2$)

The former indoor firing range is currently used as Storage and a Mechanical Room. It is uncertain whether it was remediated to the protocols specified in NG Pam 420-15. Remediation wipe sample results were not posted, nor were any signs posted restricting access to the area. The bullet trap had been removed from the "bullet trap area".

2.2 - Lead Air Sampling

The purpose of lead air monitoring was to document task-specific activities and corresponding exposures to lead. OSHA 29 CFR 1926.62 requires employers whose employees are exposed to lead in the work place, in any quantity, make a determination whether any employee's exposure exceeds the action level (AL) of 30 micrograms per cubic meter ($\mu g/m^3$) or the maximum permissible exposure

limit (PEL) of $50 \mu g/m^3$ as 8-hour time weighted averages (TWAs). If employee exposures are less than $30 \mu g/m^3$, training is required under the Hazard Communication 29 CFR 1926.59. Exposures that exceed the AL or PEL require the employer to comply with additional requirements, including air monitoring, additional training, and restricted work practices as outlined in OSHA 29 CFR 1926.62.

Representative fixed area sampling was conducted for potential airborne concentrations of lead in accordance with accepted Industrial Hygiene methods recognized by the National Institute for Occupational Safety and Health (NIOSH) and OSHA. Representative breathing zone samples were not collected from an employee performing administrative tasks.

Lead exposure monitoring was performed in accordance with the EPA method 600/R-93/200(M)-7420 (Atomic Absorption - Flame) with SKC personal air sampling pumps calibrated to 2.0 liters per minute. All samples were collected on 37 mm diameter cassettes with mixed-cellulose ester filters. All sampling pumps were calibrated before and after each use to ensure volume accuracy. One (1) samples and one (1) field blank were sent under chain-of-custody procedures to AMA Analytical Services, Inc., an AIHA accredited laboratory located in Lanham, Maryland. Analytical results of the lead wipe and air samples are attached to this report as Appendix B.

		Army National Gua Lead Air				Center			
Sample #	$\begin{bmatrix} \mathbf{Results} \\ \mathbf{Type} \end{bmatrix}$ Sample Location $\begin{bmatrix} \mathbf{Flow} \\ \mathbf{Rate} \end{bmatrix}$ Start $\begin{bmatrix} \mathbf{Stop} \\ \mathbf{Vol} \end{bmatrix}$ Vol. $\begin{bmatrix} \mathbf{Results} \\ \mathbf{Limit} \end{bmatrix}$ Results $\begin{bmatrix} \mathbf{Results} \\ \mathbf{Limit} \end{bmatrix}$					8 hr TWA (μg/m³)			
November 9	9, 2012								
Utica RC- LA-1	FB	Field Blank				0	3	< 3	N/A
Utica RC- LA-2	GA	Military Police Office	2.0	1203	1515	384	7.8	< 7.8	N/A

PS = Personal sample, GA = General Area, N/A = Not Applicable

Note: The OSHA PEL of 50 micrograms per cubic meter of air (μg/m³) is averaged over an 8 hr work shift

3.0 - PHYSICAL CONDITION OF FACILITY / PERSONNEL CONCERNS

3.1 - Lead Based Paint

During the industrial hygiene evaluation of the Utica Readiness Center, Bonus Environmental, LLC performed a visual inspection of the facility in regards to lead based paint. Bonus Environmental, LLC identified areas of peeling paint which could potentially pose a lead exposure hazard. Bonus Environmental, LLC identified peeling paint in the following areas:

- Approximately 20 ft² peeling yellow paint in the Mechanical Room;
- Approximately 4 ft² peeling blue paint in the 2nd floor Hallway;
- Approximately 1 ft² peeling beige paint in the Office HHC RNCO;
- Approximately 10 ft² peeling beige paint in the Storage;
- Approximately 12 ft² peeling beige paint in the Storage;
- Approximately 10 ft² peeling beige paint in the Storage;

- Approximately 8 ft² peeling beige paint in the Military Police Office;
- Approximately 20 ft² peeling beige paint in the Military Police Office;
- Approximately 2 ft² peeling beige paint in the Office;
- Approximately 15 ft² peeling beige paint in the Office;
- Approximately 4 ft² peeling beige paint in the Medic Storage;
- Approximately 7 ft² peeling beige paint in the Storage Room;
- Approximately 2 ft² peeling beige paint in the Boiler Room;
- Approximately 6 ft² peeling beige paint in the Overflow Room;
- Approximately 7 ft² peeling white paint in the 1st PLT Office;
- Approximately 15 ft² peeling white paint in the Office;
- Approximately 80 ft² peeling white paint in the Medic Room (Storage);
- Approximately 4 ft² peeling white paint in the Medic Storage;
- Approximately 20 ft² peeling white paint in the Maintenance Room;
- Approximately 1 ft² peeling white paint in the Dining Hall (119);
- Approximately 4 ft² peeling grey paint in the Basement Stairwell;
- Approximately 10 ft² peeling grey paint in the Overflow Room

Five (5) paint chip samples were collected and sent under chain-of-custody procedures to AMA Analytical Services, Inc., an AIHA accredited laboratory located in Lanham, MD. See table below for sample information:

	Army National Guard – Utica Paint Chip Sam		nter	
Sample #	Sample Location	Color	Analytical Reporting Limit (%)	Analytical Results (%)
UticaRC-PC-1	Mechanical room	Yellow	0.0045	0.039
UticaRC-PC-2	Storage room	Beige	0.0052	0.54
UticaRC-PC-3	2 nd floor hallway	Blue	0.0039	48
UticaRC-PC-4	1 st PLT office	White	0.006	0.0066
UticaRC-PC-5	Basement stairwell	Gray	0.0079	0.056

Analysis indicated that each of the peeling paints collected and submitted contained detectable levels of lead. The paints are therefore each considered to be lead-based paint. The OSHA Lead in Construction Standard, 29 CFR 1926.62 does not assign a numerical value of which must be present within the paint to be considered lead based paint. Paints which contain any detectable level of lead shall be treated and handled as lead based paint. Housing and Urban Development (HUD) defines lead based paint as having greater than 0.5% lead by weight. Paint chip sample results are attached to this report as Appendix B.

3.2 – Presumed Asbestos Containing Materials

During the industrial hygiene evaluation of the Utica Readiness Center, Bonus Environmental, LLC performed a visual inspection to identify presumed asbestos containing materials (PACM) and, if found, to note their condition. Bonus Environmental, LLC observed the following damaged PACM during the industrial hygiene evaluation:

- Approximately 20 ft² of damaged wall plaster located in the Military Police Office
- Approximately 12 ft² of damaged wall plaster located in the office near Military Police
- Approximately 15 ft² of damaged wall plaster located in the office near 1st PTL office
- Approximately 30 ft² of damaged ceiling plaster located in the office two doors down from 1st PTL office

A sample was collected of the plaster PACM and sent under chain-of-custody procedures to AMA Analytical Services, Inc., an AIHA accredited laboratory located in Lanham, MD. The wall plaster analytical results determined "No Asbestos Detected".

Bonus Environmental, LLC collected a general area air sample within the vicinity of the damaged wall plaster located within the 2^{nd} floor office. Analytical results indicate the levels of airborne asbestos fibers to be less than the Asbestos Hazard Emergency Response Act (AHERA) clearance criteria of 0.01 fibers/cubic centimeter (f/cc). Analytical results of the asbestos bulk samples are attached to this report as Appendix C.

		Army National Asbes	Guard - tos Air S				ter		
Sample #	Sample Type	Sample Location	Flow Rate	Start	Stop	Vol.	Reprt. Limit (f/mm²)	Results (f/cc)	8 hr TWA (f/cc)
November 9	9, 2012					•			
Utica RC- ASB-Air-1	FB	Field Blank				0	7	N/A	N/A
Utica RC- ASB-Air-2	GA	2 nd floor office	2.0	1206	1516	380	0.007	< 0.007	N/A

PS = Personal sample, GA = General Area, N/A = Not Applicable

Note: The OSHA PEL of 0.1 fibers per cubic centimeter of air (f/cc) is averaged over an 8 hr work shift

3.3 - Water Damage/Mold Growth

During the industrial hygiene evaluation of the Utica Readiness Center, Bonus Environmental, LLC performed a visual inspection to report the location and perform an evaluation of any water-damaged building materials and/or visible mold problems. Bonus Environmental, LLC identified the following water-damaged and/or building materials:

- Approximately 100 ft² of water-damaged block walls in the former indoor firing range;
- Approximately 2 ft² of stained/moldy dropped-ceiling tiles (DCT) in the 1st floor hallway;
- Approximately 20 ft² of water-damaged plaster walls in Military Police office;
- Approximately 12 ft² of water-damaged plaster walls in office next to Military Police office;
- Approximately 15 ft² of water-damaged plaster walls in office next to 1st PLT office;
- Approximately 30 ft² of water-damaged plaster ceiling in office 2nd to 1st PLT office;
- Approximately 3 ft² of stained DCT in kitchen office;
- Approximately 2 ft² of stained DCT in Dining hall 119;
- Approximately 3 ft² of stained DCT in Fitness room 181;

- Approximately 2 ft² of stained DCT in 2nd floor hallway;
- Approximately 2 ft² of stained DCT in office 160;
- Approximately 1 ft² of stained DCT in classroom 148.

3.4 - Housekeeping

During the industrial hygiene evaluation of the Utica Readiness Center, Bonus Environmental, LLC performed an evaluation of the housekeeping practices. Bonus Environmental, LLC found the housekeeping practices within Utica Readiness Center facility in good order, with the exception of residual lead dust concentrations.

3.5 – Employee Interviews

During the industrial hygiene evaluation of the Utica Readiness Center, Bonus Environmental, LLC performed interviews and made observations to determine if the work activities being performed possessed any ergonomic concerns. Following the interviews and observations, no ergonomic and or indoor air quality concerns were identified. One (1) employee expressed concern with the peeling paint and damaged plaster ceiling and walls throughout the Utica Readiness Center.

3.6 – Indoor Air Quality

During the industrial hygiene evaluation of the Utica Readiness Center, Bonus Environmental, LLC measured temperature, relative humidity, carbon monoxide (CO), and carbon dioxide (CO₂) throughout the facility. A calibrated TSI Q-Trak Plus Model 7575 Indoor Air Quality Monitor equipped with a Q-Trak Probe 982 was utilized to record indoor air quality measurements.

Carbon dioxide is a natural component of air and the amount of CO₂ in a given air sample is commonly expressed as parts per million (ppm). The outdoor air in most locations contains about 380 ppm carbon dioxide. Higher outdoor CO₂ concentrations can be found near vehicle traffic areas, industry and sources of combustion. The concentrations of CO₂ found in most offices are well below the OSHA Permissible Exposure Limit (PEL) of 5,000 ppm when averaged over an 8-hour time period for an industrial workplace. While levels below 5,000 ppm are considered to pose no serious health threat, studies have indicated that individuals in offices with elevated CO₂ concentrations tend to report drowsiness, lethargy and a general sense that the air is stale. Ventilation rates for office spaces are defined by various codes and standards. The most widely accepted standard is the American Society of Heating, Refrigerating, and Air Conditioning Engineers (ASHRAE) Standard 62. According to ASHRAE Standard 62.1-2010, CO₂ concentrations below 700 ppm above the outdoor level are considered to indicate adequate ventilation and provide human comfort. The CO₂ measurements collected during this industrial hygiene evaluation ranged from 387 ppm to 508 ppm and indicate adequate ventilation within the facility.

Carbon monoxide is a colorless, odorless, poisonous gas that results from the incomplete burning of common fuels such as natural or liquefied petroleum gas, oil, wood or coal. When carbon monoxide is inhaled, it enters the blood stream and reduces the ability of the blood to carry oxygen to vital organs, such as the heart and brain. Because it is impossible to see, taste or smell the toxic fumes, CO can harm you before you are aware it is in your work area. At lower levels of exposure, CO causes mild effects that are often mistaken for the flu. These symptoms include headaches, dizziness, disorientation, nausea and fatigue. The effects of CO exposure can vary greatly from person to person

depending on age, overall health and the concentration and length of exposure. The OSHA has established a permissible exposure limit (PEL) of 50 parts per million (ppm). OSHA standards prohibit worker exposure to more than 50 parts of the gas per million parts of air averaged during an 8-hour time period. The peak CO level for employees is 200 ppm. The CO measurements collected during this industrial hygiene evaluation ranged from 1.7 ppm to 6.9 ppm. CO levels were below the OSHA PEL during this industrial hygiene evaluation.

During the industrial hygiene evaluation of the Utica Readiness Center, Bonus Environmental, LLC collected temperature measurements. Temperature measurements throughout the common areas of the facility routinely occupied by employees ranged from 64.9°F to 76.0°F and are considered to be outside of an acceptable range outlined within ASHRAE Standard 55-2010.

During the industrial hygiene evaluation of the Utica Readiness Center, Bonus Environmental, LLC collected relative humidity measurements. Relative humidity measurements throughout common areas of the facility routinely occupied by employees ranged from 23.2% to 40.9%. Indoor air quality measurements recorded during this industrial hygiene evaluation are summarized in the table below.

Army National (Indoor A	Guard – Utica I ir Quality Mea		nter	
Location	CO_2	CO	Relative	Temperature
Location	(ppm)	(ppm)	Humidity (%)	(°F)
Outdoors, southwest side of building (sunny)	387	6.9	32.9	52.2
Storage Room	486	1.7	37.7	72.8
Classroom 2	508	2.7	40.9	76.0
Drill Hall	402	4.4	23.2	68.8
Classroom 150B	431	4.4	23.7	69.9
Maintenance Room 127	454	5.2	26.9	64.9
Kitchen Office	401	3.9	25.8	66.1
Women's Locker Room	399	3.3	24.4	69.7
Office 251	429	4.5	23.7	72.0
1st PLT Office	410	4.5	23.4	72.7
Battalion Commander's Office	440	4.7	25.1	73.6

Required/Recommended Values

CO₂ - OSHA PEL = 5,000 parts per million (ppm) and ASHRAE Standard 62.1-2010 = no greater than 700 ppm above outdoor

CO - OSHA PEL = 50 ppm and OSHA Ceiling Limit = 200 ppm

Temperature - ASHRAE Standard 55-2010 = between approximately 67 and 82 °F.

RH - ASHRAE Standard 62.1-2010 = limited to < 65%

4.0 - LIGHTING

Utilizing a properly calibrated Cooke Corporation cal-Light 400 light meter, Bonus Environmental, LLC collected illumination readings throughout the Utica Readiness Center. Illumination measurements recorded during this industrial hygiene evaluation are summarized in the table below.

Army National Guard – Utica Readiness Center Lighting Measurements							
Location	Measurement in Foot Candles	Requirement in Foot Candles	Requirement Met?				
Office	88.5	50	Yes				
Office (245)	81.3	50	Yes				
Office (244)	77.6	50	Yes				
Office (246)	76.8	50	Yes				
Office (248)	82.4	50	Yes				
Conference Room (247)	101.9	30	Yes				
Office (249)		Inaccessible					
Office (250)	48.1	50	No				
Office (251)	66.5	50	Yes				
Office (254)	48.8	50	No				
Office (256)	102.7	50	Yes				
Office (257)	102.7	Inaccessible	200				
Office (258)		Inaccessible					
Office	63.2	50	Yes				
Conference Room (259)	133.6	30	Yes				
Office (255)	133.0	Inaccessible	105				
Office (253)	106.4	50	Yes				
Women's Restroom	74.4	5	Yes				
Women's Locker Room	86.4	7	Yes				
Men's Restroom	35.8	5	Yes				
Men's Locker Room	87.2	7	Yes				
Battalion Commander's Office	07.2	Inaccessible	103				
Office HHC RNCO	24.8	50	No				
Office HHC 1SG	58.7	50	Yes				
Office HHC CDR	30.7	Inaccessible	103				
Armory Superintendent's Office		Inaccessible					
Family Readiness Center Office		Inaccessible					
Office	18.3	50	No				
Conference Room	99.2	30	Yes				
Storage	17.0	30	No				
Mechanical Room (Former Indoor Firing Range)	34.9	30	Yes				
Storage (Former Indoor Firing Range)	101.7	30	Yes				
Storage (1 officer indoor 1 ming realige)	74.1	30	Yes				
Hallway	18.3	5	Yes				
PLT SGT Room (Conference Room)	13.9	30	No				
Battalion Commander's Office	53.1	50	Yes				
Restroom	21.2	5	Yes				
Restroom	5.6	5	Yes				
Military Police Office	43.3	50	No				
Military Police Office	34.2	50	No				
Office	20.2	50	No				
1st PLT Office	20.2	Inaccessible	110				
Office	46.1	50	No				
Office	50.9	50	Yes				
	30.9	Lighting Inoperable	1 08				
Restroom Drill Hall	53.4	30	Yes				
107 MP CO	Inaccessible						

Army National Guard – Utica Readiness Center Lighting Measurements								
Location	Measurement in Foot Candles	Requirement in Foot Candles	Requirement Met?					
Medic Room (Storage)	8.2	30	No					
Medic Storage	7.6	30	No					
(134)		Inaccessible						
Storage (135)	35.8	30	Yes					
Storage (129)	18.3	30	No					
State Room	26.6	30	No					
Maintenance Room	12.2	50	No					
(126)		Inaccessible						
Locker Room (Under Renovation)	61.0	7	Yes					
Kitchen Storage	50.4	30	Yes					
Kitchen	57.5	50	Yes					
Kitchen Office	113.4	50	Yes					
Dining Hall (119)	60.9	10	Yes					
Women's Restroom	73.6	5	Yes					
Women's Locker Room (176)	45.3	7	Yes					
Women's Shower	52.2	7	Yes					
Weight Room	70.9	30	Yes					
Men's Restroom	27.7	5	Yes					
Women's Restroom	20.9	5	Yes					
Recruiter's Office	20.9	Inaccessible	103					
Recruiter's Office		Inaccessible						
Bar/Dining Room	3.9	10	No					
(106)	3.7	Inaccessible	110					
(100)		Inaccessible						
Fitness Room (181)	31.5	30	Yes					
Men's Restroom	61.6	5	Yes					
Men's Locker Room (175)	23.5	7	Yes					
Men's Shower	82.4	7	Yes					
Supply Room A (169)	02.1	Inaccessible	105					
Supply Room B (170)		Inaccessible						
1 st Floor Hallway	13.8	5	Yes					
Administration Training Office (161)	59.8	50	Yes					
Office	37.0	Inaccessible	105					
Office (160)	55.3	50	Yes					
Office (159)	33.3	Inaccessible	103					
Conference Room (158)	90.6	30	Yes					
Classroom (150B)	124.8	30	Yes					
Break Room (152)	58.3	10	Yes					
Classroom (148)	44.6	30	Yes					
(148A)	77.0	Inaccessible	100					
Mechanical Room (145)	20.4	30	No					
Women's Restroom	64.2	5	Yes					
Men's Restroom	57.4	5	Yes					
Machine Room (156)	37.4	Inaccessible	100					
Elevator Lobby	73.8	10	Yes					
Stairwell	7.4	5	Yes					
Storage Room	20.7	30	No					
Diorage Room	20.7	50	110					

Army National Gua Lighting	rd – Utica Readine. g Measurements	ss Center	
Location	Measurement in Foot Candles	Requirement in Foot Candles	Requirement Met?
Boiler Room	25.2	30	No
Classroom 1	31.7	30	Yes
Storage 1	6.1	30	No
Storage 2	25.8	30	No
Classroom 2	68.5	30	Yes
Overflow Room (classroom)	26.4	30	No

Lighting levels were compared to the levels outlined within the American National Standards Institute/Illuminating Engineering Society of North America (ANSI/IESNA) RP-1-04 Office Lighting Handbook, and the ANSI/IESNA RP-7-01 Lighting Industrial Facilities Handbook. Areas within the facility which did not meet the foot candle requirements are identified with a "NO" within the "Requirement Met?" column. It is recommended that illumination be improved in all the areas that did not meet the requirements. Improving illumination can be achieved by replacing burned-out lamps/bulbs, cleaning fixtures, relocating detailed work activities to more illuminated areas, and using supplemental task lighting.

5.0 - CONCLUSION & LIMITATIONS

Bonus Environmental, LLC was contracted by the National Guard Bureau Region North Industrial Hygiene office to identify and measure the existence and extent of potentially hazardous operations or conditions at the Utica Readiness Center located at 1700 Parkway East in Utica, NY. The purpose of this evaluation was to generate or to update a previous baseline evaluation so that employee exposure history can be provided to each civilian and military employee. Industrial hygiene conditions were evaluated during this industrial hygiene evaluation performed by Bonus Environmental, LLC representative on November 9, 2012.

The results/findings of this industrial hygiene evaluation are summarized below.

- 1. Air sampling for airborne lead dust indicated concentrations below the detection limit;
- 2. Lead wipe sample results collected within the Utica Readiness Center were above the OSHA interpretive level of 200 μ g/ft², as well as the 200 μ g/ft² threshold established in NG Pam 420-15 in the following areas:
 - Drill Hall, on top of AED box
 - Storage (Former Indoor Firing Range), on floor, bullet trap area
 - Mechanical Room 232 (Former Indoor Firing Range), on top of heater
 - Mechanical Room 232 (Former Indoor Firing Range), on light fixture
 - Basement, Classroom 2, on window sill
 - Basement, Storage Room, on storage shelf
 - Dining Hall (119), on window sill
 - Restroom, on window sill

- 3. Bonus Environmental, LLC identified areas of peeling paint which contained detectable levels of lead, potentially posing a lead exposure hazard. Peeling paint was found in the following areas:
 - Approximately 20 ft² peeling yellow paint in the Mechanical Room;
 - Approximately 4 ft² peeling blue paint in the 2nd floor Hallway;
 - Approximately 1 ft² peeling beige paint in the Office HHC RNCO;
 - Approximately 10 ft² peeling beige paint in the Storage;
 - Approximately 12 ft² peeling beige paint in the Storage;
 - Approximately 10 ft² peeling beige paint in the Storage;
 - Approximately 8 ft² peeling beige paint in the Military Police Office;
 - Approximately 20 ft² peeling beige paint in the Military Police Office;
 - Approximately 2 ft² peeling beige paint in the Office;
 - Approximately 15 ft² peeling beige paint in the Office;
 - Approximately 4 ft² peeling beige paint in the Medic Storage;
 - Approximately 7 ft² peeling beige paint in the Storage Room;
 - Approximately 2 ft² peeling beige paint in the Boiler Room;
 - Approximately 6 ft² peeling beige paint in the Overflow Room;
 - Approximately 7 ft² peeling white paint in the 1st PLT Office;
 - Approximately 15 ft² peeling white paint in the Office;
 - Approximately 80 ft² peeling white paint in the Medic Room (Storage);
 - Approximately 4 ft² peeling white paint in the Medic Storage;
 - Approximately 20 ft² peeling white paint in the Maintenance Room;
 - Approximately 1 ft² peeling white paint in the Dining Hall (119);
 - Approximately 4 ft² peeling grey paint in the Basement Stairwell;
 - Approximately 10 ft² peeling grey paint in the Overflow Room

Analytical results indicated that each of the peeling paints contained detectable levels of lead, and are therefore considered lead-based paints.

- 4. Bonus Environmental, LLC observed damaged PACM's in the form of plaster, which was located in the Military Police Office and three (3) offices. Analytical results determined that the plaster had "No Asbestos Detected."
- 5. Bonus Environmental, LLC identified the following water-damaged and/or moldy building materials:
 - Approximately 100 ft² of water-damaged block walls in the former indoor firing range;
 - Approximately 2 ft² of stained/moldy dropped-ceiling tiles (DCT) in the 1st floor hallway;
 - Approximately 20 ft² of water-damaged plaster walls in Military Police office;
 - Approximately 12 ft² of water-damaged plaster walls in office next to Military Police office;
 - Approximately 15 ft² of water-damaged plaster walls in office next to 1st PLT office;
 - Approximately 30 ft² of water-damaged plaster ceiling in office 2nd to 1st PLT office;
 - Approximately 3 ft² of stained DCT in kitchen office;

- Approximately 2 ft² of stained DCT in Dining hall 119;
- Approximately 3 ft² of stained DCT in Fitness room 181;
- Approximately 2 ft² of stained DCT in 2nd floor hallway;
- Approximately 2 ft² of stained DCT in office 160;
- Approximately 1 ft² of stained DCT in classroom 148.
- 6. Bonus Environmental, LLC found the housekeeping practices within Utica Readiness Center in good order, with the exception of residual lead dust concentrations.
- 7. Following the interviews and observations, no ergonomic and or indoor air quality concerns were identified. One employee did express concern regarding the damaged plaster and the peeling paints within the Readiness Center.
- 8. Bonus Environmental, LLC measured temperature, relative humidity, CO, and CO₂ throughout the Utica Readiness Center. All were found to be below or within their acceptable ranges/limits, with the exception of two temperature readings which were below the required/recommended level.
- 9. Areas within the Utica Readiness Center facility were identified as improperly illuminated.
- 10. Air sampling for airborne asbestos fiber concentrations indicated concentrations below the detection limit;
- 11. No Health and Safety policies were available for review at the Utica Readiness Center.

Bonus Environmental, LLC has 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 Region North - Industrial Hygiene Office. 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 Bonus Environmental, LLC's inspection of the site.

It has been a pleasure to be of assistance to you. Please contact us if you have any questions concerning this report or if we can be of any further assistance in any other environmental or occupational health matter.

Sincerely,

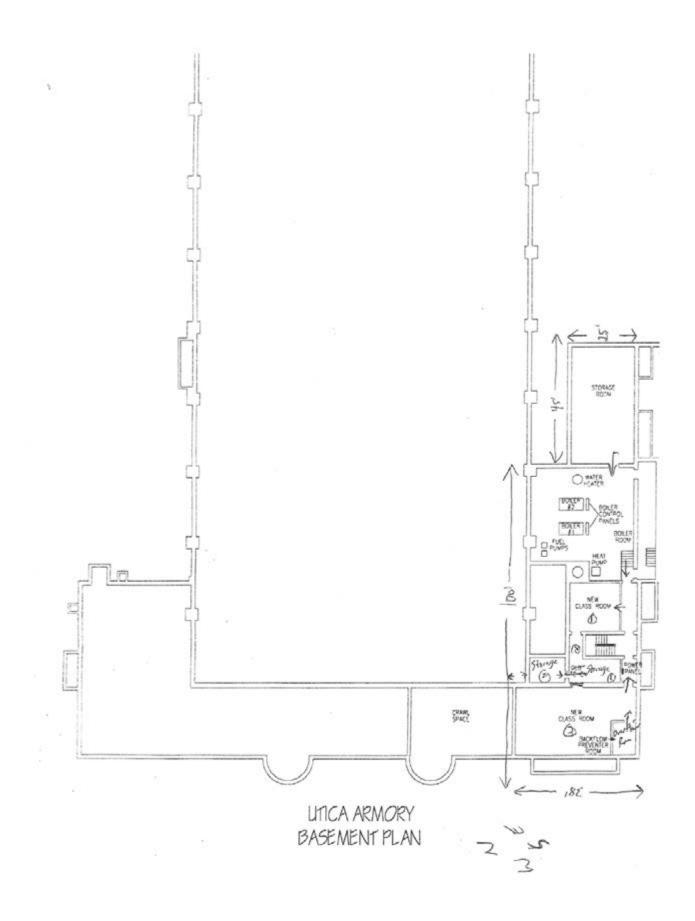


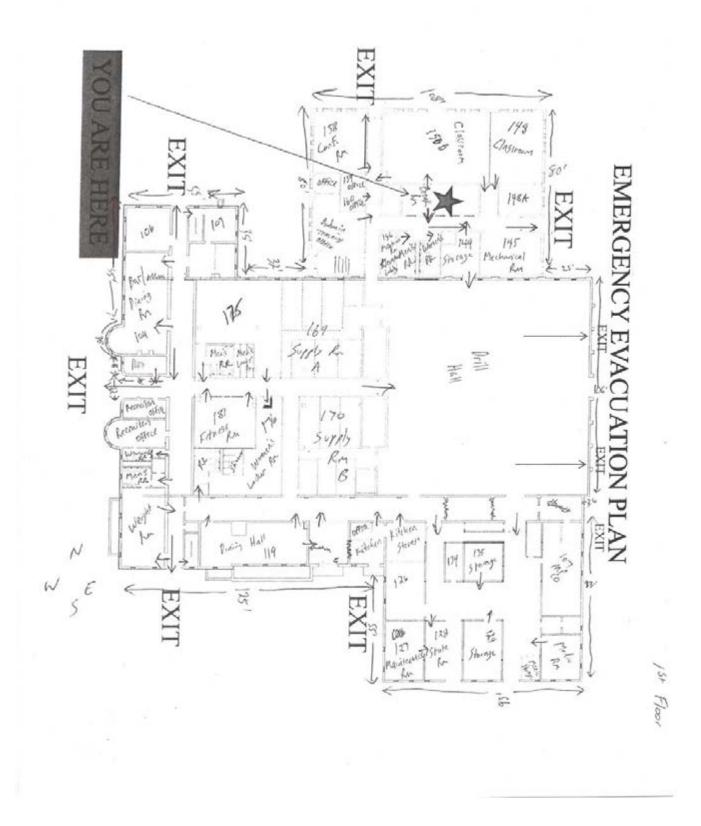
Principal Bonus Environmental, LLC

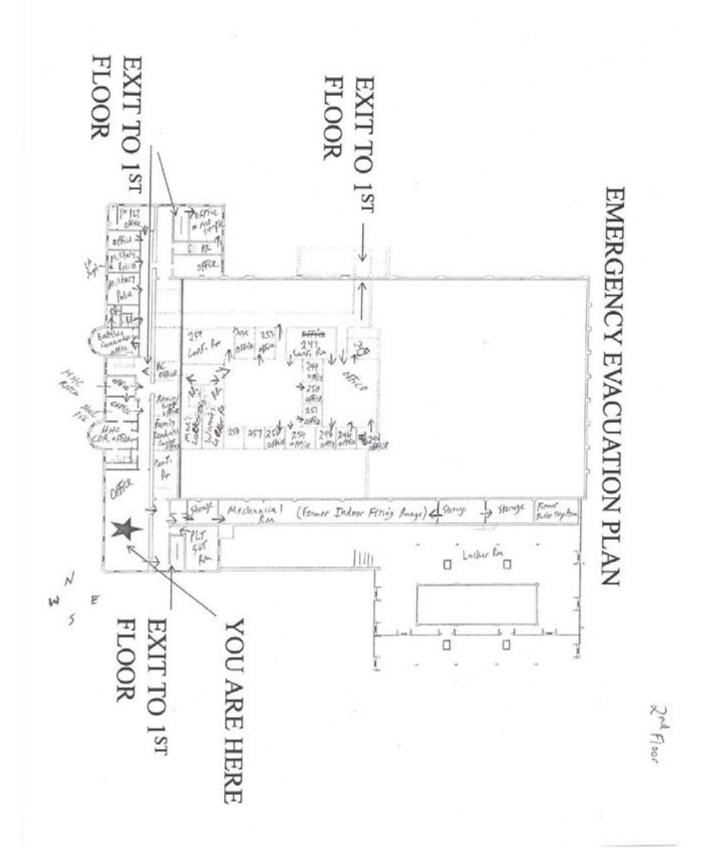
Utica RC_12_Report.docx

Appendix A

Shop Diagram and Air Flow Patterns







BEST AVAILABLE COPY

Appendix B

Lead Sampling Results

AMA Analytical Services, Inc.



A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS



AR #100470

Client:

National Guard Bureau

Job Name:

Utica RC

Chain Of Custody:

514537

Address:

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

Job Location:

1700 Parkway East, Utica, NY 13501-4216

Date Submitted:

11/21/2012

State Military Reservation

Havre de Grace, Maryland 21078

Job Number:

P.O. Number:

1061-15

W912K6-09-A-0003

Person Submitting: Date Analyzed: Non-Responsive

11/30/2012

11/30/2012

Report Date:

Attention

Ion-Responsive

Summary of Atomic Absorption Analysis for Lead

Page 1 of 3

AMA Sample Number	Client Sample Number	TO AND STREET, SALES OF THE PARTY OF	Analysis Type	Sample Type	Air Volume (L)	Area Wiped (ft ⁴)		orting imit	Total ug	Final Res	sult	Comments
13016368	UticaRC-PC-1	Flame	Paint Chip	****	N/A	0.0045	%Pb		0.039	%P6		
13016369	UticaRC-PC-2	Flame	Paint Chip	****	N/A	0.0052	%Pb		0.54	%Pb		
13016370	UticaRC-PC-3	Flame	Paint Chip	****	N/A	0.0039	%Pb		48	%Pb		
13016371	UticaRC-PC-4	Flame	Paint Chip	****	N/A	0.006	%Pb		0.0066	%Pb		
13016372	UticaRC-PC-5	Flame	Paint Chip	****	N/A	0.0079	%Pb		0.056	%Pb		
13016373	UticaRC-LA-1	Flame	Air Blank	0	N/A	3	ug/m³		3	ug		
13016374	UticaRC-LA-2	Flame	Air	384	N/A	7.8	ug/m³	3	<7.8	ug/m³		
13016375	UticaRC-LW-1	Flame	Wipe Blank	****	N/A	12	ug		<12	ug		
13016376	UticaRC-LW-2	Flame	Wipe	****	0.111	110	ug/it²	<12	<110	ug/ft²		
13016377	UticaRC-LW-3	Flame	Wipe	****	0.111	110	ug/ft²	<12	<110	ug/ft²		
13016378	UticaRC-LW-4	Flame	Wipe	****	0.111	110	ug/ft²	13	120	ug/ft²		
13016379	UticaRC-LW-5	Flame	Wipe	****	0.111	110	ug/ft²	48	430	ug/ft²		
13016380	UticaRC-LW-6	Flame	Wipe	****	0.111	110	ug/ft²	<12	<110	ug/fl¹		
13016381	UticaRC-LW-7	Flame	Wipe	****	0.111	110	ug/ft²	<12	<110	ug/ft²		
13016382	UticaRC-LW-8	Flame	Wipe	****	0.111	110	ug/fi²	13	120	ug/ft²		
13016383	UticaRC-LW-9	Flame	Wipe	****	0.111	110	ug/fi²	14	130	ug/ft²		
13016384	UticaRC-LW-10	Flame	Wipe	****	0.111	110	ug/ft²	<12	<110	ug/ft²		
13016385	UticaRC-LW-11	Flame	Wipe	****	0.111	110	ug/fl²	94	840	ug/ft²		
13016386	UticaRC-LW-12	Flame	Wipe	****	0.111	110	ug/fl²	250	2200	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 whele or in part, in any advertising or publicity matter without prior written authorization from us. Sample types, locations, and collection protectls are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly dictain 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 any agency of the Federal Government. All rights reserved. AMA Analytical Services, Inc.

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

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AMA Analytical Services, Inc.



CERTIFICATE OF ANALYSIS



Client:

National Guard Bureau

Job Name:

Utica RC

Chain Of Custody:

514537

Address:

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

Job Location:

1700 Parkway East, Utica, NY 13501-4216

Date Submitted:

11/21/2012

State Military Reservation Havre de Grace, Maryland 21078

Job Number: P.O. Number:

1061-15

W912K6-09-A-0003

Person Submitting: Date Analyzed:

11/30/2012 Report Date: 11/30/2012

Attention:

Summary of Atomic Absorption Analysis for Lead

Page 2 of 3

AMA Sample Number	Client Sample Number	10.00	Analysis Type	Sample Type	Air Volume (L)	Area Wiped (ft³)	000	oorting Limit	Total ug	Final Re	sult	Comments
13016387	UticaRC-LW-13	Flame	Wipe	****	0,111	110	ug/ft²	42	380	ug/ft²		
13016388	UticaRC-LW-14	Flame	Wipe	****	0.111	110	ug/fl²	51	460	ug/ft²		
13016389	UticaRC-LW-15	Flame	Wipe	****	0.111	110	ug/ft²	110	1000	ug/ft²		
13016390	UticaRC-LW-16	Flame	Wipe	****	0.111	110	ug/ft²	<12	<110	ug/ft²		
13016391	UticaRC-LW-17	Flame	Wipe	****	0.111	110	ug/fi²	18	160	ug/ft²		
13016392	UticaRC-LW-18	Flame	Wipe	****	0.111	110	ug/ft²	520	4700	ug/ft²		
13016393	UticaRC-LW-19	Flane	Wipe	****	0.111	110	ug/fl²	<12	<110	ug/ft²		
13016394	UticaRC-LW-20	Flame	Wipe	****	0.111	110	ug/fi²	<12	<110	ug/A²		
13016395	UticaRC-LW-21	Flame	Wipe	****	0.111	110	ug/fi²	<12	<110	ug/ft²		
13016396	UticaRC-LW-22	Flame	Wipe	****	0.111	110	ug/fi²	<12	<110	ug/ft²		
13016397	UticaRC-LW-23	Flame	Wipe	****	0.111	110	ug/fi²	<12	<110	ug/ft²		
13016398	UticaRC-LW-24	Flame	Wipe	****	0.111	110	ug/fi²	<12	<110	ug/ft²		
13016399	UticaRC-LW-25	Flame	Wipe	****	0.111	110	ug/fi²	640	5800	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 cilent 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. Hesidual sample material will be discarded in accordance with the appropriate regulatory guidelines, unless otherwise requested by the client. This report must not be used to claim, and does not imply product certification, approval, or endorsement by NY ELAP, AIHA, or any agency of the Federal Government. All rights reserved. AMA Analytical Services, Inc.

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AMA Analytical Services, Inc.



CERTIFICATE OF ANALYSIS



Client:

National Guard Bureau

Job Name:

Utica RC

Chain Of Custody:

514537

1700 Parkway East, Utica, NY 13501-4216

Address:

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

Job Location:

Date Submitted:

11/21/2012

Havre de Grace, Maryland 21078

Job Number: P.O. Number: 1061-15

W912K6-09-A-0003

Person Submitting: Date Analyzed:

11/30/2012

Report Date: 11/30/2012

Attention:

Summary of Atomic Absorption Analysis for Lead

Page 3 of 3

AMA Sample Number

Client Sample

Analysis Type Sample Type

Air Volume Area Wiped (ft)

Reporting

Final Result

See QC Summary for analytical results of quality control samples

Number

(L)

Limit

associated with these

samples.

Total ug

Comments

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

Analysis Melhod For Furnace: Air, Wipes, Paints, and Soil/Solids: EPA 600/R-93/200(M)-7010; Water: SM-3113B N/A = Not Applicable mg/Kg = parts per million (ppm) on a dry weight basis mg/L = parts per million (ppm)

%Pb = percent lead on a dry weight basis ug = micrograms

ug/L = parts per billion (ppb)

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

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

Air and Wipe results are not corrected for any blank results

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

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

Technical Manag

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

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CHAIN OF CUSTODY

(Please Refer To Thi Number For Inquire:

514537

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Utica RC-ASBAir-1		TIME	Wipe Area	18		3	4	£ /.	3/3	13	125	6 36	K	34	(LABO	RATORY STAFF OF	(LY)
	Field Blank	11-9		ļ	*		4		*	1					Date/Time:	Contact:	By:
Vtica RC-ASB-Air-2 2					*				¥							Commen	Бу.
UticaRC-188-1 Mil	itary Police office					*			×			T			\vdash		
¥ SEE ATT	ACHED FIELD DATAS	HEETS	*			1	*		100	*	1	1	\vdash				
Utica RC-PC-1 M	echanical Rm		7				X	+	NV		+-	+	-	_			
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	TOTAGE KM	-		-	-	_ 2	*	_	R	1							
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Utica RC-PC-4 15+	PLT OFFICE					3	*		X		1			-			
Vitta RC-PC-5 Bas	enent Stairwell						VI	+	1	1	+	-	-	_	-		
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Air Sampling Field Data Sheet

Date Collected: 11-9-12	Job Name: Utica RC	Page of Company: Bows Environmental, LUC
Job Number: 06 - 15	Job Location:	Phone Number: 989-779-7686
Contact Perso	Address: 1700 Parkway East	Collected By:
	Utica NY 13501-4216	COC Number:

Sample	Sample Type	0		Sar	npling Pur	mp Data		Comments
	Sample Type (IMA, OWA, FC, ENV, PER, AMB, BLK, etc.)	Sample Location	Time On	Time Off	Total Min,	Flow Rate LPM	Yolume L	(for mold samples, must indicate sampling apparatus and/or collection media)
Utica FC- LA-1	FB	Field Blank	_	^	Ø	\$	ø	
Utica FC- LA-2	6A	Field Blank Military Police Office Field Blank	[\lambda D3	1515	192	2.0	384	
Vira RL ASB-AU-1	Eß	Field Blank	-	-	Ø	Ø	ø	
utice fl- ASB-ATT-2	6A	21dfl, OFFICE	1206	15/6	190	2.0	380	
		3-						
								1



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: 11-9-12	Job Name: Utica RC	Page 1 of 2
Job Number: 1061-15	Job Location:	Company: Don's Environmental, LLC
Contact Person	Address: 1700 Parkway East	Phone Number: 989 - 779 - 7686 Collected By
- John College	Utia, NY 13501-4216	COC Number

Sample Number	Sample Location	Surface/Substrate Sampled	Area Wiped (in²/ft²)	Collection Media	
utica RC-	Field Blank		(III / II)	Chost	
utica RC- LW-2	Poll Hall	On Floor, West side	4"×4"	wife	
utica RC- LW-3	Pail Hall	On Fleor, Euspside	1		
utica R- LW4	Offic Hall	On top of Pepsi Machine			
utia KI- LW-S	Drill Hall	On top of AED Box			
utica R1- LW-b	Don Hall	On top of Amnesty Bex			
Itica RC- LW-7	Brenk An	On top of Microwall			
ltica RC- Lui-8	Mechanical Ru 232	HVAC, Fan side			
utica RC- LW-9	Mechanical Ry 232	HVAC, Supply side			
thark-	Litchen	On top of Freezer	_		
ltica RC- LW-11	Storage (Former Indoor Findy Lange)	On Floor, bullet trap area			
Hica RC- LVV-12	Mechanical Ly 218 (Former Indoor Firmy Lange)	On top of Heater		+	
Utica RL- LW-13	Mechanical Ry 1997 (Former Indon firing Range)	On light Fixture	-		



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: 11-9-12	Job Name: Utica RC	Company: Bonus Environmental 440
Job Number: 1061-15	Job Location:	Phone Number: 989 -779 - 75%
Contact Perso	Address: 1700 Parkuny Egst,	Non-Responsive
	Utila, NY 13501-4216	COC Number

Sample Number	Sample Location	Surface/Substrate Sampled	Area Wiped (in²/ft²)	Collection	
Utica RC- LW-14	Basement, Classroom 2	On Window sill	4"x4"	Media 6 host	
utica RC- LW-15	Basement, Storage Rm	On Storage Shelf	1	. Wipe	
Vtica RC- LWTb	Women's Locker Rm 176	On top of locker #113			
Utica RC- LW-17	Bar/ Diving An loy	On top of Storage Cabilet			
Utila R(- LW-18	Diving Hall 119	On window Sill			
Utica RC- LW-19	Hallway, 1st Acor	On Driking Fountain			
Utica RC- LW-20	Hallway, 2nd Floor	On AED BOX			
Utica RC- W-24	Military Police Office	On Filing Cabinet		+	
utica RC- LW-22	Pattalian Commander Office	On Storage Colpunet		-	
Utica RC- LW-23	05Fice 256	On Filing Cabinet			
Hica RC- LW-24	OFFice 244	On corner of table surface		_	
Utica R(- LW-25	Restroon	DA Wishow Sill	\	\rightarrow	



Please Return Samples To:
AMA Analytical Services, Inc., 4475 Forbes Blvd., Lanham, MD 20706, (800) 346-0361/(301) 459-2640 Fax, www.amalab.com, info@amalab.com



Appendix C

Asbestos Sampling Results

AMA Analytical Services, Inc.



A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS



Page 1 of 1

Client:

National Guard Bureau

Job Name:

Utica RC

Chain Of Custody:

514537

Address:

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

State Military Reservation

Job Location:

1700 Parkway East, Utica, NY 13501-4216

Date Analyzed:

11/30/2012

Havre de Grace, Maryland 21078

Job Number:

P.O. Number:

1061-15

W912K6-09-A-0003

Person Submitting:

Nan-Responsive

Attention:

Non-Responsive

Summary of Polarized Light Microscopy

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

Percent Pe

13016402 UticaRC-Asb-1 NAD

100 PL V

White Homogeneous PC

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

- 1 TEM RECOMMENDATION Please note, due to resolution limitations with optical microscopy and/or interference from matrix components of this sample, results which are reported via PLM as negative or trace (<1%) for asbestos may contain a significant quantity of asbestos. It is recommended that the additional analytical technique of TEM be used to check for asbestos fibers below the resolution limits of optical microscopy.</p>
- 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 FLM and/or TEM.

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

NAD = "No Asbestes 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.

Non-Responsive
Technical Director

Analys

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 hem 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

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Bulk Sampling Survey Sheet

Date Collected; 11-9-12	Job Name: Utica RC	Page 1 of 1 Company: Bones Environmental, LLC
Job Number: 106-15	Job Location:	Phone Number: 989-779-7686
Contact Person Non-Responsive	Address: 1700 Purkway East	Collected By: Non-Responsive
2 	Utica NY 13501-4216	COC Number:

Sample Number	Homogenous Area ID	Type of Material	Sample Location	Friable	Condition of Material	Accessibility	Photo	Comments
Vtica Fl- ASB-1	Surfacinis	Plaster	Military Police Office	⊠-Yes □ No □ Potentially	□ Good □ Fair ☑ Poor	Low Medium High	⊠Yes □No	
				☐ Yes ☐ No ☐ Potentially	☐ Good ☐ Fair ☐ Poor	□ Low □ Medium □ High	□ Yes □ No	
				☐ Yes☐ No☐ Potentially	☐ Good ☐ Fair ☐ Poor	□ Low □ Medium □ High	□Yes □No	
				☐ Yes☐ No☐ Potentially	☐ Good ☐ Fair ☐ Poor	□ Low □ Medium □ High	□Yes □No	
				☐ Yes ☐ No ☐ Potentially	☐ Good ☐ Fair ☐ Poor	□ Low □ Medium □ High	□ Yes □ No	
				☐ Yes ☐ No ☐ Potentially	☐ Good ☐ Fair ☐ Poor	□ Low □ Medium □ High	□ Yes □ No	
				☐ Yes☐ No☐ Potentially	□ Good □ Fair □ Poor	□ Low □ Medium □ High	□ Yes □ No	
				☐ Yes☐ No☐ Potentially	☐ Good ☐ Fair ☐ Poor	□ Low □ Medium □ High	□ Yes □ No	
				☐ Yes ☐ No ☐ Potentially	☐ Good ☐ Fair ☐ Poor	□ Low □ Medium □ High	□ Yes □ No	
				☐ Yes ☐ No ☐ Potentially	☐ Good ☐ Fair ☐ Poor	☐ Low ☐ Medium ☐ High	□ Yes	



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RMA Analytical Services, Inc.
Focused on Results www.amalab.com
AIHA (#100470) NYLAP (#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 The Number For Inquire:

Client Name: National Guard Bureau Address I: 301-IH Old Bay Lane						Name: _					_	7			
	Hilitani Dassa			2	. Job	Location		00	fark	Way	Eds	t, i	ltica NY	13501-4216	
3. Address 2: Atin: NGB-AVN-SI, State				3.	3. Job#:106 -15										
4. Address 3: Havre de Grace, Maryland	d 21078														
5. Phone #: <u>(410) 942-0273</u>	_Fax #:(410	942-025		_ 5.	5. Submitted by Statute: Non-Responsive Viceporting Info is provided, AMA will assign defaults of 5-Day and email/fax to contacts on file.										
Reporting Into (Results provided as	soon as techni	cally feasib	le). If no	TAT/Re	portin	g Info is	provid	led, A	MA w	ill ass	ign de	fault	s of 5-Day and	email/fax to contact	on file.
AFTER HOURS (must be pre-scheduled) Immediate Date Due			NUK	MALBU	, BUSINESS HOURS									REPORT TO:	
24 Hours Time Duc:		☐ Immediate ☐ 3 Day ☐ Next Day ☐ 5 Day +			Results Required By Noon				oon	Ø 1	nclude	COC/Field Date	Charte with Report		
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	_	7	Date Duc.		~1						3	erbal		Dus.army.mil Dus.army.mil	
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MAir* - Please Indicate Filter Type:		☐ Resid	□ NY State PLM/TEM (QTY) □ Residual Ash (QTY) QTY) QTY												
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☐ NIOSH 7402(QTY)		→ Qual.	(pres/abs)	Vacuum/	Dust_		_(QT	Y)		u	Pb TC	LP	(QT	Y)	
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SAMPLE INFORMATION CLIENT ID # SAMPLE INFORMATION FICE RC-188-10-1 Field Block HICE RC-188-10-2 And Floor, OFFICE HICE RC-188-10-2 Military Police Office **SEE ATTACHED FIELD DA HICE RC-18-2 And Floor, Hallway HICE RC-18-3 2nd Floor, Hallway HICE RC-18-4 18+12+ OFFICE HICE RC-18-4 18+12+ OFFICE HICE RC-18-5 Basenest, Statismell LABORATORY 1. Date/Time RCVD:	N DATE TIME III PARTE III	*	Say X X X	Wild Wild William William William William William William Will William	**************************************	WOLD XX	**************************************	**************************************	MATR J Book J S S E	IX SE SE	AF TO THE COLUMN	S read	Date/Time: Date/Time: Date/Time:	ABORATORY STAFF C Contact: Contact:	By:
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AMA Analytical Services, Inc.



A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS



Client:

National Guard Bureau

Job Name:

Utica RC

Chain Of Custody: 514537

Address:

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

Job Location:

P.O. Number:

Technical Directo

1700 Parkway East, Utica, NY 13501-4216

Date Submitted:

State Military Reservation

Jeb Number:

11/21/2012

Havre de Grace, Maryland 21078

W912K6-09-A-0003

Person Submitting: Date Analyzed:

11/30/2012

Report Date: 11/30/2012

Attention:

Date Sampled;

Summary of Phase Contrast Microscopy

Page 1 of 1

AMA Sample Number	Client Sample Number	Volume Sampled (Liters)	Fibers Per Millimeter Squared	Fibers Per Cubic Centimeter	Analyst I.D.	Sample Type	Comments
13016400	UticaRC-AsbAir-1	0	<1*	****	RP	BLK	0 fiber(s) per 100 fields
13016401	UticaRC-AsbAir-2	380	4*	<0.007*	RP	N/P	

^{*} The Reporting Limit for AMA Laboratory is 7.0 fibers per square millimeter of filter. The reporting limit for the air concentration of fibers (f/cc) is dependent on the sampled air volume. Fibers counts were determined by the methods described in NIOSH Analytical Method 7400, 'Fibers' (Revision 3, Issue 2, 8/15/94). All personnel samples were analyzed following the OSHA Reference Method.

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

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

Uncertainty: for fibers/mm2 in the range of 7-25 the SR is 0.253, 26-64 SR=0.256, 64-127 SR=0.344, >127 SR=0.147 Sample results shown here have been corrected for any field blank(s) submitted with this sample set.

Analyst(s)

This report applies only to the sample, or samples, investigated and is not necessarily incicative of the quality or condition of apparently identical er similar products. As a notural protection to clients, the public, and these Laborateries, 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 guidefines, unless otherwise requested by the client. This report must not be used to claim, and does not imple product certification, approval, or endorsement by AIHA or any agency of the Federal Government. All rights reserved. AMA Analytical Services, Inc.

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Air Sampling Field Data Sheet

Date Collected: 11-9-12	Job Name: Litica RC	Company: Boxus Environmental, LUC
Job Number: 1061-15	Job Location:	Phone Number: 989 - 779 - 7686
Contact Person	Address: 1700 Parkway East	Collected By
	Uhia NY 13501-4216	COC Number:

Sample Number	Sample Type (IMA, OWA, FC, ENV, PER, AMB, BLK, etc.)	Sample Location		Sampling Pump Dala				Comments
			Time On	Time Off	Total Min.	Flow Rate LPM	Volume L	(for mold samples, must indicate sampling apparatus and/or collection media)
Utia RC- LA-1	FB	Field Blank	-	^	Ø	Ø	Ø	
ution fl- LA-2	GA	Military Police Office	1203	1515	192	2.0	384	
Utica RLA ASSIGNET	El	Field Blank	-	-	Ø	Ø	ф	
VHICA P-L-2 ASB-ATT-2	GÁ	and fl, office	1206	15/6	190	2.0	380	
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Appendix D

Photographs



Building exterior, looking northeast



Boiler room



Boiler room, emergency eyewash



Basement stairwell, peeling gray paint



Boiler room, Safety Equipment board



2nd floor hallway, peeling blue paint on door



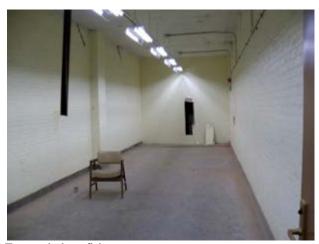
Mechanical room 232, air handling unit



Mechanical room 232, peeling yellow paint / water-damaged brick wall



Storage room, peeling beige paint



Former indoor firing range



Military Police office, damaged plaster



1st PLT office, peeling white paint



2nd floor office, damaged plaster ceiling



2nd floor stairwell, stained/moldy dropped-ceiling tile



Maintenance room 128, flammables cabinet

BEST AVAILABLE COPY

Appendix E

References

BEST AVAILABLE COPY

- 1. Department of Defense Instruction (0001) 6055.1, Department of Defense Occupational Safety and Health (OS H) Program, August 19, 1998.
- 2. Army Regulation (AR) 11-34, The Army Respiratory Protection Program, February 15, 1990.
- 3. DA PAM 40-503, Medical Service, Industrial Hygiene Program, October 30, 2000.
- 4. Technical Manual (T.M) 5-810-1, Mechanical Design, Heating, Ventilation, and Air Conditioning, June 1991.
- 5. Threshold Limit Values (TLVs) and Biological Exposure Indices (BEls), American Conference of Governmental Industrial Hygienists (ACGIH), current edition.
- 6. UFC 3-410-01 FA Heating, Ventilating, and Air Conditioning, 15 May 2003, change 4 January 2010
- 7. Occupational Safety and Health Administration (OSHA) Lead in Construction Standard, 29 CFR 1926.62.
- 8. Army Regulation (AR) 385-10, The Army Safety Program, August 23, 2007/RAR 4 Oct 2011.
- 9. RP-1-2004, Office Lighting, Illuminating Engineering Society of North America / American National Standards Institute (IESNA/ANSI).
- 10. RP-7-2001, Industrial Lighting, (IESNA/ANSI).
- 11. ANSI/The American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE), Standard 62.1-2010, "Ventilation for Acceptable Indoor Air Quality".
- 12. ANSI/ASHRAE Standard 55-2010 "Thermal Environmental Conditions for Human Occupancy"
- 13. Title 24, CFR, Part 35, Subpart B, Sections 35.110, Definitions of Lead-Based Paint, Housing and Urban Development, U.S. Department of Housing.
- 14. OSHA Permissible Exposure Limit (PEL) for General Industry 29 CFR 1910.1000 Z-1 Table
- 15. Guidelines on Assessment and Remediation of Fungi in Indoor Environments, New York City Department of Health and Mental Hygiene, November 2008.
- 16. Mold Remediation in Schools and Commercial Buildings, U.S. Environmental Protection Agency, March 2001
- 17. Army Facilities Management Information Document on Mold Remediation Issues TG277, February 2002

10	NG DAM 400 15 G THE TRANSPORT OF THE FEB.
18.	NG PAM 420-15, Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges, 3 November 2006.



400 West Cummings Park, Suite 5850 Woburn, MA 01801 781.756.3800 (fax) 781.729.4648 www.eorm.com

February 24, 2009

Ms. Non-Responsive NGB Region North IH Office 301 – IH Old Bay Lane Havre De Grace, MD 21078 Non-Responsive @us.army.mil

Results of Industrial Hygiene Survey, 55 South Street, Walton, NY Re: **EORM® Project No. NATL0009001**

Dear Ms. Non-Responsive:

At your request, on September 3, 2008, Environmental & Occupational Risk Management, Inc. (EORM®) performed an industrial hygiene survey at the National Guard Readiness Center located at 55 South Street, Walton, NY 13856. The observations, methodology, results and discussion are provided in the sections that follow. Should you have any questions please do not hesitate to contact me.

Regards, Reviewed by:

Non-Responsive, MPH Associate EHS Consultant EORM, Inc. Telephone 781.756.3813 E-mail Non-Responsive @eorm.com

Attachments

sponsive CIH Senior EHS Consultant

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Industrial Hygiene Survey

National Guard Readiness Center 55 South Street Walton, NY 13856

Project No. NATL0009

3 September 2008

Prepared by:

E O Environmental and Occupational Risk Management®

400 West Cummings Park, Suite 5850 Woburn, MA 01801

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Executive Summary

Environmental and Occupational Risk Management, Inc. (EORM®) was contracted by the National Guard Bureau Industrial Hygiene Region North Office (NGB IH Office) to perform a baseline industrial hygiene (IH) survey of selected Readiness Centers and administrative buildings located in New York. This report summarizes the results of the Walton Readiness Center located at 55 South Street, which occurred on September 3, 2008.

During the IH survey, EORM collected surface wipe samples and area air samples for lead. The results indicated surface lead on surfaces within the drill hall, including the air handling units (AHUs). The surface lead contamination did not translate into detectable concentrations of lead in the area air samples on the day of EORM's site visit. However, due to the low foot traffic on the day of EORMs site visit, it is recommended that the drill hall and associated AHUs be decontaminated by a contractor specializing in lead decontamination.

Overall the Walton Readiness Center appears dusty. The return air grilles and the supply air grilles to the AHUs in the drill hall were very dirty. There was no peeling paint, visible water damage, suspect mold growth, or asbestos containing materials.

There is an attached garage with 3 vehicle maintenance bays at the Walton Readiness Center. The garage does not have vehicle exhaust ventilation.

The results of the indoor air quality survey indicated sufficient outdoor air supply to the occupied spaces of the readiness center. However, the results indicated that the relative humidity inside was above 60%, which over time may lead to microbial growth.

Introduction

Environmental and Occupational Risk Management, Inc. (EORM) was contracted by National Guard Bureau Industrial Hygiene Region North Office (NGB IH Office) to perform an industrial hygiene (IH) survey of selected National Guard Armories located in New York. This report summarizes the results of the readiness center located at 55 South Street, Walton, New York. The IH survey was performed on September 3, 2008 by Mr. Non-Responsive, Associate EHS Consultant. Ms. Non-Responsive, CIH, Senior EHS Consultant, reviewed this report and provided project support. The scope of work completed during this survey included the following:

- Collect wipe samples for lead from surfaces within the drill hall, administration building, and the converted indoor firing range, if present.
- Collect personal or general area full-shift samples for lead on National Guard members during normal activities.
- Inspect the physical condition of the facility and personnel concerns.
- Evaluate the heating, ventilating, and air conditioning system.
- Conduct a lighting survey in all areas of the facility.
- Evaluate the attached garage, if present.
- Collect photographs of the interior and exterior conditions of the readiness center.
- Provide a diagram of the shop layout
- Prepare a detailed report of findings and sampling results, including recommendations for improvement in any areas of concern and conclusion

EORM's survey activities were aided by the generous assistance of Mr. Non-Responsive who provided information on the readiness center.

Industrial Hygiene Survey Details

The wipe samples were collected and analyzed in accordance with the Occupational Safety and Health Administration (OSHA) method ID-125G. The samples were analyzed for lead by AMA Analytical Services, Inc. in Lanham, Maryland. AMA is accredited by the American Industrial Hygiene Association.

The analytical laboratory results and chain-of-custody forms corresponding to these samples are provided in Appendix 3. Table 1 includes the results in micrograms of lead per square foot (µg/ft2).

Table 1: Wipe sample results, September 3, 2008.

Sample Number	Location	Description	Area (ft2)	Results (µg/ft2)
Wtn-01	Drill hall	Frame of return air grate on AHU-1	0.108	590
Wtn-02	Drill hall	Frame of return air grate on AHU-2	0.108	400
Wtn-03	Drill hall	Louver on supply air grate on AHU-3	0.108	2,500
Wtn-04	Drill hall	Floor	0.108	300
Wtn-05	Drill hall	Maintenance/custodial office desk	0.108	< 110
Wtn-06	Orderly room	Shelf	0.108	< 110
Wtn-07	State office	Top of file cabinet	0.108	< 110
Wtn-08	Commander's office	Shelf	0.108	< 110
Wtn-09	Kitchen	Counter top	0.108	< 110
Wtn-10	Classroom 2	Top of candy machine	0.108	< 110
Wtn-11	Garage	Toolbox	0.108	130
Wtn-12	Classroom 1	Window sill	0.108	160
Wtn-13	Locker room (former IFR)	Bottom of locker (inside surface)	0.108	2,400
Wtn-14	Locker room (former IFR)	Floor by ladder at rear	0.108	2,400
Wtn-15	Locker room (former IFR)	Floor outside of doorway	0.108	< 110

There was no lead detected on the field blank

The results indicate that surface lead is present on the three AHUs in the drill hall as well as on the floor of the drill hall. Surface lead was identified on a toolbox in the garage, a window sill in classroom 1, and on surfaces within the locker room. There were no remaining light fixtures or HVAC within the locker room (former IFR); therefore only surfaces installed following the conversion were assessed.

Area Air Sample Results

There were no fulltime National Guard members on site during EORM's site visit. Therefore, area air samples were collected to represent potential exposure to airborne lead during drill weekends. The two locations selected for the area samples were the maintenance/custodial office desk and the Commander's desk.

The area air samples were collected and analyzed in accordance with OSHA Method ID-125G. The samples were analyzed for lead by AMA Analytical Services, Inc. in Lanham, Maryland. AMA is accredited by the American Industrial Hygiene Association.

The air samples were collected using a SKC AirChek® sampling pump. Pre- and post-calibration of air flow rates were measured and recorded for the sample using the BIOS DryCal Model DC-I. The field notes and analytical laboratory results and chain-of-custody forms corresponding to these samples are provided in Appendix 3. Table 2 includes the results and a comparison to the respective PEL.

Table 2: General Area Sample Results, September 2, 2008.

Sample Number	Area	Concentration	OSHA Action Level	OSHA PEL	Exceed PEL or TLV? (Yes / No)
Wtn-A1	Maintenance/Custodial office	< 3.0 μg/m3	30 μg/m3	50 μg/m3	No
Wtn-A2	Commander's office	< 3.0 µg/m3	30 μg/m3	50 μg/m3	No

There was no lead detected on the field blank

The results of the area air samples indicated that no detectable airborne concentrations of lead were present on the day of EORM's site visit.

Facility Inspection and Employee Concerns

The Walton Readiness Center is a one-story facility with no full-time National Guardsmen. There is one State employee who works to maintain the facility. The facility has a small garage attached with three vehicle maintenance bays. The former indoor firing range was converted to a locker room in 2003.

The general conditions of the facility were as follows:

- There was noticeable amount of dust on surfaces throughout the facility
- Mr. Non-Responsive, State facilities worker, reported that the heating air-handling units
 (AHUs) in the drill hall were used only during the winter months. The return air grilles
 (~ 2 feet off of the floor) and the supply air grilles (~20 feet from floor) were
 significantly loaded with dust.
- AHU 1 and 3 are currently not operational. A request has been made for both to be repaired
- The AHUs are recirculating units. Mr. reported that they do not have filters.

Ventilation System Evaluation

There are no rooms, such as a battery room or film room that would require ventilation. There is an attached maintenance shop which does require ventilation. The maintenance shop is discussed below in the section entitled Evaluation of the Attached Garage.

The general heating, ventilating, and air-conditioning (HVAC) for the Walton Readiness Center is accomplished through a combination of a boiler system for heating (baseboard heating in offices and overhead AHUs in drill hall) and two portable air-conditioners that are kept in the offices for cooling during summer months. According to Mr. Non-Responsive only AHU-3 is currently operational.

Direct-reading measurements for temperature, relative humidity, and carbon dioxide (CO₂) were performed using a Q-Trak Plus Indoor Air Quality Monitor (Model #s 8551). This instrument detects CO₂ using a selective infrared absorption method and displays airborne concentrations in units of ppm. This instrument also measures temperature and relative humidity using electrical sensing methods. It displays temperature in degrees Fahrenheit and relative humidity in percent. The manufacturer's recommended yearly calibration was last performed in January 2008.

Table 3: Indoor door air quality measurements, September 2, 2008.

Location	Number of	Temp	RH	CO ₂	
	Occupants	(°F)	(% RH)	(ppm)	
State storage	0	75	61	389	
Drill hall	0	74	60	334	
State office	1	75	64	434	
Outdoors		76	64	391	

The primary cursors for indoor thermal comfort are temperature and relative humidity. Air temperature is recommended to range from 73 to 79°F during summer and from 68 to 75°F during winter (ASHRAE 55-1992) for indoor office environments. This assumes that building occupants are dressed in normal garments and perform mainly sedentary activities. The results indicated that the indoor temperature ranged from 74 to 75°F, which was within the recommended ranges.

The relative humidity (RH) inside buildings should be maintained between 30 and 60% (ASHRAE - 62-2001). When the RH in indoor environments exceeds 60%, microbial growth may occur; whereas, relative humidity below 30% may cause the drying of mucous membranes and discomfort. The results indicated that the indoor relative humidity ranged from 60% to 64% indoors, which was above the recommended guideline

The ASHRAE Standard 62-2001, *Ventilation for Acceptable Indoor Air Quality*, has established a reference level based upon human comfort criteria of a maximum CO₂ concentration of 700 ppm above existing outdoor concentrations, below which is suggestive of an adequate quantity of outdoor air supply ventilation to the occupied space. The results indicated the indoor concentration of CO₂ ranged from 334 ppm to 434 ppm and the concurrent outdoor concentration was 391 ppm. This indicates there was sufficient outdoor air supply to the occupied space.

Lighting Survey

The lighting at the Walton Readiness Center consists of metal halide lamps and fluorescent lights. The metal halide lamps provide lighting for the Drill Hall and the fluorescent lights provide the lighting in the rest of the building. A lighting survey was conducted using a Cooke Corporation Cal-Light 400L, serial number 1C040084L. The Cal-Light was calibrated by the manufacturer.

The lighting measurements were compared to the Recommended Practice for Lighting Industrial Facilities RP-7-01 and for Office Building RP-1-04. Both RP-7 and RP-1 are approved by the American National Standards Institute (ANSI) and the Illuminating Engineering Society of North America (IESNA). Table 4 below, summarizes the results of the lighting survey.

Table 4: Lighting Survey Results, September 2, 2008

Location	Measurement (fc)	RP-7 Recommended Illuminance Values1 (fc)	Meets RP-7 Values? (Yes/No)	Comments
Orderly room	85-200	30	Yes	
1st Sgt office	70-86	50	Yes	
Commanders office	53-70	50	Yes	
Lt's office	50-97	50	Yes	
Hall by Commanders office	20-104	5	Yes	
Copy room	22-98	10	Yes	
Operations office	44-85	50	Yes	
Classroom 1	68-102	50	Yes	
Kitchen	40-96	30-50	Yes	
Handicap bathroom	57-65	7	Yes	
Hall by kitchen	40-60	5	Yes	
Women's bathroom	12-38	7	Yes	
Men's bathroom	31-72	7	Yes	
Classroom 2	14-115	50	Yes	Several light bulbs out
Garage	75-189	75	Yes	
Maintenance/custodial office	31-52	30	Yes	
NBC supply room	25-49	30	Yes	
Boiler room	4-16	30	Yes	
State storage	2-10	10	No	Light bulbs out
Locker room	16-52	7	Yes	
Drill hall fc = footcandles	96-175	30	Yes	

fc = footcandles

¹ The recommended illuminance values were obtained from the ANSI/IESNA RP-1-04 (Office Lighting) and RP-7-01 (Industrial Lighting)

According to RP-1-04 and RP-7-01, the lighting survey results indicate sufficient lighting at most locations throughout the Walton Readiness Center. There were light bulbs out in two rooms, classroom 2 and the State storage room. For the most part the lighting in classroom 2 remained sufficient with the exception of directly under the burned out bulb. The State storage room had insufficient lighting.

Evaluation of Attached Garage

Operational Description

The Walton Readiness Center operates a small garage located in the southeast corner of the building. The garage is used for a variety of maintenance activities including, oil changes, brake changes, and general repairs. The garage is not equipped with local exhaust ventilation for any tasks.

Hazards Present and Controls

Based on the materials found in the garage there are several potential hazards associated with this garage. As with most of the field maintenance shops the use of pneumatic tools and other tools such as grinders can create hazardous noise.

Additional hazards that may be present include:

- Inhalation of vehicle exhaust or chemicals used for degreasing
- Inhalation of asbestos fibers that may be present in brake pads

Ventilation System Evaluation

The garage attached to the Walton Readiness Center is not equipped with an exhaust ventilation system. It was reported that the maintenance personal use 3 inch flexible duct to place over the tailpipe of the vehicle and extend out the overhead door. Photograph 6 of Appendix 2 shows the interior of the garage.

Lighting

The light readings are provided in the lighting survey section above.

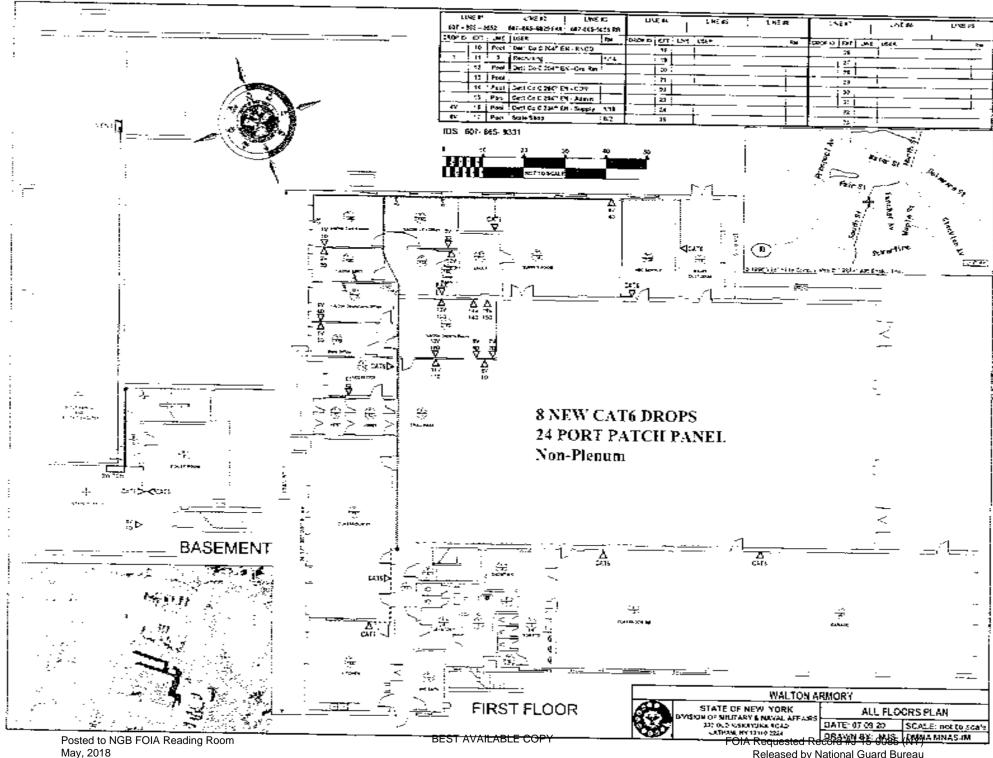
Conclusions and Recommendations

Based on the observations and results of the industrial hygiene survey, EORM has concluded the following:

- The surface wipe sample results indicated that lead is present on surfaces of the three AHUs in the drill hall as well as on the floor of the drill hall. Surface lead was identified on a toolbox in the garage, a window sill in classroom 1, and on surfaces within the locker room. EORM recommends that the AHUs and surfaces within the drill hall be cleaned by a contractor specializing in lead decontamination. In addition, other items identified as having surface lead contamination should also be decontaminated.
- The area air samples indicated that the surface lead was not airborne on the day of EORM's site visit. However, there were no guardsmen in the readiness center at the time of EORMs site visit. Additional activities that occur during drills may disturb the surface lead. Therefore all lead contaminated surfaces should be cleaned.
- For the most part, the lighting survey results indicate sufficient lighting throughout the Walton Readiness Center, with the exception of the State storage room. EORM recommends replacing the burned out light bulbs in the State storage room and in classroom 2.
- The attached garage does not have a vehicle exhaust ventilation system to accommodate working on vehicles while the engine is running. The current system is to place flexible duct over the tail pipe and run the duct work out through the overhead door. EORM recommends that should maintenance activities be required to occur with the engines running then a vehicle exhaust ventilation system should be installed.

The results of this survey should be communicated to the participants as well as other people who perform similar job duties that did not participate.

Appendix 1 – Walton Readiness Center Floor Plan



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Appendix 2 – Photographs

Photograph 1: Exterior of readiness center



Photograph 2: Battery charger – reportedly no longer in use



Photograph 3: Former indoor firing range – now a locker room



Photograph 4: Drill hall with AHUs



Photograph 5: Drill hall



Photograph 6: Garage



Appendix 3 – Laboratory Analytical Results

AMA Analytical Services, Inc.

A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS



Client:

National Guard Bureau

Job Name:

National Guard Armory-Walton

Chain Of Custody:

503198

NY ELAP

Address:

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

Job Location:

Job Number:

P.O. Number:

55 South Street Walton NY

Date Submitted:

10/3/2008

10920

State Military Reservation

Havre de Grace, Maryland 21078

NATL0004

Not Provided

Person Submitting: Date Analyzed:

Report Date:

10/7/2008

Attention:

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)		orting .imit]	final Res	uit	Comments
0900907	WTN-01	Flame	Wipe	****	0.108	110	ug/ft²		590	ug/ft²	
0900908	WTN-02	Flame	Wipe	***	0.108	110	ug/ft²		400	ug/ft²	
0900909	WTN-03	Flame	Wipe	***	0.108	110	ug/ft²		2500	ug/ft²	
0900910	WTN-04	Flame	Wipe	****	0.108	110	ug/ft²		300	ug/ft²	
0900911	WTN-05	Flame	Wipe	***	0.108	110	ug/ft²	<	110	ug/ft²	
0900912	WTN-06	Flame	Wipe	****	0.108	110	ug/ft²	<	110	ug/ft²	
0900913	WTN-07	Flame	Wipe	****	0.108	110	ug/ft²	<	110	ug/ft²	
0900914	WTN-08	Flame	Wipe	***	0.108	110	ug/ft²	<	110	ug/ft²	
0900915	WTN-09	Flame	Wipe	***	0.108	110	ug/ft²	<	110	ug/ft²	
0900916	WTN-10	Flame	Wipe	***	0.108	110	ug/ft²	<	110	ug/ft²	
0900917	WTN-11	Flame	Wipe	***	0.108	110	ug/ft²		130	ug/ft²	
0900918	WTN-12	Flame	Wipe	****	0.108	110	ug/ft²		160	ug/ft²	
0900919	WTN-13	Flame	Wipe	****	0.108	110	ug/ft²		2400	ug/ft²	
0900920	WTN-14	Flame	Wipe	***	0.108	110	ug/ft²		2400	ug/ft²	
0900921	WTN-15	Flame	Wipe	***	0.108	110	ug/ft²	<	110	ug/ft²	
0900922	WTN-FB	Flame	Wipe Blank	****	N/A	12	ug	<	12	ug	
0900923	WTN-A1	Flame	Air	0	N/A	3	ug/m³	<	3	ug	
0900924	WTN-A2	Flame	Air	0	N/A	3	ug/m³	<	3	ug	
0900925	WTN-A3	Flame	Air Blank	0	N/A	3	ug/m³	<	3	ug	

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public, and these Laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from us. Sample types, locations, and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information. Residual sample material will be discarded in accordance with the appropriate regulatory guidelines, unless otherwise requested by the client. 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 AHIA (#100470), NVLAP (10 HEISTOAMANLABLE LOBY#10920) Accredited Laboratory FOIA Requested Record #J-15-0085 (NY) Posted to NGB FOIA Reading Room 4475 Forbes Blvd. · Lanham, MD, 20706 · (301) 459-2640 · Toll Free (800) 346-0961 · Fax (301) 459-2643 Released by National Guard Bureau May, 2018 Page 1297 of 1350

AMA Analytical Services, Inc.



A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS



Client:

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Job Name:

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Job Number: P.O. Number: NATL0004 Not Provided

Person Submitting: Date Analyzed:

10/7/2008

Report Date:

Attention:

Summary of Atomic Absorption Analysis for Lead

Page 2 of 2

Area Wiped Final Result Comments Reporting Sample Type Air Volume Analysis Type AMA Sample Client Sample Limit (L) (ft2) Number Number Analysis Method for Flame: Air, Wipes, Paints, and Soil/Solids: EPA 600/R-93/200(M)-7420: Water: SM-3111B See QC Summary for analytical results of quality control samples associated with these sampes. NY ELAP accrediation applies only to paint chip, wipe, and water

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

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

%Pb = percent lead by weight

ug = micrograms

ug/L = parts per billion (ppb)

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

Note: All results have two significant digits. Any additional digits shown

should not be considered when interpreting the result.

Air and Wipe results are not corrected for any blank results

Analyst:

samples.

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. 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.

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Page 1299 of 1350

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3. Address 2: 301 - 14 Old R	y Cane	3. Job#: NATLOZ	00 + PO.#:
4. Address 3: Havre de Grac	d, MO 21078		Oneive
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Appendix 4 – References

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American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. (ASHRAE) 62.1-2007, Ventilation for Acceptable Indoor Air Quality.

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National Guard Region North

National Guard Readiness Center Industrial Hygiene Evaluation Walton Readiness Center Walton, NY 13856-1438

Prepared for:

National Guard Region North Industrial Hygiene Office 301 Old Bay Lane Havre De Grace, MD 21078

Attn:

Non-Responsive

Prepared by:

Bonus Environmental, LLC P.O. Box 121 Mt. Pleasant, Michigan 48804

> Project No. 1061-15 January 30, 2013

Bonus Environmental, LLC

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APPENDICES

Appendix A Shop Diagram and Air Flow Patterns

Appendix B Lead Sample Results

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January 30, 2013 Project No. 1061-15

National Guard Region North Industrial Hygiene Office 301 Old Bay Lane Havre De Grace, MD 21078-4003

Attn: Non-Responsive

Project: Industrial Hygiene Evaluation

Walton Readiness Center, Walton, NY 13856-1438

1.0 - EXECUTIVE SUMMARY

Bonus Environmental, LLC was contracted by the National Guard Bureau Region North Industrial Hygiene office to identify and measure the existence and extent of potentially hazardous operations or conditions at the Walton Readiness Center located at 55 South Street in Walton, NY. The purpose of this evaluation was to generate or to update a previous baseline evaluation so that employee exposure history can be provided to each civilian and military employee. The following industrial hygiene conditions were evaluated during this industrial hygiene evaluation performed by Bonus Environmental, LLC representative Non-Responsive on November 15, 2012:

- Indoor Air Quality
- Lead Wipe & Bulk Sampling
- Illumination
- Ergonomics

 Evaluation of the physical condition of the facility in regards to peeling paint, asbestos containing materials, water damage or mold problems, and housekeeping practices.

The Walton Readiness Center was constructed in 1964, and is an Army National Guard armory comprised of offices, locker rooms, storage rooms, a classroom, a drill hall, a kitchen, a boiler room, a dining room, a garage, an external flammables storage shed, and a former indoor firing range (currently used as a locker room). The garage is mainly used for storage, with no vehicle exhaust system, although the facility caretaker reports that welding occurs in the garage (using a portable welding cart) very infrequently. The point of contact for the approximately 19,400 ft² Walton Readiness Center is Ms. Joann Ferrara. Two (2) full-time administrative personnel are employed at the Walton Readiness Center. Health and Safety programs reviewed during this survey included Spill Prevention, Radiation Safety, Hazcom, and Safety Risk Management. A shop diagram depicting the locations of the operations and air flow patterns identified during this industrial hygiene evaluation is attached to this report as Appendix A.

The National Guard Bureau Region North Industrial Hygiene Office provided governmental furnished equipment and sampling media required to perform the industrial hygiene evaluation. Chain of custody forms for laboratories approved by the National Guard Bureau Region North Industrial Hygiene Office were provided with the sampling media. All samples collected during this industrial

hygiene evaluation were sent to the National Guard Bureau Region North Industrial Hygiene Office approved laboratories for analysis.

2.0 – LEAD SAMPLING

2.1 – Lead Wipe Sampling

Lead wipe sampling was performed according to the Environmental Protection Agency (EPA) method 600/R-93/200(M)-7420 (Atomic Absorption - Flame). Thirteen (13) wipe samples and one (1) field blank were sent under chain-of-custody procedures to AMA Analytical Services, Inc., an American Industrial Hygiene Association (AIHA) accredited laboratory located in Lanham, Maryland. The U.S. Department of Labor (USDOL) and the Occupational Safety and Health Administration (OSHA) do not have a promulgated standard for lead surface contamination; however OSHA has provided an interpretive level of 200 micrograms per square foot (μg/ft²) to assess the housekeeping requirements of "as free as reasonably practicable". This interpretation is presented in OSHA Industrial Hygiene Technical Manual (TED 01-00-015; 1/20/1999), and in a letter of interpretations dated 1/13/2003, and subsequently issued to public domain. NG Pam 420-15 addresses the conversion and remediation of former indoor firing ranges. The following table outlines the locations and analytical results for the lead wipe samples collected during this project.

Army National Guard – Walton Readiness Center Lead Wipe Sample Results										
Sample #	Sample Date	Sample Location	Sample Area (ft²)	Sample Result (µg/ft²)						
WaltonRC- LW-1	11-15-12	Field Blank		< 12 μg						
WaltonRC- LW-2	11-15-12	Drill hall, north wall, on AED case	0.111	560						
WaltonRC- LW-3	11-15-12	Drill hall, west wall, on AHU motor control box	0.111	< 110						
WaltonRC- LW-4	11-15-12	Drill hall, east corner, on weightlifting machine	0.111	230						
WaltonRC- LW-5	11-15-12	Drill hall, along east wall, on fire extinguisher	0.111	130						
WaltonRC- LW-6	11-15-12	Drill hall, center, on floor	0.111	1,600						
WaltonRC- LW-7	11-15-12	Locker room (former indoor firing range), east end, on floor	0.111	< 110						
WaltonRC- LW-8	11-15-12	Locker room (former indoor firing range), center of room, top of locker	0.111	210						
WaltonRC- LW-9	11-15-12	Locker room (former indoor firing range), west end, on floor	0.111	< 110						
WaltonRC- LW-10	11-15-12	Kitchen, north corner, top of paper towel dispenser	0.111	< 110						

Army National Guard – Walton Readiness Center Lead Wipe Sample Results									
Sample #	Sample Date	Sample Location	Sample Area (ft²)	Sample Result (µg/ft²)					
WaltonRC- LW-11	11-15-12	Classroom, east side, supplied air grill	0.111	< 110					
WaltonRC- LW-12	11-15-12	Garage, top of welding cart tool box	0.111	3,500					
WaltonRC- LW-13	11-15-12	Garage, south end, on floor	0.111	920					
WaltonRC- LW-14	11-15-12	Commander's office, northeast corner, on window sill	0.111	< 110					

Surface cleanliness threshold = < 200 micrograms per square foot ($\mu g/ft^2$)

The former indoor firing range is currently used as a locker room. It was stated to Bonus Environmental, LLC that it was remediated "several" years ago, and it was also painted "a couple" of years ago. It is uncertain whether it was remediated to the protocols specified in NG Pam 420-15. Remediation wipe sample results were not posted, nor were any signs posted restricting access to the area.

3.0 - PHYSICAL CONDITION OF FACILITY / PERSONNEL CONCERNS

3.1 - Lead Based Paint

During the industrial hygiene evaluation of the Walton Readiness Center, Bonus Environmental, LLC performed a visual inspection of the facility in regards to lead based paint. Bonus Environmental, LLC identified one area of peeling paint which could potentially pose a lead exposure hazard. Bonus Environmental, LLC identified peeling paint in the following area:

• Approximately 800 ft² of peeling beige paint on the ceiling of the garage.

One (1) paint chip samples was collected and sent under chain-of-custody procedures to AMA Analytical Services, Inc., an AIHA accredited laboratory located in Lanham, MD. See table below for sample information:

	Army National Guard – Walton Readiness Center Paint Chip Sample								
Sample #	Sample Location	Color	Analytical Reporting Limit (%)	Analytical Results (%)					
WaltonRC-PC-1	Garage	Beige	0.0088	0.031					

Analysis indicated that the peeling paint collected contained detectable levels of lead. The paint is therefore considered to be lead-based paint. The OSHA Lead in Construction Standard, 29 CFR 1926.62 does not assign a numerical value of which must be present within the paint to be considered

lead based paint. Paints which contain any detectable level of lead shall be treated and handled as lead based paint. Housing and Urban Development (HUD) defines lead based paint as having greater than 0.5% lead by weight. Paint chip sample results are attached to this report as Appendix B.

3.2 – Presumed Asbestos Containing Materials

During the industrial hygiene evaluation of the Walton Readiness Center, Bonus Environmental, LLC performed a visual inspection to identify presumed asbestos containing materials (PACM) and, if found, to note their condition. Bonus Environmental, LLC did not identify any PACM's that were considered to be in poor or damaged condition.

3.3 - Water Damage/Mold Growth

During the industrial hygiene evaluation of the Walton Readiness Center, Bonus Environmental, LLC performed a visual inspection to report the location and perform an evaluation of any water damaged building materials and/or visible mold problems. Bonus Environmental, LLC did not identify any water-damaged materials.

3.4 - Housekeeping

During the industrial hygiene evaluation of the Walton Readiness Center, Bonus Environmental, LLC performed an evaluation of the housekeeping practices. Bonus Environmental, LLC found the housekeeping practices within Walton Readiness Center facility in good order, with the exception of residual lead dust concentrations.

3.5 – Employee Interviews

During the industrial hygiene evaluation of the Walton Readiness Center, Bonus Environmental, LLC performed interviews and made observations to determine if the work activities being performed possessed any ergonomic concerns. Following the interviews and observations, no ergonomic and or indoor air quality concerns were identified.

3.6 – Indoor Air Quality

During the industrial hygiene evaluation of the Walton Readiness Center, Bonus Environmental, LLC measured temperature, relative humidity, carbon monoxide (CO), and carbon dioxide (CO₂) throughout the facility. A calibrated TSI Q-Trak Plus Model 7575 Indoor Air Quality Monitor equipped with a Q-Trak Probe 982 was utilized to record indoor air quality measurements.

Carbon dioxide is a natural component of air and the amount of CO₂ in a given air sample is commonly expressed as parts per million (ppm). The outdoor air in most locations contains about 380 ppm carbon dioxide. Higher outdoor CO₂ concentrations can be found near vehicle traffic areas, industry and sources of combustion. The concentrations of CO₂ found in most offices are well below the OSHA Permissible Exposure Limit (PEL) of 5,000 ppm when averaged over an 8-hour time period for an industrial workplace. While levels below 5,000 ppm are considered to pose no serious health threat, studies have indicated that individuals in offices with elevated CO₂ concentrations tend to report drowsiness, lethargy and a general sense that the air is stale. Ventilation rates for office spaces are defined by various codes and standards. The most widely accepted standard is the American Society of Heating, Refrigerating, and Air Conditioning Engineers (ASHRAE) Standard 62. According to ASHRAE Standard 62.1-2010, CO₂ concentrations below 700 ppm above the outdoor level are

considered to indicate adequate ventilation and provide human comfort. The CO_2 measurements collected during this industrial hygiene evaluation ranged from 388 ppm to 562 ppm and indicate adequate ventilation within the facility.

Carbon monoxide is a colorless, odorless, poisonous gas that results from the incomplete burning of common fuels such as natural or liquefied petroleum gas, oil, wood or coal. When carbon monoxide is inhaled, it enters the blood stream and reduces the ability of the blood to carry oxygen to vital organs, such as the heart and brain. Because it is impossible to see, taste or smell the toxic fumes, CO can harm you before you are aware it is in your work area. At lower levels of exposure, CO causes mild effects that are often mistaken for the flu. These symptoms include headaches, dizziness, disorientation, nausea and fatigue. The effects of CO exposure can vary greatly from person to person depending on age, overall health and the concentration and length of exposure. The OSHA has established a permissible exposure limit (PEL) of 50 parts per million (ppm). OSHA standards prohibit worker exposure to more than 50 parts of the gas per million parts of air averaged during an 8-hour time period. The peak CO level for employees is 200 ppm. The CO measurements collected during this industrial hygiene evaluation all indicated 0.0 ppm. CO levels were below the OSHA PEL during this industrial hygiene evaluation.

During the industrial hygiene evaluation of the Walton Readiness Center, Bonus Environmental, LLC collected temperature measurements. Temperature measurements throughout the common areas of the facility routinely occupied by employees ranged from 61.7°F to 69.1°F and are not considered to be within an acceptable range outlined within ASHRAE Standard 55-2010.

During the industrial hygiene evaluation of the Walton Readiness Center, Bonus Environmental, LLC collected relative humidity measurements. Relative humidity measurements throughout common areas of the facility routinely occupied by employees ranged from 23.7% to 42.2%. Indoor air quality measurements recorded during this industrial hygiene evaluation are summarized in the table below.

Army National Guard – Walton Readiness Center Indoor Air Quality Measurements									
Location	CO_2	CO	Relative	Temperature					
Locuiton	(ppm)	(ppm)	Humidity (%)	(°F)					
Outdoors, NW side of building (partly sunny)	388	0.0	47.5	42.6					
Locker room	408	0.0	38.9	62.8					
Drill hall	418	0.0	37.7	61.7					
Kitchen	410	0.0	34.6	65.8					
Dining room	417	0.0	31.1	68.7					
Classroom	438	0.0	36.7	69.1					
Garage	404	0.0	23.7	67.6					
Maintenance office	412	0.0	30.6	64.6					
Orderly room	562	0.0	40.2	67.6					
Recruiter's office	411	0.0	29.8	66.9					
Commander's office	532	0.0	42.2	67.5					

Required/Recommended Values

CO₂ - OSHA PEL = 5,000 parts per million (ppm) and ASHRAE Standard 62.1-2010 = no greater than 700 ppm above outdoor

CO - OSHA PEL = 50 ppm and OSHA Ceiling Limit = 200 ppm

Temperature - ASHRAE Standard 55-2010 = between approximately 67 and 82 °F.

RH - ASHRAE Standard 62.1-2010 = limited to < 65%

4.0 – LIGHTING

Utilizing a properly calibrated Cooke Corporation cal-Light 400 light meter, Bonus Environmental, LLC collected illumination readings throughout the Walton Readiness Center. Illumination measurements recorded during this industrial hygiene evaluation are summarized in the table below.

Army National Guard – Walton Readiness Center Lighting Measurements									
Location	Measurement in Foot Candles	Requirement in Foot Candles	Requirement Met?						
Boiler room	33.4	30	Yes						
Basement, State storage	30.6	30	Yes						
Locker room (former indoor firing range)	43.9	7	Yes						
Stairwell to basement	36.4	5	Yes						
Ground floor hallway	25.7	5	Yes						
Kitchen	92.9	50	Yes						
Handicapped restroom	59.0	5	Yes						
Women's restroom	41.9	5	Yes						
Women's shower	68.8	7	Yes						
Dining room	78.4	10	Yes						
Drill hall	134.1	30	Yes						
Men's restroom	55.3	5	Yes						
Men's shower	4.9	7	No						
Classroom	32.9	30	Yes						
Garage	150.2	30	Yes						
Maintenance office	90.4	50	Yes						
NBC room (storage)	22.4	30	No						
Supply room (storage)	50.3	30	Yes						
Arms room (vault)		Inaccessible							
Orderly room	123.5	50	Yes						
Copy room	120.3	10	Yes						
Lt's. office	113.8	50	Yes						
Commander's office	90.2	50	Yes						
1 st Sgt's office	85.7	50	Yes						
Hallway	108.2	5	Yes						
Readiness office	148.2	50	Yes						
State office	114.0	50	Yes						
Recruiter's office	40.1	50	No						
Exterior flammables storage shed		No lighting							

Lighting levels were compared to the levels outlined within the American National Standards Institute/Illuminating Engineering Society of North America (ANSI/IESNA) RP-1-04 Office Lighting Handbook, and the ANSI/IESNA RP-7-01 Lighting Industrial Facilities Handbook. Areas within the facility which did not meet the foot candle requirements are identified with a "NO" within the "Requirement Met?" column. It is recommended that illumination be improved in all the areas that did not meet the requirements. Improving illumination can be achieved by replacing burned-out lamps/bulbs, cleaning fixtures, relocating detailed work activities to more illuminated areas, and using supplemental task lighting.

5.0 - CONCLUSION & LIMITATIONS

Bonus Environmental, LLC was contracted by the National Guard Bureau Region North Industrial Hygiene office to identify and measure the existence and extent of potentially hazardous operations or conditions at the Walton Readiness Center located at 55 South Street in Walton, NY. The purpose of this evaluation was to generate or to update a previous baseline evaluation so that employee exposure history can be provided to each civilian and military employee. Industrial hygiene conditions were evaluated during this industrial hygiene evaluation performed by Bonus Environmental, LLC representative Jeff Walworth on November 15, 2012.

The results/findings of this industrial hygiene evaluation are summarized below.

- 1. Lead wipe sample results collected within the Walton Readiness Center were above the OSHA interpretive level of 200 μg/ft², as well as the 200 μg/ft² threshold established in NG Pam 420-15 in several of the tested areas:
- 2. Bonus Environmental, LLC identified one area of peeling paint which contained detectable levels of lead, potentially posing a lead exposure hazard.
- 3. Bonus Environmental, LLC did not identify any PACM that was considered to be in poor or damaged condition.
- 4. Bonus Environmental, LLC did not identify any water-damaged or moldy building materials.
- 5. Bonus Environmental, LLC found the housekeeping practices within Walton Readiness Center in good order, with the exception of residual lead dust concentrations.
- 6. Following the interviews and observations, no ergonomic and or indoor air quality concerns were identified.
- 7. Bonus Environmental, LLC measured temperature, relative humidity, CO, and CO₂ throughout the Walton Readiness Center. All were found to be within their acceptable ranges/limits; with the exception of several temperature readings.
- 8. Areas within the Walton Readiness Center facility were identified as improperly illuminated.
- 9. Health and Safety policies reviewed at the Walton Readiness Center included Spill Prevention, Radiation Safety, Hazcom, and Safety Risk Management. All were found to meet regulatory requirements.

Bonus Environmental, LLC has 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 Region North -

Industrial Hygiene Office. 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 Bonus Environmental, LLC's inspection of the site.

It has been a pleasure to be of assistance to you. Please contact us if you have any questions concerning this report or if we can be of any further assistance in any other environmental or occupational health matter.

Sincerely,

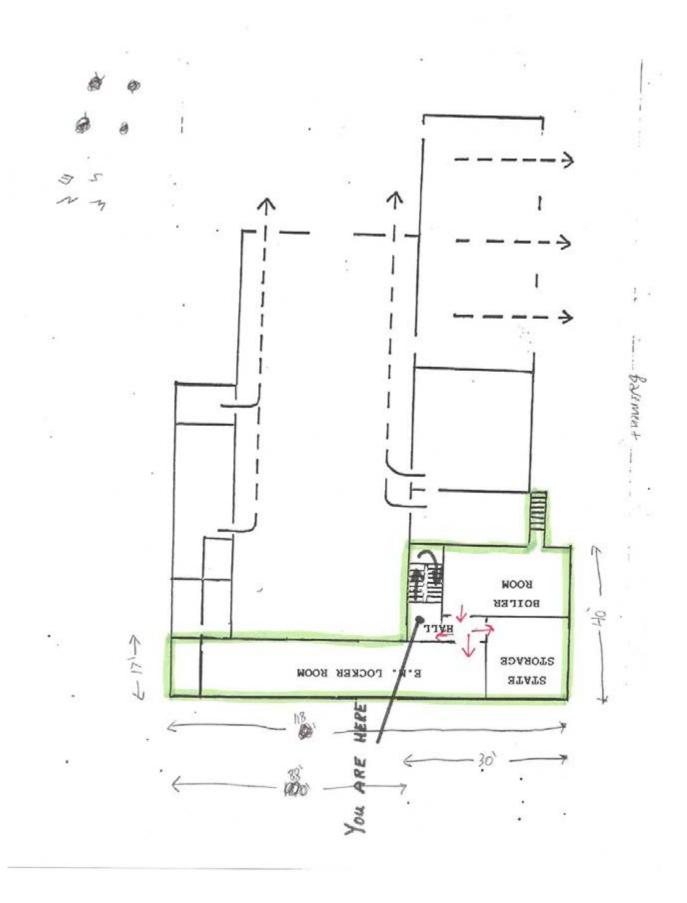


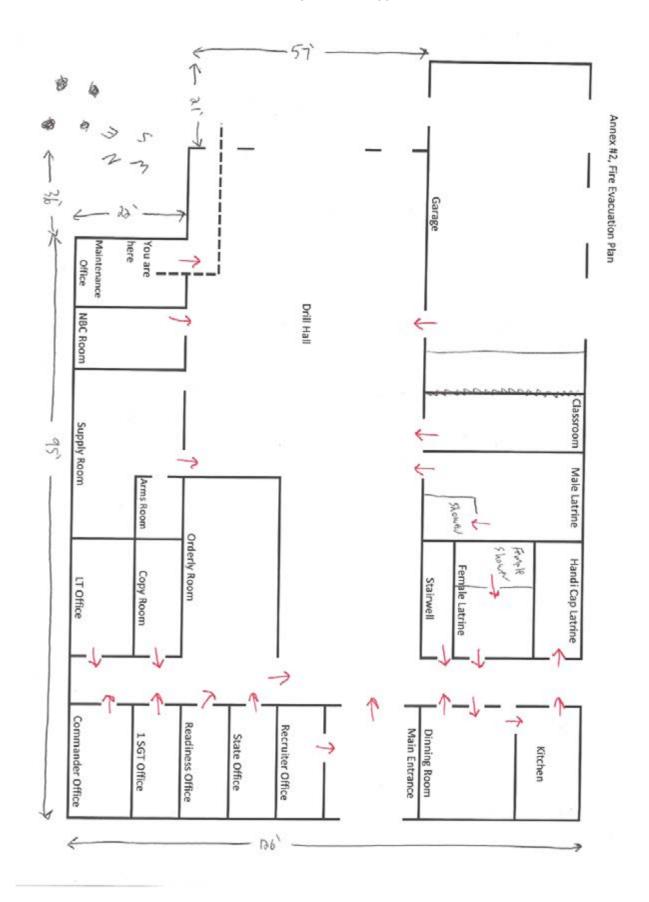
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Appendix A

Shop Diagram and Air Flow Patterns





Appendix B

Lead Sampling Results

AMA Analytical Services, Inc.



CERTIFICATE OF ANALYSIS



Client: Address: National Guard Burcau

Job Name:

Walton RC Walton, NY Chain Of Custody:

514554

301-IH Old Bay Lane, Attn: ARNG-CIG-P, State Military Reservation Job Location: W

Date Submitted:
Person Submitting:

11/21/2012 on-Responsive

Havre de Grace, Maryland 21078

Job Number: 1061-15
P.O. Number: W912K6-09-A-0003

Date Analyzed:

11/28/2012 Report Date: 11/28/2012

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)		orting .imit	Total ug	Final Res	wit	Comments
13016590	WaltenRC-PC-1	Flame	Paint Chip	***	N/A	0.0083	%РЬ		0.031	%РЬ	
13016591	WaltenRC-LW-1	Flame	Wipe Blank	****	N/A	12	υg		<12	ug	
13016592	WaltonRC-LW-2	Flame	Wipe	****	0.111	110	ug/ft²	62	560	ug/ft²	
13016593	WaltonRC-LW-3	Flame	Wipo	****	0.111	110	ug/ft²	≺12	<110	ug/ft°	
13016594	WaltonRC-LW-4	Flame	Wipo	****	0.111	110	ug/fl²	25	230	ug/fi²	
13016595	WaltonRC-LW-5	Flame	Wipc	****	0.111	110	tg/ft²	14	130	ug/fl²	
13016596	WaltonRC-LW-6	Flame	Wipe	****	0.111	110	ug/ft²	180	1600	ug/ft²	
13016597	WaltonRC-LW-7	Flanc	Wipe	****	0.111	110	ug/ft²	<12	<110	ug/ft²	
13016598	WaltonRC-LW-8	Flame	Wipe	****	0.111	110	ug/ft²	24	210	ug/ft²	
13016599	WaltonRC-LW-9	Flame	Wipe	****	0.111	110	ug/ft²	<12	<110	ug/ft²	
13016600	WaltonRC-LW-10	Flame	Wipe	****	0.111	110	ug/ft²	2</td <td><110</td> <td>ug/fl²</td> <td></td>	<110	ug/fl²	
13016601	WaltonRC-LW-II	Flame	Wipe	****	0.111	110	ug/ft²	<12	<110	ug/ft²	
13016602	WaltonRC-LW-12	Flame	Wipe	****	0.111	110	118/ft ²	390	3500	ug/N²	
13016603	WaltonRC-LW-13	Flame	Wipe	****	0.111	110	ug/ft²	100	920	ug/ft²	
13016604	WaltonRC-LW-14	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 when it is addressed and upon the condition that it is not to be used, in whole or in part, in my 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 disciain 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 endersement by NY ELAP, AHA, or any agency of the Federal Government. All rights reserved. AMA Analytical Services, Inc.

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AMA Analytical Services, Inc.



A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS



Client:

National Guard Bureau

Job Name:

Walton RC

Chain Of Custody:

514554 11/21/2012

301-IH Old Bay Lane, Atta: ARNG-CIG-P, State Military Reservation

Client Sample

Job Location: Job Number: P.O. Number:

Air Volume

Walton, NY 1061-15

W912K6-09-A-0003

Date Submitted: Person Submitting: Date Analyzed:

Total ug

Final Result

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

Technical Manager.

11/28/2012 Report Date: 11/28/2012

Attention:

AMA Sample

Havre de Grace, Maryland 21078

Summary of Atomic Absorption Analysis for Lead

Area Wiped

Page 2 of 2

Analysis Method for Flame: Air, Wipes, Painis, and Sol/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-3113E

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

Analysis Type Sample Type

%Pb = percent lead on a dry weight basis ug = micrograms 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.

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quility or condition of apparently identical or sinilar products. As a mutual protection to cliente, the public, and these Leboratories, 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 that sade upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclain any knowledge and inhelity for the accuracy and completeness of this Information. Besident sample material with the discoration in accordance with the appropriator regulatory guildenting the propriator guildenting the guildenting the propriator guildenting the g

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AMA Analytical Services, Inc.
Focused on Results www.amaleb.com
AIHA (#100470) NVLAP (#101143-0) NY ELAP (10920)
4475 Forbes Blvd. - Lanham, MD 20706

CHAIN OF CUSTODY

(Please Refer To This Number For Inquires)

514554

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Surface	Sam	pling	Field	Data	Sheet
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		Truce Other Paris	
Date Collected: //-/5-/2	Job Name:	Walton RC	Company: Bonus Environmental, LLC
Job Number: 1061-15	Job Location:	55 South ST	Phone Number: 989 -779- 7686
Contact Person Non-Responsive	Address:	walton, NY	Collected By:_NON-Responsive
	110 - 100		COC Number:

	Sample Location	Surface/Substrate Sampled	Area Wiped (in ² /ft ²)	Collection Media Chart wife	
-Lw-1	Field Blank		-		
-)	Dist Hall	North will, on AED 1288	4'24"		
-3	OCAL HALL	west wall, on AHV Motor			
-4	Drill Hall	East comer, on weight lifting was hind			
-5	0001 Hall	Along east wall, on Fixt			
-6	pear Hall	floor, center of Rm			
-7	Locker Am (Former indoor Firmy Ruge	Eastend on floor (built) toop Area)			
-8	,	I conser of Run. tot of locker			
-9	j	Wilt end, on Floor		n (6	
-10	Kitchen	North Comer, top of Poter tower during the property			
100	the contract of the contract o	Gar stae, Supplied or grill			
-12		top of welding cart tool box			
-13	Garast	South end, on Floor NE corner window Sil			
	-4 -5 -6 -7 -8 -9 -10 -11 -12	ber -Lw-1 Field Blank -2 Drill Hall -3 Drill Hall -4 Drill Hall -4 Drill Hall -5 Drill Hall -6 Drill Hall -7 Locker Rm (Former indoor Firms Range -8 Locker Rm (Former indoor Firms Range -9 Locker Rm (Former indoor Firms Range -10 Kitchen -11 Classrown -12 Garage	Dist Hall Sample Location Surface/Substrate Sampled (in2/182) -2		



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



Appendix C

Photographs



Building exterior, northwest entrance



Locker room, (former indoor firing range)



Kitchen



Boiler room



Drill Hall



Dining room



Classroom



Garage



Garage, flammables cabinets



Garage, used fluids storage



Garage, peeling beige paint on ceiling



Orderly room

Appendix D

References

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- 2. Army Regulation (AR) 11-34, The Army Respiratory Protection Program, February 15, 1990.
- 3. DA PAM 40-503, Medical Service, Industrial Hygiene Program, October 30, 2000.
- 4. Technical Manual (T.M) 5-810-1, Mechanical Design, Heating, Ventilation, and Air Conditioning, June 1991.
- 5. Threshold Limit Values (TLVs) and Biological Exposure Indices (BEls), American Conference of Governmental Industrial Hygienists (ACGIH), current edition.
- 6. UFC 3-410-01 FA Heating, Ventilating, and Air Conditioning, 15 May 2003, change 4 January 2010
- 7. Occupational Safety and Health Administration (OSHA) Lead in Construction Standard, 29 CFR 1926.62.
- 8. Army Regulation (AR) 385-10, The Army Safety Program, August 23, 2007/RAR 4 Oct. 2011
- 9. RP-1-2004, Office Lighting, Illuminating Engineering Society of North America / American National Standards Institute (IESNA/ANSI).
- 10. RP-7-2001, Industrial Lighting, (IESNA/ANSI).
- 11. ANSI/The American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE), Standard 62.1-2010, "Ventilation for Acceptable Indoor Air Quality".
- 12. ANSI/ASHRAE Standard 55-2010 "Thermal Environmental Conditions for Human Occupancy"
- 13. Title 24, CFR, Part 35, Subpart B, Sections 35.110, Definitions of Lead-Based Paint, Housing and Urban Development, U.S. Department of Housing.
- 14. OSHA Permissible Exposure Limit (PEL) for General Industry 29 CFR 1910.1000 Z-1 Table
- 15. NG PAM 420-15, Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges, 3 November 2006.



400 West Cummings Park, Suite 5850 Woburn, MA 01801 781.756.3800 (fax) 781.729.4648 www.eorm.com

March 3, 2009

Ms. Non-Responsive NGB Region North IH Office 301 – IH Old Bay Lane Havre De Grace, MD 21078 Non-Responsive @us.army.mil

Results of Industrial Hygiene Survey, 62 Poultney Street, Whitehall, NY Re: **EORM® Project No. NATL0009**

Dear Ms. Non-Responsive

At your request, on September 5, 2008, Environmental & Occupational Risk Management, Inc. (EORM®) performed an industrial hygiene survey at the National Guard Readiness Center located at 62 Poultney Street, Whitehall, NY 12887. The observations, methodology, results and discussion are provided in the sections that follow. Should you have any questions please do not hesitate to contact me.

Regards, Reviewed by:

Non-Responsive, MPH Associate EHS Consultant EORM, Inc. Telephone 781.756.3813 E-mail Non-Responsive @eorm.com

Attachments

ve, CIH Senior EHS Consultant

Industrial Hygiene Survey

National Guard Readiness Center 62 Poultney Street Whitehall, NY 12887

Project No. NATL0004

5 September 2008

Prepared by:

E O Environmental and Occupational Risk Management®

400 West Cummings Park, Suite 5850 Woburn, MA 01801

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Executive Summary

Environmental and Occupational Risk Management, Inc. (EORM®) was contracted by the National Guard Bureau Industrial Hygiene Region North Office (NGB IH Office) to perform a baseline industrial hygiene (IH) survey of selected Readiness Centers and administrative buildings located in New York. This report summarizes the results of the Whitehall Readiness Center located at 62 Poultney Street, which occurred on September 5, 2008.

During the IH survey, EORM collected surface wipe samples and personal and area air samples for lead. The results indicate that a relatively small concentration of lead remains on surfaces within the drill hall, NCO room, and throughout the basement. Additionally, a significant amount of surface lead was identified on old fixtures within the former indoor firing range, which is now a locker room. EORM recommends removing the old fixtures from the former indoor firing range and cleaning surfaces throughout the basement and within the drill hall and NCO room. The results of the personal and area air samples indicated that the surface lead was not airborne on the day of EORMs site visit.

The Whitehall Readiness Center appears to be well kept. The first and second floor of the building have no obvious signs of water damage on the walls or ceilings and there is not a lot of dust built up in corners or in hard to clean places. The basement is not as well kept as the first and second floors. There is more dust built up around the space in corners and on surfaces such as shelving. The concrete wall in the basement dining area appears to be breaking apart from moisture. The concrete is beginning to crumble, the paint is peeling, and there is apparent mold growth on the surface of the wall. A sample of the paint from the crumbling wall was collected and sent for lead analysis. The results indicated 35 ppm of lead, which is below the 600 ppm threshold for lead based paint.

Introduction

Environmental and Occupational Risk Management, Inc. (EORM) was contracted by National Guard Bureau Industrial Hygiene Region North Office (NGB IH Office) to perform an industrial hygiene (IH) survey of selected National Guard Armories located in New York. This report summarizes the results of the readiness center located at 62 Poultney Street, Whitehall, New York. The IH survey was performed on September 5, 2008 by Mr. Non-Responsive, Associate EHS Consultant. Ms. Amy Boas, CIH, Senior EHS Consultant, reviewed this report and provided project support. The scope of work completed during this survey included the following:

- Collect wipe samples for lead from surfaces within the drill hall, administration building, and the converted indoor firing range, if present.
- Collect personal or general area full-shift samples for lead on National Guard members during normal activities.
- Inspect the physical condition of the facility and personnel concerns.
- Evaluate the heating, ventilating, and air conditioning system.
- Conduct a lighting survey in all areas of the facility.
- Evaluate the attached garage, if present.
- Collect photographs of the interior and exterior conditions of the readiness center.
- Provide a diagram of the shop layout
- Prepare a detailed report of findings and sampling results, including recommendations for improvement in any areas of concern and conclusion

EORM's survey activities were aided by the generous assistance of Mr Non-Responsive who provided information on the readiness center.

Industrial Hygiene Survey Details

The wipe samples were collected and analyzed in accordance with the Occupational Safety and Health Administration (OSHA) method ID-125G. The samples were analyzed for lead by AMA Analytical Services, Inc. in Lanham, Maryland. AMA is accredited by the American Industrial Hygiene Association.

The analytical laboratory results and chain-of-custody forms corresponding to these samples are provided in Appendix 3. Table 1 includes the results in micrograms of lead per square foot ($\mu g/ft2$).

Table 1: Wipe sample results, September 5, 2008

Sample Number	Location	Description	Area (ft2)	Results (µg/ft2)
WTH-01	Drill hall	Desk top	0.108	160
WTH-02	Drill hall	Grate on heater	0.108	460
WTH-03	Drill hall	Floor	0.108	< 110
WTH-04	Drill hall	Mezzanine locker room bench	0.108	< 110
WTH-05	Recreation room	Top of refrigerator	0.108	< 110
WTH-06	NCO room	Window sill	0.108	2,400
WTH-07	Classroom 2 (basement)	Podium	0.108	< 110
WTH-08	Kitchen (basement)	Top of ice box	0.108	< 110
WTH-09	Dining room (basement)	Table	0.108	< 110
WTH-10	Basement locker room (old IFR)	Desk top	0.108	< 110
WTH-11	Basement locker room (old IFR)	Desk top	0.108	< 110
WTH-12	Basement locker room (old IFR)	Old ceiling mounted unit ventilator	0.108	92,000
WTH-13	Basement locker room (old IFR)	Old light fixture	0.108	92,000
WTH-14	Basement locker room (old IFR)	Floor	0.108	630
WTH-15	Basement	Hall outside of locker room	0.108	160
WTH-16	Basement	Electrical panel	0.108	160
WTH-17	Basement	Shelf near boiler room w/exhaust fan	0.108	270
WTH-18	Basement PT room	Ceiling exhaust grate	0.108	920
WTH-19	2 nd floor supply office	Mantle	0.108	220

There was no lead detected on the field blank

The results indicate that a relatively small concentration of lead remains on surfaces within the drill hall, NCO room, and throughout the basement. Additionally, the results of the surface samples from the old ceiling mounted unit ventilator and old light fixture, which remain in the locker room from the time it was an indoor firing range indicated a significant concentration (92,000 μ g/ft²) of lead.

Personal and Area Air Sample Results

The personal and area air samples were collected and analyzed in accordance with OSHA Method ID-125G. The samples were analyzed for lead by AMA Analytical Services, Inc. in Lanham, Maryland. AMA is accredited by the American Industrial Hygiene Association.

The air samples were collected using a SKC AirChek® sampling pump. Pre- and post-calibration of air flow rates were measured and recorded for the sample using the BIOS DryCal Model DC-I. The personal breathing zone sample was collected by sampling air from the hemisphere forward of the employees shoulders with a radius of approximately 6 to 9 inches from the inhalation area. Mr. Rich Gorman performed day-to-day administrative operations throughout the monitoring period. The area sample was collected from the podium in classroom 2 located in the basement. The field notes and analytical laboratory results and chain-of-custody forms corresponding to these samples are provided in Appendix 3. Table 2 includes the results and a comparison to the respective PEL.

Table 2: Personal Breathing Zone Sample Results, September 5, 2008

Sample Number	Employee	Concentration	OSHA Action Level	OSHA PEL	Exceed PEL or TLV? (Yes / No)
WTH-A1	Mr. Non-Responsive	$< 3.0 \mu g/m3$	30 μg/m3	50 μg/m3	No
WTH-A2	Area sample – basement classroom	$< 3.0 \mu\text{g/m}3$	30 μg/m3	50 μg/m3	No

There was no lead detected on the field blank

The results of the air samples indicated that no detectable airborne concentrations of lead was present on the day of EORM's site visit

Facility Inspection and Employee Concerns

The Whitehall Readiness Center appears to be well kept. The first and second floor of the building have no obvious signs of water damage on the walls or ceilings and there is not a lot of dust built up in corners or in hard to clean places.

The basement is not as well kept as the first and second floors. There is more dust built up around the space in corners and on surfaces such as shelving. The concrete wall in the basement dining area appears to be breaking apart from moisture. The concrete is beginning to crumble, the paint is peeling, and there is apparent mold growth on the surface of the wall. A sample of the paint on the wall was collected and analyzed for lead content. The result indicated there is 35 mg/kg (35 ppm) lead in the paint, which is below the 600 ppm level of which is considered lead based paint by the U.S. Consumer Products Safety Commission 16 CFR 1303 Consumer Products Bearing Lead-Containing Paint.

There is one full-time National Guard employee at the Whitehall Readiness Center. He did not report any indoor air quality issues, such as odors, allergy symptoms, or heating/cooling problems.

There were no reports of ergonomic issues at the Whitehall Readiness Center.

Ventilation System Evaluation

There are no rooms, such as a battery room, film room, or attached garage that would require ventilation. FMS -15 is co-located on the property however, inspection of field maintenance shops was outside of this scope of work.

The general heating, ventilating, and air-conditioning (HVAC) for the Whitehall Readiness Center is accomplished through a combination of a boiler system for heating and window mounted air-conditioners.

Direct-reading measurements for temperature, relative humidity, and carbon dioxide (CO2) were performed using a Q-Trak Plus Indoor Air Quality Monitor (Model #s 8551). This instrument detects CO₂ using a selective infrared absorption method and displays airborne concentrations in units of ppm. This instrument also measures temperature and relative humidity using electrical sensing methods. It displays temperature in degrees Fahrenheit and relative humidity in percent. The manufacturer's recommended yearly calibration was last performed in January 2008.

Table 3: Indoor air quality measurements, September 5, 2008.

Location	Number of Occupants	Temp (°F)	RH (% RH)	CO ₂ (ppm)		
Outdoors		78	69	411		
Basement dining hall	1	76	70	468		
NCO room	2	75	71	469		
2 nd floor supply office	1	76	69	397		

The primary cursors for indoor thermal comfort are temperature and relative humidity. Air temperature is recommended to range from 73 to 79°F during summer and from 68 to 75°F during winter (ASHRAE 55-1992) for indoor office environments. This assumes that building occupants are dressed in normal garments and perform mainly sedentary activities. The results indicated that the indoor temperature ranged from 75 to 76°F, which was within the recommended ranges.

The relative humidity (RH) inside buildings should be maintained between 30 and 60% (ASHRAE-62-2001). When the RH in indoor environments exceeds 60%, microbial growth may occur; whereas, relative humidity below 30% may cause the drying of mucous membranes and discomfort. The results indicated that the indoor relative humidity ranged from 69% to 71% indoors, which exceeded the recommended guideline

The ASHRAE Standard 62-2001, *Ventilation for Acceptable Indoor Air Quality*, has established a reference level based upon human comfort criteria of a maximum CO₂ concentration of 700 ppm above existing outdoor concentrations, below which is suggestive of an adequate quantity of outdoor air supply ventilation to the occupied space. The results indicated the indoor concentration of CO₂ ranged from 397 ppm to 469 pmm and the concurrent outdoor concentration was 411 ppm. This indicates there was sufficient outdoor air supply to the occupied space.

Lighting Survey

The lighting at the Whitehall Readiness Center consists of fluorescent lights and incandescent lights. Fluorescent lighting is used in most areas of the building, including the drill hall and offices. The incandescent lighting is used in the locker room, fallout shelter, and officers lounge. A lighting

survey was conducted using a Cooke Corporation Cal-Light 400L, serial number 1C040084L. The Cal-Light was calibrated by the manufacturer.

The lighting measurements were compared to the Recommended Practice for Lighting Industrial Facilities RP-7-01 and for Office Building RP-1-04. Both RP-7 and RP-1 are approved by the American National Standards Institute (ANSI) and the Illuminating Engineering Society of North America (IESNA). Table 4 below, summarizes the results of the lighting survey.

Table 4: Lighting Survey Results, September 4, 2008

Location	Measurement (fc)	RP-7 Recommended Illuminance Values ¹ (fc)	Meets RP-7 Values? (Yes/No)	Comments		
NCO room	50-77	30	Yes			
Main entrance	7-15	7	Yes			
Break room	26	10	Yes			
Recreation room	32-70	30	Yes			
Drill hall	25-45	30	Yes			
Mezzanine locker room	7-31	7	Yes			
Superintendent's office	No access			Door locked		
Recruiter's office	No access			Door locked		
Storage/supply room	48-97	30	Yes			
2 nd floor supply office	41-51	50	No	Light bank out		
2 nd floor 1 st SGT office	38-44	50	No			
2 nd floor Commander's office	50-85	50	Yes			
2 nd floor ladies room	16-50	7	Yes			
2 nd floor lounge/dining	12-22	10	Yes			
Basement electrical room	10-42	30	Yes	Low in nonworking area		
Basement fallout shelter	7	7	Yes			
Basement pantry	14	10	Yes			
Basement hallway	4-44	7	Yes			
Basement State Guard room	No access			Door locked		
Basement locker room (old IFR)	2-82	7	No	Many lights out		
Basement classroom 1	14-58	50	No	Predominantly below 50		
Basement classroom 2	14-62	50	No	Predominantly below 50		
Basement PT room	14-42	10	Yes			
Basement dining room	15-105	10	Yes	Light bank out		
Basement kitchen	48-110	30-50	Yes			
Maintenance section/storage	14-64	10-30	Yes			
Boiler room	5-61	30	Yes			
Furnace	4-40	30	Yes			
Battery room/storage – inactive fc = footcandles	7-12	5	Yes			

¹ The recommended illuminance values were obtained from the ANSI/IESNA RP-1-04 (Office Lighting) and RP-7-01 (Industrial Lighting)

According to RP-1-04 and RP-7-01, the lighting survey results indicate insufficient lighting in the 2^{nd} floor supply office and 1^{st} SGT office, basement locker room, and basement classrooms. There were several light banks out in the 2^{nd} floor supply office, basement locker room, and basement dining room. The lighting in the remaining areas of the building was sufficient.

Evaluation of Attached Garage

The Whitehall Readiness Center does not have an attached garage.

Conclusions and Recommendations

Based on the observations and results of the industrial hygiene survey, EORM has concluded the following:

- The surface wipe samples for lead indicate there is surface lead within the drill hall, NCO room, and throughout the basement. Additionally, a significant amount of lead was detected on the surfaces of the old ceiling mounted unit ventilator and old light fixture in the old indoor firing range, which is now a locker room. EORM recommends that the unit ventilator and all old light fixtures within the locker room be removed and all surfaces within the drill hall, NCO room and throughout the basement be cleaned by a contractor specializing in lead decontamination.
- The personal and area air samples indicated that the surface lead was not airborne on the day
 of EORM's site visit. However, there was only a one employee onsite during EORM's site
 visit. Additional activities that occur during drills may disturb the surface lead. Therefore all
 lead contaminated surfaces should be cleaned.
- The results of the lighting survey indicate several rooms with insufficient lighting, including the 2nd floor supply office and 1st SGT office, basement locker room, and basement classrooms. The low lighting in the 2nd floor supply office and basement locker room are attributable to light banks being burned out. EORM recommends that the lighting be fixed in these areas. Additional lighting should also be provided to the 1st SGT office and the basement classrooms.

The results of this survey should be communicated to the participants as well as other people who perform similar job duties that did not participate.

Appendix 1 – Whitehall Readiness Center Floor Plan

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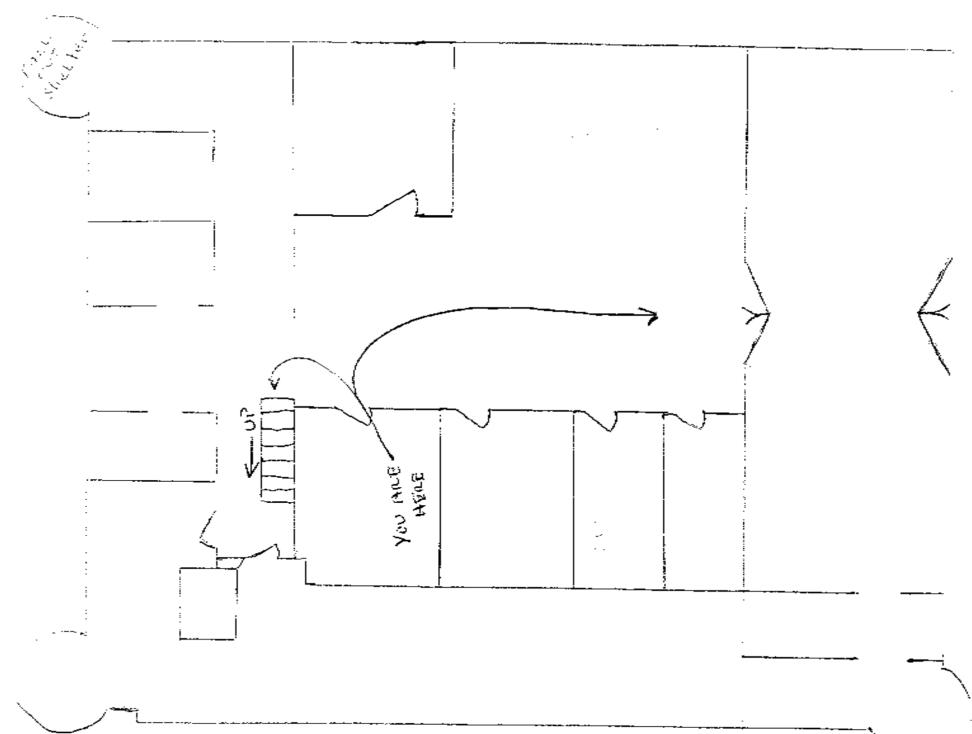
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Store Room: Recreation Maik NCO ENTRANCE from ROOM YOU GAR HORES Sunts office Drill Hall oon Room

> Posted to NGB FOIA Reading Room May, 2018

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FOIA Requested Record #J-15-0085 (NY) Released by National Guard Bureau Page 1339 of 1350

Appendix 2 – Photographs

Photograph 1: Exterior of the building



Photograph 2: Drill hall



Photograph 3: Old IFR - Locker room



Photograph 4: PT room



Photograph 5: Storage area by battery room (exhaust fan servicing PT and classrooms visible)



Photograph 6: Boiler



Photograph 7: Deteriorating wall in dining hall (visible mold growth)



Appendix 3 – Laboratory Analytical Results

AMA Analytical Services, Inc.



CERTIFICATE OF ANALYSIS



Client:

National Guard Bureau

Job Name:

Natioanl Guard Armory-White Hall

Chain Of Custody:

503196

NY ELAP

Address:

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

Job Location:

White Hall NY

Date Submitted:

10/3/2008

10920

State Military Reservation

Havre de Grace, Maryland 21078

Job Number:

P.O. Number:

NATL0004 Not Provided

Person Submitting: Date Analyzed:

10/13/2008

Report Date:

10/13/2008

Attention:

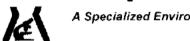
Summary of Atomic Absorption Analysis for Lead

Page 1 of 2

AMA Sample Number	Client Sample Number	Analysis Type	Sample Type	Air Volume (L)	Area Wiped (ft²)	Reporting Limit			Final Res	ult	Comments
	WTH-01	Flame	Wipe	****	0.108	110	ug/ft²		160	ug/ft²	
0901000	WTH-02	Flame	Wipe	****	0.108	110	ug/ft²		460	ug/ft²	
0901001	WTH-03	Flame	Wipe	****	0.108	110	ug/ft²	<	110	ug/ft²	
0901002	WTH-04	Flame	Wipe	****	0.108	110	ug/ft²	<	110	ug/ft²	
0901003	WTH-05	Flame	Wipe	***	0.108	110	ug/ft²	<	110	ug/ft²	
0901004	WTH-06	Flame	Wipe	****	0.108	110	ug/ft²		2400	ug/ft²	
0901005	WTH-07	Flame	Wipe	****	0.108	110	ug/ft²	<	110	ug/ft²	
0901006	WTH-08	Flame	Wipe	****	0.108	110	ug/ft²	<	110	ug/ft²	
0901007	WTH-09	Flame	Wipe	****	0.108	110	ug/ft²	<	110	ug/ft²	
0901008	WTH-10	Flame	Wipe	****	0.108	110	ug/ft²	<	110	ug/ft²	
0901009	WTH-11	Flame	Wipe	****	0.108	110	ug/ft²	<	110	ug/ft²	
0901010	WTH-12	Flame	Wipe	****	0.108	110	ug/ft²		92000	ug/ft²	
0901011	WTH-13	Flame	Wipe	****	0.108	110	ug/ft²		92000	ug/ft^2	
0901012	WTH-14	Flame	Wipe	****	0.108	110	ug/ft²		630	ug/ft²	
0901013	WTH-15	Flame	Wipe	****	0.108	110	ug/ft²		160	ug/ft²	
0901014	WTH-16	Flame	Wipe	****	0.108	110	ug/ft²		160	ug/ft²	
0901015	WTH-17	Flame	Wipe	****	0.108	110	ug/ft²		270	ug/ft²	
0901016	WTH-18	Flame	Wipe	****	0.108	110	ug/ft²		920	ug/ft²	
0901017	WTH-19	Flame	Wipe	****	0.108	110	ug/ft²		220	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.



A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS



Client:

National Guard Bureau

Joh Name: Job Location: National Guard Armory-White Hall

Chain Of Custody:

503196

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Address:

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

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Job Number:

P.O. Number:

NATL0004 Not Provided Person Submitting:

Date Analyzed:

10/13/2008

Report Date:

10/13/2008

Attention:

Summary of Atomic Absorption Analysis for Lead

Page 2 of 2

AMA Sample Number	Client Sample Number	Analysis Type	Sample Type	Air Volume (L)	Area Wiped (ft²)	Rep	oorting .imit	F	inal Res		Comments
0901018	WTH-FB	Flame	Wipe Blank	****	N/A	12	ug	<	12	ug	
0901019	WTH-A1	Flame	Air	0	N/A	3	ug/m³	<	3	ug	
0901020	WTH-A2	Flame	Air	0	N/A	3	ug/m³	<	3	ug	
0901021	WTH-FB	Flame	Air Blank	0	N/A	3	ug/m³	<	3	ug	
0901022	WTH-B1	Flame	Soil/Solid	****	N/A	35	mg/Kg		35	mg/Kg	

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

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

N/A = Not Applicable

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

%Pb = percent lead by weight

ug = micrograms

ug/L = parts per billion (ppb)

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

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

Air and Wipe results are not corrected for any blank results

See QC Summary for analytical results of quality control samples associated with these sampes. NY ELAP accrediation applies only to paint chip, wipe, and water

samples.



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. 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.

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May, 2018

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

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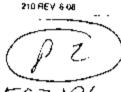
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www.amalah.com Maliba/Billing Information: Submittel Information: Client Name. _____ Job Name: _____ 2. Address to . . _____ 2. Job Location. 3. Job #: #. Contact Person: ______ # phone # _____ 5. Phone #:_____ S. Submitted by: Reporting Information (Results will be provided as soon as technically feasible): AFTER HOLDS (must be pre-schopuled) NORMAL BUSINESS HOURN Li Immediate Date Due. C Immediate D 3 Day LJ 24 Hours Tune Due _____ ☐ Include COO/Field Data Sheets with Report Ti Results Recovered By None O Neat Day O 5 Day + Юиштель: Every Autopace Will Be Jahr Made to Accompdise `⊒ Fax;_____ U Vetals: _____ Asbestos Agalysis TEM Buls PCM Air - Please Indicate Felici Type Lead Analysis H ELAP 198 4/Chatteld _______(QTY) PC MCE Popusity _____ thru 25mm, 37mm 4 Pana Chip ____ ___ (Q1Y) INY Some PLANTEM_____(QTY) ⊒ NIOSR *100_____QTY1 J Dasi Wipe (wape type ________). _____(QTY) □ Fibergiess __ _ ___(QTŶ) → Air_____iQTYi TEM Air Please Indicate Filler Type ☐ Soit/Solid ______(QTY) ☐ Qual Tore Jabat Vacuum/Dust ________(Q1Y) ☐ Quan (Marea) Vacuum DY755-95 _________(Q1Y) PC MCE Porosity ______ in a 25min 37min O TCLP_____QTY1 O Drinking Water ________(Q1y) Ouan. (V2004)Dust D6480-99________(QTY) □ Other (specify ______) _____(QFY) TEM Water ☐ Dust Wipe Furnace (wipe type _______)_____(QTY) PLM Bols Ti ElW 600 - Visual Emimare Mold - Oirect Microscopic Analysis ⊒ E.PA 100 (_______(Q1Y) UNY State Friable 198.1 ______(QTY) ■ Collection Apparatus for Space Traps: _______ J Grav Restriction ELAP 198 0 [QTY) LU All samples received in good condition utiless otherwise noted. □ Spore-Trup _____(QTY) □ Bulk ______(QTY) Older (specify.____ ☐ Surface Swah ______ (QTY) ☐ Surface Vacuum Dust ______ (QTY) - - - - - - - 0171 SAMPLE INFORMATION J Surface Tape (QTY) I Other (Specify (QTY) ANALYSIS CLIENTID SAMPLE LOCATION? VOLUME WIPE CLIENT CONTACT NUMBER IDENTIFICATION а**леж**э AREA — ILABORATORY STAFF ONLY: ひげカーノス WT# - 14 Date/Time: Contact WTH-16 Date/Time: Contact By WIA-18 ひげげ ツろ ♥ Date/fane Contact By KS 17 M - 8.7 I. Date/Time RCVO: ____ / ____ / ____ @ _____ Via: ____ LABORATORY By (Pres). ____ 2. Date/Time Analyzed: _____ / ____ / ____ 60 ____ STAFF ONLY: (CUSTODY) Posted to NGB FOIA Relading Room May, 2018 Released by National Guard Bureau

Appendix 4 – References

American Conference of Governmental Industrial Hygienists (ACGIH). 2007. Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices.

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Code of Federal Regulations (CFR) 29 Part 1910.1000 Air Contaminants.

DODI 6055.1, DOD SO4 Program, 19 August 1998.

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

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

UFC 3-410-01FA, Unified Facilities Criteria (UFC) for Heating, Ventilating, and Air Conditioning, Department of Defense, 15 May 2003.