

NATIONAL GUARD BUREAU

ARMY NATIONAL GUARD NORTH REGION INDUSTRIAL HYGIENE OFFICE 301-IH OLD BAY LANE HAVRE DE GRACE MD 21078

ARNG-CSG-P

3 July 2013

MEMORANDUM FOR Non-Responsive Occupational Health Nurse, Delaware Army National Guard, First Regiment Road, Wilmington, DE 19808

SUBJECT: Executive Summary (EXSUM) for the Industrial Hygiene Wipe Sampling Survey in the former Indoor Firing Range at the Readiness Center in Georgetown, DE on 25 June 2013.

- 1. PURPOSE. The purpose of this Industrial Hygiene (IH) survey was to evaluate the progress of the decontamination and conversion project at the former indoor firing range (IFR) in the Georgetown Readiness Center in Delaware.
- 2. CONCLUSION. The floor, trap wall, and right wall in the Georgetown Readiness Center's former IFR are still contaminated with lead and need to be cleaned again. Also, the back wall in the plenum room was reported contaminated as well.
- RECOMMENDATIONS.
- a. <u>Decontamination Requirements</u>. Re-clean the floor area and walls and decontaminate in accordance with guidance in NG Pam 420-15. (RAC 3) (NG Pam 420-15, reference 1)
- b. <u>Dust Removal</u>. Wipe down or remove the baffles to remove any remaining lead and/or dust. (RAC 4) (NG Pam 420-15, reference 1)
- c. <u>Additional Sampling</u>. Collect more wipe samples once the re-cleaning is completed. (RAC 4) (NG Pam 420-15, reference 1)
- d. <u>Limited Access</u>. Continue to limit access to the former IFR area to personnel involved in the decontamination/conversion operation. (RAC 4) (NG PAM 420-15, reference 1)
- e. <u>Encapsulation</u>. When re-sampling verifies that lead levels are below 200 μg/ft2, coat the walls will a sealant to encapsulate any remaining lead dust. Seal the concrete floors with deck enamel and then tile or cover with linoleum. (RAC 4) (NG PAM 420-15, reference 1)
- 4. ADDITIONAL ASSISTANCE. I am point of contact for this information and can be reached by phone at Non-Responsive or email at Non-Responsive



Regional Industrial Hygienist



NATIONAL GUARD BUREAU

ARMY NATIONAL GUARD NORTH REGION INDUSTRIAL HYGIENE OFFICE 301-IH OLD BAY LANE HAVRE DE GRACE MD 21078

INDUSTRIAL HYGIENE SURVEY SURFACE WIPE SAMPLING FOR LEAD FORMER INDOOR FIRING RANGE GEORGETOWN, DE – 25 JUNE 2013

- REFERENCES. See Appendix A.
- 2. PURPOSE. The purpose of this Industrial Hygiene (IH) survey was to evaluate the progress of the decontamination and conversion project at the former indoor firing range (IFR) in the Georgetown Readiness Center in Delaware.
- 3. GENERAL.
 - a. Background.
- (1) The Delaware Army National Guard (DEARNG) Facilities Management office initiated a project to decontaminate and convert former IFRs in multiple facilities throughout the state.
- (2) A contractor was hired to manage the project and was responsible for the oversight of the cleaning, decontamination, and conversion of each former IFR. The contractor then subcontracted with an independent firm to verify any remaining lead levels were below the 200 micrograms per square foot ($\mu g/ft^2$) limit as published in National Guard Pamphlet (NG PAM) 420-15, Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges (reference 1).
- (3) Once the contractor reported all facilities were below the 200 µg/ft² limit, the Army National Guard (ARNG) North Region Industrial Hygiene (IH) office's assistance was requested in order to verify the contractor's reports.
 - b. Survey Personnel. This survey was conducted on 25 June 2013 by:
 - (1) Non-Responsive Industrial Hygienist, ARNG North Region IH office
 - (2) Non-Responsive, IH Technician (Contractor), ARNG North Region IH office
 - (3) Non-Responsive, Occupational Health Nurse for the DEARNG.
- c. <u>Risk Assessment Codes (RACs)</u>. RACs are assigned to recommendations to help quantify risks to personnel and to aid in the establishment of funding priorities for corrective actions. Health RACs are determined by using the RAC table from the Department of Defense Instruction (DODI) 6055.1 (reference 2). This table is provided in Appendix B of this report.

SUBJECT: Industrial Hygiene Former IFR Wipe Sampling Survey, Georgetown Readiness Center, Georgetown, DE, 25 June 2013

4. METHODOLOGY.

a. Assessment Criteria.

- (1) The United States Army, through DODI 6055.1, Section E3.4.1.2, directs that facilities provide healthful work environments in accordance with the most stringent standards applicable (reference 2).
- (2) The Occupational Safety and Health Administration (OSHA), through the Code of Federal Regulations, have enforceable regulatory standards for workplace safety (reference 3).
- (3) Department of the Army Pamphlet (DA PAM) 40-503, Industrial Hygiene Program, section 1-8, states that Army occupational exposure criteria will be based on the more stringent of standards published by OSHA as Permissible Exposure Limits (PELs), guidance from the American Conference of Governmental Industrial Hygienists (ACGIH) as Threshold Limit Values (TLVs), military unique standards or published guidance from other organizations when the primary standards are not applicable (references 4 and 5).
- (4) In areas containing former IFRs, NG PAM 420-15, Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges, is used to determine satisfactory levels of any lead present in dust (reference 1).
- (5) In areas not part of a former IFR (e.g. the drill hall adjacent to the former IFR), Department of Defense (DoD) Directive-Type Memorandum (DTM) 12-003, Control and Management of Surface Accumulations from Lead, Hexavalent Chromium, an Cadmium Operations, requires that surfaces are maintained as free as practicable of accumulations of lead (reference 6).
- (6) When children are present, we refer to Title 24 of the Code of Federal Regulations, Part 35.1320, Lead-based paint inspections, paint testing, risk assessments, lead-hazard screens, and reevaluations (reference 7). This Housing and Urban Development (HUD) regulation lists a clearance level, specific to floors, of 40 μ g/ft², in the table in section 35.1320(b)(2) and is used to determine if the dwelling unit, worksite or common area passes or fails the clearance test.

b. Wipe Sampling Protocol.

- (1) Procedures. Surface wipe sampling methods were conducted in accordance with NG PAM 420-15 and OSHA's Technical Manual, 5th edition (references 1 and 8).
- (2) Media. Ghost Wipes were used for sample collection and were placed in 68mL HotBlock digestion vessels. Templates (10 cm x 10 cm) were used to ensure uniform wipe area.
- (3) Lab Analysis. All samples were sent to Aerosol Monitoring & Analysis (AMA) Analytical Services, Inc., an American Industrial Hygiene Association (AIHA) accredited

SUBJECT: Industrial Hygiene Former IFR Wipe Sampling Survey, Georgetown Readiness Center, Georgetown, DE, 25 June 2013

laboratory in Lanham, Maryland. The samples were analyzed using the Environmental Protection Agency (EPA) method 600/R-93/200(M)-7000B for Lead (reference 9) (see Appendix E).

5. FINDINGS AND DISCUSSION.

- a. General Information. Prior to this visit, the contractor reported the former IFR was cleaned and all samples were below the 200 μ g/ft² limit. The bullet trap, plenum components, soundproofing, lights, and firing points were removed. The baffles and radiant heaters were left in place. Five chain-link cages were installed.
- b. <u>Wipe Sampling</u>. Surface wipe samples were collected in accordance with the guidance provided in NG Pam 420-15. Sample information is presented in Appendices C and D of this report.
- c. Results. Out of 20 samples collected, 8 tested positive for lead. Five of these 8 were reported above 200 μ g/ft², with 3 of those 5 above 1,000 μ g/ft². Complete surface wipe sample results are provided in Appendix C of this report.
- 6. CONCLUSION. The floor, trap wall, and right wall in the Georgetown Readiness Center's former IFR are still contaminated with lead and need to be cleaned again. Also, the back wall in the plenum room was reported contaminated as well.

7. RECOMMENDATIONS.

- a. <u>Decontamination Requirements</u>. Re-clean the floor area and walls and decontaminate in accordance with guidance in NG Pam 420-15. (RAC 3) (NG Pam 420-15, reference 1)
- b. <u>Dust Removal</u>. Wipe down or remove the baffles to remove any remaining lead and/or dust. (RAC 4) (NG Pam 420-15, reference 1)
- c. <u>Additional Sampling</u>. Collect more wipe samples once the re-cleaning is completed. (RAC 4) (NG Pam 420-15, reference 1)
- d. <u>Limited Access</u>. Continue to limit access to the former IFR area to personnel involved in the decontamination/conversion operation. (RAC 4) (NG PAM 420-15, reference 1)
- e. <u>Encapsulation</u>. When re-sampling verifies that lead levels are below 200 μ g/ft2, coat the walls will a sealant to encapsulate any remaining lead dust. Seal the concrete floors with deck enamel and then tile or cover with linoleum. (RAC 4) (NG PAM 420-15, reference 1)

SUBJECT: Industrial Hygiene Former IFR Wipe Sampling Survey, Georgetown Readiness Center, Georgetown, DE, 25 June 2013

8. ADDITIONAL ASSISTANCE. I am point of contact for this information and can be reached by phone at Non-Responsive or email at Non-Responsive

Non-Responsive

Regional Industrial Hygienist

SUBJECT: Industrial Hygiene Former IFR Wipe Sampling Survey, Georgetown Readiness Center, Georgetown, DE, 25 June 2013

APPENDIX – A REFERENCES

- 1. National Guard Pamphlet (NG PAM) 420-15, Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges, 3 November 2006.
- 2. Department of Defense Instruction (DODI) 6055.1, Department of Defense (DOD) Safety and Occupational Health (SOH) Program, 19 August 1998.
- 3. Title 29 Code of Federal Regulations, Part 1910.1025, Lead, Occupational Safety and Health Administration (OSHA), 2013 Edition.
- 4. Department of the Army Pamphlet (DA PAM) 40-503, The Army Industrial Hygiene Program, 2 April 2013.
- 5. Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices, 2013, American Conference of Governmental Industrial Hygienists, Cincinnati, OH.
- 6. Department of Defense (DoD) Directive-Type Memorandum (DTM) 12-003, Control and Management of Surface Accumulations from Lead, Hexavalent Chromium, and Cadmium Operations, 18 April 2012.
- 7. Title 24 Code of Federal Regulations, Part 35.1320, Lead-based paint inspections, paint testing, risk assessments, lead-hazard screens, and reevaluations, Housing and Urban Development (HUD), 2013 Edition.
- 8. Occupational Safety and Health Administration Technical Manual, TED 01-00-015 [TED 1-0.15A], 5^{th} Edition.
- 9. Environmental Protection Agency (EPA) Method 600/R-93/200(M), Field Analysis of Lead in Paint, Bulk Dust, and Soil by Ultrasonic, Acid Digestion and Colorimetric Measurement, September 1993.

SUBJECT: Industrial Hygiene Former IFR Wipe Sampling Survey, Georgetown Readiness Center, Georgetown, DE, 25 June 2013

APPENDIX – B DERIVING RISK ASSESSMENT CODES (RACs) FOR HEALTH HAZARDS

(Taken from Table 2 of DODI 6055.1 (reference 2))

1. HEALTH HAZARD SEVERITY CODE (HHSC). Using the following procedures to assess points, determine the health hazard severity category (HHSC). The HHSC reflects the magnitude of exposure to a physical, chemical, or biological agent and the medical effects of exposure.

a. Exposure Points Assessed

| | | Exposure Con | ditions | |
|-----------|------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|--------------|------|
| Possible? | <al< th=""><th>Occasionally>AL Always<oel< th=""><th>>AL <=OEL</th><th>>OEL</th></oel<></th></al<> | Occasionally>AL Always <oel< th=""><th>>AL <=OEL</th><th>>OEL</th></oel<> | >AL <=OEL | >OEL |
| NO | 0 | 3 | 5 | 7 |
| YES | 1-2 | 4 | 6 | 8 |

AER = Alternate exposure route, such as skin absorption, ingestion.

AL = Action level, DoD component threshold that triggers surveillance actions, such as microWatts/cm², dB, parts per million.

OEL = Occupational Exposure Limit, DoD exposure limit, such as Threshold Limit Value and Permissible Exposure Limit.

b. Medical Effects Points Assessed.

| Condition | Points |
|---------------------------------------------------------------------------------------------------------|--------|
| No medical effect, such as nuisance noise and nuisance odor | 0 |
| Temporary reversible illness requiring supportive treatment, such as eye irritation and sore throat | 1-2 |
| Temporary reversible illness with a variable but limited period of disability, such as metal fume fever | 3-4 |
| Permanent, non-severe illness or loss of capacity, such as permanent hearing loss | 5-6 |
| Permanent, severe, disabling irreversible illness or death, such as asbestosis and lung cancer | 7-8 |

SUBJECT: Industrial Hygiene Former IFR Wipe Sampling Survey, Georgetown Readiness Center, Georgetown, DE, 25 June 2013

APPENDIX – B – CONTINUED DERIVING RISK ASSESSMENT CODES (RACs) FOR HEALTH HAZARDS

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

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

- 2. ILLNESS PROBABILITY CODE (IPC). Using the following guides to assess points, determine the IPC for health hazards. The IPC is a function of the duration of exposure and the number of exposed personnel.
 - a. Duration of Exposure Points Assessed

| Type of | | Exposure Durat | ion |
|-------------------------|-----------|-------------------------|------------|
| Exposure | 1-8 hr/wk | >8hr/wk, not continuous | Continuous |
| Irregular, intermittent | 1-2 | 4-6 | - |
| Regular, periodic | 2-3 | 5-7 | 8 |

b. Number of Exposed Personnel Points Assessed

| Number of Exposed Personnel | Points |
|--------------------------------|--------|
| <5 | 1-2 |
| 5 to 9 | 3-4 |
| 10 to 49 | 5-6 |
| >49 | 7-8 |

SUBJECT: Industrial Hygiene Former IFR Wipe Sampling Survey, Georgetown Readiness Center, Georgetown, DE, 25 June 2013

APPENDIX – B – CONTINUED DERIVING RISK ASSESSMENT CODES (RACs) FOR HEALTH HAZARDS

c. Determine the IPC for health hazards by totaling the points assessed and using the following guide:

| Total Points (sum of A and B, above) | IPC |
|--------------------------------------|-----|
| 14-16 | Α |
| 10-13 | В |
| 5-9 | С |
| <5 | D |

3. Determine the RAC for health hazards by using the following matrix to measure health hazard severity and mishap probability factors.

| HEALTH HAZARD SEVERITY CODE | ILL A | NESS PROB B | ABILITY C | ODE D |
|--------------------------------------|----------|----------------|-----------|----------|
| I | 1 | 1 | 2 | 3 |
| II | 1 | 2 | 3 | 4 |
| III | 2 | 3 | 4 | 5 |
| IV | 3 | 4 | 5 | 5 |

4. RAC DESCRIPTOR

| RAC | DESCRIPTOR |
|-----|------------|
| 1 | CRITICAL |
| 2 | SERIOUS |
| 3 | MODERATE |
| 4 | MINOR |
| 5 | NEGLIGIBLE |

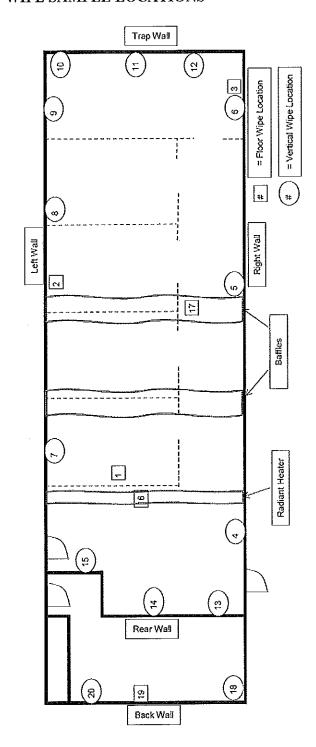
SUBJECT: Industrial Hygiene Former IFR Wipe Sampling Survey, Georgetown Readiness Center, Georgetown, DE, 25 June 2013

APPENDIX – C WIPE SAMPLE INFORMATION

| 1 iii ii i | Distance From Wall: | | | | | | | |
|---------------------------------------------------------|---------------------|--------|--------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Sample Number | Resu | lt | Location | Trap | Rear | Left | Right | Vertical Position: |
| 20130625 Georgetown DE 01 | < 110 | µg/ft² | Floor | The boundary of the second of | 16 ft | ************************************** | 17 ft | |
| 20130625 Georgetown DE 02 | < 110 | µg/ft² | Floor | And the second of the second o | 41 ft | A Company of the Comp | 23 ft | |
| 20130625 Georgetown DE 03 | 3100 | μg/ft² | Floor | 4 ft | | | 2 in | |
| 20130625 Georgetown DE 04 | < 110 | μg/ft² | Wall, Right | | 12 ft | | The same of the sa | 6 ft from floor |
| 20130625 Georgetown DE 05 | < 110 | µg/ft² | Wall, Right | Company Comp | 20 ft | | | 3 ft from floor |
| 20130625 Georgetown DE 06 | 600 | μg/ft² | Wall, Right | 15 ft | | | | 1 ft from floor |
| 20130625 Georgetown DE 07 | < 110 | µg/ft² | Wall, Left | | 24 ft | | | 2 ft from floor |
| 20130625 Georgetown DE 08 | < 110 | μg/ft² | Wall, Left | The second secon | 38 ft | And the second s | | 6 ft from floor |
| 20130625 Georgetown DE 09 | 190 | μg/ft² | Wall, Left | 5 ft | | | | 5 ft from floor |
| 20130625 Georgetown DE 10 | 310 | μg/ft² | Wall, Trap | | | 1 ft | | 6 ft from floor |
| 20130625 Georgetown DE 11 | 4400 | μg/ft² | Wall, Trap | | | | 12 ft | 1 ft from floor |
| 20130625 Georgetown DE 12 | 1300 | μg/ft² | Wall, Trap | | - | | 3 ft | 3 ft from floor |
| 20130625 Georgetown DE 13 | < 110 | µg/ft² | Wall, Rear | The state of the s | 1 | | 3 ft | 3 ft from floor |
| 20130625 Georgetown DE 14 | < 110 | µg/ft² | Wall, Rear | | | The second secon | 10 ft | 6 ft from floor |
| 20130625 Georgetown DE 15 | < 110 | µg/ft² | Wall, Rear | The second secon | | 4 ft | Service of the servic | 1 ft from floor |
| 20130625 Georgetown DE 16 | < 110 | μg/ft² | Heater, Top | doors | | | | between entry |
| 20130625 Georgetown DE 17 | 130 | μg/ft² | Baffle | | of ceili trap wa | | e plate, ii | nside opening |
| 20130625 Georgetown DE 18 | < 110 | μg/ft² | Plenum Rm Wall, Right | | | | | |
| 20130625 Georgetown DE 19 | < 110 | µg/ft² | Plenum Rm, | 13 feet from Right vvali, Adjacent to Back vval | | | | |
| 20130625 Georgetown DE 20 | 200 | μg/ft² | Plenum Rm, Wall, Back | 19 feet from Right Wall, 3 feet from floor | | | | |
| 20130625 Georgetown DE 21 | < 12 | hâ | BLANK | 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 | | The second secon | | |
| 20130625 Georgetown DE 22 | < 12 | μg | BLANK | | | The second secon | | The second secon |

SUBJECT: Industrial Hygiene Former IFR Wipe Sampling Survey, Georgetown Readiness Center, Georgetown, DE, 25 June 2013

APPENDIX – D WIPE SAMPLE LOCATIONS



SUBJECT: Industrial Hygiene Former IFR Wipe Sampling Survey, Georgetown Readiness Center, Georgetown, DE, 25 June 2013

APPENDIX - E LABORATORY RESULTS

AMA Analytical Services, Inc.



A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS



Clicata

National Grant Braces

State Military Resentation Harre de Gesec, Marybert 21018 Job Name:

Delaware IFR Load Characce

Chaia Of Custody:

Person Submittings

Date Auxlyzed:

516206

Address:

301-DH OH Bay Lane, Atte: ARMO-CIG-P.

Job Location:

Job Strater:

P.O. Number:

Georgetown, DE

Met Provided

Date Sabraitted:

6/27/2013

6/28/2013 Report Bate: 7/L/2013

Summary of Atomic Absorption Analysis for Lead

W912K6-09-A-(CO)

Page 1 of 3

| AMA Sample Number | Client Sample Number | Analysis Type | Sample Type | Air Velume (L) | Arta Wiptd (11 ⁹) | • | peling Jedi | Teblog | Final Res | #II | Constructs |
|----------------------|-------------------------------|---------------|-------------|-------------------|----------------------------------|-----|---------------------------|--------|-----------|--------------------|------------|
| 13073796 | 20130625 Georgelown DE 01 | Rame | Wipe | 1916 | 0.111 | 110 | ug Ri | <12 | <110 | 15/81 | |
| 13973797 | 20130525 Georgekown (DE 02 | Pers | Wipe | *1** | 111.0 | 110 | ug/R* | <12 | <110 | ış/ii' | |
| 13973798 | 20130525 Georgetown DE 03 | Flance | Wipo | *2** | 0.111 | 110 | ug/fit | 350 | 3100 | MI. | |
| 13073759 | 20130625 Georgeiown DE 64 | States | Wije | 6191 | Q.H1 | 110 | right. | ⊲≀ | <110 | 操 | |
| 13073500 | 20130/25 Georgetoura DE 05 | Flares | Wipo | 198+ | 0.111 | 110 | क् री [‡] | 41 | <110 | 19/A' | |
| 13073501 | 2013/0625 Georgetown DE CG | Henr | Wipe | 1+#+ | 0.113 | 110 | 35/11/ | 45 | 600 | 13/ft ² | |
| 13073802 | 20130625 Georgelowa DE 07 | Flare | Wipe | 1885 | 0.111 | 110 | ng¶* | <12 | <110 | tg/ll³ | |
| 13073503 | 20136625 Georgetown DE 04 | Flame | Wipe | m | 0.111 | 110 | sg'll ¹ | <12 | <110 | #\U; | |
| 13073504 | 20130625 Georgelown DE 09 | Flags | Wije | f1#f | 0.111 | 110 | ryA' | 21 | 150 | ₩ħ, | |
| 13073595 | 20110623 Georgetown DE 10 | Files | Hips | 4141 | 0.111 | 120 | ng/P | И | 310 | BJ), | |
| 130131925 | 20130625 Georgetown DE 11 | fbr | 胜 | na | 0.111 | 100 | th ^t | 490 | 44(+) | B) (F) | |

This reports perfect using the excepts, for uniqued and he and exceptably helicater of the quilty or our folion of apparently identical or shortly protects. As a mutual protection in object, the public, and these Laboratories, this reports exception of the exce this information. Resident sample material and be discarded in across house with the appropriate regulatory greatering, approxia, or real-number by NY ELAP, APPLy, or very secury of the Post of Companies. All rights reserved, ALLA designated Services, Loc

An AHA (#100470) and NY FLAP (#10320) Accordited Laboratory

4475 Ferbes Blind. · Lankam, MB, 28766 · (301) 459-1640 · Tell Free (860) 346-6961 · Fax (301) 459-264)

SUBJECT: Industrial Hygiene Former IFR Wipe Sampling Survey, Georgetown Readiness Center, Georgetown, DE, 25 June 2013

APPENDIX - E - CONTINUED LABORATORY RESULTS

AMA Analytical Services, Inc.



A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS



Client: Address: National Guard Bacera

Job Name:

Delinare IFR Lead Cleanage

Chain Of Costelly:

516206

JOE-IN OSERS y Lane, Aug: ARXG-C3G-P, State Military Reservation

Job Location

P.O. Nuerber:

Georgefowa, DE

Date Saberitted:

627/2013

Havre de Grace, Maryland 21078

Job Nuraber:

Net Previded W912K6-09-A-0003 Person Submitfug: Date Analyzed:

6/28/2013

Report Dak: 7/1/2013

Attention:



Summary of Atomic Absorption Analysis for Lead

Page 2 of 3

| AMA Sample Nuruber | Client Sample Number | Analysis Type | Sample Type | Air Volume (1) | Area Wilped (N3) | | ertiag .iexil | Total ag | Fisal Re | ıclt | Сеппень |
|-----------------------|-------------------------------|---------------|-------------|-------------------|---------------------|-----|---------------------|-------------|----------|---------------|---------|
| 13073807 | 20130625 George town DE 12 | Has | Wipe | 31.14 | 0.111 | 110 | 4\$\Jj ₁ | 150 | 1360 | BAR? | |
| 13073808 | 2013/0525 Georgedown DE 13 | Hare | Hips | **** | 0.111 | 110 | rg/ll² | <12 | 410 | 13/N² | |
| 13073807 | 20130625 Georgetown DE 14 | Flame | Hipe | ++++ | 9.111 | 110 | tg.R | <12 | <110 | ल्यी, | |
| 13073810 | 20130625 Georgetown DE 15 | Flare | Wipe | 1411 | 0.111 | 110 | 9gN | < <u>12</u> | <110 | ryil: | |
| 13073811 | 20130625 Georgetavan DE 16 | Flame | Wipe | +111 | 2111 | 110 | E₽JJ\$ | <12 | <110 | ayû' | |
| 13073812 | 20130625 Georgelown DE 17 | Hene | Wipe | **** | CHI | 110 | eg/At | 14 | 130 | p)/H | |
| 13973813 | 20130625 Georgetown DE 18 | Hare | Wife | 1154 | 0.111 | 110 | tājj, | <12 | <110 | <i>v∦</i> fi² | |
| 13973314 | 20130625 Georgetawn DE 19 | Huat | Wipe | 4144 | 0.111 | 110 | syll? | <12 | (11> | ng ti | |
| 13073815 | 20130525 Georgetown DE 20 | flane | Wipe | 1171 | 0.111 | 110 | nijî) | n | 20) | aftig, | |
| 13973816 | 20190525 Georgetown DE 21 | Floor | Wat Black | 8168 | N/A | 13 | из | | <12 | ŧţ | |
| 13073817 | 2013CS25 Georgelown DE 22 | Phos | Wipe Blank | 1+11 | N/A | 12 | 體 | | বা | F) . | |

This report applies early to the sample, or samples, insurbated and is not accessarily indicates of the quelity or combine all apparently blueful to similar products. As a material protection to discide, the goods, and described and is not accessarily indicated as, this report is submitted and accepted for the enti-stive saw of the exist for mitter with an about state and sold research and the exist for a saw of th bertien, and collection protects are based upon the information provided by the personant acids given and, unders collected by personal of these Labrandelles, we represely distribute my because and indicate and indicate and completions of this information. But data taken and the control has been destined in accordance with the appropriate registering guidelines, under extensive separated by the closes. This regard must collect must be discussed in accordance with the appropriate registering guidelines, under extensive separated by the closes. This regard must collect must be discussed in accordance with the appropriate registering guidelines, under extensive separated by the closes. This regard must collect must be discussed in accordance with the appropriate registering guidelines. or endocrement by NY FEAR, Allia, or any approy of the French Consummed. All nights reserved. Allia doublised Service, loc-

An AIRA (#169478) and NY ELAP (#18920) Accredited Laboratory

4475 Forbes Blud. · Landam, Mid., 19795 · (301) 459-1640 · Toll Free (508) 346-0961 · Fax (301) 459-2643

SUBJECT: Industrial Hygiene Former IFR Wipe Sampling Survey, Georgetown Readiness Center, Georgetown, DE, 25 June 2013

APPENDIX - E - CONTINUED LABORATORY RESULTS

AMA Analytical Services, Inc.



A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS



Cilent:

Mational Grand Bureau

Job Name;

Delivate BR Lead Clearance

Chaig Of Costedy:

\$1620\$

Address:

301-DLOM Day Last, Alle: ARNO-CIG-P, State Military Reservation

Job Lecation:

Georgetown, DE

Date Subscitted:

(/27/2013

Person Submitting:

Harre de Grace, Maryland 21078

Job Nember: P.O. Nysaber: Na Provided W912K6-09-A-0003

Date Analyzed:

6080013

Repart Date: 7/1/2013

Summary of Atomic Absorption Analysis for Lead

Page 3 of 3

AMA Sample Number

(Theat Sample Noraber

Analysis Type Sample Type

Air Volume (£)

Area Wiped (fi)

Reporting Liwit

Flasi Reselt Total se

Cemments

Analysis Method for Plama: Air, Wiges, Paints, and Scaliscasts; EPA 600rr-93/200(M)-70000; Water: SM-3111B Analysis Method For Furnace: Air, Wipes, Paints, and ScillSolids: EPA 600/R-93/200(M)-7010; Water: SM-3113B

N/A = Not Applicable

eng/Kg = paris per m@on (ppm) on a dky weight basis - mg/L = parts per mi@on (ppm)

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

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

Air and Wipe results are not corrected for any blank results Final results for air and wipe samples are based on client supplied information not verified by this laboratory.

All results are to be considered preliminary and subject to change unless signed by the Technical Director or Ceputy. See QC Summary for analytical results of quality control samples associated with these sameles.





This reports applies only to the example, or sumplies, have digited and it was traces unlighted send for a quality or condition of apparently bloodical or should produce to circle, the policy, and there had produced in this report is salential and accepted for the extensive was of the client to whem it is addressed and expected and the extensive property of the contraction of the extensive was the extensive property of the extensi this information. Untital rough a control will be discussed in accordance with the appropriate regulatory subtities, unless extensive requested by the effect. This expert most real be used to take, as it does not imply product confidencies, approved. or enduranced by NY ELAP, Alilla, or my agency of the Federal Government. All rights reserved, AMA Analytical Strokes, but

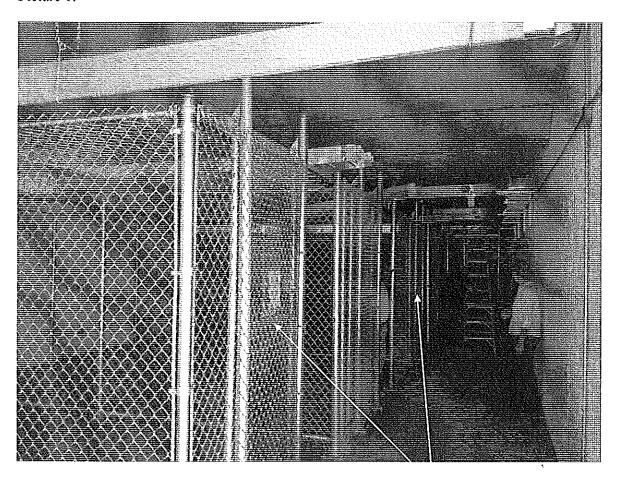
Az Allia (\$109470) and NY ELAP (\$16920) Accredited Laboratory

\$175 Forbes Blvd, · Landam, MD, 20706 · (201) 459-2648 · Toll Free (800) 146-0961 · Fax (801) 459-2643

SUBJECT: Industrial Hygiene Former IFR Wipe Sampling Survey, Georgetown Readiness Center, Georgetown, DE, 25 June 2013

APPENDIX – F PHOTOGRAPHS

Picture 1:

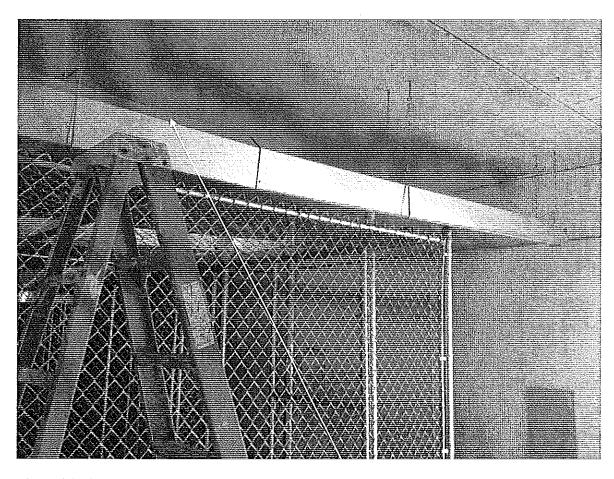


View looking toward "trap" wall from back wall/entry door area. Cages run the length of the room.

SUBJECT: Industrial Hygiene Former IFR Wipe Sampling Survey, Georgetown Readiness Center, Georgetown, DE, 25 June 2013

APPENDIX – F – CONTINUED PHOTOGRAPHS

Picture 2:

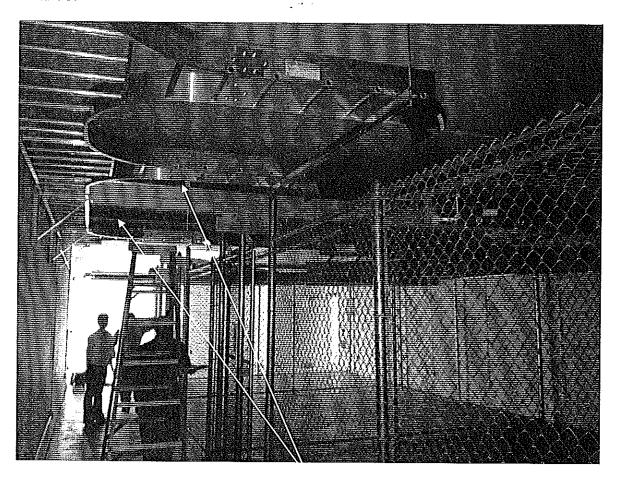


View of the heater, with ladder in place at sampling location.

SUBJECT: Industrial Hygiene Former IFR Wipe Sampling Survey, Georgetown Readiness Center, Georgetown, DE, 25 June 2013

APPENDIX – F – CONTINUED PHOTOGRAPHS

Picture 3:



View from the trap end toward the back wall. Baffles can be seen with ladder at the sampling location.

BEST AVAILABLE COPY



NATIONAL GUARD BUREAU

ARMY NATIONAL GUARD NORTHEAST REGION INDUSTRIAL HYGIENE OFFICE 301-IH OLD BAY LANE HAVRE DE GRACE MD 21078

INDUSTRIAL HYGIENE SURVEY SURFACE WIPE SAMPLING FOR LEAD FORMER INDOOR FIRING RANGE GEORGETOWN, DE – 26 SEPTEMBER 2013

- 1. REFERENCES. See Appendix A.
- 2. PURPOSE. The purpose of this Industrial Hygiene (IH) survey was to reevaluate the progress of the decontamination and conversion project at the former indoor firing range (IFR) in the Georgetown Readiness Center, 109 West Pine St, Georgetown, Delaware.
- 3 GENERAL

a. Background.

- (1) The Delaware Army National Guard (DEARNG) Facilities Management office initiated a project to decontaminate and convert former IFRs in multiple facilities throughout the state.
- (2) A contractor was hired to manage the project and was responsible for the oversight of the cleaning, decontamination, and conversion of each former IFR. The contractor then subcontracted with an independent firm to verify any remaining lead levels were below the 200 micrograms per square foot ($\mu g/ft^2$) limit as published in National Guard Pamphlet (NG PAM) 420-15, Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges (reference 1).
- (3) Once the contractor reported all facilities were below the 200 μ g/ft² limit, personnel from the Army National Guard (ARNG) Northeat Region Industrial Hygiene (IH) office collected wipe samples for analysis. These sample results and locations are listed in Appendices C and D of this report.
- (4) Upon review of the laboratory results, it was determined that some locations in this former IFR were still above the $200 \,\mu\text{g/ft}^2$ limit. The DEARNG Facilities Management office, in consultation with the Occupational Health Nurse and the North Region IH office, brought the contractor back to clean the affected areas.
- b. <u>Survey Personnel</u>. This survey was conducted on 26 September 2013 by <u>Non-Responsive</u> Industrial Hygienist, ARNG Midwest Region IH office
- c. <u>Risk Assessment Codes (RACs)</u>. RACs are assigned to recommendations to help quantify risks to personnel and to aid in the establishment of funding priorities for corrective actions. Health RACs are determined by using the RAC table from the Department of Defense Instruction (DODI) 6055.1 (reference 2).

SUBJECT: Industrial Hygiene Former IFR Wipe Sampling Survey, Georgetown Readiness Center, Georgetown, DE, 26 September 2013

4. METHODOLOGY.

a. Assessment Criteria.

- (1) The United States Army, through DODI 6055.1, Section E3.4.1.2, directs that facilities provide healthful work environments in accordance with the most stringent standards applicable (reference 2).
- (2) The Occupational Safety and Health Administration (OSHA), through the Code of Federal Regulations, have enforceable regulatory standards for workplace safety (reference 3).
- (3) Department of the Army Pamphlet (DA PAM) 40-503, Industrial Hygiene Program, section 1-8, states that Army occupational exposure criteria will be based on the more stringent of standards published by OSHA as Permissible Exposure Limits (PELs), guidance from the American Conference of Governmental Industrial Hygienists (ACGIH) as Threshold Limit Values (TLVs), military unique standards or published guidance from other organizations when the primary standards are not applicable (references 4 and 5).
- (4) In areas containing former IFRs, NG PAM 420-15, Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges, is used to determine satisfactory levels of any lead present in dust (reference 1).

b. Wipe Sampling Protocol.

- (1) Procedures. Surface wipe sampling methods were conducted in accordance with NG PAM 420-15 and OSHA's Technical Manual, 5th edition (references 1 and 6).
- (2) Media. Ghost Wipes were used for sample collection and were placed in 68mL HotBlock digestion vessels. Templates (10 cm x 10 cm) were used to ensure uniform wipe area.
- (3) Lab Analysis. All samples were sent to Aerosol Monitoring & Analysis (AMA) Analytical Services, Inc., an American Industrial Hygiene Association (AIHA) accredited laboratory in Lanham, Maryland. The samples were analyzed using the Environmental Protection Agency (EPA) method 600/R-93/200(M)-7000B for Lead (reference 7) (see Appendix E).

5. FINDINGS AND DISCUSSION.

a. <u>General Information</u>. Prior to this visit, the contractor reported the former IFR was cleaned (2^{nd} time) and all samples were below the $200 \, \mu g/ft^2$ limit. The bullet trap, plenum components, soundproofing, lights, and firing points were removed. The baffles and radiant heaters were left in place. Five chain-link cages were installed.

SUBJECT: Industrial Hygiene Former IFR Wipe Sampling Survey, Georgetown Readiness Center, Georgetown, DE, 26 September 2013

- b. <u>Wipe Sampling</u>. Surface wipe samples were collected in accordance with the guidance provided in NG Pam 420-15. Sample information is presented in Appendix B of this report.
- c. Results. Out of 6 samples collected, 4 tested positive for lead. Three of these 4 were reported above 200 μ g/ft², with none above 1,000 μ g/ft². Complete surface wipe sample results are provided in Appendix B of this report.
- 6. CONCLUSION. The floor and trap wall in the Georgetown Readiness Center's former IFR are still contaminated with lead and need to be cleaned again.

7. RECOMMENDATIONS.

- a. <u>Decontamination Requirements</u>. Re-clean the floor area and wall and decontaminate in accordance with guidance in NG Pam 420-15. (RAC 3) (NG Pam 420-15, reference 1)
- b. <u>Additional Sampling</u>. Collect more wipe samples once the re-cleaning is completed. (RAC 4) (NG Pam 420-15, reference 1)
- c. <u>Limited Access</u>. Continue to limit access to the former IFR area to personnel involved in the decontamination/conversion operation. (RAC 4) (NG PAM 420-15, reference 1)
- d. <u>Encapsulation</u>. When re-sampling verifies that lead levels are below 200 μg/ft2, coat the walls will a sealant to encapsulate any remaining lead dust. Seal the concrete floors with deck enamel and then tile or cover with linoleum. (**RAC 4**) (NG PAM 420-15, reference 1)
- 8. ADDITIONAL ASSISTANCE. I am point of contact for this information and can be reached by phone at Non-Responsive or email at Non-Responsive .



Regional Industrial Hygienist

SUBJECT: Industrial Hygiene Former IFR Wipe Sampling Survey, Georgetown Readiness Center, Georgetown, DE, 26 September 2013

APPENDIX – A REFERENCES

- 1. National Guard Pamphlet (NG PAM) 420-15, Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges, 3 November 2006.
- 2. Department of Defense Instruction (DODI) 6055.1, Department of Defense (DOD) Safety and Occupational Health (SOH) Program, 19 August 1998.
- 3. Title 29 Code of Federal Regulations, Part 1910.1025, Lead, Occupational Safety and Health Administration (OSHA), 2013 Edition.
- 4. Department of the Army Pamphlet (DA PAM) 40-503, The Army Industrial Hygiene Program, 2 April 2013.
- 5. Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices, 2013, American Conference of Governmental Industrial Hygienists, Cincinnati, OH.
- 6. Occupational Safety and Health Administration Technical Manual, TED 01-00-015 [TED 1-0.15A], 5th Edition.
- 7. Environmental Protection Agency (EPA) Method 600/R-93/200(M), Field Analysis of Lead in Paint, Bulk Dust, and Soil by Ultrasonic, Acid Digestion and Colorimetric Measurement, September 1993.

SUBJECT: Industrial Hygiene Former IFR Wipe Sampling Survey, Georgetown Readiness Center, Georgetown, DE, 26 September 2013

APPENDIX – B WIPE SAMPLE INFORMATION

| Sample Number | Result | | | Location |
|---------------|--------|------------------------|--------|------------------------------------|
| 20130926 SC01 | < | 110 μg/ft ² | | Plenum Rm, Floor |
| 20130926 SC02 | | 420 | μg/ft² | Floor, Near Trap, Along Right Wall |
| 20130926 SC03 | | 280 | μg/ft² | Wall, Trap |
| 20130926 SC04 | | 150 | μg/ft² | Floor, Trap |
| 20130926 SC05 | < | 110 | μg/ft² | Floor, Trap |
| 20130926 SC06 | | 300 | μg/ft² | Floor, Near Trap, Along Left Wall |
| 20130926 SC07 | < | 12 | μg | BLANK |

SUBJECT: Industrial Hygiene Former IFR Wipe Sampling Survey, Georgetown Readiness Center, Georgetown, DE, 26 September 2013

$\begin{array}{c} \textbf{APPENDIX-C} \\ \textbf{ORIGINAL WIPE SAMPLE INFORMATION} \end{array}$

| | | | | | Distance From Wall: | | | | |
|------------------------------|----------|------|--------------------|--------------------------|------------------------------------------------|----------------------|------|------------|-----------------------|
| Sample Number | Result | | | Location | Trap | Rear | Left | Right | Vertical Position: |
| 20130625 Georgetown DE 01 | < | 110 | μg/ft ² | Floor | | 16 ft | | 17 ft | |
| 20130625 Georgetown DE 02 | < | 110 | μg/ft ² | Floor | | 41 ft | | 23 ft | |
| 20130625 Georgetown DE 03 | | 3100 | μg/ft² | Floor | 4 ft | | | 2 in | |
| 20130625 Georgetown DE 04 | < | 110 | μg/ft ² | Wall, Right | | 12 ft | | | 6 ft from floor |
| 20130625 Georgetown DE 05 | ٧ | 110 | μg/ft ² | Wall, Right | | 20 ft | | | 3 ft from floor |
| 20130625 Georgetown DE 06 | | 600 | μg/ft² | Wall, Right | 15 ft | | | | 1 ft from floor |
| 20130625 Georgetown DE 07 | ٧ | 110 | μg/ft ² | Wall, Left | | 24 ft | | | 2 ft from floor |
| 20130625 Georgetown DE 08 | ٧ | 110 | μg/ft ² | Wall, Left | | 38 ft | | | 6 ft from floor |
| 20130625 Georgetown DE 09 | | 190 | μg/ft ² | Wall, Left | 5 ft | | | | 5 ft from floor |
| 20130625 Georgetown DE 10 | | 310 | μg/ft² | Wall, Trap | | | 1 ft | | 6 ft from floor |
| 20130625 Georgetown DE 11 | | 4400 | μg/ft² | Wall, Trap | | | | 12 ft | 1 ft from floor |
| 20130625 Georgetown DE 12 | | 1300 | μg/ft² | Wall, Trap | | | | 3 ft | 3 ft from floor |
| 20130625 Georgetown DE 13 | < | 110 | μg/ft² | Wall, Rear | | | | 3 ft | 3 ft from floor |
| 20130625 Georgetown DE 14 | < | 110 | μg/ft² | Wall, Rear | | | | 10 ft | 6 ft from floor |
| 20130625 Georgetown DE 15 | ٧ | 110 | μg/ft ² | Wall, Rear | | | 4 ft | | 1 ft from floor |
| 20130625 Georgetown DE 16 | < | 110 | μg/ft ² | Heater, Top | doors | | | | I between entry |
| 20130625 Georgetown DE 17 | | 130 | μg/ft² | Baffle | | of ceilir trap wa | _ | e plate, i | nside opening |
| 20130625 Georgetown DE 18 | ' | 110 | μg/ft² | Plenum Rm Wall, Right | 2 inches from Back Wall, 6 feet from floor | | | | |
| 20130625 Georgetown DE 19 | ' | 110 | μg/ft² | Plenum Rm, Floor | 13 feet from Right Wall, Adjacent to Back Wall | | | | |
| 20130625 Georgetown DE 20 | | 200 | μg/ft² | Plenum Rm, Wall, Back | 19 feet from Right Wall, 3 feet from floor | | | | |
| 20130625 Georgetown DE 21 | < | 12 | μg | BLANK | | | | | |
| 20130625 Georgetown DE 22 | < | 12 | μg | BLANK | | | | | |

BEST AVAILABLE COPY

ARNG-CSG-P

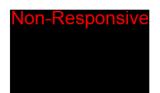
SUBJECT: Industrial Hygiene Former IFR Wipe Sampling Survey, Georgetown Readiness Center, Georgetown, DE, 26 September 2013

APPENDIX – D ORIGINAL WIPE SAMPLE LOCATIONS



SUBJECT: Industrial Hygiene Former IFR Wipe Sampling Survey, Georgetown Readiness Center, Georgetown, DE, 26 September 2013

APPENDIX – E LABORATORY RESULTS





BEST AVAILABLE COPY



NATIONAL GUARD BUREAU

ARMY NATIONAL GUARD NORTHEAST REGION INDUSTRIAL HYGIENE OFFICE 301-IH OLD BAY LANE HAVRE DE GRACE MD 21078

INDUSTRIAL HYGIENE SURVEY SURFACE WIPE SAMPLING FOR LEAD SCANNELL FORMER INDOOR FIRING RANGE DELAWARE CITY, DE – 11 SEPTEMBER 2013

- 1. REFERENCES. See Appendix A.
- 2. PURPOSE. The purpose of this Industrial Hygiene (IH) survey was to reevaluate the progress of the decontamination and conversion project at the former indoor firing range (IFR) in the Scannell Readiness Center, 248 Kent Ave, Delaware City, Delaware.
- 3 GENERAL

a. Background.

- (1) The Delaware Army National Guard (DEARNG) Facilities Management office initiated a project to decontaminate and convert former IFRs in multiple facilities throughout the state.
- (2) A contractor was hired to manage the project and was responsible for the oversight of the cleaning, decontamination, and conversion of each former IFR. The contractor then subcontracted with an independent firm to verify any remaining lead levels were below the 200 micrograms per square foot ($\mu g/ft^2$) limit as published in National Guard Pamphlet (NG PAM) 420-15, Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges (reference 1).
- (3) Once the contractor reported all facilities were below the $200 \,\mu\text{g/ft}^2$ limit, the Army National Guard (ARNG) North Region Industrial Hygiene (IH) office's assistance was requested in order to verify the contractor's reports. These sample results and locations are listed in Appendices C and D of this report.
- (4) Upon review of the laboratory results, it was determined that some locations in this former IFR were still above the $200 \,\mu\text{g/ft}^2$ limit. The DEARNG Facilities Management office, in consultation with the Occupational Health Nurse and the North Region IH office, brought the contractor back to clean the affected areas.
- b. <u>Survey Personnel</u>. This survey was conducted on 11 September 2013 by <u>Non-Responsive</u>, Industrial Hygienist, ARNG Midwest Region IH office.
- c. <u>Risk Assessment Codes (RACs)</u>. RACs are assigned to recommendations to help quantify risks to personnel and to aid in the establishment of funding priorities for corrective actions. Health RACs are determined by using the RAC table from the Department of Defense Instruction (DODI) 6055.1 (reference 2).

SUBJECT: Industrial Hygiene Former IFR Wipe Sampling Survey, Scannell Readiness Center, Delaware City, DE, 11 September 2013

4. METHODOLOGY.

a. Assessment Criteria.

- (1) The United States Army, through DODI 6055.1, Section E3.4.1.2, directs that facilities provide healthful work environments in accordance with the most stringent standards applicable (reference 2).
- (2) The Occupational Safety and Health Administration (OSHA), through the Code of Federal Regulations, have enforceable regulatory standards for workplace safety (reference 3).
- (3) Department of the Army Pamphlet (DA PAM) 40-503, Industrial Hygiene Program, section 1-8, states that Army occupational exposure criteria will be based on the more stringent of standards published by OSHA as Permissible Exposure Limits (PELs), guidance from the American Conference of Governmental Industrial Hygienists (ACGIH) as Threshold Limit Values (TLVs), military unique standards or published guidance from other organizations when the primary standards are not applicable (references 4 and 5).
- (4) In areas containing former IFRs, NG PAM 420-15, Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges, is used to determine satisfactory levels of any lead present in dust (reference 1).

b. Wipe Sampling Protocol.

- (1) Procedures. Surface wipe sampling methods were conducted in accordance with NG PAM 420-15 and OSHA's Technical Manual, 5th edition (references 1 and 6).
- (2) Media. Ghost Wipes were used for sample collection and were placed in 68mL HotBlock digestion vessels. Templates (10 cm x 10 cm) were used to ensure uniform wipe area.
- (3) Lab Analysis. All samples were sent to Aerosol Monitoring & Analysis (AMA) Analytical Services, Inc., an American Industrial Hygiene Association (AIHA) accredited laboratory in Lanham, Maryland. The samples were analyzed using the Environmental Protection Agency (EPA) method 600/R-93/200(M)-7000B for Lead (reference 7) (see Appendix E).

5. FINDINGS AND DISCUSSION.

a. <u>General Information</u>. Prior to this visit, the contractor reported the former IFR was cleaned (2^{nd} time) and all samples were below the $200~\mu g/ft^2$ limit. The bullet trap, plenum components, soundproofing, and firing points were removed. Parts of the soundproofing material and some of the adhesive mastic were still on the walls at the time of this survey. Lockers were also present in the former IFR.

SUBJECT: Industrial Hygiene Former IFR Wipe Sampling Survey, Scannell Readiness Center, Delaware City, DE, 11 September 2013

- b. <u>Wipe Sampling</u>. Surface wipe samples were collected in accordance with the guidance provided in NG Pam 420-15. Sample information is presented in Appendix B of this report.
- c. Results. Out of 9 samples collected, 5 tested positive for lead. Two of these 5 were reported above 200 $\mu g/ft^2$, while none were reported above 1,000 $\mu g/ft^2$. Complete surface wipe sample results are provided in Appendix B of this report.
- 6. CONCLUSION. The floor and trap wall in the former range area are still contaminated with lead and need to be cleaned again. Also, the soundproofing and mastic should be completely removed from the walls prior to encapsulation.

7. RECOMMENDATIONS.

- a. <u>Decontamination Requirements</u>. Re-clean the floor areas and trap wall in accordance with guidance in NG Pam 420-15. (RAC 3) (NG Pam 420-15, reference 1)
- b. <u>Soundproofing/Mastic Removal</u>. Remove all soundproofing and mastic from the walls prior to any encapsulation efforts. (**RAC 4**) (NG Pam 420-15, reference 1)
- c. <u>Additional Sampling</u>. Collect more wipe samples once the re-cleaning is completed. (RAC 4) (NG Pam 420-15, reference 1)
- d. <u>Limited Access</u>. Continue to limit access to the former IFR area to personnel involved in the decontamination/conversion operation. (RAC 4) (NG PAM 420-15, reference 1)
- e. <u>Encapsulation</u>. When re-sampling verifies that lead levels are below 200 μg/ft2, coat the walls will a sealant to encapsulate any remaining lead dust. Seal the concrete floors with deck enamel and then tile or cover with linoleum. (**RAC 4**) (NG PAM 420-15, reference 1)
- 8. ADDITIONAL ASSISTANCE. I am point of contact for this information and can be reached by phone at Non-Responsive or email at Non-Responsive



SUBJECT: Industrial Hygiene Former IFR Wipe Sampling Survey, Scannell Readiness Center, Delaware City, DE, 11 September 2013

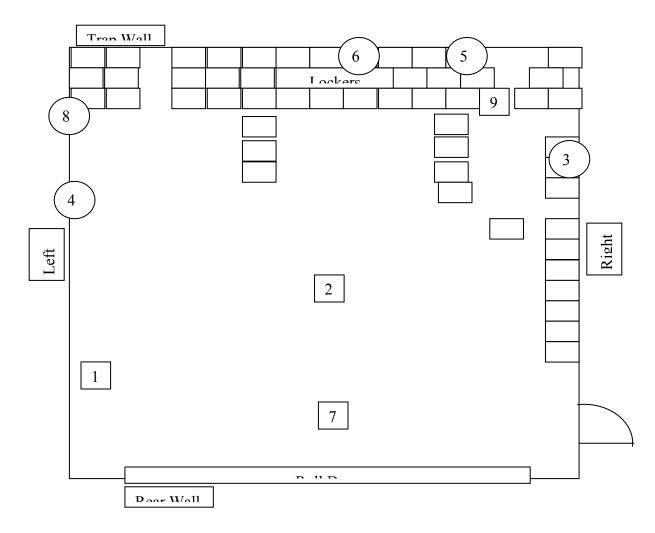
APPENDIX – A REFERENCES

- 1. National Guard Pamphlet (NG PAM) 420-15, Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges, 3 November 2006.
- 2. Department of Defense Instruction (DODI) 6055.1, Department of Defense (DOD) Safety and Occupational Health (SOH) Program, 19 August 1998.
- 3. Title 29 Code of Federal Regulations, Part 1910.1025, Lead, Occupational Safety and Health Administration (OSHA), 2013 Edition.
- 4. Department of the Army Pamphlet (DA PAM) 40-503, The Army Industrial Hygiene Program, 2 April 2013.
- 5. Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices, 2013, American Conference of Governmental Industrial Hygienists, Cincinnati, OH.
- 6. Occupational Safety and Health Administration Technical Manual, TED 01-00-015 [TED 1-0.15A], 5th Edition.
- 7. Environmental Protection Agency (EPA) Method 600/R-93/200(M), Field Analysis of Lead in Paint, Bulk Dust, and Soil by Ultrasonic, Acid Digestion and Colorimetric Measurement, September 1993.

SUBJECT: Industrial Hygiene Former IFR Wipe Sampling Survey, Scannell Readiness Center, Delaware City, DE, 11 September 2013

APPENDIX – B WIPE SAMPLE INFORMATION

| Sample Number | Result | | | Location | | | |
|---------------|--------|-----|--------------------|-------------------------------|--|--|--|
| 20130911 SC01 | < | 110 | μg/ft² | Floor, Near Left/Rear Wall | | | |
| 20130911 SC02 | | 190 | μg/ft² | Floor, Center of Room | | | |
| 20130911 SC03 | < | 110 | μg/ft² | Wall, Right, Near Trap | | | |
| 20130911 SC04 | | 130 | μg/ft² | Wall, Left, Middle | | | |
| 20130911 SC05 | | 490 | μg/ft ² | Wall, Trap, Right Side | | | |
| 20130911 SC06 | | 140 | μg/ft² | Wall, Trap, Middle | | | |
| 20130911 SC07 | ٧ | 110 | μg/ft² | Floor, Middle, Near Rear Wall | | | |
| 20130911 SC08 | < | 110 | μg/ft² | Wall, Left, Near Trap | | | |
| 20130911 SC09 | | 740 | μg/ft² | Floor, Near Trap, Right Side | | | |
| 20130926 SC10 | ٧ | 12 | μg | BLANK | | | |

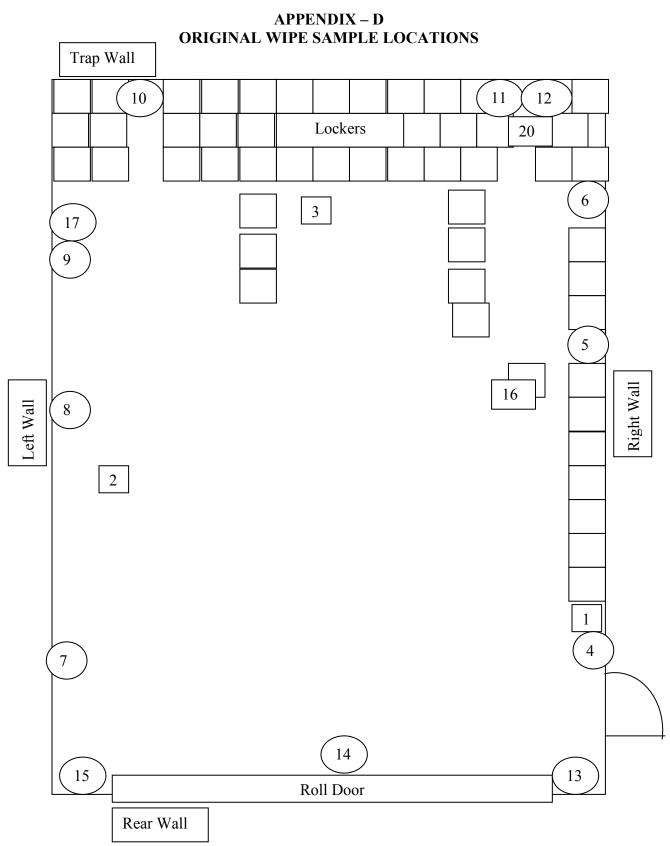


SUBJECT: Industrial Hygiene Former IFR Wipe Sampling Survey, Scannell Readiness Center, Delaware City, DE, 11 September 2013

$\label{eq:appendix-C} \mbox{APPENDIX-C} \\ \mbox{ORIGINAL WIPE SAMPLE INFORMATION}$

| | | Distance From Wall: | | | | Vall: | | | |
|----------------------------|--------|---------------------|--------------------|------------------|---------------------------------------------------------------------------------------------|-------|------|-------|-----------------------|
| Sample Number | Result | | | Location | Trap | Rear | Left | Right | Vertical Position: |
| 20130626 Scannell DE 01 | ٧ | 110 | μg/ft ² | Floor | | 10 ft | | 6 in | |
| 20130626 Scannell DE 02 | | 350 | μg/ft² | Floor | | 32 ft | 2 ft | | |
| 20130626 Scannell DE 03 | | 280 | μg/ft² | Floor | 9 ft | | | 10 ft | |
| 20130626 Scannell DE 04 | ٧ | 110 | μg/ft ² | Wall, Right | | 6 ft | | | 6 ft from floor |
| 20130626 Scannell DE 05 | ٧ | 110 | μg/ft ² | Wall, Right | | 50 ft | | | 3 ft from floor |
| 20130626 Scannell DE 06 | | 1,000 | μg/ft² | Wall, Right | 9 ft | | | | 1 ft from floor |
| 20130626 Scannell DE 07 | ٧ | 110 | μg/ft ² | Wall, Left | | 8 ft | | | 6 ft from floor |
| 20130626 Scannell DE 08 | ٧ | 110 | μg/ft ² | Wall, Left | | 25 ft | | | 3 ft from floor |
| 20130626 Scannell DE 09 | | 240 | μg/ft² | Wall, Left | 21 ft | | | | 1 ft from floor |
| 20130626 Scannell DE 10 | | 140 | μg/ft ² | Wall, Trap | | | 4 ft | | 3 ft from floor |
| 20130626 Scannell DE 11 | | 31,000 | μg/ft² | Wall, Trap | | | | 3 ft | 6 ft from floor |
| 20130626 Scannell DE 12 | | 230 | μg/ft² | Wall, Trap | | | | 3 ft | 1 ft from floor |
| 20130626 Scannell DE 13 | ٧ | 110 | μg/ft ² | Wall, Rear | | | | 6 in | 6 ft from floor |
| 20130626 Scannell DE 14 | | 300 | μg/ft² | Wall, Rear | | | | 10 ft | 4 ft from floor |
| 20130626 Scannell DE 15 | ٧ | 110 | μg/ft ² | Wall, Rear | | | 1 ft | | 1 ft from floor |
| 20130626 Scannell DE 16 | ٧ | 110 | μg/ft ² | Locker Top | Locker tag: SPC Sandoval, B | | | | |
| 20130626 Scannell DE 17 | | 1,000 | μg/ft² | Vertical Beam | Beam on Left Wall, 24 feet from Trap Wall / 4 feet from floor on the Rear Wall side of Beam | | | | |
| 20130626 Scannell DE 20 | | 800 | μg/ft² | Floor | 3 feet from Right Wall / 1 foot from Trap Wall, on floor under lockers | | | | |
| 20130626 Scannell DE 18 | ٧ | 12 | μg | BLANK | | | | | |
| 20130626 Scannell DE 19 | ٧ | 12 | μg | BLANK | | | | | |

SUBJECT: Industrial Hygiene Former IFR Wipe Sampling Survey, Scannell Readiness Center, Delaware City, DE, 11 September 2013



SUBJECT: Industrial Hygiene Former IFR Wipe Sampling Survey, Scannell Readiness Center, Delaware City, DE, 11 September 2013

APPENDIX – E LABORATORY RESULTS





BEST AVAILABLE COPY

NATIONAL GUARD BUREAU ARMY NATIONAL GUARD REGION NORTH INDUSTRIAL HYGIENE OFFICE ATTN: NGB-AVN-SI 301-IH OLD BAY LANE STATE MILITARY RESERVATION HAVRE DE GRACE, MARYLAND 21078

NGB-AVN-SI (40-5)

9 March 2000

MEMORANDUM FOR Commander, A Company, 280th Signal Battalion, LTC John H. Pigman Armory, P.O. Box 720, Seaford, DE 19973-0720

SUBJECT: Indoor Firing Range Survey Report

- 1. Enclosed is the industrial hygiene survey report completed by the U.S. Army Center for Health Promotion and Preventive Medicine (USACHPPM) on the indoor firing range in your armory.
- 2. Evaluation within this report includes the following areas and programs:
- Ventilation Systems
- ➤ Air Sampling
- ➤ Housekeeping
- > Respiratory Protection
- > Personal Protective Equipment
- ➤ Lighting
- > Training Programs
- 3. I concur with the recommendations made by 1LT of the range as UNSAFE FOR USE. He conducted a very thorough inspection and made many recommendations for improvement.
- 4. The results of one air sample was 0.04 mg/m³. According to NGR 385-15, this documented level of lead mandates a reduced amount of time in the firing range for military who are exposed over 30 days and for all non-military personnel who fire in the range. Those personnel are not allowed to fire more than 4.5 hours a day in the firing range. Please ensure that this rule is followed and that exposure times are documented for these individuals.

NGB-AVN-SI (40-5), 9 Mar 00 SUBJECT: Baseline Industrial Hygiene Report

5. Please contact me at (410) 942-0273 or 1-800-550-6967 if you have any questions regarding the enclosed report.



Encl

Survey Report

CF:

DEARNG State Safety Manager, ATTN: CW4 Non-Responsive

BEST AVAILABLE COPY



DEPARTMENT OF THE ARMY U.S. ARMY CENTER FOR HEALTH PROMOTION AND PREVENTIVE MEDICINE - NORTH **4411 LLEWELLYN AVENUE** FORT GEORGE G. MEADE, MARYLAND 20755-5225

1 7 FEB 2000

MCHB-AN-IH (40-5f)

MEMORANDUM FOR Chief, Army National Guard Readiness Center, Director of Army Aviation and Safety, ATTN: NGB-AVN-S, 111 South George Mason Drive, Arlington, Virginia 22204-1382

SUBJECT: Industrial Hygiene Study No. 55-NH-4426-99, Pigman Armory Indoor Firing Range, Delaware Army National Guard, 15 - 16 September 1999.

Copies of this report, with executive summary, are enclosed. Please call 1LT [DSN Non-Responsive or commercial if additional assistance is required.

Encl

Commanding

CF (w/encl):

HQDA (NGB-ARP-H)

HQDA (NGB-AVN-SI-N) (3 cy)

TAG, STATE OF DELEWARE, ATTN: STATE SAFETY MANAGER

CDR, MEDCOM, ATTN: MCHO-CL-W

CDR, AMEDDC&S, ATTN: MCHA-MP

CDR, NARMC

CDR, WRAMC, ATTN: PVNTMED SVC

CDR, USAMEDDAC, FGGM, ATTN: PVNTMED SVC

CDR, USACHPPM, ATTN: MCHB-TS-OFS

CDR, USACHPPM, ATTN: MCHB-CS-IID

CDR, USACHPPM-SOUTH, ATTN: MCHB-AS-IH

CDR, USACHPPM-WEST, ATTN: MCHB-AW-IH

Readiness thru Health

BEST AVAILABLE COPY



FOIA Requested Record #J-15-0085 (DE) Released by National Guard Bureau Page 36 of 547

BEST AVAILABLE COPY



DEPARTMENT OF THE ARMY U.S. ARMY CENTER FOR HEALTH PROMOTION AND PREVENTIVE MEDICINE - NORTH 4411 LLEWELLYN AVENUE FORT GEORGE G. MEADE, MARYLAND 20755-5225

REPLY TO ATTENTION OF

EXECUTIVE SUMMARY INDUSTRIAL HYGIENE STUDY NO. 55-NH-4426-99 PIGMAN ARMORY INDOOR FIRING RANGE DELEWARE ARMY NATIONAL GUARD 15 - 16 SEPTEMBER 1999

- 1. PURPOSE. To evaluate lead exposure and engineering controls of an indoor firing range located at the Pigman Armory, Seaford, Delaware, and recommend appropriate corrective actions.
- 2. CONCLUSIONS. The Pigman Armory, Seaford, Delaware, Indoor Firing Range is concluded to be UNSAFE FOR USE, according to applicable criteria.
- 3. RECOMMENDATIONS. Discontinue use of the firing range until modifications or upgrades can be accomplished to the building envelope, make up air system, and exhaust ventilation system, and schedule a re-evaluation through the National Guard Bureau Industrial Hygiene Office. Implement written procedures, policies and facility modifications, as delineated in this report. Conduct detailed annual inspections using DA FORM 5688-R within forty-five days of the anniversary date of the last annual inspection. Procure and use a High Efficiency Particulate Air (HEPA) vacuum system for routine cleaning of the range. Designate personnel responsible as range officer, range non-commissioned officer, and range cleaning personnel; enroll them in an annual blood lead-monitoring program; and provide training in the proper procedures for cleaning the facility. Establish and implement a Respiratory Protection Program that meets all regulatory requirements.

Readiness thru Health



DEPARTMENT OF THE ARMY U.S. ARMY CENTER FOR HEALTH PROMOTION AND PREVENTIVE MEDICINE - NORTH 4411 LLEWELLYN AVENUE

FORT GEORGE G. MEADE, MARYLAND 20755-5225

1 7 FEB 2000

INDUSTRIAL HYGIENE STUDY NO. 55-NH-4426-99 PIGMAN ARMORY INDOOR FIRING RANGE DELEWARE ARMY NATIONAL GUARD 15 - 16 SEPTEMBER 1999

- 1. REFERENCES. See Appendix A for a listing of references.
- 2. AUTHORITY. This survey was conducted at the request of the Industrial Hygiene Office, National Guard Bureau, Havre de Grace, Maryland.
- 3. PURPOSE. To evaluate lead exposure and engineering controls at the Pigman Armory, Seaford Delaware, indoor firing range, and recommend appropriate corrective actions.
- 4. GENERAL.
 - a. Personnel Contacted.
- State Safety Manager, Delaware Army National (1) CW Guard.
 - Readiness NCO, A Company, 280TH Signal Battalion.
- ponsive, Industrial Hygienist, Industrial Hygiene Office, National Guard Bureau, Havre de Grace, Maryland.
- b. Entrance/Exit Briefings. An entrance briefing was conducted with SFC Ponsive Readiness NCO, A Company, 280TH Signal Battalion, and CW4 Safety Manager, Delaware Army National Guard, on 15 September 1999. An exit briefing was conducted on 16 September 1999 with SFC Nonwhich time preliminary findings and recommendations were discussed.
- ESO (Environmental Science c. Study Personnel. 1LT Non-F ESO, both of the Industrial Hygiene Officer), and CPT Non-Responsive Division, US Army Center for Health Promotion and Preventive Medicine (USACHPPM)-North, Fort George G. Meade, Maryland, conducted this study.

Readiness thru Health

SUBJECT: Industrial Hygiene Study No. 55-NH-4426-99, 15-16 September 1999

d. <u>Background</u>. The Pigman Armory firing range is a three-position indoor facility, constructed in October 1984, and is used for weapons familiarization by National Guard personnel, local police agencies, and Naval Junior Reserve Officer Training Corps (JROTC) personnel. This indoor range was classified as "Safe", as per Memorandum, National Guard Bureau (NGB) Regional Industrial Hygiene Office, NGB-AVN-SI, 23 November 1994, subject: Indoor Firing Range Survey.

5. GENERAL PROCEDURES.

a. Assessment Criteria.

- (1) Atmospheric Lead. The Occupational Safety and Health Administration (OSHA) standard for inorganic lead [29 CFR 1910.1025 (reference 1)] has established a permissible exposure limit (PEL) of 50 micrograms of inorganic lead per cubic meter of air (μg/m³) and an action level (AL) of 30 μg/m³, both expressed as time-weighted averages over an eight-hour workday (TWA₈). This standard prescribes certain required actions and/or controls when the PEL and/or action level (AL) are exceeded (reference 1), and mandates actions to reduce occupational exposures to airborne lead at indoor ranges to levels below the action level.
- (2) Ventilation Criteria. Indoor firing range ventilation criteria are delineated in Plate VS-99-04, page 10-165, of the Industrial Hygiene Ventilation Manual (reference 3) and National Guard Regulation 385-15 (reference 2).
- b. <u>Calibration</u>. All sampling trains and ventilation instruments used in this study were calibrated against National Institute of Standards and Technology-traceable instruments in accordance with manufacturers' and USACHPPM procedures.

c. Methodology.

- (1) Procedures. Sampling methods and procedures, except where noted, were performed in accordance with USACHPPM Technical Guide (TG) 141, Industrial Hygiene Sampling Instructions (reference 4).
- (2) Air Samples. Personal breathing zone (BZ) and general area (GA) air samples were collected continuously over an entire firing session using calibrated portable sampling pumps drawing metered volumes of air across standard 0.8

SUBJECT: Industrial Hygiene Study No. 55-NH-4426-99, 15-16 September 1999

micron, mixed-cellulose ester (MCE) filters. All samples were analyzed for inorganic lead using National Institute of Occupational and Safety (NIOSH) method 7300. Analytical results are presented in Appendix B of this report.

- (3) Wipe Samples. Wipe samples were collected using Whatman[™] No. 40 filter papers wetted with distilled water. A surface area of approximately 100 cm² was sampled with each filter using fresh, dust-free, disposable gloves. Each individual sample was placed in a clean sample container and submitted for laboratory analysis for inorganic lead. All samples were analyzed using EPA reference method 6010. Analytical results are presented in Appendix C of this report.
- (4) Ventilation. All ventilation measurements were obtained using a calibrated, precision, heated-wire, digital anemometer. Ventilation was evaluated as specified in references 2 and 3. Ventilation smoke canisters and smoke bombs provided a visual assessment of airflow patterns and ventilation exhaust effectiveness. Firing line measurements were taken at each firing point at levels representing the approximate heights of the firers' BZ when firing from the standing, kneeling, and prone positions. Velocity pressure measurements using pitot traverses were also collected on the make up air (MUA) units in the plenum room as well as the exhaust air (EA) units located in the firing range to verify the correct airflow in the range.
- d. <u>Risk Assessment Codes (RACs)</u>. Risk Assessment Codes are assigned to recommendations to help quantify health risks to affected personnel and to aid in establishing funding priorities for corrective actions. Risk Assessment Codes are determined using the RAC table from Department of Defense Instruction 6055.1 (reference 5), which is reproduced as Appendix D.
- 6. FINDINGS AND DISCUSSION.
 - a. General.

Whatman[™] is a registered trademark of the Whatman Corporation use of the trademarked name does not imply endorsement by the U.S. Army, but is intended only to assist identification of a specific product.

SUBJECT: Industrial Hygiene Study No. 55-NH-4426-99, 15-16 September 1999

- (1) Exposure Evaluation. Airborne inorganic lead exposures are based on measured BZ and GA concentrations during range use involving three firers, firing M16A1 rifles with .22 caliber ammunition adapters and one range safety officer. No weapon cleaning was performed after firing. The BZ and GA samples, both inside the range and in adjoining areas, were collected to characterize lead exposure potential and the effectiveness of the range ventilation system. Wipe samples were taken to assess the level of residual lead contamination.
- (2) Study Data. The sampling results and ventilation performance data presented in this report represent conditions existing at the time of this study.
- (3) Description. The Pigman Armory indoor firing range is 61.8 feet (ft) in length from the perforated plenum wall to the bullet trap, 13.65 ft in width, and slopes from right to left facing down range with a right side height of 9.67 ft and a left side height of 9.5 ft. The walls are constructed of concrete block with acoustical tile starting from the plenum wall and running 22.2 ft down the firing range and ending in a 90° angle on the left and right of the range, which does not conform to NGR 385-15, 2-2a(1)(b) (reference 2), which requires all protruding surfaces be baffled or covered to prevent ricochets. Based on the criteria outlined in NGR 385-15, the range is classified as UNSAFE FOR USE. The plenum wall consists of sheets of pegboard with holes 1/4 inch in diameter, for a total of 5.07sq/ft2 of open area. The facility is equipped with one ceiling mounted exhaust fan located in front of the bullet trap. The make-up air unit (MUA) is passive in design, and air is pulled through a series of louvers, with an area of 5.07 total sq/ft2, is distributed through a perforated plenum wall, subsequently moved downrange, and exhausted through a single exhaust unit. The exhaust unit at the front of the range had exposed conduit which should be baffled or covered IAW NGR 385-15, 2-2a(1)(b).
- (4) Plenum. There is currently no access to the plenum room either from inside the range itself or an exterior entrance. To access the plenum room a panel was removed from the plenum wall and a study team member stepped inside; then the panel was reinstalled and measurements taken. The plenum wall was constructed with steel supports and a peg board skin with 1/4 inch diameter holes. The plenum wall has 5.07 total sq/ft² of open area, which equals 4% total surface area of the plenum wall. The motor that controlled the louvers for the passive MUA was inoperable, and the louvers on the MUA unit were stuck in the open

SUBJECT: Industrial Hygiene Study No. 55-NH-4426-99, 15-16 September 1999

position. A qualified person should service or replace the MUA motor to bring it back into an operable condition.

- (5) Building Envelope. The top of plenum wall adjacent to the emergency light was bowed and was not in compliance with ARNG DG 415-1, APP. A, 3-1f(4), (reference 10), that requires the plenum wall to be adequately supported to avoid flexing. An open floor drain in the middle of range was open and emitting a sewer odor into the range. According to NGR 385-15, 2-2a(2)(c) (reference 2) all floor drains are to be covered. As required by ARNG DG 415-1, App. A, 4-5, an approved, hand-held ABC-type fire extinguisher was not present.
- (6) Interlock. Ranges should be designed to afford maximum protection against lead exposure by interlocking the supply air louvers (non-powered system), and exhaust ventilation system. The MUA unit activated when the exhaust fan was turned on. Thus, the ventilation system meets the criterion, as required by NGR 385-15 (reference 2). The purpose of an interlock is to ensure that the ventilation system is activated during firing and range cleanup to help minimize unnecessary lead exposure.
- (7) Target Positions. Manual target holders were mounted on a track that starts at the firing line and continues to the bullet trap and meets the criterion in the US Army Corps of Engineers Design Guidance (CEHND) 1110-1-18 (reference 6). The target retrieval system in Lane #1 was inoperable. NGR 385-15 2-2e(1)(a) (reference 2) requires that any firing lane without an operable retrieval system not be used. Partitions were not provided to separate the firing positions. These partitions are necessary to prevent the hot, spent cartridges from one position striking the firer in the adjacent position. Additionally, they minimize turbulent airflow, thereby assisting in moving lead containing contaminants downrange (CEHND 1110-1-18).
- (8) Range Lighting. The lighting immediately forward of the firing line was not baffled, as required by NGR 385-15, 2-2c(1)(c) (reference 2), which requires that all range lighting be baffled. In addition the exit light was not in working condition as required by NGR 385-15, 2-2c(1)(f). Dead space was noted beginning 10 ft from the firing line and ending 10 ft before the bullet trap; the average illumination was 4 footcandles in this area. Lighting on the target ranged from 26 to 30 footcandles on the targets and does not meet the criterion laid out in NGR

SUBJECT: Industrial Hygiene Study No. 55-NH-4426-99, 15-16 September 1999

385-15, 2-2c(1)(b) that requires illumination of at least 100 footcandles on the targets and 30 footcandles in all other areas. Based on the criteria outlined in NGR 385-15 the range should be classified as UNSAFE FOR USE.

(9) Housekeeping. Appropriate housekeeping was not being conducted at the range, as specified by NGR 385-15, 4-4a and h (reference 2). Dust, fume, and mist respirators approved by NIOSH (National Institute of Occupational Safety and Health) are required for workers during cleanup procedures; other personal protective equipment (PPE) is required by NGR 385-15. A high efficiency particulate (HEPA) vacuum was not present, as required by NGR 385-15, 4-4e, or other alternate wet methods used for cleaning the range. The bullet trap catch trays were over ¾ full and require emptying. Contact the Delaware State Environmental Office for proper disposal instructions of the bullet catch trays IAW NGR 385-15 4-4i.

b. Ventilation.

- (1) Ventilation Measurements. In order to determine compliance with established criteria (references 2 and 3) the average cross-sectional air velocities at the firing line was measured. Smoke testing at the firing line revealed airflow that was turbulent at the firing line and rolled high and slow past the firing line and eventually downrange. The turbulence was caused by the six gas-fired heaters that are behind the firing line and the lights immediately forward of the firing line that were not baffled. Visual observation revealed that smoke hung up on the heaters and lights and rolled back around the breathing zones. Installing a baffle in front of the heaters should mitigate the problem of air hanging up on the heaters and lights and also increase the air velocity along the breathing zones. Visual observation employing a smoke canister and utilization of a pitot tube manometer indicated that the range was maintained under negative pressure relative to adjacent areas, as required by NGR 385-15 (reference 2).
- (2) Firing Line. The cross-sectional air velocities through the three firing line positions averaged from 39.7 to 66.6 feet per minute (fpm) with an overall average of 51 feet per minute (fpm). These values did not meet the recommended minimum of 50 fpm at the firing line at each individual firing lane position required by NGR 385-15, 2-2b(2)(a), (reference 2). Therefore the range should be classified as UNSAFE FOR USE based on NGR 385-15.

SUBJECT: Industrial Hygiene Study No. 55-NH-4426-99, 15-16 September 1999

- (3) Ventilation Inspection. Detailed inspections, as required by National Guard policy (reference 2), were not being conducted. A support team composed of Safety, Public Works, and Industrial Hygiene representatives should make such inspections. A detailed inspection using DA FORM 5688-R should be conducted annually within 45 days of the anniversary date of the last annual inspection.
- c. <u>Sampling Results and Range Information</u>. The analytical results of personal and general area air sampling conducted during this study indicate that the exposures to airborne lead levels did not exceed current recommendations outlined in NGR 385-15, App. A (reference 2).
- (1) Breathing Zone (BZ) Samples. Personal BZ air samples were collected from three firers and one range NCOIC. The results ranged from 0.005 to 0.04 mg/m³ and can be seen in Appendix B of this report.
- (2) General Area (GA) Samples. Three GA samples were collected from both the left and right sides behind the firing line located at the plenum wall, and outside the range door. The results showed an exposure that was below the limit of detection, $<0.005 \text{ mg/m}^3$ and can be seen in Appendix B.
- (3) Wipe Samples. Eleven samples were collected from various locations in the firing range, as well as by the range entrance. Although there are presently no occupational standards limiting the amount of surface lead contamination, the presence of these deposits implies that range ventilation, housekeeping, and decontamination procedures are not completely effective. An appreciable quantity of this substance on accessible exposed surfaces increases the risk of additional lead exposure due to possible ingestion and/or re-aerosolization of the deposited dust. Wipe sampling results are included in Appendix C, and indicate that the range is in need of cleaning following methods prescribed in NGR 385-15, (reference 2).
- (4) Range Usage Determination. The Pigman Armory Range should be classified as UNSAFE FOR USE, as outlined in 6e(3), (5), (6), (7) and (8) of this report.
- (5) Methods of Range Cleanup. Current cleaning requirements mandate the use of a high efficiency particulate air (HEPA) filtered vacuum or wet cleaning methods. Wash water contaminated with lead can be collected and allowed to

SUBJECT: Industrial Hygiene Study No. 55-NH-4426-99, 15-16 September 1999

evaporate leaving lead deposits and/or sludge that should be disposed of in accordance with applicable Federal, State and local laws; consult the Environmental Branch, Delaware Army National Guard for further details. Currently the standard operating procedure (SOP), at the Pigman Armory reflects the guidance given in NGR 385-15, 4-4 (reference 2). However, there was no evidence that the range is being cleaned IAW either their SOP or NGR 385-15 after each use as required.

d. Administrative Programs and Procedures.

- (1) Respiratory Protection Program. No respiratory protection (as mandated in references 1, 2, 4, 5, and 8) was available for use during cleanup at the range. Exposure monitoring of personnel performing range cleanup is needed to assess lead exposure potential and aid in determining the type of respiratory protection required. The establishment and implementation of a respiratory protection program that meets the criteria established by the above-cited references must accompany issuance of respiratory protection.
- (2) Personal Protection. The appropriate hearing and eye protection devices were used by the firers during the firing session and were readily available for all visitors during the firing session.
- (3) Medical Surveillance. No personnel had been identified to perform duties as range control officers or range custodian; therefore, no personnel were enrolled in an annual blood-lead monitoring program. This surveillance must be conducted for both assigned military and civilian personnel [NGR 385-15 (reference 2)].
- (4) Range Signs. Appropriate signage prohibiting smoking and/or consumption of food and beverages in the range and instructing personnel to wash their hands before commencing these activities were present in the range.
- (5) Standing Operating Procedures (SOPs). The 280TH Signal Battalion developed the Pigman Armory SOP in June 1993. The SOP reflects the guidance as recommended by NGR 385-15 (reference 2) but personnel using the range are not following the range SOP as evidenced by incomplete or non-existent range record logs, lack of medical supplies present during range operation, etc.

SUBJECT: Industrial Hygiene Study No. 55-NH-4426-99, 15-16 September 1999

7. CONCLUSIONS. Subject to the conditions under which this study was conducted, the Pigman Armory, Seaford, Delaware, Indoor Firing Range was concluded to be UNSAFE FOR USE, according to Headquarters Department of the Army, National Guard Regulation 385-15 criteria (reference 2). These conclusions are based on the observations of an inoperable MUA fan motor, unbaffled lights and unbaffled conduit leading to the exhaust fan, deficiencies in firing line air velocities, and turbulent airflow along the firing line.

8. RECOMMENDATIONS.

- a. Properly baffle the acoustical tile on the range walls, the conduit leading from the exhaust fan, and the lights immediately before the firing line IAW NGR 385-15 2-2a(2)(b) and 2-2c(1)(c) (reference 2) [see paragraph 6a(3) and (8), this report] (RAC 3).
- b. Service/replace the motor on the MUA unit to bring it back into a serviceable condition [see paragraph 6a(4), this report] (RAC 3).
- c. Install partitions at the firing line to separate each position to prevent hot brass being ejected onto firers in adjacent lanes IAW CEHND 1110-1-18 (reference 6) [see paragraph 6a(7), this report] (RAC 3).
- d. Repair/replace the target retrieval system in Lane #1 to bring it into compliance with NGR 385-15 2-2e(1)(a) (reference 2) [see paragraph 6a(7), this report] (RAC 4).
- e. Install additional range lighting to bring the average illumination of the range to 30 footcandles. Furthermore, install additional lighting at the target line to bring the average illumination to 100 footcandles on the target, and ensure all lighting is baffled properly IAW NGR 385-15 2-2c(1)(b) (reference 2) [see paragraph 6a(8), this report] (RAC 4).
- f. Procure and use a HEPA vacuum system for routine cleaning of the range per USACE Design Manual for Indoor Firing Range [CEHND 1110-1-18 (reference 6)] [see paragraph 6a(9), this report] (RAC 4).

SUBJECT: Industrial Hygiene Study No. 55-NH-4426-99, 15-16 September 1999

- g. Contact the Delaware State Environmental Office for proper disposal instructions of the bullet trap catch IAW NGR 385-15 4-4 I (reference 2) [see paragraph 6a(9) of this report] (RAC 5).
- h. Increase the amount of air across the firing line to bring it into compliance with NGR 385-15, 2-2(b)(3)(a) (reference 2) that requires a minimum of 50 fpm across the firing line at every position by increasing the amount of air drawn in from the MUA unit. The air exhausted will also have to be increased, while still keeping the range under negative pressure (10%). Contact state engineer for formulating scope of work for ventilation requirements [see paragraph 6b(2), this report] (RAC 3).
- i. Although the air sampling results did not exceed HQDA standards [NGR 385-15 (reference 2)] for lead exposure, consideration should be given to removing or baffling the six gas-fired heaters in an attempt to minimize the turbulence they create. Alternative methods for heating the range could include heating the make up air prior to introducing it to the plenum area [see paragraph 6b(1), this report] (RAC 4).
- j. Conduct detailed annual inspections, using DA FORM 5688-R, within forty-five days of the anniversary date of the last annual inspection [NGR 385-15 (reference 2)] [see paragraph 6b(3), this report] (No RAC Assigned).
- k. Conduct ventilation measurements quarterly by a competent person to ensure no changes have occurred as far as smoke tests, velocities, and static pressure measurements are concerned IAW NGR 385-15, 3-3c (reference 2) [see paragraph 6b(3), this report] (No RAC Assigned).
- I. Designate specific personnel as range officer, range non-commissioned officer, and range cleaning personnel, enroll them in an annual blood lead level monitoring program, and provide training in the proper procedures for cleaning the facility [29 CFR 1910.1025 (reference 1)] [see paragraph 6d(3), this report] (RAC 4).

SUBJECT: Industrial Hygiene Study No. 55-NH-4426-99, 15-16 September 1999

- m. Ensure personnel who are using the range are familiar with the current range SOP prior to usage. Track the range record log and maintain it for 40 years from the date of use or the duration of employment plus 20 years, whichever is longer, as prescribed in 29 CFR 1910.1025, App. C, Section I (reference 1) [see paragraph 6d(5), this report] (No RAC Assigned).
- n. Cap sewer drain located in the range to prevent lead contaminated wash water from entering the sanitary sewer, IAW HQDA NGR, 385-15 2-2a(2)(c) (reference 2) [see paragraph 6d(5), this report] (RAC 4).
- o. Secure the top of the plenum wall to the existing metal stud frame to prevent any bowing or flexing of the plenum wall IAW DG 415-1, App. A, 3-1d(4) (reference 10) [see paragraph 6e(5), this report] (RAC 4).
- p. Provide, in a recessed cabinet located in the range, an approved hand held ABC-type fire extinguisher as required by ARNG, DG 415-1, App. A, 4-5 (reference10) [see paragraph 6a(5), this report] (RAC 4).

SUBJECT: Industrial Hygiene Study No. 55-NH-4426-99, 15-16 September 1999

9. ADDITIONAL ASSISTANCE. Additional direct support in the fields of pest management, pesticide risk management, water supply management, wastewater management, hazardous waste management, ergonomic evaluation, worksite hazards management, health care hazards management, sanitation and hygiene, and installation industrial hygiene management is available and may be requested from USACHPPM-North at DSN 923-6502/5281/6205 or commercial (301) 677-6502/5281/6205.



1LT, MS Environmental Science Officer Industrial Hygiene Division

APPROVED:

Non-Responsive

Chief, Industrial Hygiene Division

SUBJECT: Industrial Hygiene Study No. 55-NH-4426-99, 15-16 September 1999

APPENDIX A

REFERENCES

- 1. Title 29, Code of Federal Regulations, Part 1910, 1999 revision, Occupational Safety and Health Standards, Occupational Safety and Health Administration.
- 2. Memorandum, Headquarters, Department of the Army Letter, National Guard Regulation 385-15 (Draft), 10 June 1998, Subject: Policy and Responsibilities for Inspection/Evaluation and Use of National Guard Indoor Firing Ranges.
- 3. Industrial Ventilation, A Manual of Recommended Practice, 23rd Edition, American Conference of Governmental Industrial Hygienists, Cincinnati, Ohio, 1997.
- 4. United States Army Center for Health Promotion and Preventive Medicine Technical Guide 141, November 1997, Industrial Hygiene Sampling Instructions.
- 5. Department of Defense Instruction 6055.1, 19 August 1998, Department of Defense Occupational Safety and Health (OSH) Program.
- 6. US Army Corps of Engineers Design Manual for Indoor Firing Range, June 1990, CEHND 1110-1-18.
- 7. American National Standard (ANSI) Z87.1-1998, Practice for Occupational and Educational Eye and Face Protection, April 1998, American National Standards Institute, New York, New York.
- 8 Army Regulation 11-34, 15 February 1990, The Army Respiratory Protection Program.
- 9. Technical Medical Bulletin 502, 15 February 1982, Occupational and Environmental Health, Respiratory Protection Program.
- 10. Army National Guard (ARNG) Design Guide (DG) 415-1 Design Guide for Armories.

SUBJECT: Industrial Hygiene Study No. 55-NH-4426-99, 15-16 September 1999

APPENDIX B

ANALYTICAL RESULTS

Table. Results of Analysis of Air Samples Collected at the Indoor Firing Range, Pigman Armory, Seaford Delaware, 16 September 1999, for Inorganic Lead.

| Sample # | Location | *BZ/GA | Results (mg/m³) | TWAs (mg/m³) |
|------------|--------------------------------------------------|--------|--------------------|-----------------|
| S1 | Firing Position 1 | BZ | 0.02 | 0.0032 |
| S2 | Firing Position 2 | BZ | 0.01 | 0.0016 |
| S3 | Firing Position 3 | BZ | 0.04 | 0.0064 |
| S4 | Range NCOIC | BZ | 0.005 | 0.0008 |
| S5 | At Plenum Wall, Right Side, Behind Lane #3 | GA | 0.005 | 0.0008 |
| S6 | Outside Range Door | GA | 0.005 | 0.0008 |
| S 7 | At Plenum Wall, Left Side, Behind Lane #1 | GA | 0.005 | 0.0008 |
| \$8 | Blank | - | - | - - |

^{*}BZ/GA = Breathing Zone Sample/General Area Sample

See paragraph 6c(1) and (2), this report, for interpretation of these results.

^{**} μ g/m³ = Micrograms Per Cubic Meter of Air

SUBJECT: Industrial Hygiene Study No. 55-NH-4426-99, 15-16 September 1999

APPENDIX C

WIPE SAMPLING RESULTS

Table. Results of Analysis of Surface Wipe (Swipe) Samples at the Indoor Firing Range, Pigman Armory, Seaford Delaware, 16 September 1999, for Inorganic Lead.

| Sample # | Location Control | Results (µg/ft²)* |
|----------|--------------------------------------------------------------------|-------------------|
| WS1 | Floor, outside range door | 9700 |
| WS2 | Range floor, lane #3, at firing line | 5400 |
| WS3 | Range floor, at plenum wall, between lane #2 and #3 | 5300 |
| WS4 | Range floor, lane #2, centered, at firing line | 4800 |
| WS5 | Range floor, at plenum wall, between lane #1 and #2 | 6100 |
| WS6 | Range floor, lane #3, centered, at firing line | 2800 |
| WS7 | Range floor, centerline of lanes #2 and #3, 202" from firing line | 10000 |
| WS8 | Range floor, centerline of lanes #1 and #2, 202'' from firing line | 18000 |
| WS9 | Range floor, front of bullet trap, lane #1 | 66000 |
| WS10 | Range floor, front of bullet trap, lane #2 | 51000 |
| WS11 | Range floor, front of bullet trap, lane #3 | 72000 |

^{*} μ g/ft² = Micrograms per Square Foot

See paragraph 6c(3), this report, for Interpretation of these results.

SUBJECT: Industrial Hygiene Study No. 55-NH-4426-99, 15-16 September 1999

APPENDIX D

DERIVING RISK ASSESSMENT CODES (RACs) FOR HEALTH HAZARDS

STEP 1. <u>HEALTH HAZARD SEVERITY CODE (HHSC)</u>. Using the following procedures to assess points, determine the health hazard severity category (HHSC). The HHSC reflects the magnitude of exposure to a physical, chemical, or biological agent and the medical effects of exposure.

A. Exposure Points Assessed

| AER POSSIBLE? | Exposure Conditions | | | |
|------------------|-----------------------------------------------------------------------------------------------------------------|-----------------------------------|--------------|-------|
| | <al< th=""><th>Occasionally > AL Always < OEL</th><th>>AL <=0EL</th><th>> OEL</th></al<> | Occasionally > AL Always < OEL | >AL <=0EL | > OEL |
| NO | 0 | 3 | 5 | 7 |
| YES | 1-2 | 4 | 6 | 8 |

AER = Alternate exposure route, such as skin absorption, ingestion.

AL = Action level, DoD component threshold that triggers surveillance actions, such as microWatts/cm², dB, parts per million.

OEL = Occupational Exposure Limit, DoD exposure limit, such as Threshold Limit Value and Permissible Exposure Limit.

SUBJECT: Industrial Hygiene Study No. 55-NH-4426-99, 15-16 September 1999

B. Medical Effects Points Assessed.

| Condition | Points |
|---------------------------------------------------------------------------------------------------------|--------|
| No medical effect, such as nuisance noise and nuisance odor | 0 |
| Temporary reversible illness requiring supportive treatment, such as eye irritation and sore throat | 1-2 |
| Temporary reversible illness with a variable but limited period of disability, such as metal fume fever | 3-4 |
| Permanent, non-severe illness or loss of capacity, such as permanent hearing loss | 5-6 |
| Permanent, severe, disabling irreversible illness or death, such as asbestosis and lung cancer | 7-8 |

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

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

SUBJECT: Industrial Hygiene Study No. 55-NH-4426-99, 15-16 September 1999

STEP 2. <u>ILLNESS PROBABILITY CODE (ICP)</u>. Using the following guides to assess points, determine the IPC for health hazards. The IPC is a function of the duration of exposure and the number of exposed personnel.

A. Duration of Exposure Points Assessed

| Туре of | Exposure Duration | | | |
|-------------------------|-------------------|-------------------------|------------|--|
| Exposure | 18 hr/wk | >8hr/wk, not continuous | continuous | |
| Irregular, intermittent | 1-2 | 4-6 | - | |
| Regular, periodic | 2-3 | 5-7 | 8 | |

B. Number of Exposed Personnel Points Assessed

| Number of Exposed Personnel | Points |
|-----------------------------|--------|
| <5 | 1-2 |
| 5 to 9 | 3-4 |
| 10 to 49 | 5-6 |
| >49 | 7-8 |

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

| Total Points (sum of A and B, above) | IPC |
|--------------------------------------|-----|
| 14-16 | Α |
| 10-13 | В |
| 5-9 | С |
| < 5 | D |

SUBJECT: Industrial Hygiene Study No. 55-NH-4426-99, 15-16 September 1999

STEP 3. Determine the RAC for health hazards by using the following matrix to measure health hazard severity and mishap probability factors.

| HEALTH HAZARD SEVERITY CODE | ILLNESS PROBABILITY CODE | | | |
|--------------------------------------|--------------------------|---|-----|---|
| | Α | В | С | D |
| I | 1 | 1 | 2 | 3 |
| II | 1 | 2 | 3 | 4 |
| III | 2 | 3 | 4 | 5 |
| IV | 3 | 4 | · 5 | 5 |

From Table 2 to Department of Defense Instruction 6055.1, Department of Defense Occupational Safety and Health Program, 1 August 1997.

RAC DESCRIPTOR

| RAC | DESCRIPTOR |
|-----|------------|
| 1 | CRITICAL |
| 2 | SERIOUS |
| 3 | MODERATE |
| 4 | MINOR |
| 5 | NEGLIGIBLE |

NATIONAL GUARD BUREAU ARMY NATIONAL GUARD 301-IH OLD BAY LANE HAVRE de GRACE, MD 21078-4094

NGB-AVN-SI (40-5f)

15 September 1999

MEMORANDUM FOR The DEARNG Safety and Occupational Health Office

SUBJECT: Observations at the CSMS

1. General. ARNG Regional Industrial Hygienist, Ms. Non-Responsive and LTC Non-Responsive DEARNG Occupational Health Manager (OHM) collected breathing zone (BZ) air sample during simulation of brake replacement/repair operations. The sampling was conducted on 8 individuals who were using a wet method to remove the brake pads. Sample results will be forwarded as soon as they become available. While air sampling was being conducted, a walk through survey of the facilities was conducted. This evaluation took place 9 Sep 99.

2. Observations at the CSMS:

- a. Paint Preparation Area.
- (1) The painter was observed sanding a vehicle prior to painting. The painter was using a hand held sander. However, this Nilfisk TM sander is designed to capture particulates by exhausting the heavy metals through holes in the sander to a High Efficiency Particulate Air (HEPA) filtered vacuum system. Thus the metal dust is evacuated at the source rather than spreading to the adjacent environment. For the sander to operate properly, holes must be punched into the sandpaper at the points where the holes in the sander are. This was not done and allowed heavy metals to be distributed throughout the work bay. In addition, the hose to transport the dust particles to the HEPA vacuum system has been cut in two. This is a poor work practice and defeats the purpose of the design of the sander and containment system. It also exposes the operator of the sander unnecessarily and other personnel walking through or working in this area.
- (2) Recommendation. Repair or replace the exhaust line from the sander to the HEPA vacuum system. Educate the painter as to the purpose of needing to use the containment system. Also, educate the painter on the purpose of punching holes in the sandpaper so that the sander can be used as designed.

NGB-AVN-SI

SUBJECT: Observations at the CSMS

b. Commercial Utility Combat Vehicle (CUC-V).

- (1) Beware of the sand colored brake linings procured through the NSN system or local purchase. Surface wipe samples have indicated that new brake linings may have as much as 16 billion asbestos fibers per square foot of surface area. Some boxes do not indicate that the brakes contain asbestos. It is prudent to assume that all CUC-V brake linings are covered in asbestos fibers prior to placing them on the vehicle.
- (2) Recommendation. Boxes of brake linings should be placed in a plastic bag prior to storage. When personnel need the brakes, they should punch a hole through the plastic bag and box and allow a stream of water to at least wet the pads before opening the bag/box. As long as the pads are wet, asbestos fibers can not become airborne. Treat the bag and box as hazardous waste. Place the excess water into a plastic 55-gallon drum and allow the water to evaporate to approximately 6 inches. At this time, the water should be considered hazardous waste. Contact the DEARNG State Environmental Office for disposal procedures.
 - c. Water-Based Chemical Agent Resistant Coating (CARC) Paint.
- (1) In TM 43-0139, Table B-7, the last two sets of listings identify water-based primers that are in the NSN system. At this time, water-based CARC paint has not been given a NSN number. However, in approximately 2 years it will be available. At this time, a Mr. Non-Responsive Experimental Products Program, Army Research Laboratory (ARL) does know of a vendor whose CARC paint has been tested on military vehicles and found to meet the requirements. If you are interested in procuring this water-based CARC paint, please call him at (410) 306-0690.
- (2) Recommendation. Contact the aforementioned individual for additional information.

d. Water Filter above Water Fountain.

- (1) This type of filter is usually made of a charcoal-based product. Charcoal tends to collect contaminants but can reach a saturation point much like your organic cartridges on air purifying respirators and is in need of replacement. There was no date on the filter to indicate when it was installed or how long the filter should last. If left too long, the charcoal-based filter may start growing harmful bacteria.
- (2) Recommendation. Contact the company to find out how long the filter can be used before replacing it. Write a date on the casing of the filter and ensure that someone monitors the expiration date and replaces the filter as needed.

NGB-AVN-SI

SUBJECT: Observations at the CSMS

- e. Wet Method for Brake Jobs.
- (1) An observation was made that it was hard to manage the pouring water behind the brake drum with the watering can. This also allowed personnel to use more water than was necessary.
- (2) Recommendation. In an effort to be more efficient, shop personnel suggested procuring pressurized applicators such as is used for application of pesticides. This would allow a minimal waste of water and permit a more direct nozzle flow to the areas needed wetting.
- 3. Contact the undersigned if additional information is needed regarding these issues at 410-942-0273.



Industrial Hygienist



NATIONAL GUARD BUREAU

ARMY NATIONAL GUARD NORTH REGION INDUSTRIAL HYGIENE OFFICE 301-IH OLD BAY LANE HAVRE DE GRACE MD 21078

ARNG-CSG-P

3 July 2013

MEMORANDUM FOR Non-Responsive, Occupational Health Nurse, Delaware Army National Guard, First Regiment Road, Wilmington, DE 19808

SUBJECT: Executive Summary (EXSUM) for the Industrial Hygiene Wipe Sampling Survey in the former Indoor Firing Range at the Readiness Center in Seaford, DE on 25 June 2013.

- 1. PURPOSE. The purpose of this Industrial Hygiene (IH) survey was to evaluate the progress of the decontamination and conversion project at the former indoor firing range (IFR) in the Seaford Readiness Center in Delaware.
- 2. CONCLUSION. The floor in the Seaford Readiness Center's former IFR is still contaminated with lead and needs to be cleaned again. Efforts should be concentrated on the far end (where the former bullet trap was installed).
- RECOMMENDATIONS.
- a. <u>Decontamination Requirements</u>. Re-clean the floor area and decontaminate in accordance with guidance in NG Pam 420-15. (RAC 3) (NG Pam 420-15, reference 1)
- b. <u>Dust Removal</u>. Wipe down the radiant heaters and the locker tops to remove any remaining lead and/or dust. (RAC 4) (NG Pam 420-15, reference 1)
- c. <u>Additional Sampling</u>. Collect more wipe samples once the re-cleaning is completed. (RAC 4) (NG Pam 420-15, reference 1)
- d. <u>Limited Access</u>. Continue to limit access to the former IFR area to personnel involved in the decontamination/conversion operation, (RAC 4) (NG PAM 420-15, reference 1)
- e. <u>Encapsulation</u>. When re-sampling verifies that lead levels are below 200 μg/ft2, coat the walls will a scalant to encapsulate any remaining lead dust. Scal the concrete floors with deck enamel and then tile or cover with linoleum. (RAC 4) (NG PAM 420-15, reference 1)
- 4. ADDITIONAL ASSISTANCE. I am point of contact for this information and can be reached by phone at Non-Responsive or email at Non-Responsive



Regional Industrial Hygienist



NATIONAL GUARD BUREAU

ARMY NATIONAL GUARD
NORTH REGION INDUSTRIAL HYGIENE OFFICE
301-IH OLD BAY LANE
HAVRE DE GRACE MD 21078

INDUSTRIAL HYGIENE SURVEY SURFACE WIPE SAMPLING FOR LEAD FORMER INDOOR FIRING RANGE SEAFORD, DE – 25 JUNE 2013

- 1. REFERENCES. See Appendix A.
- 2. PURPOSE. The purpose of this Industrial Hygiene (IH) survey was to evaluate the progress of the decontamination and conversion project at the former indoor firing range (IFR) in the Seaford Readiness Center in Delaware.
- 3. GENERAL.
 - Background.
- (1) The Delaware Army National Guard (DEARNG) Facilities Management office initiated a project to decontaminate and convert former IFRs in multiple facilities throughout the state.
- (2) A contractor was hired to manage the project and was responsible for the oversight of the cleaning, decontamination, and conversion of each former IFR. The contractor then subcontracted with an independent firm to verify any remaining lead levels were below the 200 micrograms per square foot (µg/ft²) limit as published in National Guard Pamphlet (NG PAM) 420-15, Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges (reference 1).
- (3) Once the contractor reported all facilities were below the 200 µg/ft² limit, the Army National Guard (ARNG) North Region Industrial Hygiene (IH) office's assistance was requested in order to verify the contractor's reports.
 - b. Survey Personnel. This survey was conducted on 25 June 2013 by:
 - (1) Non-Responsive Industrial Hygienist, ARNG North Region IH office
 - (2) Non-Responsive, IH Technician (Contractor), ARNG North Region IH office
 - (3) Non-Responsive Occupational Health Nurse for the DEARNG.
- c. <u>Risk Assessment Codes (RACs)</u>. RACs are assigned to recommendations to help quantify risks to personnel and to aid in the establishment of funding priorities for corrective actions. Health RACs are determined by using the RAC table from the Department of Defense Instruction (DODI) 6055.1 (reference 2). This table is provided in Appendix B of this report.

SUBJECT: Industrial Hygiene Former IFR Wipe Sampling Survey, Seaford Readiness Center, Seaford, DE, 25 June 2013

4. METHODOLOGY.

a. Assessment Criteria.

- (1) The United States Army, through DODI 6055.1, Section E3.4.1.2, directs that facilities provide healthful work environments in accordance with the most stringent standards applicable (reference 2).
- (2) The Occupational Safety and Health Administration (OSHA), through the Code of Federal Regulations, have enforceable regulatory standards for workplace safety (reference 3).
- (3) Department of the Army Pamphlet (DA PAM) 40-503, Industrial Hygiene Program, section 1-8, states that Army occupational exposure criteria will be based on the more stringent of standards published by OSHA as Permissible Exposure Limits (PELs), guidance from the American Conference of Governmental Industrial Hygienists (ACGIH) as Threshold Limit Values (TLVs), military unique standards or published guidance from other organizations when the primary standards are not applicable (references 4 and 5).
- (4) In areas containing former IFRs, NG PAM 420-15, Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges, is used to determine satisfactory levels of any lead present in dust (reference 1).
- (5) In areas not part of a former IFR (e.g. the drill hall adjacent to the former IFR), Department of Defense (DoD) Directive-Type Memorandum (DTM) 12-003, Control and Management of Surface Accumulations from Lead, Hexavalent Chromium, an Cadmium Operations, requires that surfaces are maintained as free as practicable of accumulations of lead (reference 6).
- (6) When children are present, we refer to Title 24 of the Code of Federal Regulations, Part 35.1320, Lead-based paint inspections, paint testing, risk assessments, lead-hazard screens, and reevaluations (reference 7). This Housing and Urban Development (HUD) regulation lists a clearance level, specific to floors, of $40 \,\mu\text{g/ft}^2$, in the table in section 35.1320(b)(2) and is used to determine if the dwelling unit, worksite or common area passes or fails the clearance test.

b. Wipe Sampling Protocol.

- (1) Procedures. Surface wipe sampling methods were conducted in accordance with NG PAM 420-15 and OSHA's Technical Manual, 5th edition (references 1 and 8).
- (2) Media. Ghost Wipes were used for sample collection and were placed in 68mL HotBlock digestion vessels. Templates (10 cm x 10 cm) were used to ensure uniform wipe area.
- (3) Lab Analysis. All samples were sent to Aerosol Monitoring & Analysis (AMA) Analytical Services, Inc., an American Industrial Hygiene Association (AIHA) accredited

BEST AVAILABLE COPY

ARNG-CSG-P

SUBJECT: Industrial Hygiene Former IFR Wipe Sampling Survey, Seaford Readiness Center, Seaford, DE, 25 June 2013

laboratory in Lanham, Maryland. The samples were analyzed using the Environmental Protection Agency (EPA) method 600/R-93/200(M)-7000B for Lead (reference 9) (see Appendix E).

5. FINDINGS AND DISCUSSION.

- a. <u>General Information</u>. Prior to this visit, the contractor reported the former IFR was cleaned and all samples were below the 200 μ g/ft² limit. The bullet trap, plenum components, baffles, soundproofing and firing points were removed. The radiant heaters and control box were left in place. Single lockers were also present.
- b. <u>Wipe Sampling</u>. Surface wipe samples were collected in accordance with the guidance provided in NG Pam 420-15. Sample information is presented in Appendices C and D of this report.
- c. <u>Results</u>. Out of 18 samples collected, 4 tested positive for lead, with only 2 of the 4 reported above 200 μg/ft², and only 1 of those 2 above 1,000 μg/ft². Complete surface wipe sample results are provided in Appendix C of this report.
- d. <u>Lockers</u>. One sample was collected from the top of a locker inside the range. The sample result from the locker top was reported as below detectable limits for lead. While not positive for lead, all of the locker tops were very dusty and should be wiped down.
- 6. CONCLUSION. The floor in the Seaford Readiness Center's former IFR is still contaminated with lead and needs to be cleaned again. Efforts should be concentrated on the far end (where the former bullet trap was installed).

7. RECOMMENDATIONS.

- a. <u>Decontamination Requirements</u>. Re-clean the floor area and decontaminate in accordance with guidance in NG Pam 420-15. (RAC 3) (NG Pam 420-15, reference 1)
- b. <u>Dust Removal</u>. Wipe down the radiant heaters and the locker tops to remove any remaining lead and/or dust. (RAC 4) (NG Pam 420-15, reference 1)
- c. <u>Additional Sampling</u>. Collect more wipe samples once the re-cleaning is completed. (RAC 4) (NG Pam 420-15, reference 1)
- d. <u>Limited Access</u>. Continue to limit access to the former IFR area to personnel involved in the decontamination/conversion operation. (RAC 4) (NG PAM 420-15, reference 1)
- e. <u>Encapsulation</u>. When re-sampling verifies that lead levels are below 200 μg/ft2, coat the walls will a sealant to encapsulate any remaining lead dust. Seal the concrete floors with deck enamel and then tile or cover with linoleum. (RAC 4) (NG PAM 420-15, reference 1)

BEST AVAILABLE COPY

ARNG-CSG-P

SUBJECT: Industrial Hygiene Former IFR Wipe Sampling Survey, Seaford Readiness Center, Seaford, DE, 25 June 2013

8. ADDITIONAL ASSISTANCE. I am point of contact for this information and can be reached by phone at Non-Responsive or email at Non-Responsive

Non-Responsive

Regional Industrial Hygienist

SUBJECT: Industrial Hygiene Former IFR Wipe Sampling Survey, Seaford Readiness Center, Seaford, DE, 25 June 2013

APPENDIX – A REFERENCES

- 1. National Guard Pamphlet (NG PAM) 420-15, Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges, 3 November 2006.
- 2. Department of Defense Instruction (DODI) 6055.1, Department of Defense (DOD) Safety and Occupational Health (SOH) Program, 19 August 1998.
- 3. Title 29 Code of Federal Regulations, Part 1910.1025, Lead, Occupational Safety and Health Administration (OSHA), 2013 Edition.
- 4. Department of the Army Pamphlet (DA PAM) 40-503, The Army Industrial Hygiene Program, 2 April 2013.
- 5. Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices, 2013, American Conference of Governmental Industrial Hygienists, Cincinnati, OH.
- 6. Department of Defense (DoD) Directive-Type Memorandum (DTM) 12-003, Control and Management of Surface Accumulations from Lead, Hexavalent Chromium, and Cadmium Operations, 18 April 2012.
- 7. Title 24 Code of Federal Regulations, Part 35.1320, Lead-based paint inspections, paint testing, risk assessments, lead-hazard screens, and reevaluations, Housing and Urban Development (HUD), 2013 Edition.
- 8. Occupational Safety and Health Administration Technical Manual, TED 01-00-015 [TED 1-0.15A], 5th Edition.
- 9. Environmental Protection Agency (EPA) Method 600/R-93/200(M), Field Analysis of Lead in Paint, Bulk Dust, and Soil by Ultrasonic, Acid Digestion and Colorimetric Measurement, September 1993.

SUBJECT: Industrial Hygiene Former IFR Wipe Sampling Survey, Seaford Readiness Center, Seaford, DE, 25 June 2013

APPENDIX – B DERIVING RISK ASSESSMENT CODES (RACs) FOR HEALTH HAZARDS

(Taken from Table 2 of DODI 6055.1 (reference 2))

1. HEALTH HAZARD SEVERITY CODE (HHSC). Using the following procedures to assess points, determine the health hazard severity category (HHSC). The HHSC reflects the magnitude of exposure to a physical, chemical, or biological agent and the medical effects of exposure.

a. Exposure Points Assessed

| AER | Exposure Conditions | | | |
|-----------|------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|--------------|------|
| Possible? | <al< th=""><th>Occasionally>AL Always<oel< th=""><th>>AL <=0EL</th><th>>0EL</th></oel<></th></al<> | Occasionally>AL Always <oel< th=""><th>>AL <=0EL</th><th>>0EL</th></oel<> | >AL <=0EL | >0EL |
| NO | 0 | 3 | 5 | 7 |
| YES | 1-2 | 4 | 6 | 8 |

AER = Alternate exposure route, such as skin absorption, ingestion.

AL = Action level, DoD component threshold that triggers surveillance actions, such as microWatts/cm², dB, parts per million.

OEL = Occupational Exposure Limit, DoD exposure limit, such as Threshold Limit Value and Permissible Exposure Limit.

b. Medical Effects Points Assessed.

| Condition | Points |
|---------------------------------------------------------------------------------------------------------|--------|
| No medical effect, such as nuisance noise and nuisance odor | 0 |
| Temporary reversible illness requiring supportive treatment, such as eye irritation and sore throat | 1-2 |
| Temporary reversible illness with a variable but limited period of disability, such as metal fume fever | 3-4 |
| Permanent, non-severe illness or loss of capacity, such as permanent hearing loss | 5-6 |
| Permanent, severe, disabling irreversible illness or death, such as asbestosis and lung cancer | 7-8 |

SUBJECT: Industrial Hygiene Former IFR Wipe Sampling Survey, Seaford Readiness Center, Seaford, DE, 25 June 2013

APPENDIX – B – CONTINUED DERIVING RISK ASSESSMENT CODES (RACs) FOR HEALTH HAZARDS

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

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

- 2. ILLNESS PROBABILITY CODE (IPC). Using the following guides to assess points, determine the IPC for health hazards. The IPC is a function of the duration of exposure and the number of exposed personnel.
 - a. Duration of Exposure Points Assessed

| Type of | | Exposure Durat | ion |
|-------------------------|-----------|-------------------------|------------|
| Exposure | 1-8 hr/wk | >8hr/wk, not continuous | Continuous |
| Irregular, intermittent | 1-2 | 4-6 | - |
| Regular, periodic | 2-3 | 5-7 | 8 |

b. Number of Exposed Personnel Points Assessed

| Number of Exposed Personnel | Points |
|-----------------------------|--------|
| <5 | 1-2 |
| 5 to 9 | 3-4 |
| 10 to 49 | 5-6 |
| >49 | 7-8 |

SUBJECT: Industrial Hygiene Former IFR Wipe Sampling Survey, Seaford Readiness Center, Seaford, DE, 25 June 2013

APPENDIX – B – CONTINUED DERIVING RISK ASSESSMENT CODES (RACs) FOR HEALTH HAZARDS

c. Determine the IPC for health hazards by totaling the points assessed and using the following guide:

| Total Points (sum of A and B, above) | IPC |
|--------------------------------------|-----|
| 14-16 | A |
| 10-13 | В |
| 5-9 | С |
| <5 | D |

3. Determine the RAC for health hazards by using the following matrix to measure health hazard severity and mishap probability factors.

| HEALTH HAZARD SEVERITY | ILLì | NESS PROB | ABILITY C | ODE |
|------------------------------|------|-----------|-----------|-----|
| CODE | Α | В | C | D |
| I | 1 | 1 | 2 | 3 |
| II | 1 | 2 | 3 | 4 |
| III | 2 | 3 | 4 | 5 |
| IV | 3 | 4 | 5 | 5 |

4. RAC DESCRIPTOR

| RAC | DESCRIPTOR |
|-----|------------|
| 1 | CRITICAL |
| 2 | SERIOUS |
| 3 | MODERATE |
| 4 | MINOR |
| 5 | NEGLIGIBLE |

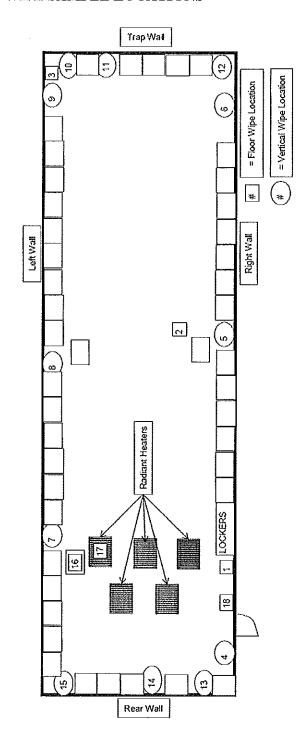
SUBJECT: Industrial Hygiene Former IFR Wipe Sampling Survey, Seaford Readiness Center, Seaford, DE, 25 June 2013

APPENDIX – C WIPE SAMPLE INFORMATION

| | | | | Di: | stance | From V | Vall: | |
|---------------------------|---------|-----------|-------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|-----------------------|
| Sample Number | Resu | <i>It</i> | Location | Trap | Rear | Left | Right | Vertical Position: |
| 20130625 Seaford DE 01 | -<110 · | µg/ft² | Floor | | 11 ft | | 1 ft | |
| 20130625 Seaford DE 02 | 270 | μg/ft² | Floor | | 22 ft | | 3 ft | |
| 20130625 Seaford DE 03 | 2400 | μg/ft² | Floor | 2 ft | | 6 in | | |
| 20130625 Seaford DE 04 | < 110 | μg/ft² | Wall, Right | The second secon | 4 ft | | | 6 ft from floor |
| 20130625 Seaford DE 05 | < 110 | µg/ft² | Wall, Right | | 26 ft | | | 3 ft from floor |
| 20130625 Seaford DE 06 | < 110 | μg/ft² | Wall, Right | 4 ft | And the second s | And the second s | | 1 ft from floor |
| 20130625 Seaford DE 07 | < 110 | μg/ft² | Wall, Left | | 13 ft | | | 3 ft from floor |
| 20130625 Seaford DE 08 | < 110 | μg/ft² | Wall, Left | | 31 ft | | | 6 ft from floor |
| 20130625 Seaford DE 09 | < 110 | μg/ft² | Wall, Left | 3 ft | | | | 3 ft from floor |
| 20130625 Seaford DE 10 | < 110 | µg/ft² | Wall, Trap | A Total Control of Con | and the state of t | 6 in | | 1 ft from floor |
| 20130625 Seaford DE 11 | < 110 | µg/ft² | Wall, Trap | A comment of the comm | | 6 ft | | 6 ft from floor |
| 20130625 Seaford DE 12 | < 110 | µg/ft² | Wall, Trap | And the second s | | | - 6 in | 3 ft from floor |
| 20130625 Seaford DE 13 | 110 | μg/ft² | Wall, Rear | | | | 4 ft | 6 ft from floor |
| 20130625 Seaford DE 14 | < 110 | µg/ft² | Wall, Rear | | | | 9 ft | 3 ft from floor |
| 20130625 Seaford DE 15 | < 110 | µg/ft² | Wall, Rear | | | 2ft | | 1 ft from floor |
| 20130625 Seaford DE 16 | < 110 | μg/ft² | Locker Top | rear w | all . | | | locker from |
| 20130625 Seaford DE 17 | 130 | μg/ft² | Heater | Heate to trap | • | osest to | left wal | , row closest |
| 20130625 Seaford DE 18 | < 110 | ⊥µg/ft² | Control Box | Contro | ol box to | p by er | ntry door | |
| 20130625 Seaford DE 19 | ≤ 12 | μд | BLANK | The proof of the control of the cont | And the second s | | | |
| 20130625 Seaford DE 20 | < 12 | þg | BLANK | Control of the contro | | | | |

SUBJECT: Industrial Hygiene Former IFR Wipe Sampling Survey, Seaford Readiness Center, Seaford, DE, 25 June 2013

APPENDIX – D WIPE SAMPLE LOCATIONS



SUBJECT: Industrial Hygiene Former IFR Wipe Sampling Survey, Seaford Readiness Center, Seaford, DE, 25 June 2013

APPENDIX - E LABORATORY RESULTS

CERTIFICATE OF ANALYSIS

AMA Analytical Services, Inc. A Specialized Environmental Laboratory

| Chala Of Curtody; |
|-----------------------------|
| Delaware JFR Lead Cicaratee |
| Job Name: |

| Dolaware JFR Lead Cleanasce | Scalord, DE | Not Provided | W912K6-09-A-0003 |
|-----------------------------|-----------------------------------------------------------------------|--------------------------------|------------------|
| Job Name: | Job Lacadon: | Job Number: | P.O. Namber: |
| National Guard Bureau | 301-iii Old Bay Lane, Atin; ARNG-CJG-P, State Milliary Reservation | Havre de Grace, Maryland 21078 | |

Address Client

6/27/2013 516207

Date Submitted:

Person Submitting

Date Analyzed:

Summary of Atomic Absorption Analysis for Lead

7/1/2013

| | | | Summs | try of Ator | Summary of Atomic Absorption Analysis for Lead | tion | Analysi | s for Leac | _ | | Page 1 of 3 |
|----------------------|------------------------------------------------------------------------------------------------|---------------|-------------|-------------------|------------------------------------------------|------|------------|------------|--------------|--------------------|-------------|
| AMA Sample Number | Client Sample Analysis Type Sample Type Air Volume Aren Wiped Reporting Number (12) (17) Lindi | Analysis Type | Sample Type | Air Volume (L) | Aren Wiped (fP) | Rep | - | Total ug | Final Result | 1 | Cortiments |
| 13073818 | 20139625 Senford DE 01 | Напр | Wipe | *** | 0.111 | 02. | 110 ug/te² | <12 | 0112 | ug/ll ² | |
| 61887.081 | 20130625 Senford DE 02 | Plano | Wipe | ŧ | 0.111 | 2 | all/din | 8 | 270 | rb/da | |
| 13073820 | 20130625 Seaford | Plamo | Wipe | : | 0,111 | 9 | 110 ug/0* | 360 | 2400 un/93 | eg/an | |

| 2 | 2 | 2- | 2- | 2. | *- | • | ~. | • | • | |
|--------------|------------|-------------|------------|-------------------------|------------|--------------|-------------|-------------|-------------|-----------|
| √11/gm 0.11> | 270 up/fl² | 2400 ug/fl² | <110 ug/h² | <110 ug/ft ² | <110 up/tr | <110 ug/ft* | <110 ng/ft² | <110 ug/ft² | <110 ug/ft² | <310 up/P |
| • | ., | A) | ٧ | v | ٧ | V | V | Ÿ | ₹ | ♡ |
| <12 | 8 | 360 | ~ | <12 | ₹\$ | 2 | Y | 27 V | 5 | 7 |
| 11/An | ug/ll² | ng/u | •₩⁄ān | ug/gs | w.J.J. | ug/fls | ना/वंग | eli/Bn | 'mgu | ell/Sin |
| 8 | 2 | 9 | 0.1 | 110 | 110 | 110 | 91 | 9 | 011 | 2 |

0.111

0.11 0.11

X(X) Wipo Wipe

Flamo

20130625 Seaford DE 07 20130625 Scaferd DE 08

20130625 Senford DE 05

20139625 Scaford DE 06

13073823 13073824 13073825

20130625 Seaford DE 04

į

Flame

20130625 Scalord DE 09

20130625 Seaford DE 10 20130625 Sepford DE 11

13073828

This report applies eaky to the sumple, are astraided, lovestyated and is not receivedly indicative of the quality or condition of applicability and an animal products. As a natural publicity in the conditions of the excission when the health and the health and the health and and an animal products are based upon the information provided by the personal embilities then such subsequenced products of these Laborateirs we expressly this follows the subsequence of these Laborateirs we expressly this follows the subsequence of these Laborateirs we expressly this follows the subsequence of these Laborateirs we expressly this follows the express and the subsequence of the control of the control

An Allia (#100470) and NY FLAP (#10920) Astrelited Labertiery

4475 Forbes Med. - Landam, 11D, 20706 - (301) 459.2640 - Toll Free (300) 346-0901 - Fax (301) 459-2643

SUBJECT: Industrial Hygiene Former IFR Wipe Sampling Survey, Seaford Readiness Center, Seaford, DE, 25 June 2013

APPENDIX – E – CONTINUED LABORATORY RESULTS



CERTIFICATE OF ANALYSIS

AMM Analytical Services, Inc. A Specialized Environmental Laboratory

| Client | National Guard Bureau | Job Name: | Delaware IFR Lead Clearance | Chada |
|------------|---------------------------------------------------------------------|---------------|-----------------------------|--------|
| Address | 301-IH Old Bay Lane, Attn: ARNG-CIG-P, Sinte Milling Reservation | Job Location: | Scaford, DE | Dute S |
| | Havre de Grace, Maryland 21078 | Job Number: | Not Provided | Person |
| | | P.O. Number: | W912K6-09-A-0003 | Date A |
| Artentlous | Non- | | | |

Summary of Atomic

| | Report Date; 7/1/2013 | |
|-----------------|--------------------------------------|--|
| 6/27/2013 | 1 \$102/\$2/9 | |
| Date Submitted: | Person Submitting: Date Analyzed: | |

| read |
|---------|
| s for I |
| Analysi |
| rption |
| : Abso |

Page 2 of 3

| Client Sample | Annlysk Type | Analysis Type Sample Type | Air Volunte | Area Wiped | Repo | Reporting | Total ug | Final Result | ŧ | Comments |
|---------------------------|--------------|---------------------------|-------------|------------|------|-------------|-----------------|--------------|-------------------|----------|
| TAURIDET | | | j | (a) | 1 | | | | | |
| 20130625 Scaford DB 12 | Flame | Wije | 111'0 | 11170 | 5 | 110 ug/ft | V 22 | 01.5 | ug/ft? | - |
| 20130625 Scaford DE 13 | Flame | Wipa | : | 0.111 | 110 | ug)ff* | 2 | 010 | ng/ft/ | |
| 20130625 Scaford DE 14 | Flame | Wipe | ŧ | 0.111 | 9 | ະທຸ/ສຳຕ | 2 75 | 017 | ng/fir | |
| 20130625 Sepford DE 15 | Plame | Wipe | i | 0.111 | 9 | 41/Z:1 | 2 | S 2 | 40∕gπ | |
| 20130625 Senford DE 16 | Flamp | Wipe | 1 | 0,11) | 91 | 11/E11 | 다 | 0 P | ուց/Ու | |
| 20130625 Scaford DB 17 | Flame | Wipe | i | 0.111 | 110 | ug/ft² | 13 | 130 | ស)/ពិព | |
| 20130625 Sculard DE 18 | Flamo | Wipe | i | 0,111 | 110 | ւն/մո | <12 | € 110 | u _s /n | |
| 20130625 Scaford DE 19 | Flunto | Wipo Blank | į | ₹N. | 21 | 11 8 | | 4 | Sin | |
| 20130625 Scaford DE 20 | Flame | Wipe Blank | ŧ | N/A | 업 | \$n | | <12 | Sin . | |

4475 Forbes Bird. . Lankma. MD, 20706 · (301) 459-2640 · Toli Free (800) 346-0961 · Fax (301) 459-2643

12

SUBJECT: Industrial Hygiene Former IFR Wipe Sampling Survey, Seaford Readiness Center, Seaford, DE, 25 June 2013

APPENDIX - E - CONTINUED LABORATORY RESULTS



CERTIFICATE OF ANALYSIS

AMA Analytical Services, Inc.

A. Spacialized Environmental Laboratory

Delaware IFR Lead Cleamage

Job Locations Job Number:

301-IF OM Boy Lane, Aun: ARNG-CIO-P. State Military Reservation

Address: Client

National Guard Phercus

Havre de Grace, Maryland 21078

Job Names



62272013 Person Submitting: Chala Of Custody: Date Submitted: Date Analyzed:

Report Date: 771,2013

W912X6-09-A-0003

P.O. Number:

Not Provided Sesford, DE

| Page 3 of 3 |
|----------------|
| |
| Lead |
| alysis for Lea |
| osorption An |
| ſ Atomic Al |
| Summary o |

| ! | Non-Respor |
|-------------------------------------------|------------|
| | |
| 1 | |
| 100 | |
| ylical results of quality eprinci samples | |
| 8 | |
| : 8 | |
| a. | |
| 0 2 | |
| ing. | |
| : 2 | |
| Ť | |





| Final Result | |
|-----------------------|--|
| Total ug Final Result | |

Afr Volume (L)

Sample Type

Anhlysis Type

Cifent Sample Number

AMA Sample Number

See CC Summary for analy associated with those samples. Analysis Method For Fundoo: Air, Wipes, Palmis, and SolUSolids; EPA 800/R-93/200(M)-7010; Water: SM-3:138 mg/Kg # parts per mitten (ppm) on a dry weight basis - mg/L # parts per mittlen (ppm) Analysis Mothod for Flame: Air, Wipes, Points, and Soll/Solids: EPA 600/R-52/200[M-7000B; Woter, SM-31118 Area Wiped (fr)

ugit. z parts por billion (pats)

Note; All samptes were received in good condition unioss otherwise noted

%Pb = percent lead on a dry weight basis

NA w Not Applicable

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

Air and Wipe results are not corrected for any blank results

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

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

Analysts

regrept population or supplys, interdigated and to necessary floridative of the specialists of apparature of section and the section of the section and the section of the

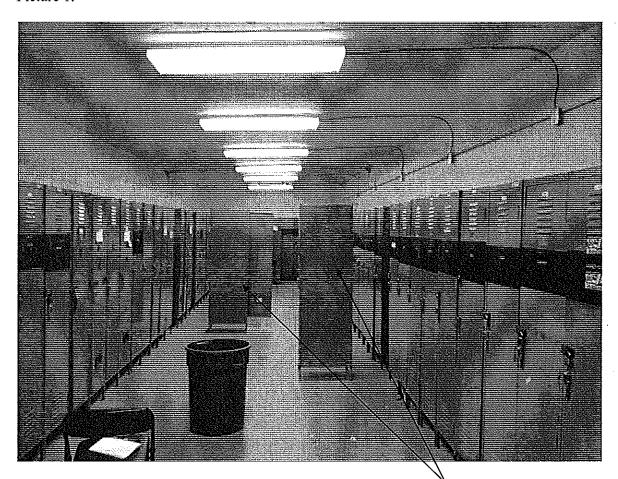
1475 Forbes Bivd. . Lanhum, http., 12706 - (JUI) 459-2640 - Yoll Free (Mill) 346-4964 - Wax (JUI) 459-2643 An Allia (#190470) and NV ELAP [#10920] Acereliced Laboratory

Attentions

SUBJECT: Industrial Hygiene Former IFR Wipe Sampling Survey, Seaford Readiness Center, Seaford, DE, 25 June 2013

APPENDIX – F PHOTOGRAPHS

Picture 1:

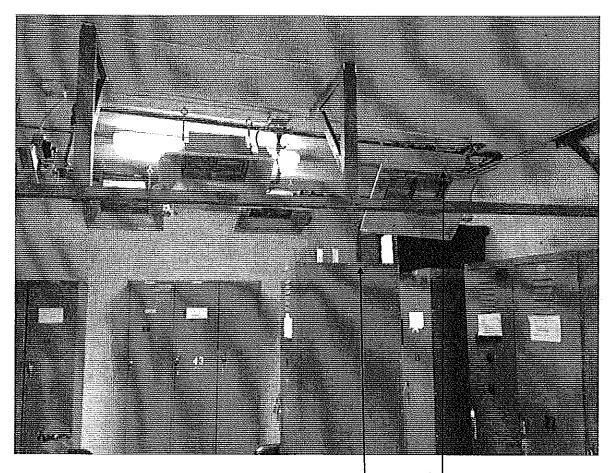


View looking toward "trap" wall from back wall/entry door area. The out-of-place lockers were moved in order to sample the walls behind them.

SUBJECT: Industrial Hygiene Former IFR Wipe Sampling Survey, Seaford Readiness Center, Seaford, DE, 25 June 2013

APPENDIX – F – CONTINUED PHOTOGRAPHS

Picture 2:

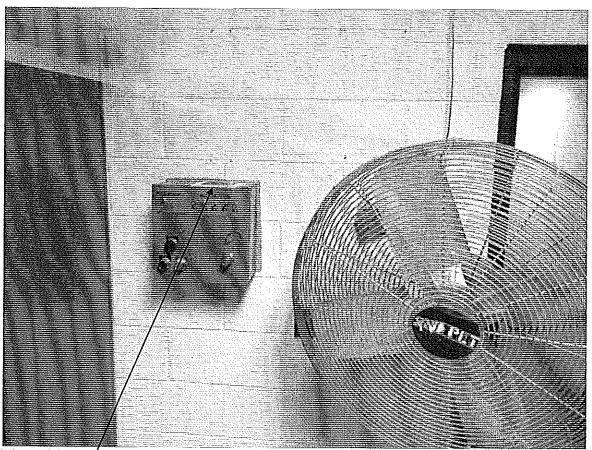


View of the back wall. Samples were taken from this locker top and heater.

SUBJECT: Industrial Hygiene Former IFR Wipe Sampling Survey, Seaford Readiness Center, Seaford, DE, 25 June 2013

APPENDIX – F – CONTINUED PHOTOGRAPHS

Picture 3:



View of the control box and entry door on the right wall.

BEST AVAILABLE COPY



NATIONAL GUARD BUREAU

ARMY NATIONAL GUARD NORTHEAST REGION INDUSTRIAL HYGIENE OFFICE 301-IH OLD BAY LANE HAVRE DE GRACE MD 21078

INDUSTRIAL HYGIENE SURVEY SURFACE WIPE SAMPLING FOR LEAD FORMER INDOOR FIRING RANGE SEAFORD, DE – 30 SEPTEMBER 2013

- 1. REFERENCES. See Appendix A.
- 2. PURPOSE. The purpose of this Industrial Hygiene (IH) survey was to reevaluate the progress of the decontamination and conversion project at the former indoor firing range (IFR) in the Seaford Readiness Center, 601 Bridgeville Rd, Seaford, Delaware.
- 3 GENERAL

a. Background.

- (1) The Delaware Army National Guard (DEARNG) Facilities Management office initiated a project to decontaminate and convert former IFRs in multiple facilities throughout the state.
- (2) A contractor was hired to manage the project and was responsible for the oversight of the cleaning, decontamination, and conversion of each former IFR. The contractor then subcontracted with an independent firm to verify any remaining lead levels were below the 200 micrograms per square foot ($\mu g/ft^2$) limit as published in National Guard Pamphlet (NG PAM) 420-15, Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges (reference 1).
- (3) Once the contractor reported all facilities were below the $200 \,\mu\text{g/ft}^2$ limit, the Army National Guard (ARNG) North Region Industrial Hygiene (IH) office's assistance was requested in order to verify the contractor's reports. These sample results and locations are listed in Appendices C and D of this report.
- (4) Upon review of the laboratory results, it was determined that some locations in this former IFR were still above the $200 \,\mu\text{g/ft}^2$ limit. The DEARNG Facilities Management office, in consultation with the Occupational Health Nurse and the North Region IH office, brought the contractor back to clean the affected areas.
- b. <u>Survey Personnel</u>. This survey was conducted on 30 September 2013 by <u>Non-Responsive</u>, Industrial Hygienist, ARNG Midwest Region IH office.
- c. <u>Risk Assessment Codes (RACs)</u>. RACs are assigned to recommendations to help quantify risks to personnel and to aid in the establishment of funding priorities for corrective actions. Health RACs are determined by using the RAC table from the Department of Defense Instruction (DODI) 6055.1 (reference 2).

SUBJECT: Industrial Hygiene Former IFR Wipe Sampling Survey, Seaford Readiness Center, Seaford, DE, 30 September 2013

4. METHODOLOGY.

a. Assessment Criteria.

- (1) The United States Army, through DODI 6055.1, Section E3.4.1.2, directs that facilities provide healthful work environments in accordance with the most stringent standards applicable (reference 2).
- (2) The Occupational Safety and Health Administration (OSHA), through the Code of Federal Regulations, have enforceable regulatory standards for workplace safety (reference 3).
- (3) Department of the Army Pamphlet (DA PAM) 40-503, Industrial Hygiene Program, section 1-8, states that Army occupational exposure criteria will be based on the more stringent of standards published by OSHA as Permissible Exposure Limits (PELs), guidance from the American Conference of Governmental Industrial Hygienists (ACGIH) as Threshold Limit Values (TLVs), military unique standards or published guidance from other organizations when the primary standards are not applicable (references 4 and 5).
- (4) In areas containing former IFRs, NG PAM 420-15, Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges, is used to determine satisfactory levels of any lead present in dust (reference 1).

b. Wipe Sampling Protocol.

- (1) Procedures. Surface wipe sampling methods were conducted in accordance with NG PAM 420-15 and OSHA's Technical Manual, 5th edition (references 1 and 6).
- (2) Media. Ghost Wipes were used for sample collection and were placed in 68mL HotBlock digestion vessels. Templates (10 cm x 10 cm) were used to ensure uniform wipe area.
- (3) Lab Analysis. All samples were sent to Aerosol Monitoring & Analysis (AMA) Analytical Services, Inc., an American Industrial Hygiene Association (AIHA) accredited laboratory in Lanham, Maryland. The samples were analyzed using the Environmental Protection Agency (EPA) method 600/R-93/200(M)-7000B for Lead (reference 7) (see Appendix E).

5. FINDINGS AND DISCUSSION.

a. <u>General Information</u>. Prior to this visit, the contractor reported the former IFR was cleaned (2^{nd} time) and all samples were below the 200 μ g/ft² limit. The bullet trap, plenum components, baffles, soundproofing and firing points were removed. The radiant heaters and control box were left in place. Single lockers were also present.

SUBJECT: Industrial Hygiene Former IFR Wipe Sampling Survey, Seaford Readiness Center, Seaford, DE, 30 September 2013

- b. <u>Wipe Sampling</u>. Surface wipe samples were collected in accordance with the guidance provided in NG Pam 420-15. Sample information is presented in Appendices B of this report.
- c. Results. Out of 2 samples collected, both tested positive for lead and were reported above 200 $\mu g/ft^2$. Neither sample result was above 1,000 $\mu g/ft^2$. Complete surface wipe sample results are provided in Appendix B of this report.
- d. <u>Lockers</u>. One sample was collected from the top of a locker inside the range. The sample result from the locker top was reported as below detectable limits for lead. While not positive for lead, all of the locker tops were very dusty and should be wiped down.
- 6. CONCLUSION. The floor in the Seaford Readiness Center's former IFR is still contaminated with lead and needs to be cleaned again. Efforts should be concentrated on the far end (where the former bullet trap was installed).

7. RECOMMENDATIONS.

- a. <u>Decontamination Requirements</u>. Re-clean the floor area and decontaminate in accordance with guidance in NG Pam 420-15. (RAC 3) (NG Pam 420-15, reference 1)
- b. <u>Dust Removal</u>. Wipe down the radiant heaters and the locker tops to remove any remaining lead and/or dust. (RAC 4) (NG Pam 420-15, reference 1)
- c. <u>Additional Sampling</u>. Collect more wipe samples once the re-cleaning is completed. (RAC 4) (NG Pam 420-15, reference 1)
- d. <u>Limited Access</u>. Continue to limit access to the former IFR area to personnel involved in the decontamination/conversion operation. (RAC 4) (NG PAM 420-15, reference 1)
- e. <u>Encapsulation</u>. When re-sampling verifies that lead levels are below 200 μg/ft2, coat the walls will a sealant to encapsulate any remaining lead dust. Seal the concrete floors with deck enamel and then tile or cover with linoleum. (**RAC 4**) (NG PAM 420-15, reference 1)
- 8. ADDITIONAL ASSISTANCE. I am point of contact for this information and can be reached by phone at Non-Responsive or email at Non-Responsive .



SUBJECT: Industrial Hygiene Former IFR Wipe Sampling Survey, Seaford Readiness Center, Seaford, DE, 30 September 2013

APPENDIX – A REFERENCES

- 1. National Guard Pamphlet (NG PAM) 420-15, Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges, 3 November 2006.
- 2. Department of Defense Instruction (DODI) 6055.1, Department of Defense (DOD) Safety and Occupational Health (SOH) Program, 19 August 1998.
- 3. Title 29 Code of Federal Regulations, Part 1910.1025, Lead, Occupational Safety and Health Administration (OSHA), 2013 Edition.
- 4. Department of the Army Pamphlet (DA PAM) 40-503, The Army Industrial Hygiene Program, 2 April 2013.
- 5. Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices, 2013, American Conference of Governmental Industrial Hygienists, Cincinnati, OH.
- 6. Occupational Safety and Health Administration Technical Manual, TED 01-00-015 [TED 1-0.15A], 5th Edition.
- 7. Environmental Protection Agency (EPA) Method 600/R-93/200(M), Field Analysis of Lead in Paint, Bulk Dust, and Soil by Ultrasonic, Acid Digestion and Colorimetric Measurement, September 1993.

BEST AVAILABLE COPY

ARNG-CSG-P

SUBJECT: Industrial Hygiene Former IFR Wipe Sampling Survey, Seaford Readiness Center, Seaford, DE, 30 September 2013

APPENDIX – B WIPE SAMPLE INFORMATION

| Sample Number | Result | | lt | Location |
|---------------|--------|-----|--------|-----------------------|
| 20130930 SC01 | | 230 | μg/ft² | Floor, Middle of Room |
| 20130930 SC02 | | 480 | μg/ft² | Floor, Near Trap Wall |
| 20130926 SC07 | < | 12 | μg | BLANK |

SUBJECT: Industrial Hygiene Former IFR Wipe Sampling Survey, Seaford Readiness Center, Seaford, DE, 30 September 2013

$\label{eq:appendix-C} \mbox{APPENDIX-C} \\ \mbox{ORIGINAL WIPE SAMPLE INFORMATION}$

| | _ | | | | | Distance From Wall: | | | |
|---------------------------|----------|------|--------------------|-------------|------------------|---------------------|----------|-----------|-----------------------|
| Sample Number | | Resu | lt | Location | Trap | Rear | Left | Right | Vertical Position: |
| 20130625 Seaford DE 01 | < | 110 | μg/ft ² | Floor | | 11 ft | | 1 ft | |
| 20130625 Seaford DE 02 | | 270 | μg/ft² | Floor | | 22 ft | | 3 ft | |
| 20130625 Seaford DE 03 | | 2400 | μg/ft² | Floor | 2 ft | | 6 in | | |
| 20130625 Seaford DE 04 | < | 110 | μg/ft ² | Wall, Right | | 4 ft | | | 6 ft from floor |
| 20130625 Seaford DE 05 | < | 110 | μg/ft ² | Wall, Right | | 26 ft | | | 3 ft from floor |
| 20130625 Seaford DE 06 | < | 110 | μg/ft ² | Wall, Right | 4 ft | | | | 1 ft from floor |
| 20130625 Seaford DE 07 | < | 110 | μg/ft ² | Wall, Left | | 13 ft | | | 3 ft from floor |
| 20130625 Seaford DE 08 | < | 110 | μg/ft² | Wall, Left | | 31 ft | | | 6 ft from floor |
| 20130625 Seaford DE 09 | < | 110 | μg/ft ² | Wall, Left | 3 ft | | | | 3 ft from floor |
| 20130625 Seaford DE 10 | < | 110 | μg/ft ² | Wall, Trap | | | 6 in | | 1 ft from floor |
| 20130625 Seaford DE 11 | ٧ | 110 | μg/ft ² | Wall, Trap | | | 6 ft | | 6 ft from floor |
| 20130625 Seaford DE 12 | ' | 110 | μg/ft² | Wall, Trap | | | | 6 in | 3 ft from floor |
| 20130625 Seaford DE 13 | | 110 | μg/ft² | Wall, Rear | | | | 4 ft | 6 ft from floor |
| 20130625 Seaford DE 14 | < | 110 | μg/ft² | Wall, Rear | | | | 9 ft | 3 ft from floor |
| 20130625 Seaford DE 15 | ٧ | 110 | μg/ft ² | Wall, Rear | | | 2 ft | | 1 ft from floor |
| 20130625 Seaford DE 16 | ٧ | 110 | μg/ft ² | Locker Top | rear w | all . | | | locker from |
| 20130625 Seaford DE 17 | | 130 | μg/ft ² | Heater | Heate to trap | | osest to | left wall | , row closest |
| 20130625 Seaford DE 18 | < | 110 | μg/ft ² | Control Box | Contro | ol box to | p by er | ntry door | |
| 20130625 Seaford DE 19 | ٧ | 12 | μg | BLANK | | | | | |
| 20130625 Seaford DE 20 | < | 12 | μg | BLANK | | | | | |

BEST AVAILABLE COPY

ARNG-CSG-P

SUBJECT: Industrial Hygiene Former IFR Wipe Sampling Survey, Seaford Readiness Center, Seaford, DE, 30 September 2013

APPENDIX – D ORIGINAL WIPE SAMPLE LOCATIONS

7

SUBJECT: Industrial Hygiene Former IFR Wipe Sampling Survey, Seaford Readiness Center, Seaford, DE, 30 September 2013

APPENDIX – E LABORATORY RESULTS







Industrial Hygiene Survey Report

National Guard Facility John H. Pigman Readiness Center

Prepared For:

National Guard Bureau Region North IH

301-IH Old Bay Lane

Havre de Grace, MD 21078

Survey Location:

John H. Pigman Readiness Center

601 Bridgeville Road Seaford, DE 19973

Prepared By:

ALS Environmental

3544 North Progress Avenue

Suite 100

Harrisburg, PA 17110

Survey Date:

October 14, 2011

Report Date:

December 5, 2011

ALS Project #:

1110757



Director, Industrial Hygiene Services

ADDRESS 3544 North Progress Avenue, Suite 100, Harrisburg, PA 17110 PMONE +1 717 540 3424 FAX +1 717 540 3428

Analytical Laboratory Services, Inc. Part of the ALS Group A Campbell Brothers Limited Company



BEST AVAILABLE COPY

Table of Contents

| Section 1.0 Executive Summary | 3 |
|------------------------------------------------------------|----|
| Section 2.0 Operation Description & Observations | 4 |
| Section 3.0 Lead Testing | 5 |
| Section 4.0 Lighting | 7 |
| Section 5.0 Indoor Air Quality | 8 |
| Section 6.0 Ventilation | 10 |
| Section 7.0 Suspect Asbestos Containing Building Materials | 11 |
| Section 8.0 Limitations | 12 |
| Appendix A. Laboratory Analysis Report | 13 |
| Appendix B. Photographs | 14 |
| Appendix C. Floor Plan | 15 |
| Appendix D. References | 16 |

Section 1.0 Executive Summary

Section 1.0 Executive Summary

An industrial hygiene survey was conducted on October 14, 2011, at the John H. Pigman Readiness Center located at 601 Bridgeville Road, Seaford, DE 19973. The survey was performed by Ms. Non-Responsive

- 1. Lead surface and air samples were collected. Surface levels of lead exceeded 200 micrograms per square foot (ug/ft²) in five locations associated with the converted indoor firing range. Cleaning procedures should be improved and remedial action should be taken to maintain lead levels below 200 ug/ft². See Section 3.0 for sampling results.
- 2. Lighting levels did not meet the American National Standard Institute/Illuminating Engineering Society of North America (ANSI/IESNA) recommended guideline in some areas. See Section 4.0 for locations.
- 3. Indoor air quality (IAQ) parameters of temperature, relative humidity, carbon monoxide and carbon dioxide (ventilation) were evaluated during the assessment. Relative humidity levels in some areas were above The US Army Technical Guide 277 Army Facilities Management Information Document on Mold Remediation and Recommendation. Relative humidity should be maintained at 30 60%. See Section 5.0 for sample results. The heating, ventilating, and air conditioning system (HVAC) system should be inspected to ensure it is working properly.
- 4. Some water damaged ceiling tiles were observed throughout the facility. It was reported that the HVAC system condensates which causes damaged ceiling tiles. Effloresce was noted on the exterior wall in the dining room. Identify and repair all sources of water infiltration. Remove and replace all water stained ceiling tiles.
- 5. The HVAC supply and return grills located in some of the offices and classrooms were observed to be dirty. These should be cleaned. Do not permit dirt, debris, microbial growth, etc. to accumulate in any portion of the HVAC system.

Section 2.0 Operation Description & Observation

Section 2.0 Operation Description & Observations

The John H. Pigman Readiness Center is mainly an administrative facility with a drill hall, offices, classrooms and storage areas. There were approximately 5 full-time employees stationed at this facility at the time of this survey.

The building was initially constructed in 1950 with additions in 1960. The building is one story with a brick exterior. The interior walls are primarily concrete block and drywall. The floors are concrete with vinyl floor tile or carpet.

There is a central HVAC system present in the facility. HVAC units service the building via a boiler. Some offices have wall mounted or window mounted air conditioners. Supply and return grills were observed to be dirty.

The area of the building that was once a firing range has been converted into a locker room. No firing range components remain. The area appears very clean and well kept.

There is no child-care facility in the building.

Overall housekeeping practices were good. Areas were clean and well kept.

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

Section 3.0 Lead Testing

Section 3.0 Lead Testing

Due to the age of the building there is the potential for lead based paint to be present. Various surfaces within the facility were screened for lead using surface/wipe samples. Surface/wipe samples were collected in accordance with the American Society for Testing and Materials (ASTM) E 1792 protocols. Air samples were collected using 0.8 um mixed cellulose ester (MCE) filter cassettes attached to low volume air sampling pumps. Blank samples were submitted to the laboratory for quality control purposes. Samples were sent to AMA Analytical Services, Inc., in Lanham, Maryland, for lead analysis using Environmental Protection Agency (EPA) Method 600/R-93/200 (M)-7420. A copy of the laboratory analysis report can be found in Appendix A.

Lead Testing Results Summary

| Sample # | Location | Air ug/m ³ | Surface ug/ft² |
|----------|----------------------------------------------------------------|--------------------------|-------------------|
| 1 | Drill Hall | < 5.6 | * |
| 2 | Mess Hall | <5.6 | * |
| 3 | Blank | <3 (ug) | * |
| 4 | Drill Hall – Floor by Exit Door | * | <110 |
| 5 | Drill Hall – Window Sill | * | <110 |
| 6 | Drill Hall – Kitchen – Top of Refrigerator | * | <110 |
| 7 | Drill Hall – Room 214 – Supply Grill | * | <110 |
| 8 | Drill Hall – Floor by Interior Exit | * | <110 |
| 9 | Converted Indoor Firing Range – Floor | * | 500 |
| 10 | Converted Indoor Firing Range – Stored Item – Shipping Case | * | <110 |
| 11 | Converted Indoor Firing Range – Overhead Heater | * | 680 |
| 12 | Converted Indoor Firing Range – Light Fixture | * | 980 |
| 13 | Converted Indoor Firing Range – Exhaust Ventilation System | * | 910,000 |
| 14 | Outside Converted Indoor Firing Range – Hallway Floor | * | 320 |
| 15 | Room 124 – File Cabinet | * | <110 |
| 16 | Room 117 – Table | * | <110 |
| 17 | Hallway – Floor by Room 120 | * | <110 |
| 18 | Blank | * | <12 (ug) |

Key: Bolded results exceed listed criteria

Source: NG PAM 420-15 Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges

The National Guard Bureau currently utilizes 200 ug/ft² as a benchmark for identifying lead-contaminated surfaces. This guideline is referenced in NG PAM 420-15 "Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges"

BEST AVAILABLE COPY

as a satisfactory surface contamination level unless the facility is utilized as a childcare facility. In such cases, U.S. Department of Housing and Urban Development (HUD) limit of 40 ug/ft² on floors and 250 ug/ft² on windowsills should be observed. There is no child care provided at this facility.

Lead surface and air samples were collected.

- Surface levels of lead were at or above the recommended guideline of 200 ug/ft² in the following locations:
 - o Converted Indoor Firing Range-Floor
 - o Converted Indoor Firing Range Overhead Heater
 - o Converted Indoor Firing Range Light Fixture
 - o Converted Indoor Firing Range Exhaust Ventilation System
 - Outside Converted Indoor Firing Range Hallway Floor

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

- Air samples for lead were below the Occupational Safety and Health Administration (OSHA) Permissible Exposure Limit of 50 micrograms per cubic meter (ug/m³).
- Paint was observed to be in good condition throughout the facility.

Section 4.0 Lighting

Section 4.0 Lighting

A lighting assessment was conducted throughout the facility. Measurements were collected using a Cooke Cal-Light 400L Precision Light Meter (Serial No. K070155). The light meter was last calibrated on September 10, 2011. Measurements collected were compared to ANSI/IESNA RP-7-01 Lighting Industrial Facilities and RP-1-04 Office Lighting.

Light Survey Assessment Summary

| T anding | Foot Candles | Recommended | Sufficient |
|-------------------|--------------|---------------|------------|
| Location | (FC) | Lighting (FC) | Lighting |
| Drill Hall | 53.3 | 10 | Yes |
| Room 206 (Office) | 53.6 | 30-50 | Yes |
| Rom 207 (Office) | 15.4 | 30-50 | No |
| Room 209 (Office) | 48.9 | 30-50 | Yes |
| Room 211 (Office) | 39.8 | 30-50 | No |
| Room 212 (Office) | 26.8 | 30-50 | No |
| Room 213 (Office) | 68.1 | 30-50 | Yes |
| Room 214 (Office) | 68.5 | 30-50 | Yes |
| Conference Room | 79.8 | 30-50 | Yes |
| Exercise Room | 50.5 | 30 | Yes |
| Room 216 (Office) | 30.9 | 30-50 | Yes |
| Room 124 (Office) | 23.5 | 30-50 | No |
| Mess Hall | 22.1 | 10 | Yes |
| Locker Room | 33.2 | 7 | Yes |
| Kitchen | 60.1 | 50 | Yes |
| Room 112 (Office) | 18.3 | 30-50 | No |
| Ladies Latrine | 22.3 | 5 | Yes |
| Room 113 (Office) | 35.8 | 30-50 | Yes |
| Room 119 (Office) | 33.8 | 30-50 | Yes |
| Room 117 (Office) | 53.0 | 30-50 Y | |
| Garage | 25.7 | 75 | No |

Bolded results did not meet listed criteria

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

The lighting level did not meet the minimum recommended guideline in the following areas:

- o Room 207
- o Room 212
- o Room 124
- o Room 112
- o Garage

Lighting should be improved in these areas.

Section 5.0 Indoor Air Quality

Section 5.0 Indoor Air Quality

Survey measurements were made for ventilation and comfort parameters (carbon dioxide, temperature, carbon monoxide and relative humidity). The air quality measurements were collected using direct reading instrumentation for comfort parameters using a QTRAK IAQ Meter, Model 7565 (Serial #7565X0839017). The IAQ Meter was last calibrated in February 11, 2011.

The American Society of Heating, Refrigerating, and Air Conditioning Engineers, Inc. (ASHRAE) have developed indoor air quality guidelines for mechanically ventilated office buildings and commercial settings (ASHRAE standard 62.1-2010). ASHRAE specifies temperature and relative humidity ranges for human comfort (ASHRAE 55-2010). The US Army Technical Guide 277 Army Facilities Management Information Document on Mold Remediation and Recommends maintaining a relative humidity range between 30 to 60%.

The following table summarizes the measurements collected.

IAQ Assessment Summary

| | IAQ Assessment S | Relative | Carbon | Carbon |
|-------------------|------------------|----------|---------|----------|
| Location | Temperature | Humidity | Dioxide | Monoxide |
| | (°F) | (%) | (ppm) | (ppm) |
| Drill Hall | 72.0 | 72.3 | 470 | 0.5 |
| Room 206 (Office) | 71.5 | 72.6 | 406 | 0.5 |
| Rom 207 (Office) | 71.5 | 73.2 | 430 | 0.7 |
| Room 209 (Office) | 71.7 | 75.7 | 434 | 0.9 |
| Room 211 (Office) | 71.9 | 74.1 | 411 | 0.5 |
| Room 212 (Office) | 72.0 | 75.3 | 437 | 1.0 |
| Room 213 (Office) | 72.3 | 74.3 | 462 | 0.6 |
| Room 214 (Office) | 72.5 | 74.4 | 434 | 0.3 |
| Conference Room | 72.6 | 75.3 | 433 | 0.5 |
| Exercise Room | 72.4 | 70.8 | 402 | 0.6 |
| Room 216 (Office) | 72.2 | 72.6 | 422 | 0.6 |
| Room 124 (Office) | 73.1 | 66.2 | 570 | 1.0 |
| Mess Hall | 70.6 | 52.6 | 452 | 0.9 |
| Locker Room | 71.6 | 78.1 | 453 | 0.2 |
| Kitchen | 71.4 | 53.7 | 501 | 0.6 |
| Room 112 (Office) | 71.9 | 62.7 | 440 | 0.8 |
| Room 113 (Office) | 72.5 | 68.9 | 475 | 0.8 |
| Room 119 (Office) | 72.3 | 68.0 | 399 | 0.8 |
| Room 117 (Office) | 72.5 | 65.8 | 403 | 1.0 |
| Garage | 74.4 | 66.3 | 338 | 0.7 |
| Outdoors | 72.4 | 79.9 | 344 | 0.5 |
| Criteria | 68.0-79.0 | 30-60 | <1,044 | <9.0 |

Key: Bolded results exceed listed criteria

BEST AVAILABLE COPY

Source: The American Society of Heating, Refrigerating, and Air Conditioning Engineers, Inc. (ASHRAE) 55-2010 & The US Army Technical Guide 277 Army Facilities Management Information Document on Mold Remediation.

Summary of findings and recommendations:

- Relative humidity was above the recommended criteria of 30-60% in most areas. High relative humidity can provide and environment suitable for microbial growth and proliferation. Maintain relative humidity levels between 30-60%.
- Carbon dioxide levels did not exceed the recommended ceiling of 1,044 parts per million (ppm). This indicates that outdoor air ventilation is adequate in all areas.
- Carbon monoxide levels were less than the recommended ceiling of 9 ppm.
- A visual inspection was conducted throughout visually accessible portions of the facility. The visual inspection was conducted to assess sources or pathways of factors potentially deleterious to IAQ. It was reported that the HVAC system condensates. Some water damaged ceiling tiles were observed throughout the facility. Efflorescence was noted on the exterior wall in the dining room. Identify and repair the source of the water infiltration. Replace any water stained ceiling tiles.
- The HVAC supply grills located in some of the offices/classrooms were observed to be dirty. These should be cleaned. Do not permit dirt, debris, microbial growth, etc. to accumulate in any portion of the HVAC system.

Section 6.0 Ventilation

Section 6.0 Ventilation

There are a total of 4 above floor exhausts located in the garage of the John H. Pigman Readiness Center. Only three were accessible for evaluation. All measurements were conducted at the face of each exhaust using a Velocicalc Plus Model 9555-P. Measurements were compared to the ACGIH Industrial Ventilation Manual requirements for above floor exhaust systems. The table below details measurement findings.

ABOVE FLOOR EXHAUST VENTILATION RATE SUMMARY

| Location | Type of Hood | | Measured Flow Rate (CFM) |
|-----------------------|-----------------|------|-----------------------------|
| Garage Area Exhaust B | Above Floor LEV | 3.5" | 72 |
| Garage Area Exhaust C | Above Floor LEV | 3.5" | 30 |
| Garage Area Exhaust D | Above Floor LEV | 4" | 106 |

Reference: Industrial Ventilation, A Manual of Recommended Practice for Design, 27th Edition, ACGIH.

EXAMPLES OF VEHICLE LEV SYSTEM REQUIREMENTS

| Vehicle Nomenclature | Tailpipe Temp. (°F) | Engine Displacement (ft3) | Engine RPMs* | Exhaust Flow † (CFM) |
|---------------------------------|---------------------------|---------------------------------|-----------------|----------------------------|
| M35A2, 2.5 Ton Cargo Truck | 300 | 0.277 | 2,500 | 1,192 |
| M1008 CUCV, SUV | 267 | 0.219 | 3,800 | 1,370 |
| M923A2, 5 Ton Cargo Truck | 300 | 0.293 | 1,700 | 857 |
| M996 HMMWV, All Terrain Vehicle | 297 | 0.219 | 3,300 | 1,294 |

^{*} Revolutions per Minute

The actual flow rate that is required in an overhead vehicle exhaust system varies depending on the engine tail pipe temperature, whether or not the vehicle is "under load" or idling, engine displacement, engine size, etc. As an example, a 15 Liter Engine running at 1,000 rpm with an exhaust gas temperature of 1,300 F (heavy load) would require an exhaust flow of 2,110 CFM. If vehicle maintenance is performed at this facility we recommend the vehicle exhaust system be utilized. It should be regularly inspected to determine if it is operating as designed and meets the minimum requirements as recommended by the American Conference of Governmental Industrial Hygienists (ACGIH) Industrial Ventilation: A Manual of Recommended Practice for Design (27th Edition).

[†] Includes 20% Safety Factor

Section 7.0 Suspect Asbestos Containing Building materials

Section 7.0 Suspect Asbestos Containing Building Materials

Based on the age of the building (e.g., constructed in 1950) asbestos-containing materials (ACM) could be present in the facility. The following suspect asbestos-containing materials were noted:

- 1. 12" x 12" vinyl floor tile located throughout the facility.
- 2. Transite roof decking (Approximately 5,000SF), located from the dining room to room 117.
- 3. Transite roof decking (Approximately 875 SF), located in the garage.
- 4. Sprayed on Insulation (Approximately 875 SF), located in the garage.

All suspect asbestos-containing materials were observed to be intact and in good condition. Inaccessible areas such as behind walls or crawlspaces were not inspected. No bulk samples were collected.

Section 8.0 Limitations

Section 8.0 Limitations

This report summarizes our evaluation of the conditions observed at the above referenced location. Our findings are based upon our observations and sampling results obtained at the facility at the time of our visit. The report, results, and subsequent recommendations reported herein are also limited to the information available at the time it was prepared and investigated. Conditions may have been in effect prior to the sampling events that have changed over time and which cannot be predicted within the scope of this limited investigation. Any conditions discovered which deviate from the data contained in this report should be presented to us for our evaluation.

This report is intended for the exclusive use of the client. This report and the findings herein shall not, in whole or in part, be relied upon by any other parties, disseminated or conveyed to any other party without prior written consent of the National Guard Bureau, and ALS Environmental. The findings are relative to the dates of our site visits and should not be relied upon for substantially later dates.

Appendix A Laboratory Analysis Report

and Analytical Services, Inc.

A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS



| LASS STATUSTO | | | | 10/26/2011 | |
|---------------|-----------------------|----------------------------------------------------------------------|--------------------------------|------------------------|------------|
| | | | Non-Re | 0/24/2011 Report Date: | |
| | 511596 | 10/19/2011 | | 10/24/2011 | |
| | Chain Of Custody: | Date Submitted: | Person Submitting: | Bate Analyzed: | |
| | RC-Pignan | Seaford, DE | RC-Pignen | NGB-HINE | |
| | Job Names | Job Location: | Job Number: | P.O. Numbers | |
| | National Guard Bureau | 301-IH Old Bay Lane, Attn: ARNG-CJG-P, State Military Reservation | Havre de Grace, Maryland 21078 | | Non-R |
| | Clenn | Address | | | Affentian: |

| 2 |
|------|
| |
| Page |

Summary of Atomic Absorption Analysis for Lead

| 12006869 | AMA Sample Number | Client Sample Number | Analysis Type | Sample Type | Air Volume (L) | Area Wiped (fr) | A CONTRACTOR | Reporfing Limit | Tefal ng | Final Recult | | Compains |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|-------------------------|---------------|-------------|---------------------------------------|-----------------|--------------|--------------------|----------|--------------|---------------------|----------|
| 1110757-2 Planne Afr Blank 315 N/A 5.6 ug/n² < 5.6 | 12006869 | 1110757-1 | Frame | Air | 535 | NVA | 5,6 | ugini | Ď | 9.50 | ng/m² | |
| 1110757-3 Flame Aft Blank 0 N/A 3 ughr? <13 c12 <140 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 | 12006870 | 1110757-2 | Flame | Afr | 5355 | MA | 5.6 | ug/m³ | À | 9.5 | ng/m³ | |
| 1110757-4 Flance Wipe **** 0.108 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 1140 | 12006871 | 1110757-3 | Flame | Air Bhink | , ED. | N/A | ęń; | ug/m² | | Ø. | 11g | |
| 1110757-5 Flante Wipe **** 0.108 Fig 19/H° <12 <110 <110 1110757-5 Flante Wipe **** 0.108 Fig 110 19/H° <12 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 <110 < | 12006872 | 1110757-4 | Flamo | Wipe | · · · · · · · · · · · · · · · · · · · | 0.108 | 110 | ug/ff² | <12 | <130 | ug/fi² | |
| 1110757-7 Flame Wipe **** 0,108 110 ug/h² <12 <110 1110757-7 Flame Wipe **** 0,108 110 ug/h² <12 <110 1110757-7 Flame Wipe **** 0,108 110 ug/h² <12 <110 1110757-1 Flame Wipe **** 0,108 110 ug/h² <12 <110 1110757-1 Flame Wipe **** 0,108 110 ug/h² <12 <110 1110757-1 Flame Wipe **** 0,108 110 ug/h² 73 680 1110757-1 Flame Wipe **** 0,108 110 ug/h² 9700 910300 1110757-1 Flame Wipe **** 0,108 110 ug/h² 34 320 1110757-1 Flame Wipe **** 0,108 110 ug/h² 34 320 | 12006873 | 1110757-5 | Flame | Wipe | ** | 0.108 | 110 | ug/fit | <12 | 0170 | ug/fit | |
| 1110757-7 Flame | 12006874 | 1110757-6 | Hame | Wipe | *** | 0.108 | 110 | ₁¶/Sin | <12 | <110 | ug/fi ² | |
| | 12006875 | 1110757-7 | Flame | Wije | · 大學 等头 | 0,108 | 011 | ng/ft² | <12 | OII> | ug/ff² | |
| 1110757-10 Hame Wipe **** 0.108 110 ug/h² 53 500 1110757-10 Hame Wipe **** 0.108 110 ug/h² 73 680 1110757-13 Hame Wipe **** 0.108 110 ug/h² 110 980 1110757-14 Hame Wipe **** 0.108 110 ug/h² 97000 910000 1110757-14 Hame Wipe **** 0.108 110 ug/h² 3700 910000 1110757-15 Plane Wipe **** 0.108 110 ug/h² 3700 910000 | 12006876 | 1110757-8 | Hane | Wile | *** | 0.108 | 110 | ug/ffs | <12 | <110 | ng/ff* | |
| Li 10757-10 Flante Wipe **** 0.108 110 og/R* <12 <110 1110757-11 Flante Wipe **** 0.108 110 ug/R* 73 680 1110757-13 Flante Wipe **** 0.108 110 ug/R* 97000 980 1110757-14 Flaine Wipe **** 0.108 110 ug/R* 34 320 1110757-15 Flaine Wipe **** 0.108 110 ug/R* 34 320 | 12006877 | 6-72/01/1 | Flanse | Wipe | 金米香 | 0.108 | 110 | ug/H2 | .53 | 280 | 116/ff ² | |
| 110757-11 Hame Wipe **** 6.108 110 110ft 73 680 680 110757-12 Hame Wipe **** 6.108 110 110ft 9700 910300 1110757-14 Hame Wipe **** 6.108 110 110ft 34 320 1110757-15 Hame Wipe **** 6.108 110 110ft 34 320 410757-15 Hame Wipe ***** 6.108 110 110ft 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757-15 410757- | 12006878 | 1110757-10 | Flame | Wipe | · · · · · · · · · · · · · · · · · · · | 6.108 | 011 | ng/ft² | <12 | OJ 150 | ug/#? | |
| Li10757-12 Hame Wipe **** 0.108 110 ug/R² F10 980 L110757-13 Flame Wipe **** 0.108 110 ug/R² 97000 910500 L110757-14 Flame Wipe **** 0.108 110 ug/R² 34 320 L110757-15 Flame Wipe **** 0.108 110 ug/R² <12 | 12006879 | 1110757-11 | Figure | Wife | · 李子子 | 6,168 | 110 | ug/R2 | ž3 | | ug/III | |
| | 12006880 | 1,110757-12 | Flame | Wipe | *** | 0,168 | 110 | mg/M-3 | FIG | | ug/∏₹ | |
| 1110757-14 Flame Wips **** 0.108 1.10 ug/R* 34 320 1110757-15 Flame Wips **** 0.108 1.10 ug/R* <12 <110 | 12006881 | 1110757-13 | Flame | Wipe | **** | 0.108 | 110. | HE/III- | 97000 | _ | ng/ft* | |
| 1110757-15 Plane Whe **** 0,108 110 ug/ft <12 <110 | 12006882 | 1110757-14 | Flame | Wipe | 美物資格 | 0.108 | 110 | ng/ff* | æ | | ug/m² | |
| | 12005883 | 1110757-15 | Plane | Wipe | 等等液物 | 0.108 | 1110 | ng/ft² | ! | 01.1> | ug/ff² | |

locations, and collection protocols are based upon the information provided by the persons school transfer and conflicted by the clical. NVLAP accreditation applies only to polarized light microscopy of bulk samples and fability for the agreement and completeness of the information. Residual sample material will be discarded in accordance with the appropriate regulatory guidelines, unless otherwise regulatory guidelines, unless otherwise regulatory guidelines, unless otherwise regulatory of ARERA air samples. This report must not be exed to claim, and does not does not done any notice of the Federal Government. All This report spilliss only to the samples, hivestigated and is not necessarily indicative of the graphly of confilling of a pparently identical of similar production to clients, the public, and there is an an annual confilmant. 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 osed, in whole or in part, in any advertabling or publicity matter without prior written authoritisation from 18s. Saning types, rights reserved. AMA Analytical Services, Inc.

ug/R? ne/ff

411€ 0115

27 77

ng/ft³ ug/fit

110 116

0.1080.108 NA

使黄油等 ***

Wipe. Wipe

Flame Flame Flame

1110757-16 [110757-17 1110757-18

12006884 12006885 2006886

Wipe Blank

\$

Art Allt (11106470), AVLAP (101113-0), and NY ELAP (111920) Accordited Laboratory

4475 Forbes Brud. : Lanham, MD, 20706 : (301) 459-2640 · Tod Free (800) 346-0961 · Faz (301) (59-264)

BEST AVAILABLE COPY

FOIA Requested Record #J-15-0085 (DE) Released by National Guard Bureau Page 106 of 547 Page 2 of 2

Amalyrcai Services, inc.



A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS



| The same of the sa | | | | 10/26/2011 | |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|----------------------------------------------------------------------|--------------------------------|------------------------------------|-----------|
| | | ı | Non-Res | 10/24/2011 Report Date: 10/26/2011 | |
| | 511596 | 10/19/2011 | | 10/24/2011 | |
| | Chain Of Custody: | Date Submitted: | Person Submittings | Date Analyzed: | |
| | RC-Pigman | Scaford, DE | RC-Pignan | NGB-IFINE | |
| | Job Name: | Job Locations | Job Number: | P.O. Number: | |
| | National Guard Burran | 301-IH Old Bay Esne, Attn: ARNG-CIG-P, State Military Reservation | Havre de Grace, Maryland 21078 | | North |
| | Clients | Address: | | | Attention |

| AMA Sample Number | Client Sample Number | aurple Analysis Type Sample Type ber | Sample Type | Air Volume (L) | Area Wiped (ft) | Reporting | Total ug | Bing (Result | Connects | I I |
|---------------------------------|-------------------------|--------------------------------------|-------------------|-------------------|----------------------------------------|-----------|----------------------------------------------|----------------------------------------------------------------------------------------|-------------------|-----|
| Analysis Method for Flame: Alt. | A. W. | pes, Paints, and Soil/Soile | olids; EPA 800/R- | 93/200(M)-76006 | 860/R-93/200(M)-7600B; Water: SM-3111B | 05. 0 | See QC Summary for and associated with these | See QC Summary for analytical results of quality control samples associated with these | r control samples | ! |

samples.

Summary of Atomic Absorption Analysis for Lead

Analysis Method For Furnace: Air, Wipes, Paints, and Soil/Soilds; 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) ugit, = parts per billion (pub) Note: All samples were received in good condition unless otherwise noted. Note: All results have two significant digits. Any additional digits shown ug = micrograms should not be considered when interpreting the result. %Pb = percent lead on a dry weight basis N/A = Not Applicable

Air and Wipe results are not conected 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.



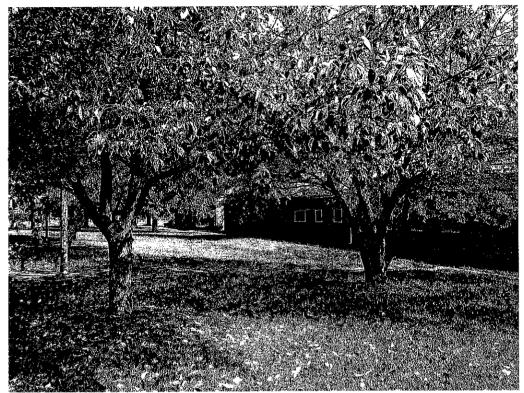
locations, and collection protocols are hased upon the information provided by the pressons submitting them and unless onlected by personal relative services, which we expressly distribute any through the first all manifestables and habitity or the accompleteness of these Latinastories, which we expressly distribute regulatory goldelines, unless otherwise requested by the clear. Which recompletes the major private regulatory goldelines, unless otherwise requested by the clear. Which recompletes the clear which is sampled. This report and the right to claim, and does not imply product cardification, or endorsement by NY ELAP, AHFA, NISE, or any agency of the Vederal Government. All higher reserved. AMA Anity died Services, Inc.

As Alth (#100470), NVLAP (101143-6), and NY ELAP (#10920) Accredited Laboratory

(1) ŭ. O. MATCHINETIME NICH THINE (OF) riti letul LOScolobol, Coco Pus.amiy.mil 37.75 ä Infilials: 219 REV. G.OB HADORATDRY STANGOMEN (OT7)UAS L'Odforable Il Species Referita ACTIVITANS. - Calucale In Chan 13 buts L'Surfave Vocupus Disa. CLIENTCHNINCT hes army m Complete Contact Collection Appropris for Spage Traps this Sample of Contract KRPORT TO: (CITY) LI Cu JOHN JOH Problem Vigo (of Proble Time Number Ferringines Plane Refer In This (अस्तर (3.10) 1017() 1017() 1(11) Saser Time: Date/Times Pate/Thur. (J Drinking Water J Ph. C Whate Water C. Ph. OPP Purper (Media) Callection Neulls C Sinfluce Symble. Clambics Tape. History L Spine Trap. JUNEATSPAIL Otertale Analysis LIMITOLE $g_{d[y]}$ 2. Job Location Secret 26, DE C. Results Required By Noon (Every Adenga Will To Made IP Accommends) 1. Joh Name: RC FIGORED NATURE N 5 CHAIN OF CUSTODY A distingues received in good confidur professoriae were noted. OTO 1012 ¥7778 (C)(T) (313) 3 John 18 8C -87p 5, Submitted by Reporting Information (Results will be provided NORMAL BUSINESS HOURS 25 Continct Perso F100-71至67451450 5 Astony 10/20/11 atoly (SLX) 2015 No. 10PS - By Orbing LJ Open, salare at Vacuum, 05755-95 fort, 0927 D Qual, tareshibit VacaniniOnet. ANAEYSIB 1.1 Quen, tologogous Delistron 4. Comments: 12 XIT 395, 03, 4057 Charle Chestable O III.AP (98,403pm/edd) LINY SING PENPERA ٤ C September Act har LEEN MAL Page 1 of 9 Fax R. (3.10) 942-0254 TEM Waler RM Dust. WHAT. AREA Address 2: Ann MGB AMACAL State Milliary Reservation D haracdiile U Vernivelio U Askerias Soit III. "(1720) 1923 - Jigan Mantall. (1924) 1934 (1931) (1934) CI Ness Day AMA Anglytical Services, Inc.
Focused on Results
Symmetry NVLAP (RUDI-ESCH) NV ELAP (1992) VOLUNIE ILLIERS. 日的の 19/4 535 4473 Fushes Black • Lautian, MD 20206 (2011-459-26-0) • (800) 346-0401 • Fox (2013) (29-26-43) 0 Having de Grace, Maryland 21078 L. Date/Time RCVD: AD 1017 L L 2. Date/Time Analyzett. 10171 SAMPLE INFORMACTON SAMPLELOCATION DROGGEOGRAPH DA TO THE Client Name: National Guard Burgan 301-IH Old Bay Lane 13,10) AFFER HERRING Indust he pre-scheduled) (ATV) CONTAIN—Plewedulkene Filter Type: UNIOSH 2/BR (1977) U Pherglass
TEMAL - Pleiss Indicate Filter Type: Char, Reduction III. AP 198.0. Phone #: _(410) 942-0273 PLETA KOO - Vigaal Estimate Mailing/Billing Informations CL MY State Friedly 198.1 Date Dut. Time Due LABORATORY 10121-10 LITERA Point Count 110757-te STAFFONLY 60101-5 10 DI-8 P-131-011 LI Other Lynesis. Asbestos Amplysis O'Oher Greetly CHARCISM 7/02 CUSTODY 500 CHENTER 10 TO 10 Address 1: Address 3: -12101 1919 LAHBRA Impediate DEATHRONS Comments: 0

| ECON TO SHOW THE TO SHOW IN THE TOTAL PROPERTY OF THE TOTAL PROPER | Physic Refer To This 5115 96 Churdhee Par Impidess 5115 96 | | P.O. R. WOLZKG-09-A-0003 | O thane # (410) 942-0273 | Ï | UND COCHTELL Data Sheets | Afteriol Stanish should be | | Night Impe |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|------------------------------------|-----------------------------------------------------------------------------|--------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|-----------------------------------------------------|
| Pare 2 of 2 confirmations | THE CHAIN OF CUSTODY | Shifmiddar Information: 1. Ship Manay 182 - Florida A. S. Add Licenton: Seattleft DE | Steudellon. 3, Joi 11: RC - Pryman | 173 11. (4.10) 542-0254 Silmitten Div | Reporting Information (Results | Churreithe C3 Bay Christoff 1 Bestin Required By Norma C3 New The Day As Leay & G3 New Y-Heapil WHI Be C1 2 Day Mac Director Director C3 Day C4 Day (12 Day Phrening WHI Be C1 2 Day Mac Director C4 Day (12 Day Phrening WHI Be C1 2 Day (12 Day Phrening WHI Be C4 Day (12 Day Phrening Mac Director C4 Day (12 Day Phrening Mac Day (12 Day Phrening Mac Day (12 Day Phrening Mac Day (12 D | 10 19 19 19 19 19 19 19 | VIII. | 19 1966. |
| | AND Foodback of Services, Inc. Foodback of results arrectionality on AND INFORMATION NYLANGURAL AND STATES AND | Mailteg/Billing Information: 1. Client Name: Mailtenal Girard Burgan. 3. Address F. 201-IH Clis Bay Lane. | Address 2 | 4. Authors 3. Hawne, de Grade, Maryland 24079. 3. Hune 8: (410) 942-0273 | | Alt Plan Mount from the presentable of the from the presentable of the Presentable of the from The Fire. | Ashestoicknintysis Part Type | LABORATORY L Date/Dute Aretrosoft | STADP GNLY. 3. Regulas Reprinted To: 4. Commands: |

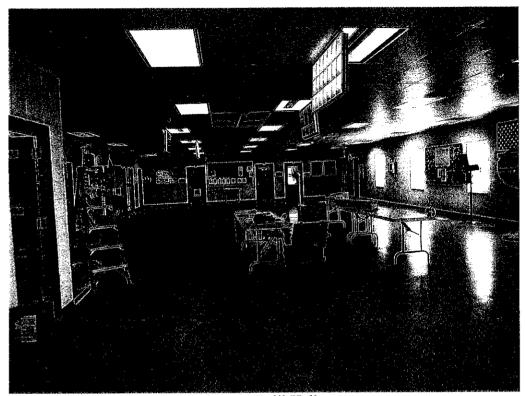
Appendix B Photographs



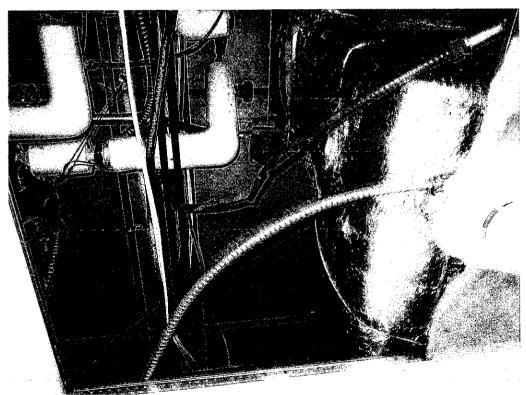
RC Pigman-Exterior



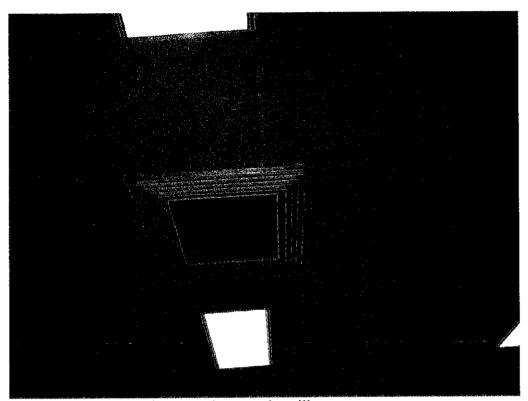
RC Pigman-Exterior



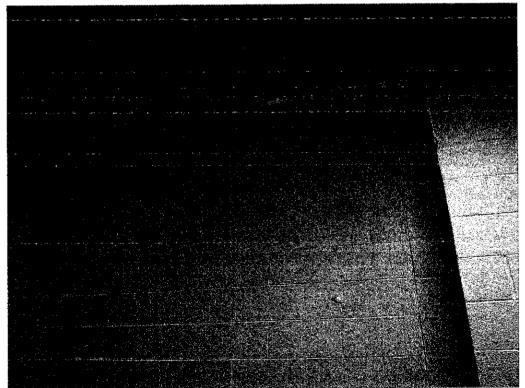
RC Pigman- Drill Hall



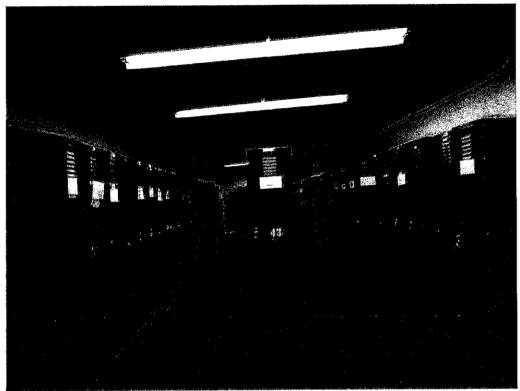
RC Pigman- Suspect asbestos containing roof decking



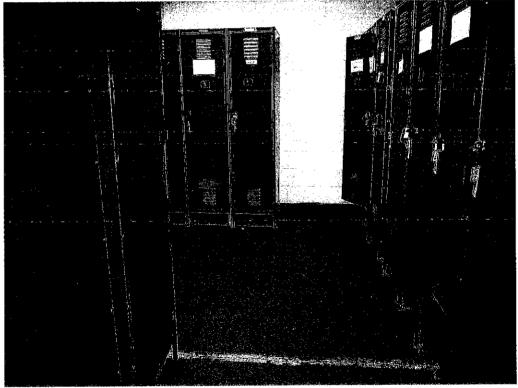
RC Pigman- Dirty supply grill



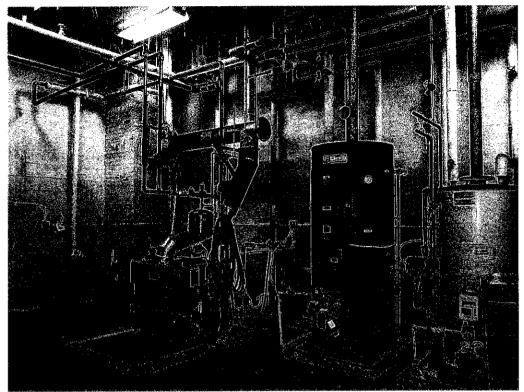
RC Pigman- Effloresce on wall in dining hall



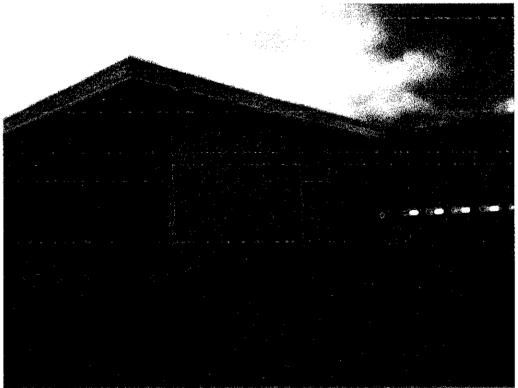
RC Pigman- Converted indoor firing range



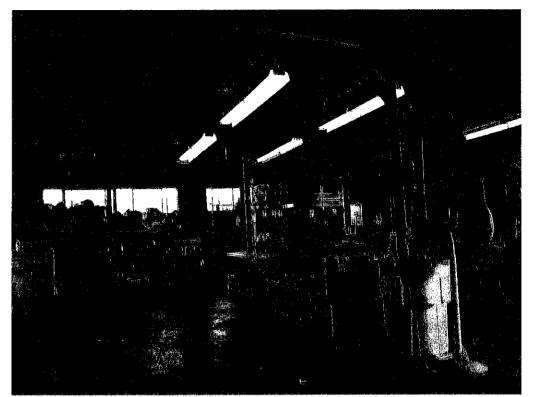
RC Pigman- Converted indoor firing range



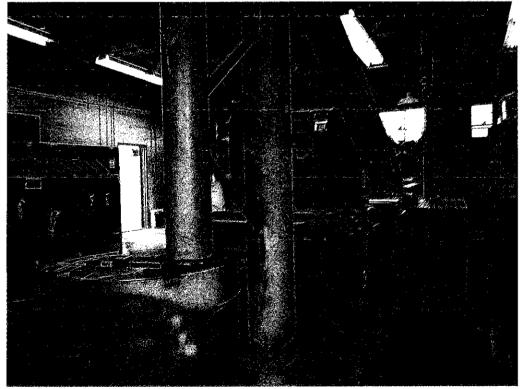
RC Pigman- Boiler



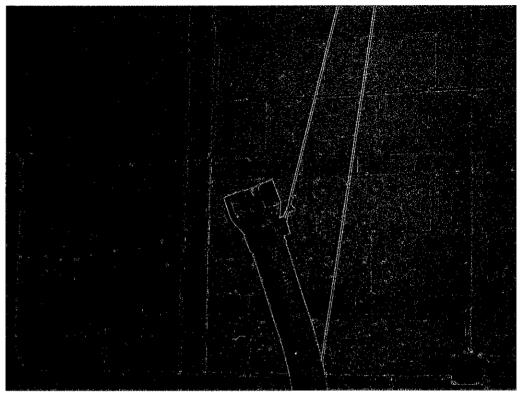
RC Pigman- Garage



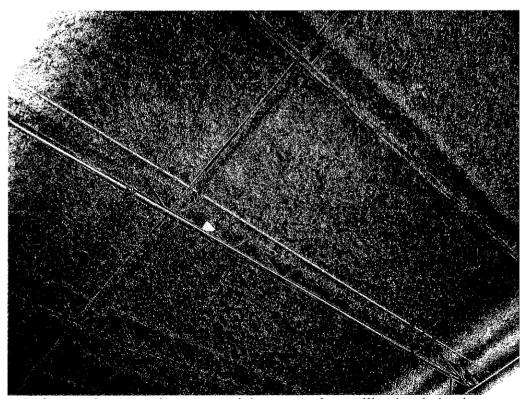
RC Pigman- Garage Interior



RC Pigman- Garage LEV system

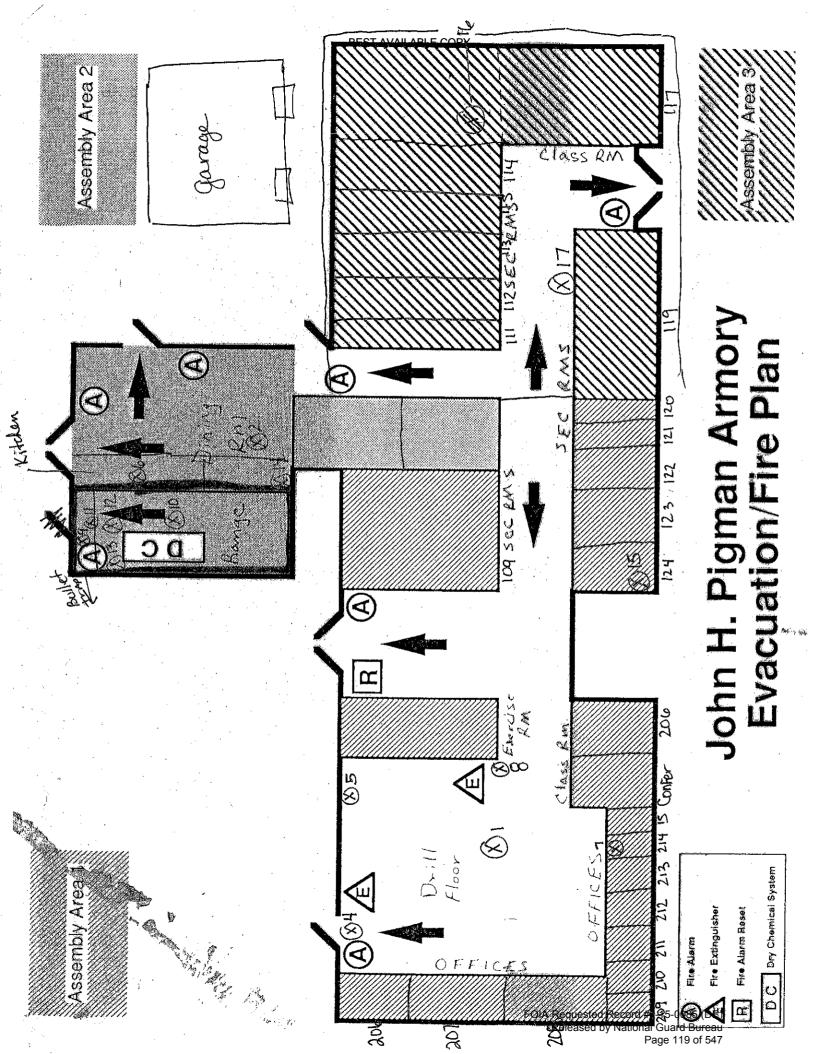


RC Pigman- Garage LEV system



RC Pigman- Suspect asbestos containing sprayed on ceiling insulation in garage

Appendix C Floor Plan



Appendix D References

Appendix D. References

- 1. Title 29 Code of Federal Regulations (CFR), Part 1910.1025, Occupational Safety and Health Administration, Occupational Exposure to Lead
- 2. American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Values and Biological Exposure Indices, 2011 Edition
- 3. Industrial Ventilation: A Manual of Recommended Practice for Design, 27th Edition
- 4. American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE), Ventilation for Acceptable Indoor Air Quality, 62.1-2010
- 5. RP-1-2004, Industrial Lighting, Illuminating Engineering Society of North America/ANSI
- 6. RP-7-2001, Industrial Lighting, Illuminating Engineering Society of North America/ANSI
- 7. National Emission Standard Hazardous Air Pollutants (NESHAP) The standards for asbestos are contained in 40 CFR 61.140 through 61.157.
- 8. Environmental Protection Agency (EPA) standards [40 Code of Federal Regulations (CFR) 745.227(h)(3)]
- 9. Derivation of Wipe Surface Screening Levels for Environmental Chemicals, the US Army Center for Health Promotion and Preventive Medicine (USACHPPM)
- 10. The US Army Technical Guide 277 Army Facilities Management Information Document on Mold Remediation, Feb 2002.
- 11. NG PAM 420-15 Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges, 3 NOV 06.
- 12. American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE), Thermal Environmental Conditions for Human Occupancy, 55-2010.

Shaw Environmental, Inc.

312 Directors Drive Knoxville, TN 37923 865.690.3211 Fax 865.690.3626



198th Regiment Readiness Center – Wilmington, Delaware

Industrial Hygiene Evaluation

Prepared for:

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

Prepared by:

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

10 December 2003

National Guard Armory 198th Regiment Readiness Center – Wilmington, Delaware

Industrial Hygiene Evaluation

Prepared for:

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

Prepared by:
Shaw Environmental, Inc.
312 Directors Drive
Knoxville, Tennessee 37923

10 December 2003

Prepared by:

Non-Responsive

Industrial Hygienist

Reviewed by:

Non-Responsive

Business Line Manager

BEST AVAILABLE COPY

Table of Contents

| | : |
|------------------------------------------------------------------|---------------------|
| Table of Contents | l ii |
| Table of Contents List of Tables | ii |
| List of Tables List of Appendices | F-1 |
| List of Appendices Executive Summary | 1-1 |
| Executive Summary | 7-1 |
| | |
| 2.0 Findings, Discussion, and Interpretation of Results | 2-1 |
| 2.1 Sampling for Lead2.1.1 Wipe Sampling | 2-1 |
| | |
| | |
| 2.2 Physical Condition of Facility 2.2.1 Peeling Paint - Lead | 2-2 |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| 2.4 Safety and Industrial Hygiene Programs 2.5 Ventilation | 2-4 |
| | |
| | |
| | |
| 2.6 Noise Dosimetry 2.7 Lighting | 2-5 |
| 2.7 Lighting 2.8 Converted Indoor Firing Ranges | 2-5 |
| 2.8 Converted Indoor Firing Ranges 2.9 HVAC Systems | 2-5 |
| 2.9 HVAC Systems | 3-1 |
| 2.10 HHIM | Follows Section 3.0 |
| 3.0 Conclusions Tables | Follows Tables |
| TablesFigure 1 | Follows Figure 1 |
| Figure 1 | |

List of Tables

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

List of Appendices

| Appendix A Appendix B Appendix C | HHIM Data Forms Building Layout Sampling Sheets and Laboratory Analyses |
|----------------------------------|-------------------------------------------------------------------------|
| Appendix D Appendix E | References Recommendations for Surface Lead Dust in Armories |

Executive Summary

Shaw Environmental, Inc. was contracted to perform an industrial hygiene evaluation for the 198th Regiment Readiness Center in Wilmington, Delaware. Non-Responsive performed the evaluation on 26 June 2003 and 3 October 2003. The point of contact at the readiness center was SFC

The following industrial hygiene concerns were evaluated.

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

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

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

BEST AVAILABLE COPY

- Ventilation System Evaluation
- Contamination of Clean Air Sources
- Noise Exposure
- Converted Indoor Firing Ranges

Areas where there were industrial hygiene concerns are as follows:

- Wipe sampling for lead revealed concentration above the recommended level at two locations in the assembly room (top of a cabinet and top of a locker). It is recommended that the tops of all lockers and cabinets be thoroughly cleaned to reduce the lead level. In addition, any other dusty/dirty areas in the assembly area/ drill floor should be thoroughly cleaned.
- Materials (maintenance room pipes) suspected of containing asbestos were observed. An operations and maintenance plan should be followed when performing any activities that may disturb the suspected asbestos-containing materials.
- Water damage was observed in the boiler room (mechanical room), Room 202, Room 204, firing range ceiling, copier room, supply room, and hallway. The source of the water damage was likely from roof leak, however, the source should be identified and actions taken to eliminate the source in order to prevent the possibility of mold growth that may lead to indoor air quality problems.
- Although there were no employee indoor air quality complaints, the temperature and humidity in parts of the building were above the American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE) indoor air quality recommendations. It appeared that there is not an adequate HVAC system, with appropriate maintenance, that would keep the temperature and humidity within the comfort parameters. Consideration should be given to evaluating the HVAC system to ensure that it is working properly so that it will provide adequate cooling and humidity control for the armory. In addition, a fan could be used for cooling purposes to circulate the air.
- Lighting measurements were conducted at the armory. The lighting did not meet the minimum requirements in some areas evaluated; therefore, consideration should be given to providing more lighting to these areas.
- It was deemed that maintenance does occur on a regular basis for the HVAC system; however, maintenance is probably not effective because the air conditioning does not work properly in certain areas. A new motor for the HVAC system is currently on order, and should be installed as soon as possible. Proper maintenance should occur on a regular basis to ensure that the HVAC system is maintained in a good condition.

1.0 Introduction

Shaw Environmental, Inc. was contracted to perform an industrial hygiene evaluation for the 198th Regiment Readiness Center in Wilmington, Delaware. Non-Responsive performed the evaluation on 26 June 2003 and 3 October 2003. The point of contact at the readiness center was SFC Non-Responsive

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

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

2.0 Findings, Discussion, and Interpretation of Results

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

2.1. Sampling for Lead

2.1.1 Wipe Sampling

Wipe samples were collected for lead from the drill floor/assembly area. Also, wipe samples were collected for lead in rooms, hallways, foyers, etc. The sampling in rooms, hallways, foyers, etc represented approximately 25% of the building. Approximately half of the samples were collected from surfaces in common areas, such as surfaces of a desk. The remaining samples were collected from uncommon surface areas, such as a supply vent or the top of a file cabinet. The samples were collected and analyzed in accordance with the Instructions for Completing the Sampling of ARMY National Guard Armories procedure.

The only samples initially submitted for analysis were those from the drill floor/ assembly area. If there were positive results from the drill floor/assembly area, the other samples would be submitted for analysis.

Results of the wipe sampling are provided in Table 1. The results revealed lead at all locations sampled at concentrations below the recommended level of 200 micrograms lead per square foot (µg/ft²) (see Appendix E) except in two locations. The lead concentrations on top of a locker and on top of a cabinet in the assembly hall were $210~\mu g/ft^2$ and $660~\mu g/ft^2$, respectively. It is recommended that this microwave, and the immediate area around the microwave, be thoroughly cleaned to reduce the lead level. In addition, any other dusty/dirty areas in the assembly area/ drill floor should be thoroughly cleaned.

2.1.2 Air Sampling

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

BEST AVAILABLE COPY

The results of the sampling are provided in Table 2. The results revealed nondetectable concentrations of lead in the breathing zone of the employees, therefore, no actions are necessary.

2.2 Physical Condition of Facility

2.2.1 Peeling Paint - Lead

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

2.2.2 Visual Inspection - Asbestos

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

Boiler Room (Mechanical Room) - Good Condition, Approximately 4 Linear Feet

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

2.2.3 Visual Inspection - Water Damage and Mold

A visual inspection was made to determine if there was any water damage or visible mold at the armory. Visible mold was not observed, however, water damage was observed at the armory. The water damage was observed at the following locations:

- Boiler Room (Mechanical Room)
- Room 202 ceiling
- Room 204 ceiling
- Firing range ceiling
- Copier room ceiling
- Supply room ceiling
- Hallway ceiling

The source of the water damage was likely from roof leaks. The source of the water damage should be identified and actions taken to eliminate the source in order to 2-2

prevent the possibility of mold growth that may lead to indoor air quality problems.

2.2.4 Visual Inspection - Housekeeping

The housekeeping was determined to be good. No dirt or trash was visible on the floors.

2.3. Building Concerns

2.3.1 Ergonomic Concerns

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

2.3.2 Indoor Air Quality

Interviews with employees and measurements for humidity and temperature revealed that there are indoor air quality concerns at the armory. The humidity and temperature in parts of the building were above the American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE) indoor air quality recommendations. It appeared that there is not an adequate HVAC system, with appropriate maintenance, that would keep the temperature and humidity within the comfort parameters. Consideration should be given to evaluating the HVAC system to ensure that it is working properly so that it will provide adequate cooling and humidity control for the armory. In addition, a fan could be used for cooling purposes to circulate the air.

The results of the measurements for carbon dioxide, humidity, and temperature are provided in Table 3.

2.4. Safety and Industrial Hygiene Programs

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

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

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

2.5. Ventilation

2.5.1 Ventilation System Evaluation

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

2.5.2 Contamination of Clean Air Sources

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

2.6. Noise Dosimetry

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

2.7 Lighting

Lighting measurements were conducted at the armory. The lighting did not meet the minimum requirements in the following areas:

- Drill Floor
- Women's Restroom
- Training Room
- Copier Room
- Stairwell
- Room 111
- Supply Room
- 2nd Floor Corridor
- Room 204
- 2nd Floor 198 Battalion Office
- Room 202

Results of the lighting evaluation are provided in Table 4. Consideration should be given to providing more lighting to the areas listed above. This may be accomplished by replacing burnt out luminaries, cleaning fixtures, cleaning windows, painting walls with a lighter color, repositioning detailed work to higher illuminated areas, and using supplemental lighting.

2. 8. Converted Indoor Firing Ranges

There was not a converted indoor firing range at the facility. Note that there was an active indoor firing range at the facility.

2.9. HVAC System

The maintenance schedule for the HVAC system was evaluated to verify that maintenance occurs on a regular basis. It was deemed that maintenance does occur on a regular basis, however, maintenance is probably not effective because the air conditioning does not work properly in certain areas. A new motor for the HVAC system is currently on order, and should be installed as soon as possible. Proper maintenance should occur on a regular basis to ensure that the HVAC system is maintained in a good condition.

2.10. HHIM

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

3.0 Conclusions

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

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

TABLES

Table 1 Wipe Sampling for Lead National Guard Armory Wilmington, Delaware

Date of Sampling: 26 June 2003 and 3 October 2003

| 1 | Pate of Sampring. 20 over | Results, |
|---------------|----------------------------------------|-------------------------|
| | Location | μg/ft ^{2 a} |
| Sample Number | | 60 |
| DEWIL276-1 | Kitchen – Top of Mixer | 39 |
| DEWIL276-2 | Assembly Hall - Top of Locker | 210 |
| DEWIL276-3 | Assembly Hall – Top of Cabinet | 660 |
| DEWIL276-4 | Assembly Hall - Top of Locker | 9.6 |
| DEWIL276-5 | MSG Non-Responsive; Office | 0.72 μg |
| DEWIL276-6 | Field Blank | < 23 |
| DEWIL177-1 | Assembly Hall - On Floor | < 23 |
| DEWIL177-2 | Assembly Hall – On Floor | < 23 |
| DEWIL177-3 | Assembly Hall - On Floor | < 23 |
| DEWIL177-4 | Assembly Hall – On Floor | < 23 |
| DEWIL177-5 | Assembly Hall – On Floor | <23 μg |
| DEWIL177-6 | Field Blank | 3.9 |
| DEWIL177-7 | Dining Room Table | 10 |
| DEWIL177-8 | Women's Restroom Heater | 12 |
| DEWIL177-9 | Emergency Operations Center Counter | 84 |
| DEWIL177-10 | Copier Room Filing Cabinet | 7.2 |
| DEWIL177-11 | Supply Room Cabinet | < 0.3 µg |
| DEWIL177-12 | Field Blank Non-Responsive Office Desk | 14 |
| DEWIL177-13 | COB 280 th Desk | 5.4 |
| DEWIL177-14 | th. | |
| DEWIL177-15 | The same (Room 202) Filling Caomer | 6.6 |
| DEWIL177-16 | 1 M inc Diatoon (755) | $\frac{8.4}{< 0.3 \mu}$ |
| DEWIL177-17 | | |
| DEWIL177-18 | Field Diank | |

^a Micrograms lead per square foot

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

Table 2 Breathing Zone Air Samples for Lead **National Guard Armory** Wilmington, Delaware Date of Sampling: 26 June 2003

| | | Sampling | g Information | n | Results |
|------------------|----------------|---------------------------|------------------------------------|--------------------|-----------------------------------|
| Sample Number | Employee | Time Sampled / Minutes | Flow Rate (lpm) ^b | Volume (liters) | (mg/m ³) ^a |
| | | 0939-1033 / 54 | 2.478 | 133.81 | < 0.007 |
| DEWIL177-A1 | Non-Responsive | 0940-1053 / 73 | 2.487 | 181.55 | < 0.006 |
| DEWIL177-A2 | Non-Responsive | 0940-10337 73 | | | None |
| DEWIL177-A3 | Field Blank | - | | | Detected |

^a Milligrams lead per cubic meter of air.

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

b Liters of air per minute.

BEST AVAILABLE COPY

Indoor Air Quality Measurements for Carbon Dioxide, Humidity, and Temperature **National Guard Armory** Wilmington, Delaware

Date of Sampling: 26 June 2003

| | cupants n Area | Carbon Dioxide, parts per million parts of air (ppm) | Percent (%) Humidity | Temperature (°F) |
|-------------------------------------------------------------|-------------------|------------------------------------------------------|----------------------------|---------------------|
| | | | 61.0 | 84.9 |
| 1 st Floor - Drill Floor | 2 | 391 428 | 62.8 | 87.3 |
| 2 nd Floor - Cable & Wire Platoon Outdoors | - | 430 | 63.3 | 89.8 |

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

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

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

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

Table 4 **Illumination Readings** National Guard Armory Wilmington, Delaware Date of Sampling: 26 June 2003

Standard Standard Luminance Met (fc)^a (fc)a Location Some Areas 70 35.7 - 124.5 Drill Floor Yes 7.5 9.9-72.1 Lobby Some Areas 40 3.7-58.5 Women's Restroom Yes 7.5 8.6-105.3 Corridor Some Areas 70 2.3-110.1 Training Room Some Areas 7.5 2.4-113.7 Stairwell Some Areas 70 6.7-81.3 Copier Room No 70 24.7-59.8 Office Area - Room 111 Some Areas 70 $\overline{2.4-103.7}$ Supply Room Some Areas 7.5 2.4-115.02nd Floor Corridor Some Areas 70 10.8-154.8 2nd Floor Cable & Wire Platoon Office – Room 204 Some Areas 70 21.7-151.3 2nd Floor 198 Batallion Office Some Areas 70 18.9-198.7 2nd Floor Office – Room 202

The readings were taken with a Cooke Corporation cal-LIGHT 400 Calibrated Precision Lightmeter, calibrated on 19 Aug 2002.

The standards listed above are from Design Guide DG-415-2, Logistics Facilities, published by the National Guard Bureau Installation Division.

^a fc - Footcandles

Appendix A HHIM Data Form

| PENTY | 1147 | ARD IN | BEST AV | MODU | LE: IND | USTRIAL Guide) | i Vigit | | | _ |
|-----------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------|-------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|-----------------------------------------|----------------------|-----------------|---------------------------------------------------|------------------------------------------|----|
| HEALIN | لكتبعبلها | للكسيت | (For use of this to | rm, \$60 | HHIM USERS | DATA | | | | |
| | | | SECTION 1. | DEMO | SINIAP LINU C | | | /RM NO. | , | |
| oc | | าไฟร | TALLATION | 2 1 | | | W | ilming | ton | |
| | | 1 6 | 2C, 198th K | ceg r | | | | | | |
| 4 2394 CATION/CODE | | | | | OPERAT | ION/CODE | 1 | Opeva. | 1. clas | A |
| ATION/CODE | | | 111 | | 111 | inist. | rative | - Opeva | MONIS/ HO | |
| dministra | Live | AV | reas/AM | | Flare | 11100 | | _ | | _ |
| aministra | | | | EVAL | UATOR (Ini | tials) | | - | | |
| RAEA DATE | | | | 1 | AG | | • . | | | _ |
| 26 J | une | 03 | | - 1 | | IS | IPERVISO | R | | |
| COMCODE | | | SUBMACOM | CODE | | | Non-Re | esponsiv | e | |
| | Λ | | l xx | | | 1 | | | | W |
| .71 | † | | 1 ' ' | | | RAC | | FREGUE | NCY (hrs/da | 11 |
| LEPHONE/DSN NO | · | - Jui | NIT/ORGANIZATION | 10 | | 5 | | 18 | | |
| (302)326-7 | | 7 | National | 1 60 | ava | ı | | NO. OTH | IER | |
| (302)326-1 | 040 | | INO. | CONTR | ACTOR(S) | NO. LOC | S) | 110.0 | ,, | |
| o. civ(s) | NC | MIL. | 4.5 | | | 1 | | . \ | | |
| | - 1 | | // | | | | | | | |
| | 1 | | SECTI | ON 2. F | ACILITY D | ATA | PRAY BO | OTHS | | |
| AB HOODS | | - | VAPOR DEG | REASE | HS. | i | 0 | | | _ |
| AB HOODS | | 0 | | ላቸ ዓላጭ | NKS | | VENTILATI | ON UNITS | | |
| AINTENANCE BAY | Ś | | OPEN SURF | ACE IA | (C) | 1 | | | | |
| MILLENATION | | 0 | SECT | (A) (2) | SURVEY D | ATA | | 1 | STATU | is |
| 40 May 25 | 1.5 | | EVALUATION | TO THE | UNIT CODE | , co | NTROLS R | EQUIRED | 1 | _ |
| CONTROLS P | DECEN | T 1 | EVALUATION | | · · · · · · · · · · · · · · · · · · · | | | | 1 . | |
| COMINORS | HESEN | <u> </u> | | | | | | | i i | |
| CONTROCOT | HESEN | ! | | • | | | | | | _ |
| CONTROLOT | HESEN | - | | | | | | · §- | | _ |
| CONTROLS | HESEN | - | | | | | | · | - | _ |
| CONTROLOT | HESEN | - | | | | | | | | _ |
| CONTROLET | RESERV | | | • | | · | | | | _ |
| CONTROLET | RESERV | - | | | | | | ī. · | | _ |
| CONTROLET | RESER | | | * | | | | | | _ |
| CONTROLL | RESEL | | | | | | | | | _ |
| CONTROLOT | AESEN | | | · | | | | | | _ |
| CONTROLL | RESERV | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | Hilized) | | | | | |
| | | | PMENT (R = Require | | Itilized) | TC NO. | | MANUFACTUR | ER | |
| | | E EQUIF | PMENT (R = Require | | Hillized) Niosii | TC NO. | | | ER | |
| PERSONAL PROT | ECTIV | E EQUIF | PMENT (R = Require RESPIRATOR | | Hillized) NIOSH | TC NO. | | | ER | |
| PERSONAL PROT GLOVES ACID COLD SURFACES | ECTIV R/U / | E EQUIF AIRLINE ABRASIV | PMENT (R = Require RESPIRATOR | | Hillized) Niosii | TC NO. | | MANUFACTUR | ER | |
| PERSONAL PROT GLOVES ACID COLD SURFACES HOT SURFACES | ECTIV | E EQUIF | PMENT (R = Require RESPIRATOR VE BLASTING HOOD ABLE | | Niosi | TC NO. | | | ER | |
| PERSONAL PROT GLOVES ACID COLD SURFACES HOT SURFACES NBC AGENTS | ECTIV | AIRLINE ABRASIV DISPOSA | PMENT (R = Require RESPIRATOR VE BLASTING HOOD ABLE ICE AIR PURIFYING | | Hillized) NIOSH | TC NO. | | MANUFACTUR | ER | |
| PERSONAL PROT GLOVES ACID COLD SURFACES HOT SURFACES NBC AGENTS OIL | ECTIV | AIRLINE ABRASIV DISPOSA FULL FAC | PMENT (R = Require RESPIRATOR VE BLASTING HOOD ABLE ICE AIR PURIFYING E AIR PURIFYING | | Hillized) NIOSH | TC NO. | | MANUFACTUR | ER | |
| PERSONAL PROT GLOVES ACID COLD SURFACES HOT SURFACES NBC AGENTS OIL SOLVENTS | RVU / / / / | AIRLINE ABRASIV DISPOSA FULL FACTOR POWER | PMENT (R = Require RESPIRATOR VE BLASTING HOOD ABLE ICE AIR PURIFYING E AIR PURIFYING | | Hillized) NiOSH | TC NO. | | MANUFACTUR | ER | |
| PERSONAL PROT GLOVES ACID COLD SURFACES HOT SURFACES NBC AGENTS OIL | ECTIV | AIRLINE ABRASIV DISPOSA FULL FA 1/2 FACI POWER | PMENT (R = Require RESPIRATOR VE BLASTING HOOD ABLE ICÉ AIR PURIFYING E AIR PURIFYING E AIR PURIFYING E AIR PURIFYING | | NIII(zed) NIOSH | TC NO. | | MANUFACTUR | | |
| PERSONAL PROT GLOVES ACID COLD SURFACES HOT SURFACES NBC AGENTS OIL SOLVENTS | RVU / / / / | AIRLINE ABRASIV DISPOSA FULL FA 1/2 FACI POWER | PMENT (R = Require RESPIRATOR VE BLASTING HOOD ABLE ICE AIR PURIFYING E AIR PURIFYING | d; U = U | | | FAU. | MANUFACTUR | NO/FIT | |
| PERSONAL PROT GLOVES ACID COLD SURFACES HOT SURFACES NBC AGENTS OIL SOLVENTS SURGICAL GLOVES | ECTIV | AIRLINE ABRASIV DISPOSA FULL FA 1/2 FACI POWER | PMENT (R = Require RESPIRATOR VE BLASTING HOOD ABLE ICÉ AIR PURIFYING E AIR PURIFYING E AIR PURIFYING E AIR PURIFYING | | | TC NO. | R/U | MANUFACTUR | | 5 |
| PERSONAL PROT GLOVES ACID COLD SURFACES HOT SURFACES NBC AGENTS OIL SOLVENTS SURGICAL GLOVES EYESFACE | RVU / / / / | AIRLINE ABRASIV DISPOSA FULL FA 1/2 FACI POWER | PMENT (R = Require RESPIRATOR VE BLASTING HOOD ABLE ICE AIR PURIFYING E AIR PURIFYING IED AIR PURIFYING IE AIR PURIFYING IE AIR PURIFYING IE AIR PURIFYING INTAINED HEARING | #d; U = U | APRONS | BODY | 1. | MANUFACTUR | NOVERT ER BOOTS/HAT | S |
| PERSONAL PROT GLOVES ACID COLD SURFACES HOT SURFACES NBC AGENTS OIL SOLVENTS SURGICAL GLOVES EYES/FACE CHEMICAL SPLASH | ECTIV RVU / / / / / RAU | AIRLINE ABRASIN DISPOSA 1/2 FACI POWER 1/4 FAC SELF C | PMENT (R = Require RESPIRATOR VE BLASTING HOOD ABLE RCE AIR PURIFYING E AIR PURIFYING E AIR PURIFYING ONTAINED HEARING CAPS | ##U ##U / | APRONS COLD WEATH | BODY | 1. | MANUFACTURI HEA COLD WEATHS HARD HATS | AD/FIT ER BOOTS/HAT | _ |
| PERSONAL PROT GLOVES ACID COLD SURFACES HOT SURFACES NBC AGENTS OIL SOLVENTS SURGICAL GLOVES EYES/FACE CHEMICAL SPLASH FULL FACE SHIELD | ECTIV RVU / / / / RVU / / / / / / / / / / / / / | AIRLINE ABRASIV DISPOSA 1/2 FACI POWER 1/4 FAC SELF C | PMENT (R = Require RESPIRATOR VE BLASTING HOOD ABLE ICE AIR PURIFYING IED AIR PURIFYING IED AIR PURIFYING ONTAINED HEARING CAPS UGS | A/U / | APRONS COLD WEATH | BODY HER CLOTHING | 3 / | HEACOLD WEATHS HARD HATS IMPERMEABLE ISAFETY/CONE | ADJETT ER BOOTS/HAT E BOOTS DUCTIVE SHOE | s |
| PERSONAL PROT GLOVES ACID COLD SURFACES HOT SURFACES NBC AGENTS OIL SOLVENTS SURGICAL GLOVES EYES/FACE CHEMICAL SPLASH | ECTIV R/U / / / / / / / / / | AIRLINE ABRASIV DISPOSA 1/2 FACI POWER 1/4 FAC SELF C | PMENT (R = Require RESPIRATOR VE BLASTING HOOD ABLE ICE AIR PURIFYING EE AIR PURIFYING EE AIR PURIFYING ONTAINED HEARING CAPS LUGS ETS | ##U ##U / | APRONS COLD WEATH COVERALLS EUIL BODY S | BODY HER CLOTHING | 3 / | HEACOLD WEATHS HARD HATS IMPERMEABLE ISAFETY/CONE | AD/FIT ER BOOTS/HAT | s |

| | | DV DATA | 1.0 |
|-----------|----------------------------------------------------------------------------|---------------|-------------------------------|
| 040.0005 | SECTION 4. HAZARD INVENTO HAZARD DESCRIPTION | PAC | EPC |
| CAS CODE | | 3-1000 | D. Uncontrolled Physical |
| POVBTXXXX | Video Display Terminal Lead, Inorgana Dusts + Tomes Asbestos (Other) | 2 Ma Awate | C-Respiratory |
| 1439-92-1 | Lead, Inorgana Dusts + tomes | , d-IVaceraic | Uncontrolled C- Respirator |
| 1332-21-4 | Asbestos (Other) | 2-Moderate | C- Respirator |
| | | | |
| | | | |
| | | | |
| | | | |
| · · | | | |
| | | | |
| | | | |
| | | | |
| | SECTION 5. PERSONNE | DATA | |
| | SECTION S. FENDERITIES | | 1 217500 |

Non-Responsiv

| MI | SEX | SSN | CATEGORY |
|------------------|-----|-----|----------|
| | m | | MIL |
| K | m | | MIL |
| 4 | m | , | MIL |
| R | F | | MIL |
| 1 | m | | MIL |
| B | F | | mIL |
| A | Æ | | MIL |
| ┼ <u>`</u> — | m | | mil |
| 1 | m | | MIL |

■ No comments

See attached sheet

Survey conducted by Ms.

There are 11 full-time facility. PRIVACY ACT STATEMENT at the

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

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

medical monitoring.

Employees perform mainly administrative functions.

BEST AVAILABLE COPY FOLA Requested Record #J-15-0085 (DE) Attached Sheet for add Released by Opping Guard Buresin) Attached

| | | SE | CTION 4. HAZARD IN | VENTORY | DATA | | | |
|---|----------|--------------|--------------------|-------------|--------------|--------------|--------------|----------|
| | CAS CODE | | ARD DESCRIPTION | | | PAC | | EPC |
| | CAS CODE | | | | | | | |
| | | | | | | | | |
| - | | | | | | | | |
| - | <u> </u> | | | | | | | |
| | | | | | | | | , |
| r | | | | | | | | |
| - | | | | | | | 1 | |
| 1 | | | | | | | | |
| | | | | | | | | |
| 1 | | | | | | | | |
| | | | | | | | | |
| | : | | | | | | | |
| | | | - | | | | | |
| | | _ | | | · | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | SECTION 5. PER | SONNEL | | 257 | SSN | CATEGOR |
| | LAST | NAME | FIRST NAM | | MI | SEX | | |
| | on-R | och | anciv | | L | m | | MIL |
| V | | ESPU | JH5HV | | m | F | | MIL |
| | | | | | | ļ | | <u> </u> |
| | | | | | ļ | ļ | | |
| | | | | | | ļ | | |
| | | | | | | | <u> </u> | |
| | | | | | | - | | |
| | | | | | _ | | ļ | |
| | | | | CORREL | T S | | | |
| | | | SECTION 6 | | Soo all | ached st | neet | |
| | | □ No | comments | | | | | <u> </u> |

PRIVACY ACT STATEMENT

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

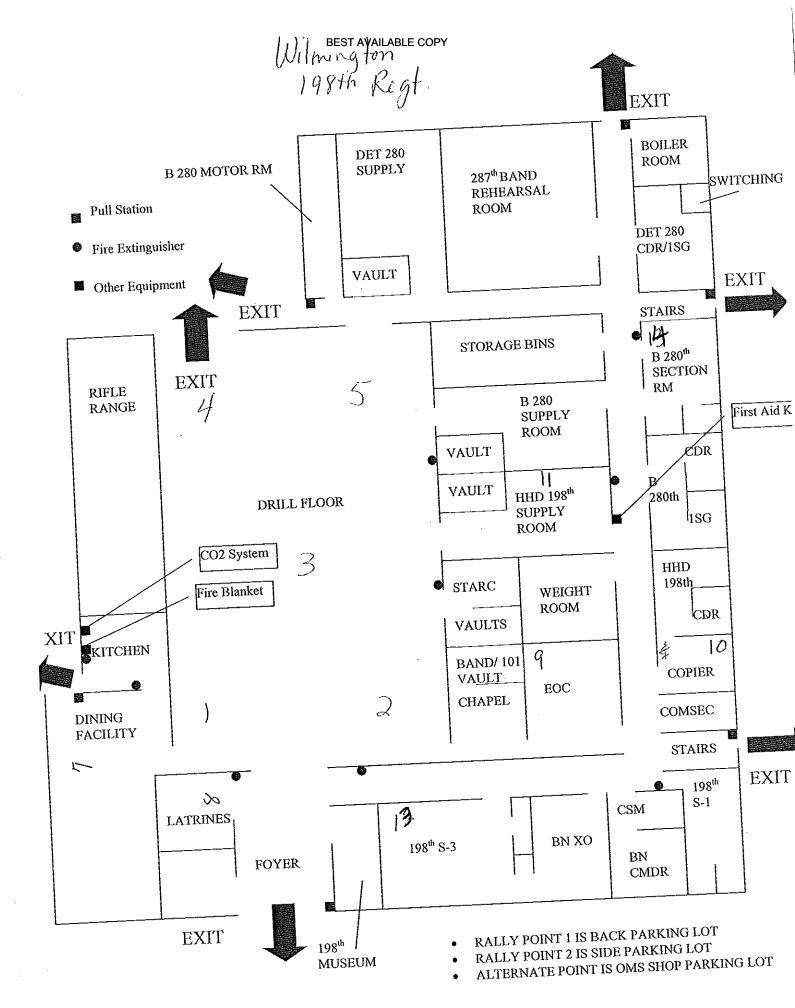
Disclosure of your Social Security Number is not mandatory; however, nondisclosures may result in untimely provision of proper medical monitoring.

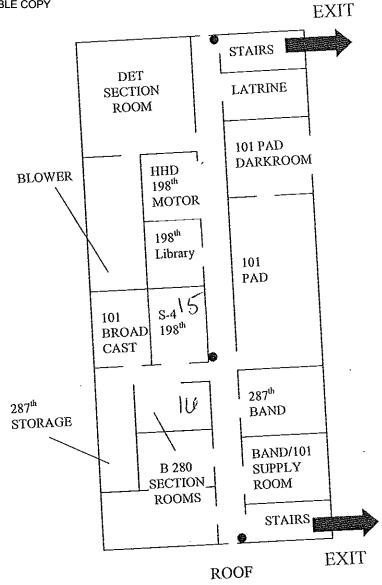
BEST AVAILABLE COPY

FOIA Requested Record #J-15-0085 (DE)
Released by National Guard Bureau
Page 143 of 547

Attacha

Appendix B Building Layout





- RALLY POINT 1 IS BACK PARKING LOT
- RALLY POINT 2 IS SIDE PARKING LOT
- ALTERNATE POINT IS OMS SHOP PARKING LOT

Appendix C Sampling Sheets and Laboratory Analyses



CERTIFICATE OF ANALYSIS

NYELA 一

| | | Survey Survey | Chain Of Custody |
|---------------------------------------|----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|
| | Job Name: | Delaware National Commercial | Date AnglyZed: |
| National Guard Bureau | Joh Location: | Wilnumgton, 198th | |
| 301 (IH Old Bay Lane, Atm: NGB-AVN-34 | | · Large - Commission - Commissi | Decrea Submittin |
| State Military Reservation | " A Washington | Not Provided | |
| Manage de Grace, Maryland 21078 | 190 Marian | *** | Report Date: |
| | P.O. Number: | 1007 | |

Address:

Cient

| 118602 | 10/15/2003 | Non-Respo | 15-Oct-03 |
|-------------------|----------------|--------------------|--------------|
| Chain Of Custody: | Date Analyzed: | Person Submitting: | Report Date: |

Page 1 of 1

| | 1 |
|--------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | |
| Town Decreis | THE PARTY IN THE P |
| | Reporting |
| | Area Wipe |
| | Ate Velame |
| Ukumai y | The second second second |
| 0 | The set of the second s |
| b | |
| | |
| | Sulfation 3 de la company de l |

| A CAMPAGE AND A | 60 ug/ft 39 ug/ft 660 ug/ft < 9.6 ug/ft < 0.72 ug |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| | ug/ft- ug/ft- ug/ft- ug/ft- ug/ft- |
| Rep | 13.50 13.50 13.75 67.51 2.70 0.30 |
| Area Wiped | Wipe |
| Ž | Wipe Wipe Wipe Wipe Wipe Wipe Wipe Stank Wipe Stank Wipe Stank Soort-93/200(M)-7420; |
| is Type Sample Type | Wipe Wipe Wipe Wipe Wipe Wipe Wipe Wipe |
| Analys | Furnace Furnace Purnace Furnace Furnace Furnace Furnace Furnace Furnace |
| Client Sample | |
| Client Servi | AMA Sampa Number 0401641 0401642 0401644 0401644 0401645 |

| 0401646 DEWN_ATOPOS Paints, and Soil/Soilds: EPA 600/R-99/200(My-7421; Water, SM-31138 Analysis Method for Flame: Air, Wipes, Paints, and Soil/Soilds: EPA 600/R-83/200(My-7421; Water, SM-31138 Analysis Method for Flamece: Air, Wipes, Paints, and Soil/Soilds: EPA 600/R-99/200(My-7421; Water, SM-31138 Analysis Method for Flamece: Air, Wipes, Paints, and Soil/Soilds: EPA 600/R-99/200(My-7421; Water, SM-31138 Analysis Method for Flamece: Air, Wipes, Paints, and Soil/Soilds: EPA 600/R-99/200(My-7421; Water, SM-31138 Analysis Method for Flamece: Air, Wipes, Paints, and Soil/Soilds: EPA 600/R-99/200(My-7421; Water, SM-31138 Analysis Method for Flamece: Air, Wipes, Paints, and Soil/Soilds: EPA 600/R-99/200(My-7421; Water, SM-31138 Analysis Method for Flamece: Air, Wipes, Paints, and Soil/Soilds: EPA 600/R-99/200(My-7421; Water, SM-31138 Analysis Method for Flamece: Air, Wipes, Paints, and Soil/Soilds: EPA 600/R-99/200(My-7421; Water, SM-31138 Analysis Method for Flamece: Air, Wipes, Paints, and Soil/Soilds: EPA 600/R-99/200(My-7421; Water, SM-31138 Analysis Method for Flamece: Air, Wipes, Paints, and Soil/Soilds: EPA 600/R-99/200(My-7421; Water, SM-31138 Analysis Method for Flamece: Air, Wipes, Paints, and Soil/Soilds: EPA 600/R-99/200(My-7421; Water, SM-31138 Analysis Method for Flamece: Air, Wipes, Paints, and Soil/Soilds: EPA 600/R-99/200(My-7421; Water, SM-31138 Analysis Method for Flamece: Air, Wipes, Paints, and Soil/Soilds: Air Market | | |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| 7421; | | |
| DOGM) | ହିଁ ନ | |
| yzoo(n R-93/2 = part: | ion (pp d not b | |
| A 500/3 mg/L | ug/L = parts per billion (ppb) nal digits shown should not be | |
| EPA 60 s: EPJ aight | shown | |
| olids: E | ug/L = (digits | |
| Solivs Ind Soliv Toom | ditional | |
| s, and aints, a | ogram: Any ad | |
| Paints pes, P. | marco marco igits. 7 | |
| Wipes, Vripes, Vr., Wij | (g = pa ug icantod e resu | |
| e. Alf., | mg/k elght signif signif | |
| THAM TFGM | d by we two nterpre | |
| hod for | pplicab ent lea when is | |
| 01646 sis Met sis Met | Not A = pero All res dered | |
| OA Analy: Analy: | N/A = Not Applicable mg/Kg = parts per nimer of a not a parts per billion (ppb) %Pb = percent lead by weight ug = micrograms ug/L = parts per billion (ppb) %Pb = percent lead by weight ug = micrograms Note: All results have two significant digits. Any additional digits shown should not be note: All results have two significant digits. Any additional digits shown should not be considered when interpreting the result. | |
| | | |

Technical Manager: Analyst:

This report applies only to the sample, lawestigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the publicand these Laboratories.

An AIHA (#8863), NVLAP (# 101143), & New York ELAP (#16920) Accredited Laboratory 4475 Forbes Blvd. • Lanbam, MD 20706 • (301) 459-2640 • Toll Free (800) 346-0961 • Fax (301) 459-2643



A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS



12-Nov-03 11/12/2003 119007 Person Submitting: Chain Of Custody: Date Analyzed: Report Date: Not Provided Delaware 10-01 198th Job Location: Job Number: Job Name: 301-IH Old Bay Lane, Atm: NGB-AVN-SI, Havre de Grace, Maryland 21078 State Military Reservation National Guard Bureau

Summary of Atomic Absorption Analysis for Lead

Attention:

BEST AVAILABLE COPY

Services

Address: Client:

P.O. Number:

page I of I

| | Non-Respon |
|------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| FIRM NEOUS | 3.9 ug/ft ² 12 ug/ft ² 84 ug/ft ² 7.2 ug/ft ² 6.6 ug/ft ² 8.4 ug/ft ² 6.6 ug/ft ² 6.6 ug/ft ² 6.6 ug/ft ² 6.9 ug/ft ² 6.0 ug/ft ² 6.0 ug/ft ² 8.4 ug/ft ² 6.6 ug/ft ² 8.7 ug/ft ² 8.8 ug/ft ² 8.9 ug/ |
| Reporting Limit | 2.70 ug/h² 2.70 ug/h² 13.50 ug/h² 2.70 ug/h² 0.30 ug |
| Area Wiped (ft²) | 0.111 0.111 0.111 0.111 0.111 N/A 0.111 0.111 0.111 N/A Water, SM-31118 Iton (ppm) |
| Sample Type Air Volume | Wipe Wipe Wipe Wipe Wipe Wipe Wipe Wipe |
| ysis Type | Number Number Number Number Number ****** 0.111 0407327 DEWIL177-8 Fumace Wipc ***** 0.111 0407328 DEWIL177-8 Fumace Wipc ***** 0.111 0407329 DEWIL177-10 Fumace Wipc ***** 0.111 0407330 DEWIL177-12 Fumace Wipc ***** 0.111 0407331 DEWIL177-13 Fumace Wipc ***** 0.111 0407332 DEWIL177-14 Fumace Wipc ***** 0.111 0407333 DEWIL177-15 Fumace Wipc ***** 0.111 0407334 DEWIL177-15 Fumace Wipc ***** 0.111 0407335 DEWIL177-15 Fumace Wipc ***** 0.111 0407335 DEWIL177-16 Fumace Wipc ***** 0.111 0407336 DEWIL177-17 Fumace Wipc ***** 0.111 0407337 <td< td=""></td<> |
| 3/c | Number Number 0407527 DEWIL177-8 0407529 DEWIL177-8 0407529 DEWIL177-10 0407530 DEWIL177-11 0407531 DEWIL177-12 0407532 DEWIL177-13 0407533 DEWIL177-13 0407534 DEWIL177-15 0407535 DEWIL177-15 0407537 DEWIL177-15 0407537 DEWIL177-15 0407537 DEWIL177-18 0407538 DEWIL177-18 0407539 DEWIL177-18 0407531 DEWIL177-18 0407532 DEWIL177-18 0407533 DEWIL177-18 0407534 DEWIL177-18 0407537 DEWIL177-18 0407538 DEWIL177-18 0407539 DEWIL177-18 0407531 DEWIL177-18 0407532 DEWIL177-18 0407533 DEWIL177-18 0407534 DEWIL177-18 0407537 DEWIL177-18 0407538 DEWIL177-18 |
| AMA Sample | 0407527 DJ 0407529 DJ 0407529 DJ 0407530 DJ 0407531 DJ 0407532 DJ 0407532 DJ 0407533 DJ 0407533 DJ 0407533 DJ 0407533 DJ 0407533 DJ 0407533 DJ 0407535 DJ 0407535 DJ 0407535 DJ 0407535 DJ 0407538 Analysis Method for Fla |

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 Laboralories, we expressly disclaim any knowledge and lability for the accuracy and completeness of this information. Residual sample material will be discarded in accurdance with the appropriate regulatory guidelines, unless otherwise requested by the client, NVLAP Accreditation This report upplies 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 clivints, 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

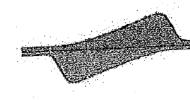
Technical Manager:

Analyst:

considered when interpreting the result.

60 2

FOIA Requested Record #J-15-0085 (DE) Released by National Guard Bureau [EDITA | EUH HHH Page 149 of 547



Reservoirs Environmental, Inc.

2059 Bryant St. Denver, CO 80211 (303) 964-1986 Fax (303) 477-4275 Toll Free (866) RESI-ENV

July 10, 2003

Project Description: RES 94962-1 06-08 Delaware-Wilmington

Non-Responsiv

Shaw Environmental, Inc. 312 Directors Drive Knoxville TN 37923

Dear Customer,

Reservoirs Environmental, Inc. is an environmental analytical laboratory accredited for the analysis of Industrial Hygiene and Environmental matrices by the American Industrial Hygiene Association, Lab ID 101533 - Accreditation Certificate #480. The laboratory is currently proficient in both PAT & ELPAT programs respectively.

Reservoirs has analyzed the following sample(s) using Atomic Absorption (AA) / Atomic Emission Spectroscopy - Inductively Coupled Plasma (AES-ICP) per your request. The analysis has been completed in general accordance with the appropriate methodology as stated in Table I. Results have been faxed to your office.

RES 94962-1 is the job number assigned to this study. This report is considered highly confidential and property of the customer. Reservoirs Environmental, Inc. will not discuss any part of this study with personnel other than those authorized by the client. Samples will be disposed of after sixty days unless longer storage is requested. If you should have any questions about this report, please feel free to call me at 303-964-1986.

Sincerely,

Non-Responsive

President

RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Accredited Laboratory #101896 AIHA Certificate of Accredidation #480 LAB ID 101533

LEAD BY WIPE SAMPLING ANALYSIS: TABLE I.

RES Job Number:

RES 94962-1

Client:

Shaw Environmental, Inc.

Client Project Number / P.O.:

06-08

Client Project Description:

Delaware-Wilmington

Date Samples Received:

July 3, 2003

Analysis Type:

USEPA SW846 3050B / AA(7420)

Turnaround:

3-5 Day

Date Samples Analyzed:

July 10, 2003

| Date Samples Analyzed: Client ID Number | Lab ID Number | Sample Area (sq.ft.) | LEAD (μg) | Detection Limit (µg/sq.ft.) | LEAD CONCENTRATION (μg/sq.ft.) |
|-------------------------------------------|------------------|----------------------------|--------------|-----------------------------------|--------------------------------------|
| | W04450 | 0.11 | BDL | 23 | BDL |
| DEWILM177-1 | EM 791278 | 0.11 | 13.7 | 23 | 125 |
| DEWILM177-2 | EM 791279 | 0.11 | 5.0 | 23 | 45 |
| DEWILM177-3 | EM 791280 | 0.11 | 5.5 | 23 | 50 |
| DEWILM177-4 | EM 791281 | 0.11 | BDL | 23 | BDL |
| DEWILM177-5 | EM 791282 | 0.11 | BDL | 23 | BDL |
| DEWILM177-6 | EM 791283 | 0.11 | BDL | 23 | BDL |
| DEWIL177-1 | EM 791284 | 0.11 | BDL | 23 | BDL |
| DEWIL177-2 | EM 791285 | 0.11 | BDL | 23 | BDL |
| DEWIL177-3 | EM 791286 | 0.11 | BDL | 23 | BDL |
| DEWIL177-4 | EM 791287 | 0.11 | BDL | 23 | BDL |
| DEWIL177-5 | EM 791288 | 0.11 | BDL | 23 | BDL |
| DEWIL177-6 | EM 791289 | 0.11 | 45000.0 | 23 | 409091 |
| DEWIL177-19 | EM 791290 | 0.11 | 98300.0 | 23 | 893636 |
| DEWIL177-20 | EM 791291 | 0.11 | 3160.0 | 23 | 28727 |
| DEWIL177-21 | EM 791292 | 0.11 | 8060.0 | 23 | 73273 |
| DEWIL177-22 | EM 791293 | V,11 | | | |

^{*}Calculations Based On A 1 sq.ft. Sample Area Unless Otherwise Noted

^{*} Sample DEWIL177-6 results may be dastically low due to cracked digestion vessel.

RESERVOIRS ENVIRONMENTAL, INC.

2059 Bryant St., Denver GO 80211

| | | 2059 Bryant | St., Denver C | O 80211 | | RES | s 9490 |
|------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------|--------------------------------|---------------------------------------|---------------------------------------|----------------------------------------------------|--------------|
| Due Date: 2-9 | 1_7-11 | | | | | RESI Job #: | |
| Due Time: 10 | :05 | | | | | Page [| _ ø _2 |
| SAMPLES SUBN | MITTED BY: | | INVOIC | E TO: (IF D | IFFERENT) | | 7 |
| Company: Shaw | Environmental, Inc. | | Non-Resp | onsive | | ************************************** | |
| | Directors Drive | | Army Nat | ional Guard (H-) | V | | |
| Knox | ville, TN 37923 | | 301-IH O | d Bay Ln, Havro | de Grace, MO 21078 | | |
| Contact: Non-Re | sponsive | Phone: (302)359-3 | 3736 F | ax (410)436 | -2163 Pager: | | |
| Contact: | | Phone: | F | BX: | Pager: | | |
| Project Number and/o | (P.O. #: 06-08 | | | | Man Dar | a Dokverabie Emaš Addre | |
| Project Descriptions o | cation: Delaware - Wi | loungloin | | | | nalzer کی <i>ڈیں</i> | \sim |
| After Hours/Wes | kend CHARGE: Amount | . | | Authorized | by: | | |
| Additional leas at otherwise arrange expected. | pply for after hours and hollo ed and specified on the chal | lays for all analysis ty in of custody. Tumaro | pes. Samples ound is subjec | will be analy to laborator | yzed during norma y volume. You wi | il laboratory hours un Il be notified if delays | iless are |
| ASSESTOS LAB | ORATORY HOURS: | Weekdays: | ANALYTIC | AL METHO | n | | |
| 7am - 7pm | | | AIR | | 4 7400A, 74008, | OSHA | 1 |
| # | | | 11 | | AHERA, Levelli, | | |
| PCM/PLM | _2 Hour RUSH24 hour | 3-5 weekdays | | | | ndirect Preps Chalfield | |
| | | *************************************** | 11 | MA | ICPM | - | 1 |
| | 6 Hour RUSH24 hour | 3.5 weekdays | | | t Tolat, Respirable | | |
| Prior Notice Re | QUIRED for TEM 6 Hour RUSH | |] | ···· | | | |
| METALETABOR | ATORY HOURS: | Weekdays: | BULK: | | | report, Point Count | |
| 8am + 5pm | | weekuays: | l I | lev | 1 +/-, Quant, Sen | indraux | |
| | ECIAL RUSH 24 Hour | Y 1.6 from | | | Paint, Soft, Dust (V | | |
| | EVIACION24 Hour | V 1.2 Day | | | (ASTM E 1792 approv | | |
| RORA 8 SF | PECIAL RUSH 5 Day | 10 Day | WATER | | Drinking. Waste V | | |
| | | | | | Waler1 | | |
| TCLPs | PECIAL RUSH 5 Day | 10 Day | | | Drinking, Waste Wat | | |
| Prior Notice REQUIRE | ED for SPECIAL RUSH AA, RCRA | OFTCLP | OTHER | Spe | city | | |
| RCRA and TC | LP SPECIAL RUSH to 3 Day Turn | around |] [| | | | |
| Special Instruct | lons: Please report in ft | 2. Contract # 78-287 | . Emall result | s to kenneth | .forsythe@md.ngt | .amy.mil | |
| Client & | amala Mambar | ···· | | | Volumo | EM# | |
| | ample Number | | | | Volume | | 1000 |
| ********** | -MITT-! | | 444-147 | | 4×4*w | pes 74 | (N. L.S |
| 2 | | | | | بمستؤخفت شدد | <u></u> | 764 |
| Laboration | n | | | | | سسنو جنيي | - 80 |
| 4. | · 4 | | | مريايت ميان وسيد | | | 81_ |
| 5. | n = 5 | | | | | | 88 |
| 6. | ** ~ (a | | | | | | _83 |
| 7. DEWI | L(77-1 | | | | | | 84 |
| _ | .) | | | | | | 33 |
| · | - 3 | | | | | | XC. |
| 413 | - ધ | | | · · · · · · · · · · · · · · · · · · · | | | 2/1 |
| 10. | The second section of the second section is a second section of the second section sec | | | | | | 20 |
| 11. | | | | | | | 28 |
| 12. | " ls | | | | | | <u>- 91</u> |
| 13, | -19 | | | | | | |
| 14. | | | | | | | '[] |
| 15. | 31 | | | | | | 42 |
| Number of samples r | ecolved: 1/n | (Use as man | y additional shee | (s as needed.) | | | |
| NOTE: If the package | has sustanted substantial damage | e or the custody seed is brok | en, stop and con | act project man | ager and shipper, RES | ij will anelyze incoming sa | imples based |
| upon information rece | eived with those samples. REI is n | ot responsible for errors or c | omissions in calc | ringious teanifus | from the inaccuracy of | if original data. Tumarour | iq igues acc |
| based upon times of a Relinguished B | Non-Respo | DISIVE | gueranteed in 6h | ori kimeround. | Date/Time: "7/1/ | 03 8000 | سردار |
| | | | | | | | |
| Laboratory U | on-Responsiv | e i | | Page | مردوق راوس | 11 111-15 | |
| Received By: | | | | Dete/Trne | CANELLO CA | 7 16160 | |
| Center: RESULTS; | Contact / F | tion of package/custody age Phone Fr | saal upon receip ax Email | i A | ite Time | Initials | |
| | Annual 1 | rgv invito I | **** ******* | S. J. P. | 11114 | | |
| SPLITS: | Authorization By/Time: | | | | | ount Sheets Receiv | ved By: |
| | Analytical Method/Turnar | | | | Time: | Date: | |
| rev 6/2/01 | Results Due: | Results Out: | | | | | |

Phone: (303) 864-1936 Fax: (303) 477-4275 WATS: 1-866-RESI ENV (737-4368) PAGER: ONCALL Pager number available at Lab. Alternato Pagers: PLMITEM 509-2187 PCMIMetals 509-2698 (AFTER HOURS USE ONLY)

RESERVOIRS ENVIRONMENTAL, INC. 2059 Bryant St., Danver CO 80211

| | | | 设有的基础设置 。 | | | | | <u>MGZ.</u> |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------|
| obale: <u>24</u> | | | | | | | Pego | 2.02 |
| Time: <u>(2.2.2</u> MPCES SUBMITT | | | i I | INVOICE TO: | (IF DIFFERE | NT) | | |
| work Shaw Lit | vironmental, Inc. | | | Army Harmai Cal | edi)(W | | | |
| Knováte | YN 37923 Donsive | rnze (30 | 2)369-3738 | en: [4] | . Having din Sirac 0)436-2163 | a, M3 /21078 Pagari | | |
| lett. | 2.5 | Plans | | l ax | and the second second second second second | Pagen Fryst thata Octob | vable Email | AMAGES. |
| eci Number euslar P. (eci Dosenction) Lecali | > # O(3- U 3 - Dolowala • | Wilniegte | na . | | | Non-Responsive | majagi (2) | <u> </u> |
| or Hours/Weeks | d CHARGE: Amo | unt \$ | | Autho | ortzed by: | | | |
| ditional less apply servise arranged o proted | for after hours and and specified on the | holidaye for all ana chain of castudy. | Tall and the state of | | | iấng hómai labo se, You will be i | ratory hou offind if d | rs uniesa glaya aro |
| | ATORY HOURS: | Waakda | ys: At | IALYTIGAL M | PCM 74007 | . 74000, OSIVA A. LEVISIV. 740 | a IAO | |
| | neurnusk2(b) | jur 3.5 weekd | y , | l | On. | daha 3804dae | Prapa CE | a¶old |
| of Value of the State of the | Kour RUSH 24 Iv | | | | | Metal Respiration | | |
| Prky Nylca REOL | med or read like in | JEN | 50.552.752 | Jik; |] PLM SIGN | iccoit, Logiska | (Poyeti | udi . |
| etals Labora | TORY HOURS: | Wookda | NVS: | | TEM HA | ech Orini (1808) | u :::::::Ficra | g military in the second |
| ani i bain A sife | Halīnush248 | он <u>Х</u> 3-5 Day | | | (ASTA | e 1300 receipted an | MA SELLIN | |
| CRAB SPC | Jac Rush\$ 0 | ry 16 (ky | N | ATER | AA Water | Welst Waste Math | nce/ | \6 |
| eriority reads/ | | ***** | | | Drive in | Wasta Water | | M48.M7 |
| ÇLPsre | CIAL RUSH 💷 5 🖰 | | | TUES T | | | | |
| gor Hodes REQUIRE O | il bpeoml rush as | RCRAMTCU | | THER [| Specify | | | <u></u> |
| gor Hodes REQUIRE O | il bpeoml rush as | RCRAMTCU | | | Specify | | ny mil | |
| io ibee RECUREO ROBA an <u>u TOLF</u> podial Instructio | in Special Rush (A <u>special Rush) is 1 D</u> ns: <u>Ploase repo</u> | RCRAMTCU | | | Specify | ilje@rad.ngv.am <u>Volumo</u> | 70 | ME |
| io io es rectareo rera signació projat instructio Otient sa | il bpeoml rush as | RCRAMTCU | | | Specify | the@red.ngtkern | 70 | ME 741945 |
| po nose recentreo hara sou told pocial instructio Olient Sai DEWIL | in special ruish as special ruish (10) fis: Plopse (epo pple Number | RCRAMTCU | | | Specify | ilje@rad.ngv.am <u>Volumo</u> | 70 | ME 2912912 |
| io ikoka reginreg ngra ang toli ipodal instructio Oliont Sai | in special ruish as special ruish (10) fis: Plopse (epo pple Number | RCRAMTCU | | | Specify | ilje@rad.ngv.am <u>Volumo</u> | 70 | ME 7(1)895 |
| po nose recentreo hara sou told pocial instructio Olient Sai DEWIL | in special ruish as special ruish (10) fis: Plopse (epo pple Number | RCRAMTCU | | | Specify | ilje@rad.ngv.am <u>Volumo</u> | 70 | ME 7812/4/3 |
| Client Sal | in special ruish as special ruish (10) fis: Plopse (epo pple Number | RCRAMTCU | | | Specify | ilje@rad.ngv.am <u>Volumo</u> | 70 | MEZGINGS |
| POR PETAPRED PROPERTY COLO PRO | in special ruish as special ruish (10) fis: Plopse (epo pple Number | RCRAMTCU | | | Specify | ilje@rad.ngv.am <u>Volumo</u> | 70 | ME 74/2/41/5 |
| Client Sal | in special ruish as special ruish (10) fis: Plopse (epo pple Number | RCRAMTCU | | | Specify | ilje@rad.ngv.am <u>Volumo</u> | 70 | ME ZGINCIS |
| Client Sal | in special ruish as special ruish (10) fis: Plopse (epo pple Number | RCRAMTCU | | | Specify | ilje@rad.ngv.am <u>Volumo</u> | 70 | ME 7/ASIS |
| Client San DEWIL Client San D | in special ruish as special ruish (10) fis: Plopse (epo pple Number | RCRAMTCU | | | Specify | ilje@rad.ngv.am <u>Volumo</u> | 70 | MEZGINGS |
| Offent San DEWIL Die 110 DEWIL 10 DEWIL 11 DEWIL 12 DEWIL 13 DEWIL 14 DEWIL 15 DEWIL 16 DEWIL 16 DEWIL 17 DEWIL 17 DEWIL 18 | is: peedal rijst of second etist is 10. | RCRAWTOUP sy Turneroused st in 1/2, Conyad | #78-287 En | nda rosults lo k | Specify | Heigired ngwan Volume 4×4* week | | |
| PERA SIGNATURE PROPERTY COLOR PROPER | is: beegial river a bi be: Plopse repo ingle Number 177 - 272 | RCRAWTOUT sy Tumeround st in 1(2, Contract | #78-287. En | náil rosúlts (o k | Specify controlly [075] | Heighed ngulann | | with a same Mr Day |
| O Tobes RECORRED REAL AND TOLL DECIDED TO TOLL DECIDED TOL | in percial rulation of process of the process of th | RCRAWTOUT sy Tumeround st in 1(2, Contract | #78-287. En | náil rosúlts (o k | Specify controlly [075] | Heighed ngulann | | with a same Mr Day |
| po tiples RECTIFIED RECTIF | is pecual rust of pec | RCRAWTOUT sy Tumeround st in 1(2, Contract | #78-287. En | náil rosúlts (o k | Specify Controlly 10759 Invoced 1 | Heighed ngulann | | with a same Mr Day |
| O Tobes RECORRED REAL AND TOLL DECIDED TO TOLL DECIDED TOL | is pecual rust of process of the pro | RCRAWTCUP sy Tumeroused strict(12, Contain) de la Contain (12, Contain) | #78-287. En | náil rosúlts (o k | Specify Controlly 10759 Invoced 1 | Mergered nguven Voliano 4 x 4" week Ax a singler, RESI's a fer received of o | | with a same by Des |
| pocial instruction of the control of | is pecual rust of process of the pro | RCRAWTOUT by Turneroused of in 1(2, Confusion for in 1(2, Confusion of in 1(2, Confus | A 78-287. En | ndia rossista (o k conserva stratis pa suop and consessi decine su consessi decine su consessi decine su consessi decine su consessi decine su consessi decine su consessi | Specify certreth forsy mroked) mroked) project monsoler pro | Mergerad nguvarr Vollano 4×4° viças Ax4° viças axa stipper, RE31va a en coccuracy et a errens 7/1/0 | | COP (1 |
| pocial instruction of the control of | is pecual rust of process of the pro | RCRAWTOUT by Turneroused of in 1(2, Confusion for in 1(2, Confusion of in 1(2, Confus | (Use as many of years in the section of the section | ndia rossista (o k conserva stratis pa suop and consessi decine su consessi decine su consessi decine su consessi decine su consessi decine su consessi decine su consessi | Specify Controlls Forsy Introded 1 (specify to managed for president) Discount of the managed for president for the managed for the manage | Minister Real in a real in | Acres sycs to the series of th | oorlyg sample (ex Tayleigh (large p 3 (2) (ta- |
| pocial instruction of the control of | is pecual rust of process of the pro | RCRAWTCUP sy Tumeroused strict(12; Contain) 2 at decress of the authority RPI and recognized Sponsive Indige P | A 78-287. En | ndia rossista (o k conserva stratis pa suop and consessi decine su consessi decine su consessi decine su consessi decine su consessi decine su consessi decine su consessi | Specify certreth forsy mroked) mroked) project monsoler pro | Minister Real in a real in | Acres sycs to the series of th | COP (1 |

Phone: (301) \$81-1936 Fax: (303) \$77-1276 WAYS: 1-956-BESI ENV (737-4-165)
PAGER: DEOALL Pager number systatus at Lab. Attenuts Pagers: PLMITEN 508-2 (3) FOUNDALIS 508-2018 (APTEN HOURS USE Obl.Y)



Submitted To:

Shaw Environmental, Inc. 312 Directors Drive 37923 Knoxville, TN

Reference Data:

Lead

Client Sample No.:

DEGE0178-A1 through DEWIL177-A3

P.O. No.:

06-07

Sample Location:

DE

Sample Type:

Filter

Method Reference:

NIOSH 7300

DCL Set ID No.:

03-S-3222

DCL Sample ID No.:

03-20046 through 03-20055

Sample Receipt Date:

7/3/2003

Preparation Date:

07/07/03

Analysis Date:

07/07/03

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

The sample condition upon receipt was acceptable except where noted.

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

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

Analyst

CINCINNATI OFFICE 4388 GLENDALE-MILFORD ROAD CINCINNAYI, OHIO 45242-3706 613 733-6336, FAX 613 733-5347

WEST COAST OFFICE 11 SANTA YORMA COURT NOVATO, CALIFORNIA 94945 800 260-8071. FAX 415 893-9469

Results Lead

| Client # | DCL # | Sample Volume (L) | hg/samble | mg/m³ |
|-------------|------------|----------------------|-----------------|--------|
| | 03-20046 | 133.35 | ND | <0.007 |
| DEGE0178-A1 | | 125.25 | ND | <0.008 |
| DEGE0178-A2 | 03-20047 | 123100 | ND | |
| DEGE0178-A3 | 03-20048 | 100 00 | ND | <0.007 |
| DEWIL177-A1 | 03-20053 | 133.81 | ND | <0.006 |
| DEWIL177-A2 | 03-20054 | 181.55 | | |
| DEWIL177-A3 | 03-20055 | 0 | ND | |
| | | | ND | |
| | Prep Blank | ļ | 104. | |
| % Recovery | LCS | | | |
| | | | 1. | |
| RPL | l chor | the reporting | ng limit (RPL). | |

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

LCS = laboratory control sample.



Reviewer



ANALYTICAL REQUEST FORM

| | DA | IA٦ | | | BUSH | Status Requested - ADDITIONAL CHARGE |
|----------|--------------------------|-----------------------------------|--------------------------------------------------|----------------------------------------|--------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | | TIT | \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ | | | TS REQUIRED BYDATE |
| | 1 | | D A I E S | | CONTAC | CT DATACHEM LABS PRIOR TO SENDING SAMPLES. |
| 2. | Date (4/30) | 03_Purchase | o Order No. J | 06-07 | | . 4. Quote No |
| 3. | Company Nam | e Shaw En | virany | ental, In | d: | DCL Project Manager |
| | Address 312 | Director | s Drive | ــــــــــــــــــــــــــــــــــــــ | | 5. Sample Collection |
| | Krokvi | le TN 3 | 1923_ | | | Sampling Site DE |
| | Person to Cont | act_Non-Re | esponsi | /e | | Industrial Process |
| | Telephone (30 | <u> 12-1 ما3 (ه</u> | 36 | | | Date of Collection 6/27/03, 6/26/03 Time Collected Various |
| | Fax Telephone | (410) <u>454</u> - | 2163 | | | Date of Shipment 7/1/0 3 |
| - | Non-Respo | s (if different from Arm | m above) | ad Gur | N-41 L | Chain of Custody No. |
| ı | المالية المالية | -17/7 | Y IXADA | er de Gra | ~. Mh | Non Poenoncivo |
| | 301-11, 12 | d.Bay.La | W.J. TIMA | | 21018 | Non-Responsive |
| 6. | REQUEST FO | OR ANALYSES | | <u> 3-5</u> | 2-32 | |
| 03 | Leboratory Lites Only | Client Sample Number | Мефа Турв | Sample Volume (Liters) | | ANALYSES REQUESTED - Uso Method Number # Known |
| | 10046 | DEGEO178-A | MCSF | 133,35 | lead | |
| | | | ١ | | 1 | III and the state of the state |
| _ | 70047 | -AR | | 125,25 | ├ ─ ╿ ── | |
| | 50018 | A3_ | | Bulle | | |
| - | 10020 | 11 -PC1 | | 1 | | |
| - | 20051 | " - PC3 | | | | |
| | 20055 | 1 - PC4 | | 1 | | |
| | 70053 | DEWILL 77-A | MUSE | 133.81 | ┤┈ ┤╌ | |
| L | 5002A | " - YS | | 181.55 | | |
| <u> </u> | mas 2 | | | Blank | + | |
| - | | ┼ | | | 1 | |
| *Sper | olfy: Solid corbent to | ibe, e.g. Charcoat; f | Filter type; Impl | nger solution; Suik | Sample; Blood; I | Urine; Tissue; Soll; Water; Other |
| _ | | | [| METHOD | | OTHER (se consisted below) |
| 7. | | IREMENTS MPLETED FOR | - | (Lab OC acco | talldug as gnibi | hed methods) |
| | ENVIRONME | ntal samples | -See | PROJECT | PLAN QC S | SAMPLES |
| | | oes Terms and O samples billed | | (Lab QC sco) NO QC SA | roing to provide MPLES REC | ad QA/QC Plan) QUESTED 7/1/07 D95 |
| | et regular san | | | | orm to Agency | requirements) |
| Co | mmente Plea | se emai | result | s to Nor | ı-Resp | onsive <u>, or tak</u> |
| 4 | . 14 | tention | | (410)94 | 2.025 | 4. |
| | esible Contamic | - • - | | Ć | | |
| _ | N | lon-Res | ponsi\ | /e | | |
| 8. | Requested b | | | | | 800-358-9135 or 801-266-7700 / Fex: 801-268-9992 |
| | | 960 West eVoy 4388 Glandale V | filtord Road. | Cincinnati, OH | | 800-458-1493 or 513-733-5336 / Fex: 513-733-5347 |
| | | | | DATACHEM LA | BORATORIES | S - A SORENSON COMPANY |
| | ` | DIS | TRIBUTION: | WHITE - | LABORATORY | COPY CANARY - CUSTOMER COPY |

BEST AVAILABLE COPY

&14Industrial Hygiene Sampling Calculation Worksheet

Location: Wilmington, RC 198th Regt **National Guard Armory** Date: 6/26/03 Sample Number: DEWIL177-Al Sample 1 Pump: 648339 Pre Flow Rate Post Flow Rate 2.486 2.471 2.486 2.471 2.480 2.475 2.476 2.472 2.476 2.465 2.480 2.471 Average Average Pre and Post 2.4.78 L x 54 min = 2.478 Unin Time 1 9:39 Time 2 /0:33
Total Time Sampled Minutes Sampled 54 min Liters Volume 133.81 Sample Number: DEWILI77-A3 Sample 2 Pump: 6.476/5 Pre Flow Rate Post Flow Rate 2.482 2.496 2.491 2.491 2.491 2.492 2.484 3.485 2.484 2.483 Average 2.487 L x 73 min = Average Pre and Post 2.487 4mm Time 1 9:40 Time 2 /0:53 **Total Time Sampled** Minutes Sampled 13 mm

Volume | 81.55

Appendix D References

References

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

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

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

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

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

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

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

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

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

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

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

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

Appendix D References

References

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

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

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

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

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

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

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

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

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

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

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

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

Appendix E Recommendations for Surface Lead Dust in Armories

Subject: Recommendations for Surface Lead Dust in Armories

- 1. In armories that do not contain childcare facilities, the National Guard Bureau (NGB) Region North Industrial Hygiene Office recommends cleaning the areas in which sample results are greater than 200 micrograms per square foot (□g/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 $200 \,\Box g/ft^2$ 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 $200 \, \Box g/ft^2$ is a safe surface contamination level. They have also applied these standards as the decontamination levels for surfaces in administrative offices.
- e. It should be noted that levels above these recommendations do not necessarily mean there is a significant hazard to workers who are following good cleaning and hygienic practices since there is no correlation between wipe and air samples. Rather, we recommend these levels as a precautionary measure.
- 2. The NGB Occupational Health Branch is developing guidance for armories that are used as childcare facilities. All states will receive this guidance when it is completed. In the interim, we recommend the following actions:

BEST AVAILABLE COPY

- 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,



Industrial Hygiene Survey Report

National Guard Facility Colonel S.B.I Duncan Readiness Center

Prepared For:

National Guard Bureau Region North IH

301-IH Old Bay Lane

Havre de Grace, MD 21078

Survey Location:

Colonel S.B.I Duncan Readiness Center

41 Corporate Circle New Castle, DE 19720

Prepared By:

ALS Environmental

3544 North Progress Avenue

Suite 100

Harrisburg, PA 17110

Survey Date:

October 12, 2011

Report Date:

November 14, 2011

ALS Project #:

1110755



Director, Industrial Hygiene Services

ADDRESS 3544 North Progress Avenue, Suite 100, Harrisburg, PA 17110 PHONE +1 717 540 3424 FAX +1 717 540 3428

Analytical Laboratory Services, Inc. Part of the ALS Group A Campbell Brothers Limited Company



BEST AVAILABLE COPY

Table of Contents

| Section 1.0 Executive Summary | 3 |
|------------------------------------------------------------|----|
| Section 2.0 Operation Description & Observations | 4 |
| Section 3.0 Lead Testing | 5 |
| Section 4.0 Lighting | 7 |
| Section 5.0 Indoor Air Quality | 8 |
| Section 6.0 Suspect Asbestos Containing Building Materials | 10 |
| Section 7.0 Limitations | 11 |
| Appendix A. Laboratory Analysis Report | 12 |
| Appendix B. Photographs | 13 |
| Appendix C. Floor Plan | 14 |
| Appendix D. References | 15 |

Section 1.0 Executive Summary

Section 1.0 Executive Summary

An industrial hygiene survey was conducted on October 12, 2011, at the Colonel S.B.I Duncan Readiness Center located at 41 Corporate Circle, New Castle, DE 19720. The survey was performed by Ms. Non-Responsive

- 1. Lead surface and air samples were collected. Surface levels of lead exceeded 200 micrograms per square foot (ug/ft²) in three locations. Cleaning procedures should be improved and remedial action should be taken to maintain lead levels below 200 ug/ft². See Section 3.0 for sampling results.
- 2. Lighting levels did not meet the American National Standard Institute/Illuminating Engineering Society of North America (ANSI/IESNA) recommended guideline in some areas. See Section 4.0 for locations.
- 3. Indoor air quality (IAQ) parameters of temperature, relative humidity, carbon monoxide and carbon dioxide (ventilation) were evaluated during the assessment. Relative humidity levels in all areas were above The US Army Technical Guide 277 Army Facilities Management Information Document on Mold Remediation, recommendation. Relative humidity should be maintained at 30 60%. The heating, ventilating, and air conditioning system (HVAC) system should be inspected to ensure it is working properly.
- 4. Some water damaged ceiling tiles were observed throughout the facility. Visible fungal growth was observed on the flexible thermal foam pipe insulation in the 126th Supply Room (Approximately 50LF). Identify and repair the source of the water infiltration. Fungal growth should be properly remediated. Replace any water stained ceiling tiles.
- 5. The HVAC supply and return grills located in some of the offices and classrooms were observed to be dirty with possible fungal growth. These should be cleaned. Do not permit dirt, debris, microbial growth, etc. to accumulate in any portion of the HVAC system. It was reported that HVAC unit that services the Drill Hall was not operational and has not functioned in decades.

Section 2.0 Operation Description & Observations

Section 2.0 Operation Description & Observations

The Colonel S.B.I Duncan Readiness Center is mainly an administrative facility with a drill hall, offices, classrooms and storage areas. There were approximately 5 full-time employees stationed at this facility at the time of this survey.

The building was initially constructed in 1960's. There have been some renovations since its construction. The building is two stories with a brick exterior. The interior walls are primarily concrete block. The floors are concrete with vinyl floor tile.

There is a central HVAC system present in the facility. HVAC units service the building via a boiler fired heat pump. It was reported that the HVAC unit in the Drill Hall has not worked in decades.

The firing range has been converted into a gym. The bullet trap and ballasts remain. The area appears very clean and well kept.

There is no child-care facility in the building.

Overall housekeeping practices were good. Areas were clean and well kept.

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

Section 3.0 Lead Testing

Section 3.0 Lead Testing

Due to the age of the building there is the potential for lead based paint to be present. Various surfaces within the facility were screened for lead using surface/wipe samples. Surface/wipe samples were collected in accordance with the American Society for Testing and Materials (ASTM) E 1792 protocols. Air samples were collected using 0.8 um mixed cellulose ester (MCE) filter cassettes attached to low volume air sampling pumps. Blank samples were submitted to the laboratory for quality control purposes. Samples were sent to AMA Analytical Services, Inc., in Lanham, Maryland, for lead analysis using Environmental Protection Agency (EPA) Method 600/R-93/200 (M)-7420. A copy of the laboratory analysis report can be found in Appendix A.

Lead Testing Results Summary

| Sample # | Location | Air ug/m³ | Surface ug/ft ² |
|----------|-------------------------------------------------------------|--------------|-------------------------------|
| 1 | Drill Hall | < 5.7 | * |
| 2 | Conference Room | <5.7 | * |
| 3 | Blank | <3 (ug) | * |
| 4 | Drill Hall – Kitchen Metal Shelf | * | <110 |
| 5 | Drill Hall – Display Case | * | <110 |
| 6 | Drill Hall – Floor by Supply Room | * | <110 |
| 7 | Drill Hall – Med Clinic Supply Grill | * | <110 |
| 8 | Drill Hall – Floor by Garage Door | * | <110 |
| 9 | Converted Indoor Firing Range – Bullet Trap | * | 7,800 |
| 10 | Converted Indoor Firing Range – Stored Item – Locker | * | 120 |
| 11 | Converted Indoor Firing Range – Floor | * | 710 |
| 12 | Outside Converted Indoor Firing Range – Drill Hall Floor | * | 290 |
| 13 | Brett James Office – File Cabinet | * | <110 |
| 14 | 2 nd Floor Classroom – Desk | * | <110 |
| 15 | Blank | * | <12 (ug) |

Key: Bolded results exceed listed criteria

Source: NG PAM 420-15 Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges

The National Guard Bureau currently utilizes 200 ug/ft² as a benchmark for identifying lead-contaminated surfaces. This guideline is referenced in NG PAM 420-15 "Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges" as a satisfactory surface contamination level unless the facility is utilized as a childcare facility. In such cases, U.S. Department of Housing and Urban Development (HUD) limit of 40 ug/ft² on floors and 250 ug/ft² on windowsills should be observed. There is no child care provided at this facility.

BEST AVAILABLE COPY

Lead surface and air samples were collected. The following is a summary of the findings and recommendations:

- Surface levels of lead were at or above the recommended guideline of 200 ug/ft² in the following locations:
 - o Converted Indoor Firing Range Bullet Trap
 - o Converted Indoor Firing Range Floor
 - Outside Converted Indoor Firing Range Drill Hall Floor

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

- Air samples for lead were below the Occupational Safety and Health Administration (OSHA) Permissible Exposure Limit of 50 ug/m³.
- Paint was observed to be in good condition throughout the facility.

Section 4.0 Lighting

Section 4.0 Lighting

A lighting assessment was conducted throughout the facility. Measurements were collected using a Cooke Cal-Light 400L Precision Light Meter (Serial No. K070155). The light meter was last calibrated on September 10, 2011. Measurements collected were compared to ANSI/IESNA RP-7-01 Lighting Industrial Facilities and RP-1-04 Office Lighting.

Light Survey Assessment Summary

| Location | Foot Candles (FC) | Recommended Lighting (FC) | Sufficient Lighting |
|-----------------------------------------|----------------------|------------------------------|------------------------|
| Training Office | 59.4 | 30-50 | Yes |
| Dffice | 103.1 | 30-50 | Yes |
| Conference Room | 47.4 | 30-50 | Yes |
| Commander's Office | 62.8 | 30-50 | Yes |
| Ladies Latrine | 48.3 | 5 | Yes |
| 126 th Administration Office | 60.0 | 30-50 | Yes |
| Drill Hall | 81.2 | 10 | Yes |
| Medic's Office | 95.7 | 30-50 | Yes |
| Kitchen | 32.6 | 50 | No |
| Gym (Exercise Room) | 8.3 | 30 | No |
| Motor Pool Office | 6.4 | 30-50 | No |
| Supply Room | 17.5 | 30 | No |
| 126 th Supply Room | 31.6 | 30 | Yes |
| MED DET Office | 20.2 | 30-50 | No |
| 2 nd Floor Locker Room | 12.8 | 7 | Yes |
| Empty Office | 18.8 | 30-50 | No |
| 2 nd Floor Classroom | 25.5 | 30-50 | No |

Bolded results did not meet listed criteria

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

The following is a summary of the findings and recommendations:

The lighting level measured did not meet the minimum recommended guideline in the following areas:

- o Kitchen
- o Gym (Exercise Room)
- o Motor Pool Office
- Supply Room
- o MED DET Office
- o Empty Office
- o 2nd Floor Classroom

Lighting should be improved in these areas.

Section 5.0 Indoor Air Quality

Section 5.0 Indoor Air Quality

Survey measurements were made for ventilation and comfort parameters (carbon dioxide, temperature, carbon monoxide and relative humidity). The air quality measurements were collected using direct reading instrumentation for comfort parameters using a QTRAK IAQ Meter, Model 7565 (Serial #7565X0839017). The IAQ Meter was last calibrated in February 11, 2011.

The American Society of Heating, Refrigerating, and Air Conditioning Engineers, Inc. (ASHRAE) have developed indoor air quality guidelines for mechanically ventilated office buildings and commercial settings (ASHRAE standard 62.1-2010). ASHRAE specifies temperature and relative humidity ranges for human comfort (ASHRAE 55-2010). The US Army Technical Guide 277 Army Facilities Management Information Document on Mold Remediation, recommends maintaining a relative humidity range between 30 to 60% in occupied areas.

The following table summarizes the measurements collected.

IAQ Assessment Summary

| 1AQ Assessment Summary | | | | | | | | |
|-----------------------------------------|------------------|----------|---------|----------|--|--|--|--|
| | Temperature (°F) | Relative | Carbon | Carbon | | | | |
| Location | | Humidity | Dioxide | Monoxide | | | | |
| | | (%) | (ppm) | (ppm) | | | | |
| Training Office | 71.9 | 68.5 | 430 | 0.6 | | | | |
| Office | 72.5 | 66.6 | 469 | 1.1 | | | | |
| Conference Room | 72.6 | 65.2 | 414 | 0.8 | | | | |
| Commander's Office | 72.9 | 64.8 | 424 | 1.0 | | | | |
| 126 th Administration Office | 72.7 | 65.4 | 430 | 0.6 | | | | |
| Drill Hall | 72.3 | 64.6 | 401 | 0.5 | | | | |
| Medic's Office | 72.7 | 65.4 | 412 | 0.5 | | | | |
| Kitchen | 73.0 | 64.9 | 440 | 0.1 | | | | |
| Gym (Exercise Room) | 72.2 | 63.5 | 376 | 0.7 | | | | |
| Motor Pool Office | 71.6 | 65.1 | 434 | 0.4 | | | | |
| Supply Room | 73.0 | 64.1 | 524 | 1.3 | | | | |
| 126 th Supply Room | 72.5 | 63.2 | 373 | 0.4 | | | | |
| MED DET Office | 72.4 | 64.4 | 399 | 0.8 | | | | |
| 2 nd Floor Locker Room | 71.5 | 67.5 | 487 | 0.2 | | | | |
| Empty Office | 72.3 | 64.8 | 411 | 0.7 | | | | |
| 2 nd Floor Classroom | 72.7 | 63.6 | 379 | 0.7 | | | | |
| Outdoors | 63.6 | 77.8 | 331 | 0.4 | | | | |
| Criteria | 68.0-79.0 | 30-60 | <1,031 | <9.0 | | | | |

Key: Bolded results exceed listed criteria

Source: The American Society of Heating, Refrigerating, and Air Conditioning Engineers, Inc. (ASHRAE) 55-2010 & The US Army Technical Guide 277 Army Facilities Management Information Document on Mold Remediation.

BEST AVAILABLE COPY

Summary of findings and recommendations:

- Relative humidity was above the recommended criteria of 30-60% in all areas. Maintain relative humidity levels between 30-60%.
- Carbon dioxide levels did not exceed the recommended ceiling of 1,031 parts per million (ppm). This indicates that outdoor air ventilation is adequate in all areas.
- Carbon monoxide levels were less than the recommended ceiling of 9 ppm.
- A visual inspection was conducted throughout visually accessible portions of the facility. The visual inspection was conducted to assess sources or pathways of factors potentially deleterious to IAQ. It was reported that the roof was leaking but it is in the process of being replaced. Water stained ceiling tiles were observed throughout the facility. Visible fungal growth was observed on the flexible thermal foam pipe insulation in the 126th Supply Room (Approximately 50LF). Identify and repair the source of the water infiltration. Fungal growth should be properly remediated. Replace any water stained ceiling tiles.
- The HVAC supply and return vents located in some of the offices/classrooms were observed to be dirty some with possible fungal growth present. These should be cleaned. Do not permit dirt, debris, microbial growth, etc. to accumulate in any portion of the HVAC system.

Suspect Asbestos Containing Building Materials

Section 6.0 Suspect Asbestos Containing Building Materials

Based on the age of the building (e.g., constructed in 1960) asbestos-containing materials (ACM) could be present in the facility. The following suspect asbestos-containing material was noted:

- o Material on pipe insulation in the boiler room
- O Pipe fittings (approximately 6) in the 2nd floor locker room
- o 12" x 12" vinyl floor tile throughout the building.
- O Vibration isolation cloths associated with HVAC system (Approximately 4).

These suspect materials were observed to be intact and in good condition. Inaccessible areas such as behind walls or inside crawlspaces were not inspected. No bulk samples were collected.

Section 7.0 Limitations

Section 7.0 Limitations

This report summarizes our evaluation of the conditions observed at the above referenced location. Our findings are based upon our observations and sampling results obtained at the facility at the time of our visit. The report, results, and subsequent recommendations reported herein are also limited to the information available at the time it was prepared and investigated. Conditions may have been in effect prior to the sampling events that have changed over time and which cannot be predicted within the scope of this limited investigation. Any conditions discovered which deviate from the data contained in this report should be presented to us for our evaluation.

This report is intended for the exclusive use of the client. This report and the findings herein shall not, in whole or in part, be relied upon by any other parties, disseminated or conveyed to any other party without prior written consent of the National Guard Bureau, and ALS Environmental. The findings are relative to the dates of our site visits and should not be relied upon for substantially later dates.

Appendix A Laboratory Analysis Report

AMA Analytical Services, Inc.

A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS

AIMA LAP, LLC

| Price I of 7 | | | Marie Com I and | amount of Afomin Abanandian Amoleicia Con I and | Surramo majoramo | | |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------|----------------|-----------------------|-------------------------------------------------|------------------|----------------------------------------------------------------------|--------------|
| Significant States | who today | TO TO TO TO TO | un de Carrier de mire | | | Non | A Stain Slow |
| 10/26/2011 | 10/25/2011 Report Date: 10/26/2011 | 10/25/2011 | Date Analyzett | NGB-HINE | P.O. Number: | | |
| | Non-Res | | Person Submiffing: | RC-Col. SBI Dunçan | Job Number: | Havre de Graco, Maryland 21078 | |
| | | 10/19/2011 | Date Submitted: | Mow Castle, DE | Job Location: | 301-IF Old Bay Lane, Atta: ARNG-COG-P. State Military Reservation | Address; |
| | | 511594 | Chain Of Custody: | RC-Col. SBI Dancan | Job Name: | National Guard Bureau | Clichts |
| Towns and the state of the stat | | | | | | | |

| | | | Summing | Summary of Atomic Absorption Analysis for Lead | nie Adsori | omo | Analysı | s ior Lead | | | rage 1 of | - 4 |
|----------------------|------------------------|---------------|------------------------|------------------------------------------------|----------------------------------|------|--------------------|------------|--------------|--------|-----------|-----|
| AMA Sample Mumber | Clept Sample Number | Aualysis Type | ps Sampde Type Alr Vol | amie | Area Wiped (fr ³) | Repo | Reporting Limit | Total ug | Flual Result | # # # | Comments | 8 |
| 12006902 | 1110755-1 | Flame | Air | \$30 | N/A | 5.7 | "w/din | \$ | <5.7 | ug/m² | | 1 |
| 12006903 | 1110755-2 | Flame | Air | \$29 | NA | 5.7 | ug/m³ | ♡ | 5.7 | un/an | | |
| 1200690# | 1110755-3 | Flame | Air Blank | ୍ବପ | N/A | ers: | ug/m ² | | | 98 | | |
| 120069005 | 1110755-4 | Flame | Wipe | *** | 0.108 | 110 | ug/A2 | 7 | -84 | ug/ft* | | |
| | | | | | | | | | | | | |

| Add Sauple Number | Chent Sample Number | Analysis Type Sample Type | Sample Type | Air Volume (L) | Area Wiped (fr) | nen L | Reporting Limit | Total ug | Final Result | Ĭ | Camments |
|----------------------|------------------------|---------------------------|-------------|---------------------------------------|--------------------|----------|---------------------|------------|--------------|--------------------|----------|
| 12006902 | 1110755-1 | Flame | Air | \$30 | N/A | 5.7 | ,wydin | À | 55.7 | ,ui/Sn | |
| 2006903 | 1116755-2 | Flame | Ą | \$29 | N/A | 5.7 | ug/m² | ٧ | 6.7 | nft/m ₅ | |
| 1200690# | 1110755-3 | Flame | Air Blank | ූත | N/A | ers: | ug/m ³ | | ₽ | 50 | |
| 2006905 | 1110755-4 | Flamo | Wipe | · · · · · · · · · · · · · · · · · · · | 0.108 | 110 | 11G/fl2 | 7 | VI.10 | ug/ft² | |
| 12006906 | 1110755-5 | Flame | Wipe | **** | 0.108 | 110 | 4E/M2 | <12 <12 | <110 | ug/ft² | |
| 2006907 | 3110755-6 | Flance | Wipe | 安安等 | 0.108 | 110 | ug/ft² | <12 | <u>\$115</u> | ug/ff² | |
| 12006908 | 1110755-7 | Flance | Wipe | *** | 0.108 | 110 | 11g/ff ² | <12 | <110 | ug/H2 | |
| 12006909 | 1110755-8 | Flame | Wipe | *** | 0.108 | 130 | ug/H | <12 | 91 V | ng/H³ | |
| 2006910 | 1110755-9 | Flame | Wipe | *** | 0,108 | 011 | "Wan | 840 | 7800 | ug/ft² | |
| 12006911 | 1110755-10 | Plante | Wipe | 亲孟孝未 | 0.108 | 110 | ug/ff? | <u></u> | 120 | ug/ft* | |
| 12006912 | 1110755-11 | Hune | Wine | *** | 0,108 | 110 | ug/ill? | 76 | 710 | ug/fl² | |
| 2006913 | 1110755-12 | Hame | Wipe | * 香香香 | 0.108 | 110 | ug/its | | 290 | ug/ft² | |
| 12006914 | 1110755-13 | Flame | Wite | 秦 秦 秦 | 0.108 | 110 | ug/ft² | <12 | 410 | ug/ft² | |
| 12006915 | 1110755-14 | Flame | Wipe | *** | 6,108 | 110 | ng/ff² | <12 | o[]0 | ug/fit | |
| 2006916 | 1110755-15 | Fleme | Wipe Blank | 務極力計 | NA | 2 | ğn | | <12 | an Sin | |

ocalities, and collection protects are based upon the information provided by the persons submitting them and haptered by personal affilies calculated and many knowledge and inditity for the accuracy and completeness of this islocation. Besident sample material will be discarded in accordance with the appropriate requested by the client. NVLAP secretarists only to private high interescept of bulk samples and treasment by NY EEAP, AHIA, NVLAP, NIST, or any agency of the Federal Coverament. All Analytical Services, Inc. This report spirits only to the samples, forestigated and is not necessarity indicative of the quality or condition of spiperenty identical or similar products. As a mutual gratection to eliens, the public, and these Latherstories, this report is submitted and accepted for the exchasive use of the elecut to velous it is addressed and upon the condition that it is not to be used, in winde us in part, in any advertising or publicity matter without prior written authorization from us. Sample types, FOIA Requested Record #J-15-0085 (DE)

AR AIRLY (III 001470), NVLAP (101143-0), and NV ELAP (#10920) Accredited Laboratory

4475 Forbes Olvd. Laubam, MD, 20766 (301) 659-2640 ' Tell Free (800) 346-9961 · Fra (201) 459-2643.

BEST AVAILABLE COPY

Page 2 of 2

AMA Analytical Services, Inc.



A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS



| | | | 10/25/2011 Report Date: 10/26/2011 | |
|-----------------------|-------------------------------------------------------------------|--------------------------------|------------------------------------|------------|
| 511594 | 1192/61/91 | Non-Re | 10/25/2011 Repo | |
| Chain Of Custody: | Date Submitted: | Person Submitting: | Date Analyzed: | |
| RC-Cal. SBI. Dancan | New Castle, DB | RC-Col. SBI Dinican | NGB-HNE | |
| Job Name: | Jab Location: | Jab Numbert | P.O. Numbers | |
| National Quard Bureau | 301-IH Old Bay Lane, Atta: ARNG-CJG-P, State Military Reservation | Havre de Grace, Maryland 21078 | | hon-Res |
| Clients | Address: | | | Attention: |

mgfKg = parts per million (open) on a dry weight basis mg/L = parts per million (open)

ug/L = parts per billion (ppb)

ug = micrograms

Summary of Atomic Absorption Analysis for Lead

Technical Manager:

iccation, and culection protocols are based upon the information provided by the presents sufmitting then and, unless collected by personnel of these Laboratories, we expressly dischain any knowledge and liability for the accuracy and completeness of this information. Residual sample material will be discorded in accordance with the appropriate regulatory guidelines, unless otherwise requested by the elient. NVLAP accreditation applies only to polarized light inferescopy of AHERA air samples. This report must not be used to claim, and does not imply product certification, approved, or endorsement by NYLAP, NVLAP, NST, or any agency of the Bederal Government. All This esport applies only to the samples, investigated and is not necessarily indicative of the quality or condition of apparently identical nor samples, and electronical and make Laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the confilling that if is not to be used, in whole or in lart, in any advertising or publicity matter without prior written authorization from us. Sample types, rights reserved. AMA Abalytical Serrices, Inc.

An AIIIA (#19047/01, NYLAP /10/143-01, and NY ELAP (#16920) Accredited Laboratory

4475 Feather Blrcf. - Lanthum, MD, 20706 - (201) 459-2640 - Toff Tree (860) 346-0961 - Fax (301) 459-2643

%Pb = percent lead on a dry weight basis

NA = Not Applicable

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

Final results for air and wine samples are based on client

supplied information nor verified by this laboratory.

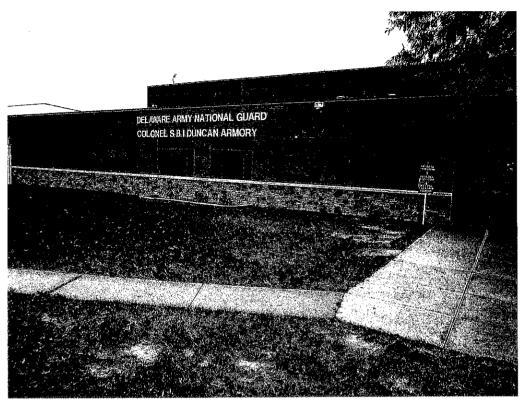
change unless signed by the Technical Director or Deputy. All results are to be considered preliminary and subject to

| 120000 (12000) 2 10 (1200) 12000 1 | Number For Bapares) GT L COA. | 1 Dinger | | A.D. P.O. R. Materior Mart. Material Mart. | The state of the s | REFORTTO: | M Inches Comment of the Comment of t | | Of the Islant Chip. | Oris Sousseille (CTV) | 10) 10) 10) | e (Media) | PengalAratysiy Callection Apparatus for Space Propolitic Samples; Pulacefor Kishiy | - AFFY AShifted Vicentia Base (QT) | | . 展 | E E CLANORATORY STAFFORMY | Butefinite Configti Ive | | Additional and the second seco | Dale/Tinky Contacts By: | and the second s | | Daterfring Canting fly: | | Non-F | Transition in the second secon | Sign | Thire: Initials: |
|-------------------------------------------|----------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|---------------------------------------|--------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|----------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|------------------------------------------------------------------------------------------|--------------------------------------------------------------------|-------------------------------------------------------------------------------|---------------------------------------|---------------------------------------------------|---------------------------------------|------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|-------------------------|-----------------------------------------|--------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|-----------------------------------------------------|
| Rope Lot 2 murrounding | NUMBERS CITAIN OF CUSTODY | Submitted Information: | 2. Tob Encollon New John Co. O. O. O. | Beservation | Fax R. (410) 242-0254. | NORMAN BURNESS OF THE SECOND STATES OF THE SECOND S | O hintroffalo O Day C Resents Receptive Dis Neon O Next Day C Discrepancy Mill Be O Septy Day C Discrepancy Mill Be O Septy Discrepancy Di | The last | Space Physiology (APV) | Li Residine axis | G. Grade, presedded Vacion of Died. G. Grade, presedded Vacion of Died. G. Chang, A. | Sa During September 2 | U Danii, koresidasi (QTV) U ELATO MARIORA INKO (QTV) U Bara moo (QTV) | M. All samples received in good compiling galess rules with night- | APTEN L'ORIGE Samples (C) | VOLUMB WITH THE WAY WE WE WANTED | HEREN AND R C R N N N N N N N N N N N N N N N N N | \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ | * | X | * *** | 4 × | | | * * * * * * * * * * * * * * * * * * * * | \> | 10 / 19 / 11 @ 415 yill UDS 11/ PI / 01 | J. S. | 11 395 63 4087 70°11 |
| M. A. | ATHA (#19070) NVLAP (#10) 143-18 NY ELAP (10920) 4475 Barbes Divit, Lankinn, NIX 20706 (30) 458-2(60) (800) 346-196 (1918) | Mailippffilling Information: f. Client Name: National Burgan | Address I: 301.H Out Bay Lane | | 5, Physic ft. (410) 942-0273 | APTER HODES from the pare technical of | Ulimirgiduce Prie Due: U 24 Hours Time Due: Commonis: | Asbestes Analysis | 14 Mary Please Inflicing Type: D MOSTIN THIN THE STATE OF THE STATE O | Indicate Pilier | Choise Paris | P. B. S. S. Chill - Viewal Bennance, (QTV) | 10 TY1 (003) | Characterini Elan Bada (UTV) | , states (1) A Vaccinical line (1) (1) (4) (4) (4) (4) (4) (4) (4) (4) (4) (4 | SAMPLE INTORNATION SAMPLE INTORNATION | - | 70 | -532 | 70000 | | 1-03To | 8-29-0111 | | 21-22-01 | 161-50-101-101-101-101-101-101-101-101-101 | LABORATORY L. Date/Time RCVD: | | ICUSTODY) A Residua Reported Tor. I. Cooming II. A |

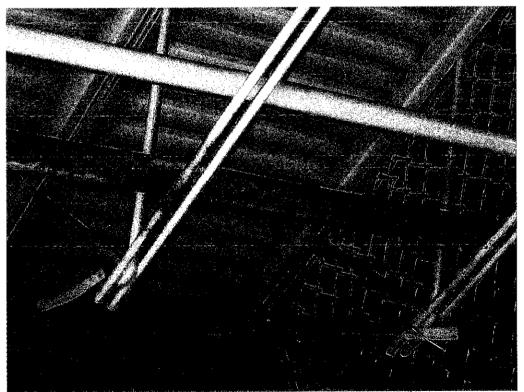
| ition. Asitu is i Z | Oumber For Inquires: | Set Duncan | 17 18 18 18 18 18 18 18 | Reproject to the project of the proj | Witches Mandshift O Pa Paint Calp. O Pa Paint Calp. O Part Paint Calp. O Paint Paint Calp. O Paint Paint Calp. O Paint Paint Calp. O Paint Paint Calp. Callection Modified Calp. O Statistics Swalt. O Statistics Swa | Sign. Sign. |
|-------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|
| Page 2 of 2 mapierouses | VICTORIES CHAIN OF CUSTODY | Submittal Infurgiation: I. Job Physic K — Col. S.P.I. DAINCO.D. 2. Job Lection: | secvitor (410) or 2-0264 kroatig Information (Resits | Chamediate CA Day Egillegis Toopus CA Marie CA Day William CA Marie CA Marie CA Marie CA Marie CA Marie CA Accompany Marie CA A | 1 1 1 1 1 1 1 1 1 1 | 7 |
| | HMH Brichticol Scivices, Inc. Varieties for Scivices, Inc. Varieties on Results www.ninfele.chr. Altanitation NYLAP (1161) (1244) NY, ELAIT (1972) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1775) (1 | 3 | Address 2:Attr. NGD-AVA-BL. State-Milling. Engeryalion. Address 3:Elavar.de. Grance. Maryland. 2:1078. Flame Rr. (410). 542-50773 | APT FA (102)(K togock to pre-absorbed). Limitediale. Fole Duc: Contradiale. Trace Pine: | | LABORAFORY STREEP ONLY: SCHEPTODY: A Results Repured Tree CUSTODY: C. Comments |

Appendix B. Photographs

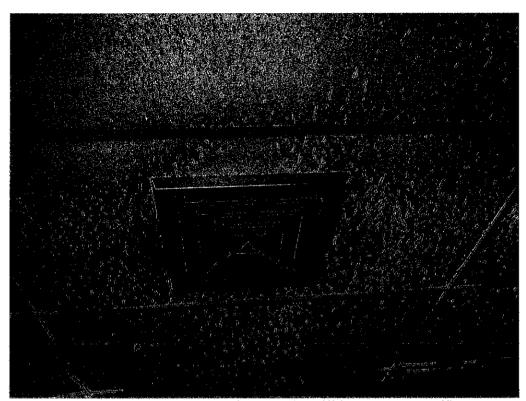
Appendix B Photographs



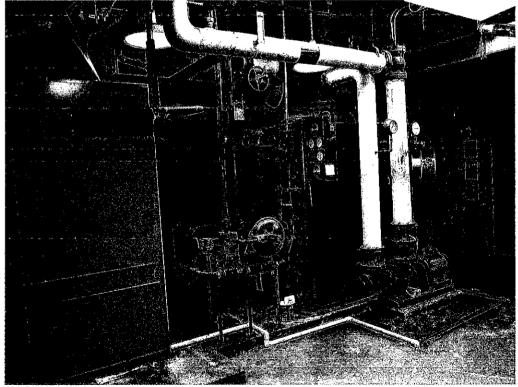
RC Col. SBI Duncan – Exterior



RC Col. SBI Duncan-Fungal growth on pipe insulation in 126th supply office



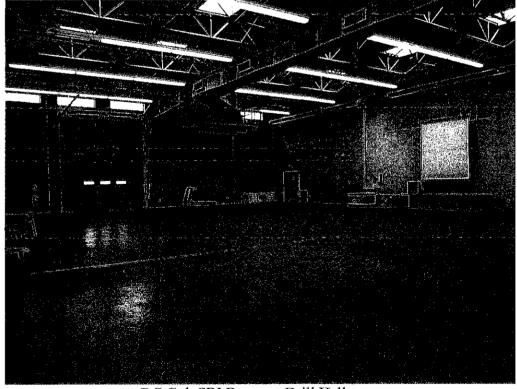
RC Col. SBI Duncan- Dirty supply grill in MED DET office



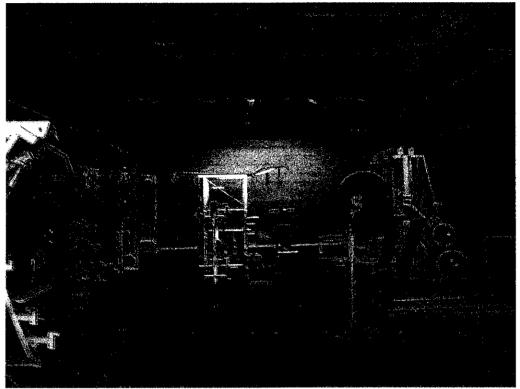
RC Col. SBI Duncan- Boiler



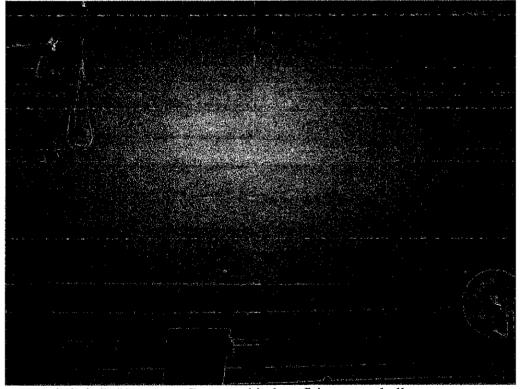
RC Col. SBI Duncan- Suspect asbestos containing joint material on boiler



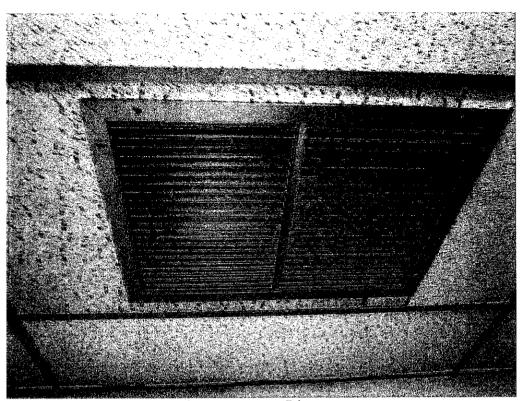
RC Col. SBI Duncan- Drill Hall



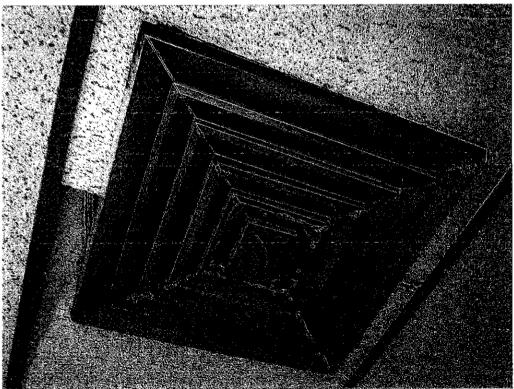
RC Col. SBI Duncan- Converted indoor firing range



RC Col. SBI Duncan- Converted indoor firing range bullet trap

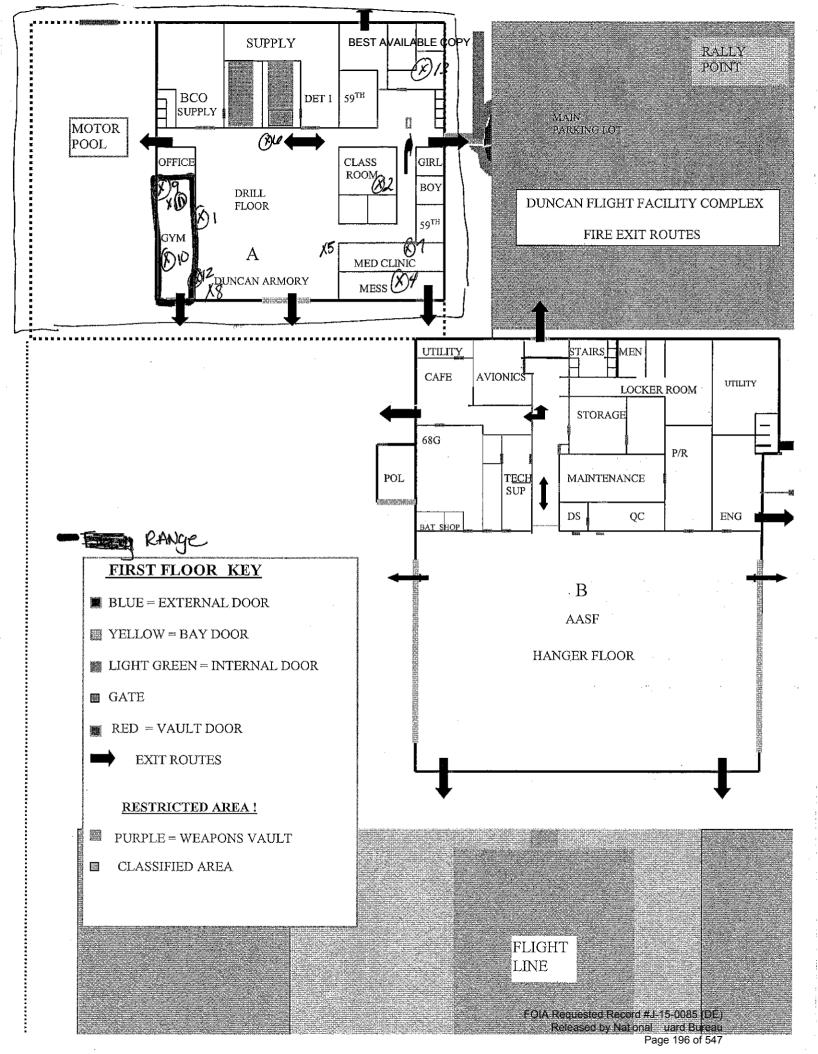


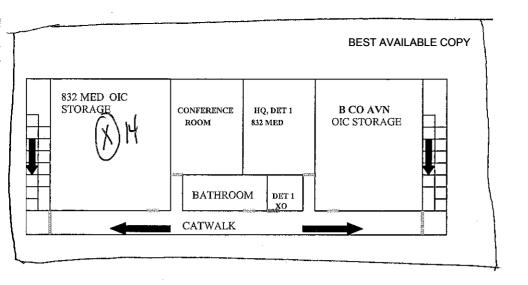
RC Col. SBI Duncan- Dirty return



RC Col. SBI Duncan-Fungal growth on supply grill in 2nd floor classroom

Appendix C Floor Plan



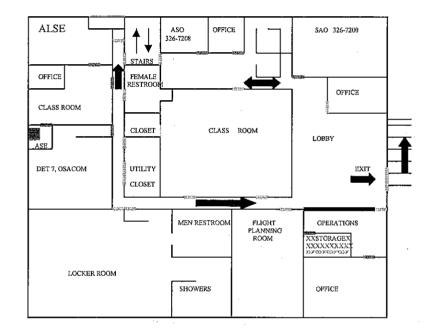


2ND FLOOR DUNCAN FLIGHT FACILITY COMPLEX

FIRE EXIT ROUTE

RESTRICTED AREA

EXIT ROUTE



Appendix D References

Appendix D. References

- 1. Title 29 Code of Federal Regulations (CFR), Part 1910.1025, Occupational Safety and Health Administration, Occupational Exposure to Lead
- 2. American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Values and Biological Exposure Indices, 2011 Edition
- 3. Industrial Ventilation: A Manual of Recommended Practice for Design, 27th Edition
- 4. American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE), Ventilation for Acceptable Indoor Air Quality, 62.1-2010
- 5. RP-1-2004, Industrial Lighting, Illuminating Engineering Society of North America/ANSI
- 6. RP-7-2001, Industrial Lighting, Illuminating Engineering Society of North America/ANSI
- 7. National Emission Standard Hazardous Air Pollutants (NESHAP) The standards for asbestos are contained in 40 CFR 61.140 through 61.157.
- 8. Environmental Protection Agency (EPA) standards [40 Code of Federal Regulations (CFR) 745.227(h)(3)]
- 9. Derivation of Wipe Surface Screening Levels for Environmental Chemicals, the US Army Center for Health Promotion and Preventive Medicine (USACHPPM)
- 10. The US Army Technical Guide 277 Army Facilities Management Information Document on Mold Remediation
- 11. NG PAM 420-15 Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges, 3 NOV 06.
- 12. American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE), Thermal Environmental Conditions for Human Occupancy, 55-2010.



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

Industrial Hygiene Survey Report

National Guard Facility Colonel S.B.I Duncan Readiness Center

Prepared For: National Guard Bureau Region North

301-IH Old Bay Lane

Havre de Grace, MD 21078

Survey Location: Colonel S.B.I Duncan Readiness Center

41 Corporate Circle New Castle, DE 19720

Prepared By: Compliance Management International, Inc.

1215 Manor Drive

Suite 205

Mechanicsburg, PA 17055

Survey Date: November 14, 2012

Report Date: January 22, 2013



Senior Industrial Hygienist

BEST AVAILABLE COPY

Table of Contents

| Section 1.0 Executive Summary | 3 |
|------------------------------------------------------------|---|
| Section 2.0 Operation Description & Observations | 4 |
| Section 3.0 Lead Testing | 5 |
| Section 4.0 Lighting | 7 |
| Section 5.0 Indoor Air Quality | 8 |
| Section 6.0 Suspect Asbestos Containing Building Materials | 0 |
| Section 7.0 Equipment | 1 |
| Section 8.0 Limitations | 2 |
| Appendix A. Laboratory Analysis Report | 3 |
| Appendix B. Photographs | 4 |
| Appendix C. Floor Plan | 5 |
| Appendix D. References | 6 |

Section 1.0 Executive Summary

An industrial hygiene survey was conducted on November 14, 2012, at the Colonel S.B.I Duncan Readiness Center located at 41 Corporate Circle, New Castle, DE 19720. The survey was performed by Mr. Non-Responsive.

- 1. Lead surface and air samples were collected. Surface levels of lead exceeded the recommended guideline of 200 micrograms per square foot (ug/ft²) in four locations. Cleaning procedures should be improved and remedial action should be taken to maintain lead levels below 200 ug/ft². See Section 3.0 for sampling results.
- 2. Lighting levels did not meet the American National Standard Institute/Illuminating Engineering Society of North America (ANSI/IESNA) recommended guideline in two areas. See Section 4.0 for detailed sampling results.
- 3. Indoor air quality (IAQ) parameters of temperature, relative humidity, carbon monoxide and carbon dioxide (ventilation) were evaluated during the assessment. Relative humidity levels were below The US Army Technical Guide 277 Army Facilities Management Information Document on Mold Remediation recommendations. See Section 5.0 for detailed sampling results

Section 2.0 Operation Description & Observations

The Colonel S.B.I Duncan Readiness Center is mainly an administrative facility with a drill hall, offices, classrooms and storage areas. There were approximately 5 full-time employees stationed at this facility at the time of this survey.

The building was initially constructed in 1960's. There have been some renovations since its construction. The building is two stories with a brick exterior. The interior walls are primarily concrete block. The floors are concrete with vinyl floor tile.

There is a central Heating, Ventilation, and Air-Conditioning (HVAC) system present in the facility. HVAC units service the building via a boiler fired heat pump. It was reported that the HVAC unit in the Drill Hall has not worked in decades.

The firing range has been converted into a weight room. The bullet trap and ballasts remain. The area appears very clean and well kept.

There is no child-care facility in the building.

Overall housekeeping practices were good. Areas were clean and well kept.

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

Section 3.0 Lead Testing

Due to the age of the building there is the potential for lead based paint to be present. Various surfaces within the facility were screened for lead using surface/wipe samples. Surface/wipe samples were collected in accordance with the American Society for Testing and Materials (ASTM) E 1792 protocols. Air samples were collected using 0.8 um mixed cellulose ester (MCE) filter cassettes attached to low volume air sampling pumps. Blank samples were submitted to the laboratory for quality control purposes. Samples were sent to AMA Analytical Services, Inc., in Lanham, Maryland, for lead analysis using Environmental Protection Agency (EPA) Method 600/R-93/200 (M)-7420. A copy of the laboratory analysis report can be found in Appendix A.

Lead Testing Results Summary

| Sample # | Location | Air ug/m³ | Surface ug/ft ² |
|----------|----------------------------------------------------------|--------------|-------------------------------|
| 1 | Drill Hall | <8.1 | * |
| 2 | Converted Firing Range | <8.2 | * |
| 3 | Drill Hall – Center of Floor | * | <110 |
| 4 | Drill Hall – Top of Flammable Cabinet | * | <110 |
| 5 | Drill Hall – Top of Ice Machine | * | <110 |
| 6 | Kitchen – Top of Refrigerator | * | <110 |
| 7 | Kitchen – Ceiling Supply Diffuser | * | <110 |
| 8 | Converted Firing Range – Bullet Trap | * | 12,000 |
| 9 | Converted Firing Range – Floor, 3 Feet from Bullet Trap | * | 160 |
| 10 | Converted Firing Range – Top of Ductwork | * | 220 |
| 11 | Converted Firing Range – Top of Wall Locker | * | 220 |
| 12 | Converted Firing Range – Top of Gym Equipment | * | 140 |
| 13 | Drill Hall – Floor by Converted Firing Range Entrance | * | <110 |
| 14 | Medical Office – Top of Desk | * | <110 |
| 15 | 126 th Readiness Office – Top of Desk | * | <110 |
| 16 | Motor Pool Office – Top of TV | * | <110 |
| 17 | Locker Room – Top of Wall Locker | * | 230 |
| 18 | Safety Office – Top of File Cabinet | * | <110 |
| 19 | Blank – Wipe | <12 | * |
| 20 | Blank – Air | * | <3 |

Table Notes:

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

BEST AVAILABLE COPY

Source: NG PAM 420-15 Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges

The National Guard Bureau currently utilizes 200 ug/ft² as a benchmark for identifying lead-contaminated surfaces. This guideline is referenced in NG PAM 420-15 "Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges" as a satisfactory surface contamination level unless the facility is utilized as a childcare facility. In such cases, U.S. Department of Housing and Urban Development (HUD) limit of 40 ug/ft² on floors and 250 ug/ft² on windowsills should be observed. There is no child care provided at this facility.

Lead surface and air samples were collected. The following is a summary of the findings and recommendations:

- Surface levels of lead were above the recommended guideline of 200 ug/ft² in the following locations:
 - o Converted Indoor Firing Range:
 - Bullet Trap
 - Top of Ductwork
 - Top of Wall Locker
 - o Locker Room Top of Wall Locker

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

- Air samples for lead were below the Occupational Safety and Health Administration (OSHA) Permissible Exposure Limit of 50 ug/m³.
- Paint was observed to be in good condition throughout the facility.

Section 4.0 Lighting

A lighting assessment was conducted throughout the facility. Measurements were collected using a Cooke Cal-Light 400L Precision Light Meter (Serial No. K6988364). The light meter was last calibrated in April 2012. Measurements collected were compared to ANSI/IESNA RP-7-01 Lighting Industrial Facilities and RP-1-04 Office Lighting.

Light Survey Assessment Summary

| Location | Foot Candles (FC) | Recommended Lighting (FC) | Sufficient Lighting |
|-----------------------------------------|-------------------|------------------------------|------------------------|
| 126 th Administration Office | 61.3 | 30-50 | Yes |
| Drill Hall | 50.8 | 10 | Yes |
| Medical Office | 101 | 30-50 | Yes |
| Kitchen | 42.8 | 50 | No |
| Weight Room | 57 | 30 | Yes |
| Motor Pool Office | 24.3 | 30-50 | No |
| Supply Room | 60.1 | 30 | Yes |
| Locker Room | 15.3 | 7 | Yes |
| Safety Office | 52.1 | 30-50 | Yes |

Note: FC = Foot Candles

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

The following is a summary of the findings and recommendations:

The lighting level measured did not meet the minimum recommended guideline in the Kitchen & Motor Pool Office. Lighting should be improved in these areas.

Section 5.0 Indoor Air Quality

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

The American Society of Heating, Refrigerating, and Air Conditioning Engineers, Inc. (ASHRAE) have developed indoor air quality guidelines for mechanically ventilated office buildings and commercial settings (ASHRAE standard 62.1-2010). ASHRAE specifies temperature and relative humidity ranges for human comfort (ASHRAE 55-2010). The US Army Technical Guide 277 Army Facilities Management Information Document on Mold Remediation, recommends maintaining a relative humidity range between 30 to 60%.

The following table summarizes the measurements collected.

IAQ Assessment Summary

| Location | Temperature (°F) | Relative Humidity (%) | Carbon Dioxide (ppm) | Carbon Monoxide (ppm) |
|------------------------------------|------------------|-----------------------------|----------------------------|-----------------------------|
| Drill Hall | 66.2 | 23.8 | 433 | 0.7 |
| Converted Firing Range/Weight Room | 64.9 | 28.4 | 426 | 0.3 |
| Kitchen | 64.2 | 26.5 | 419 | 0.1 |
| Motor Pool Office | 65.7 | 27.2 | 406 | 0 |
| Medical Office | 66.9 | 28.3 | 490 | 0 |
| 126 th Readiness Office | 67.8 | 28.3 | 504 | 0 |
| Mechanical Room | 66.6 | 21.3 | 1,022 | 0 |
| Locker Room | 67.5 | 27.2 | 453 | 0 |
| Safety Office | 68.9 | 27.1 | 531 | 0 |
| Outdoors | 57.6 | 70.8 | 377 | 0.4 |
| Criteria | 68.0-79.0 | 30-60 | <1,077 | <9.0 |

Table Notes:

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

Source: The American Society of Heating, Refrigerating, and Air Conditioning Engineers, Inc. (ASHRAE) 55-2010, 62.1-2010 & The US Army Technical Guide 277 Army Facilities Management Information Document on Mold Remediation.

BEST AVAILABLE COPY

Summary of findings and recommendations:

- Relative humidity was below the recommended criteria of 30-60% in all areas. Low relative humidity can cause the drying of the mucous tissues and an increased susceptibility to respiratory infection. Maintain relative humidity levels between 30-60%.
- Carbon dioxide levels did not exceed the recommended ceiling of 1,077 parts per million (ppm). This indicates that outdoor air ventilation is adequate in all areas.
- Carbon monoxide levels were less than the recommended ceiling of 9 ppm.
- Temperature should be maintained at 68-79 degrees F for comfort in occupied areas. Many areas were not occupied at the time of this survey.
- A visual inspection was conducted throughout visually accessible portions of the facility. The visual inspection was conducted to assess sources or pathways of factors potentially deleterious to IAQ. It was reported that there is an odor present (e.g., "natural gas") when the HVAC system first starts. This should be further investigated.

Section 6.0 Suspect Asbestos Containing Building Materials

Based on the age of the building (e.g., constructed in 1960) asbestos-containing materials (ACM) could be present in the facility. However, no suspect ACM was observed during this survey. Inaccessible areas such as behind walls or inside crawlspaces were not inspected.

Section 7.0 Equipment

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

| Equipment | Serial # | Calibration Date | Value |
|---------------------------|-------------|-------------------------|----------|
| TSI QTrak IAQ Meter | 02041015 | 8/2012 | NA |
| Cal Light 400 Light Meter | K98364 | 4/2012 | NA |
| TSI 4199 Calibrator | 41460827002 | 8/2012 | NA |
| SKC Air Sampling Pump | 647631 | 11/12/2012 | 2.44 LPM |
| SKC Air Sampling Pump | 647610 | 11/12/2012 | 2.47 LPM |

Section 8.0 Limitations

This report summarizes our evaluation of the conditions observed at the above referenced location. Our findings are based upon our observations and sampling results obtained at the facility at the time of our visit. The report, results, and subsequent recommendations reported herein are also limited to the information available at the time it was prepared and investigated. Conditions may have been in effect prior to the sampling events that have changed over time and which cannot be predicted within the scope of this limited investigation. Any conditions discovered which deviate from the data contained in this report should be presented to us for our evaluation.

This report is intended for the exclusive use of the client. This report and the findings herein shall not, in whole or in part, be relied upon by any other parties, disseminated or conveyed to any other party without prior written consent of the National Guard Bureau, and Compliance Management International, Inc. The findings are relative to the dates of our site visits and should not be relied upon for substantially later dates.

Appendix A. Laboratory Analysis Report

AMA Analytical Services, Inc.

BEST AVAILABLE COPY



CERTIFICATE OF ANALYSIS



LAB #100470

Client:

National Guard Bureau

Job Name:

Delaware National Guard

Chain Of Custody:

514519

Address:

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

Job Location:

SBI Duncan RC

Date Submitted:

11/19/2012

State Military Reservation

Job Number:

Not Provided

Person Submitting:

Non-Responsiv

......

Havre de Grace, Maryland 21078

P.O. Number:

Not i lovided

W912K6-09-A-0003

Date Analyzed:

11/27/2012

11/27/2012

Report Date:

Attention:

Non-Responsive

Summary of Atomic Absorption Analysis for Lead

Page 1 of 2

| AMA Sample Number | Client Sample Number | Analysis Type | Sample Type | Air Volume (L) | Area Wiped (ft²) | | porting Limit | Total ug | Final Res | ult | Comments |
|----------------------|-------------------------|---------------|-------------|-------------------|---------------------|-----|------------------|----------|-----------|--------|----------|
| 13016041 | 1 | Flame | Air | 369 | N/A | 8.1 | ug/m³ | <3 | <8.1 | ug/m³ | |
| 13016042 | 2 | Flame | Air | 366 | N/A | 8.2 | ug/m³ | <3 | <8.2 | ug/m³ | |
| 13016043 | 3 | Flame | Wipe | **** | 0.108 | 110 | ug/ft² | <12 | <110 | ug/ft² | |
| 13016044 | 4 | Flame | Wipe | **** | 0.108 | 110 | ug/ft² | <12 | <110 | ug/ft² | |
| 13016045 | 5 | Flame | Wipe | **** | 0.108 | 110 | ug/ft² | <12 | <110 | ug/ft² | |
| 13016046 | 6 | Flame | Wipe | **** | 0.108 | 110 | ug/fl² | <12 | <110 | ug/ft² | |
| 13016047 | 7 | Flame | Wipe | **** | 0.108 | 110 | ug/ft² | <12 | <110 | ug/ft² | |
| 13016048 | 8 | Flame | Wipe | **** | 0.108 | 110 | ug/ft² | 1300 | 12000 | ug/ft² | |
| 13016049 | 9 | Flame | Wipe | **** | 0.108 | 110 | ug/ft² | 17 | 160 | ug/ft² | |
| 13016050 | 10 | Flame | Wipe | **** | 0.108 | 110 | ug/ft² | 24 | 220 | ug/ft² | |
| 13016051 | 11 | Flame | Wipe | **** | 0.108 | 110 | ug/ft² | 24 | 220 | ug/fl² | |
| 13016052 | 12 | Flame | Wipe | **** | 0.108 | 110 | ug/ft² | 15 | 140 | ug/fl² | |
| 13016053 | 13 | Flame | Wipe | **** | 0.108 | 110 | ug/ft² | <12 | <110 | ug/ft² | |
| 13016054 | 14 | Flame | Wipe | **** | 0.108 | 110 | ug/ft² | <12 | <110 | ug/fl² | |
| 13016055 | 15 | Flame | Wipe | **** | 0.108 | 110 | ug/ft² | <12 | <110 | ug/ft² | |
| 13016056 | 16 | Flame | Wipe | **** | 0.108 | 110 | ug/ft² | <12 | <110 | ug/ft² | |
| 13016057 | 17 | Flame | Wipe | **** | 0.108 | 110 | ug/fl² | 25 | 230 | ug/ft² | |
| 13016058 | 18 | Flame | Wipe | **** | 0.108 | 110 | ug/ft² | <12 | <110 | ug/ft² | |
| 13016059 | 19 | Flame | Wipe Blank | *** | N/A | 12 | ug | | <12 | ug | |

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

AMA Analytical Services, Inc.

BEST AVAILABLE COPY

A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS



LAS#100470

Client:

National Guard Bureau

Job Name:

Delaware National Guard

Chain Of Custody:

514519

Address:

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

Job Location:

SBI Duncan RC

Date Submitted:

11/19/2012

State Military Reservation

Job Number:

Not Provided

ug/L = parts per billion (ppb)

Person Submitting:

Non-Responsiv

Havre de Grace, Maryland 21078

P.O. Number:

W912K6-09-A-0003

Date Analyzed:

11/27/2012

Technical Manager:

Report Date: 11/27/2012

Attention:

Non-Responsive

Summary of Atomic Absorption Analysis for Lead

Page 2 of 2

| AMA Sample Number | Client Sample Number | Analysis Type | Sample Type | Air Volume (L) | Area Wiped (ft²) | 1772035 | porting Limit | Total ug | Final Re | sult | Comments |
|----------------------|-------------------------|---------------------|-------------------|-------------------|---------------------|---------|------------------|----------------|----------------|------------------|-----------------|
| 13016060 | 20 | Flame | Air Blank | 0 | N/A | 3 | ug/m³ | | <3 | ug | |
| Analysis Method fo | r Flame: Air, Wipes, | Paints, and Soil/S | olids: EPA 600/F | R-93/200(M)-7000 | B; Water: SM-31 | 11B | See QC | Summary for an | alytical resul | ts of quality of | control samples |
| Analysis Method F | or Furnace: Air, Wipe | es, Paints, and So | il/Solids : EPA 6 | 00/R-93/200(M)-7 | 010; Water: SM- | 3113B | 17/25 | ed with these | | | |
| N/A = Not Applicab | le mg/Kg = par | ts per million (ppm |) on a dry weight | basis mg/L = j | parts per million (| opm) | samples | | | | |

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

ug = micrograms

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

should not be considered when interpreting the result.

%Pb = percent lead on a dry weight basis

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
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 Laboratorics, 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.

Released by National Guard Bureau



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

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)

514519

| WEST TO SERVE RESIDEN | Sio ozot Tux | 501) 45. | 2073 | | | | 125 | P 112 | | 21 | 86. | | | | | | (pase 10/2) |
|------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|--------------------|--------------|---------------------|----------|---------|---------|----------|--------|----------|---------|--------|---------|----------|---------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Mailing/Billing Information 1: Client Name: National C | | | | | | 9 | | | ttal In | | | 0 | el a | 201220 | | | ational Geneal |
| 2. Address I: 301-IH O | | | | | | | | | Name | | | O F | CIA | wa | _ | N | ATIONAL CURIO |
| | THE RESIDENCE THE PROPERTY OF THE PARTY OF THE PARTY. | | В | | | | | | Loca | | | | | | | | |
| 3. Address 2: Attn: NGB | | | | | | | - 3 | . Jot | b#: | | | | | | | P.C | # W912K6-09-A-0003 |
| 4. Address 3: <u>Havra de (</u> 5. Phone #: <u>(410) 942-027</u> | arace, Marylan | 0 210/ | (440) | 040 00E 4 | | | - 4 | . Co | ntact I | erson | Ni | | 1- | ₹6 | 20 | n | 1273 |
| 5. Phone #:(410) 942-021 | 3 | _ Fax # | :(410) | 942-UZ04 | | - (D- | | . 50 | bmitte | 1byz | 78. b. | | • • | | | | STICIVO |
| AFTER HOURS (must be pr | ra-achadulad) | | керол | ting Infor | matto | ORM/ | UILES V | VIII DO | e provi | ded a | 15 500 | n as to | echnic | ally f | easib | le): | The state of the s |
| Immediate Date Due: | | × 1 | ☐ Immed | liste | 031 | | шво | onte | | | di. | | | | . 20 1 | - | REPORT TO: |
| ☐ 24 Hours Time Due: | | | O Next D | | Q 5 E | Day + | 110 | chi | n (|] Kes | uits Re | emot V | By No | oon | 101 | No | n-Responsive with Report |
| Comments: | | | L 2 Day | | Date 1 | Due: | 11/2 | 011 | | Mac | de to A | | | | , UI | | ous.arrhy.mil |
| | | | | | | | | _ | - | | A | - | - 7 | | · D · | _ | ລັus.army.mil |
| Asbestos Analysis PCM Air - Please Indicate Filter T | Type: | | | TEM Bulk | n 100 | 1101 | | | | | 19 | | - (| WAL | (海温等 | yah | V 10000000 |
| → NIOSH 7400 | _(QTY) | | | U ELA | State F | A/Chat | neld_ | | - // | (QTY) |): | | | 30 | Ph D | int Ch | ip(QTY) pe (wipe type)(QTY) |
| ☐ Fiberglass | | | | ☐ Resi | dual A | sh | | ((| (YTC | 211) | | | | - 57 | Pb Ai | 11 | (OTY) |
| Q AHERA(Q | | | | TEM Dust | | | 5 | | | | | | | u | Pb So | iVSoli | id (OTV) |
| U NIOSH 7402 | _(QTY) | | | U Qual | I. (pres | (abs) V | acuum | /Dust_ | 05 | | _(QTY |) | | Ü | Pb TC | LP_ | (QTY) |
| U Other (specifyPLM Bulk |) | (QTY) | | Qual Qual | n. (s/aı | ea)Dus | t D648 | 0-99 | -93 | | OTY |)) | | ă | Waste | Water | $\begin{array}{cccccccccccccccccccccccccccccccccccc$ |
| ☐ EPA 600 - Visual Estimate | (Q | TY) | | TEM Water | | | | | | | | 1 | +1-4 | | LULL | macc | (Media)(QTY) |
| ☐ EPA Point Count ☐ NY State Friable 198.1 | (QTY) | | | Qual Qual | l. (pres | /abs) | 100.2 | | (QTY) | (OTT | | | - 1 | Filinga | IAmi | year | 2 |
| Grav. Reduction ELAP 198 | (Q1 r) | OTY | | CIEPA | 100.1 | LIBIA | 100.3_ | (OT | Y) | .(Q1) | 9 | | | | Collec | tion N | pparatus for Spore Traps/Air Samples: |
| Other (specify | _) | (QTY) | | All s | | | | | | n unla | e othe | nulsa s | .atad | o o | Spore | -Trap. | (OTY) D Surface Vacuum Dust (OTY) |
| MISC Vermiculite | | | | (TEM) | Water : | amples | ed in § | _°C) | опщио | unic | ss other | CM12C L | iotea. | 00 | Surfac | o Swa | (QTY) Culturable ID Genus (Media) (OTY) |
| Asbestos Soil PLM_(Qui) Pl | M_(Quan) PLM/TEM | _(Qual) PL | м/тем(Q | | | | | | | | | | | ā | Other (S | pecify. | (QTY) Culturable D Species (Media 1 (QTY) |
| | LIE TOUTEVRIVATO | ON | | | ro s nochows | at | ALV | 919 | | 104 | 2000 | 1 | WAYW | mile - | | | |
| CLIENT ID SAM NUMBER IDE | PLE LOCATION/ INTIFICATION | DATE | VOLUME (LITERS) | WIPE AREA | E I | 13 | E. | 18 | MOLE | 1 24 | 13 | 15 | 1 608 | 1 33 | 13 | 1 8 | CLIENT CONTACT |
| 1 Drill Holl | ATTRICATION | | 369 | I | - | 1 | | ~ | 1 | -5 | - 40 | 19 | 340 | - BH | 1 | 15 | (LABORATORY STAFF ONLY) |
| 2 Converted fire | 0 | | 366 | | | | -110 | × | | - | | _ | | | 3 | | Date/Time; Contact: By: |
| 3 Drill Hall floor | of Ichnite | | 366 | 100 Cm 2 | | | _ | X | | _ | _ | _ | - | | | | Blank sample 19 Fell out of |
| Y Drill Hall flamma | 11 -1 1 | | | 100 | _ | 1 | | × | \vdash | | | | - | | | | tube during shipping tuhen |
| | | - | | - | - | - | _ | X | - | _ | - | | _ | - | - | | HEATENEEL THE While removing samples |
| 5 Drill Hall Top of: | | -61 | - | _ | _ | \vdash | | 158 | - | 11 | | | | + | | | -Date/Time: Contact: By: |
| 6 Kidehen - Topo of Re | | | - | | | | - | X | | | | | | | _ | | from Dag. Sample 19 fell onto |
| 7 Kitcher - Supply | | | | | _ | | | × | | | | | | | | | My Shirt Non-Hesponsive Tutte of the |
| & Converted Arie AA | the state of the s | TVAD | | | _ | - 3 | | X | | | | | | | A | | . 0 |
| 9 Convertal Firms Ra | 4x 1001 | | | | | | | X | | | | | | 14. | | | Date/Time: Contact: By: |
| 1º Convertal Fire RA | At Top of 1 | puct | | | | FE | | X | | | | | | | | | Contact. By. |
| 11 Convertal Fray Ros | to Top of lo | cker | | | | | | X | | | 9 | 2 B | | | 84 | 1 | |
| 12 Convertal Fine Day | · Gum Pou | French | | 1 | | | | X | | | | 1.51 | M | | non | Signal. | Man Doonandika |
| 1. | Date/Time RCV | D: | _/_ | 9/12 | (| a 100 | O Vi | a: Fo | ode | X | Bv | (Print) | | I IXE | spull | SIVC | Non-Responsive |
| LABORATORI 2. | Date/Time Anal | vzed: | 1 | / | | | | | rint): | | | | | | | | 31 |
| | | | | | | CCT A | 1//1 | ADI I | - cali | nv. | | 0 | D-1 | | - , | - | Sign: |
| (CUSTODY) | | 201 | 22 | 12 22 | 755 | HOI A | VAIL | ABL | -60 | 4 | - | | Date: | | _/_ | | /FOIA Requested |

159202

210 REV. 6.08



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

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) 514519 (jase 21/2)

| Client Name: National Guard Bureau Address 1: 301-IH Old Bay Lane | | | | 2 | Job Loca | ie: | 57 | · O 1 | 3 | | R | | | |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------|------------------------------------------|-----------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------|-------------|-----------------------------------------|---------------|------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|
| Address 2: Attack CD AVALCE Chate Mi | Hami Danami | -ti | | • | | | | | | | -2.5 | and the second second | | |
| Address 3: Havra da Grace, Maryland Phone #: (410) 942-0273 | 21078 | ausai. | | — J. | Contact | Donum | N I . | | | 1 | BO | II. WO10VG | 00 A 0000 | |
| Phone #: (410) 942-0273 | Ray # /410) | 042-0254 | | - 7 | Comaci | CISOII. | | | 35 | 40 | 13 | OIOIAK | 12-0273 | 1 |
| Tholic w. 1919/3/14 Mary | Renor | ting Inform | nation (R | J. psulte wil | I he prov | delection | | | | | | , | | |
| AFTER HOURS (must be pre-scheduled) | 1 Acpai | ting mitoti | NORR | ALBUSI | NESS W | MINIS. | JOON BY | rection | uny r | Casion | e). | | | |
| Immediate Date Due: | ☐ Immed | iate | D 2 D | 25.04.61. | | (1) | Daniela | 10. 11 | . 1 | W In | clude | COC/Field Data 9 | REPORT TO: Sheets with Report | |
| 24 Hours Time Due: | O Next D | ay - | 5 Day + Date Due:_ | | | (Byery | Attempt | Will Be | oon | Ob | N | on-Respon | Us.army.mi | ce place. Co |
| omments: | LI 2 Day | | Date Due:_ | | | Made | to Accom | odate) | | UF | ax: | | | |
| bestos Analysis | | - | | | | | | - 43 | (silve hat | O v | | | อนร.army.mi | |
| M Air - Please Indicate Filter Type: | | TEM Bulk | P 198.4/Cha | otfield | | (OTV) | | .49 | Valetaille | Ph Pal | et Chi | >((| OTV. | 8 ₄ |
| ☐ NIOSH 7400(QTY) ☐ Fiberglass(QTY) | | DNYS | State PLM/ | EM | (| OTY) | 4 | | 24 | Pb Dus | st Wip | e (wine type | 1 | (OTV) |
| M Air - Please Indicate Filter Type: | | ☐ Resid | dual Ash | | _(QTY) | 3 5 - | | | A | Pb Air | | (QTY) | -/- | _(Q11) |
| OAHERA (OTY) | | TEM Dust | . (pres/abs) | Vocuum (D | | | YTU | | - 7 | Pb Soi | VSolid | (QTY | QTY) | |
| ☐ NIOSH 7402(QTY) ☐ Other (specify)(Q | TV | Outro | i. (s/area) V | acuum D57 | 755-95 | | (OTY) | | ă | Drinki | ng Wa | ter DPh (OT |) [Y] [] Cu(QTY) [] | M. OTO |
| MRall | | Quan | . (s/area)Di | ıst D6480- | 99 | ((| TY) | | - | Waste | 11 met | UPD (III) | THE MATERIAL | Le COTTO |
| ☐ EPA 600 - Visual Estimate (OTY |) | TEM Water | . (pres/abs). | | OTY | | | 12.4 | | Po Fur | | Media | (QT)(QT | Y) |
| ☐ EPA Point Count(QTY) | | Quar | (hierings) | | (QIY |) | | 6 | unga | I ALLLY | 205 | | | |
| NV State Frighte 198 1 (OTV) | | LELA | P 198.2/EP | 100.2 | | (OTY) | | | 1 | Collect | ion Ar | namins for Spore | Trans/Air Complete | |
| UNY State Friable 198.1 (QTY) U Grav. Reduction ELAP 198.6 (QT | Y) | ☐ ELA | P 198.2/EP/ 100.1 | A 100.2(| QTY) | _(QTY) | | | - 3 | Collect | ion M | edin | Traps/Air Samples: | |
| ☐ NY State Friable 198.1 (QTY) ☐ Grav. Reduction ELAP 198.6 (QT ☐ Other (specify) (Q | Υ) ΓΥ) | □ EPA | 100.1 | (| QTY) | | otherwise | noted | a | Spore- | Trap_ | (OTY) | O Surface Vacuum Due | |
| UNY State Friable 198.1 (QTY) U Grav. Reduction ELAP 198.6 (QT Other (specify) (Q | Y) FY) | ☐ All s | P 198.2/EP/ 100.1 amples rece Vater sample | ived in goo | QTY) od conditio | | otherwise | noted. | 00 | Spore- Surface | Trap_ Swal | (QTY) | Surface Vacuum Dus | t(QTY) |
| ☐ NY State Friable 198.1 (QTY) ☐ Grav. Reduction ELAP 198.6 (QT ☐ Other (specify) (Q | ΓY) | ☐ All se (TEM V | amples rece | ived in goo | QTY) od conditio | | otherwise | noted. | 000 | Spore- Surface Surface | Trap_ Swates Tape | (QTY) (QTY) | O Surface Vacuum Due | t(QTY) |
| ☐ NY State Friable 198.1(QTY) ☐ Other (specify | (Q (Q) PLM/TEM(Q | (TEM V | amples rece Vater sample | ived in goo | QTY) od conditio ℃) | n unless c | | - September 1 | 0000 | Spore- Surface Surface Other (Sp | Trap_ e Swate Tape ecify_ | (QTY) (QTY) (QTY) (QTY) (QTY) | ☐ Surface Vacuum Dus ☐ Culturable ID Genus (Med ☐ Culturable ID Species (Me | t(QTY) dia)(Q1 dia)(Q |
| ☐ NY State Friable 198.1(QTY) ☐ Grav. Reduction ELAP 198.6(QT ☐ Other (specify)(Q SC ☐ Vermiculite ☐ Asbestos Soil PLM(Qual) PLM(Quan) PLM/TEM(I) SAMPLE INFORMATION CLIENT ID SAMPLE LOCATION/ | ry) hali PLM/TEM_(Q I VOLUME | CI EPA CI All se (TEM V | amples rece Vater sample | ived in goo | QTY) od conditio ℃) | n unless c | | - September 1 | 0000 | Spore- Surface Surface Other (Sp | Trap_ e Swate Tape ecify_ | (QTY) (QTY) (QTY) (QTY) (QTY) | Surface Vacuum Dus Culturable ID Genus (Mec Culturable ID Species (Me | t(QTY) dia)(QI dia)(QI |
| ☐ NY State Friable 198.1 | ry) kali PLM/TEM(Q (VOLUME ATE(LITERS) | (TEM V | amples rece Vater sample | ived in goo | QTY) od conditio ℃) | n unless c | | - September 1 | 0000 | Spore- Surface Surface Other (Sp | Trap_ e Swate Tape ecify_ | edin(QTY)(QTY)(QTY)(QTY)(QTY) | ☐ Surface Vacuum Dus ☐ Culturable ID Genus (Mec ☐ Culturable ID Species (Me CLIENT CONTACT ABORATORY STAFF O | t(QTY) dia)(QI dia)(QI |
| UNY State Friable 198.1 (QTY) U Grav. Reduction ELAP 198.6 (QT Cother (specify)) (Q SC U Vermiculite □ Asbestos Soil PLM (Qual) PLM (Qual) PLM/TEM_10 SAMPLE INFORMATION CLIENT ID SAMPLE LOCATION NUMBER IDENTIFICATION B Drill Mak fiber by Rauge 11 | ry) kali PLM/TEM(Q (VOLUME ATE(LITERS) | CI EPA CI All se (TEM V | amples rece Vater sample | ived in goo | QTY) od condition C) | n unless c | | - September 1 | 0000 | Spore- Surface Surface Other (Sp | Trap_ e Swate Tape ecify_ | (QTY) (QTY) (QTY) (QTY) (QTY) | Surface Vacuum Dus Culturable ID Genus (Mec Culturable ID Species (Me | t(QTY) dia)(QI dia)(QI |
| UNY State Friable 198.1 (QTY) U Grav. Reduction ELAP 198.6 (QT Other (specify). (Q SC U Vermiculite O Asbestos Soil PLM_(Qual) PLM_(Qual) PLM/TEM_(Qual) CLIENT ID SAMPLE LOCATION NUMBER DENTIFICATION DENTIFICATION OF The Floor by Range II Medical Office Design | Y) Mail PLM/TEM_(Q VOLUME ATE (LITERS) - (4 | (TEM V | amples rece Vater sample | ived in goods | QTY) od conditio °C) | n unless c | | - September 1 | 0000 | Spore- Surface Surface Other (Sp | Trap_ e Swate Tape ecify_ | edin(QTY)(QTY)(QTY)(QTY)(QTY) | ☐ Surface Vacuum Dus ☐ Culturable ID Genus (Mec ☐ Culturable ID Species (Me CLIENT CONTACT ABORATORY STAFF O | ot(QTY) dia)(QI kdia)(QI |
| ONY State Friable 198.1 (QTY) Grav. Reduction ELAP 198.6 (QT Other (specify) (Q SC Overmiculite OASbestos Soil PIM (Qua) PIM (Qua) PIMTEM (Qua) CLIENT ID SAMPLE LOCATION DENTIFICATION DENTIFI | Y) Mail PLM/TEM_(Q VOLUME ATE (LITERS) - (4 | (TEM V | amples rece Vater sample | ived in goods | QTY) od conditio ℃) | n unless c | | - September 1 | 0000 | Spore- Surface Surface Other (Sp | Trap_ e Swate Tape ecify_ | edin(QTY)(QTY)(QTY)(QTY)(QTY) | ☐ Surface Vacuum Dus ☐ Culturable ID Genus (Mec ☐ Culturable ID Species (Me CLIENT CONTACT ABORATORY STAFF O | ot(QTY) dia)(QI kdia)(QI |
| UNY State Friable 198.1 (QTY) U Grav. Reduction ELAP 198.6 (QT Other (specify) (Q SC Usermiculite OASbestos Soil PIM (Qual) PIM (Qual) PIM/TEM_I(CLIENT ID SAMPLE LOCATION I NUMBER DENTIFICATION DENTIFICATION DENTIFICATION I MEDICAL OFFICE Des K 126 Resolvers office (300) July 126 R | Y) Mail PLM/TEM_(Q VOLUME ATE (LITERS) - (4 | (TEM V | amples rece Vater sample | ived in goods | QTY) d conditio C) | n unless c | | - September 1 | 0000 | Spore- Surface Surface Other (Sp | Trap_ e Swate Tape ecify_ | edin(QTY)(QTY)(QTY)(QTY)(QTY) | ☐ Surface Vacuum Dus ☐ Culturable ID Genus (Mec ☐ Culturable ID Species (Me CLIENT CONTACT ABORATORY STAFF O | ot(QTY) dia)(QI kdia)(QI |
| UNY State Friable 198.1 (QTY) U Grav. Reduction ELAP 198.6 (QT Other (specify) (Q SC OVermiculite OASbestos Soil PLM_(Qual) PLM_(Qual) PLM/TEM_(Qual) PLM/T | Y) Mail PLM/TEM_(Q VOLUME ATE (LITERS) - (4 | (TEM V | amples rece Vater sample | ived in goods | QTY) od condition °C) | n unless c | | - September 1 | 0000 | Spore- Surface Surface Other (Sp | Trap_ e Swate Tape ecify_ | edin(QTY)(QTY)(QTY)(QTY)(QTY) | ☐ Surface Vacuum Dus ☐ Culturable ID Genus (Mec ☐ Culturable ID Species (Me CLIENT CONTACT ABORATORY STAFF O | et(QTY) dia)(QI dia)(QI MLY) By: |
| UNY State Friable 198.1 (QTY) U Grav. Reduction ELAP 198.6 (QT Other (specify) (Q SC OVERNICULITE O Asbestos Soil PLM (Qual) PLM (Qual) PLM/TEM (Qual) PLM/ | Y) Mail PLM/TEM_(Q VOLUME ATE (LITERS) - (4 | U EPA U All si (TEM V Ass) WIPE AREA | amples rece Vater sample | ived in goods | QTY) od condition C) | n unless c | | - September 1 | 0000 | Spore- Surface Surface Other (Sp | Trap_ e Swate Tape ecify_ | (QTY) (QTY) (QTY) (QTY) (QTY) (QTY) (QTY) (QTY) (QTY) (LA Date/Time; | ☐ Surface Vacuum Dus ☐ Culturable ID Genus (Mec ☐ Culturable ID Species (Me CLIENT CONTACT ABORATORY STAFF O) Contact: | ot(QTY) dia)(QI kdia)(QI |
| UNY State Friable 198.1 (QTY) U Grav. Reduction ELAP 198.6 (QT Other (specify) (Q SC OVERNICULITE OAS DESTON SOIL PLM (Qual) PLM (Qual) PLM/TEM (Qual) PLM/ | TY) Adi HMTEM_(Q VOLUME ATE (LITERS) | (TEM V | amples rece Vater sample | ived in good | QTY) od condition C) | n unless c | | - September 1 | 0000 | Spore- Surface Surface Other (Sp | Trap_ e Swate Tape ecify_ | (QTY) (QTY) (QTY) (QTY) (QTY) (QTY) (QTY) (QTY) (QTY) (LA Date/Time; | ☐ Surface Vacuum Dus ☐ Culturable ID Genus (Mec ☐ Culturable ID Species (Me CLIENT CONTACT ABORATORY STAFF O) Contact: | et(QTY) dia)(QI dia)(QI MLY) By: |
| UNY State Friable 198.1 (QTY) UGrav. Reduction ELAP 198.6 (QT Other (specify) (Q SC Vermiculite OASbestos Soil PIM (Qual) PIM (Qual) PIM/TEM | Y) Mail PLM/TEM_(Q VOLUME ATE (LITERS) - (4 | U EPA U All si (TEM V Ass) WIPE AREA | amples rece Vater sample | ived in good | QTY) od condition C) | n unless c | | - September 1 | 0000 | Spore- Surface Surface Other (Sp | Trap_ e Swate Tape ecify_ | (QTY) (QTY) (QTY) (QTY) (QTY) (QTY) (QTY) (QTY) (QTY) (LA Date/Time; | ☐ Surface Vacuum Dus ☐ Culturable ID Genus (Mec ☐ Culturable ID Species (Me CLIENT CONTACT ABORATORY STAFF O) Contact: | et(QTY) dia)(QI dia)(QI MLY) By: |
| ONY State Friable 198.1 (QTY) U Grav. Reduction ELAP 198.6 (QT Other (specify) (Q SC OVERNICULITE OAS DESIGNATION CLIENT ID SAMPLE LOCATION NUMBER DESIGNATION DENTIFICATION DENTIFICATION MEDICAL OFFIce Designation 126 Resolves office 1800k Thef motor pool office TV. Locker Room Locker 8 Jack | TY) Adi HMTEM_(Q VOLUME ATE (LITERS) | U EPA U All si (TEM V Ass) WIPE AREA | amples rece Vater sample | ived in good | QTY) od condition C) | n unless c | | - September 1 | 0000 | Spore- Surface Surface Other (Sp | Trap_ e Swate Tape ecify_ | QTY) (QTY) (QTY) (QTY) (QTY) (QTY) (QTY) (QTY) / (QTY) Date/Time: | □ Surface Vacuum Dus □ Culturable ID Genus (Mec □ Culturable ID Species (Me CLIENT CONTACT ABORATORY STAFF () Contact: Contuct: | nt(QTY) dia)(QI dia)(QI dia)(QI NLY) By; |
| UNY State Friable 198.1 (QTY) UGrav. Reduction ELAP 198.6 (QT Other (specify) (Q SC Vermiculite OASbestos Soil PIM (Qual) PIM (Qual) PIM/TEM | TY) Adi HMTEM_(Q VOLUME ATE (LITERS) | U EPA U All si (TEM V Ass) WIPE AREA | amples rece Vater sample | ived in good | QTY) od condition C) | n unless c | | - September 1 | 0000 | Spore- Surface Surface Other (Sp | Trap_ e Swate Tape ecify_ | (QTY) (QTY) (QTY) (QTY) (QTY) (QTY) (QTY) (QTY) (QTY) (LA Date/Time; | ☐ Surface Vacuum Dus ☐ Culturable ID Genus (Mec ☐ Culturable ID Species (Me CLIENT CONTACT ABORATORY STAFF O) Contact: | et(QTY) dia)(QI dia)(QI MLY) By: |
| UNY State Friable 198.1 (QTY) U Grav. Reduction ELAP 198.6 (QT Other (specify) (Q SC OVERNICULITE OASbestos Soil PLM (Qual) PLM (Qual) PLM/TEM (Qual) PLM/T | TY) Adi HMTEM_(Q VOLUME ATE (LITERS) | U EPA U All si (TEM V Ass) WIPE AREA | amples rece Vater sample | ived in good | QTY) od condition C) | n unless c | | - September 1 | 0000 | Spore- Surface Surface Other (Sp | Trap_ e Swate Tape ecify_ | QTY) (QTY) (QTY) (QTY) (QTY) (QTY) (QTY) (QTY) / (QTY) Date/Time: | Surface Vacuum Dus Culturable ID Genus (Mec Culturable ID Species (Me CLIENT CONTACT ABORATORY STAFF O) Contact: Contuct: | By: |
| UNY State Friable 198.1 (QTY) U Grav. Reduction ELAP 198.6 (QT Other (specify). (Q SC U Vermiculite O Asbestos Soil PIM (Qual) PIM (Qual) PIM/TEM (Qual) PI | VOLUME ATE (LITERS) | U EPA U All si (TEM V AREA JOB Con. 2 | amples rece Vater sample | ived in good seed | QTY) Indicondition C) P P P P P P P P P P P P P | n unless o | ALL | MATE | | Contect Synfaction of Sports Surface Surface (Sports Sports Sports Surface (Sports Sports Spo | oon M. Trap e Swall e Tape e Swall | Date/Time: | Contact: | nt(QTY) dia)(QI dia)(QI dia)(QI NLY) By; |
| UNY State Friable 198.1 (QTY) U Grav. Reduction ELAP 198.6 (QT Other (specify). (Q SC Vermiculite OASbestos Soil PIM (Qual) PLM (Quan) PLM/TEM (Quan) PLM/T | VOLUME ATE (LITERS) | U EPA U All si (TEM V AREA JOB Con. 2 | amples rece Vater sample | ived in good seed | QTY) Indicondition C) P P P P P P P P P P P P P | n unless o | ALL | MATE | | Contect Synfaction of Sports Surface Surface (Sports Sports Sports Surface (Sports Sports Spo | oon M. Trap e Swall e Tape e Swall | Date/Time: | Contact: | By: |
| UNY State Friable 198.1 (QTY) U Grav. Reduction ELAP 198.6 (QTY) Other (specify) (QSC Usermiculite O Asbestos Soil PIM (Qual) PIM (Qual) PIM/TEM (QUAL) PIM | VOLUME ATE (LITERS) | WIPE AREA | amples rece Vater sample | (ived in goods | QTY) ad condition C) | on unless o | By (Prior | | | Conlect Spore- Surface Other (Sp | ion M. Trap_a & Swall e Tape e Tape e Carlon & Swall e Tape e Carlon & Swall e Carlon & Swa | Date/Time: | Contact: | By: |

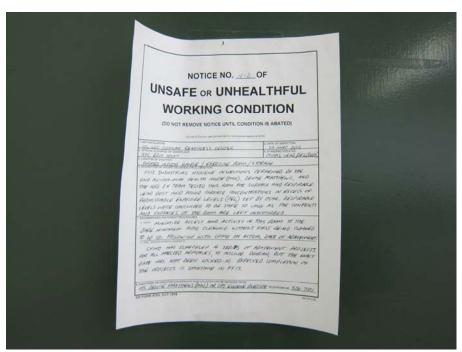
Appendix B. Photographs



Exterior of facility



Drill hall



Lead warning sign on door to the converted firing range

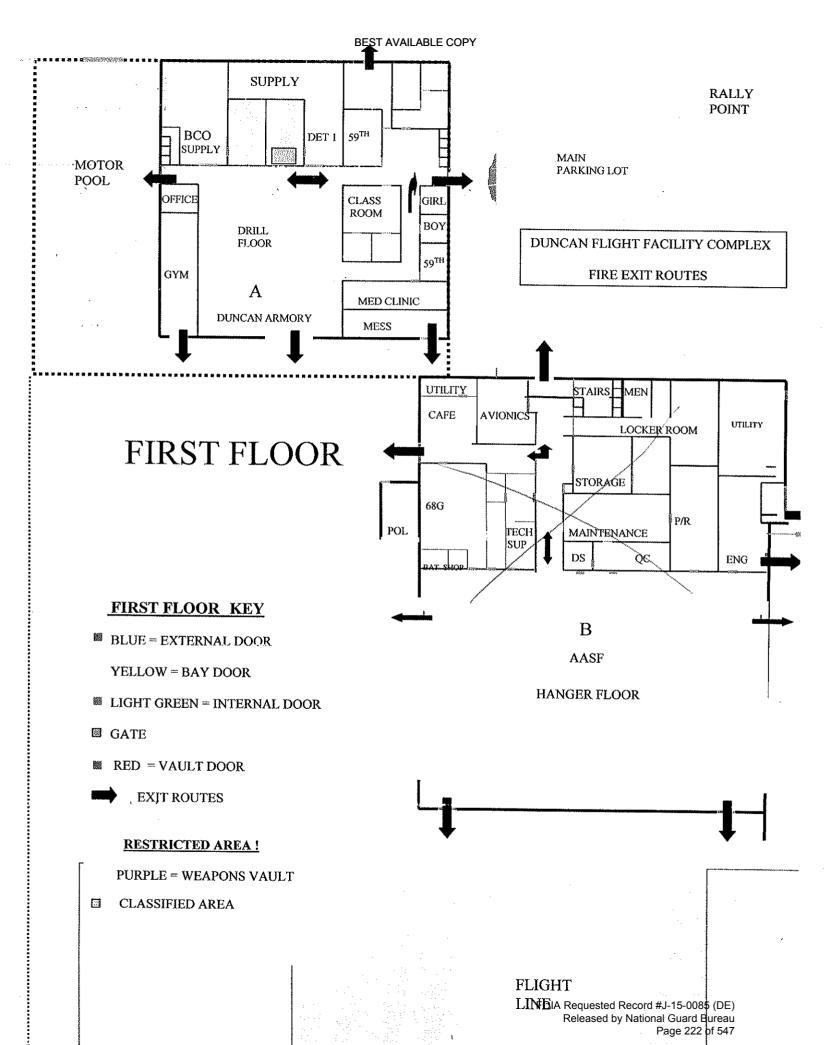


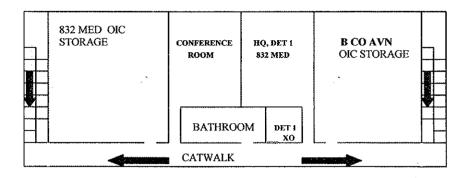
Converted firing range



Top of wall locker in converted firing range

Appendix C. Floor Plan



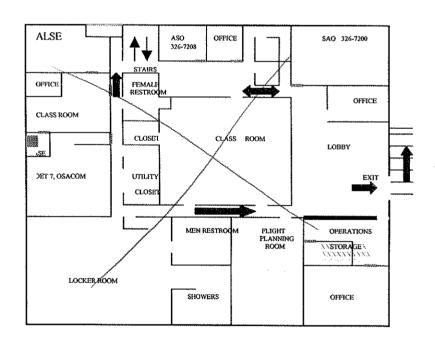


2ND FLOOR DUNCAN FLIGHT FACILITY COMPLEX

FIRE EXIT ROUTE

RESTRICTED AREA

EXIT ROUTE



Appendix D. References

- 1. Title 29 Code of Federal Regulations (CFR), Part 1910.1025, Occupational Safety and Health Administration, Occupational Exposure to Lead
- 2. American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Values and Biological Exposure Indices, 2011 Edition
- 3. Industrial Ventilation: A Manual of Recommended Practice for Design, 27th Edition
- 4. American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE), Ventilation for Acceptable Indoor Air Quality, 62.1-2010
- 5. RP-1-2004, Industrial Lighting, Illuminating Engineering Society of North America/ANSI
- 6. RP-7-2001, Industrial Lighting, Illuminating Engineering Society of North America/ANSI
- 7. National Emission Standard Hazardous Air Pollutants (NESHAP) The standards for asbestos are contained in 40 CFR 61.140 through 61.157.
- 8. Environmental Protection Agency (EPA) standards [40 Code of Federal Regulations (CFR) 745.227(h)(3)]
- 9. Derivation of Wipe Surface Screening Levels for Environmental Chemicals, the US Army Center for Health Promotion and Preventive Medicine (USACHPPM)
- 10. The US Army Technical Guide 277 Army Facilities Management Information Document on Mold Remediation
- 11. NG PAM 420-15 Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges, 3 NOV 06.
- 12. American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE), Thermal Environmental Conditions for Human Occupancy, 55-2010.



1215 Manor Drive, Suite 205 Mechanicsburg, PA 17055 Phone: 717.590.7031 Fax: 717.590.7936

www.complianceplace.com

Industrial Hygiene Survey Report

National Guard Facility John H. Pigman Readiness Center

Prepared For: National Guard Bureau Region North IH

301-IH Old Bay Lane

Havre de Grace, MD 21078

Survey Location: John H. Pigman Readiness Center

601 Bridgeville Road Seaford, DE 19973

Prepared By: Compliance Management International, Inc.

1215 Manor Drive

Suite 205

Mechanicsburg, PA 17055

Survey Date: November 20, 2012

Report Date: January 22, 2013

Non-Responsive

Senior Industrial Hygienist

Table of Contents

| Section 1.0 Executive Summary | 3 |
|------------------------------------------------------------|----|
| Section 2.0 Operation Description & Observations | 4 |
| Section 3.0 Lead Testing | 5 |
| Section 4.0 Lighting | 7 |
| Section 5.0 Indoor Air Quality | 8 |
| Section 6.0 Ventilation Survey | 10 |
| Section 7.0 Suspect Asbestos Containing Building Materials | 11 |
| Section 8.0 Equipment | 12 |
| Section 9.0 Limitations | 13 |
| Appendix A. Laboratory Analysis Report | 14 |
| Appendix B. Photographs | 15 |
| Appendix C. Floor Plan | 16 |
| Appendix D. References | 17 |

Section 1.0 Executive Summary

An industrial hygiene survey was conducted on November 20, 2012, at the John H. Pigman Readiness Center located at 601 Bridgeville Road, Seaford, DE 19973. The survey was performed by Mr. Non-Responsive.

- 1. Lead bulk, surface and air samples were collected. Surface levels of lead exceeded 200 micrograms per square foot (ug/ft²) in two locations associated with the converted indoor firing range. Cleaning procedures should be improved and remedial action should be taken to maintain lead levels below 200 ug/ft². See Section 3.0 for sampling results.
- 2. Lighting levels did not meet the American National Standard Institute/Illuminating Engineering Society of North America (ANSI/IESNA) recommended guideline in the Garage Area. See Section 4.0 for detailed findings.
- 3. Indoor air quality (IAQ) parameters of temperature, relative humidity, carbon monoxide and carbon dioxide (ventilation) were within recommended guidelines during this survey. See Section 4.0 for detailed findings.
- 4. Potential sources of indoor air quality concerns were observed or reported. These included:
 - a. Water damaged ceilings;
 - b. Clogged gutters/spouting.

Section 2.0 Operation Description & Observations

The John H. Pigman Readiness Center is mainly an administrative facility with a drill hall, offices, classrooms and storage areas. There were approximately 5 full-time employees stationed at this facility at the time of this survey.

The building was initially constructed in 1950 with additions in 1960. The building is one story with a brick exterior. The interior walls are primarily concrete block and drywall. The floors are concrete with vinyl floor tile or carpet.

There is a central Heating, Ventilation, and Air-Conditioning (HVAC) system present in the facility. HVAC units service the building via a boiler. Some offices have wall mounted or window mounted air conditioners. Supply and return grills were observed to be dirty.

The area of the building that was once a firing range has been converted into a locker room. No firing range components remain. The area appears very clean and well kept.

There is no child-care facility in the building.

Overall housekeeping practices were good. Areas were clean and well kept.

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

Section 3.0 Lead Testing

Due to the age of the building there is the potential for lead based paint to be present. Various surfaces within the facility were screened for lead using surface/wipe samples. Surface/wipe samples were collected in accordance with the American Society for Testing and Materials (ASTM) E 1792 protocols. Air samples were collected using 0.8 um mixed cellulose ester (MCE) filter cassettes attached to low volume air sampling pumps. Blank samples were submitted to the laboratory for quality control purposes. Samples were sent to AMA Analytical Services, Inc., in Lanham, Maryland, for lead analysis using Environmental Protection Agency (EPA) Method 600/R-93/200 (M)-7420. A copy of the laboratory analysis report can be found in Appendix A.

Lead Testing Results Summary

| Sample # | Location | Bulk (%) | Air ug/m³ | Surface ug/ft ² |
|----------|------------------------------------------------|-------------|--------------|-------------------------------|
| 1 | Drill Hall | * | <6.7 | * |
| 2 | Converted Firing Range – Locker Room | * | <6.7 | * |
| 3 | Boiler Room – Peeling Paint | 0.0094 | * | * |
| 4 | Drill Hall – Center of Floor | * | * | <110 |
| 5 | Drill Hall – HVAC Supply Diffuser | * | * | <110 |
| 6 | Drill Hall – Top of Wall Locker | * | * | 120 |
| 7 | Kitchen – Stove Shelf | * | * | <110 |
| 8 | Kitchen – Top of Metal Table | * | * | <110 |
| 9 | Hallway to Converted Firing Range | * | * | 240 |
| 10 | Converted Firing Range – Floor | * | * | 1000 |
| 11 | Converted Firing Range – Top of Wall Locker | * | * | <110 |
| 12 | Converted Firing Range – Top of Fan Motor | * | * | <110 |
| 13 | Room 209 – Top of Desk | * | * | <110 |
| 14 | Room 204 – Top of Desk | * | * | <110 |
| 15 | Supply Office – Bookshelf | * | * | <110 |
| 16 | Weight Room – Window | * | * | <110 |
| 17 | Dining Hall – Top of Microwave | * | * | <110 |
| 18 | Blank – Wipe | * | * | <12 ug |
| 19 | Blank – Air | * | <3 ug | * |
| - | Criteria | 0.5 | 50 | 200 |

Table Notes:

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

Source: NG PAM 420-15 Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges

The National Guard Bureau currently utilizes 200 ug/ft² as a benchmark for identifying lead-contaminated surfaces. This guideline is referenced in NG PAM 420-15 "Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges" as a satisfactory surface contamination level unless the facility is utilized as a childcare facility. In such cases, U.S. Department of Housing and Urban Development (HUD) limit of 40 ug/ft² on floors and 250 ug/ft² on windowsills should be observed. There is no child care provided at this facility.

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

- Surface levels of lead were at or above the recommended guideline of 200 ug/ft² in the following locations:
 - o Converted Indoor Firing Range- Floor
 - o Hallway into the Converted Indoor Firing Range

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

- Air samples for lead were below the Occupational Safety and Health Administration (OSHA) Permissible Exposure Limit of 50 micrograms per cubic meter (ug/m³).
- Paint was observed to be peeling in the boiler room. A bulk sample was collected and determined to contain 0.0094%Pb. This is less than the EPA definition of lead based paint = 0.5%. However, all areas of peeling paint should be repaired.

Section 4.0 Lighting

A lighting assessment was conducted throughout the facility. Measurements were collected using a Cooke Cal-Light 400L Precision Light Meter (Serial No. K98364). The light meter was last calibrated April 2012. Measurements collected were compared to ANSI/IESNA RP-7-01 Lighting Industrial Facilities and RP-1-04 Office Lighting.

Light Survey Assessment Summary

| Location | Foot Candles (FC) | Recommended Lighting (FC) | Sufficient Lighting |
|-------------------|----------------------|------------------------------|------------------------|
| Drill Hall | 88.8 | 10 | Yes |
| Room 215 (Office) | 43.3 | 30-50 | Yes |
| Rom 204 (Office) | 52.7 | 30-50 | Yes |
| Room 209 (Office) | 57.4 | 30-50 | Yes |
| Supply Office | 55.8 | 30-50 | Yes |
| Conference Room | 84.1 | 30-50 | Yes |
| Weight Room | 37.4 | 30 | Yes |
| Dining Hall | 28.9 | 10 | Yes |
| Garage - Storage | 33.1 | 30 | No |

Table Notes:

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

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

The lighting level did not meet the minimum recommended guideline in the Garage Area. Lighting should be improved in this area.

Section 5.0 Indoor Air Quality

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

The American Society of Heating, Refrigerating, and Air Conditioning Engineers, Inc. (ASHRAE) have developed indoor air quality guidelines for mechanically ventilated office buildings and commercial settings (ASHRAE standard 62.1-2010). ASHRAE specifies temperature and relative humidity ranges for human comfort (ASHRAE 55-2010). The US Army Technical Guide 277 Army Facilities Management Information Document on Mold Remediation and Recommends maintaining a relative humidity range between 30 to 60%.

The following table summarizes the measurements collected.

| Location | Temperature (°F) | Relative Humidity (%) | Carbon Dioxide (ppm) | Carbon Monoxide (ppm) |
|-------------------|------------------|-----------------------------|----------------------------|-----------------------------|
| Drill Hall | 70.5 | 41.4 | 623 | 1.9 |
| Room 215 (Office) | 68.2 | 42.3 | 594 | 1.9 |
| Room 204 (Office) | 68.5 | 42.3 | 611 | 1.9 |
| Room 209 (Office) | 69.4 | 41.8 | 612 | 1.7 |
| Supply Office | 69.4 | 40.9 | 568 | 1.5 |
| Conference Room | 72 | 41.8 | 684 | 1.9 |
| Weight Room | 70.2 | 39.5 | 454 | 1.6 |
| Dining Hall | 69.4 | 36.1 | 414 | 1.6 |
| Garage | 67.5 | 36.8 | 402 | 1.3 |

56.3

68.0-79.0

40.2

30-60

373

<1.073

2.5

<9.0

IAQ Assessment Summary

Table Notes:

Outdoors

Criteria

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

Source: The American Society of Heating, Refrigerating, and Air Conditioning Engineers, Inc. (ASHRAE) 55-2010, 62.1-2010 & The US Army Technical Guide 277 Army Facilities Management Information Document on Mold Remediation.

Summary of findings and recommendations:

- Temperature and relative humidity measurements were within the recommended guidelines.
- Carbon dioxide levels measured did not exceed the recommended ceiling of 1,073 parts per million (ppm). This indicates that outdoor air ventilation is adequate in sampled areas.
- Carbon monoxide levels measured were less than the recommended ceiling of 9 ppm.
- A visual inspection was conducted throughout visually accessible portions of the facility to assess sources or pathways of factors potentially deleterious to IAQ. The following observations were noted:
 - o Painted areas in the boiler room was damaged due to water infiltration;
 - o Efflorescence was noted on the exterior wall in the dining room and drill hall. This is believed to be due to clogged spouting and gutters.

Identify and repair the source of the water infiltration. Inspect gutters and spouting and clean as needed. Replace any water stained ceiling tiles.

Section 6.0 Ventilation Survey

There is a two bay detached garage at this facility. It is used primarily for storage. There is no regular vehicle maintenance performed in this area. Minor maintenance tasks can be performed on an as needed basis. There is an eye wash station, first aid station, fire extinguisher and material safety data sheets in this area.

There are a total of four above floor exhausts located in the garage of the John H. Pigman Readiness Center. All measurements were conducted at the face of each exhaust using a Velocicalc Plus Model 9555-P. Measurements were compared to the American Conference of Governmental Industrial Hygienists (ACGIH) Industrial Ventilation Manual requirements for above floor exhaust systems. The table below details measurement findings.

ABOVE FLOOR EXHAUST VENTILATION RATE SUMMARY

| Location | Type of Hood | Exhaust Diameter | Measured Flow Rate (CFM) |
|-----------|--------------|---------------------|-----------------------------|
| Exhaust 1 | Above Floor | 6" x 4" | 38 |
| Exhaust 2 | Above Floor | 3.5" | 110 |
| Exhaust 3 | Above Floor | 3.5" | 292 |
| Exhaust 4 | Above Floor | 6"x 4" | 83 |

Notes: **CFM** = cubic feet per minute

Reference: Industrial Ventilation, A Manual of Recommended Practice for Design, 27th Edition, ACGIH.

EXAMPLES OF VEHICLE LEV SYSTEM REQUIREMENTS

| Vehicle Nomenclature | Tailpipe Temp. (°F) | Engine Displacement (ft3) | Engine RPMs* | Exhaust Flow † (CFM) |
|---------------------------------|---------------------------|---------------------------------|-----------------|----------------------------|
| M35A2, 2.5 Ton Cargo Truck | 300 | 0.277 | 2,500 | 1,192 |
| M1008 CUCV, SUV | 267 | 0.219 | 3,800 | 1,370 |
| M923A2, 5 Ton Cargo Truck | 300 | 0.293 | 1,700 | 857 |
| M996 HMMWV, All Terrain Vehicle | 297 | 0.219 | 3,300 | 1,294 |

^{*} Revolutions per Minute

† Includes 20% Safety Factor

The actual flow rate that is required in an overhead vehicle exhaust system varies depending on the engine tail pipe temperature, whether or not the vehicle is "under load" or idling, engine displacement, engine size, etc. As an example, a 15 Liter Engine running at 1,000 rpm with an exhaust gas temperature of 1,300 F (heavy load) would require an exhaust flow of 2,110 CFM. If vehicle maintenance is performed at this facility we recommend the vehicle exhaust system be utilized. It should be regularly inspected to determine if it is operating as designed and meets the minimum requirements as recommended by the American Conference of Governmental Industrial Hygienists

(ACGIH) Industrial Ventilation: A Manual of Recommended Practice for Design (27th Edition).

Section 7.0 Suspect Asbestos Containing Building Materials

Based on the age of the building (e.g., constructed in 1950) asbestos-containing materials (ACM) could be present in the facility. However, no suspect ACM was noted at the time of this survey. Inaccessible areas such as behind walls or crawlspaces were not inspected.

Section 8.0 Equipment

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

| Equipment | Serial # | Calibration Date | Value |
|---------------------------|-------------|-------------------------|----------|
| TSI QTrak IAQ Meter | 02041015 | 8/2012 | NA |
| Cal Light 400 Light Meter | K98364 | 4/2012 | NA |
| TSI 4199 Calibrator | 41460827002 | 8/2012 | NA |
| TSI Velometer | 0733030 | 8/2012 | NA |
| SKC Air Sampling Pump | 647631 | 11/15/2012 | 2.49 LPM |
| SKC Air Sampling Pump | 647610 | 11/15/2012 | 2.49 LPM |

Section 9.0 Limitations

This report summarizes our evaluation of the conditions observed at the above referenced location. Our findings are based upon our observations and sampling results obtained at the facility at the time of our visit. The report, results, and subsequent recommendations reported herein are also limited to the information available at the time it was prepared and investigated. Conditions may have been in effect prior to the sampling events that have changed over time and which cannot be predicted within the scope of this limited investigation. Any conditions discovered which deviate from the data contained in this report should be presented to us for our evaluation.

This report is intended for the exclusive use of the client. This report and the findings herein shall not, in whole or in part, be relied upon by any other parties, disseminated or conveyed to any other party without prior written consent of the National Guard Bureau, and Compliance Management International, Inc. The findings are relative to the dates of our site visits and should not be relied upon for substantially later dates.

Appendix A. Laboratory Analysis Report

AMA Analytical Services, Inc.

BEST AVAILABLE COPY

A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS



LAS #100476

Client:

National Guard Bureau

Job Name:

Delaware National Guard

Chain Of Custody:

514552

Address:

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

Job Location:

Pigman RC

Date Submitted:

11/26/2012

Havre de Grace, Maryland 21078

Job Number:

Not Provided

Person Submitting:

Non-Responsiv

riavie de Grace, Maryland 21076

P.O. Number:

W912K6-09-A-0003

Date Analyzed:

11/29/2012

Report Date: 11/29/2012

Attention:

Non-Responsive

State Military Reservation

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 Resi | dt | Comments |
|----------------------|-------------------------|---------------|-------------|-------------------|---------------------|--------|----------------|----------|------------|--------|----------|
| 13016605 | 1 | Flame | Air | 448 | N/A | 6.7 | ug/m³ | <3 | <6.7 | ug/m³ | |
| 13016606 | 2 | Flame | Air | 448 | N/A | 6.7 | ug/m³ | <3 | <6.7 | ug/m³ | |
| 13016607 | 3 | Flame | Paint Chip | **** | N/A | 0.0094 | %Pb | | < 0.0094 | %Pb | |
| 13016608 | 4 | Flame | Wipe | **** | 0.108 | 110 | ug/ft² | <12 | <110 | ug/ft² | |
| 13016609 | 5 | Flame | Wipe | **** | 0.108 | 110 | ug/ft² | <12 | <110 | ug/ft² | |
| 13016610 | 6 | Flame | Wipe | **** | 0.108 | 110 | ug/ft² | 13 | 120 | ug/st² | |
| 13016611 | 7 | Flame | Wipe | **** | 0.108 | 110 | ug/ft² | <12 | <110 | ug/ft² | |
| 13016612 | 8 | Flame | Wipe | **** | 0.108 | 110 | ug/ft² | <12 | <110 | ug/N² | |
| 13016613 | 9 | Flame | Wipe | **** | 0.108 | 110 | ug/ft² | 26 | 240 | ug/ft² | |
| 13016614 | 10 | Flame | Wipe | *** | 0.108 | 110 | ug/ft² | 110 | 1000 | ug/ft² | |
| 13016615 | 11 | Flame | Wipe | **** | 0.108 | 110 | ug/ft² | <12 | <110 | ug/ft² | |
| 13016616 | 12 | Flame | Wipe | **** | 0.108 | 110 | ug/ft² | <12 | <110 | ug/ft² | |
| 13016617 | 13 | Flame | Wipe | **** | 0.108 | 110 | ug/ft² | <12 | <110 | ug/ft² | |
| 13016618 | 14 | Flame | Wipe | **** | 0.108 | 110 | ug/ft² | <12 | <110 | ug/fl² | |
| 13016619 | 15 | Flame | Wipe | **** | 0.108 | 110 | ug/ft² | <12 | <110 | ug/ft² | |
| 13016620 | 16 | Flame | Wipe | **** | 0.108 | 110 | ug/ft² | <12 | <110 | ug/ft² | |
| 13016621 | 17 | Flame | Wipe | **** | 0.108 | 110 | ug/ft² | <12 | <110 | ug/fl² | |
| 13016622 | 18 | Flame | Wipe Blank | **** | N/A | 12 | ug | | <12 | ug | |
| 13016623 | 19 | Flame | Air Blank | 0 | N/A | 3 | ug/m³ | | <3 | ug | |

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

AMA Analytical Services, Inc.

BEST AVAILABLE COPY

A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS



Client:

National Guard Bureau

Job Name:

Delaware National Guard

Chain Of Custody:

514552

Address:

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

Job Location:

Pigman RC

Date Submitted:

11/26/2012

State Military Reservation

Havre de Grace, Maryland 21078

Job Number:

Not Provided

Person Submitting:

P.O. Number:

W912K6-09-A-0003

Date Analyzed:

associated with these

samples.

11/29/2012

11/29/2012

Attention:

Summary of Atomic Absorption Analysis for Lead

Page 2 of 2

AMA Sample

Client Sample

Analysis Type Sample Type Air Volume

Area Wiped

Reporting

Total ug Final Result Comments

Report Date:

Number

Number

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

(L)

(ft2)

Limit

See QC Summary for analytical results of quality control samples

Technical Manager

N/A = Not Applicable

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

ug = micrograms

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

%Pb = percent lead on a dry weight basis

ug/L = parts per billion (ppb)

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

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

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 personnel of these Laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information. Residual sample material will be discarded in accordance with the appropriate regulatory guidelines, unless otherwise requested by the client. This report must not be used to claim, and does not imply product certification, approval, or endorsement by NY ELAP, AIHA, or any agency of the Federal Government. All rights reserved. AMA Analytical Services, Inc.

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

CHAIN OF CUSTODY

(Please Refer To This Number For Inquires)

514552 (pose 10f2)

Page 241 of 547

| Mailing/Billing Inform | nation: | | | | | | | | | nform | | | | | | | 20 M | | Chase 1 of |
|-----------------------------------------|--------------------------------------|------------|------------------|---------------|-------------|--------------------|---------|-----------|-------------|--------|---------|--------|-------------------|----------|------------|-----------------|----------------------------|--------------------------|------------|
| 1. Client Name: Nati | onal Guard Bureau | 61 | | | | | | | | nie: | | De | Aw | ME | NI | otion | al Guard | | 10 |
| 2. Address I:301 | | Villagoria | W. C. | Saran Saran | _ | | _ 2 | . Jol | Loca | ation. | Pi | Sma | SN X | 25 | | | | | |
| 3. Address 2: Attn | : NGB-AVN-SI, State | Military | Reserv | ration | | | _ 3 | . Jot | #: _ | | | - | | | 7-2-57 | D | . Wotoke no | .0003 | |
| 4. Address 3: Hav | | | 78 | | | | - 4 | . Co | ntact | Person | ı: N | In | n- | P | 0 | er | oneive | 942-0273 | |
| 5. Phone #: (410) 94 | 2-0273 | Fax # | #: (410) | 942-025 | 1 | - | _ 5 | . Sul | binitiv | aby. | | L | 117 | TO | U | 9 | Onsive | St. Ita Mark | |
| | | | Repo | rting Infor | matic | n (Res | sults v | will be | pro | ded: | 95 500 | n as f | techni | cally | feasil | le): | | | , |
| AFTER HOURS (mi | | | Π. | | | NORM! | ALBU | JSINE | SS H | YURE | | | | 7.5 | | | REPO | ORT TO: | 2 |
| Immediate Date Due: | | 1 | ☐ Imme | Shib | Q31 | Day | | 198 | | □ Res | ults R | equire | d By N | noo | (8) | Includ | COC/Field Date Show | with Report | |
| Comments: | | | U 2 Day | July . | Date 1 | Due: 15 | 3/3 | 112 | 2 | (Ev | | | Will Be odate) | | | Ethili Fax:_ | Non-Responsive | ous.army.mil | place. Com |
| | | | | | | 3111/2 | | | | · Ma | uc to A | ccom | Otate) | 000 | | Vecto | | ous.army.mil | 1 |
| Asbestos Analysis | | | | TEM Bulk | | | | | - 1 | | 10.25 | 11.0 | 3 | Medi | CHIEF CO. | SING. | ¥1 | | |
| PCM Air - Pleuse Indicate NIOSH 7400 | Filter Type: | | | U EL | AP 198 | .4/Chat | field_ | | | (QTY |) | | | | Pb Pc | int Ch | ip(OTY) | | |
| ☐ Fiberclass | (OTY) | | | U NY U Res | State I | LM/TE | M | 10 | TYP. | QTY) | | | | Ч | Pb D | ust Wi | pe (wipe type Chost | _)_/5 | (QTY) |
| TEM Air - Please Indicate | Filter Type: | | | TEM Dust | | | | 11-700 | Smith Color | | | | | ũ | Pb Sc | dl/Soli | d(QTY) | | T/ |
| ☐ NIOSH 7402 | (OTY) | | | ☐ Qua | l. (pres | labs) V | ocuum | /Dust_ | | | (QT | () | | L | Pb To | CLP_ | (OTY) | | |
| U Other (specify |) | (QTY) | | Qua Qua | n. (s/aı | rea) Vac | uum I | 05755- | 95 | _ | ((| (YTÇ | | U | Drink | ing W | ater QPh (OTY) O | Cu(QTY) 🖸 A | is(QTY) |
| PLM Bulk DEPA 600 - Visual E | stimate(Q | TV | | TEM Water | н. ума С | eajibusi | (DOMO | 10-33 | | | (QIY |) | | Ü | Ph Fu | mace | r 🗆 Pb(QTY) 🗅 C (Media) | u(QTY) 🖸 As | (QTY) |
| ☐ EPA Point Count_ | (QTY) 8.1 (QTY) AP 198.6 (QTY) | | | Q Oun | I. (pres | /abs) | | | (QTY |) | | | 1 | L RESIDE | IT A THINK | year | | | |
| NY State Friable 19 | 8.1(QTY) | OTV. | | Q ELA | P 198 | 2/БРА | 100.2_ | (077 | | _(QTY | Ŋ | | | | Collec | tion A | pparatus for Spore Traps | /Air Samples: | |
| Other (specify | AT 190.01 | (OTY) | | | | | | 1500 | 6 | | | | | . 0 | Snore | -Tran | fedia(QTY) 🗆 Su | referen Manuary 12 | _ |
| MISC | 1.7 | | | All All | Water a | s receiv amples | ed in g | good ec | onditio | m unle | s othe | twise | noted, | u | Surfa | ce Sw | b(OTY) Cl Cu | hursble ID Genna (Media |) (0130 |
| ☐ Vermiculite ☐ Asbestos Soil PLM | (Qual) PLM_(Quan) PLM/TEM_ | (Oal) B | M/TEM (C | | TYLICE 2 | ampies | | _ () | - | - | - | _ | | - 3-4 | Julia | re ran | (U(Y) L(M) | twable ID Species (Media | (QTY) |
| | SAMPLE THE ORNALL | | | (am) | | desk | VALVE | te d és | | | | | xumine | ción | | | (?TY) | Now Sources | |
| CLIENTID | SAMPLE LOCATION/ | | VOLUME | | 100 | 18 | | | 13 | 1 00 | 13 | 15 | | M 23 | 18 | 1 4 | CLI | ENT CONTACT | +9 |
| NUMBER | IDENTIFICATION | // - 20 | (LITERS) | AREA | F | 1 2 | 1 | - | 2 | 1 | 18 | 3 | # 28 | BE. | E | 15 | (LABOR | ATORY STAFF ONI | (X) |
| 1 Dr.11 Hall | | 11-20 | 110 | - | - | | | × | | | | | | | | | Date/Time: | Contact: | By: |
| 2 Comertal fin | | | 448 | - 1 | _ | | | * | | | | | | | | | | | |
| 3 Boiler Rm PA | | | | tenson's | _ | | | × | | | × | | | | | | | | |
| | floor | | | Ipo CA 2 | | | | × | | | | | | | | | | | |
| I Drell Hall | Supply Differer | | | | | | | X | | | | | | | | | Date/Time: | Contact: | By: |
| 6 Drill Holl L | soker | | | | _ | | | X | | | | | | | | | 74 × | Contact | Dy. |
| 7 Kitchen - St | | | | | | | | X | | | | | | | | | | - 5 | |
| 8 Kitchen - To | able. | | | | | | | X | | | | 1 | | XV: | - | | | | |
| 9 Hallway to | Ray- | | | 181 | | | | X | | | | | | - | | | Date (Ti | \$0% BV | |
| 10 converted RA | nge floor | | | | | | | X | | _ | | | | - | - | - | Date/Time: | Contact: | By: |
| 11 Converte RA | | | | 17/2 | - | | | × | | | - | | - | - | - | | | | |
| 12 Converte RAN | | - | | 1 | | | _ | Y | | | - | - | | | | | | | |
| | 1. Date/Time RCV | D: 11 | 12 | 6 /1) | - | 202 | - Vi- | TE | OF | 1 | | | MI | | | | Jaer | one | 11/0 |
| LABORATORY | 2. Date/Time Analy | | | | | 9 | 7. VIII | | ںرو | h | By | (Pri | V | | | | Resp | | |
| STAFF ONLY: | 3. Results Reported | TTo | | | | | | 100 miles | 0.00 | | | | | | | | | | |
| (CUSTODY) | 4. Comments: | | 22 | DB 3 | 511 | 3 4 56 | AVAI | LABI | EC | PY | | | Date: | | _/_ | | FOIA REQUESTE | d Record #1.15tr | imas:(DE) |
| | 4. Comments: | 100 | 00 | XO C | × | 10 | | - | | - | | - | - 1 | _ | | | Released | by National Guar | rd Bureau |

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)

Page 242 of 547

| Mailing/Billing Informa | | | | | | | Subm | ittal Ir | ıformı | ation: | | | | | | | • | 4. |
|----------------------------------------------|-------------------------------------------------------|---------------|---------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|------------|-------------|----------|----------|----------|-------------------|------------|-------------|------------|----------|----------------------------|-------------------------|-----------------|
| 1. Client Name: Nation | | | | | | | 1. Ĵo | b Nam | ie::_ | 11000200 | 0 | ep | - | NI | stre | Genid | | 9 |
| 2. Address I:301-II | | | | | | | 2. Jo | b Loca | tion. | F | | M | | | | | | |
| 3. Address 2: Attn: 1 | NGB-AVN-SI, State | Militar | v Reserv | ation | | | 3. Jo | b#: | | | _ | | | | PC | #- W912K6-09-A | 0003 | |
| 4. Address 3: Havra | da Grace, Marylan | d 210 | 78 | | | | 4. Co | ntact l | Person | NI | OT | 1 I |) e | 101 | 00 | nsive |) 942-0273 | |
| 5. Phone #: (410) 942 | -0273 | Fax | #:_ (410) | 942-025 | 4 | * | 5. St | binitie | dbig | | Ų | 1-1 | 1/4 | | 9.0 | IIISIVE | 1342-0213 | 72-1 |
| | 4 | 202 - 530 - 5 | Repor | rting Info | rmatio | n (Resu | lts will b | e prov | ided a | S S001 | n as t | echnic | ally | easib | le): | | | |
| AFTER HOURS (must | | | SEMPS UT | 20 | P | NORMAI | BUSIN | SS HC | BRU | 8, | | | - | - | /- | REPO | T TO | |
| Immediate Date Due:_ | | | Q Immed | OF THE PARTY OF TH | 31 | 300 D 100 | | | Resi | ilts Re | zauired | By No | non | © 1 | Include | COC/Field Data Sheets | with Denovet | |
| 24 Hours Time Due:_ Comments: | | | ☐ Next I ☐ 2 Day | | U 5 I | Day + | | | (Eve | yAtte | empt V | Vill Be | | W) | dinai | Ion-Responsive | | |
| Communication | | | w z Day | | Date | Due; | | | Mad | le to A | ccomo | xlate) | | . 0.1 | verb | tott i toopottoti t | us.army.mil | |
| Asbestos Analysis | | | | TEM Bulk | 8 | | | | | - | | - 3 | in the last | 演出 | | | us.airiiy.iiiii | |
| PCM Air - Please Indicate Fi | lter Type: | | | LI EL | AP 198 | .4/Chatfie | eld | | (OTY) | 800 S | | .1 | (VICEORI | Pb Pa | int Ch | ip(QTY) | | |
| ☐ NIOSH 7400 ☐ Fiberglass | (QTY) | | | □ NY | State I | LM/TEN | ld | (| QTY) | | | | U | Pb Di | ist Wii | e (wine type | | (OTY) · |
| TEM Air - Please Indicate Fi | lter Type: | | | TEM Dust | ((| (YTY) | | | | | | Pb Ai | r | (QTY) | - MA | | | |
| O AHERAO NIOSH 7402 | (QTY) | | | | | (abs) Vac | uum/Dust | | 100 | OTY | Y | | ă | Ph TC | IIDSOII | (QTY) (QTY) (QTY) | | |
| U Other (specify | | (QTY) | | Qua Qua | nn. (s/ar | rea) Vacui | um D5755 | -95 | | (0 | TY | | - | Drink | ing W | ter QPb (OTY) Q | Cu_ (OTY) [] | As (OTV) |
| PLM Bulk | | | | LI Qua | un. (s/ar | rea)Dust I | 06480-99 | | | (QTY |) | | - | waste | YYDIE | CIPD (OTY) LICO | (OTV) CLAS | /OTT |
| ☐ EPA 600 – Visual Esti | mate(Q | (TY) | | TEM Wate | | (abs) | | OTY | Ÿ | | | 3 | and the | POPU | mace | Media)_ | (QTY |) |
| ☐ EPA Point Count ☐ NY State Friable 198. | (QTY) | | | O EL | AP 198. | 2/EPA 10 | 0.2 | 100 | QTY |) | | 100 | - | Collec | tion A | pparatus for Spore Traps// | Air Samples: | |
| Grav. Reduction ELA | P 198.6 | QTY) | | □ EPA | 100.1 | | (QT | Y) | | | | | | Collec | TION IN | ledia | | |
| MISC Specify | | .(Q1Y) | | C) All | sample | s received | l in good o | onditio | n unles | s other | wise n | oted. | ä | Spore | -Trap. | (QTY) Sur b (QTY) Cult | face Vacuum Dust | (QTY) |
| ☐ Vermiculite ☐ Asbestos Soil PLN_(Q) | ud) PLM(Quan) PLM/TEM | _(Qual) P | LM/TEM(Q | | Water s | samples _ | °C) | 8 | | | | | 100 | Suma | TO THE | (QTY) QCuln | urable ID Species (Medi | (QTY) a(QTY) |
| | AMPLE INFORMATI SAMPLE LOCATION/ IDENTIFICATION | | VOLUME (LITERS) | H WIPE | 1 | | E E | 100 | ¥ | GE K | / Nest | AYW Egg | | | | / CLII | ENT CONTACT | |
| 13 Roon 209 - 15 |)esk | 11.20 | | 100 C~ L | | | | - | | -6 | 4 | XXC | 31- | | 15 | | TORY STAFF ON | CV-10-WSS |
| | Dask | 10 | | 1 | 1 | | X | | | | - | | | - | | Date/Time: | Contact: | By: |
| | - Book steps | | | | | | × | | | \neg | - | | _ | - | 5 | | | |
| 16 Weight Room. | | | | | | - | X | | | - | | - | | | , | | | |
| 17 Dinks Hall - m | | | 1 | | 1 | | × | - | \vdash | \neg | | | | 140 | \vdash | | | |
| 18 Blank | K(670WF4- | | | 1 | - | | X | - | | | | | _ | _ | _ | Date/Time: | Contact: | By: |
| 18 plant | | | - | - | - | | 7 | - | | - | | _ | | | | | | |
| 1) piner | | 4 | 0 | - | ├- | | 7 | | | _ | _ | | | | | | 8 | |
| | | | - | | - | - | | _ | | _ | | | | _ 1 | | | | |
| | | | - | 2.3 | _ | | | | | | | | 1 | - 2 | | Date/Time: | Contact: | By: |
| | | | | | | | | | | | | | Jak | | | | | |
| | | | | | _ | | | | | | | | 1 23 | - a | | | 1 | * |
| | | | 1 | | | | | | | | | | | | | | | |
| T ABOD ATODY | 1. Date/Time RCV | D: | _/_ | /_ | | 2 | _Via: | | | By | (Print) | | 1 | | | Sig | | |
| LABORATORY | Z. Daie/ Dine A nat | VZEO: | | | | @ | Rym | rint). | | | (~ · · · · · ·). | - | | | | Sig | ш: | |
| STAFF ONLY: | 3. Results Reported | | | | 100,000 | | (I | - and | - | - | _ | | - | | 3.00 | oign: | | |
| (CUSTODY) | 3. Results Reported | d To: | 252010 | | | | | Vi | u. | | | Date: | | 1 | | FOIA Reduested | | b *** |

Appendix B. Photographs



Exterior of facility



Exterior two bay detached garage



Drill hall efflorescence below window



Drill hall dirty supply diffuser



Door to converted firing range lead warning sign



Converted firing range



Dining hall efflorescence on exterior concrete block wall



Drill Hall



Boiler room peeling paint and water damage ceiling



Inside the two bay detached garage



Inside the two bay detached garage MSDS station



Inside the two bay detached garage eye wash station



Inside the two bay detached garage fist aid station



Inside the two bay detached garage overhead vehicle exhaust blower motor



Inside the two bay detached garage overhead vehicle exhaust duct



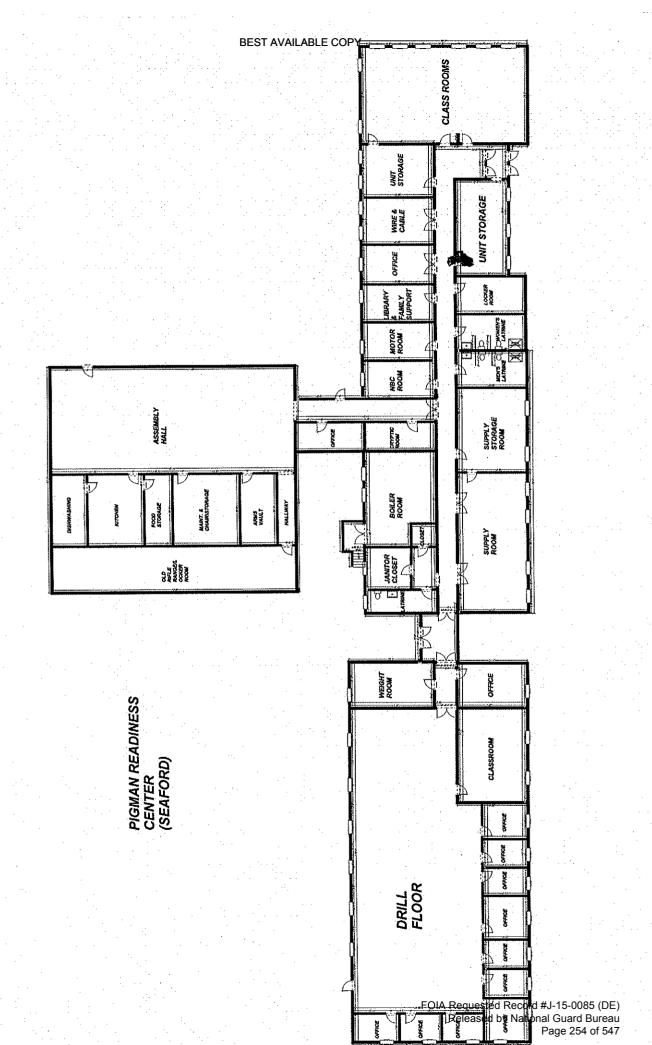
Inside the two bay detached garage overhead vehicle exhaust duct



Inside the two bay detached garage fire extinguisher

BEST AVAILABLE COPY

Appendix C. Floor Plan



Appendix D. References

- 1. Title 29 Code of Federal Regulations (CFR), Part 1910.1025, Occupational Safety and Health Administration, Occupational Exposure to Lead
- 2. American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Values and Biological Exposure Indices, 2011 Edition
- 3. Industrial Ventilation: A Manual of Recommended Practice for Design, 27th Edition
- 4. American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE), Ventilation for Acceptable Indoor Air Quality, 62.1-2010
- 5. RP-1-2004, Industrial Lighting, Illuminating Engineering Society of North America/ANSI
- 6. RP-7-2001, Industrial Lighting, Illuminating Engineering Society of North America/ANSI
- 7. National Emission Standard Hazardous Air Pollutants (NESHAP) The standards for asbestos are contained in 40 CFR 61.140 through 61.157.
- 8. Environmental Protection Agency (EPA) standards [40 Code of Federal Regulations (CFR) 745.227(h)(3)]
- 9. Derivation of Wipe Surface Screening Levels for Environmental Chemicals, the US Army Center for Health Promotion and Preventive Medicine (USACHPPM)
- 10. The US Army Technical Guide 277 Army Facilities Management Information Document on Mold Remediation, Feb 2002.
- 11. NG PAM 420-15 Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges, 3 NOV 06.
- 12. American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE), Thermal Environmental Conditions for Human Occupancy, 55-2010.



Industrial Hygiene Survey Report

National Guard Facility Scannell Readiness Center

Prepared For:

National Guard Bureau Region North IH

301-IH Old Bay Lane

Havre de Grace, MD 21078

Survey Location:

Scannell Readiness Center

Governor Bacon Health Center

Delaware City, DE 19706

Prepared By:

ALS Environmental

3544 North Progress Avenue

Suite 100

Harrisburg, PA 17110

Survey Date:

October 7, 2011

Report Date:

November 10, 2011

ALS Project #:

1110728



Director, Industrial Hygiene Services

ADDRESS 3544 North Progress Avenue, Suite 100, Harrisburg, PA 17110 · PHONE +1 717 540 3424 · FAX +1 717 540 3428

Analytical Laboratory Services, Inc. Part of the ALS Group A Campbell Brothers Limited Company



BEST AVAILABLE COPY

Table of Contents

| Section 1.0 Executive Summary | 3 |
|------------------------------------------------------------|----|
| Section 2.0 Operation Description & Observations | 4 |
| Section 3.0 Lead Testing | 5 |
| Section 4.0 Lighting | 7 |
| Section 5.0 Indoor Air Quality | 8 |
| Section 6.0 Suspect Asbestos Containing Building Materials | 10 |
| Section 7.0 Limitations | 11 |
| Appendix A. Laboratory Analysis Report | 12 |
| Appendix B. Photographs | 13 |
| Appendix C. Floor Plan | 14 |
| Appendix D. References | 15 |

Section 1.0 Executive Summary

Section 1.0 Executive Summary

An industrial hygiene survey was conducted on October 7, 2011, at the Scannell Readiness Center located at Governor Bacon Health Center, Delaware City, DE 19706. The survey was performed by Ms. Non-Responsive.

- 1. Lead surface and air samples were collected. Surface levels of lead exceeded 200 micrograms per square foot (ug/ft2) in five locations associated with the converted indoor firing range. Cleaning procedures should be improved and remedial action should taken to maintain lead levels below 200 (ug/ft2). See Section 3.0 for sampling results.
- 2. Lighting levels did not meet the American National Standard Institute/Illuminating Engineering Society of North America (ANSI/IESNA) recommended guideline in the supply office, supply storage room and the 153rd classroom. Improve lighting in these areas.
- 3. Indoor air quality (IAQ) parameters of temperature, relative humidity, carbon monoxide and carbon dioxide (ventilation) were evaluated during the assessment. All parameters were within recommended guidelines.
- 4. Some water damaged ceiling tiles were observed throughout the facility. Identify and repair all sources of water infiltration. Remove and replace all water stained ceiling tiles.
- 5. The heating, ventilating, and air conditioning system (HVAC) supply and return grills located in some of the offices and classrooms were observed to be dirty. These should be cleaned. Do not permit dirt, debris, microbial growth, etc. to accumulate in any portion of the HVAC system.

Section 2.0 Operation Description & Observation

Section 2.0 Operation Description & Observations

The Scannell Readiness Center is mainly an administrative facility with a drill hall, offices, classrooms and storage areas. There were approximately 5 full-time employees stationed at this facility at the time of this survey.

The building was initially constructed in 1976. The building is two stories with a brick exterior. The interior walls are primarily concrete block. The floors are concrete with vinyl floor tile or carpet.

There is a central HVAC system present in the facility. Two HVAC units service the building via a boiler.

The firing range has been converted into a locker/storage area. However, the bullet trap and overhead components remain. The area appeared to be clean and well kept.

There is no child-care facility in the building.

Overall housekeeping practices were fair and could be improved.

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

During the lighting survey some of the lighting fixtures were being replaced in the 153rd orderly room.

Section 3.0 Lead Testing

Section 3.0 Lead Testing

Due to the age of the building there is the potential for lead based paint to be present. Various surfaces within the facility were screened for lead using surface/wipe samples. Surface/wipe samples were collected in accordance with the American Society for Testing and Materials (ASTM) E 1792 protocols. Air samples were collected using 0.8 um mixed cellulose ester (MCE) filter cassettes attached to low volume air sampling pumps. Blank samples were submitted to the laboratory for quality control purposes. Samples were sent to AMA Analytical Services, Inc., in Lanham, Maryland, for lead analysis using Environmental Protection Agency (EPA) Method 600/R-93/200 (M)-7420. A copy of the laboratory analysis report can be found in Appendix A.

Lead Testing Results Summary

| Sample # | Location | Air ug/m³ | Surface ug/ft² |
|----------|----------------------------------------------------------------|--------------|-------------------|
| 1 | Drill Hall | <5.7 | * |
| 2 | 153 rd Orderly Room | <5.7 | * |
| 3 | Blank | <3 (ug) | * |
| 4 | Drill Hall – Floor Near Overhead Door | * | 160 |
| 5 | Drill Hall – Kitchen Top of Refrigerator | * | <110 |
| 6 | Drill Hall – Top of Locker | * | 190 |
| 7 | Drill Hall – Floor By Lobby | * | <110 |
| 8 | Drill Hall – Top of Display Case | * | <110 |
| 9 | Shop Operations Office – Shelf | * | <110 |
| 10 | 153 rd Orderly Room – Supply Grill | * | <110 |
| 11 | Converted Indoor Firing Range – Bullet Trap | * | 660 |
| 12 | Converted Indoor Firing Range – Stored Item- Refrigerator | »įc | 120 |
| 13 | Converted Indoor Firing Range – Floor | * | 720 |
| 14 | Converted Indoor Firing Range – Light Fixture | * | 360 |
| 15 | Converted Indoor Firing Range – Inside Ventilation Ductwork | * | 1,600 |
| 16 | Outside Indoor Firing Range – Hall Floor | * | 440 |
| 17 | Blank | 冰 | <12 (ug) |

Key: Bolded results exceed listed criteria

Source: NG PAM 420-15 Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges

The National Guard Bureau currently utilizes 200 ug/ft² as a benchmark for identifying lead-contaminated surfaces. This guideline is referenced in NG PAM 420-15 "Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges" as a satisfactory surface contamination level unless the facility is utilized as a childcare facility. In such cases, U.S. Department of Housing and Urban Development (HUD)

BEST AVAILABLE COPY

limit of 40 ug/ft² on floors and 250 ug/ft² on windowsills should be observed. There is no child care provided at this facility.

Lead surface and air samples were collected.

- Surface levels of lead were at or above the recommended guideline of 200 ug/ft² in the following locations:
 - o Converted Indoor Firing Range Bullet Trap
 - o Converted Indoor Firing Range Floor
 - o Converted Indoor Firing Range Light Fixture
 - O Converted Indoor Firing Range Inside Ventilation Ductwork
 - Outside Indoor Firing Range Hall Floor

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

- Air samples for lead were below the Occupational Safety and Health Administration (OSHA) Permissible Exposure Limit of 50 micrograms per cubic meter (ug/m³).
- Paint was observed to be in good condition throughout the facility.

Section 4.0 Lighting

Section 4.0 Lighting

A lighting assessment was conducted throughout the facility. Measurements were collected using a Cooke Cal-Light 400L Precision Light Meter (Serial No. K070155). The light meter was last calibrated on September 10, 2011. Measurements collected were compared to ANSI/IESNA RP-7-01 Lighting Industrial Facilities and RP-1-04 Office Lighting.

Light Survey Assessment Summary

| Location | Foot Candles | Recommended | Sufficient |
|----------------------------------|--------------|---------------|------------|
| | (FC) | Lighting (FC) | Lighting |
| Drill Hall | 135.8 | 10 | Yes |
| Kitchen | 60.0 | 50 | Yes |
| Boiler Room | 67.8 | 30 | Yes |
| Indoor Firing Range/Locker | | | |
| Room | 95.5 | 7 | Yes |
| Supply Office | 11.9 | 30-50 | No |
| Supply Room (Storage) | 25.5 | 30 | No |
| 1st Floor Ladies Room | 46.0 | 5 | Yes |
| Shop Operations Office | 48.7 | 30-50 | Yes |
| 153 rd MP Office | 62.4 | 30-50 | Yes |
| 153 rd Platoon Office | 48.8 | 30-50 | Yes |
| 153 rd Orderly Office | 30.0 | 30-50 | Yes |
| 153 rd Classroom | 23.0 | 30-50 | No |
| Hallway 2 nd Floor | 60.2 | 5 | Yes |

Bolded results did not meet listed criteria

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

Summary of findings and recommendations:

The lighting level did not meet the minimum recommended guideline in the supply office, supply room (storage) and 153rd classroom. Lighting should be improved in these areas.

Section 5.0 Indoor Air Quality

Section 5.0 Indoor Air Quality

Survey measurements were made for ventilation and comfort parameters (carbon dioxide, temperature, carbon monoxide and relative humidity). The air quality measurements were collected using direct reading instrumentation for comfort parameters using a QTRAK IAQ Meter, Model 7565 (Serial #7565X0839017). The IAQ Meter was last calibrated in February 11, 2011.

The American Society of Heating, Refrigerating, and Air Conditioning Engineers, Inc. (ASHRAE) have developed indoor air quality guidelines for mechanically ventilated office buildings and commercial settings (ASHRAE standard 62.1-2010). ASHRAE specifies temperature and relative humidity ranges for human comfort (ASHRAE 55-2010). The US Army Technical Guide 277 Army Facilities Management Information Document on Mold Remediation, recommends maintaining a relative humidity range between 30 to 60% in occupied areas.

The following table summarizes the measurements collected.

IAQ Assessment Summary

| | Assessment b | umman y | , | |
|------------------------------------|------------------|-----------------------------|----------------------------|-----------------------------|
| Location | Temperature (°F) | Relative Humidity (%) | Carbon Dioxide (ppm) | Carbon Monoxide (ppm) |
| Drill Hall | 68.8 | 48.1 | 392 | 1.1 |
| Kitchen | 69.2 | 48.2 | 381 | 0.5 |
| Boiler Room | 71.1 | 47.0 | 376 | 0.6 |
| Indoor Firing Range/Locker Room | 72.0 | 44.9 | 679 | 0.9 |
| Supply Office | 70.3 | 50.8 | 448 | 0.8 |
| Supply Room (Storage) | 70.6 | 54.4 | 423 | 0.7 |
| Shop Operations Office | 70.3 | 51.6 | 413 | 1.0 |
| 153 rd MP Office | 70.2 | 46.0 | 425 | 0.5 |
| 153 rd Platoon Office | 71.2 | 45.4 | 419 | 1.0 |
| 153 rd Orderly Office | 70.9 | 46.4 | 539 | 1.0 |
| 153 rd Classroom | 71.0 | 46.7 | 590 | 0.5 |
| Outdoors | 67.0 | 44.7 | 361 | 0.2 |
| Criteria | 68.0-79.0 | 30-60 | <1,061 | <9.0 |

Key: Bolded results exceed listed criteria

Source: The American Society of Heating, Refrigerating, and Air Conditioning Engineers, Inc. (ASHRAE) 55-2010 & The US Army Technical Guide 277 Army Facilities Management Information Document on Mold Remediation.

Summary of findings and recommendations:

Relative humidity and Temperature levels were within the recommended criteria of 30-60% and 68.0-79.0 °F in all areas sampled.

BEST AVAILABLE COPY

- Carbon dioxide levels did not exceed the recommended ceiling of 1,061 parts per million (ppm). This indicates that outdoor air ventilation is adequate in all areas.
- Carbon monoxide levels were less than the recommended ceiling of 9 ppm.
- A visual inspection was conducted throughout visually accessible portions of the facility. The visual inspection was conducted to assess sources or pathways of factors potentially deleterious to IAQ. It was reported that the roof was leaking, but it is in the process of getting fixed. Some water damaged ceiling tiles were observed throughout the facility. Identify and repair the source of the water infiltration. Replace any water stained ceiling tiles.
- The HVAC supply and return grills located in some of the offices and classrooms were observed to be dirty. These should be cleaned. Do not permit dirt, debris, microbial growth, etc. to accumulate in any portion of the HVAC system.

Section 6.0 Suspect Asbestos Containing Building Materials

Section 6.0 Suspect Asbestos Containing Building Materials

Based on the age of the building (e.g., constructed in 1976) asbestos-containing materials (ACM) could be present in the facility. Suspect asbestos-containing pipe fitting insulation, boiler breeching and pipe insulation in the boiler room was observed. The pipe fittings, boiler breeching and pipe insulation were intact and in good condition. Inaccessible areas such as behind walls or crawlspaces were not inspected. No bulk samples were collected.

Section 7.0 Limitations

Section 7.0 Limitations

This report summarizes our evaluation of the conditions observed at the above referenced location. Our findings are based upon our observations and sampling results obtained at the facility at the time of our visit. The report, results, and subsequent recommendations reported herein are also limited to the information available at the time it was prepared and investigated. Conditions may have been in effect prior to the sampling events that have changed over time and which cannot be predicted within the scope of this limited investigation. Any conditions discovered which deviate from the data contained in this report should be presented to us for our evaluation.

This report is intended for the exclusive use of the client. This report and the findings herein shall not, in whole or in part, be relied upon by any other parties, disseminated or conveyed to any other party without prior written consent of the National Guard Bureau, and ALS Environmental. The findings are relative to the dates of our site visits and should not be relied upon for substantially later dates.

Appendix A Laboratory Analysis Report

AMA Andlikical Services, Inc.



A Specialized Environmental Labbratory

CERTIFICATE OF ANALYSIS

ACCREDITED LABORATORY

THE TABLE THE

| LAGHTOSEN | | | | 1102/02/01 | |
|-----------|-----------------------|-----------------------------------------------------------------------|--------------------------------|-----------------------------------|------------|
| | | | Non-Rec | 0/20/2011 Report Date: 10/20/2011 | |
| | 311574 | 10/13/2011 | | 102/02/01 | |
| | Chain Of Custody: | Date Submitted: | Person Submitting: | Date Analyzed: | |
| | RC-Semuell | Delewere City, DE | RC-Sconnell | Not Provided | |
| | Job Names | Job Location: | Job Numbers | P.O. Number: | |
| | National Guard Bureau | 301-IH Old Bay Lans, After ARNG-CIG-P., State Military Reservation | Harre de Grace, Maryland 21078 | | Non-Reigi |
| | Client | Address: | | | Attention: |

| Lead |
|------------|
| for |
| Analysis |
| bsorption |
| Atomic 4 |
| Summary of |

Page 1 of 2

| AMA Sample Number | Client Sample Number | Analysis Type | Sample Type | Air Volume (L) | Area Wiped (ff) | Rep | Reporting Limit | Tefal ug | Cinal Result | June | Сепинсия |
|----------------------|-------------------------|---------------|-------------|-------------------|--------------------|-----|--------------------|----------|--------------|---------|----------|
| 2004427 | 1.10728-1 | Figne | Air | 528 | NA | 5.7 | ug/m³ | ₩. | 627 | ng/m³. | |
| 12004428 | 110728-2 | Harre | Aîr | 528 | NIA | 5.7 | បន្ទវល | Δ. | <5.7 | ug/m² | |
| 12004429 | 110728-3 | Ffame | Air Blank | 0 | N/A | ĸn, | , mysin | | °. | # · | |
| 12004430 | 116728-4 | Hame | Wipe | 44.50 | 0.108 | 110 | ng/ft2 | 18. | 160 | ng/ft² | |
| 12004431 | 110728-5 | Hame | Wipe | *** | 801.0 | 110 | ng/Us | <12 | <110 | ug/fi² | |
| 12004432 | 110728-6 | Hanne | Wipe | **** | 0.108 | 110 | ng/fl² | 20 | 190 | ng/fit | |
| 004433 | 110728-7 | Flame | Wipe | *** | 0.108 | 110 | ug/III | <12 | 91 V | | |
| 12004434 | 110728-8 | Flame | Wipe | **** | 0.108 | 110 | ug/ff² | <12 | <110 | ng/ff? | |
| 12004435 | 110728-9 | Flame | Wipe | *** | 0.108 | 110 | ug/ff² | ₹ | 410 | | |
| 004436 | 110728-10 | Flame | Wipe | *** | 801.0 | 110 | #B/BH | <12 | <110 | ug/ffr | |
| 12004437 | 110728-11 | Flame | Wille | **** | 60.108 | 110 | ng/ff | 7.1 | 099 | ug/11² | |
| 004438 | 110728-12 | Flame | Wipe | ** | 0.108 | 011 | ug/fit | 13 | 120 | ug/fh² | |
| 12004439 | 110728-13 | Flame | Wipe | **** | 0.108 | 011 | ng/ff? | 78 | 720 | all/fin | |
| 12004440 | 110728-14 | Flame | Wipe | *65* | 0.108 | 110 | ng/M² | 39 | 360 | ng/ff | |
| 004441 | 110728-15 | Flame | Ware | *** | 0.108 | 110 | ug/ft² | 07.1 | 1600 | ng/ff | |
| 12004442 | 110728-16 | Папо | Wipe | 中华安大 | 0.108 | 110 | ug/III | 1 | 440 | ngAR? | |
| 12004443 | 1-1072X-17 | Hame | Wine Binnk | 等中海 | N/A | 6 | 110 | | ₹I.> | 11.05 | |

submitted and accepted for the exclusive use of the eltent to whom it is addressed and upon that it is not to be used, in whate or in part, in any advertising or publicity matter without prior wifeles and liability for the accentage and empletic states of the expression of these Laboratories, we expressly discipling my hoperated by the parsons submitting farm and, unless collected by parsonned of these Laboratories, we expressly discipling for the exerting farm and, unless collected by the client. NYLAP accreditation applies only be paintered fight niprocessary of lonk samples and translatistical discipling and according to the reduction nitroscopy of AHERA sir samples. This report nuist not be used to claim, and does not kindly preduct conflicution, approval, or endorsement by NY ELAP, AllA, NYLAP, strangers any agency of the Federal Government, All rights reserved. AMA Analytical Services, Inc. His report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or candillon of apparently identical extends are samples, investigated and is not necessarily indicative of the quality or candillon of apparently identical extends are samples, and these Laboratonies, this report is

An AIMA (#100470), NYLAE (10114341), and NY BLAP (#10920) Accredited Laboratory 4475 Forbes Bird. - Lanham, MD, 20706 - (301) 459-2640 - Yolf Free (800) 346-0961 - Fra (301) 459-2641

F COPY

AMA Analytical Services, Inc.



A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS



| 4.88 ar (524 78 | | | | 10/20/2011 | |
|-----------------|-----------------------|---------------------------------------------------------------------|---------------------------------|------------------------------------|------------|
| | | 1 | Non-Res | 10/20/2011 Report Date: 10/20/2011 | |
| | 511574 | 10/13/2011 | | 10/20/2011 | |
| | Chain Of Custody: | Date Submitted: | Person Submittings | Date Analyzed: | |
| | RC-Scannell | Delevare Cily, DE | RC-Scamell | Not Provided | |
| | Job Name: | Job Locafion: | Job Number: | P.O. Number: | |
| | National Guard Bureau | 301-IH Old Bay Lane, Alin: ARNG-CIG-P, State Millary Reservation | Havre de Catice, Maryland 21078 | | Nor-Re |
| | Cirent | Address | | | Attentions |

| | Minister of Dame Pr |
|---------------------------|---------------------------------------------|
| is for Lead | To be the Prairie |
| Absorption Analysis for I | Dampating |
| Summary of Atomic Absorp | of Twee Samule Torie Ast Westing Area Wings |
| ary of Atomic A | A See W. Ashania |
| Summar | Samuelo Turio |
| | Anglusie Tune |
| | Change Counts |

Puga 2 of 2

| The state of the s | Comments | ontrol samples |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| The same of the sa | Binal Result | See CC Summary for analytical results of quality control samples associated with these samples. |
| | gu leio). | See QC Summary for an associated with these samples. |
| Secretaria di consecuente | Reporting Limit | |
| | Area Wiped (ft) | 3, Water: SM-3111 010; Water: SM-31 arts per million (pp |
| remains and comment of a real copies and copies and copies of the comments of the copies of the copi | Air Volume (C) | 93/200(M)-70001 0/R-93/200(M)-7/ nasis mg/L= p |
| Contract of the Contract of th | Sample Type | olids; EPA 600/R VSolids: EPA 60 on a dry weight I |
| | Analysis Type | aints, and Soli/S s, Paints, and Soil r par million (ppm) |
| The second second | Chent Sample Analysis Type Sample Type Air Volume Number (L) | unace: Air, Wipes, Punace: Air, Wipe mgiKg = parts |
| أسارية والإسرائية والأرازي فالمرسدة فالمناز والمناز وا | AMA Sample Number | Analysis Method for Flame: Alr, Wipes, Paints, and Solf/Solids: EPA 600/R-93/200(M)-7000B; Water: SM-3111B Analysis Method For Furnace: Air, Wipes, Paints, and Solf/Solids: EPA 600/R-93/200(M)-7010; Water: SM-3113B N/A = Not Applicable ng/Kg = parts per million (ppm) on a dry weight basis ng/L = parts per million (ppm) |

ug/L = 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.

Annlyst Note: All results have two significant digits. Any additional digits shown Air and Wipe results are not corrected for any blank results change unless signed by the Technical Director or Deputy. All results are to be considered preliminary and subject to Final results for air and wipe samples are based on client should not be considered when interpreting the result. supplied information nor verified by this laboratory.



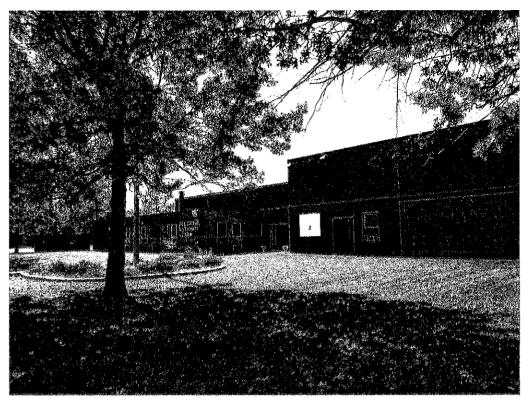
locations, and collection protocals are based upon the information provided by the persons submitting them and, aniess collected by persons the client. NVLAP accretisation applies only to polarized light microardance will the appropriate regulatory guidedines, unless otherwise requested by the client. NVLAP accretisation applies only to polarized light microardance will be discordance will the appropriate regulatory guidedines, unless otherwise requested by the client. NVLAP accretisation applies only to polarized light microardance will be discordance will be used to claim, and does not find product certification, approval, or endorsement by NV BLAP, ANLAP, ANLAP, any agency of the Federal Government All This report opplies only to the 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 Laborateonies, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and proughts compliced that it is not to be used, in whole or in part, he any advertising or publicity matter without prior results and nor proughts to be used, in whole or in part, he any advertising or publicity matter without prior results and nor promited for the condition from the same of the client to whom it is addressed and promited from the condition from the condition of the client to whom it is addressed and promited from the condition from the co rights reserved, AMA Analytical Services, Inc.

As ALBA (#100470), NYLAP (16) 143-0), and NY BLAP (#10920) Ascredited Laboratory 4475 Darbes Bryd. - Landam, MD, 20706 - (301) 459-2647 Toff Free (800) 346-0951 - Fax (301) 459-2643

| O'hane Refor he This. | OE POPERCEOSPACEOS NGB-THNE | Sible): REPORT TO: REP | Tith | The state of the s | Dite/Time: Contact: By: | Non-Responsive Shring |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------|---------------------------------------|
| Rge Lof Surmingeral | Submitted Information: 1. Job Name; RC SCALINE II. 2. Job Excation: De Muxue City, 3. Job P. RC SCALINE II. 4. Contact Person | ALD) Dec. 1725-4 Submitted Use principle in soon as technically less principle in soon as technically less principle in NOTENTAL BUSINESS HOURS NOTENTAL BUSINESS HOURS CHEANIS REquired by Noon Nest Day Cheanis Note Nest Day Cheanis Note | | VOLUME WITH: A KNATTH OF STATES OF S | X X X X X X X X X X X X X X X X X X X | X X X X X X X X X X X X X X X X X X X |
| Frige. Focused on Results A MAR HUM-TO) NY TWA HUM-TO) NY TARE OF THE STATE OF THE | ard Buraau Bay Lane Www.st, state oce, Marylan | (4.10), 342-02.73 OVES (milet liv pre-edicated) Date Date: | Asheshis Asiningsis L'Malie - Playe Indicate Eher Sype: L'Malie - Playe Indicate Eher Sype: L'Ablaid - Playe Indicate Filter Type: L'Ablaid - L'Abraid - Playe Indicate Indic | | | |

| | | Page 2 | तं रू | 1465-147 trent no | Spings 210 DEV. E.O.B. |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| A HIVIA Broalution Featilis Activa (Uniouris) NN 4475 Featiles Bivol. (201) 450-2640 v. (8) | HMB Bralytical Services, Inc. focused or results rundant with the services of | EAPT100203 | CHAIN | CHAIN OF CUSTODY | Plens Refer to this Editor Number For Suspices |
| Infingfibiling Informations Chair Name, Malienal G. Addions 1: 301-191 Ok | iinglisiing informations Clima Name, Mallenal Guaid Buraau Adsor I; 301-RCM Bay Lang Addoor 2; Alto MGBAXRESL State Military Reservation | ny Reservation. | | Submitted tuturmation: 1, 1966 Name; ISC — SCOOD = 1, 1966 Location. 2, 1666 Location. 3, 1966 Location. | N. 11. W. |
| . Articess S | ace, Maryland | | 0254 Information (Besides | (910) EG2-0254 5 Submitted by: Submitted by: Reporting Information (Hesinlis will be provided as soon as technically freathle): | Gi phyne V ((10) 942-9273. Signature: |
| APTENTAL LIGHTNESS (need to pro-pelochela) Linnedite Date Date Lightness This Dies | sk tet persone jevinitad) | O humolinic O Heat Day CL2 Day | MORNALALIA DA Day Date Day | NOTALAL MESTAJESKOURS. Day + Crawy Androna Will De Usway Androna Will De Day + Made to Academa Mell De Dae: | M metuja COCOPuli Dais Skere witi Repart 84 dijini 10 fec |
| Sheeking Ahiniyais Sheeking Ahiniyais Shahir - Dease Indicate Filter Type U Filtergelass U Filte | | | That Buth, U. F. Sare Pasterbulled. U. Fry State Pasterbulled. U. Fry State Pasterbulled. U. Freshbard State. U. Freshbard State. | (Q17) | Date Time Date D |
| LABORATORY STAFFONEN (CUSTORY) | L. Date/Time RCVD: 2. Date/Time Analyzed: 3. Results Reported To. 4. Communis | | (| Vin. Ny Priore. Vin. Date: | Sign: Sign: |

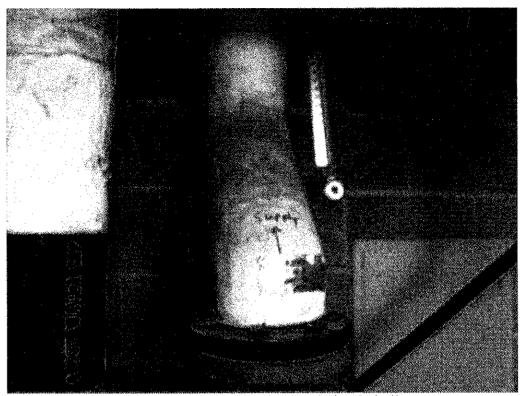
Appendix B Photographs



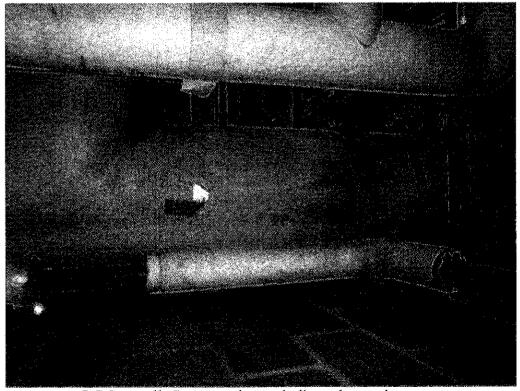
RC Scannell- Exterior



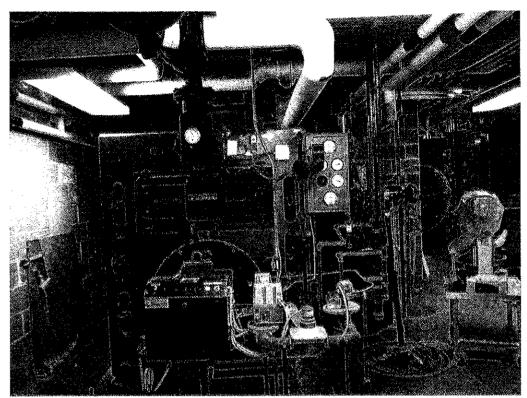
RC Scannell- Drill Hall



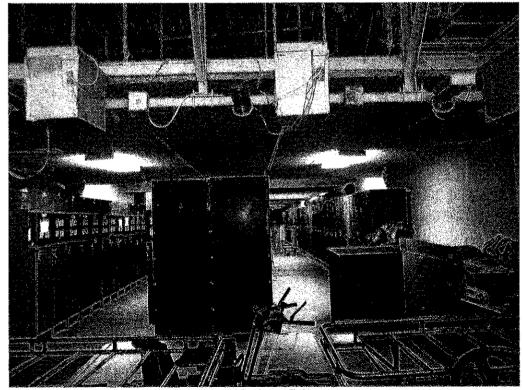
RC Scannell- Suspect asbestos pipe insulation in boiler room



RC Scannell- Suspect asbestos boiler exhaust pipe



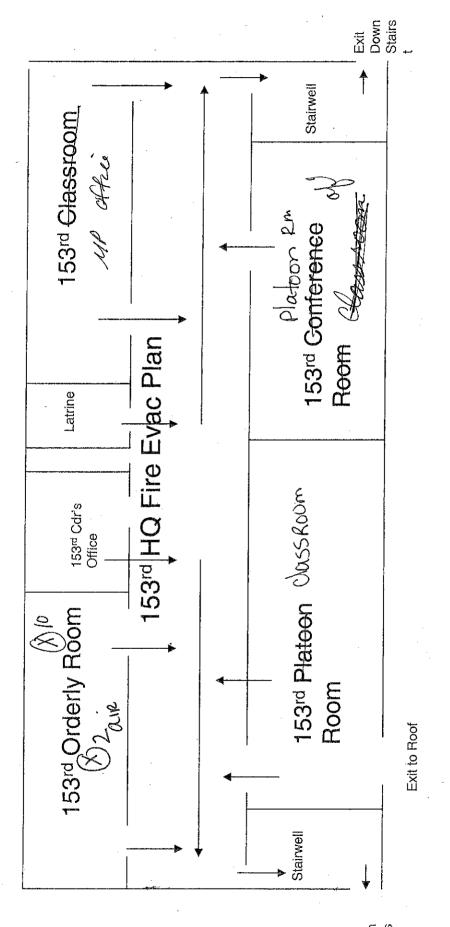
RC Scannell- Boiler



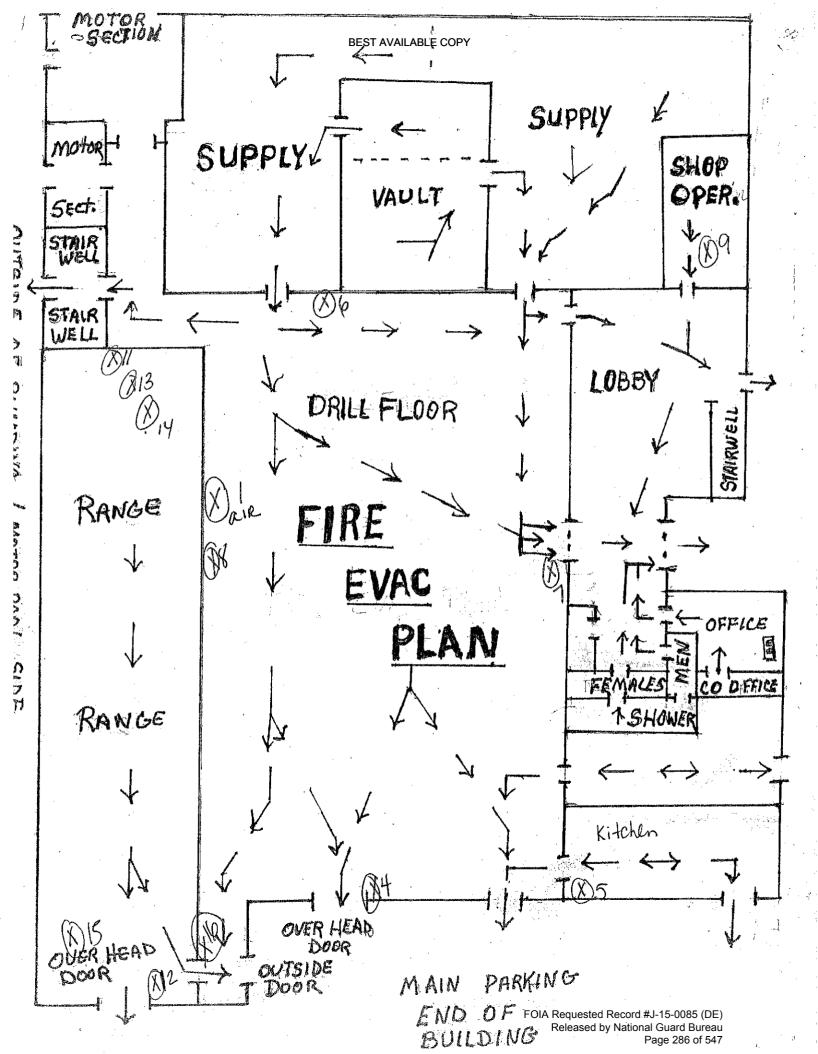
RC Scannell- Converted indoor firing range



Appendix C Floor Plan



FOIA Requested Record #J-15-0085 (DE)
Released by National Guard Bureau
Page 285 of 547



Appendix D References

Appendix D. References

- 1. Title 29 Code of Federal Regulations (CFR), Part 1910.1025, Occupational Safety and Health Administration, Occupational Exposure to Lead
- 2. American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Values and Biological Exposure Indices, 2011 Edition
- 3. Industrial Ventilation: A Manual of Recommended Practice for Design, 27th Edition
- 4. American Society of Heating, Refrigerating and Air-Conditioning Engineers, Ventilation for Acceptable Indoor Air Quality, 62.1-2010
- 5. RP-1-2004, Industrial Lighting, Illuminating Engineering Society of North America/ANSI
- 6. RP-7-2001, Industrial Lighting, Illuminating Engineering Society of North America/ANSI
- 7. National Emission Standard Hazardous Air Pollutants (NESHAP) The standards for asbestos are contained in 40 CFR 61.140 through 61.157.
- 8. Environmental Protection Agency (EPA) standards [40 Code of Federal Regulations (CFR) 745.227(h)(3)]
- 9. Derivation of Wipe Surface Screening Levels for Environmental Chemicals, the US Army Center for Health Promotion and Preventive Medicine (USACHPPM)
- 10. The US Army Technical Guide 277 Army Facilities Management Information Document on Mold Remediation
- 11. NG PAM 420-15 Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges, 3 NOV 06.
- 12. American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE), Thermal Environmental Conditions for Human Occupancy, 55-2010.



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

Industrial Hygiene Survey Report

National Guard Facility Scannell Readiness Center

Prepared For: National Guard Bureau Region North

301-IH Old Bay Lane

Havre de Grace, MD 21078

Survey Location: Joseph J. Scannell Readiness Center

Governor Bacon Health Center

Delaware City, DE 19706

Prepared By: Compliance Management International (CMI)

1215 Manor Drive

Suite 205

Mechanicsburg, PA 17055

Survey Date: November 5, 2012

Report Date: January 21, 2013



Manager, Industrial Hygiene Services

BEST AVAILABLE COPY

Table of Contents

| Section 1.0 Executive Summary | 3 |
|------------------------------------------------------------|----|
| Section 2.0 Operation Description & Observations | 4 |
| Section 3.0 Lead Testing | 5 |
| Section 4.0 Lighting | 7 |
| Section 5.0 Indoor Air Quality | 8 |
| Section 6.0 Suspect Asbestos Containing Building Materials | 10 |
| Section 7.0 Equipment | 11 |
| Section 8.0 Limitations | 12 |
| Appendix A. Laboratory Analysis Report | 13 |
| Appendix B. Photographs | 14 |
| Appendix C. Floor Plan | 15 |
| Appendix D. References | 16 |

Section 1.0 Executive Summary

An industrial hygiene survey was conducted on November 5, 2012 at the Joseph J. Scannell Readiness Center located at the Governor Bacon Health Center, 248 Kent Avenue, Delaware City, DE 19706. The survey was performed by Mr Non-Responsive

- 1. Lead surface and air samples were collected. Surface levels of lead exceeded 200 micrograms per square foot (ug/ft2) in three locations associated with the converted indoor firing range. Air samples were below the Occupational Safety and Health Administration (OSHA) Permissible Exposure Limit (PEL). See Section 3.0 for sampling results.
- 2. Lighting levels did not meet the American National Standard Institute/Illuminating Engineering Society of North America (ANSI/IESNA) recommended guideline in the Storage Supply Area and the 153rd Classroom. See Section 4.0 for sampling results.
- 3. Indoor air quality (IAQ) parameters of temperature, relative humidity, carbon monoxide and carbon dioxide (ventilation) were evaluated during the assessment. Temperature and relative humidity measurements were outside the recommended guidelines in all areas sampled. Heating Ventilation and Air-conditioning (HVAC) systems were not believed to be on (e.g., occupied mode) in some areas. Sample results were within regulatory standards and/or recommended guidelines for carbon monoxide and carbon dioxide. See Section 5.0 for sampling results.
- 4. Presumed asbestos-containing materials (PACM), where visible, were intact and in good condition. See Section 6.0 for detailed findings.

Section 2.0 Operation Description & Observations

The Joseph J. Scannell Readiness Center is mainly an administrative facility with a drill hall, administrative offices, classrooms and storage areas. There were approximately 10 full-time employees stationed at this facility at the time of this survey.

The building was constructed in the mid 1970s and is a two story structure with brick exterior walls, and a flat roof (replaced in 2011). Interior walls are a mix of concrete block and drywall. The floors are concrete, vinyl floor tile, and carpet. The building is set in a rural environment. This facility was acquired the facility in 1992.

The propane-fired, HVAC system present in the drill hall appeared to be in good condition. Multiple air-conditioning units are mounted on the rooftop, but could not be inspected at the time of the survey. The HVAC systems were believed to be in limited use at the time of this survey due to minimal occupancy in the building. However, the staff on site could not confirm this.

The firing range has been converted into a locker/storage area. However, the bullet trap remains. This area appeared to be clean and well kept.

No vehicle or shop area exists at the facility. There is no attached garage at the facility.

There are no child-care services in the building.

Overall housekeeping practices were good.

Ms. Non-Responsive, RN, BSN, COHN-S State Occupational Health Nurse, was present during part of the survey.

Section 3.0 Lead Testing

Due to the age of the building there is the potential for lead based paint to be present. Various surfaces within the facility were screened for lead using surface wipe samples. Surface wipe samples were collected in accordance with the American Society for Testing and Materials (ASTM) E 1792 protocols. Air samples were collected using 0.8 um mixed cellulose ester (MCE) filter cassettes attached to low volume air sampling pumps. Blank samples were submitted to the laboratory for quality control purposes. Samples were sent to AMA Analytical Services, Inc., in Lanham, Maryland, for lead analysis using Environmental Protection Agency (EPA) Method 600/R-93/200 (M)-7420. A copy of the laboratory analysis report can be found in Appendix A.

Lead Testing Results Summary

| Sample # | Location | Air ug/m³ | Surface ug/ft ² |
|----------|--------------------------------------------------------|--------------|-------------------------------|
| 1 | Converted Firing Range | <3.7 | * |
| 2 | Drill Hall | <3.7 | * |
| 3 | Floor - Center of Drill Hall | * | <110 |
| 4 | Drill Hall – Top of Wall Locker | * | <110 |
| 5 | Kitchen - Top of Desk | * | <110 |
| 6 | Kitchen – Top of Wall Locker | * | <110 |
| 7 | Drill Hall – Top of Soda Machine | * | 160 |
| 8 | Converted Firing Range – Floor | * | 250 |
| 9 | Converted Firing Range – Bullet Trap | * | 360 |
| 10 | Converted Firing Range – Top of Wall Locker | * | <110 |
| 11 | Converted Firing Range – HVAC Supply Diffuser Grill | * | 16,000 |
| 12 | Readiness Office – Window Sill | * | <110 |
| 13 | Supply Office – Top of Book Shelf | * | <110 |
| 14 | Conference Room – Conference Table | * | <110 |
| 15 | 153 rd Classroom – Top of Desk | * | <110 |
| 16 | 153 rd Classroom – Top of File Cabinet | * | <110 |
| 17 | Wipe Blank | * | <12 (ug) |
| 18 | Short Hall off Converted Firing Range – Floor | * | 120 |
| 19 | Air Blank | * | <3 (ug) |

Key: Bolded results exceed listed criteria

ug/ft² – micrograms per square foot

ug/ft³ – micrograms per cubic meter

Source: NG PAM 420-15 Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges

The National Guard Bureau currently utilizes 200 ug/ft² as a benchmark for identifying lead-contaminated surfaces. This guideline is referenced in NG PAM 420-15 "Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges"

BEST AVAILABLE COPY

as a satisfactory surface contamination level unless the facility is utilized as a childcare facility. In such cases, U.S. Department of Housing and Urban Development (HUD) limit of 40 ug/ft^2 on floors and 250 ug/ft^2 on windowsills should be observed. There is no child care provided at this facility.

Lead surface and air samples were collected.

- Surface levels of lead were at or above the recommended guideline of 200 ug/ft² in the following locations:
 - o Converted Firing Range Floor
 - o Converted Indoor Firing Range Bullet Trap
 - o Converted Indoor Firing Range HVAC Supply Diffuser

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

- Air samples for lead were below the Occupational Safety and Health Administration (OSHA) Permissible Exposure Limit of 50 micrograms per cubic meter (ug/m³).
- Paint was observed to be in good condition throughout the facility.

Section 4.0 Lighting

A lighting assessment was conducted throughout the facility. Measurements were collected using a Cooke Cal-Light 400L Precision Light Meter (Serial No. K98364). The light meter was last calibrated in April 2012. Measurements collected were compared to ANSI/IESNA RP-7-01 Lighting Industrial Facilities and RP-1-04 Office Lighting.

Light Survey Assessment Summary

| Location | Foot Candles (FC) | Recommended Lighting (FC) | Sufficient Lighting |
|-----------------------------|----------------------|------------------------------|------------------------|
| Drill Hall | 18.9 | 10 | Yes |
| Storage Area - Supply Room | 10.8 | 30 | No |
| Converted Firing Range – | | | |
| Storage | 27.2 | 10 | Yes |
| Kitchen | 76.5 | 50 | Yes |
| Boiler Room | 88.5 | 30 | Yes |
| Readiness Room | 31.5 | 30 | Yes |
| Conference Room | 64.2 | 30 | Yes |
| 153 rd Classroom | 28.5 | 30-50 | No |

Bolded results did not meet listed criteria

FC = Foot Candles

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

Summary of findings and recommendations:

The lighting level did not meet the minimum recommended guideline in the supply area and the 153rd classroom. Lighting should be improved in these areas.

Section 5.0 Indoor Air Quality

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

The American Society of Heating, Refrigerating, and Air Conditioning Engineers, Inc. (ASHRAE) have developed indoor air quality guidelines for mechanically ventilated office buildings and commercial settings (ASHRAE standard 62.1-2010). ASHRAE specifies temperature and relative humidity ranges for human comfort (ASHRAE 55-2010). The US Army Technical Guide 277 Army Facilities Management Information Document on Mold Remediation, recommends maintaining a relative humidity range between 30 to 60% in occupied areas.

The following table summarizes the measurements collected.

IAO Assessment Summary

| Location | Temperature (°F) | Relative Humidity (%) | Carbon Dioxide (ppm) | Carbon Monoxide (ppm) |
|-----------------------------|------------------|-----------------------------|----------------------------|-----------------------------|
| Drill Hall | 67.5 | 28.4 | 410 | 1.9 |
| Kitchen | 66.2 | 30.3 | 404 | 1.6 |
| Boiler Room | 69.1 | 24.9 | 503 | 1.3 |
| Converted Firing Range | 65.7 | 26.3 | 367 | 1.5 |
| Supply Area | 67.5 | 35.6 | 461 | 2.3 |
| Readiness Office | 67.1 | 28.3 | 466 | 1.7 |
| Conference Room | 65.7 | 29.0 | 507 | 1.9 |
| 153 rd Classroom | 66.6 | 30.6 | 424 | 2.1 |
| Outdoors | 55.0 | 30.3 | 314 | 0.0 |
| Criteria | 68.0-79.0 | 30-60 | <1,014 | <9.0 |

Key: Bolded results exceed listed criteria

PPM = Parts per million

Source: The American Society of Heating, Refrigerating, and Air Conditioning Engineers, Inc. (ASHRAE) 55-2010, 62.1-2010 & The US Army Technical Guide 277 Army Facilities Management Information Document on Mold Remediation.

Summary of findings and recommendations:

- Temperature and relative humidity measurements were outside the recommended guidelines for comfort (30-60% and 68.0-79.0 °F) in all areas sampled.
- Carbon dioxide levels did not exceed the recommended ceiling of 1,014 parts per million (ppm). This indicates that outdoor air ventilation is adequate in all areas.

BEST AVAILABLE COPY

- Carbon monoxide levels were less than the recommended ceiling of 9 ppm.
- A visual inspection was conducted throughout accessible portions of the facility. The visual inspection was conducted to assess sources or pathways of factors potentially deleterious to IAQ. The following observations and conditions were noted at the time of this survey.
 - o It was reported that a roof-top mounted AC unit had leaked during the recent summer, causing slight water damage to several ceiling tiles (one tile exhibited a small amount of fungal growth) and a water stain on the carpet in the conference room. The unit was repaired.
 - Three water damaged ceiling tiles were observed in the main lobby. Identify and repair the source of the water infiltration. Replace any water stained ceiling tiles.

Section 6.0 Suspect Asbestos Containing Building Materials

Based on the age of the building (e.g., originally constructed in 1976) asbestos-containing materials (ACM) could be present in the facility.

Presumed asbestos-containing materials (PACM) were observed in the following areas:

- 1. Mudded pipe fittings were observed in the drill hall, mechanical room, supply area, boiler room, and motor-pool area. These were observed to be intact and in good condition. Fittings could be present in other locations including hidden areas such as behind walls and ceilings.
- 2. Breeching (approx 50 ft²) was observed in the boiler room. It was observed to be intact and in good condition.

Inaccessible areas such as behind walls or crawlspaces were not inspected and no bulk samples were collected.

Section 7.0 Equipment

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

| Equipment | Serial # | Calibration Date | Value |
|---------------------------|-------------|------------------|----------|
| TSI QTrak IAQ Meter | 02041015 | 8/2012 | NA |
| Cal Light 400 Light Meter | K98364 | 4/2012 | NA |
| TSI 4199 Calibrator | 41460827002 | 8/2012 | NA |
| SKC Air Sampling Pump | 648349 | 11/2/2012 | 2.45 LPM |
| SKC Air Sampling Pump | 647610 | 11/2/2012 | 2.45 LPM |

Section 8.0 Limitations

This report summarizes our evaluation of the conditions observed at the above referenced location. Our findings are based upon our observations and sampling results obtained at the facility at the time of our visit. The report, results, and subsequent recommendations reported herein are also limited to the information available at the time it was prepared and investigated. Conditions may have been in effect prior to the sampling events that have changed over time and which cannot be predicted within the scope of this limited investigation. Any conditions discovered which deviate from the data contained in this report should be presented to us for our evaluation.

This report is intended for the exclusive use of the client. This report and the findings herein shall not, in whole or in part, be relied upon by any other parties, disseminated or conveyed to any other party without prior written consent of the National Guard Bureau, and Compliance Management International. The findings are relative to the dates of our site visits and should not be relied upon for substantially later dates.

Appendix A. Laboratory Analysis Report

AMA Analytical Services, Inc.

BEST AVAILABLE COPY

A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS



LAB #100470

Client:

National Guard Bureau

Job Name:

Not Provided

Chain Of Custody:

514484

Address:

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

Job Location:

Joseph J Scannell Armory

Date Submitted:

11/13/2012

Havre de Grace, Maryland 21078

Job Number:

Not Provided

Person Submitting:

Von-Respons

P.O. Number:

W912K6-09-A-0003

Date Analyzed:

11/16/2012

11/16/2012

Report Date:

Attention:

Non-Responsive

State Military Reservation

Summary of Atomic Absorption Analysis for Lead

Page 1 of 2

| AMA Sample Number | Client Sample Number | | | | Total ug | Final Res | ult | Comments | | | |
|----------------------|-------------------------|-------|------------|------|----------|-----------|--------|----------|-------|--------|--|
| 13014224 | 1 | Flame | Air | 816 | N/A | 3.7 | ug/m³ | <3 | <3.7 | ug/m³ | |
| 13014225 | 2 | Flame | Air | 816 | N/A | 3.7 | ug/m³ | <3 | <3.7 | ug/m³ | |
| 13014226 | 3 | Flame | Wipe | **** | 0.111 | 110 | ug/fl² | <12 | <110 | ug/ft² | |
| 13014227 | 4 | Flame | Wipe | **** | 0.111 | 110 | ug/ft² | <12 | <110 | ug/ft² | |
| 13014228 | 5 | Flame | Wipe | **** | 0.111 | 110 | ug/fl² | <12 | <110 | ug/ft² | |
| 13014229 | 6 | Flame | Wipe | **** | 0.111 | 110 | ug/ft² | <12 | <110 | ug/ft² | |
| 13014230 | 7 | Flame | Wipe | **** | 0.111 | 110 | ug/ft² | 18 | 160 | ug/ft² | |
| 13014231 | 8 | Flame | Wipe | **** | 0.111 | 110 | ug/ft² | 28 | 250 | ug/ft² | |
| 13014232 | 9 | Flame | Wipe | **** | 0.111 | 110 | ug/fl² | 40 | 360 | ug/ft² | |
| 13014233 | 10 | Flame | Wipe | **** | 0.111 | 110 | ug/ft² | <12 | <110 | ug/ft² | |
| 13014234 | 11 | Flame | Wipe | **** | 0.111 | 110 | ug/ft² | 1700 | 16000 | ug/ft² | |
| 13014235 | 12 | Flame | Wipe | **** | 0.111 | 110 | ug/ft² | <12 | <110 | ug/ft² | |
| 13014236 | 13 | Flame | Wipe | *** | 0.111 | 110 | ug/ft² | <12 | <110 | ug/ft² | |
| 13014237 | 14 | Flame | Wipe | **** | 0.111 | 110 | ug/ft² | <12 | <110 | ug/ft² | |
| 13014238 | 15 | Flame | Wipe | **** | 0.111 | 110 | ug/ft² | <12 | <110 | ug/ft² | |
| 13014239 | 16 | Flame | Wipe | **** | 0.111 | 110 | ug/ft² | <12 | <110 | ug/ft² | |
| 13014240 | 17 | Flame | Wipe Blank | **** | N/A | 12 | ug | | <12 | ug | |
| 13014241 | 18 | Flame | Wipe | **** | 0.111 | 110 | ug/ft² | 14 | 120 | ug/fl² | |
| 13014242 | 19 | Flame | Air Blank | 0 | N/A | 3 | ug/m³ | | <3 | ug | |

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

AMA Analytical Services, Inc.

BEST AVAILABLE COPY



A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS



LAS #100470

Client:

National Guard Bureau

Job Name:

Not Provided

Chain Of Custody:

514484

Address:

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

Job Location:

Joseph J Scannell Armory

Date Submitted:

11/13/2012

State Military Reservation

Job Number:

Not Provided

Person Submitting:

Havre de Grace, Maryland 21078

P.O. Number:

W912K6-09-A-0003

Date Analyzed:

11/16/2012

Report Date:

11/16/2012

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

Reporting

Total ug

associated with these

samples.

Final Result

Number

(L)

(ft2)

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

N/A = Not Applicable %Pb = percent lead on a dry weight basis

ug = micrograms

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

ug/L = parts per billion (ppb)

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

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

should not be considered when interpreting the result.

Air and Wipe results are not corrected for any blank results

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

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

Technical Manager:



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

Analys

Released by National Guard Bureau

Page 304 of 547

M

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

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

4. Comments:

CHAIN OF CUSTODY

(Please Refer To Tl Number For Inquire 514484 pase lot 2

| | 301-IH Old Bay Lane | | | | | | 2. Jol | Locatio | 他_ Jos | sept | 2 | 20 | A CA | Nel | 11 AV mo | rv. | 11/5/12 |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|-----------------------------------------|-----------------------------------------------------------|-----------------------------------------|-----------|---------------------------------------------|-------------------|--------------------------|---------|--------------|-------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------|-----------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | Attn: NGB-AVN-SI, State | | | | | | 3. Job | #: | | | | | | DO 4 | WOLDER | 0.4.0003 | 117 |
| 4. Address 3: <u>Havre de Grace, Maryland 21078</u> 5. Phone #: <u>(410) 942-0273</u> | | | | | | 4. Co | ntact Per | son | | 1 | R | 0 | In | onsi | -0273 | | |
| Phone #:(410) | 0) 942-0273 | _ Fax # | :_ (410) s | 942-0254 | | | 5. Std | omitted b | IV | | | | 0 | 7 | Olion | V | 16 |
| | | _ | Report | ing Infor | | | ts will be | provide | ed as soo | n as te | chnice | illy fe | asible | : | | | |
| | S (must be pre-scheduled) Due: | | ☐ Immedia | ste. | Q 3 D | | BUSINE | | 101 | V2 N3 | 101 - 1211 T | | M) Too | luda Cr | RE OC/Field Data Sho | PORT TO: | |
| | Due: | | Next Da | ıy 🤰 | ■ 5 D | ay + | holy | | Results Re (Every Att | | | on | Oh | A NO | n-Respons | tets with Report | |
| omments: | | _ | LI 2 Day | 98 | Date D | Due: | YOU | | Made to A | | | | U Fa | | n-respons | us.army.mil | |
| - North Amelian | | | - | 111/14/19/19/2019 | | | | | | | N. | wheel speed | □ Ve | | | Pus.army.mil | |
| sbestos Analysis <u>"M Air</u> – Please India | icate Filter Type: | | 2 | TEM Bulk | D 108 | 4/Chatfie | ld | /01 | TV | | -70 | | Anniya Ph Pain | | TQ) | , | |
| ☐ NIOSH 7400_ ☐ Fiberglass | (QTY) | 2 | | UNY: | State Pl | LM/TEM | | (OT | Y) | | | U | b Dust | Wipe (| wine type Glas- | wpe) 16 | (OTY) |
| EM Air - Please India | icate Filter Type: | | | ☐ Resi | dual As | sh | ((| TY) | | | | U) | b Air_ | 15 | (OTY) | | |
| O AHERA | (QTY) (QTY) | | J | IEM Dust U Qual | . (pres/ | abs) Vac | um/Dust. | | OT | a | | | TCL. | 9 | (QT (OTY) | | |
| U Other (specify_ | (Q1Y) | (OTY) | | Quar | n. (s/are | ea) Vacuu | m D5755- | 95 | ((| (YTÇ | | Q1 | Drinkin, | Water | DPb(OTY |) 🗆 Cu(QTY) 🗅 | As(QTY) |
| M Bulk | | | 1 | Quar TEM Water | | ea)Dust D | 06480-99_ | | (QTY |) | | u, | waste v | ater 🗀 | Pb(OTY) U | OCu(QTY) OA | s (OTV) |
| | | IY) | | Do | / | | | | | | 100 | 44. | 14:51.43 Y | ice (late | cana | (Q1) | 1 |
| ☐ EPA 600 – Visu ☐ EPA Point Cour | nt (OTY) | | | U Qual | . (pres/ | abs) | | (QTY) | | | a. | | Amilya | | | | |
| ☐ EPA 600 – Visu ☐ EPA Point Cour ☐ NY State Friabl | nt (QTY) | | | Q ELA | P 198.3 | 2/EPA 10 | 0.2 | ((| QTY) | | ari | Č | ollectio | n Appa | ratus for Spore Tr | aps/Air Samples: | |
| ☐ EPA Point Cour ☐ NY State Friabl ☐ Gray, Reduction | nt(QTY) le 198.1(QTY) on ELAP 198.6 (0 | OTYı | | Q ELA Q EPA | P 198.3 100.1_ | 2/EPA 10 | 0.2(QT | <u>((</u> | | | | (| Collectio | n Appa n Medi | ia | | |
| ☐ EPA Point Cour ☐ NY State Friabl ☐ Grav. Reduction ☐ Other (specify_ ISC | nt (QTY) le 198.1 (QTY) n ELAP 198.6 (QTY) | OTYı | | D ELA D EPA | P 198.3 100.1_ amples | 2/EPA 10 | 0.2(QT | (C) Ondition u | | rwise n | | | Collection | n Appa n Medi ap Swab | in(QTY) | Surface Vacuum Dust Culturable ID Genus (Med | (QTY) |
| ☐ EPA Point Cour ☐ NY State Friabl ☐ Grav. Reductior ☐ Other (specify_ ISC ☐ Vermiculite | nt(QTY) le 198.1(QTY) n ELAP 198.6((| QTY) (QTY) | .M/TEX(Q.a | Q ELA Q EPA All s (TEM V | P 198.3 100.1_ amples | 2/EPA 10 | 0.2(QT | (C) Ondition u | | rwise n | | | Collection Collection Spore-Tourface Surface | n Appa n Medi ap Swab Tape | in(QTY) | Surface Vacuum Dust | (QTY) |
| ☐ EPA Point Cour ☐ NY State Friabl ☐ Grav. Reductior ☐ Other (specify_ ISC ☐ Vermiculite | nt(QTY) le 198.1(QTY) on ELAP 198.6 (0 | QTY) (QTY) _(Qal) PL | 127 | O ELA O EPA All s (TEM V | P 198.3 100.1_ amples Vater sc | received | 0.2(QT' | r) ondition u | nless othe | | oted. | | Collectic Collectic Spore-T Surface Surface ther(Spe | n Appa n Medi ap Swab rape rify | in(QTY) | l Surface Vacuum Dust l Culturable ID Genus (Med l Culturable ID Species (Med | (QTY) |
| ☐ EPA Point Cour ☐ NY State Friabl ☐ Grav. Reductior ☐ Other (specify_ ISC ☐ Vermiculite ☐ Asbestos Soil PL CLIENT ID | INT (QTY) IDE 198.1 (QTY) IN ELAP 198.6 (QTY) INT (Qual) PLM (Quan) PLM/TEM SAMPLE INFORMATI SAMPLE LOCATION/ | QTY) (QTY) _(Qal) PL ON | VOLUME | O ELA O EPA (TEM V | P 198.3 100.1_ amples Vater sc | received | 0.2(QT' | r) ondition u | nless othe | | oted. | | Collectic Collectic Spore-T Surface Surface ther(Spe | n Appa n Medi ap Swab rape rify | (QTY) (QTY) (QTY) (QTY) (QTY) (QTY) | D Surface Vacuum Dust Culturable ID Gequs (Med Culturable ID Species (Med | (QTY) a)(Qis)((|
| ☐ EPA Point Cour ☐ NY State Friabl ☐ Grav. Reductior ☐ Other (specify_ ISC ☐ Vermiculite ☐ Asbestos Soil PL | INT (QTY) IDE 198.1 (QTY) IN ELAP 198.6 (QTY) INT (Qual) PLM (Quan) PLM/TEM SAMPLE INFORMATI SAMPLE LOCATION IDENTIFICATION | QTY) (QTY) _(Qal) PL ON DATE | VOLUME | O ELA O EPA (TEM V WIPE AREA | P 198.3 100.1_ amples Vater sc | received | 0.2(QT in good e °C) | r) ondition u | nless othe | | oted. | | Collectic Collectic Spore-T Surface Surface ther(Spe | n Appa n Medicap Swab Fape rify | (QTY) (QTY) (QTY) (QTY) (QTY) (QTY) (QTY) (QTY) | D Surface Vacuum Dust D Culturable ID Genus (Med I Culturable ID Species (Med CLIENT CONTACT ORATORY STAFF ON | (QTY) (QTY) (da)((|
| ☐ EPA Point Cour ☐ NY State Friabl ☐ Grav. Reduction ☐ Other (specify_ ISC ☐ Vermiculite ☐ Asbestos Soil PL CLIENT ID NUMBER | INT (QTY) IN ELAP 198.6 (QTY) IN ELAP 198.6 (QTY) INT (Qual) PLM_(Quan) PLM/TEM_ SAMPLE INFORMATY SAMPLE LOCATION/ IDENTIFICATION FILLING ARABSE | QTY) (QTY) _(Qal) PL ON | VOLUME (LITERS) | O FLA O EPA (TEM V WIPE AREA 8/4 | P 198.3 100.1_ amples Vater sc | received | O.2(QT lin good e °C) | r) ondition u | nless othe | | oted. | | Collectic Collectic Spore-T Surface Surface ther(Spe | n Appa n Medicap Swab Fape rify | (QTY) (QTY) (QTY) (QTY) (QTY) (QTY) | D Surface Vacuum Dust D Culturable ID Genus (Med I Culturable ID Species (Med CLIENT CONTACT ORATORY STAFF ON | (QTY) a)(Qis)((|
| ☐ EPA Point Cour ☐ NY State Friabl ☐ Grav. Reduction ☐ Other (specify_ ISC ☐ Vermiculite ☐ Asbestos Soil PL CLIENT ID NUMBER ☐ | INT. (QTY) INTELAP 198.6 (QTY) INT. (Qual) PLM (Quar) PLMTEM SAMPLE INFORMATY SAMPLE LOCATION IDENTIFICATION FILMS RANGE DYN HAN | QTY) (QTY) _(Qal) PL ON DATE | VOLUME (LITERS) | WIPE AREA | P 198.3 100.1_ amples Vater sc | received | (QT) (in good e | r) ondition u | nless othe | | oted. | | Collectic Collectic Spore-T Surface Surface ther(Spe | n Appa n Medicap Swab Fape rify | (QTY) (QTY) (QTY) (QTY) (QTY) (QTY) (QTY) (QTY) | D Surface Vacuum Dust D Culturable ID Genus (Med I Culturable ID Species (Med CLIENT CONTACT ORATORY STAFF ON | (QTY) (QTY) (da)((|
| ☐ EPA Point Cour ☐ NY State Friabl ☐ Grav. Reduction ☐ Other (specify_ ISC ☐ Vermiculite ☐ Asbestos Soil PL CLIENT ID NUMBER ☐ | INT | QTY) (QTY) _(Qal) PL ON DATE | VOLUME (LITERS) | WIPE AREA | P 198.3 100.1_ amples Vater sc | received | 0.2(QT lin good e (C) LVSIS X | r) ondition u | nless othe | | oted. | | Collectic Collectic Spore-T Surface Surface ther(Spe | n Appa n Medicap Swab Fape rify | (QTY) (QTY) (QTY) (QTY) (QTY) (QTY) (QTY) (QTY) | D Surface Vacuum Dust D Culturable ID Genus (Med I Culturable ID Species (Med CLIENT CONTACT ORATORY STAFF ON | (QTY) (QTY) (da)((|
| ☐ EPA Point Cour ☐ NY State Friabl ☐ Grav. Reductior ☐ Other (specify_ ISC ☐ Vermiculite ☐ Asbestos Soil PL CLIENT ID | INT (QTY) 10: 198.1 (Q | QTY) (QTY) _(Qal) PL ON DATE | VOLUME (LITERS) | WIPE AREA S/4 Y X 4 Y X 4 | P 198.3 100.1_ amples Vater sc | received | 0.2(QT'\)(in good e°C) | r) ondition u | nless othe | | oted. | | Collectic Collectic Spore-T Surface Surface ther(Spe | n Appa n Mediap Swab Tape rify | (QTY) (QTY) (QTY) (QTY) (QTY) (QTY) (QTY) (LAB Date/Time; | D Surface Vacuum Dust Culturable ID Genus (Med I Culturable ID Species (Med CLIENT CONTACT ORATORY STAFF ON Contact: | (QTY) (QTY) (Gis) (QTY) (Gis) (GIS |
| ☐ EPA Point Cour ☐ NY State Friabl ☐ Grav. Reduction ☐ Other (specify_ ISC ☐ Vermiculite ☐ Asbestos Soil PL CLIENT ID NUMBER ☐ | INT (QTY) 10: 198.1 (QTY) 10: 198.1 (QTY) INT ELAP 198.6 (QTY) INT (Qual) PLM (Quan) PLM/TEM SAMPLE INFORMATI SAMP | QTY) (QTY) [Qall PL | VOLUME (LITERS) 5/5-33 Fig. 57 | WIPE AREA 5/6 9'x 4' 4'x 4' | P 198.3 100.1_ amples Vater sc | received | 0.2(QT lin good e (C) LVSIS X | r) ondition u | nless othe | | oted. | | Collectic Collectic Spore-T Surface Surface ther(Spe | n Appa n Mediap Swab Tape rify | (QTY) (QTY) (QTY) (QTY) (QTY) (QTY) (QTY) (QTY) | D Surface Vacuum Dust Culturable ID Genus (Med Culturable ID Species (Med CLIENT CONTACT ORATORY STAFF ON Contact: | (QTY) (QTY) (da)((|
| ☐ EPA Point Cour ☐ NY State Friads ☐ Grav. Reduction ☐ Other (specify_ ISC ☐ Vermiculite ☐ Asbestos Soil PL CLIENT ID NUMBER ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ | INT. (QTY) 10 198.1 (QTY) 10 198.1 (QTY) 11 198.6 (QTY) 12 198.6 (QTY) 13 198.1 (Quan) PLINTEN SAMPLE THEORINATY SAMPLE LOCATION IDENTIFICATION FICING ARISE DOUBLE HALL Floor KITCHEN DOOK KITCHEN DOOK KITCHEN WORLLOCK | QTY) (QTY) (Qal) P. DATE | VOLUME (LITERS) 5/5-32 | WIPE AREA SIG | P 198.3 100.1_ amples Vater sc | received | 0.2(QT' | r) ondition u | nless othe | | oted. | | Collectic Collectic Spore-T Surface Surface ther(Spe | n Appa n Mediap Swab Tape rify | (QTY) (QTY) (QTY) (QTY) (QTY) (QTY) (QTY) (LAB Date/Time; | D Surface Vacuum Dust Culturable ID Genus (Med I Culturable ID Species (Med CLIENT CONTACT ORATORY STAFF ON Contact: | (QTY) (QTY) (Gis) (QTY) (Gis) (GIS |
| ☐ EPA Point Cour ☐ NY State Friads ☐ Grav. Reduction ☐ Other (specify_ ISC ☐ Vermiculite ☐ Asbestos Soil PL CLIENT ID NUMBER ☐ | INTERPORT OF THE PROPERTY OF T | QTY) (QTY) (Qal) P. DATE 11/5 | VOLUME (LITERS) 5/5-33 Fig. 57 | WIPE AREA 8/6 9'X4' 9'X4' 9'X4' | P 198.3 100.1_ amples Vater sc | received | 0.2(QT lin good e (C) | r) ondition u | nless othe | | oted. | | Collectic Collectic Spore-T Surface Surface ther(Spe | n Appa n Mediap Swab Tape rify | (QTY) (QTY) (QTY) (QTY) (QTY) (QTY) (QTY) (LAB Date/Time; | D Surface Vacuum Dust Culturable ID Genus (Med I Culturable ID Species (Med CLIENT CONTACT ORATORY STAFF ON Contact: | (QTY) (QTY) (Gis) (QTY) (Gis) (GIS |
| □ EPA Point Cour □ NY State Friabl □ Grav. Reduction □ Other (specify_ ISC □ Vermiculite □ Asbestos Soil PL CLIENT ID NUMBER □ , | INT. (QTY) 10: 198.1 (QTY) 10: 198.1 (QTY) 10: 198.1 (QE) | QTY) (QTY) (QTY) IQall PL ON DATE 11/5 | VOLUME (LITERS) | WIPE AREA SIG | P 198.3 100.1_ amples Vater sc | received | 0.2(QT' | r) ondition u | nless othe | | oted. | | Collectic Collectic Spore-T Surface Surface ther(Spe | n Appa n Medi ap Swab Tape ify | in | D Surface Vacuum Dust Culturable ID Genus (Med Culturable ID Species (Med CLIENT CONTACT ORATORY STAFF ON Contact: Contact: | (QTY) (QTY) (GIS (A) (CIS (A) (CIS (A) (A) (CIS (A) |
| ☐ EPA Point Cour ☐ NY State Friabl ☐ Grav. Reduction ☐ Other (specify_ ISC ☐ Vermiculite ☐ Asbestos Soil PL CLIENT ID NUMBER ☐ 2 4 | IN (QTY) 10: 198.1 (QT | QTY) (QTY) (QTY) IQall PL ON DATE 11/5 | VOLUME (LITERS) | WIPE AREA SIGN Y'X' Y'X' Y'X' Y'X' Y'X' Y'X' Y'X' | P 198.3 100.1_ amples Vater sc | received | 0.2(QT lin good e (C) | r) ondition u | nless othe | | oted. | | Collectic Collectic Spore-T Surface Surface ther(Spe | n Appa n Medi ap Swab Tape ify | (QTY) (QTY) (QTY) (QTY) (QTY) (QTY) (QTY) (LAB Date/Time; | D Surface Vacuum Dust Culturable ID Genus (Med I Culturable ID Species (Med CLIENT CONTACT ORATORY STAFF ON Contact: | (QTY) (QTY) (Gis) (QTY) (Gis) (GIS |
| ☐ EPA Point Cour ☐ NY State Friabl ☐ Grav. Reduction ☐ Other (specify_ ISC ☐ Vermiculite ☐ Asbestos Soil PL CLIENT ID NUMBER ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ | IN (QUE) PLM (QUE) PLMTEM SAMPLE INFORMATI SAMPLE LOCATION DENTIFICATION FILING RANGE EVITY RANGE TO FILING RA | QTY) (QTY) (QTY) IQali PL ON DATE II/5 | VOLUME (LITERS) | WIPE AREA SIGN Y'X' Y'X' Y'X' Y'X' Y'X' Y'X' Y'X' | P 198.3 100.1_ amples Vater sc | received | 0.2 (QT | r) ondition u | nless othe | - LSnq | Attain | | Collection | n Appa nn Medi rap Swab Tape Cape | ia | D Surface Vacuum Dust Culturable ID Genus (Med Culturable ID Species (Med CLIENT CONTACT ORATORY STAFF ON Contact: Contact: | By: |
| ☐ EPA Point Cour ☐ NY State Friabl ☐ Grav. Reduction ☐ Other (specify_ ISC)☐ Vermiculite ☐ Asbestos Soil PL CLIENT ID NUMBER ☐ , | IN (QTY) 10: 198.1 (QT | QTY) (QTY) (QTY) IQali PL ON DATE 11/5 | VOLUME (LITERS) | WIPE AREA SIGN Y'X' Y'X' Y'X' Y'X' Y'X' Y'X' Y'X' | P 198.3 100.1_ amples Vater s: | ANA | 0.2(QT lin good e (C) | Ondition u | al Ala | - LSnq | Attain | | Collection | n Appa nn Medi rap Swab Tape Cape | ia | D Surface Vacuum Dust Culturable ID Genus (Med Culturable ID Species (Med CLIENT CONTACT ORATORY STAFF ON Contact: Contact: | By: |

210 REV. 6.08

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

Focused on Results www.amulab.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) 5144 24 pase refr

| Isiling/Billing Information Client Name: National | | | | | | | | ttal Info Name: | ormatio | a: | | | | | | | | | |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|--------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|-----------------|---------------------------------------------------|--------------------|----------------------|--------------|------------|--------|-------------------------------------------------------------------------------------------|-------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|-----------------|--|
| Address 1:301-IH C | | | | | | | 2. Job | Locati | | sex | LO | 5 | S A | NNO | on Arm | 00 | | | |
| Address 2: Attn: NG | B-AVN-SI, State | Military | Reserve | ation | • | | 3. Job | #: | | | | | - | DC | The second secon | 2 00 A 000 | | | |
| Address 3:Havre de | Grace, Marylan | d 2107 | 78 | | | | 4. Co | ntact Pe | rson | 10 | In | | 00 | 10 | non | eiv. | 2-0273 | | |
| Phone #: _(410) 942-02 | 273 | Fax # | #:(410) | 942-0254 | | : | 5. Sut | mitted | 粉卷 | | ווע | | 11/0 | te | pon | SIM | -1213 | - | |
| | | | Repor | ting Infor | mation | (Results | will be | provid | led as so | | teemur | | | | | | | | |
| AFTER HOURS (must be pre-scheduled) Immediate Date Due: | | | | | | | AL BUSINESS HOURS | | | | | | | | REPORT TO: | | | | |
| 24 Hours Time Due: | | | Next Day Q 5 Day + U 2 Day Date Due: | | | | | _ | Results I (EveryA | 01-27-31-4 | ***** | | 101 | nelude | on-Respo | nsive ith R | Report | | |
| TIBILETIS | | Date Due: | | | | | | | Made to | Accon | nodate) | | U | | | us. | army.mil army.mil | | |
| Shestos Analysis Mair - Please Indicate Filter I NIOSH 7400 I Fiberglass Mair - Please Indicate Filter I AHERA I NIOSH 7402 I Other (specify MBulk I EPA 600 - Visual Estimat I EPA Point Count I NY State Friable 198.1 | (QTY) (QTY) (Type: (QTY) (QTY) (QTY) te(QTY) | OTY) | | U NY U Resi TEM Dust U Qua Qua Qua Qua TEM Water Qua | AP 198.4/(State PL) idual Ash I. (pres/ab n. (s/area) n. (s/area) I. (pres/ab AP 198.2/F | Chatfield M/TEM | (Q n/Dust_ D5755- 80-99_ | 95(QTY) | (QT | OTY | | 200000 | Pb Pa Pb Di Pb Aii Pb So Pb TC Drink Waste Pb Fu Collec Collec | int Chi ist Wip il/Solid LP ing Water mace (| p | QTY) (f) (TY) □ Cu (f) □ Cu (g) □ Cu (g) □ Cu (g) □ Cu (g) □ Cu | (QTY) □ As_ _(QTY) □ As_ (QTY) umples: | s(QTY) | |
| Other (specify | PLM_(Qan) PLN/TEM_ PLE INFORMATI MPLE LOCATION/ DENTIFICATION | _(Qal) PL ON DATE | VOLUME | (TEM) wipe | Water sam | ANALY | (C) | | | | 40 | 300 | Surfac | e Swa | (QTY) (QTY) (QTY) (QTY) | Culturable I | ID Genus (Media_ D Species (Media_ CONTACT |)(| |
| Other (specify | PLM_(Qan) PLN/TEM_ PLE INFORMATY MPLE LOCATION DENTIFICATION CA BOOK 54 | _(Qal) PL ON DATE | VOLUME | (TEM) wipe | Water sam | ples | (C) | | unless oth | | MATA | 300 | Surfac | e Swa | (QTY) (QTY) (QTY) | Culturable I Culturable I CLIENT (ABORATOR) | ID Genus (Media D Species (Media CONTACT Y STAFF ONL |)()(Y)(| |
| Other (specify | PLM_(Qan) PLN/TEM_ PLE INFORMATY MPLE LOCATION DENTIFICATION CA BOOK 54 | _(Qal) PL ON DATE | VOLUME | (TEM) wipe AREA | Water sam | ples | (C) | | | | 40 | 300 | Surfac | e Swa | (QTY) (QTY) (QTY) | Culturable I Culturable I CLIENT (ABORATOR) | ID Genus (Media_ D Species (Media_ CONTACT |)(| |
| Other (specify C Overmiculite O | PLM_(Qua) PLMTEM_ PLM INFORMATY MPLE LOCATION DENTIFICATION CA BOOK 514 Loca Fable | _(Qal) PL ON DATE | VOLUME (LITERS) | WIPE AREA | Water sam | ples | ~°C) | | | | 40 | 300 | Surfac | e Swa | (QTY) (QTY) (QTY) | Culturable I Culturable I CLIENT (ABORATOR) | ID Genus (Media D Species (Media CONTACT Y STAFF ONL |)(\ | |
| Other (specify | PLM_(Qua) PLM/TEM_ PLE INFORMATI MPLE LOCATION/ DENTIFICATION LOCATION LOCATION LOCATION LOCATION DON DON DON DON DON DON DON | Qal) PL | VOLUME (LITERS) | WIPE AREA | Water sam | ples | ~°C) | | | | 40 | 300 | Surfac | e Swa | (QTY) (QTY) (QTY) | Culturable I Culturable I CLIENT (ABORATOR) | ID Genus (Media D Species (Media CONTACT Y STAFF ONL |)(\ | |
| Other (specify | PLM_(Qua) PLINTEM PLE INFORMATI MPLELOCATION DENTIFICATION Lana table Done Dork Fice File Cab | Qal) H. ON DATE | VOLUME (LITERS) | WIPE AREA 41" X4" 41" X4" 41" X4" | Water sam | ples | Sis (Sis (Sis (Sis (Sis (Sis (Sis (Sis (| | | | 40 | 300 | Surfac | e Swa | (QTY) (QTY) (QTY) (QTY) (QTY) (I. Date/Time: | Client (ABORATOR: | ID Genus (Media_ D Species (Media_ CONTACT Y STAFF ONL_ Contact: | Y)By: | |
| Other (specify | PLM_(Qua) PLINTEM PLE INFORMATI MPLELOCATION DENTIFICATION Lana table Done Dork Fice File Cab | Qal) H. ON DATE | VOLUME (LITERS) | WIPE AREA CI'X' U'X' CIX' | Water sam | ples | -°C) | | | | 40 | 300 | Surfac | e Swa | (QTY) (QTY) (QTY) | Client (ABORATOR: | ID Genus (Media D Species (Media CONTACT Y STAFF ONL |)()(Y)(| |
| Other (specify_SC Overmiculite OAsbestos Soil PLM_(Quil CLIENT ID SAM NUMBER ID SOMM SOMM SOMM SOMM SOMM SOMM SOMM SO | PLM_(Qua) PLNTEM PLE INFORMATI MPLE LOCATION DENTIFICATION CA BOOK Ste Constable Done Dork Fice File Cab | Qal) H. ON DATE | VOLUME (LITERS) | WIPE AREA | Water sam | ples | -°C) **SiS X X X X X X X X X | | | | 40 | 300 | Surfac | e Swa | (QTY) (QTY) (QTY) (QTY) (QTY) (I. Date/Time: | Client (ABORATOR: | ID Genus (Media_ D Species (Media_ CONTACT Y STAFF ONL_ Contact: | Y)By: | |
| Other (specify_SC Overmiculite OAsbestos Soil PLM_(Quil CLIENT ID SAM NUMBER ID SOMM NUMBE | PLM_(Qua) PLNTEM PLE INFORMATI MPLE LOCATION DENTIFICATION CA BOOK Ste Constable Done Dork Fice File Cab | Qal) H. ON DATE | VOLUME (LITERS) | WIPE AREA | Water sam | ples | ************************************** | | | | 40 | 300 | Surfac | e Swa | (QTY) (QTY) (QTY) (QTY) (QTY) (I. Date/Time: | Client (ABORATOR: | ID Genus (Media_ D Species (Media_ CONTACT Y STAFF ONL_ Contact: | Y)By: | |
| Other (specify | PLM_(Qua) PLNTEM PLE INFORMATI MPLE LOCATION DENTIFICATION CA BOOK Ste Constable Done Dork Fice File Cab | Qal) H. ON DATE | VOLUME (LITERS) | WIPE AREA | Water sam | ples | ************************************** | | | | 40 | 300 | Surfac | e Swa | Date/Time: | CLIENT (ABORATOR) C | ID Genus (Media_D Species (Media_D Species (Media_CONTACT Y STAFF ONL_COntact: | Y) By: | |
| Other (specify | PLM_(Qua) PLNTEM PLE INFORMATI MPLE LOCATION DENTIFICATION CA BOOK Ste Constable Done Dork Fice File Cab | Qal) H. ON DATE | VOLUME (LITERS) | WIPE AREA | Water sam | ples | ************************************** | | | | 40 | 300 | Surfac | e Swa | (QTY) (QTY) (QTY) (QTY) (QTY) (I. Date/Time: | CLIENT (ABORATOR) C | ID Genus (Media_ D Species (Media_ CONTACT Y STAFF ONL_ Contact: | Y)By: | |
| Other (specify | PLM_(Qua) PLNTEM PLE INFORMATI MPLE LOCATION DENTIFICATION CA BOOK Ste Constable Done Dork Fice File Cab | Qal) H. ON DATE | VOLUME (LITERS) | WIPE AREA | Water sam | ples | ************************************** | | | | 40 | 300 | Surfac | e Swa | Date/Time: | CLIENT (ABORATOR) C | ID Genus (Media_D Species (Media_D Species (Media_CONTACT Y STAFF ONL_COntact: | Y) By: | |
| Other (specify C Other (specify C Other (specify C Other (specify C Other (specify SAM NUMBER D SAM SAM NUMBER D SAM SAM NUMBER D SAM SAM SAM SAM SAM SAM SAM | PLM_(Qua) PLNTEM PLE INFORMATI MPLE LOCATION DENTIFICATION CA BOOK Ste Constable Done Dork Fice File Cab | Qal) H. ON DATE | VOLUME (LITERS) | WIPE AREA | Water sam | ples | ************************************** | | | | 40 | 300 | Surfac | e Swa e Tape perify | Date/Time: | Culturable CLIENT (ABORATOR) C | ID Genus (Media_D Species (Media_D Species (Media_CONTACT Y STAFF ONL_COntact: | Y) By: | |
| Other (specify_SC) Other (specify_SC) Overmiculite OAsbestos Soil PLM_(Quil CLIENT ID SAM NUMBER ID SEMPLE SAM NUMBER ID SAM NUMBER I | PLM_(Qan) PLNTEM. PLE INFORMATI MPLELOCATION DENTIFICATION DENTIFICATION DENTIFICATION THE BOOK SHE DOWN DOWN THE FILE CALL OF FILE CALL OF FILE CALL | Qal) P. ON DATE F 11/ | VOLUME (LITERS) | WIPE AREA CITY YITH YITH CITY YITH YITH YITH YITH YITH YITH YITH Y | Water sam | ANALY S | -°C) **** *** *** ** ** ** ** ** * | / NAOLO | AIR BULY | Duce | MATE / BEE | | Surfac Surfac Other (S | e Swa e Tape perify | Date/Time: | Culturable CLIENT (ABORATOR) CC | ID Genus (Media_D Species (Media_D Species (Media_CONTACT Y STAFF ONL_COntact: Contact: | Y) By: By: | |
| Other (specify_SC) Overmiculite OAsbestos Soil PLM_(Quil CLIENT ID SAM NUMBER ID SOMM NUMB | PLM_(Qan) PLN/TEM_ PLE INFORMATI MPLE LOCATION DENTIFICATION Ca Book ste Con table Our Dork Fire File Cab Of Fire V R | _(Qal) P. ON DATE F 14 | VOLUME (LITERS) | WIPE AREA G'XY' G'XY' G'XY' G'XY' G'XY' | Water sam | ANALY | ~°C) | / WOP | B R | V (Principal | MATE / Egg | | Surface Surface Other (S | e Swa e Tape perify | Date/Time: | CLIENT (ABORATOR) C | ID Genus (Media_D Species (Media_D Species (Media_CONTACT Y STAFF ONL_COntact: Contact: | By: | |
| CLIENT ID SAM NUMBER ID SAM | PLM_(Qan) PLNTEM. PLE INFORMATI MPLELOCATION DENTIFICATION DENTIFICATION DENTIFICATION THE BOOK SHE DOWN DOWN THE FILE CALL OF FILE CALL OF FILE CALL | DATE 11/ | VOLUME (LITERS) | (TEM') WIPE AREA 4" X 4" 4" X 4" 4" X 4" | Water sam | ANALY S | -*C) **Si\$ **X **X **X **X **X **X **X * | / ON / | 8 / 58 B | y (Print | MATTA | | Surface Other (S | e Swa e Tape perify_ | Date/Time: | Culturable I Cultu | ID Genus (Media_D Species (Media_D Species (Media_CONTACT Y STAFF ONL_CONTACT: Contact: Contact: | By: | |

Appendix B. Photographs



Exterior of facility



Drill hall

BEST AVAILABLE COPY



Converted firing range



Mechanical room



Mechanical room breeching possible ACM in good condition



Mechanical room mudded pipe fitting possible ACM in good condition

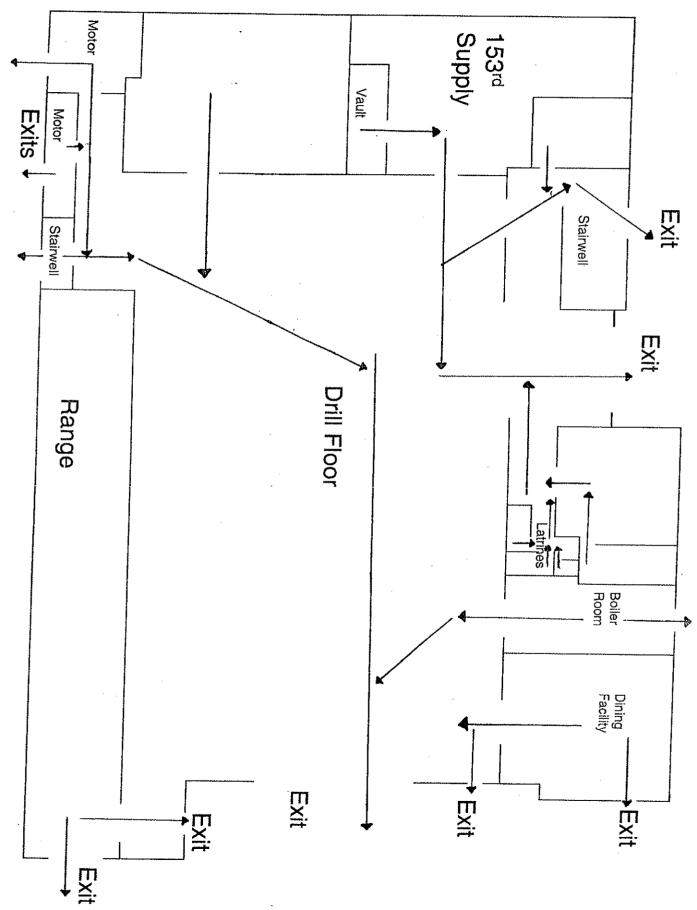


Conference room water stain on carpet from above ceiling mounted UV that leaked condensate water



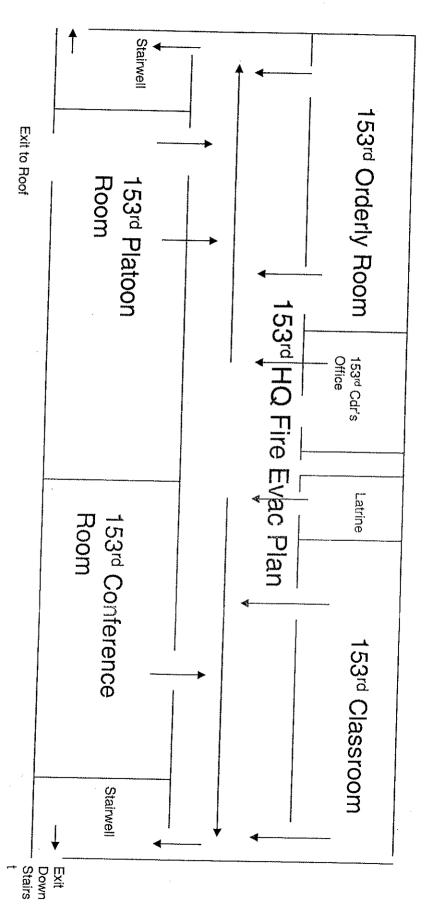
Conference room visible fungal growth, missing, and water stained ceiling tiles from above ceiling mounted UV that leaked condensate water

Appendix C. Floor Plan



FOIA Requested Record #J-15-0085 (DE) Released by National Guard Bureau Page 312 of 547

Exit Down Stairs



Appendix D. References

- 1. Title 29 Code of Federal Regulations (CFR), Part 1910.1025, Occupational Safety and Health Administration, Occupational Exposure to Lead
- 2. American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Values and Biological Exposure Indices, 2011 Edition
- 3. Industrial Ventilation: A Manual of Recommended Practice for Design, 27th Edition
- 4. American Society of Heating, Refrigerating and Air-Conditioning Engineers, Ventilation for Acceptable Indoor Air Quality, 62.1-2010
- 5. RP-1-2004, Industrial Lighting, Illuminating Engineering Society of North America/ANSI
- 6. RP-7-2001, Industrial Lighting, Illuminating Engineering Society of North America/ANSI
- 7. National Emission Standard Hazardous Air Pollutants (NESHAP) The standards for asbestos are contained in 40 CFR 61.140 through 61.157.
- 8. Environmental Protection Agency (EPA) standards [40 Code of Federal Regulations (CFR) 745.227(h)(3)]
- 9. Derivation of Wipe Surface Screening Levels for Environmental Chemicals, the US Army Center for Health Promotion and Preventive Medicine (USACHPPM)
- 10. The US Army Technical Guide 277 Army Facilities Management Information Document on Mold Remediation
- 11. NG PAM 420-15 Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges, 3 NOV 06.
- 12. American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE), Thermal Environmental Conditions for Human Occupancy, 55-2010.

BEST AVAILABLE COPY



NATIONAL GUARD BUREAU

ARMY NATIONAL GUARD NORTH REGION INDUSTRIAL HYGIENE OFFICE 301-IH OLD BAY LANE HAVRE DE GRACE MD 21078

INDUSTRIAL HYGIENE SURVEY SURFACE WIPE SAMPLING FOR LEAD SCANNELL FORMER INDOOR FIRING RANGE DELAWARE CITY, DE – 26 JUNE 2013

- 1. REFERENCES. See Appendix A.
- 2. PURPOSE. The purpose of this Industrial Hygiene (IH) survey was to evaluate the progress of the decontamination and conversion project at the former indoor firing range (IFR) in the Scannell Readiness Center at 248 Kent Ave in Delaware City, Delaware.
- 3. GENERAL.
 - a. Background.
- (1) The Delaware Army National Guard (DEARNG) Facilities Management office initiated a project to decontaminate and convert former IFRs in multiple facilities throughout the state.
- (2) A contractor was hired to manage the project and was responsible for the oversight of the cleaning, decontamination, and conversion of each former IFR. The contractor then subcontracted with an independent firm to verify any remaining lead levels were below the 200 micrograms per square foot ($\mu g/ft^2$) limit as published in National Guard Pamphlet (NG PAM) 420-15, Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges (reference 1).
- (3) Once the contractor reported all facilities were below the $200 \,\mu\text{g/ft}^2$ limit, the Army National Guard (ARNG) North Region Industrial Hygiene (IH) office's assistance was requested in order to verify the contractor's reports.
 - b. Survey Personnel. This survey was conducted on 26 June 2013 by:
 - (1) Non-Responsive, Industrial Hygienist, ARNG North Region IH office
 - (2) Non-Responsive, IH Technician (Contractor), ARNG North Region IH office
 - (3) Non-Responsive , Occupational Health Nurse for the DEARNG.
- c. <u>Risk Assessment Codes (RACs)</u>. RACs are assigned to recommendations to help quantify risks to personnel and to aid in the establishment of funding priorities for corrective actions. Health RACs are determined by using the RAC table from the Department of Defense Instruction (DODI) 6055.1 (reference 2). This table is provided in Appendix B of this report.

SUBJECT: Industrial Hygiene Former IFR Wipe Sampling Survey, Scannell Readiness Center, Delaware City, DE, 26 June 2013

4. METHODOLOGY.

a. Assessment Criteria.

- (1) The United States Army, through DODI 6055.1, Section E3.4.1.2, directs that facilities provide healthful work environments in accordance with the most stringent standards applicable (reference 2).
- (2) The Occupational Safety and Health Administration (OSHA), through the Code of Federal Regulations, have enforceable regulatory standards for workplace safety (reference 3).
- (3) Department of the Army Pamphlet (DA PAM) 40-503, Industrial Hygiene Program, section 1-8, states that Army occupational exposure criteria will be based on the more stringent of standards published by OSHA as Permissible Exposure Limits (PELs), guidance from the American Conference of Governmental Industrial Hygienists (ACGIH) as Threshold Limit Values (TLVs), military unique standards or published guidance from other organizations when the primary standards are not applicable (references 4 and 5).
- (4) In areas containing former IFRs, NG PAM 420-15, Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges, is used to determine satisfactory levels of any lead present in dust (reference 1).
- (5) In areas not part of a former IFR (e.g. the drill hall adjacent to the former IFR), Department of Defense (DoD) Directive-Type Memorandum (DTM) 12-003, Control and Management of Surface Accumulations from Lead, Hexavalent Chromium, an Cadmium Operations, requires that surfaces are maintained as free as practicable of accumulations of lead (reference 6).
- (6) When children are present, we refer to Title 24 of the Code of Federal Regulations, Part 35.1320, Lead-based paint inspections, paint testing, risk assessments, lead-hazard screens, and reevaluations (reference 7). This Housing and Urban Development (HUD) regulation lists a clearance level, specific to floors, of $40 \mu g/ft^2$, in the table in section 35.1320(b)(2) and is used to determine if the dwelling unit, worksite or common area passes or fails the clearance test.

b. Wipe Sampling Protocol.

- (1) Procedures. Surface wipe sampling methods were conducted in accordance with NG PAM 420-15 and OSHA's Technical Manual, 5th edition (references 1 and 8).
- (2) Media. Ghost Wipes were used for sample collection and were placed in 68mL HotBlock digestion vessels. Templates (10 cm x 10 cm) were used to ensure uniform wipe area.
- (3) Lab Analysis. All samples were sent to Aerosol Monitoring & Analysis (AMA) Analytical Services, Inc., an American Industrial Hygiene Association (AIHA) accredited

SUBJECT: Industrial Hygiene Former IFR Wipe Sampling Survey, Scannell Readiness Center, Delaware City, DE, 26 June 2013

laboratory in Lanham, Maryland. The samples were analyzed using the Environmental Protection Agency (EPA) method 600/R-93/200(M)-7000B for Lead (reference 9) (see Appendix E).

5. FINDINGS AND DISCUSSION.

- a. <u>General Information</u>. Prior to this visit, the contractor reported the former IFR was cleaned and all samples were below the 200 μ g/ft² limit. The bullet trap, plenum components, soundproofing, and firing points were removed. Parts of the soundproofing material and some of the adhesive mastic was still on the walls at the time of this survey. Lockers were also present in the former IFR.
- b. <u>Wipe Sampling</u>. Surface wipe samples were collected in accordance with the guidance provided in NG Pam 420-15. Sample information is presented in Appendices C and D of this report.
- c. Results. Out of 18 samples collected, 10 tested positive for lead. Nine of these 10 were reported above 200 μ g/ft², with 3 of those 9 above 1,000 μ g/ft². Complete surface wipe sample results are provided in Appendix C of this report.
- 6. CONCLUSION. The floor in the former range area, trap wall, right and left walls near the former trap (including vertical beam along left wall), and the roll door in the Scannell Readiness Center's former IFR are still contaminated with lead and need to be cleaned again. Also, the soundproofing and mastic should be completely removed from the walls prior to encapsulation.

7. RECOMMENDATIONS.

- a. <u>Decontamination Requirements</u>. Re-clean the floor areas, walls and roll door in accordance with guidance in NG Pam 420-15. (RAC 3) (NG Pam 420-15, reference 1)
- b. <u>Soundproofing/Mastic Removal</u>. Remove all soundproofing and mastic from the walls prior to any encapsulation efforts. (**RAC 4**) (NG Pam 420-15, reference 1)
- c. <u>Additional Sampling</u>. Collect more wipe samples once the re-cleaning is completed. (RAC 4) (NG Pam 420-15, reference 1)
- d. <u>Limited Access</u>. Continue to limit access to the former IFR area to personnel involved in the decontamination/conversion operation. (RAC 4) (NG PAM 420-15, reference 1)
- e. <u>Encapsulation</u>. When re-sampling verifies that lead levels are below 200 μg/ft2, coat the walls will a sealant to encapsulate any remaining lead dust. Seal the concrete floors with deck enamel and then tile or cover with linoleum. (**RAC 4**) (NG PAM 420-15, reference 1)

BEST AVAILABLE COPY

ARNG-CSG-P

SUBJECT: Industrial Hygiene Former IFR Wipe Sampling Survey, Scannell Readiness Center, Delaware City, DE, 26 June 2013

8. ADDITIONAL ASSISTANCE. I am point of contact for this information and can be reached by phone at Non-Responsive or email at Non-Responsive

Non-Responsive

Regional Industrial Hygienist

SUBJECT: Industrial Hygiene Former IFR Wipe Sampling Survey, Scannell Readiness Center, Delaware City, DE, 26 June 2013

APPENDIX – A REFERENCES

- 1. National Guard Pamphlet (NG PAM) 420-15, Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges, 3 November 2006.
- 2. Department of Defense Instruction (DODI) 6055.1, Department of Defense (DOD) Safety and Occupational Health (SOH) Program, 19 August 1998.
- 3. Title 29 Code of Federal Regulations, Part 1910.1025, Lead, Occupational Safety and Health Administration (OSHA), 2013 Edition.
- 4. Department of the Army Pamphlet (DA PAM) 40-503, The Army Industrial Hygiene Program, 2 April 2013.
- 5. Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices, 2013, American Conference of Governmental Industrial Hygienists, Cincinnati, OH.
- 6. Department of Defense (DoD) Directive-Type Memorandum (DTM) 12-003, Control and Management of Surface Accumulations from Lead, Hexavalent Chromium, and Cadmium Operations, 18 April 2012.
- 7. Title 24 Code of Federal Regulations, Part 35.1320, Lead-based paint inspections, paint testing, risk assessments, lead-hazard screens, and reevaluations, Housing and Urban Development (HUD), 2013 Edition.
- 8. Occupational Safety and Health Administration Technical Manual, TED 01-00-015 [TED 1-0.15A], 5th Edition.
- 9. Environmental Protection Agency (EPA) Method 600/R-93/200(M), Field Analysis of Lead in Paint, Bulk Dust, and Soil by Ultrasonic, Acid Digestion and Colorimetric Measurement, September 1993.

SUBJECT: Industrial Hygiene Former IFR Wipe Sampling Survey, Scannell Readiness Center, Delaware City, DE, 26 June 2013

APPENDIX – B DERIVING RISK ASSESSMENT CODES (RACs) FOR HEALTH HAZARDS

(Taken from Table 2 of DODI 6055.1 (reference 2))

1. HEALTH HAZARD SEVERITY CODE (HHSC). Using the following procedures to assess points, determine the health hazard severity category (HHSC). The HHSC reflects the magnitude of exposure to a physical, chemical, or biological agent and the medical effects of exposure.

a. Exposure Points Assessed

| AER | | Exposure Conditions | | | | | | |
|-----------|------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|--------------|------|--|--|--|--|
| Possible? | <al< th=""><th>Occasionally>AL Always<oel< th=""><th>>AL <=OEL</th><th>>OEL</th></oel<></th></al<> | Occasionally>AL Always <oel< th=""><th>>AL <=OEL</th><th>>OEL</th></oel<> | >AL <=OEL | >OEL | | | | |
| NO | 0 | 3 | 5 | 7 | | | | |
| YES | 1-2 | 4 | 6 | 8 | | | | |

AER = Alternate exposure route, such as skin absorption, ingestion.

AL = Action level, DoD component threshold that triggers surveillance actions, such as microWatts/cm², dB, parts per million.

OEL = Occupational Exposure Limit, DoD exposure limit, such as Threshold Limit Value and Permissible Exposure Limit.

b. Medical Effects Points Assessed.

| Condition | Points |
|---------------------------------------------------------------------------------------------------------|--------|
| No medical effect, such as nuisance noise and nuisance odor | 0 |
| Temporary reversible illness requiring supportive treatment, such as eye irritation and sore throat | 1-2 |
| Temporary reversible illness with a variable but limited period of disability, such as metal fume fever | 3-4 |
| Permanent, non-severe illness or loss of capacity, such as permanent hearing loss | 5-6 |
| Permanent, severe, disabling irreversible illness or death, such as asbestosis and lung cancer | 7-8 |

SUBJECT: Industrial Hygiene Former IFR Wipe Sampling Survey, Scannell Readiness Center, Delaware City, DE, 26 June 2013

APPENDIX – B – CONTINUED DERIVING RISK ASSESSMENT CODES (RACs) FOR HEALTH HAZARDS

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

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

- 2. ILLNESS PROBABILITY CODE (IPC). Using the following guides to assess points, determine the IPC for health hazards. The IPC is a function of the duration of exposure and the number of exposed personnel.
 - a. Duration of Exposure Points Assessed

| Type of |] | Exposure Durat | ion |
|-------------------------|-----------|-------------------------|------------|
| T ' 1 | 1-8 hr/wk | >8hr/wk, not continuous | Continuous |
| Irregular, intermittent | 1-2 | 4-6 | - |
| Regular, periodic | 2-3 | 5-7 | 8 |

b. Number of Exposed Personnel Points Assessed

| Number of Exposed Personnel | Points | | | | |
|--------------------------------|--------|--|--|--|--|
| <5 | 1-2 | | | | |
| 5 to 9 | 3-4 | | | | |
| 10 to 49 | 5-6 | | | | |
| >49 | 7-8 | | | | |

SUBJECT: Industrial Hygiene Former IFR Wipe Sampling Survey, Scannell Readiness Center, Delaware City, DE, 26 June 2013

APPENDIX – B – CONTINUED DERIVING RISK ASSESSMENT CODES (RACs) FOR HEALTH HAZARDS

c. Determine the IPC for health hazards by totaling the points assessed and using the following guide:

| Total Points (sum of A and B, above) | IPC |
|--------------------------------------|-----|
| 14-16 | A |
| 10-13 | В |
| 5-9 | С |
| <5 | D |

3. Determine the RAC for health hazards by using the following matrix to measure health hazard severity and mishap probability factors.

| HEALTH HAZARD SEVERITY | ILLNESS PROBABILITY CODE | | | | | | |
|------------------------------|--------------------------|-------|---|---|--|--|--|
| CODE | A | A B C | | | | | |
| I | 1 | 1 | 2 | 3 | | | |
| II | 1 | 2 | 3 | 4 | | | |
| III | 2 | 3 | 4 | 5 | | | |
| IV | 3 | 4 | 5 | 5 | | | |

4. RAC DESCRIPTOR

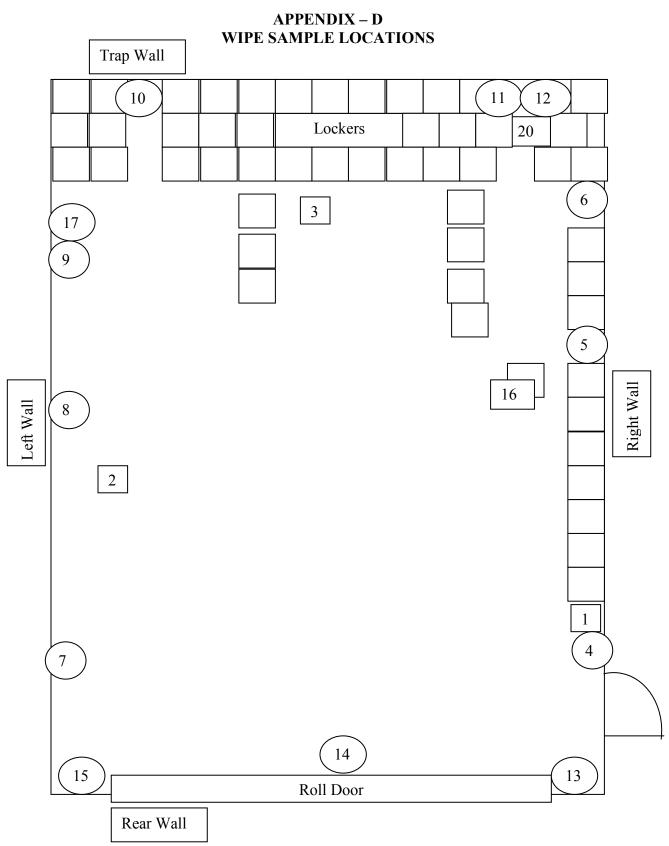
| RAC | DESCRIPTOR |
|-----|------------|
| 1 | CRITICAL |
| 2 | SERIOUS |
| 3 | MODERATE |
| 4 | MINOR |
| 5 | NEGLIGIBLE |

SUBJECT: Industrial Hygiene Former IFR Wipe Sampling Survey, Scannell Readiness Center, Delaware City, DE, 26 June 2013

APPENDIX – C WIPE SAMPLE INFORMATION

| | Distance From Wall: | | | | | | | | |
|----------------------------|---------------------|--------|--------------------|------------------|---------------------------------------------------------------------------------------------|-------|------|-------|-----------------------|
| Sample Number | | Resul | t | Location | Trap | Rear | Left | Right | Vertical Position: |
| 20130626 Scannell DE 01 | ٧ | 110 | μg/ft ² | Floor | | 10 ft | | 6 in | |
| 20130626 Scannell DE 02 | | 350 | μg/ft² | Floor | | 32 ft | 2 ft | | |
| 20130626 Scannell DE 03 | | 280 | μg/ft² | Floor | 9 ft | | | 10 ft | |
| 20130626 Scannell DE 04 | ٧ | 110 | μg/ft ² | Wall, Right | | 6 ft | | | 6 ft from floor |
| 20130626 Scannell DE 05 | ٧ | 110 | μg/ft ² | Wall, Right | | 50 ft | | | 3 ft from floor |
| 20130626 Scannell DE 06 | | 1,000 | μg/ft² | Wall, Right | 9 ft | | | | 1 ft from floor |
| 20130626 Scannell DE 07 | ٧ | 110 | μg/ft ² | Wall, Left | | 8 ft | | | 6 ft from floor |
| 20130626 Scannell DE 08 | ٧ | 110 | μg/ft ² | Wall, Left | | 25 ft | | | 3 ft from floor |
| 20130626 Scannell DE 09 | | 240 | μg/ft² | Wall, Left | 21 ft | | | | 1 ft from floor |
| 20130626 Scannell DE 10 | | 140 | μg/ft ² | Wall, Trap | | | 4 ft | | 3 ft from floor |
| 20130626 Scannell DE 11 | | 31,000 | μg/ft² | Wall, Trap | | | | 3 ft | 6 ft from floor |
| 20130626 Scannell DE 12 | | 230 | μg/ft² | Wall, Trap | | | | 3 ft | 1 ft from floor |
| 20130626 Scannell DE 13 | ٧ | 110 | μg/ft ² | Wall, Rear | | | | 6 in | 6 ft from floor |
| 20130626 Scannell DE 14 | | 300 | μg/ft² | Wall, Rear | | | | 10 ft | 4 ft from floor |
| 20130626 Scannell DE 15 | ٧ | 110 | μg/ft ² | Wall, Rear | | | 1 ft | | 1 ft from floor |
| 20130626 Scannell DE 16 | ٧ | 110 | μg/ft ² | Locker Top | Locker tag: SPC Sandoval, B | | | | |
| 20130626 Scannell DE 17 | | 1,000 | μg/ft² | Vertical Beam | Beam on Left Wall, 24 feet from Trap Wall / 4 feet from floor on the Rear Wall side of Beam | | | | Wall side of Beam |
| 20130626 Scannell DE 20 | | 800 | μg/ft² | Floor | 3 feet from Right Wall / 1 foot from Trap Wall, on floor under lockers | | | | |
| 20130626 Scannell DE 18 | ٧ | 12 | μg | BLANK | | | | | |
| 20130626 Scannell DE 19 | ٧ | 12 | μg | BLANK | | | | | |

SUBJECT: Industrial Hygiene Former IFR Wipe Sampling Survey, Scannell Readiness Center, Delaware City, DE, 26 June 2013



SUBJECT: Industrial Hygiene Former IFR Wipe Sampling Survey, Scannell Readiness Center, Delaware City, DE, 26 June 2013

APPENDIX - E LABORATORY RESULTS

350 280

39

<12



CERTIFICATE OF ANALYSIS

AMA Analytical Services, Inc.

A Specialized Environmental Laboratory

6/28/2013 516215

Chain Of Custody:

Delaware IFR Lead Clearance Scannell Annory, DE

Date Submitted:

7/3/2013 Person Submitting: Date Analyzed: W912K6-09-A-0003

Not Provided

Job Number: P.O. Number:

Havre de Grace, Mnryland 21078 State Military Reservation

Job Location: Job Name:

301-1H Old Bay Lane, Attn: ARNG-CJG-P,

Address:

Client

National Guard Bureau

Report Date:

7/3/2013

| Analysis for I | tion Analysis for I |
|----------------|---------------------|
| Analysis | tion Analysis |
| Anal | tion Anal |
| | tion |

Page I of 3

Comments

Final Result

Total ug

Limit

| I was | Lead | |
|---------------------------|-----------|---|
| F. | 101 | |
| A | Allalysis | • |
| The state of the state of | Orphion / | |
| ALL | A DS | |

| | 111 |
|------------------------------------|------------|
| Ana | Reporting |
| tion | Rep |
| Summary of Atomic Absorption Analy | Area Wiped |
| mic | Are |
| of Atc | Air Volume |
| ary | Air |
| umn | ple Type |

Analysis Type

Client Sample Number

AMA Sample

| **** |
|------|
| |

ug/A²

| (III) | 0.111 | 0.111 | 0.111 | 0.111 | 0.111 | 0.111 | 0.111 | 0.111 | 0.111 | 0.111 |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| (1) | : | * * * | : | : | : | : | : | i | ** | : |
| | Wipe | Wipc | Wipe |
| | Flame |

20130626 Scannell DE 05 20130626 Scannell DE 06

20130626 Scannell

13074382 13074383 13074384

DE 04

01 011 011 011 011 0 110

| DE 10 | Flame | wipe | | |
|----------------------------|-------|------|---------|--|
| 20130626 Scannell DE 11 | Flame | Wipe | * * * * | |

ug/ñ²

26

ug/ft²

20130626 Scannell DE 09

20130626 Scannell 20130626 Scannell

> 13074386 13074387

DE 07 DE 08

13074385

<110

0001

2 <12 <12 ug/ft²

3100

ug/fi

140 240

> 16 350

Dis 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 manual protection to elients, the public, and these Laboratories, this report is building 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, continus, and collection protectly are based upon the information provided by the personan submitting 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, and collection protectly by the pressons submitting that and, unless collected by presonant of these Laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of his information. Residual sample material Hib ediscarded in accordance with the appropriate regulatory guidelines, unless otherwise requested by the critical internation of the Federal Government. All rights reserved. AMA Analytical Services, inc.

4475 Forbes Blvd. · Lanham, MD, 20706 · (301) 459-2640 · Toll Free (800) 346-0961 · Fax (301) 459-2643 An AIHA (#100470) and NY ELAP (#10920) Accredited Laboratory

13074381

20130626 Scannell DE 02 20130626 Scannell DE 03

20130626 Scannell

13074379 13074380

DE 01

13074389

13074388

SUBJECT: Industrial Hygiene Former IFR Wipe Sampling Survey, Scannell Readiness Center, Delaware City, DE, 26 June 2013

APPENDIX - E - CONTINUED LABORATORY RESULTS

<110 000

<12 110

0.111 0.111 N/A N/A

> *** *** :

ZI>

12 12

Wipe Blank Wipe Blank 800

88

110

300



CERTIFICATE OF ANALYSIS

Delaware IFR Lead Clearance

Scannell Armory, DE

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

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

Address:

Client

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

Job Name:

W912K6-09-A-0003

Not Provided

Report Date: 6/28/2013 7/3/2013 516215 Chain Of Custody: Date Submitted:









| Lead |
|----------|
| for |
| Analysis |
| tion |

Page 2 of 3

Comments

Final Result

25

"Mygn ,U/Sn

01 110 110 011

| 000 | 2 |
|-------------------|---------|
| 100 | lysis |
| The second second | Ana |
| STATE OF STREET | orption |
| | Abs |
| 0.00 | mic |

| Ş |
|---------|
| alysis |
| An |
| otion |
| Absorp |
| Atomic |
| of |
| Summary |

| Total ug |
|----------------|
| Reporting |
| Area Wiped |
| Air Volume (L) |
| ype |

Analysis Type

Client Sample Number

AMA Sample

13074390 Number

| Ar | 0.111 | 0.111 | 0.111 | 0.111 |
|-------------------|-------|----------------------|-------|-------|
| Air Volume (L) | : | 20 20 20 20 | : | : |
| Sample Type | Wipe | Wipe | Wipe | Wipe |

| Wipc | Wipe | Wipc | Wipe | Wipe | Wipe | |
|-------|------|-------|-------|------|-------|--|
| Flame | | Flame | Flame | Hame | Flame | |
| | | | | | | |

| 20130626 Scannell DE 12 | Scannell 12 | H |
|----------------------------|-----------------------|-----|
| 20130626 Seannell DE 13 | Scannell 13 | · E |
| 20130626 Scannell DE 14 | 626 Scannell DE 14 | |
| 20130626 Scannell DE 15 | Scannell 15 | |
| 20130626 Scannell DE 16 | Scannell 16 | I |
| 20130626 Scannell DE 17 | Scannell 17 | Ξ |
| 20130626 Scannell DE 18 | Scannell 18 | E |
| 20130626 Scannell DE 19 | Scannell 19 | 臣 |

| DE 15 | 20130626 Scannell DE 16 | 20130626 Scannell DE 17 | 20130626 Scannell DE 18 | 20130626 Scannell DE 19 | |
|-------|----------------------------|----------------------------|----------------------------|----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | 201306 | 201306 I | 201306 | 201306 | Contract of the Contract of th |
| | 13074394 | 13074395 | 13074396 | 13074397 | |

| DE 16 | 20130626 Scannell DE 17 | 20130626 Scannell DE 18 | 20130626 Scannell DE 19 | 20130626 Scannell |
|-------|----------------------------|----------------------------|----------------------------|-------------------|
| | 074395 | 074396 | 074397 | 074398 |

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 effect, the public, and these Laboratories, this report is abunited and accepted for the extensive use of the effect to whom it is addressed and upon the condition that it and to be used, in whole or in part, in any advertising or publicly matter valueur prior verticen authorization from us. Sample types, locations, and collection products are based upon the information provided by the persons abuniting them and, unless collected by personned of these Laboratorites, we expressly disclaim any knowledge and liability for the accumery and completeness of this information. Residual sample material will be disconners with the appropriate regulatory guidelines, unless otherwise requested by the client. This report must not be used to claim, and does not imply product certification, approval, or endorsement by NY ELAP, AHA,, or any agency of the Pederal Government. All rights reserved. AMA Analytical Services, Inc.

4475 Forbes Blvd. - Lanham, MD, 20706 · (301) 459-2640 · Tall Free (800) 346-0961 · Fax (301) 459-2643 An AIHA (#100470) and NY ELAP (#10920) Accredited Laboratory

AMA Analytical Services, Inc.

A Specialized Environmental Laboratory

Attention:

13074392

13074393

13074391

SUBJECT: Industrial Hygiene Former IFR Wipe Sampling Survey, Scannell Readiness Center, Delaware City, DE, 26 June 2013

APPENDIX - E - CONTINUED LABORATORY RESULTS



CERTIFICATE OF ANALYSIS

AMA Analytical Services, Inc. A Specialized Environmental Laboratory

| Chain Of Custody: 516215 | | Person Submitting: | Date Analyzed: 7/3/2013 Report Date: 7/3/2013 |
|-----------------------------|-------------------------------------------------------------------|--------------------------------|-----------------------------------------------|
| Delaware IFR Lead Clearance | Scannell Armory, DE | Not Provided | W912K6-09-A-0003 |
| Job Name: | Job Location: | Job Number: | P.O. Number: |
| National Guard Bureau | 301-IH Old Bay Laue, Atln: ARNG-CIG-P, State Military Reservation | Havre de Grace, Maryland 21078 | |

| Sample Type | Air Volume (L) | pe Sample Type Air Volume Area Wiped Reporting (L) (R) Limit | Reporting Limit | Total ug | Final Result | Comments |
|-------------|-------------------|--------------------------------------------------------------|--------------------|----------|--------------|----------|

| See QC Summary for analytical associated with these samples. | Non-Responsi |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|
| (800/R-93/200(M)-7000B; Water: SM-3111B EPA 600/R-93/200(M)-7010; Water: SM-3113B weight basis mg/L = parts per million (ppm) ug/L = parts per billion (ppb) | WIL |

Analysis Method For Furnace: Air, Wipes, Paints, and Soil/Solids: E Note: All samples were received in good condition unless otherwise n Note: All results have two significant digits. Any additional digits show mg/Kg = parts per million (ppm) on a dry v Air and Wipe results are not corrected for any blank results All results are to be considered preliminary and subject to Final results for air and wipe samples are based on client Analysis Method for Flame: Air, Wipes, Paints, and Soil should not be considered when interpreting the result. supplied information nor verified by this laboratory.

change unless signed by the Technical Director or Deputy

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 elients, the public, and these Laboratories, this report is ubmitted and accepted for the exclusive were of the elient to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from us. Sample types, eachings, and color the recurrence and on the information provided by the persons submitting thou and, unless collected by presonned of these Laboratories, we expressly discibility for the accuracy and completeness of his information. Residual sample material will be discarded in accordance will fine appropriate regalatory goldelines, unless otherwise requested by the clicant. This report must not be used to claim, and does not imply product certification, approval, or endorsement by NY ELAP, AHA, or any agency of the Federal Government. All rights reserved. AMA Analytical Services, Inc.

475 Forbes Blvd. · Lanham, MD, 20706 · (301) 459-2640 · Tell Free (800) 346-0961 · Fax (301) 459-2643 An AIHA (#100470) and NY ELAP (#10920) Accredited Laboratory

%Pb = percent lead on a dry weight basis

N/A = Not Applicable

Attention:

Address; Client

SUBJECT: Industrial Hygiene Former IFR Wipe Sampling Survey, Scannell Readiness Center, Delaware City, DE, 26 June 2013

APPENDIX - F PHOTOGRAPHS

Picture 1:

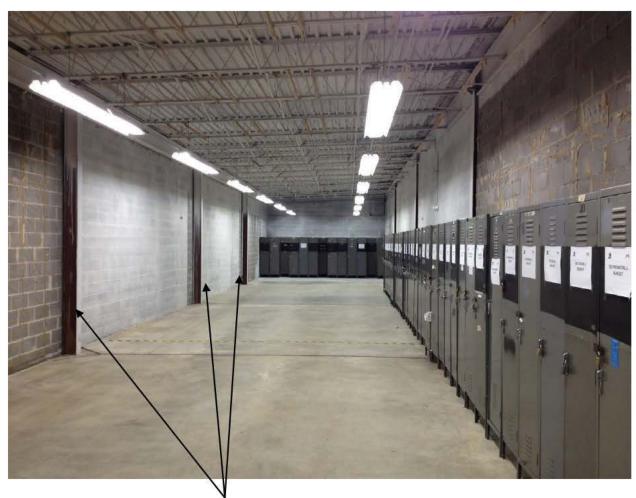


View of the entry door and roll door at the rear of the former IFR.

SUBJECT: Industrial Hygiene Former IFR Wipe Sampling Survey, Scannell Readiness Center, Delaware City, DE, 26 June 2013

APPENDIX – F – CONTINUED PHOTOGRAPHS

Picture 2:



View towards the trap wall. Vertical beams can see seen along the wall as well as lockers.

SUBJECT: Industrial Hygiene Former IFR Wipe Sampling Survey, Scannell Readiness Center, Delaware City, DE, 26 June 2013

APPENDIX – F – CONTINUED PHOTOGRAPHS

Picture 3:



View of remaining soundproofing on wall.

312 Directors Drive Knoxville, TN 37923 865.690.3211 Fax 865.690.3626



National Guard Armory Scannell Readiness Center - Delaware City, Delaware

Industrial Hygiene Evaluation

Prepared for:

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

Prepared by:

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

October 24, 2003

National Guard Armory Scannell Readiness Center - Delaware City, Delaware

Industrial Hygiene Evaluation

Prepared for:

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

Prepared by:
Shaw Environmental, Inc.
312 Directors Drive
Knoxville, Tennessee 37923

October 24, 2003

Prepared by:

Non-Responsive

Industrial Hygienist

Reviewed by:

Non-Responsive

Business Line Manager

Table of Contents

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

List of Tables

9 ...

| Table 1 | Wipe Sampling for Lead |
|---------|-------------------------------------------------|
| Table 2 | Air Sampling for Lead |
| Table 3 | Indoor Air Quality Measurements |
| Table 4 | Illumination Readings |
| Table 5 | Wipe Sampling for Lead – Converted Firing Range |

List of Appendices

| Appendix A | HHIM Data Forms |
|------------|---------------------------------------------------|
| Appendix B | Building Layout |
| Appendix C | Sampling Sheets and Laboratory Analyses |
| Appendix D | References |
| Appendix E | Recommendations for Surface Lead Dust in Armories |

Executive Summary

Shaw Environmental, Inc. was contracted to perform an industrial hygiene evaluation for the Scannell Readiness Center in Delaware City, Delaware.

Non-Responsive and performed the evaluation on May 30, 2003. The point of contact at the readiness center was SPC Non-Responsive

The following industrial hygiene concerns were evaluated.

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

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

- Air Sampling for Lead
- Peeling Paint Lead
- Presence of Mold
- Housekeeping
- Indoor Air Quality
- Safety and Industrial Hygiene Programs

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

Areas where there were industrial hygiene concerns are as follows:

- Wipe sampling for lead revealed a concentration at the recommended level on the fan
 in the assembly hall. It is recommended that the fan, and the immediate area around
 the fan, be thoroughly cleaned to reduce the lead level. In addition, any other
 dusty/dirty areas in the assembly area/drill floor should be thoroughly cleaned.
- If a special function is held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function since there were concentrations of lead in the assembly hall/drill floor that that exceeded the recommended level.
- Materials suspected of containing asbestos were observed. An operations and maintenance plan should be followed when performing any activities that may disturb the suspected asbestos-containing materials.
- Water damage was observed at several locations at the armory. The source of the
 water damage should be identified and actions taken to eliminate the source in order
 to prevent the possibility of mold growth that may lead to indoor air quality problems.
- Interviews with office employees revealed that there are ergonomic concerns at the armory. The office workstations should be further evaluated to determine if they could be modified in order to improve working conditions.
- Lighting measurements were conducted at the armory. The lighting did not meet the
 minimum requirements in many of the areas evaluated, therefore, consideration
 should be given to providing more lighting to these areas.

1.0 Introduction

Shaw Environmental, Inc. was contracted to perform an industrial hygiene evaluation for the Scannell Readiness Center in Delaware City, Delaware. Non-Responsive and performed the evaluation on 30 May 2003. The point of contact at the readiness center was SPC Non-Responsive.

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

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

2.0 Findings, Discussion, and Interpretation of Results

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

2.1. Sampling for Lead

2.1.1 Wipe Sampling

Wipe samples were collected for lead from the drill floor. Also, wipe samples were collected for lead in rooms, hallways, foyers, etc. The sampling in rooms, hallways, foyers, etc represented approximately 25% of the building. Approximately half of the samples were collected from surfaces in common areas, such as surfaces of a desk. The remaining samples were collected from uncommon surface areas, such as a supply vent or the top of a file cabinet. The samples were collected and analyzed in accordance with the Instructions for *Completing the Sampling of ARMY National Guard Armories* procedure.

Results of the wipe sampling are provided in Table 1. The results revealed lead at all locations sampled at concentrations below the recommended level of 200 micrograms lead per square foot ($\mu g/ft^2$) (see Appendix E) except in one location. The lead concentration on the fan in the assembly hall had a lead concentration of 200 $\mu g/ft^2$. Since the lead concentration on the fan was at the permissible level, it is recommended that the fan, and the immediate area around the fan, be thoroughly cleaned to reduce the lead level. In addition, any other dusty/dirty areas in the assembly area/drill floor should be thoroughly cleaned.

Please note that the *Recommendations for Surface Lead Dust in Armories* (Appendix E) states that all areas should be cleaned that will be accessible to children if lead concentrations exceed 40 μ g/ft². If a special function is held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function since there were concentrations of lead in the assembly hall/drill floor that exceeded 40 μ g/ft².

2.1.2 Air Sampling

Breathing zone air sampling was conducted on two (2) full-time building occupants. (Please note that no State employees were monitored.). The samples were collected and analyzed in accordance with Method 7300 of the National Institute of Occupational Safety and Health (NIOSH) Manual of Analytical Methods.

The results of the sampling are provided in Table 2. The results revealed nondetectable concentrations of lead in the breathing zone of the employees therefore, no actions are necessary.

2.2 Physical Condition of Facility

2.2.1 Peeling Paint - Lead

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

2.2.2 Visual Inspection - Asbestos

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

- Pipe in 2nd Floor Classroom; poor condition because it is deteriorated at joint;
 approximately 2-3 linear feet
- Pipes in Boiler Room; good condition; less than 100 linear feet

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

2.2.3 Visual Inspection - Water Damage and Mold

A visual inspection was made to determine if there was any water damage or visible mold at the armory. Visible mold was not observed, however, water damage was observed at the armory. The water damage was observed at the following locations:

- Main Floor SGT s Office
- Main Floor Lobby (Multiple Locations)

- Drill Floor
- 2nd Floor Commander's Office
- 2nd Floor SPC Non-Responsive s Office Area
- 2nd Floor Corridor by the Copier

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

2.2.4 Visual Inspection - Housekeeping

The housekeeping was determined to be good.

2.3. Building Concerns

2.3.1 Ergonomic Concerns

Interviews with employees revealed that there are ergonomic concerns at the armory. Two (2) office employees performing word processing functions stated that they suffered from pain in the wrists. These workstations should be further evaluated to determine if they could be modified in order to improve working conditions.

2.3.2 Indoor Air Quality

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

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

2.4. Safety and Industrial Hygiene Programs

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

- Confined Spaces
- Hearing Conservation
- Respiratory Protection
- Hazard Communication (HAZCOM)

Personal Protective Equipment (PPE)

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

2.5. Ventilation

2.5.1 Ventilation System Evaluation

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

2.5.2 Contamination of Clean Air Sources

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

2.6. Noise Dosimetry

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

2. 7 Lighting

Lighting measurements were conducted at the armory. Results of the lighting evaluation are provided in Table 5. As can be seen from the results, the lighting did not meet the minimum requirements in many of the areas evaluated. Examples include the bathrooms, stairwells, locker room, and classrooms.

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

2. 8. Converted Indoor Firing Ranges

There was a converted indoor firing range at the facility, therefore, wipe samples were taken for lead at various locations in or near the range. The samples were taken and analyzed in accordance with the Instructions for *Completing the Sampling of ARMY National Guard Armories* procedure.

Results of the wipe sampling are provided in Table 5. The results revealed lead at two locations on the floor, with levels of 45 and 50 μ g/ft². Since the lead levels are below the recommended level of 200 μ g/ft², a level recommended in the *Guidelines* for Converting Indoor Firing Ranges to Other Uses document (Department of Army), no actions are necessary.

2.9. HVAC System

There was not a HVAC system at the armory.

2.10. HHIM

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

3.0 Conclusions

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

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

TABLES

BEST AVAILABLE COPY **Table 1**

Wipe Sampling for Lead

National Guard Armory

Delaware City, Delaware

Date of Sampling: 30 May 2003 and 3 October 2003

| Sample Number | Location | Results, μg/ft ^{2 a} |
|------------------|------------------------------------------------------------|----------------------------------|
| DEDEL150-1 | Assembly Hall – On Floor | < 23 |
| DEDEL150-2 | Assembly Hall – On Floor | <23 |
| DEDEL150-3 | Assembly Hall – On Floor | 97 |
| DEDEL150-4 | Assembly Hall – On Floor | 27 |
| DEDEL150-5 | Assembly Hall – On Floor | 41 |
| DEDEL276-1 | Kitchen Near Assembly Hall – Top of Refrigerator | 9 |
| DEDEL276-2 | Assembly Hall – Top of Locker | 17 |
| DEDEL276-3 | Assembly Hall – On Fan | 200 |
| DEDEL276-4 | Assembly Hall – On Vending Machine | 33 |
| DEDEL276-5 | SGT Office – Heating Air Grill | 11 |
| DEDEL150-12 | 2 nd Floor – SPC Office – Air-Conditioning Unit | < 23 |
| DEDEL150-13 | 2 nd Floor – On Top of Locker 13 in Locker Room | < 23 |
| DEDEL150-14 | 2 nd Floor – Table Top in Classroom | < 23 |
| DEDEL150-15 | Main Floor –Boiler Room | 142 |
| DEDEL150-18 | Main Floor – Desk in SGT Office | < 23 |
| DEDEL150-16 | Field Blank | < 23 |
| DEDEL150-17 | Field Blank | < 23 |
| DEDEL276-6 | Field Blank | 0.76 μg |

^a Micrograms lead per square foot

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

Table 2 **Breathing Zone Air Samples for Lead National Guard Armory** Delaware City, Delaware

Date of Sampling: 30 May 2003

| | | Sampl | Results (mg/m³) a | | |
|---------------|----------------|---------------------------|---------------------------------|--------------------|---------------|
| Sample Number | Employee | Time Sampled / Minutes | Flow Rate (lpm) ^b | Volume (liters) | |
| DEDEL150-A1 | Non-Responsive | 1050-1432 / 222 | 2.419 | 536.91 | < 0.002 |
| DEDDE150-A2 | | 1245-1430/90 | 2.431 | 218.75 | < 0.005 |
| DEDEL150-A3 | Field Blank | - | - | - | None Detected |

^a Milligrams lead per cubic centimeter of air.
^b Liters of air per minute.

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

Table 3

Indoor Air Quality Measurements for Carbon Dioxide, Humidity, and Temperature National Guard Armory Delaware City, Delaware

Date of Sampling: 30 May 2003

| Location | Occupants in Area | Carbon Dioxide, parts per million parts of air (ppm) | Percent (%) Humidity | Temperature (°F) |
|----------------------------------------------------|----------------------|---------------------------------------------------------|-------------------------|---------------------|
| Main Floor -Main Entrance | 2 | 360 | 55.5 | 73.9 |
| 2 nd Floor – Administrative Office Area | 4 | 395 | 57.9 | 75.0 |
| Outdoors | - | 345 | 56.2 | 75.9 |

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

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

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

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

Table 4
Illumination Readings
National Guard Armory
Delaware City, Delaware

Date of Sampling: 30 May 2003

| Location | Luminance (fc) ^a | Standard (fc) ^a | Standard Met |
|----------------------------------------------------|--------------------------------|-------------------------------|-----------------|
| Drill Floor | 88-190 | 70 | Yes |
| Main Floor - Storage Area/Firing Range | 1-5 | 30 | No |
| Main Floor - Workout Area/Firing Range | 15-51 | 70 | No |
| Main Floor – Women's Bathroom | 24-32 | 40 | No |
| Main Floor – Men's Bathroom | 28-32 | 40 | No |
| Main Floor - Corridor | 20 | 7.5 | Yes |
| North Stairwell | 1.5-4 | 7.5 | No |
| 2 nd Floor – Administrative Office Area | 82-92 | 70 | Yes |
| 2 nd Floor - Locker Room | 12-42 | 70 | No |
| 2 nd Floor – Classroom | 7-27 | 70 | No |
| 2 nd Floor – Corridor | 5-36 | 7.5 | Some Areas |
| 2 nd Floor – Commander's Office | 111 | 70 | Yes |
| 2 nd Floor – Men's Bathroom | 20 | 40 | No |
| 2 nd Floor - Classroom | 47-61 | 70 | No |
| South Stairwell | 2-5 | 7.5 | No |

^a fc - Footcandles

The readings were taken with a Cooke Corporation cal-LIGHT 400 Calibrated Precision Lightmeter, calibrated on 19 Aug 2002.

The standards listed above are from Design Guide DG-415-2, Logistics Facilities, published by the National Guard Bureau Installation Division.

BEST AVAILABLE COPY **Table 5**

Wipe Sampling for Lead - Converted Firing Range

National Guard Armory

Delaware City, Delaware

Date of Sampling: 30 May 2003

| Sample Number | Location | Results, μg/ft ^{2 a} |
|------------------|--------------------------------|----------------------------------|
| DEDEL150-6 | Floor | 45. |
| DEDEL150-7 | Light Fixture | BDL b |
| DEDEL150-8 | Top of Ductwork on HVAC System | BDL |
| DEDEL150-9 | Stored Item in Range | 50 |
| DEDEL150-10 | Floor | BDL |
| DEDEL150-11 | Floor Outside the Range | BDL |
| DEDEL150-16 | Field Blank | BDL |
| DEDEL150-17 | Field Blank | BDL |

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

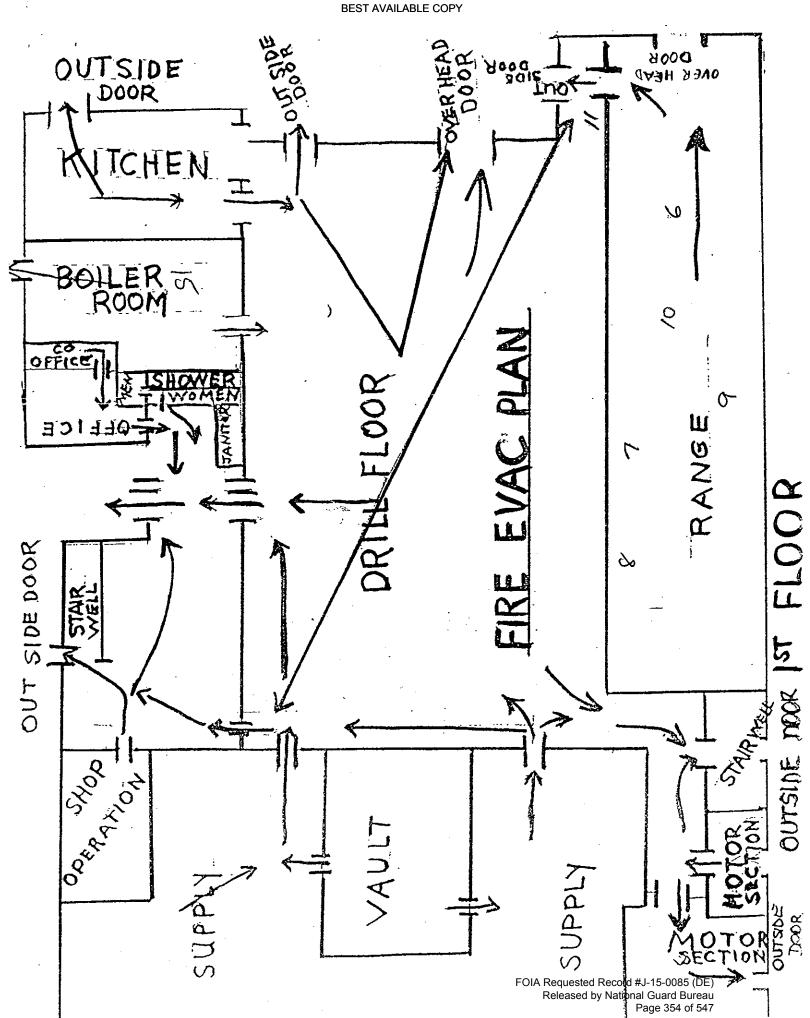
^a Micrograms lead per square foot ^b Below Detectable Limits, at a detection level of 23 μg/ft²

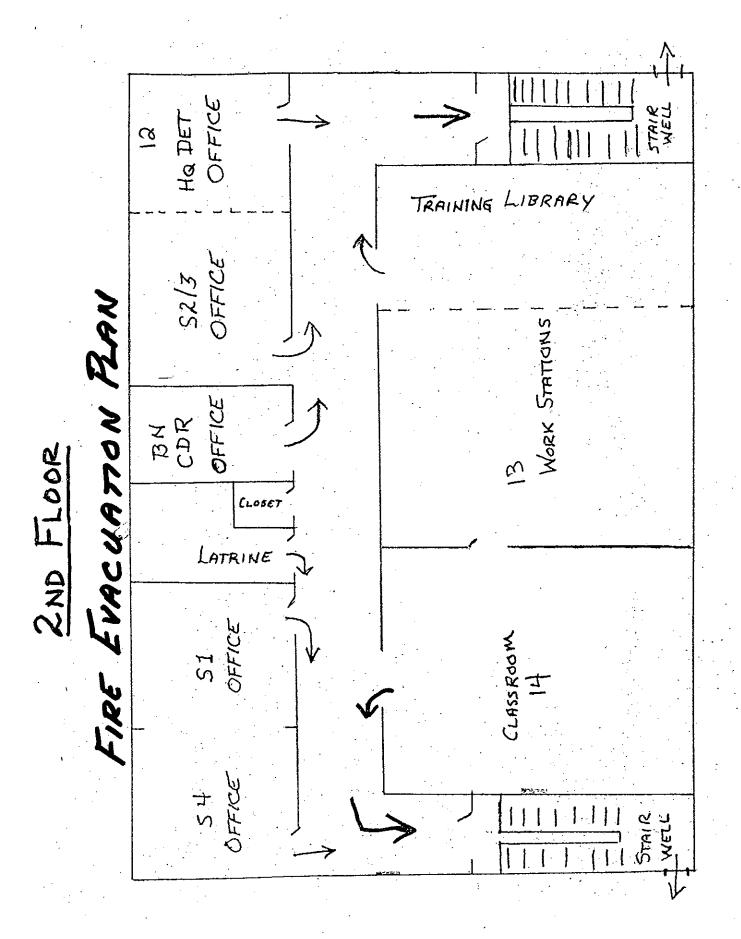
Appendix A HHIM Data Form

| FOR USE OF THIS OF THE SOUTH DEMOGRAPHIC DATA ARLOC SECTION 1. DEMOGRAPHIC DATA ARLOC ARLOC ARLOC INSTALLATION RC, Scannell OPERATION CODE Administrative Operations/ADO SURVEY DATE 30 May 03 MACONICODE Administrative Operations/ADO SURVEY DATE 30 MAY 03 MACONICODE TA XX TELEPHONE DENNO. UNITO ASANIZATION NO. CONTRACTOR(S) NO. CONTRACTOR(S) NO. CONTRACTOR(S) NO. CONTRACTOR(S) NO. CONTRACTOR(S) NO. OPER MAINTENANCE BAYS OPEN SURFACE TANKS VENT LATION UNITS SECTION S. SURVEY DATA CONTROLS PRESENT EVALUATION UNIT CODE CONTROLS PRESENT EVALUATION UNIT CODE CONTROLS PRESENT EVALUATION UNIT CODE CONTROLS PRESENT EVALUATION ONTROLS PRESENT EVALUATION UNIT CODE CONTROLS PRESENT EVALUATION ONTROLS PRESENT EVALUATION ONTROLS PRESENT EVALUATION ONTROLS PRESENT FOUR CODES OF THE CONTROLS PRESENT ONTROLS PRESENT EVALUATION ONTROLS PRESENT FOUR CODES OF THE CONTROLS PRESENT ONTROLS PRESENT EVALUATION ONTROLS PRESENT ONTROLS PRESENT EVALUATION ONTROLS PRESENT FOUR CODES OF THE CONTROLS ONTROLS PRESENT FOUR CODES OF THE CONTROLS ONTROLS PRESENT ONTROLS PRESENT EVALUATION ONTROLS PRESENT ONTROLS PRESENT ONTROLS PRESENT ONTROLS PRESENT EVALUATION ONTROLS PRESENT ONTROLS PRESENT ONTROLS PRESENT EVALUATION ONTROLS PRESENT ONTROLS PRESENT | HEA | 41515 | AZAR | D INFORMAT | ION W | ODULE: INL |)USTR | ALU | YGIENE | SURVEY | on servery |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|-----------------------------------------|----------|-----------------|-----------------------------------------|----------------|----------------|----------------|-------------|---------------------------------------|------------|
| ARLOS A 2 3 9 4 RC, S C ANNE II COCATIONICODE Administrative Areas/AA SURVEY DATE 30 May 03 MACONICODE MACONICODE Administrative Operations/ADO SURVEY DATE 30 May 03 MACONICODE MACONICO | | | | (For use c | | EMOGRAPHIC | DATA | | | | |
| ## A 39 9 RC, Scannell Delaware City | 10100 | | | | ON T. D | | | , | BLDG/R | M NO. | |
| PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized) PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized) PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized) PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized) PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized) PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized) PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized) PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized) PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized) PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized) PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized) PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized) PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized) PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized) PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized) PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized) PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized) PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized) PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized) PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized) PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized) PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized) PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized) PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized) PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized) PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized) PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized) PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized) PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized) PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized) PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized) PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized) PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized) PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized) PERSON | | | ļ' | | | i i | | | 1 1 | andre Cit | l., |
| PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized) PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized) PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized) PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized) PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized) PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized) PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized) PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized) PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized) PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized) PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized) PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized) PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized) PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized) PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized) PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized) PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized) PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized) PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized) PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized) PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized) PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized) PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized) PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized) PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized) PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized) PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized) PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized) PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized) PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized) PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized) PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized) PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized) PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized) PERSON | 42399 | / | | KC, DCA | inne.i | | | | Den | aware cir | <u> </u> |
| SURVEY DATE 30 MAY 03 MACOMICODE 7A XX TELEPHONE/DISNINO- UNIT/ORGANIZATION NO. CIV(S) NO. MIL NO. CONTRACTORIS) NO. CIV(S) NO. MIL SECTION 2- STATUS SPRAY BOOTHS OPEN SURFACE TANKS CONTROLS PRESENT CONTROLS PRESENT CONTROLS PRESENT EVALUATION UNIT CODE SPRAY BOOTHS SPRAY BOOTHS VENT LATION UNITS SECTION 3- SURVEY DATA CONTROLS PRESENT CONTROLS PRESENT EVALUATION UNIT CODE CONTROLS PRESENT CONTROLS PRESENT EVALUATION NOSHTONO MANUFACTURER PU ACID SURFACE FU ARRASEVE BLASINAN HOOD ACID ACID STATUS PRESENTS COLD SURFACES FU ARRASEVE BLASINAN HOOD ACID STATUS PU ACID SURFACES FU ARRASEVE BLASINAN HOOD ACID SURFACES FU ARRASEVE BLASINAN HOOD FU BLASINAN HOOD FU BLASINAN FU BLASINAN FU BLASINAN FU COMENION FU BLASINAN FU COMENION FU BLASINAN FU COMENION FU COMENIO | | | | | | | | | | | |
| SURVEY DATE 30 MAY 03 MACOMICODE 7A XX TELEPHONE/DISNINO- UNIT/ORGANIZATION NO. CIV(S) NO. MIL NO. CONTRACTORIS) NO. CIV(S) NO. MIL SECTION 2- STATUS SPRAY BOOTHS OPEN SURFACE TANKS CONTROLS PRESENT CONTROLS PRESENT CONTROLS PRESENT EVALUATION UNIT CODE SPRAY BOOTHS SPRAY BOOTHS VENT LATION UNITS SECTION 3- SURVEY DATA CONTROLS PRESENT CONTROLS PRESENT EVALUATION UNIT CODE CONTROLS PRESENT CONTROLS PRESENT EVALUATION NOSHTONO MANUFACTURER PU ACID SURFACE FU ARRASEVE BLASINAN HOOD ACID ACID STATUS PRESENTS COLD SURFACES FU ARRASEVE BLASINAN HOOD ACID STATUS PU ACID SURFACES FU ARRASEVE BLASINAN HOOD ACID SURFACES FU ARRASEVE BLASINAN HOOD FU BLASINAN HOOD FU BLASINAN FU BLASINAN FU BLASINAN FU COMENION FU BLASINAN FU COMENION FU BLASINAN FU COMENION FU COMENIO | 11 + > | 1 | La\ | Dans / AA | 1 | A da | اء ثمانه | والمدير | VP OI | serations 1 | ADO |
| A G MACOMICODE 7A XX S.F. C SIDEMACONICODE 7A XX S.F. C SIDEMACONICODE 7A XX S.F. C S.F. C SIDEMACONICODE 7A XX S.F. C S.F. C | | trai | ive i | rireasym | · | | | Tall! | | | |
| MACOM/CODE 7A TELEPHONEDS NO. UNIT/ORGANIZATION RAC (308) 326-7390 NO. MIL A SECTION 2. FACILITY DATA SPRAY BOOTHS CONTROLS PRESENT CONTROLS PRESEN | SURVEY DATE | | | | | EVALUATOR | mais | | , | | |
| MACOMICODE THE EPHONE/DSN NO. UNIT/ORGANIZATION TRAC (302) 326-7390 NO. MIL NO. CONTRACTOR(S) NO. MIL NO. CONTRACTOR(S) NO. MIL A SECTION 2. FACILITY DATA YAPOR DEGREASERS OPEN SURFACE YANKS VENTILATION UNITS SECTION 3. SURWEY DATA CONTROLS PRESENT EVALUATION UNIT CODE CONTROLS REQUIRED STATUS STATUS ABO O ABO O ABO O CLOVES RU RESPIRATOR NIOSH TO NO. MANUFACTURER O ABO O | .34 | ma | V13 | | | AG | | | • . | | |
| TELEPHONE/DSN NO. UNIT/ORGANIZATION RAC | | 7.10. | 700 | ISUBMAC | OM/CO | DE | | SUPER | VISOR | | • |
| TELEPHONE/DISN NO. UNITIORGANIZATION National Guard Section 2. Facility data Section 2. Facility data Section 3. Survey d | MACOMCODE | | • | | | | | - | Non-Res | ponsive | |
| TELEPHONEDS NO. (30 a) 3 2 6 - 73 90 NO. CIV(S) NO. CONTRACTOR(S) NO. LOC(S) NO. OTHER SECTION 2. FACILITY DATA SPRAY BOOTHS OPEN SURFACE YANKS OPEN SURFACE YANKS SECTION 3. SURVEY DATA CONTROLS PRESENT EVALUATION UNIT CODE CONTROLS REQUIRED STATUS STATUS PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized) GLOVES RU RESPIRATOR NIOSHTO NO. MANUFACTURER RU COLD SURFACES / ABRASIVE BLASTING HOOD / ROT SURFACES / ABRASIVE ARE PURIFYING OIL / IN FACE ARE PURIFYING OIL / IN FACE ARE PURIFYING OIL / IN FACE ARE PURIFYING OIL SURFACES / APPLICAS / APPLICACES / APPLICAS / APPLICACES / APPL | • | 74 | | | | | | 3# | | EREOUEVOV/Sve | Vel and |
| ACIO CONTROLS PRESENT EVALUATION UNIT CODE CONTROLS REQUIRED STATUS COURSE RU RESPIRATOR NICIBATION OF CONTROLS REQUIRED STATUS COLOURS / ARRASIVE BLASTING HOOD / / / / / / / / / / / / / / / / / / | TELEPHONE/DSI | INO. | | | | • | RAC | - 1 | | | euay) |
| NO. CIV(S) NO. MIL SECTION 2. FACILITY DATA SECTION 3. FACILITY DATA WAPON DEGREASERS OPEN SURFACE TANKS OPEN SURFACE TANKS VENT LATION UNITS SECTION 3. SURVEY DATA CONTROLS PRESENT EVALUATION UNIT CODE CONTROLS REQUIRED STATUS PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized) QUEVES RU ACIO ACIO | | | | Nation | 16 | unval | 5 | } | | <i>8</i> | |
| SECTION 2. FACILITY DATA VAPOR DEGREASERS OPEN SURFACE YANKS VENTILATION UNITS SECTION 3. SURVEY DATA CONTROLS PRESENT EVALUATION SECTION 3. SURVEY DATA CONTROLS PRESENT EVALUATION UNIT CODE CONTROLS REQUIRED STATUS PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized) GLOVES RU RESPIRATOR NIGHT OND. MANUFACTURER RU COLIDIARRACES / AIRLINE / COLORAGOS / AIRLINE / COLORAGOS / AIRLINE / COLORAGOS / DISPASSES / DISPASSES / DISPASSES / POWERED AIR PURIFYING GLL FULL FACE AIR PURIFYING GUIL | (302)326- | 7390 |) | Marioria | NO CO | JTRACTOR(S) | NO. LOD | (S) | | NO. OTHER | • |
| MAINTENANCE BAYS OPEN SURFACE TANKS SECTION 3. SURVEY DATA CONTROLS PRESENT EVALUATION UNIT CODE CONTROLS PRESENT EVALUATION UNIT CODE CONTROLS REQUIRED STATUS PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized) QLOVES RU RESPIRATOR NIGSH TO NO. MAINLEACTURER ACID COLD SURFACES / ARRAINE ACID COLD SURFACES / ARRAINE ACID COLD SURFACES / ARRAINE ACID COLD SURFACES / EXPL ARRAINE ACID COLD SURFACES / TO ISPOSABLE NIGSH TO NO. MANUFACTURER ACID COLD SURFACES / TO ISPOSABLE / TO ISPOSABLE ACID COLD SURFACES / DISPOSABLE / TO ISPOSABLE ACID COLD SURFACES / DISPOSABLE / / DIS | NO. CIV(S) | | NO. MIL | • | 140, 001 | TITAL TOTAL | | | • • | | |
| MAINTENANCE BAYS OPEN SURFACE TANKS SECTION 3. SURVEY DATA CONTROLS PRESENT EVALUATION UNIT CODE CONTROLS PRESENT EVALUATION UNIT CODE CONTROLS REQUIRED STATUS PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized) QLOVES RU RESPIRATOR NIGSH TO NO. MAINLEACTURER ACID COLD SURFACES / ARRAINE ACID COLD SURFACES / ARRAINE ACID COLD SURFACES / ARRAINE ACID COLD SURFACES / EXPL ARRAINE ACID COLD SURFACES / TO ISPOSABLE NIGSH TO NO. MANUFACTURER ACID COLD SURFACES / TO ISPOSABLE / TO ISPOSABLE ACID COLD SURFACES / DISPOSABLE / TO ISPOSABLE ACID COLD SURFACES / DISPOSABLE / / DIS | | | . 4 | | | | · | | | | |
| MAINTENANCE BAYS OPEN SURFACE TANKS SECTION 3. SURVEY DATA CONTROLS PRESENT EVALUATION UNIT CODE CONTROLS REQUIRED STATUS PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized) QLOVES RU RESPIRATOR NIOSH TO NO. MANUFACTURER RU ACID | | | | SE | CTION | 2. FACILITY DA | TA | | | | |
| MAINTENANCE BAYS OPEN SURFACE TANKS SECTIONS, SURVEY DATA CONTROLS PRESENT EVALUATION UNIT CODE CONTROLS REQUIRED STATUS STATUS PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized) QLOVES RU RESPIRATOR NIGSHTC NO. MANUFACTURER RU ACID | LAB HOODS | | | VAPOR | DEGREA | SERS | | SPHAY | BOOTHS | , | |
| SIECTIONSSURVEY DATA CONTROLS PRESENT EVALUATION UNIT CODE CONTROLS REQUIRED STATUS PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized) PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized) PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized) PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized) PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized) PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized) PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized) PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized) PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized) PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized) PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized) PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized) PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized) PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized) PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized) PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized) PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized) PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized) PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized) PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized) PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized) PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized) PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized) PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized) PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized) PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized) PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized) PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized) PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized) PERSONAL PROTECTIVE EQUIPMENT (R = R = R = Utilized) PERSONAL PROTECTIVE EQUIPMENT (R = R = R = Utilized) PERSONAL PROTECTIVE EQUIPMENT (R = R = R = Utilized) PERSONAL PROTECTIVE EQUIPMENT (R = R = Utilized) PE | | - | 0. | | UDEL OF | TANKS | | VENTI | ATION LI | NITS | |
| PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized) QLOVES RU RESPIRATOR NIOSHTONO, MANUFACTURER BUTTERS AND ACID / AIRLINE COLDSURFACES / AIRLINE / COLDSURFACES / AIRLINE HOLD / COLDSURFACES / AIRLINE / COLDSURFACES / AIRLINE / COLDSURFACES / DISPOSABLE / COLDSURFACES / COLDS | MAINTENANCE | BAYS | 0 | OPENS | UHFACE | LIANNS | | 1 2311 | 3 | 111,10 | |
| PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized) QLOVES RU RESPIRATOR NIOSHTONO, MANUFACTURER BUTTERS AND ACID / AIRLINE COLDSURFACES / AIRLINE / COLDSURFACES / AIRLINE HOLD / COLDSURFACES / AIRLINE / COLDSURFACES / AIRLINE / COLDSURFACES / DISPOSABLE / COLDSURFACES / COLDS | | | | 90 | COLLEGE | 3 SUBVEY DA | TA | | | | |
| PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized) GLOYES R/U RESPIRATOR NIOSH TO NO. MANUFACTURER R/U ACID / AIRUNE COLD SURFACES / ABRASIVE BLASTING HOOD ACT SURFACES / DISPOSABLE // ONE SURFACES / FULL FACE AIR PURIFYING OIL / 172 FACE AIR PURIFYING OIL / 172 FACE AIR PURIFYING SULVENTS / POWERED AIR PURIFYING SURGICAL GLOYES / 174 FACE AIR PURIFYING SURGICAL GLOYES / 174 FACE AIR PURIFYING SELF CONTAINED EYES/FACE R/U HEARING R/U BODY R/U HEAD/FIT R/U CHEMICAL SPILSH / CANAL CAPS / APRONS // COLD WEATHER BOOTS/HATS // CHEMICAL SPILSH / GANAL CAPS / COLD WEATHER CLOTHING / HARD HATS // CREMICAL SPILSH / GANAL CAPS / COLD WEATHER BOOTS/HATS // CREMICAL SPILSH / GANAL CAPS / COLD WEATHER BOOTS/HATS // CREMICAL SPILSH / GANAL CAPS / COLD WEATHER BOOTS/HATS // CREMICAL SPILSH / GANAL CAPS / COLD WEATHER BOOTS/HATS // CREMICAL SPILSH / GANAL CAPS / COLD WEATHER BOOTS/HATS // CREMICAL SPILSH / GANAL CAPS / COLD WEATHER BOOTS/HATS // CREMICAL SPILSH / GANAL CAPS / COLD WEATHER BOOTS/HATS // CREMICAL SPILSH / GANAL CAPS / COLD WEATHER BOOTS/HATS // CREMICAL SPILSH / GANAL CAPS / COLD WEATHER BOOTS/HATS // CREMICAL SPILSH / GANAL CAPS / COLD WEATHER BOOTS/HATS // CREMICAL SPILSH / GANAL CAPS / COLD WEATHER BOOTS/HATS // CREMICAL SPILSH / GANAL CAPS / COLD WEATHER BOOTS/HATS // CREMICAL SPILSH / GANAL CAPS / COLD WEATHER BOOTS/HATS // CREMICAL SPILSH / GANAL CAPS / COLD WEATHER BOOTS/HATS // CREMICAL SPILSH / GANAL CAPS / COLD WEATHER BOOTS/HATS // CREMICAL SPILSH / GANAL CAPS / COLD WEATHER BOOTS/HATS // CREMICAL SPILSH // CONDUCTIVE SHORS // CREMICAL SPILSH // COLD WEATHER BOOTS/HATS // CR | | | | | | UNIT CODE | , co | NTROL | S REQUIP | IED STAT | rus |
| PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized) GLGVES RU RESPIRATOR NIOSHTONO. MANUFACTURER RU ACID / AIRLINE COLD SURFACES / ABRASIVE BLASTING HOOD HOT SURFACES / DISPOSABLE 1 / FULL FACE AIR PURFYING GL / 1/2 FACE AIR PURFYING SOLVENTS / POWERED AIR PURFYING SOLVENTS / POWERED AIR PURFYING SURGICAL GLOVES / 1/4 FACE AIR PURFYING SURGICAL GLOVES / 1/4 FACE AIR PURFYING SURGICAL GLOVES / 1/4 FACE AIR PURFYING I / COLD WEATHER BOOTSHATS / COLD WEATHER BOOTSHATS / CREMICAL SPLASH / GANAL CAPS / APRONS / COLD WEATHER BOOTSHATS / FULL FACE SHIELD / SARPLUGS / COLD WEATHER CLOTHING / MARD HATS I / CREMICAL SPLASH / GANAL CAPS / APRONS / COLD WEATHER BOOTSHATS / CREMICAL SPLASH / HELMETS / COVERALLS / UMPERMEABLE BOOTS / SARETY/RAPAOT / MUFFS / FULL BOOY SUIT / SARETY/ROHAOT / MUFFS / FULL BOOY SUIT / SARETY/ROHAOT SHOES / SARETY/RAPAOT / MUFFS / FULL BOOY SUIT / SARETY/ROHAOCONDUCTIVE SHOES / MUFFSCARPLUG COMBO / HEAT REFLECTIVE VEST/SUIT / SARETY/ROHACONDUCTIVE SHOES / MUFFSCARPLUG WOTHING LIMIT / SAFETY/CONDUCTIVE SHOES / MUFFSCARPLUG WOTIME LIMIT / SAFETY/CONDUCTIVE SHOES / SAFETY/ROHACONDUCTIVE SHOES / MUFFSCARPLUG WOTIME LIMIT / SAFETY/DELT/HARNESS / SAFETY/ROHACONDUCTIVE SHOES / MUFFSCARPLUG WOTIME LIMIT / SAFETY/DELT/HARNESS / SAFETY/ROHACONDUCTIVE SHOES / MUFFSCARPLUG WOTIME LIMIT / SAFETY/DELT/HARNESS / SAFETY/ROHACONDUCTIVE SHOES / MUFFSCARPLUG WOTIME LIMIT / SAFETY/DELT/HARNESS / SAFETY/ROHACONDUCTIVE SHOES / MUFFSCARPLUG WOTIME LIMIT / SAFETY/CONDUCTIVE SHOES / SAFETY/ROHACONDUCTIVE SHOES / MUFFSCARPLUG WOTIME LIMIT / SAFETY/DELT/HARNESS / SAFETY/ROHACONDUCTIVE SHOES / MUFFSCARPLUG WOTIME LIMIT / SAFETY/DELT/HARNESS / SAFETY/ROHACONDUCTIVE SHOES / MUFFSCARPLUG WOTIME LIMIT / SAFETY/DELT/HARNESS / SAFETY/ROHACONDUCTIVE SHOES / MUFFSCARPLUG WOTIME LIMIT / SAFETY/DELT/HARNESS / SAFETY/ROHACONDUCTIVE SHOES / MUFFSCARPLUG WOTIME LIMIT / SAFETY/DELT/HARNESS / SAFETY/ROHACONDUCTIVE SHOES / MUFFSCARPLUG WOTIME LIMIT / SAFETY/POLITY / SAFETY/ROHACONDUCTIVE SHOES / MUFFSCARPLUG WOTIME LIMI | CONTROL | 7111202 | | | | | | | | | |
| PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized) GLGVES RU RESPIRATOR NIOSHTONO. MANUFACTURER RU ACID / AIRLINE COLD SURFACES / ABRASIVE BLASTING HOOD HOT SURFACES / DISPOSABLE 1 / FULL FACE AIR PURFYING GL / 1/2 FACE AIR PURFYING SOLVENTS / POWERED AIR PURFYING SOLVENTS / POWERED AIR PURFYING SURGICAL GLOVES / 1/4 FACE AIR PURFYING SURGICAL GLOVES / 1/4 FACE AIR PURFYING SURGICAL GLOVES / 1/4 FACE AIR PURFYING I / COLD WEATHER BOOTSHATS / COLD WEATHER BOOTSHATS / CREMICAL SPLASH / GANAL CAPS / APRONS / COLD WEATHER BOOTSHATS / FULL FACE SHIELD / SARPLUGS / COLD WEATHER CLOTHING / MARD HATS I / CREMICAL SPLASH / GANAL CAPS / APRONS / COLD WEATHER BOOTSHATS / CREMICAL SPLASH / HELMETS / COVERALLS / UMPERMEABLE BOOTS / SARETY/RAPAOT / MUFFS / FULL BOOY SUIT / SARETY/ROHAOT / MUFFS / FULL BOOY SUIT / SARETY/ROHAOT SHOES / SARETY/RAPAOT / MUFFS / FULL BOOY SUIT / SARETY/ROHAOCONDUCTIVE SHOES / MUFFSCARPLUG COMBO / HEAT REFLECTIVE VEST/SUIT / SARETY/ROHACONDUCTIVE SHOES / MUFFSCARPLUG WOTHING LIMIT / SAFETY/CONDUCTIVE SHOES / MUFFSCARPLUG WOTIME LIMIT / SAFETY/CONDUCTIVE SHOES / SAFETY/ROHACONDUCTIVE SHOES / MUFFSCARPLUG WOTIME LIMIT / SAFETY/DELT/HARNESS / SAFETY/ROHACONDUCTIVE SHOES / MUFFSCARPLUG WOTIME LIMIT / SAFETY/DELT/HARNESS / SAFETY/ROHACONDUCTIVE SHOES / MUFFSCARPLUG WOTIME LIMIT / SAFETY/DELT/HARNESS / SAFETY/ROHACONDUCTIVE SHOES / MUFFSCARPLUG WOTIME LIMIT / SAFETY/DELT/HARNESS / SAFETY/ROHACONDUCTIVE SHOES / MUFFSCARPLUG WOTIME LIMIT / SAFETY/CONDUCTIVE SHOES / SAFETY/ROHACONDUCTIVE SHOES / MUFFSCARPLUG WOTIME LIMIT / SAFETY/DELT/HARNESS / SAFETY/ROHACONDUCTIVE SHOES / MUFFSCARPLUG WOTIME LIMIT / SAFETY/DELT/HARNESS / SAFETY/ROHACONDUCTIVE SHOES / MUFFSCARPLUG WOTIME LIMIT / SAFETY/DELT/HARNESS / SAFETY/ROHACONDUCTIVE SHOES / MUFFSCARPLUG WOTIME LIMIT / SAFETY/DELT/HARNESS / SAFETY/ROHACONDUCTIVE SHOES / MUFFSCARPLUG WOTIME LIMIT / SAFETY/DELT/HARNESS / SAFETY/ROHACONDUCTIVE SHOES / MUFFSCARPLUG WOTIME LIMIT / SAFETY/POLITY / SAFETY/ROHACONDUCTIVE SHOES / MUFFSCARPLUG WOTIME LIMI | | | | | | | <u> </u> | • | | | |
| PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized) GLOVES RU RESPIRATOR NIOSH TO NO. MANUFACTURER RU COLD SURFACES / AIRLINE / COLD SURFACES / DISPOSABLE / COLD SURFACES / PURIFYING / COLD SURFACES / POWERED AIR PURIFYING / COLD SURFACES / COMPRED AIR PURIFYING / COLD SURFACES / COLD SURFACES / COLD SURFACES / COLD SURFACES SURFACE RU HEARING RU BODY RU HEADAFIT RU CHEMICAL SPLASH / CANAL CAPS / APRONS / COLD WEATHER BOOTS HATS / CHEMICAL SPLASH / GANAL CAPS / APRONS / COLD WEATHER BOOTS / COLD WEATHER BOOTS / COLD WEATHER BOOTS / COLD WEATHER BOOTS / SAFETY/RUPACT / MUFF/EARPLUS COMBO / HEAT REFLECTIVE VEST/SUIT / SAFETY/CONDUCTIVE SHOES / WELDING HELMET / MUFF/EARPLUG COMBO / HEAT REFLECTIVE VEST/SUIT / SAFETY/CONDUCTIVE SHOES / MUFF/EARPLUG WYTIME LIMIT / SAFETY/BELTHARNESS / SAFETY/NON-CONDUCTIVE SHOES / MUFF/EARPLUG WYTIME LIMIT / SAFETY/BELTHARNESS / SAFETY/NON-CONDUCTIVE SHOES / MUFF/EARPLUG WYTIME LIMIT / SAFETY/BELTHARNESS / SAFETY/NON-CONDUCTIVE SHOES / MUFF/EARPLUG WYTIME LIMIT / SAFETY/BELTHARNESS / SAFETY/NON-CONDUCTIVE SHOES / MUFF/EARPLUG WYTIME LIMIT / SAFETY/BELTHARNESS / SAFETY/NON-CONDUCTIVE SHOES / MUFF/EARPLUG WYTIME LIMIT / SAFETY/BELTHARNESS / SAFETY/NON-CONDUCTIVE SHOES / MUFF/EARPLUG WYTIME LIMIT / SAFETY/BELTHARNESS / SAFETY/NON-CONDUCTIVE SHOES / MUFF/EARPLUG WYTIME LIMIT / SAFETY/BELTHARNESS / SAFETY/NON-CONDUCTIVE SHOES / MUFF/EARPLUG WYTIME LIMIT / SAFETY/BELTHARNESS / SAFETY/NON-CONDUCTIVE SHOES / MUFF/EARPLUG WYTIME LIMIT / SAFETY/BELTHARNESS / SAFETY/NON-CONDUCTIVE SHOES / MUFF/EARPLUG WYTIME LIMIT / SAFETY/BELTHARNESS / SAFETY/NON-CONDUCTIVE SHOES / MUFF/EARPLUG WYTIME LIMIT / SAFETY/BELTHARNESS / SAFETY/NON-CONDUCTIVE SHOES / MUFF/EARPLUG WYTIME LIMIT / SAFETY/BELTHARNESS / MUFF/EARPLUG WYTIME LIMIT / SAFETY/BELTHARNESS / MUFF/EARPLUG WYTIME LIMIT / SAFETY/BELTHARNESS / MUFF/EARPLUG WYTIME LIMIT | | · · · · · · · · · · · · · · · · · · · | | , | | | | - | | | |
| PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized) GLOVES RU RESPIRATOR NIOSH TO NO. MANUFACTURER RU COLD SURFACES / AIRLINE / COLD SURFACES / DISPOSABLE / COLD SURFACES / PURIFYING / COLD SURFACES / POWERED AIR PURIFYING / COLD SURFACES / COMPRED AIR PURIFYING / COLD SURFACES / COLD SURFACES / COLD SURFACES / COLD SURFACES SURFACE RU HEARING RU BODY RU HEADAFIT RU CHEMICAL SPLASH / CANAL CAPS / APRONS / COLD WEATHER BOOTS HATS / CHEMICAL SPLASH / GANAL CAPS / APRONS / COLD WEATHER BOOTS / COLD WEATHER BOOTS / COLD WEATHER BOOTS / COLD WEATHER BOOTS / SAFETY/RUPACT / MUFF/EARPLUS COMBO / HEAT REFLECTIVE VEST/SUIT / SAFETY/CONDUCTIVE SHOES / WELDING HELMET / MUFF/EARPLUG COMBO / HEAT REFLECTIVE VEST/SUIT / SAFETY/CONDUCTIVE SHOES / MUFF/EARPLUG WYTIME LIMIT / SAFETY/BELTHARNESS / SAFETY/NON-CONDUCTIVE SHOES / MUFF/EARPLUG WYTIME LIMIT / SAFETY/BELTHARNESS / SAFETY/NON-CONDUCTIVE SHOES / MUFF/EARPLUG WYTIME LIMIT / SAFETY/BELTHARNESS / SAFETY/NON-CONDUCTIVE SHOES / MUFF/EARPLUG WYTIME LIMIT / SAFETY/BELTHARNESS / SAFETY/NON-CONDUCTIVE SHOES / MUFF/EARPLUG WYTIME LIMIT / SAFETY/BELTHARNESS / SAFETY/NON-CONDUCTIVE SHOES / MUFF/EARPLUG WYTIME LIMIT / SAFETY/BELTHARNESS / SAFETY/NON-CONDUCTIVE SHOES / MUFF/EARPLUG WYTIME LIMIT / SAFETY/BELTHARNESS / SAFETY/NON-CONDUCTIVE SHOES / MUFF/EARPLUG WYTIME LIMIT / SAFETY/BELTHARNESS / SAFETY/NON-CONDUCTIVE SHOES / MUFF/EARPLUG WYTIME LIMIT / SAFETY/BELTHARNESS / SAFETY/NON-CONDUCTIVE SHOES / MUFF/EARPLUG WYTIME LIMIT / SAFETY/BELTHARNESS / SAFETY/NON-CONDUCTIVE SHOES / MUFF/EARPLUG WYTIME LIMIT / SAFETY/BELTHARNESS / SAFETY/NON-CONDUCTIVE SHOES / MUFF/EARPLUG WYTIME LIMIT / SAFETY/BELTHARNESS / SAFETY/NON-CONDUCTIVE SHOES / MUFF/EARPLUG WYTIME LIMIT / SAFETY/BELTHARNESS / MUFF/EARPLUG WYTIME LIMIT / SAFETY/BELTHARNESS / MUFF/EARPLUG WYTIME LIMIT / SAFETY/BELTHARNESS / MUFF/EARPLUG WYTIME LIMIT | | | | | | | <u> </u> | | | | |
| PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized) GLOVES RU RESPIRATOR NIOSH TO NO. MANUFACTURER RU COLD SURFACES / AIRLINE / COLD SURFACES / DISPOSABLE / COLD SURFACES / PURIFYING / COLD SURFACES / POWERED AIR PURIFYING / COLD SURFACES / COMPRED AIR PURIFYING / COLD SURFACES / COLD SURFACES / COLD SURFACES / COLD SURFACES SURFACE RU HEARING RU BODY RU HEADAFIT RU CHEMICAL SPLASH / CANAL CAPS / APRONS / COLD WEATHER BOOTS HATS / CHEMICAL SPLASH / GANAL CAPS / APRONS / COLD WEATHER BOOTS / COLD WEATHER BOOTS / COLD WEATHER BOOTS / COLD WEATHER BOOTS / SAFETY/RUPACT / MUFF/EARPLUS COMBO / HEAT REFLECTIVE VEST/SUIT / SAFETY/CONDUCTIVE SHOES / WELDING HELMET / MUFF/EARPLUG COMBO / HEAT REFLECTIVE VEST/SUIT / SAFETY/CONDUCTIVE SHOES / MUFF/EARPLUG WYTIME LIMIT / SAFETY/BELTHARNESS / SAFETY/NON-CONDUCTIVE SHOES / MUFF/EARPLUG WYTIME LIMIT / SAFETY/BELTHARNESS / SAFETY/NON-CONDUCTIVE SHOES / MUFF/EARPLUG WYTIME LIMIT / SAFETY/BELTHARNESS / SAFETY/NON-CONDUCTIVE SHOES / MUFF/EARPLUG WYTIME LIMIT / SAFETY/BELTHARNESS / SAFETY/NON-CONDUCTIVE SHOES / MUFF/EARPLUG WYTIME LIMIT / SAFETY/BELTHARNESS / SAFETY/NON-CONDUCTIVE SHOES / MUFF/EARPLUG WYTIME LIMIT / SAFETY/BELTHARNESS / SAFETY/NON-CONDUCTIVE SHOES / MUFF/EARPLUG WYTIME LIMIT / SAFETY/BELTHARNESS / SAFETY/NON-CONDUCTIVE SHOES / MUFF/EARPLUG WYTIME LIMIT / SAFETY/BELTHARNESS / SAFETY/NON-CONDUCTIVE SHOES / MUFF/EARPLUG WYTIME LIMIT / SAFETY/BELTHARNESS / SAFETY/NON-CONDUCTIVE SHOES / MUFF/EARPLUG WYTIME LIMIT / SAFETY/BELTHARNESS / SAFETY/NON-CONDUCTIVE SHOES / MUFF/EARPLUG WYTIME LIMIT / SAFETY/BELTHARNESS / SAFETY/NON-CONDUCTIVE SHOES / MUFF/EARPLUG WYTIME LIMIT / SAFETY/BELTHARNESS / SAFETY/NON-CONDUCTIVE SHOES / MUFF/EARPLUG WYTIME LIMIT / SAFETY/BELTHARNESS / MUFF/EARPLUG WYTIME LIMIT / SAFETY/BELTHARNESS / MUFF/EARPLUG WYTIME LIMIT / SAFETY/BELTHARNESS / MUFF/EARPLUG WYTIME LIMIT | | | | | | | l | - | : | | |
| PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized) GLOVES RU RESPIRATOR NIOSH TO NO. MANUFACTURER RU COLD SURFACES / AIRLINE / COLD SURFACES / DISPOSABLE / COLD SURFACES / PURIFYING / COLD SURFACES / POWERED AIR PURIFYING / COLD SURFACES / COMPRED AIR PURIFYING / COLD SURFACES / COLD SURFACES / COLD SURFACES / COLD SURFACES SURFACE RU HEARING RU BODY RU HEADAFIT RU CHEMICAL SPLASH / CANAL CAPS / APRONS / COLD WEATHER BOOTS HATS / CHEMICAL SPLASH / GANAL CAPS / APRONS / COLD WEATHER BOOTS / COLD WEATHER BOOTS / COLD WEATHER BOOTS / COLD WEATHER BOOTS / SAFETY/RUPACT / MUFF/EARPLUS COMBO / HEAT REFLECTIVE VEST/SUIT / SAFETY/CONDUCTIVE SHOES / WELDING HELMET / MUFF/EARPLUG COMBO / HEAT REFLECTIVE VEST/SUIT / SAFETY/CONDUCTIVE SHOES / MUFF/EARPLUG WYTIME LIMIT / SAFETY/BELTHARNESS / SAFETY/NON-CONDUCTIVE SHOES / MUFF/EARPLUG WYTIME LIMIT / SAFETY/BELTHARNESS / SAFETY/NON-CONDUCTIVE SHOES / MUFF/EARPLUG WYTIME LIMIT / SAFETY/BELTHARNESS / SAFETY/NON-CONDUCTIVE SHOES / MUFF/EARPLUG WYTIME LIMIT / SAFETY/BELTHARNESS / SAFETY/NON-CONDUCTIVE SHOES / MUFF/EARPLUG WYTIME LIMIT / SAFETY/BELTHARNESS / SAFETY/NON-CONDUCTIVE SHOES / MUFF/EARPLUG WYTIME LIMIT / SAFETY/BELTHARNESS / SAFETY/NON-CONDUCTIVE SHOES / MUFF/EARPLUG WYTIME LIMIT / SAFETY/BELTHARNESS / SAFETY/NON-CONDUCTIVE SHOES / MUFF/EARPLUG WYTIME LIMIT / SAFETY/BELTHARNESS / SAFETY/NON-CONDUCTIVE SHOES / MUFF/EARPLUG WYTIME LIMIT / SAFETY/BELTHARNESS / SAFETY/NON-CONDUCTIVE SHOES / MUFF/EARPLUG WYTIME LIMIT / SAFETY/BELTHARNESS / SAFETY/NON-CONDUCTIVE SHOES / MUFF/EARPLUG WYTIME LIMIT / SAFETY/BELTHARNESS / SAFETY/NON-CONDUCTIVE SHOES / MUFF/EARPLUG WYTIME LIMIT / SAFETY/BELTHARNESS / SAFETY/NON-CONDUCTIVE SHOES / MUFF/EARPLUG WYTIME LIMIT / SAFETY/BELTHARNESS / MUFF/EARPLUG WYTIME LIMIT / SAFETY/BELTHARNESS / MUFF/EARPLUG WYTIME LIMIT / SAFETY/BELTHARNESS / MUFF/EARPLUG WYTIME LIMIT | | · · · · · · | | | | | - | | | | |
| GLOVES R/U RESPIRATOR NIOSH TO NO. MANUFACTURER R/U ACIO / AIRUNE / ARPASIVE BLASTING HOOD / ARPASIVE BLASTING ARPASIVE BLASTING / ARPASIVE BLASTING AR | · | | | | | | · [· | | | | |
| GLOVES R/U RESPIRATOR NIOSH TO NO. MANUFACTURER R/U ACIO / AIRUNE / ARPASIVE BLASTING HOOD / ARPASIVE BLASTING ARPASIVE BLASTING / ARPASIVE BLASTING AR | | | | | | . : | Ι. | | • | | |
| GLOVES R/U RESPIRATOR NIOSH TO NO. MANUFACTURER R/U ACIO / AIRUNE / ARPASIVE BLASTING HOOD / ARPASIVE BLASTING ARPASIVE BLASTING / ARPASIVE BLASTING AR | | | | <u> </u> | | | ļ | | ·········· | | |
| GLOVES R/U RESPIRATOR NIOSH TO NO. MANUFACTURER R/U ACIO / AIRUNE / ARPASIVE BLASTING HOOD / ARPASIVE BLASTING ARPASIVE BLASTING / ARPASIVE BLASTING AR | | | | | | | | . | • | i | |
| GLOVES R/U RESPIRATOR NIOSH TO NO. MANUFACTURER R/U ACIO / AIRUNE / ARPASIVE BLASTING HOOD / ARPASIVE BLASTING ARPASIVE BLASTING / ARPASIVE BLASTING AR | | | | <u> </u> | | | | | | | |
| GLOVES R/U RESPIRATOR NIDSR TO NO. ACID / AIRLINE / COLD SURFACES / ABRASIVE BLASTING HOOD / HOT SURFACES / DISPOSABLE / NBC AGENTS / FULL FACE AIR PURIFYING / OIL / 1/2 FACE AIR PURIFYING / SOLVENTS / POWERED AIR PURIFYING / SURGICAL GLOVES / 1/4 FACE AIR PURIFYING / SURGICAL GLOVES / 1/4 FACE AIR PURIFYING / SELF CONTAINED / EYES/FACE R/U HEARING R/U BODY R/U HEAD/FIT R/U CHEMICAL SPLASH / CANAL CAPS / APRONS / COLD WEATHER BOOTS/HATS / FULL FACE SHIELD / SARPLUGS / COLD WEATHER CLOTHING / HARD HATS / CHEMICAL/SAFETY / HELMETS / COVERALLS / IMPERIMEABLE BOOTS / SAFETY/MPAOT / MUFFS / FULL BODY SUIT / SAFETY/CONDUCTIVE SHOES / WELDING HELMET / MUFF/EARPLUG COMBO / HEAT REFLECTIVE VEST/SUIT / SAFETY/CONDUCTIVE SHOES / MUFF/EARPLUG WYTIME LIMIT / SAFETY BELT/HARNESS / / | PERSONAL PRO | TECTIV | e Equip | MENT (R = Requi | red; U = | Utilized) | | | •,• | | |
| ACID / AIRLINE COLD SURFACES / ABRASIVE BLASTING HOOD / HOT SURFACES / DISPOSABLE / DISPOSABLE / PULL FACE AIR PURIFYING / POWERED AIR PURIFYING / SOLVENTS / POWERED AIR PURIFYING / SELF CONTAINED / CHEMICAL SPLASH / CANAL CAPS / APRONS / COLD WEATHER BOOTS HATS / FULL FACE SHIELD / EARPLUGS / COLD WEATHER BOOTS / COLD WEATHER BOOTS / CHEMICAL SAFETY / HELMETS / COVERALLS / IMPERIMEABLE BOOTS / SAFETY/MIPAOT / MUFFS / FULL BOOY SUIT / SAFETY/CONDUCTIVE SHOES / WELDING HELMET / MUFF/EARPLUG COMBO / HEAT REPLECTIVE VEST/SUIT / SAFETY/CONDUCTIVE SHOES / MUFF/EARPLUG WYTIME LIMIT / SAFETY/BELT/HARNESS / MUF | GLOVES | R/U | 1 | RESPIRATOR | *************************************** | NIOSH TO N | Ю. | | MANUFA | CTURER | |
| COLD SURFACES / ABRASIVE BLASTING HOOD HOT SURFACES / DISPOSABLE NBC AGENTS / FULL FACE AIR PURIFYING OIL / 1/2 FACE AIR PURIFYING SOLVENTS / POWERED AIR PURIFYING SURGICAL GLOVES / 1/4 FACE AIR PURIFYING SELF CONTAINED EYES/FACE R/U HEARING R/U BODY R/U HEAD/FIT R/U CHEMICAL SPLASH / CANAL CAPS / APRONS / COLD WEATHER BOOTS/HATS / FULL FACE SHIELD / EARPLUGS / COUD WEATHER CLOTHING / HARD HATS CHEMICAL/SAFETY / HELMETS / COVERALLS / IMPERMEABLE BOOTS / SAFETY/RMPACT / MUFFS WELDING HELMET / MUFF/EARPLUG COMBO / HEAT REFLECTIVE VEST/SUIT / SAFETY/NON-CONDUCTIVE SHOES / MUFF/EARPLUG W/TIME LIMIT / SAFETY SELT/HARNESS / IMPERMEABLE BOOTS / | ACID | 7 | | | | | | • | | | |
| HOT SURFACES / DISPOSABLE NBC AGENTS / FULL FACE AIR PURIFYING / OIL / 1/2 FACE AIR PURIFYING / SOLVENTS / POWERED AIR PURIFYING / SURGICAL GLOVES / 1/4 FACE AIR PURIFYING / SELF CONTAINED / EYES/FACE R/U HEARING R/U BODY R/U HEAD/FIT R/U CHEMICAL SPLASH / CANAL CAPS / APRONS / COLD WEATHER BOOTS/HATS / FULL FACE SHIELD / EARPLUGS / COLD WEATHER CLOTHING / HARD HATS / CHEMICAL/SAFETY / HELMETS / COVERALLS / IMPERIMEABLE BOOTS / SAFETY/IMPACT / MUFFS / FULL BODY SUIT / SAFETY/CONDUCTIVE SHOES / WELDING HELMET / MUFF/EARPLUG COMBO / HEAT REFLECTIVE VEST/SUIT / SAFETY/NON-CONDUCTIVE SHOES / MUFF/EARPLUG W/TIME LIMIT / SAFETY BELT/HARNESS / / | COLDSURFACES | , , , , , , , , , , , , , , , , , , , , | | | | | | | | | |
| NBC AGENTS / FULL FACE AIR PURIFYING / 1/2 FACE AIR PURIFYING / 1/2 FACE AIR PURIFYING / 1/4 FACE AIR PURIFYING / SELF CONTAINED / SELF CONTAINED / CHEMICAL SPLASH / CANAL CAPS / APRONS / COLD WEATHER BOOTS/HATS / CHEMICAL SPLASH / CANAL CAPS / APRONS / COLD WEATHER BOOTS/HATS / CHEMICAL SPLASH / CARPLUGS / COLD WEATHER CLOTHING / HARD HATS / CHEMICAL SAFETY / HELMETS / COVERALLS / IMPERMEABLE BOOTS / CHEMICAL SAFETY / HELMETS / COVERALLS / IMPERMEABLE BOOTS / SAFETY/MHPACT / MUFF/EARPLUG COMBO / HEAT REFLECTIVE VEST/SUIT / SAFETY/KON-CONDUCTIVE SHOES / MUFF/EARPLUG WYTIME LIMIT / SAFETY BELT/HARNESS / MUFF/EARPLUG WYTIME LIMIT / WYTIME W | | | | | | <u> </u> | | | | | |
| SOLVENTS / POWERED AIR PURIFYING SURGICAL GLOVES / 1/4 FACE AIR PURIFYING SELF CONTAINED EYES/FACE R/U HEARING R/U BODY R/U HEAD/FIT R/U CHEMICAL SPLASH / CANAL CAPS / APRONS / COLD WEATHER BOOTS/HATS / FULL FACE SHIELD / EARPLUGS / COLD WEATHER CLOTHING / HARD HATS / CHEMICAL/SAFETY / HELMETS / COVERALLS / IMPERIMEBBLE BOOTS / SAFETY/MPACT / MUFFS / FULL BODY SUIT / SAFETY/CONDUCTIVE SHOES / WELDING HELMET / MUFF/EARPLUG COMBO / HEAT REFLECTIVE VEST/SUIT / SAFETY/NON-CONDUCTIVE SHOES / | | | | | | | | | ,3 <u>1</u> | | |
| SURGICAL GLOVES / 1/4 FACE AIR PURIFYING SELF CONTAINED FUL BODY FUL HEADHIT BYU CHEMICAL SPLASH / CANAL CAPS / APRONS / COLD WEATHER BOOTS/HATS / FULL FACE SHIELD / SARPLUGS / COLD WEATHER CLOTHING / HARD HATS / CHEMICAL/SAFETY / HELMETS / COVERALLS / IMPERIMEABLE BOOTS / SAFETY/MPACT / MUFFS / FULL BODY SUIT / SAFETY/CONDUCTIVE SHOES / WELDING HELMET / MUFF/EARPLUG COMBO / HEAT REFLECTIVE VEST/SUIT / SAFETY/ROH-CONDUCTIVE SHOES / MUFF/EARPLUG W/TIME LIMIT / SAFETY BELT/HARNESS / I | | | | | | | | | | | |
| EYES/FACE FAU HEARING PAU BODY PAU HEAD/FIT PAU CHEMICAL SPLASH / CANAL CAPS / APRONS / COLD WEATHER BOOTS/HATS / FULL FACE SHIELD / EARPLUGS / COLD WEATHER CLOTHING / HARD HATS / CHEMICAL/SAFETY / HELMETS / COVERALLS / IMPERIMEABLE BOOTS / SAFETY/MPACT / MUFFS / FULL BODY SUIT / SAFETY/CONDUCTIVE SHOES / WELDING HELMET / MUFF/EARPLUG COMBO / HEAT REFLECTIVE VEST/SUIT / SAFETY/NOH-CONDUCTIVE SHOES / MUFF/EARPLUG W/TIME LIMIT / SAFETY BELT/HARNESS / / | | | | | | | | | | | Į. |
| EYESFACE FU HEARING PU BODY PU HEADIFIT PU CHEMICAL SPLASH / CANAL CAPS / APRONS / COLD WEATHER BOOTS/HATS / FULL FACE SHIELD / EARPLUGS / COLD WEATHER CLOTHING / HARD HATS / CHEMICAL/SAFETY / HELMETS / COVERALLS / IMPERIMEABLE BOOTS / SAFETY/MPACT / MUFFS / FULL BODY SUIT / SAFETY/CONDUCTIVE SHOES / WELDING HELMET / MUFF/EARPLUG COMBO / HEAT REFLECTIVE VEST/SUIT / SAFETY/NOH-CONDUCTIVE SHOES / MUFF/EARPLUG W/TIME LIMIT / SAFETY BELT/HARNESS / / | SUNGIONE SECTION | | | | | | 1. 4 | | | | - 1 |
| EYES/FACE R/U HEARING R/U BOUT CHEMICAL SPLASH / CANAL CAPS / APRONS / COLD WEATHER BOOTS/HATS / FULL FACE SHIELD / SARPLUGS / COLD WEATHER CLOTHING / HARD HATS / CHEMICAL/SAFETY / HELMETS / COVERALLS / IMPERMEABLE BOOTS / SAFETY/IMPACT / MUFFS / FULL BODY SUIT / SAFETY/CONDUCTIVE SHOES / WELDING HELMET / MUFF/EARPLUG COMBO / HEAT REFLECTIVE VEST/SUIT / SAFETY/ROH-CONDUCTIVE SHOES / MUFF/EARPLUG W/TIME LIMIT / SAFETY BELT/HARNESS / // COLD WEATHER BOOTS/HATS / IMPERMEABLE BOOTS / IMPERMEABLE B | | <u> </u> | 1 | | | | | | | | |
| FULL FACE SHIELD / EARPLUGS / COLD WEATHER CLOTHING / HARD HATS / CHEMICAL/SAFETY / HELMETS / COVERALLS / IMPERIMEABLE BOOTS / SAFETY/MPACT / MUFFS / FULL BODY SUIT / SAFETY/CONDUCTIVE SHOES / WELDING HELMET / MUFF/EARPLUG COMBO / HEAT REFLECTIVE VEST/SUIT / SAFETY/NON-CONDUCTIVE SHOES / MUFF/EARPLUG W/TIME LIMIT / SAFETY BELT/HARNESS / / | EYES/FACE | FL/U | | HEARING | P/U | BODY | | _ | | | |
| CHEMICAUSAFETY / HELMETS / COVERALLS / IMPERMEABLE BOOTS / SAFETY/MPAOT / MUFFS / FULL BODY SUIT / SAFETY/CONDUCTIVE SHOES / WELDING HELMET / MUFF/EARPLUG COMBO / HEAT REFLECTIVE VEST/SUIT / SAFETY/HON-CONDUCTIVE SHOES / MUFF/EARPLUG W/TIME LIMIT / SAFETY BELT/HARNESS / / | 1 | 1. | CANAL CA | APS . | / | | | - | | | |
| SAFETY/MPACT / MUFFS / FULL BODY SUIT / SAFETY/CONDUCTIVE SHOES / WELDING HELMET / MUFF/EARPLUG COMBO / HEAT REFLECTIVE VEST/SUIT / SAFETY/NON-CONDUCTIVE SHOES / MUFF/EARPLUG W/TIME LIMIT / SAFETY BELT/HARNESS / | FULL FACE SHIELD | 1 | EARPLUO | 8 | | | OTHING | | | | |
| WELDING HELMET / MUFF/EARPLUG COMBO / HEAT REFLECTIVE VEST/SUIT / SAFETYNON-CONDUCTIVE SHOES / MUFF/EARPLUG W/TIME LIMIT / SAFETY BELT/HARNESS / | | | | | | | | | | | |
| MUFFÆARPLUG W/TIME LIMIT / SAFETY BELT/HARNESS / / | | | 1 | nn lia cousa | | | VEST/SUIT | | | | |
| (touth hall) | WELDING HELMET | <u> </u> | | | | | | | | | 1 |
| | L | 1 | | | | | | | · | · · · · · · · · · · · · · · · · · · · | |

| | SECTION 4. HAZARD INVENT | ORY DA | | | | |
|----------------------------|-----------------------------------|----------------------------------------------|------------------|---------------------------------|-------------|--------------|
| CAS CODE . | HAZARD DESCRIPTION | | PAC | | <u> </u> | EPC |
| POVOTXXXX | Video Display Terminal | 3 | | | 12 | |
| 1332-21-4 | Asbestos (Other) | 2 | | | C | |
| | | | | | | |
| • | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | † · | |
| | | 1 | | | | ····· |
| | | | | | | . |
| | | 1. | | <u> </u> | | ,. |
| | | - | - - | | | <u>.</u> |
| 4-1 | SECTION 5. PERSONNEL | DATA | | | | |
| LAST NAM | • | MI | SEX | s | sn | CAT |
| -Non-F | Responsive | Α | F | Non-Re | sponsive | mi |
| | | P | m | | | mi |
| | <u> </u> | m | m | | | MI |
| | | | m | | | mi |
| | ., | | | · · · · | | |
| | | | | l . | | |
| | | <u> </u> | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | SECTION 6. COMMENT O No comments | | hed she | et | | |
| | ☐ No comments ☐ 5 | See altac | | | | |
| he purpose of this informa | | See attace e a re NT ada Social Sec | Four mini | full-t stration mber as a | n identific | wathan a |

Appendix B Building Layout





Appendix C Sampling Sheets and Laboratory Analyses



CERTIFICATE OF ANALYSIS

NEA

| 118600 10/15/2003 15-Oct-03 | |
|-----------------------------------------------------------------------------------------------------------------------|------------|
| Chain Of Custedy: Date Analyzed: Person Submitting: Report Date: | |
| Delaware National Guard Survey Delaware City Not Provided 1902 | ; |
| Job Name: Job Location: Job Namber: P.O. Number: | |
| National Guard Bureau 301-IH Old Bay Lane, Atm: NGB-AVN-SI, State Military Reservation Havre de Grace, Maryland 21078 | Non-Red |
| Chent: Address: | Attentions |

Summary of Atomic Absorption Analysis for Lead

Page I of !

| | . ₩ |
|--------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Firm Keson | 9 ug/ft ² 200 ug/ft ² 33 ug/ft ² 11 ug/ft ² 0.76 ug |
| Reporting Limit | 0.111 2.70 ug/ft² 0.111 2.70 ug/ft² 0.111 5.40 ug/ft² 0.111 5.40 ug/ft² 0.111 2.70 ug/ft² NA 0.30 ug Vator. SM-3113B |
| Arra Wiped (ft²) | 0.111 0.111 0.111 0.111 0.111 NA er: SM-3113B Water: SM-3113B |
| Air Volume (L) | 200(M)-7420; Wat -93/200(M)-7421; parts per million (|
| nalysis Type Sample Type | DEDEL 276-1 Purnace Wipe DEDEL 276-3 Purnace Wipe DEDEL 276-4 Purnace Wipe DEDEL 276-5 Purnace Wipe Blank DEDEL 276-6 Purnace Wipe Blank The Blank |
| Analysis Type | Furnace Furnac |
| | DEDEL276-1 DEDEL276-2 DEDEL276-3 DEDEL276-4 DEDEL276-6 Flame: Air, Wipes, r Furnace: Air, Wipes, r Furnace: Air, Wipes, and Mg = pa |
| AMA Sample Number | 0401639 DEDEL276-1 Furnace Wipc ************************************ |



ug/L = parts per billion (ppb)

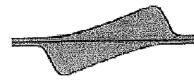
Note: All results have two significant digits. Any additional digits shown should not be considered when interpreting the result.

ug = micrograms

%Pb = percent lead by weight

this report is submitted and accepted for the axclusive use of the client to whom it is addressed and upon the candition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written any knowledge and 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 the information. Besides sample material will be discarded in accordance with the appropriate regulations, unless otherwise requested by the ellent. NVLAP Accreditation for the accordance with the appropriate regulatory guidelines, unless of this information. This report applies only to the samples, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public and these Laboratories, An AIHA (#8863), NVLAP (# 101143), & New York ELAP (#10920) Accredited Laboratory 4475 Forbes Blvd. • Lanham, MD 20706 • (301) 459-2643 applies only to polarized light interescopy of bulk samples and transmission electron interescopy of AHERA air samples.

BEST AVAILABLE COPY



Reservoirs Environmental, Inc.

2059 Bryant St. Denver, CO 80211 (303) 964-1986 Fax (303) 477-4275 Toll Free (866) RESI-ENV

June 11, 2003

Project Description: RES 93513-1 05-03 Delaware-Smrna,Dover,Middletown,Delaware City

Non-Responsive

Shaw Environmental, Inc. 312 Directors Drive Knoxville TN 37923

Dear Customer,

Reservoirs Environmental, Inc. is an environmental analytical laboratory accredited for the analysis of Industrial Hygiene and Environmental matrices by the American Industrial Hygiene Association, Lab ID 101533 - Accreditation Certificate #480. The laboratory is currently proficient in both PAT & ELPAT programs respectively.

Reservoirs has analyzed the following sample(s) using Atomic Absorption (AA) / Atomic Emission Spectroscopy - Inductively Coupled Plasma (AES-ICP) per your request. The analysis has been completed in general accordance with the appropriate methodology as stated in Table I. Results have been faxed to your office.

RES 93513-1 is the job number assigned to this study. This report is considered highly confidential and property of the customer. Reservoirs Environmental, Inc. will not discuss any part of this study with personnel other than those authorized by the client. Samples will be disposed of after sixty days unless longer storage is requested. If you should have any questions about this report, please feel free to call me at 303-964-1986.

Sincerely,

President

Non-Responsive

Page 1 of 2
BEST AVAILABLE COPY

RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Accredited Laboratory #101896 AIHA Certificate of Accredidation #480 LAB ID 101533

TABLE I.

ANALYSIS:

LEAD BY WIPE SAMPLING

RES Job Number:

RES 93513-1

Client:

Shaw Environmental, Inc.

Client Project Number / P.O.:

05-03

Client Project Description:

Delaware-Smrna, Dover, Middletown, Delaware City

Date Samples Received:

June 2, 2003

Analysis Type: Turnaround:

USEPA SW846 3050B / AA(7420)

Date Samples Analyzed:

3-5 Day June 11, 2003

| Client ID Number | Lab ID Number | Sample Area (sq.ft.) | LEAD (μg) | Detection Limit (μg/sq.ft.) | LEAD CONCENTRATION (µg/sq.ft.) |
|---------------------|------------------|----------------------------|--------------|-----------------------------------|--------------------------------------|
| DEDEL150-1 | EM 775817 | 0.11 | BDL | 23 | BDL |
| DEDEL150-2 | EM 775818 | 0.11 | BDL | 23 | BDL |
| DEDEL150-3 | EM 775819 | 0.11 | 10.7 | 23 | 97 |
| DEDEL150-4 | EM 775820 | 0.11 | 3.0 | 23 | 27 |
| DEDEL150-5 | EM 775821 | 0.11 | 4.5 | 23 | 41 |
| DEDEL150-6 | EM 775822 | 0.11 | 5.0 | 23 | 45 |
| DEDEL150-7 | EM 775823 | 0.11 | BDL | 23 | BDL |
| DEDEL150-8 | EM 775824 | 0.11 | BDL | 23 | BDL |
| DEDEL150-9 | EM 775825 | 0.11 | 5.5 | 23 | 50 |
| DEDEL150-10 | EM 775826 | 0.11 | BDL | 23 | BDL |
| DEDEL150-11 . | EM 775827 | 0.11 | BDL | 23 | BDL |
| DEDEL150-12 | EM 775828 | 0.11 | BDL | 23 | BDL |
| DEDEL150-13 | EM 775829 | 0.11 | BDL | 23 | BDL |
| DEDEL150-14 | EM 775830 | 0.11 | BDL | 23 | BDL |
| DEDEL150-15 | EM 775831 | 0.11 | 15.6 | 23 | 142 |
| DEDEL150-16 | EM 775832 | 0.11 | BDL | 23 | BDL |
| DEDEL150-17 | EM 775833 | 0.11 | BDL | 23 | BDL |
| DEDEL150-18 | EM 775834 | 0.11 | BDL | 23 | BDL |

^{*}Calculations Based On A 1 sq.ft. Sample Area Unless Otherwise Noted

| ************************************** | | NORTH CITY OF THE WILL | | KVICES, II | | |
|----------------------------------------|-----------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------|---------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 599 | 2_ | 2059 Bryant St., D | enver CO 80211 | | RESI Job #:RES | 11 m 12 m |
| Phone: (303) 984 PAGER: ONGAL | 4-1986 Fax: (203) 477-(275 W. L Pager number available at La | ATS: 1-665-RESI ENV (737-4368 b. Alternata Pagers: PLIMTEM | 3) 503-2167 PCM/Motal | in 503-2098 (AFT | Due Date: Oue Time: ER HOURS USE ONLY] | <u> </u> |
| SAMPLES SU | JEMITTED BY: | | | | | 11 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 |
| Company Sin. | Like Environmental | inc. | Amity Nat | WHI bleed fence | Non-Respons | sive |
| Add/005: 313 | Descrees Drive | | 301-H O | 1 Bay La, Havro 4 | 9 Graca, MD 21078 | |
| Kno. | CV.114.TN 37933 | 1 | 10000 | 110 00 10 | | |
| Contact: Non- | n-Responsive | Phone: 410-942 | | 8x: 410-942- | SZSA Pager | |
| Process Annaber a | nator P.O. 4: O.T O.3 | Franke (Str. 2) Ale | 94-7332 F | 医人名图 2010 | *3911 Fagor | |
| Project Dascriction | nyLocation Delnware . | Symprox, Dover, Mi | ddictomi | Seingres ! | 2142 | |
| | | ınt \$ | | | | |
| | | | | | | AFX |
| Additional fees arranged and | s apply for after hours and i spacefied on the chain of ou | nolidays for all analysis typi istody: Turnaround is subj | es. Samples will ect to laboratory | be analyzed d volume. You w | unng normal laboratory h rill be notified if delays an | ours unloss otherwise a expected. |
| ASBESTOS L | ABORATORY HOURS: W | eekdays: 7am - 7pm | ANALYTIC, AIR | - married | 490A, 74008, OSHA | |
| PCM/PLM | 2 Haur RUSH 24 | hour 3:5 weakstays | | | HERA Level II, 7493, II Pras/Abs //SO-Indirect Pres | |
| | | | | AATICI | P Metal | |
| TEM Phay Netica | 6 Hour RUSH 24 RECURRED (or TEM 6 Hour RUS | haur 3-5 weekunys Sie | Company of the compan | Opist | Total, Resovable | |
| | | | BULK: | · · · · · · · · · · · · · · · · · · · | hon moon, Long rapon, P | eint Cours |
| METALS LAB | ORATORY HOURS: Wee | kdays: 8am - 5pm | | | - Quant Semi-quant | |
| AA | SPECIAL RUSH 24 | Hour X 3-8 Day | | Pas | or son prai(Mas) LCF6 | |
| RCRA 8 | SPECIAL RUSHSC | Day 10 Day | WATER | TEM O | TME 1792 approved wipes on naking. Waste Water | |
| TCLP _ | SPECIAL RUSH50 | tao tã Aau | | AA Wat | er Metal Matal | RCRA 9 |
| Phor Notice REGI | _ special rosh Mred for special rush ka. R Tolp special rush is 1 day | CRA or TOLP | OTHER | | and asset | |
| | | /9-287. Email results to ker | nneth.forsythe@n | nd.ngb.army.n | iil | |
| | Sample Number | | | | Yoluma | EM.I |
| DED | 16L150-1 | | | | 4x44 wipes | 775817 |
| ? | <i>−3</i> | | | | | 18 |
|). | -3 | | | | | 14 |
| 4 | - 4 | | | | | RG |
| | | | | | | |
| 0 | -6 | | | | | <i>58</i> |
| 7 | -1 | | | | | <u> </u> |
| 9 | -8 | | | | LOCALITY | <u> 174</u> |
| 1 | . 9 | | | | | <u>. 45</u> |
| 10. | -10 | NOTE - 1 | | | | 26 |
| 13 | .0 | | | | | 22 |
| 12. | -() | | | | <u> </u> | |
| 3. | _13 | | | | | <u> 37</u> |
| 14 | 14 | | | *** | | |
| 15. | -13 | | | | | |
| elqmas is redmy | | | any additional shapes | | - | |
| OTS; If the packs | age has suctained substantial dar analysis with times samples. (IEE) | mage or the costody scallis broka Stills not responsible for eners or a borptory for number of samples of | enissions in calculati | ons resulting from | nd stripper. RESI will analyze it the Inaccindey of enginal data | coming samples based Tumbidum binas are |
| Relinquished | | esponsive | ESSENTATOR OF SANATO | Date | STIME 5/30/03 | 1800 |
| Lahoratory Us | Non-Resp | onsive | | Çate:Tima: | 1.12/15 | 1.4/6 |
| Damer | | \$8/cu\$f06 | dy saal upon nicebe | 1000 | | |
| RESULTS: 4 | | 변 합 7 2일 전략 (전환) (2012년 (2012년 년 | Phone Fs | Pate | Time truital | |
| SPLITS: | Authorization By/Time | | en e | | Lab Bench/Count Shee | The second secon |
| | Analytical Method/To- | | Asyryka i | | Time; Cate; | |

| Fage 6016. | | ENVI RESTANCION | | INC. | |
|--------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|
| | 20 | 59 Bryant St., Denver CO 6 | 80211 | RESI Job #: 935 /3 | |
| Phone: (303) 95 | 4-1988 - Pax: (303) 477-3275 - WATS: 1-266-8 4-Pages number available at L36-Altamate i | ESI ENV (717-1569) | Side-tra- SAA saan i- E | Due Date: 4 9 | - |
| | JBMITTED BY: | | | | G |
| The second second | in Environmental Inc. | IN IN | VOICE TO: (IF DI | Non-Responsive | : : |
| Address 313 | Director CS Drive | 201 | Hi Cod Bay Ln, Havin | da Oreca, MO 21078 | |
| | 6 V. 11 . T. N _ 37903 | | | | |
| Contact: No | | Phace 410-942-0273 x16 | | -0254 Pager | |
| Prosect Mirrobat 4 | カジェヤウェ ムモンAQ | Phane(4:5)644 -733 | | | |
| Project Descripto | obsession: Pelangue - Smy M | Dover middleton | on Che Later Cons. | Cital | |
| | Veckend CHARGE: Amount S_ | | | | |
| Maria Modisa | Tookeng Office of Amount 3. | | Authorized by: | | |
| Acdisonal feed arranged and | s apply for affer hours and bolidays for somethed on the chain of custedy. Tur | all anelysis types. Sample naround is subject to labor | s will be analyzed o | during normal laboratory hours unless othe will be notified if delays are expected. | wise |
| ASSESTOS L | ABORATORY HOURS: Weekdays: | am - 7pm ANAL | YTICAL METHOD | 7400A, 7400B, 03HA | |
| | | | | AHERA, LOOMIN, 7407, 180, | 1 |
| PCM/PLM | 2 Hour RUSH 24 hour | 3.5 weekdays | | PresiAbs ISO Indiaect Preps Chaifeid | |
| TEM | 5 Hour AUSH 24 hour | I-5 wnexdays | Cug | SPNetalRGRA 8 Fotal Resourable | 1 |
| Phot Nance | S Hour BUSH 24 hour Bush Ageniuces. | | | Y South Cought waying | 1 |
| · (C.C. D.C | | BULK: | } | Shari report. Long report. Point Educat | 1 |
| JETALS LAB | ORATORY HOURS: Weekdays: 8ar | n - Spm | | Vs. Quant. Semi-quant PPB | |
| AA | SPECIAL RUSH 24 Hour X | 1.5019 | EZSI WWW | FAT. Sail Dasi (Was) FCLP | Į |
| | ,,,,, | 1 | (A: | STM E 1792 approved wises driv. | ĺ |
| RCRA 8 | SPECIAL RUSH 5 Day | WATE | 1 | Mining. Waste Water | |
| ا برج، ۽ | SPECIAL RUSH 5 DAY | 10.00 | | tor Metal RCRA 4 | · |
| | HREE TH SPECIAL RUSH AA. RCHA OF FOLD | OTHE | | - Total Transition | |
| BOLL ARDY | TGLP TPECIAL RUSH IS 3 Day Turnaround | | to the same of the | | اا |
| special fostru | ctions: Contract # 78-287. Emi | ol results to kenneth forsyll | he@md.ngb.army.r | rail . | |
| | | | | | |
| | Sample Mumber | | | Yolume EM.I | |
|) De D | ET-I 20 - 17 | | | 124" wipes 72589 | 2 |
| <u></u> | 11 - 17 | | | | 777 |
| , | | | | | 7 |
| • 5 | The state of the s | <u> </u> | | 2578 | |
| ī. | And the second s | | | | |
| 7 | A STATE OF THE STA | | | | |
| 8. | The state of the s | | | | |
| 9. | | The state of the s | | | |
| 10 | | And the second s | | | |
| 11 | | | 2 | | |
| 12. | | | | And the same of th | ~ |
| 13 | | | | | |
| 14 | A STATE OF THE STA | | | Andrew Market | |
| 15 Nymber of samples | Transaction from | (Use as many additional s | hands at accepted t | | |
| | | ** | | nd stepper. RESI wil analysa incoming samples par | รสส์ |
| upun information re | cerves with those samples. ABSI is not tespon | sible for energ or omissions in ca | louisions resulting from | i the instructory of organicate. Turnantism some a | (FF) |
| based apan meas d | Non-Responsive | per of samples guaranteed in st | ion lumanoons. | -1-1-1 1800 | |
| Relinguishad (| Sy): | | 201 | offine 5/30/13 /800 | |
| .aboratory N | Ion Pesnonsivo | | | | |
| taceleid Sy | Ion-Responsive | ol out the stantage sail upon to | Oage/Time | 10-41 (17 / 15 | |
| Camer RESULTS: 4 | | eroackagerowscom sastrupon re Paga Phone | Fax Date | Time Initials | |
| NEOUE TO, 4 | production to the contract | | | | |
| SPLITS: | Authorization By/Time: | | | Lab Banch/Count Sheets Received By | |
| | Analytical Method/ unacound: | | | Time: Date; | |
| ev.102:01 | | ilts Out | | | |



TEST REPORT Page 1 of 2 6/9/03

Submitted To:

Shaw Environmental, Inc. 312 Directors Drive Knoxville, TN 37923

Reference Data:

Lead

Client Sample No.:

DESMY149-A1 through DEDEL150-A3

P.O. No.:

05-04

Sample Location:

DE

Sample Type:

Filter

Method Reference:

NIOSH 7300

DCL Set ID No.:

03-8-2667

DCL Sample ID No.:

03-16843 through 03-16854

Sample Receipt Date:

6/2/2003 06/02/03

Preparation Date:

Analysis Date:

06/03/03

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

The sample condition upon receipt was acceptable except where noted.

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

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

on-Responsi

Analyst

CINCINNATI OFFICE 4388 GLENDALE-MILFORD ROAD CINCINNATI, OHIO 45242-3706 613 733-5338, FAX 513 733-6347

WEST COAST OFFICE 11 SANTA YORMA COURT NOVATO, CALIFORNIA 94845 800 280-8071, FAX 415 893-9469

TEST REPORT Page 2 of 2 03-S-2667

Results Lead

BEST AVAILABLE COPY

| Client # | DCL # | Sample Volume (L) | μg/sample | mg/m³ |
|-------------|------------|----------------------|-----------|--------|
| DESMY149-A1 | 03-16843 | 312.98 | ND | <0.003 |
| Desmy149-A2 | 03-16844 | 307.27 | ND | <0.003 |
| DESMY149-A3 | 03-16845 | 0 | ND | - |
| DEDOV149-A1 | 03-16846 | 395.42 | ND | <0.003 |
| DEDOV149-A2 | 03-16847 | 369.9 | ND | <0.003 |
| DEDOV149-A3 | 03-16848 | 0 | ND | - |
| DEMID150-A1 | 03-16849 | 291.48 | ND | <0.003 |
| DEMID150-A2 | 03-16850 | 293.58 | ND | <0.003 |
| DEMID150-A3 | 03-16851 | 0 | ND | 44 |
| DEDEL150-A1 | 03~16852 | 536.91 | ND | <0.002 |
| DEDEL150-A2 | 03-16853 | 218.75 | ND | <0.005 |
| Dedel150-A3 | 03-16854 | 0 | ND | - |
| | Prep Blank | | . ND | |
| % Recovery | LCS | | 107. | |
| % Recovery | LCS DUP | | 101. | |
| RPL | | | 1. | |

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





Possible Contaminat Non-Responsive

Requested by

660 West LaVey Drive / Salt Lake City, UT 84123 4386 Glendale-Milford Read / Circinnati, Oil 45242 800-366-9135 or 801 - 266-7700 / FAX: 801-268-9992 800-456-1490 or 510-733-5006 / FAX: 510-733-5047

DATACHEM LABORATORIES - A SORENSON COMPANY

BEST AVAILABLE COPY

Industrial Hygiene Sampling Calculation Worksheet

National Guard Armory

Location: Delaware City

Date: 30 May 03

Sample 1

Sample Number: DEDELISOAL

Pump: 647615

Pre Flow Rate Post Flow Rate 2.416 2.420 2.424 2.418 2.424 2.424 2.416

Average

Average Pre and Post 2.4185

Time 1 \ 0.50
Time 2 \ 232
Total Time Sampled
Minutes Sampled \ 222

Volume 536,9**4**₹

Liters

Sample 2

Sample Number: DEDELISO A2

Pump: 648339

Pre Flow Rate Post Flow Rate 2.414 2.449 2.443

Average

Average Pre and Post 24305

Time 1 1300 Time 2 230

Total Time Sampled \P Minutes Sampled Q_O

Volume

218.75 Liters 218.756

Appendix D References

References

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

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

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

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

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

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

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

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

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

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

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

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

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

Appendix E Recommendations for Surface Lead Dust in Armories

Subject: Recommendations for Surface Lead Dust in Armories

- 1. In armories that do not contain childcare facilities, the National Guard Bureau (NGB) Region North Industrial Hygiene Office recommends cleaning the areas in which sample results are greater than 200 micrograms per square foot (μ g/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 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 μ g/ft² is a safe surface contamination level. They have also applied these standards as the decontamination levels for surfaces in administrative offices.
- e. It should be noted that levels above these recommendations do not necessarily mean there is a significant hazard to workers who are following good cleaning and hygienic practices since there is no correlation between wipe and air samples. Rather, we recommend these levels as a 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:

BEST AVAILABLE COPY

1 / 1 1:

- a. Clean all areas that will be accessible to children to the EPA dust-lead standard for children 6 years of age or under (40 μ g/ft² on floors and 250 μ g/ft² on windowsills).
- b. Refer to the local authorities' regulations since they can be more stringent than federal regulations.
- c. Post signs in the area to inform people of the presence of lead dust and its effects.
- d. If soldiers clean weapons in the facility change the policy so that they cannot clean their weapons in the facility, or if they are allowed to clean their weapons indoors, they must clean the area by wet wiping and mopping the area when they are done.
- e. If the paint is peeling, contact the state Environmental Office to test for lead content and provide recommendations.
- 3. Air samples collected on individuals in the armory were well below OSHA's permissible exposure limit for lead (29 CFR 1910.1025(c)) of 0.05 mg/m³ averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead dust in this building.

312 Directors Drive Knoxville, TN 37923 865.690.3211 Fax 865.690.3626



National Guard Armory Georgetown Readiness Center, Georgetown, Delaware

Industrial Hygiene Evaluation

Prepared for:

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

Prepared by:

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

13 November 2003

National Guard Armory Georgetown Readiness Center, Georgetown, Delaware

Industrial Hygiene Evaluation

Prepared for:

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

Prepared by:
Shaw Environmental, Inc.
312 Directors Drive
Knoxville, Tennessee 37923

13 November 2003

Prepared by:

Non-Responsive

Industrial Hygienist

Reviewed by:

Non-Responsive

Business Line Manager

Table of Contents

| Table of Contents | i |
|----------------------------------------------------------|------|
| List of Tables | , ii |
| List of Appendices | |
| Executive Summary E | |
| 1.0 Introduction | |
| 2.0 Findings, Discussion, and Interpretation of Results2 | -1 |
| 2.1 Sampling for Lead2 | |
| 2.1.1 Wipe Sampling2 | |
| 2.1.2 Air Sampling2 | |
| 2.2 Physical Condition of Facility2 | |
| 2.2.1 Peeling Paint - Lead2 | |
| 2.2.2 Visual Inspection - Asbestos2 | |
| 2.2.3 Visual Inspection – Water Damage and Mold2 | |
| 2.2.4 Visual Inspection - Housekeeping2 | |
| 2.3 Building Concerns2 | |
| 2.3.1 Ergonomic Concerns2 | |
| 2.3.2 Indoor Air Quality2 | |
| 2.4 Safety and Industrial Hygiene Programs2 | |
| 2.5 Ventilation2 | |
| 2.5.1 Ventilation System Evaluation2 | |
| 2.5.2 Contamination of Clean Air Sources2 | |
| 2.6 Noise Exposure2 | |
| 2.7 Lighting | |
| 2.8 Converted Indoor Firing Ranges2 | |
| 2.9 HVAC Systems2 | |
| 2.10 HHIM2 | |
| 3.0 Conclusions | |
| Tables | |
| Appendices Follows Tab | |

List of Tables

| Table 1 | Wipe Sampling for Lead |
|---------|---------------------------------|
| Table 2 | Air Sampling for Lead |
| Table 3 | Peeling Paint |
| Table 4 | Indoor Air Quality Measurements |
| Table 5 | Illumination Readings |

List of Appendices

| Appendix A | HHIM Data Forms |
|------------|---------------------------------------------------|
| Appendix B | Building Layout |
| Appendix C | Sampling Sheets and Laboratory Analyses |
| Appendix D | References |
| Appendix E | Recommendations for Surface Lead Dust in Armories |

Executive Summary

Shaw Environmental, Inc. (Shaw) was contracted to perform an industrial hygiene evaluation for the Georgetown Readiness Center in Georgetown, Delaware. Non-Responsive performed the evaluation on 27 June 2003 and 2 October 2003. The point of contact at the readiness center was MAJ

The following industrial hygiene concerns were evaluated.

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

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

- Air Sampling for Lead
- Peeling Paint Lead
- · Presence of Mold
- Housekeeping
- Ergonomic Concerns
- Indoor Air Quality

- Safety and Industrial Hygiene Programs
- Ventilation System Evaluation
- Contamination of Clean Air Sources
- Noise
- Converted Indoor Firing Ranges
- HVAC Systems

Areas where there were industrial hygiene concerns are as follows:

- Wipe sampling for lead revealed concentration above the recommended level of 200 micrograms per square foot (μg/ft²) at several locations at the facility. These locations include the assembly room/drill floor (top of a filing cabinet), Room 118 (HVAC supply and exhaust air grill), kitchen (top of storage area), motor pool (flammable storage cabinet), and the vent in the chaplain's office. It is recommended that all these areas be thoroughly cleaned to reduce the lead level. In addition, any other dusty/dirty areas in the entire facility should be thoroughly cleaned since there is evidence that the lead contamination problem is widespread. Also, since lead concentrations exceeded a level of 40 μg/ft², thorough cleaning should be considered if a special function is held in which children will be present in this facility in the areas that will be accessible to children prior to the function.
- Floor tiles in SGT office potentially contain asbestos. An operations and maintenance plan should be followed when performing any activities that may disturb the suspected asbestos-containing materials.
- Water damage was observed on the 1st floor cafeteria ceiling, the BNCDR CSM office ceiling, the S-4 Log Section ceiling, the kitchen ceiling, hallway, SGT office ceiling, the Chaplain's office ceiling, and on the dining area ceiling. The source was probably from roof leaks, however, the source should be identified and actions taken to eliminate the source in order to prevent the possibility of mold growth that may lead to indoor air quality problems.
- Lighting measurements were conducted at the armory. The lighting did not meet the
 minimum requirements in some areas evaluated, therefore, consideration should be
 given to providing more lighting to the areas evaluated.

1.0 Introduction

Shaw Environmental, Inc. was contracted to perform an industrial hygiene evaluation for the Georgetown Readiness Center in Georgetown, Delaware. Non-Responsive performed the evaluation on 27 June 2003 and 2 October 2003. The point of contact at the readiness center was MAJ

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

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

2.0 Findings, Discussion, and Interpretation of Results

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

2.1. Sampling for Lead

2.1.1 Wipe Sampling

Wipe samples were collected for lead from the drill floor/assembly area. Also, wipe samples were collected for lead in rooms, hallways, foyers, etc. The sampling in rooms, hallways, foyers, etc represented approximately 25% of the building. Approximately half of the samples were collected from surfaces in common areas, such as surfaces of a desk. The remaining samples were collected from uncommon surface areas, such as a supply vent or the top of a file cabinet. The samples were collected and analyzed in accordance with the Instructions for *Completing the Sampling of ARMY National Guard Armories* procedure.

The only samples initially submitted for analysis were those from the drill floor/assembly area. If there were positive results from the drill floor/assembly area, the other samples would be submitted for analysis.

Results of the wipe sampling are provided in Table 1. The results revealed lead in several locations were above the recommended level of 200 micrograms lead per square foot ($\mu g/ft^2$) (see Appendix E). The high lead concentrations were found at the following locations:

- assembly hall (top of locker), at 490 micrograms lead per square foot (μg/ft²);
- Room 18 (HVAC exhaust air grill), at 2300 μ g/ft²;
- Room 18 (HVAC supply air grill), at 1000 μ g/ft²;
- kitchen (top of storage locker), at 450 μg/ft²;
- motor pool (flammable storage cabinet), at 990 μ g/ft²; and
- Chaplain's Office (vent), at 1700 μg/ft².

It is recommended that all these areas be thoroughly cleaned to reduce the lead level. In addition, any other dusty/dirty areas in the entire facility should be thoroughly cleaned since there is evidence that the lead contamination problem is widespread.

Wipe sampling for lead revealed concentrations above a level of 40 μ g/ft² in several areas of the facility. Please note that the *Recommendations for Surface Lead Dust in Armories* (Appendix E) states that all areas should be cleaned that will be accessible to children. If a special function is held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function.

2.1.2 Air Sampling

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

The results of the sampling are provided in Table 2. The results revealed nondetectable concentrations of lead in the breathing zone of the employee; therefore, no action is necessary.

2.2 Physical Condition of Facility

2.2.1 Peeling Paint - Lead

Peeling paint was observed in the armory. Bulk sampling results revealed lead concentrations at levels below 0.5 percent by weight. The Department of Housing and Urban Development (HUD) defines a lead-based paint as paint or other surface coatings that contain lead equal to or exceeding 0.5 percent by weight. Since this paint does not meet the HUD criteria of a lead-based paint, no actions are necessary. The results of the sampling are provided in Table 3.

2.2.2 Visual Inspection - Asbestos

A visual inspection was made to determine if there was any suspected asbestoscontaining material at the armory. Materials suspected of containing asbestos were observed. The suspected asbestos-containing materials, with condition and estimated quantity, were at the following locations: - SG Non-Responsive Office Floor Tiles – Good Condition, Approximately 360 Square Feet

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

2.2.3 Visual Inspection - Water Damage and Mold

A visual inspection was made to determine if there was any water damage or visible mold at the armory. Visible mold was not observed, however, water damage was observed at the armory. Water damage was observed on the 1st floor classroom ceiling, the BNCDR CSM office ceiling, the S-4 Log Section ceiling, the kitchen ceiling, hallway, SGT Non-Responsive office ceiling, the Chaplain's office ceiling, and on the dining area ceiling

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

2.2.4 Visual Inspection - Housekeeping

The housekeeping was determined to be good. No trash was visible on the floors.

2.3. Building Concerns

2.3.1 Ergonomic Concerns

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

2.3.2 Indoor Air Quality

Interviews with employees and measurements for carbon dioxide, humidity, and temperature revealed that the temperature in the drill floor area was slightly higher than the guidelines established by the American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE). However, due to the high outdoor temperature on the date of the evaluation and that measures were not taken to cool the unused drill floor area, it is deemed that the indoor air quality is acceptable at the armory.

The results of the measurements for carbon dioxide, humidity, and temperature are

provided in Table 4.

2.4. Safety and Industrial Hygiene Programs

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

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

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

2.5. Ventilation

2.5.1 Ventilation System Evaluation

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

2.5.2 Contamination of Clean Air Sources

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

2.6. Noise Exposure

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

2.7 Lighting

Lighting measurements were conducted at the armory. The lighting did not meet the minimum requirements in the following areas:

- Dining Area
- Drill Floor
- Women's Latrine

- Classroom
- SFC Office

Results of the lighting evaluation are provided in Table 5. Consideration should be given to providing more lighting to the areas listed above. This may be accomplished by replacing burnt out luminaries, cleaning fixtures, cleaning windows, painting walls with a lighter color, repositioning detailed work to higher illuminated areas, and using supplemental lighting.

2. 8. Converted Indoor Firing Ranges

There was a firing range in the process of conversion. No wipe samples were taken because the firing range was in the process of being converted and lighting had been removed from the room.

2.9. HVAC System

The maintenance schedule for the HVAC system was evaluated to verify that maintenance occurs on a regular basis. Also, the condition of the HVAC system was evaluated to determine if the maintenance performed is effective. It was deemed that maintenance occurs on a regular basis, and the maintenance performed is effective. Note that the vent in the BNXO/AO office shows some discoloration, but no actions are deemed necessary.

Maintenance should occur on a regular basis to ensure that the HVAC system is maintained in a good condition.

2.10. HHIM

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

3.0 Conclusions

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

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

TABLES

Table 1
Wipe Sampling for Lead
National Guard Armory
Georgetown, Delaware

Date of Sampling: 27 June 2003 and 2 October 2003

| Sample Number | Location | Results,µ g/ft² a |
|---------------|----------------------------------------------------|----------------------|
| DEGEO275-1 | Room 18 HVAC Exhaust Air Grill | 2300 |
| DEGEO275-2 | Room 18 HVAC Supply Air Grill | 1000 |
| DEGEO275-3 | Room 19 Heating Air Grill | 63 |
| DEGEO275-4 | Kitchen - Top of Storage Locker | 450 |
| DEGEO275-5 | Assembly Hall – Top of Filing Cabinet | 490 |
| DEGEO275-6 | Field Blank | 0.91 µg |
| DEGEO178-1 | Assembly Hall - On Floor | < 23 |
| DEGEO178-2 | Assembly Hall - On Floor | < 23 |
| DEGEO178-3 | Assembly Hall - On Floor | < 23 |
| DEGEO178-4 | Assembly Hall - On Floor | < 23 |
| DEGEO178-5 | Assembly Hall - On Floor | < 23 |
| DEGEO178-6 | Field Blank | < 23 μg |
| DEGEO178-7 | MAJ Non-Responsive Office – Desk Top | 5.4 |
| DEGEO178-8 | Classroom Filing Cabinet | 14 |
| DEGEO178-9 | Basement Kitchen Counter (Below Vent) | 90 |
| DEGEO178-10 | Maintenance - Motor Pool Flammable Storage Cabinet | 990 |
| DEGEO178-11 | Chaplain's Office - Vent | 1700 |
| DEGEO178-12 | Field Blank | < 0.3 μg |
| DEGEO178-13 | 156 / Training Office Windowsill | 7.8 |
| DEGEO178-14 | S-3 BNTNG Basement Desk | 7.2 |
| DEGEO178-18 | Field Blank | < 0.3 μg |

^a Micrograms lead per square foot

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

Table 2 Breathing Zone Air Samples for Lead National Guard Armory Georgetown, Delaware

Date of Sampling: 27 June 2003

| | | Samplin | g Informatio | on | Results |
|------------------|----------------|------------------------|------------------------------------|--------------------|-----------------------------------|
| Sample Number | Employee | Time Sampled / Minutes | Flow Rate (lpm) ^b | Volume (liters) | (mg/m ³) ^a |
| DEGEO178-A1 | Non-Responsive | 0842-0935 / 53 | 2.516 | 133.35 | <0.007 |
| DEGEO178-A2 | | 0853-0943 / 50 | 2.505 | 125.25 | <0.008 |
| DEGEO178-A3 | Field Blank | - | _ | - | None Detected |

^a Milligrams lead per cubic meter of air.

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

b Liters of air per minute.

Table 3 Peeling Paint Sampling for Lead National Guard Armory Georgetown, Delaware Date of Sampling: 27 June 2003

| Sample Number | Location | Results, % By Weight |
|---------------|-----------------------|-------------------------|
| DEGEO178-PC1 | Stairwell ceiling | Not Detected |
| DEGEO178-PC2 | Kitchen pipes | 0.0068 |
| DEGEO178-PC3 | Kitchen (behind oven) | 0.027 |
| DEGEO178-PC4 | Men's latrine | 0.068 |

The Department of Housing and Urban Development (HUD) defines lead-based as paint or other surface coatings that contain lead equal to or exceeding 0.5 percent by weight.

BEST AVAILABLE COPY

Table 4 Indoor Air Quality Measurements for Carbon Dioxide, Humidity, and Temperature National Guard Armory Georgetown, Delaware

Date of Sampling: 27 June 2003

| Location | Occupants in Area | Carbon Dioxide, parts per million parts of air (ppm) | Percent (%) Humidity | Temperature (°F) |
|------------------------------------|----------------------|------------------------------------------------------------|----------------------------|---------------------|
| 1st Floor-Drill Floor | 2 | 463 | 60.2 | 82.8 |
| Basement—SGT Non-Responsive Office | 3 | 709 | 55.6 | 79.0 |
| Outdoors | - | 320 | 61.5 | 90 |

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

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

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

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

Appendix A HHIM Data Form

| HEAL | THU | AZARD IN | (For use of | this form | DULE: IND , see HRIM User | 2 Canada | AL HY | GIENE | SURVEY | |
|-----------------------------------------|---------------|-------------------------|----------------|---------------------|------------------------------|--------------|-----------------|---------|----------------------|---------------------------------------------------|
| <u>-</u> | | | SECTIO |)N 1. DE | MOGRAPHIC | DATA | | BLDG/RI | A NO. | |
| ARLOC | | 1 | ALLATION | | , | | | | | |
| 42394 | 1 | R | C, Geo | orge | town | | | Geo | rgetow | 7 |
| | | | | | | non/cob | E | | | |
| Admi | nist | rative | Areas | $_{\rm s}/_{\rm A}$ | A Adm | <i>únist</i> | ratio | 1e Of | perations | rado |
| SURVEY DATE | 7013 1 | ralive | | | VALUATOR (in | itials) | | | | |
| <u>.</u> | 77] | une o | 3 | | A 6 | | • | • | | |
| MACOM/CODE | | 00710 | SUBMAC | OM/COL |)E | | UPERV | ISOR | sponsive | • |
| | A | | | ΧX | | | 150 | Ş | openom o | |
| | · | ILINIS | ORGANIZAT | ION | | IRAC | | | FREQUENCY (hi | s/day) |
| TELEPHONE/DSN | | | | | Guard | 5 | | · | 8 | |
| (302)326 No. civ(s) | -760 | 00 | | | | | · C\ | | NO, OTHER | |
| NO. CIV(S) | | VÖ. MIL | | 10, CON | TRACTOR(S) | NO. LOC | (5) | | NO. OTTICIT | |
| | Ì | 10 | | | | | | | | |
| • ** | | | SEC | CTION | , FACILITY DA | TA | VAGOS | BOOTHS | | |
| LAB HOODS | | 0 | VAPOR I | DEGREA | эенэ Э | ľ | 0 | | - | |
| MAINTENANCE B | AYS | | OPEN SU | JRFACE | TANKS | | VENTIL | ATION U | VITS | |
| 100000000000000000000000000000000000000 | | 0 | | | ジ | | | | | |
| Alexander of the Alexander | | | EVALUATIO | | 3. SURVEY DA UNIT CODE | TA COL | TROLS | REQUIR | ED ST | TUS |
| CONTROLS | PRESE | NI - | EVALUATIO | | OMIT GODE | 1 | | | | |
| | | | | | | | | - | | |
| | | | | | | • | | | - 1 | |
| | | _ | | | | | | | | |
| | | 1 | | | | | | | <u> </u> | ······ |
| | | | | | | . | | | | |
| | | | | | | - | | - | | |
| 1 | | | | | | l | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| PERSONAL PRO | TECTIV | EEQUIPMEN | T (R ≈ Requir | ed; U = | | | | · | OXUBER | RvU |
| GLOVES | R/U | | RESPIRATOR | | NIOSH TO I | NO. | | MANUFA | CTURER | 1 7 |
| ACID | | AIRLINE ABRASIVE BLA | OCCH SMTS | | | | <u> </u> | | | 1 |
| COLD SURFACES HOT SURFACES | - 1 | DISPOSABLE | STING HOOD | | | | | | | / |
| NBC AGENTS | ', | FULL FACE AIR | PURIFYING | | | | | h | | 1 |
| OIL | · · | 1/2 FACE AIR P | | | | | | | | |
| SOLVENTS | | POWERED AIR | | | | | | | | |
| SURGICAL GLOVES | | 1/4 FACE AIR P | | | | | | | | |
| 0011010111101111011110 | <u> </u> | SELF CONTAIN | | | | | | | | |
| | | | | | | | - 644 | | HEAD/FIT | I R∕U |
| EYES/FACE | R/U | HEA | RING | P/U | BODY | | R/U | 001011 | ATHER BOOTS/HAT | |
| CHEMICAL SPLASH | 1 | CANAL CAPS | | / | APRONS | OTUNO | 1. | HARD HA | | * |
| FULL FACE SHIELD | 1 | EARPLUGS | | | COLD WEATHER C | LOTHING | <u>'</u> | • | ABLE BOOTS | |
| CHEMICAL/SAFETY | / | HELMETS | | / | COVERALLS | | | | CONDUCTIVE SHOES | |
| SAFETY/IMPACT | 1 | MUFFS | | - 1 | FULL BODY SUIT | VECTOUR | - '- | | XI-CONDUCTIVE SHOES | |
| WELDING HELMET | / | MUFF/EARPLU | | | HEAT REFLECTIVE | | 1 | ON ELIM | AI-VOITO OTTE OTIVEO | + ; |
| | l | MUFF/EARPLU | G W/TIME LIMIT | 1_/_ | ISHR.MI-I | | | | | |

AEHA Form 271-R (Test), 1 JAN 92

BEST AVAILABLE COPY

| | SECTION 4. HAZARD INVENTO | RY DATA | · · · · |
|-----------|-------------------------------------------|---------|------------------------------|
| CAS CODE | HAZARD DESCRIPTION | PAC | EPC |
| POVDTXXXX | Video Display Terminal | 3 - Low | 1 - Uncontrolled Physical |
| 1332-21-4 | Video Display Terminal Asbestos, Other | 3-Low | C- Respiratory |
| | | | |
| | | | · |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | • | | |
| | • | | |

LAST NAME FIRST NAME MI SEX-CATEGORY SSN m 1L M MIL mn MIL MIL MIL

SECTION 5. PERSONNEL DATA

nAG CPT 204 156 FC 356 56 55 G 16 T

PFC

See attached sheet

Survey conducted by Ms. time employees present

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

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

facility, Employees perform ma functions.

BEST AVAILABLE CO

BEST AVAILABLE COPY

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

Page 391 of \$47 ACh 4

MIL

Appendix B Building Layout

Pine Street

Appendix C Sampling Sheets and Laboratory Analyses

%Pb = percent lead by weight



CERTIFICATE OF ANALYSIS

Address: Client 301-IH Old Bay Lane, Attn: NGB-AVN-SI, National Guard Bureau Job Names Delaware National Guard Survey Date Analyzed: Chain Of Custody:

Havre de Grace, Maryland 21078

State Military Reservation

Job Location: P.O. Number: Job Number: 82 Georgetown Not Provided

Person Submitting

Report Date:

1:8595

10/14/2003

14-Oct-03

Page I of I

Attention:

Summary of Atomic Absorption Analysis for Lead

| AMA Sample | Client Sample Number | Analysis Type | Sample Type | Air Volume | Area Wiped | Reporting Limit | Final Result | Comments |
|-----------------------------------------------------------------------------------------------------------|-------------------------|----------------------------------------|-------------------------------------------------------------------------------------------------------------|-----------------------|-----------------------------------------|---------------------------|-------------------------|----------|
| | | ************************************** | | | 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - | | · | |
| 0001400 | | Furnace | Wipe | ***** | 0.111 | 270,03 ug/ft ² | 2300 ug/tt ^a | |
| 0401049 | OH OH | | W. | *** | 0.111 | 270.03 ug/ft* | | |
| 0401600 | DEC/202/2-2 | 2000000 | * | | | | | |
| 0401601 | DEGE0275-3 | Furtace | Wipe | **** | 111.0 | | | |
| 0401602 | DEGE0275-4 | Furnace | Wipe | **** | 0.111 | 270.03 ug/tr | | ١ |
| 0401603 | DEGE0275-5 | Furnace | Wipe | ***** | 117.0 | Ç | | 7 |
| 0401604 | DEGE0275-6 | Furnace | Wipe Blank | ** | WA | 0.30 ug | 9.72 | |
| Analysis Method for Flame: Air, Wipes, Paints, and Soll/Solids: EPA 600/R-93/200(N)-7420; Water: SM-31118 | lame: Air, Wipes | s, Paints, and Soli/S | Solids: EPA 600/R-93/2 | 200(M)-7420; Water | : SM-31118 | | | |
| Analysis Method For I | Furnace: Air, Wi | ipes, Paints, and So | Analysis Method For Furnace: Air, Wipes, Paints, and Soil/Solids: EPA 600/R-93/200(M)-7421; Water: SM-3113B | 93/200(M)-7421; V | Vater: SM-3113B | | | |
| N/A = Not Applicable | mg/Kg = p | arts per million (ppn | mg/kg = parts per million (ppm) by weight mg/L = parts per million (ppm) | parts per million (pr | <u>)</u> | | | |
| %Pb = percent lead by weight | y waight ug | = micrograms | ug = micrograms ug/L = parts per billion (ppb) | n (ppb) | | | | |

this report is submitted and accepted for the exchasive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole ar 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 dischaim any knowledge and liability for the accuracy and completeness of this information. Residual sumple material will be discarded in accordance with the appropriate regulatory guidelines, otherwise requested by the client. NVLAP Accorditation It is 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 Luboratories. Note: All results have two significant digits. Any additional digits shown should not be considered when interpreting the result. Analy Technical Manager:

BEST AVAILABLE COPY

FOIA Requested Record #J-15-0085 (DE) Released by National Guard Bureau Page 395 of 547

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

All rights reserved. A.M.A.A.milytical Services. Inc.

applies only to polarized light microscopy of bulk samples and transmission electron microscopy of AHERA air samples.

Aftention:

considered when interpreting the result.

%Pb = percent lead by weight

Note: All results have two significant digits. Any additional digits shown should not be

ug = micrograms

ug/L = parts per billion (ppb)

Technical Manager:

| | | Address: | Client | |
|--------------|--------------------------------|----------------------------------------------------------------------|-----------------------|--|
| | Havre de Grace, Maryland 21078 | 301-IH Old Bay Lane, Athr. NGB-AVN-SI, State Military Reservation | National Guard Burcau | |
| P.O. Number: | Job Number: | Job Location: | Job Name: | |
| 10-07 | Not Provided | Georgetown | Delaware | |
| Report Date: | Person Submitting: | Date Analyzed: | Chain Of Custody: | |
| 12-Nov-03 | Non-Res | 11/12/2003 | 119008 | |

Summary of Atomic Absorption Analysis for Lead

| AMA Sample Number | Client Sample Number | Analysis Type | Sample Type | Air Volume (L) | Area Wiped (ft²) | Rep | Reporting Limit | Final Result | Result | Comments |
|------------------------|-----------------------------------------------------------------------------------------------------------|----------------------|-------------------------------------------------------------------------------------------------------------|--------------------|------------------|--------|--------------------|--------------|-----------------------------------------|----------|
| | | | | | | | | | , , , , , , , , , , , , , , , , , , , , | |
| 0407543 | DEGEO178-7 | Furnace | Wipc | *** | 0.111 | 2.70 | ពនិ/ស្រុ | 5.4 | ±3//3n 1 | |
| 0407544 | DEGEO178-8 | Furnace | Wipe | 养姜 | 0.111 | 2.70 | սջ/քե | 14 | | |
| 0407545 | DEGEO178-9 | Furnace | Wipe | *** | 0.111 | 33.75 | ոթ/ն- | \$ | ug/ft² | |
| 0407546 | DEGEO178-10 | Fumace | Wipe | *** | 0.111 | 202.52 | ug∕Ω÷ | 990 | | |
| 0407547 | DEGEO178-11 | Fumace | Wipe | *** | 0.111 | 337.53 | ug/[t² | 1700 | | |
| 0407548 | DEGEO178-12 | Furnace | Wipe Blank | **** | NA | 0.30 | ₩. | < 0.3 | 3 ug | |
| 0407549 | DEGEO178-13 | Furnace | Wipe | **** | 0.111 | 2.70 | ug/fl² | 7.8 | 3 ug/ft² | |
| 0407550 | DEGEO178-14 | Fumace | Wipe | *** | 0.111 | 2.70 | ug/ft² | 7.2 | | |
| 0407551 | DEGE0178-18 | Fumace | Wipe Blank | *** | WA | 0.30 | %u | < 0.3 | 3 મહ | |
| nalysis Method for | Analysis Method for Flame: Air, Wipes, Paints, and Soil/Solids: EPA 500/R-93/200(M)-7420; Water: SM-3111B | aints, and Soil/Sol | ids: EPA 600/R-93/2 | :00(M)-7420; Water | r. SM-3111B | | | | | |
| nalysis Method Fo | r Furnace: Air. Wibe | > | | COMPAND TANK | | | | | | |
| NIVA - Nich Acceptance | 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - | s, Paints, and Solls | Analysis Method For Furnace: Air, Wipes, Paints, and Soil/Solids: EPA 600/R-93/200(M)-7421; Water: SM-3113B | 93/200(M)-/421; V | Vater: SM-31136 | | | | | |

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

BEST AVAILABLE COPY

FOIA Requested Record #J-15-0085 (DE) Released by National Guard Bureau Page 396 of 547

Page I of I



Reservoirs Environmental, Inc.

2059 Bryant St. Denver, CO 80211 (303) 964-1986 Fax (303) 477-4275 Toll Free (866) RESI-ENV

July 10, 2003

Project Description: RES 94963-1 06-08 Delaware-Georgetown,Harrington

Non-Responsive

Shaw Environmental, Inc. 312 Directors Drive Knoxville TN 37923

Dear Customer,

Reservoirs Environmental, Inc. is an environmental analytical laboratory accredited for the analysis of Industrial Hygiene and Environmental matrices by the American Industrial Hygiene Association, Lab ID 101533 - Accreditation Certificate #480. The laboratory is currently proficient in both PAT & ELPAT programs respectively.

Reservoirs has analyzed the following sample(s) using Atomic Absorption (AA) / Atomic Emission Spectroscopy - Inductively Coupled Plasma (AES-ICP) per your request. The analysis has been completed in general accordance with the appropriate methodology as stated in Table I. Results have been faxed to your office.

RES 94963-1 Is the job number assigned to this study. This report is considered highly confidential and property of the customer. Reservoirs Environmental, Inc. will not discuss any part of this study with personnel other than those authorized by the client. Samples will be disposed of after sixty days unless longer storage is requested. If you should have any questions about this report, please feel free to call me at 303-964-1986.



President

RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Accredited Laboratory #101896 AIHA Certificate of Accredidation #480 LAB ID 101533

LEAD BY WIPE SAMPLING **ANALYSIS:** TABLE I.

RES Job Number:

RES 94963-1

Client:

Shaw Environmental, Inc.

Client Project Number / P.O.:

06-08

Client Project Description:

Delaware-Georgetown, Harrington

Date Samples Received:

July 3, 2003

Analysis Type:

USEPA SW846 3050B / AA(7420)

Turnaround:

3-5 Day

Date Samples Analyzed:

July 10, 2003

| Client ID Number | Lab ID Number | Sample Area (sq.ft.) | LEAD (μg) | Detection Limit (µg/sq.ft.) | LEAD CONCENTRATION (µg/sq.ft.) |
|---------------------|------------------|----------------------------|--------------|-----------------------------------|--------------------------------------|
| DEGEO178-1 | EM 791266 | 0.11 | BDL | 23 | BDL |
| DEGEO178-2 | EM 791267 | 0.11 | BDL | 23 | BDL |
| DEGEO178-3 | EM 791268 | 0.11 | BDL | 23 | BDL |
| DEGEO178-4 | EM 791269 | 0.11 | BDL | 23 | BDL |
| DEGEO178-5 | EM 791270 | 0.11 | BDL | 23 | BDL |
| DEGEO178-6 | EM 791271 | 0.11 | BDL | 23 | BDL |
| DEHAR178-1 | EM 791272 | 0.11 | BDL | 23 | BDL |
| DEHAR178-2 | EM 791273 | 0.11 | BDL | 23 | BDL |
| DEHAR178-3 | EM 791274 | 0.11 | BDL | 23 | BDL |
| DEHAR178-4 | EM 791275 | 0.11 | BDL | 23 | BDL |
| DEHAR178-5 | EM 791276 | 0.11 | BDL | 23 | BDL |
| DEHAR178-6 | EM 791277 | 0.11 | BDL | 23 | BDL |

^{*}Calculations Based On A 1 sq.ft. Sample Area Unless Otherwise Noted

RESERVOIRS ENVIRONMENTAL, INC.

| ส.ส. ๆส | 2059 Bryant St., Donvor CO 80211 | RESINDD≢ 1 |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| o Dalo: <u>2-9-7-1</u> 1 | | Poin L VII |
| e line: <u>///C5</u> MPLES SUBMITTED BY: | INVOIGE TO AF DIFF | Control of the Property of the control of the contr |
| nosy Stravi Environmental Inc. | Amy harana Guaio HAV | |
| Knaxville, 1N 07923 Non-Responsive | | 163 Peper |
| cod to the factor of the code | Provin In | PG-se First Day (Askerding Emist Askers) Eneltzer (D 4.0-4.5) |
| od Detagotant spajen — Delaward — C | escope Feuer , Harrimetern | |
| ter HabreWeakond CHARGE: Amount | | |
| chionel less apply for allor house and fib tensive arranged and suscilled on the ch | idays for atl entalysis types - Samples will be analyze am of custody - Tumaround is subject to laboratory v | d dunog normal laboratory nours unless olune. You will be notified if delays eta |
| pound Bestos Laboratory Hours | Weekdays: ANALYTICAL METHOD | |
| m-7pm | LIAIR I I POLIT | adda, 74680 Osina Hera (2001), 7402, 1807 |
| MPLM 2 Hour RUSH 24 hour | | Prost/de (50 indiced Props Charles) |
| M _ G Hour RUSH _ De hour Prior House RECRUREO (nr TEM & Hour RUSH | | Yold, Regulatio |
| TALS LABORATORY HOURS: | Weakedows | Horinson Lougraphin Point Count // Output, Sent-graphi participal PCRAD |
| ni-āpin special būdizeikur | W setter Pa | nt Bol. Dus (Mins) TGP STME 1782 septembed who a crity) |
| RA 8 SPECIAL RUSH 5 Day | INATER TOMO | MANNET WEST BOLK'S |
| ikh <u>"</u> sheoler-ynan "€Ωπ | 16 DAY DA | reavy. Waste Wolff |
| is name required to special rush as not rora emiticle special fush is 2 by te | intModel4 | |
| potini instructionsi s. Pleasa report ki | n 2. Contract \$ 78.287. Email to suite to kermeth fo | |
| Stignt Sample Number be egot (Y = 1 | | Volume EME |
| | | |
| <u> </u> | | 1 ———————————————————————————————————— |
| | The state of the s | |
| DEHWAITS: | | |
| - 1 | | |
| 3 | | |
| / | | |
| 6 | | |
| uniter of samples received 12 | itisa as mary adesanti svasta sa napieti i is a ci pie custody seal is brilien, stori pri consat project mata a populas sa criptorio kalkalah in telaatrione resultagi | Pel and higher. Helsi kai allahka akhilindi agalibki pak |
| son magnification to the second section of the second seco | controvers the property of specifies a state and state and seed and | |
| Responsibilities Non-Responsibilities | onsive | naumos <u>711/03 81/00 p.s.</u> |
| abd/al6) seemed by | nstatite: | <u> 1/1/03 10.05</u> |
| tanke RESULTS | escushida erak produceronek | e Time Ipiliais |
| | | Lab Bench/Gount Sheets Received By: |
| Applits: Application By Title Applytical Method/Tur | maround Results Onti | Tene Dald |

Phone: (201) 666-1960 - Fac. (201) 277-4376 - WATS: 1-44-REGIEW (737-4369).

PATTERS CHICALL Pages number at leighte at lab. Allemate Pageses PLINTEY 408-3187 PCANGALLEGG 2035 (APTER HOURS USE OVA.Y).



TEST REPORT Page 1 of 2 7/8/03

Submitted To:

Non-Responsive

Shaw Environmental, Inc. 312 Directors Drive Knoxville, TN 37923

Reference Data:

Lead

Client Sample No .:

DEGE0178-A1 through DEWIL177-A3

P.O. No.:

06-07

Sample Location:

DE Distance

Sample Type:

Filter

Method Reference:

NIOSH 7300

DCL Set ID No.:

03-S-3222

DCL Sample ID No.:

03-20046 through 03-20055

Sample Receipt Date:

7/3/2003

Preparation Date:

07/07/03

Analysis Date:

07/07/03

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

The sample condition upon receipt was acceptable except where noted.

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

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



Analyst

Non-Responsive

Reviewer

CINCINNATI OFFICE 4368 GLENDALE-MILFORD ROAD CINCINNATI, OHIO 45242-3706 513 733-5336, FAX 513 733-5347 WEST COAST OFFICE 11 SANTA YORMA COURY NOVATO, CALIFORNIA 94945 800 280-8071, FAX 415 893-9469

TEST REPORT Page 2 of 2 03-S-3222

Results Lead

| Client # | DCL # | Sample Volume (L) | µg/sample | mg/m³ |
|-------------|------------|----------------------|-----------|--------|
| DEGE0178-A1 | 03-20046 | 133.35 | ND | <0.007 |
| DEGE0178-A2 | 03-20047 | 125.25 | ND | <0.008 |
| DEGE0178-A3 | 03-20048 | 0 | ND | - |
| DEWIL177-A1 | 03-20053 | 133.81 | ND | <0.007 |
| DEWIL177-A2 | 03-20054 | 181.55 | ND | <0.006 |
| DEWIL177-A3 | 03-20055 | 0 | ND | |
| | Prep Blank | | ND | |
| % Recovery | LCS | | 104. | |
| RPL | <u> </u> | | 1. | |

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



Non-Responsive

Reviewer

TEST REPORT Page 1 of 2 7/11/03

03114



Submitted To:

Non-Responsive

Shaw Environmental, Inc. 312 Directors Drive Knoxville, TN 37923

Reference Data:

Lead

Client Sample No.:

DEGE0178-PC1 through DEGE0178-PC4

P.O. No.:

06-07

Sample Location:

DE

Sample Type:

Paint Chip

Method Reference:

3050B/6010B

DCL Set ID No.:

03-8-3222

DCL Sample ID No.: .

03-20049 through 03-20052

Sample Receipt Date:

7/3/2003

Preparation Date:

7/8/2003

Analysis Date:

7/9/2003

The samples were prepared in accordance with EPA method 3050B. Sample condition was acceptable upon receipt except where noted. The samples were then analyzed in accordance with EPA method 6010B using a Jarrell Ash Trace ICP.

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

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



Analyst

Non-Responsive

Reviewer

CINCINNATI OFFICE 4388 GLENDALE-MILFORD ROAD CINCINNATI, OHIO 46242-3706 513 733-5336, FAX 513 733-5347 WEST COAST OFFICE 11 SANTA YORMA COURT NOVATO, CALIFORNIA 84945 800 280-8071, FAX 415 893-8489

TEST REPORT Page 2 of 2 03-8-3222

I HUL TOLLT

Results Lead

BEST AVAILABLE COPY

| Client # | DCL # | mg/Kg (ppm) | % by weight |
|--------------|------------|-------------|-------------|
| DEGE0178-PC1 | 03-20049 | ND | ND |
| DEGE0178-PC2 | 03-20050 | 68. | 0.0068 |
| DEGE0178-PC3 | 03-20051 | 270. | 0.027 |
| DEGE0178-PC4 | 03-20052 | 680. | 0.068 |
| DEGEOTIVE TO | | | |
| | Prep Blank | ND | - |
| % Recovery | LCS | 93. | |
| % Recovery | 20335MS | 98. | - |
| % Recovery | 20335MSD | 97. | |
| RPL | | 25. | 0.0025 |

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

LCS = laboratory control sample.

MS/MSD = matrix spike/matrix spike duplicate.



Analyst



Reviewer

2,

3.

6.

7.



ANALYTICAL REQUEST FORM

| | TA | TA | | 1 | .Х. | REQULAR State | us | |
|--------------|----------------------------------------------------------------------------------|---------------------------------------------------------------|------------------|------------------------------------------|---------------------------------------|----------------------------------------------------------------------------------------|----------------------------------------------------------------------------|---------------------------------------|
| | UA | TY. | - | Γ | | RUSH Status | Requested - ADDITIONAL CHARGE | |
| | 4 | \cap III | 7 N K | 1 | | RESULTS REQU | DATE DATE | |
| | i | A D A A | | | | CONTACT DATA | CHEM LABS PRIOR TO SENDING SAMPLES. | |
| 2. | Date 6130 | Purcha | se Order No | 06-07 | | 4. | Quote No. | |
| 3. | Company Na | me Shaw Er | بمتنهم | rental, l | <u> </u> | | DCL Project Manager | |
| | Address 210 | Directo | 78 <u>.011</u> 3 | [| | <u> </u> | Sample Collection | |
| | Person to Cor | | espons | sive | | | npling Site | |
| | | 08) 31. 9-37 | 36 | , | | Date | e of Collection 6/27/03, 6/26/03 | |
| | | e (410) 45 k | _ | | | Time | a Collected Various | |
| | , | s (if different fro | | | | | e of Shipment 7/1/0 3 | |
| | Non-Resp | onsive A | my Natio | mal Guax | <u>d_</u> | / 11 1. / | un of Custody No. | |
| | | d. Bay La | | | ce, l | | on-Responsive | |
| 6. | DECHEOT F | OR ANALYSES | | ~ Z . C | <i>عالم</i> - | 018 -322 | on responsive | |
| . | Leboratory | Cilent Sample | Media | Sampio Volume | | <u> </u> | | |
| 0 | Julia Only | Number | Тура• | (Litors) | | ANAL | VSES REQUESTED - Uso Method Number & Known | |
| <u> </u> | 10046 | DEGEO178-A | MCEF | 153.35 | 10 | ead | | |
| | 70047 | n | 1 | | | 1 | | |
| \vdash | 2,0048 | -A3 | | 125,25 Blank | - | | | |
| _ | 10049 | " -PC1 | | Bulle | | 1 | · · · · · · · · · · · · · · · · · · · | |
| | 20050 | 11 - Pca | | 1 | | | | |
| Ĺ | 20051 | " - PC3 | | | | | | |
| _ | 50025 | " - PC4 | | <u> </u> | <u> </u> | | | |
| <u> </u> | 5002 1 | DEWILL 77-A | LMUF | 133,81 | | | | |
| - | 10054 | 1, - YS | - | 181.55 | <u> </u> | - | | |
| - | <u>(000)</u> | | | B).ans | | | | |
| ┝ | | | | | - | | | |
| Spe | offy: Solid corbent tut | be, e.g. Charcoal; Fi | iler type; impin | ger soludon; Bulk S | ample; | ; Blood; Urine; Tissue; | Soil: Water; Other | |
| 7. | Q C REQUIT MUST BE COM ENVIRONMEN General Service Conditions: QO at regular samp | APLETED FOR MALSAMPLES - es Terms and samples billed | See | PROJECT P (Lab QC second NO QC SAM | ing to p LAN (ing to p PLES | MPLES published mathods) QC-SAMPLES provided QA/QC Pil S REQUESTED Agency requirements | (an) | 'e |
| Tc Cor | nmonto <u>Plea</u> Nisati | se email tention | | 2 to NO | n - | | onsive or fax | <u> </u> |
| Pos | ssible Contaminu | | r mical Hazza | de | | | | · · · · · · · · · · · · · · · · · · · |
| 8. F | Requested by | lon-Re | espo | nsive | | | | |
| | 43 | BB Glandale-Mili | ord Road / C | inclinati, OH 4 | 3 242 | | or 801-266-7700 / Fax: 801-268-9992 or 513-733-6336 / Fax: 513-733-5347 | |
| | | | , c | ATACHEM LABO | PATO | ORIES - A SORENS | ON COMPANY | |

WHITE - LABORATORY COPY

CANARY - CUSTOMER COPY

DISTRIBUTION:

&14Industrial Hygiene Sampling Calculation Worksheet

National Guard Armory

Location: Georgetown

Date: 6/27/03

Sample 1

Sample Number: DE GEO178-A1

Pump: ७억웅 33 647015

Pre Flow Rate Post Flow Rate

2508

2532

Average

2528 2523

Average Pre and Post

Time 1 8:42

Time 2 935
Total Time Sampled 2.5/4 L/min
Minutes Sampled 53 min

2.516 L 53 min = 133.35

Volume 133.35

Liters

Sample 2

Sample Number: DEGEOIT8-A2

Pump: 648339

Pre Flow Rate Post Flow Rate

Average

Average Pre and Post 2.505 L/min

Time 1 8'.53 -

Time 2 9:43

Total Time Sampled

Minutes Sampled 50 min

Volume 125, 25

Liters

2.505 L x 50 min = 125.3

Appendix D References

References

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

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

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

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

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

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

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

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

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

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

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

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

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

Appendix E Recommendations for Surface Lead Dust in Armories

Subject: Recommendations for Surface Lead Dust in Armories

- 1. In armories that do not contain childcare facilities, the National Guard Bureau (NGB) Region North Industrial Hygiene Office recommends cleaning the areas in which sample results are greater than 200 micrograms per square foot (□g/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 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 $\square g/ft^2$ 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 □g/ft² is a safe surface contamination level. They have also applied these standards as the decontamination levels for surfaces in administrative offices.
- e. It should be noted that levels above these recommendations do not necessarily mean there is a significant hazard to workers who are following good cleaning and hygienic practices since there is no correlation between wipe and air samples. Rather, we recommend these levels as a precautionary measure.
- 2. The NGB Occupational Health Branch is developing guidance for armories that are used as childcare facilities. All states will receive this guidance when it is completed. In the interim, we recommend the following actions:

- a. Clean all areas that will be accessible to children to the EPA dust-lead standard for children 6 years of age or under (40 μ g/ft² on floors and 250 μ g/ft² on windowsills).
- b. Refer to the local authorities' regulations since they can be more stringent than federal regulations.
- c. Post signs in the area to inform people of the presence of lead dust and its effects.
- d. If soldiers clean weapons in the facility change the policy so that they cannot clean their weapons in the facility, or if they are allowed to clean their weapons indoors, they must clean the area by wet wiping and mopping the area when they are done.
- e. If the paint is peeling, contact the state Environmental Office to test for lead content and provide recommendations.
- 3. Air samples collected on individuals in the armory were well below OSHA's permissible exposure limit for lead (29 CFR 1910.1025(c)) of 0.05 mg/m³ averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead dust in this building.

Table 5

Illumination Readings National Guard Armory

Georgetown, Delaware

Date of Sampling: 27 June 2003

| Location | Luminance (fc) ^a | Standard (fe) ^a | Standard Met |
|---------------------------|--------------------------------|-------------------------------|-----------------|
| SGT Orcutt's Office | 75.1-101.7 | 70 | Yes |
| SGT Blackman's Office | 81.1-102.7 | 70 | Yes |
| Hallway | 15.5-114.4 | 7.5 | Yes |
| Chaplain's Office | 112.7-164.4 | 70 | Yes |
| Kitchen | 79.6-112.1 | 70 | Yes |
| Dining Area | 21.1-127.5 | 30 | Some Areas |
| Maintenance Bay (Storage) | 32.2-47.4 | 15 | Yes |
| Stairwell | 5.6-31.1 | 7.5 | Some Areas |
| Drill Floor | 9.1-257.9 | 70 | Some Areas |
| Women's Latrine | 10.0-65.6 | 40 | Some Areas |
| Classroom | 42.8-83.5 | 70 | Some Areas |
| MAJ Miller's Office | 77.1-125.4 | 70 | Yes |
| SFC Adkin's Office | 55.5-120.2 | 70 | Some Areas |

^a fc - Footcandles

The readings were taken with a Cooke Corporation cal-LIGHT 400 Calibrated Precision Lightmeter, calibrated on 19 Aug 2002.

The standards listed above are from Design Guide DG-415-2, Logistics Facilities, published by the National Guard Bureau Installation Division.



Industrial Hygiene Survey Report

National Guard Facility Georgetown Readiness Center

Prepared For:

National Guard Bureau Region North IH

301-IH Old Bay Lane

Havre de Grace, MD 21078

Survey Location:

Georgetown Readiness Center

109 West Pine Street Georgetown, DE 19947

Prepared By:

ALS Environmental

3544 North Progress Avenue

Suite 100

Harrisburg, PA 17110

Survey Date:

October 13, 2011

Report Date:

December 5, 2011

ALS Project #:

1110756



Director, Industrial Hygiene Services

ADDRESS 3544 North Progress Avenue, Suite 100, Harrisburg, PA 17110 - PHONE +1 717 540 3424 FAX +1 717 540 3428

Analytical Laboratory Services, Inc. Part of the ALS Group A Campbell Brothers Limited Company



Table of Contents

| Section 1.0 Executive Summary | 3 |
|------------------------------------------------------------|----|
| Section 2.0 Operation Description & Observations | |
| Section 3.0 Lead Testing | 5 |
| Section 4.0 Lighting | 7 |
| Section 5.0 Indoor Air Quality | 8 |
| Section 6.0 Suspect Asbestos Containing Building Materials | 10 |
| Section 7.0 Limitations | 11 |
| Appendix A. Laboratory Analysis Report | 12 |
| Appendix B. Photographs | 13 |
| Appendix C. Floor Plan | 14 |
| Annendix D. References | 15 |

Section 1.0 Executive Summary

An industrial hygiene survey was conducted on October 13, 2011, at the Georgetown Readiness Center located at 109 West Pine Street, Georgetown, DE 19947. The survey was performed by Ms. Non-Responsive

- 1. Lead surface and air samples were collected. Surface levels of lead exceeded 200 micrograms per square foot (ug/ft²) in four locations. Cleaning procedures should be improved and remedial action should be taken to maintain lead levels below 200 ug/ft². See Section 3.0 for sampling results.
- 2. Lighting levels did not meet the American National Standard Institute/Illuminating Engineering Society of North America (ANSI/IESNA) recommended guideline in some areas. See Section 4.0 for locations.
- 3. Indoor air quality (IAQ) parameters of temperature, relative humidity, carbon monoxide and carbon dioxide (ventilation) were evaluated during the assessment. Relative humidity levels in some areas were above The US Army Technical Guide 277 Army Facilities Management Information Document on Mold Remediation and Recommendation. See Section 5.0 for locations. Relative humidity should be maintained at 30 60%. The heating, ventilating, and air conditioning system (HVAC) system should be inspected to ensure it is working properly.
- 4. Some water damaged ceiling tiles were observed throughout the facility. Efflorescence was noted on the exterior wall in room 19. Identify and repair all sources of water infiltration. Remove and replace all water stained ceiling tiles.
- 5. The HVAC supply grills located in some of the offices and classrooms were observed to be dirty. These should be cleaned. Do not permit dirt, debris, microbial growth, etc. to accumulate in any portion of the HVAC system.

Section 2.0 Operation Description & Observations

The Georgetown Readiness Center is mainly an administrative facility with a drill hall, offices, classrooms, a garage and storage areas. There were approximately 10 full-time employees stationed at this facility at the time of this survey.

The building was initially constructed in 1940. There have been some renovations since its construction. The building is two stories with a brick exterior. The interior walls are concrete block or plaster. The floors are concrete with vinyl floor tile or carpet.

There is also a storage building located on the property. The storage building stores items used during deployments. The garage is also used for storage of maintenance equipment (e.g., lawn mowers). The garage does not have a local exhaust ventilation system. A ventilation survey was not performed. Workers performing tasks in the garage wear hearing and eye protection. No safety hazards were observed in the garage.

There is a central HVAC system present in the facility. HVAC units service the building via a boiler. Some offices have air conditioning window units. It was reported that the drill hall does not have a HVAC system.

The firing range was converted into a storage area. There was a section of the exhaust duct that remains but it is scheduled for removal on 10/18/2011. No other firing range components remain. The area appears very clean and well kept.

There is no child-care facility in the building.

Overall housekeeping practices were good. Areas were clean and well kept.

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

Section 3.0 Lead Testing

Due to the age of the building there is the potential for lead based paint to be present. Various surfaces within the facility were screened for lead using surface/wipe samples. Surface/wipe samples were collected in accordance with the American Society for Testing and Materials (ASTM) E 1792 protocols. Air samples were collected using 0.8 um mixed cellulose ester (MCE) filter cassettes attached to low volume air sampling pumps. Blank samples were submitted to the laboratory for quality control purposes. Samples were sent to AMA Analytical Services, Inc., in Lanham, Maryland, for lead analysis using Environmental Protection Agency (EPA) Method 600/R-93/200 (M)-7420. A copy of the laboratory analysis report can be found in Appendix A.

Lead Testing Results Summary

| Sample # | Location | Air ug/m³ | Surface ug/ft ² |
|----------|----------------------------------------------------------------------|--------------|-------------------------------|
| 1 | Drill Hall | <5.7 | * |
| 2 | Dining Hall | < 5.6 | * |
| 3 | Blank | <3 (ug) | * |
| 4 | Drill Hall – Top of Lockers | * | 240 |
| 5 | Drill Hall – Floor by Lockers | ** | <110 |
| 6 | Drill Hall – SRG Office – Supply Grill | * | <110 |
| 7 | Drill Hall – Window Sill | * | <110 |
| 8 | Drill Hall – Kitchen Top Of Refrigerator | * | 150 |
| 9 | Converted Indoor Firing Range – Stored Item - Shipping Containers | * | <110 |
| 10 | Converted Indoor Firing Range - Floor | * | 2,900 |
| 11 | Converted Indoor Firing Range – Light Fixture | * | 8,800 |
| 12 | Converted Indoor Firing Range – Overhead Heater | * | 800 |
| 13 | Outside Converted Firing Range – Hallway Floor | * | <110 |
| 14 | S1 Office – File Cabinet | * | <110 |
| 15 | Room 19 – Top of Locker | * | <110 |
| 16 | Room 25 – Floor | * | <110 |
| 17 | Blank | * | <12 (ug) |

Key: Bolded results exceed listed criteria

Source: NG PAM 420-15 Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges

The National Guard Bureau currently utilizes 200 ug/ft² as a benchmark for identifying lead-contaminated surfaces. This guideline is referenced in NG PAM 420-15 "Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges" as a satisfactory surface contamination level unless the facility is utilized as a childcare facility. In such cases, U.S. Department of Housing and Urban Development (HUD)

limit of 40 ug/ft^2 on floors and 250 ug/ft^2 on windowsills should be observed. There is no child care provided at this facility.

Lead surface and air samples were collected.

- Surface levels of lead were at or above the recommended guideline of 200 ug/ft² in the following locations:
 - o Drill Hall Top of Lockers
 - o Converted Indoor Firing Range Floor
 - o Converted Indoor Firing Range Light Fixture
 - o Converted Indoor Firing Range Overhead Heater

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

- Air samples for lead were below the Occupational Safety and Health Administration (OSHA) Permissible Exposure Limit of 50 ug/m³.
- Paint was observed to be in good condition throughout the facility.

Section 4.0 Lighting

A lighting assessment was conducted throughout the facility. Measurements were collected using a Cooke Cal-Light 400L Precision Light Meter (Serial No. K070155). The light meter was last calibrated on September 10, 2011. Measurements collected were compared to ANSI/IESNA RP-7-01 Lighting Industrial Facilities and RP-1-04 Office Lighting.

Light Survey Assessment Summary

| Tanadian | Foot Candles | Recommended | Sufficient |
|------------------------|--------------|---------------|------------|
| Location | (FC) | Lighting (FC) | Lighting |
| S1- Office | 97.7 | 30-50 | Yes |
| Woman's Latrine | 2.7 | 5 | No |
| Drill Hall | 10.1 | 10 | Yes |
| Room 4 (Classroom) | 71.8 | 30-50 | Yes |
| Room 3 (Office) | 75.3 | 30-50 | Yes |
| Room 1 (Office) | 107.7 | 30-50 | Yes |
| Kitchen | 92.6 | 50 | Yes |
| Room 16 (Office) | 75.3 | 30-50 | Yes |
| Room 17 (Office) | 91.2 | 30-50 | Yes |
| Room 18 (Office) | 120.5 | 30-50 | Yes |
| Room 19 (Office) | 51.1 | 30-50 | Yes |
| Room 20 (Office) | 115.9 | 30-50 | Yes |
| Room 21 (Office) | 106.8 | 30-50 | Yes |
| Exercise Room | 26.8 | 30 | No |
| Dining Hall | 120.8 | 10 | Yes |
| Maintenance Office | 27.2 | 30-50 | No |
| Recruiting Office | 75.1 | 30-50 | Yes |
| Supply Office | 64.1 | 30-50 | Yes |
| Supply Room | 75.3 | 30 | Yes |
| NBC Supply Room | 32.3 | 30 | Yes |
| Motor Section (Office) | 90.8 | 30-50 | Yes |
| Storage Building | 24.6 | 30 | No |

Bolded results did not meet listed criteria

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

The lighting level did not meet the minimum recommended guideline in the following areas:

- o Woman's Latrine
- o Exercise Room
- o Maintenance Office
- Storage Building

Lighting should be improved in these areas.

Section 5.0 Indoor Air Quality

Survey measurements were made for ventilation and comfort parameters (carbon dioxide, temperature, carbon monoxide and relative humidity). The air quality measurements were collected using direct reading instrumentation for comfort parameters using a OTRAK IAO Meter, Model 7565 (Serial #7565X0839017). The IAQ Meter was last calibrated in February 11, 2011.

The American Society of Heating, Refrigerating, and Air Conditioning Engineers, Inc. (ASHRAE) have developed indoor air quality guidelines for mechanically ventilated office buildings and commercial settings (ASHRAE standard 62.1-2010). ASHRAE specifies temperature and relative humidity ranges for human comfort (ASHRAE 55-2010). The US Army Technical Guide 277 Army Facilities Management Information Document on Mold Remediation, recommends maintaining a relative humidity range between 30 to 60% in occupied areas.

The following table summarizes the measurements collected.

IAQ Assessment Summary

| Location | Temperature (°F) | Relative Humidity (%) | Carbon Dioxide (ppm) | Carbon Monoxide (ppm) |
|------------------------|------------------|-----------------------------|----------------------------|-----------------------------|
| S1- Office | 72.9 | 71.7 | 620 | 0.8 |
| Drill Hall | 74.4 | 65.1 | 668 | 1.1 |
| Room 4 (Classroom) | 74.4 | 64.3 | 598 | 0.7 |
| Room 3 (Office) | 73.2 | 51.0 | 587 | 0.8 |
| Room 1 (Office) | 73.1 | 57.6 | 626 | 0.9 |
| Kitchen | 73.3 | 72.2 | 405 | 1.1 |
| Room 16 (Office) | 73.4 | 68.1 | 408 | 1.0 |
| Room 17(Office) | 71.9 | 55.1 | 435 | 0.5 |
| Room 18 (Office) | 72.0 | 57.5 | 646 | 0.6 |
| Room 19 (Office) | 71.8 | 64.7 | 478 | 0.7 |
| Room 20 (Office) | 71.5 | 57.9 | 477 | 0.7 |
| Room 21(Office) | 71.3 | 56.4 | 546 | 0.5 |
| Exercise Room | 71.9 | 66.4 | 782 | 0.7 |
| Dining Hall | 72.5 | 74.1 | 640 | 1.0 |
| Maintenance Office | 73.3 | 83.4 | 403 | 0.4 |
| Recruiting Office | 74.3 | 70.4 | 692 | 0.4 |
| Supply Office | 73.2 | 61.1 | 419 | 0.2 |
| Supply Room | 73.6 | 67.5 | 435 | 0.5 |
| NBC Supply Room | 73.8 | 67.9 | 429 | 0.4 |
| Motor Section (Office) | 74.4 | 68.1 | 402 | 0.2 |
| Storage Building | 78.9 | 68.1 | 406 | 0.7 |
| Outdoors | 81.1 | 70.6 | 469 | 0.3 |
| Criteria | 68.0-79.0 | 30-60 | <1,169 | <9.0 |

Key: Bolded results exceed listed criteria

Source: The American Society of Heating, Refrigerating, and Air Conditioning Engineers, Inc. (ASHRAE) 55-2010 & The US Army Technical Guide 277 Army Facilities Management Information Document on Mold Remediation.

Summary of findings and recommendations:

- Relative humidity was above the recommended criteria of 30-60% in most areas. High relative humidity can provide an environment suitable for microbial growth and proliferation. Maintain relative humidity levels between 30-60%.
- Carbon dioxide levels did not exceed the recommended ceiling of 1,169 parts per million (ppm). This indicates that outdoor air ventilation is adequate in all areas.
- Carbon monoxide levels were less than the recommended ceiling of 9 ppm.
- A visual inspection was conducted throughout visually accessible portions of the facility. The visual inspection was conducted to assess sources or pathways of factors potentially deleterious to IAQ. Some water damaged ceiling tile was observed throughout the facility. Efflorescence was observed on the exterior wall in room 19. Identify and repair the source of the water infiltration. Replace any water stained ceiling tiles.
- The HVAC supply grills located in some of the offices/classrooms were observed to be dirty. These should be cleaned. Do not permit dirt, debris, microbial growth, etc. to accumulate in any portion of the HVAC system.

Section 6.0 Suspect Asbestos Containing Building Materials

Based on the age of the building (e.g., constructed in 1940) asbestos-containing materials (ACM) could be present in the facility. It was reported that all known asbestos-containing material was abated. No suspect ACM was observed at the time of this survey. Inaccessible areas such as behind walls or crawlspaces were not inspected.

Section 7.0 Limitations

This report summarizes our evaluation of the conditions observed at the above referenced location. Our findings are based upon our observations and sampling results obtained at the facility at the time of our visit. The report, results, and subsequent recommendations reported herein are also limited to the information available at the time it was prepared and investigated. Conditions may have been in effect prior to the sampling events that have changed over time and which cannot be predicted within the scope of this limited investigation. Any conditions discovered which deviate from the data contained in this report should be presented to us for our evaluation.

This report is intended for the exclusive use of the client. This report and the findings herein shall not, in whole or in part, be relied upon by any other parties, disseminated or conveyed to any other party without prior written consent of the National Guard Bureau, and ALS Environmental. The findings are relative to the dates of our site visits and should not be relied upon for substantially later dates.

Appendix A. Laboratory Analysis Report

and Analytical Services, Inc.





A Specialized Environmental Laboratory

| | | | 10/26/2011 | |
|-----------------------|--------------------------------------------------------------------|--------------------------------|-------------------------|------------|
| | 1 | Non-Re: | 10/24/2011 Report Date: | |
| 511595 | 107/9/2011 | | 10/24/2011 | |
| Chain Of Custody: | Date Submitted: | Person Submitting: | Date Analyzed: | |
| R.C. Geargaloven | Georgetown, DE | RC-Georgetown | NGB-HINE | |
| Job Namer | Job Location: | Job Number: | P.O. Number: | |
| National Guard Bareau | 301-IH Old Bay Lane, Aim ARNG-CIG-P, State Military Reservation | Havre de Grace, Maryland 21078 | | Non-F |
| Cheut | Address: | | | Aftention: |

Page Lof 2

Summary of Atomic Absorption Analysis for Lead

| AMA Sample Number | Client Sample Number | Analysis Type. Sample Type | Sample Type | Air Volume (L) | Area Wiped (de) | | Reporting Link | Total ug | Final Result | ă | Comments |
|----------------------|-------------------------|----------------------------|-------------|-------------------|--------------------|-----|--------------------|----------------|--------------|--------------------|-----------------------------------------|
| 12006852 | 1110756-1 | Flame | Asir | 528 | NA | 5.7 | ug/m² | Ø | 5.7 | şui/βh | 0.000 · · · · · · · · · · · · · · · · · |
| 12006853 | 1110756-2 | Flame | Aìr | 533 | NVA | 5.6 | ng/m. | -₩ | 9.50 | ughn³ | |
| 12006854 | 1110756-3 | Flame | Air Blank | ů | NIA | èä | ,मा/ज्ञा | | Ø. | s# | |
| 12006855 | 1110736-4 | Flame | Wipe | 多本条 | 0.108 | 011 | ug/ff? | 36 | 240 | ng/ff² | |
| 2006856 | 1110756-5 | Flune | Wipe | *** | 0.108 | 110 | ug/ff | ZIV | <110 | ug/fi* | |
| 12006857 | 1110736-6 | Flame | Wine | ***** | 0,108 | 110 | ng/ft² | ₹5 | 0. V | ng/RF | |
| 12006858 | 1110756-7 | Flume | Wipe | 等所领 | 0.108 | 011 | ug/ft? | ZI v | OT 1> | ng/fts | |
| 12006859 | 1110756-8 | Flame | AV ipse | 李英子奉 | 0.108 | 011 | Hg/ff ² | 10 | 130 | ug/ft² | |
| 12006860 | 1110756-9 | Flame | Wipe | *** | 6,168 | ίτο | ug/ff* | ×12 | VI10 | ng/ft* | |
| 2006861 | 1110756-10 | Hame | Wipe | 安安衛衛 | 0.108 | 110 | ug/h | 310 | 2900 | ng/ft² | |
| 12006862 | 1110756-11 | Phone | Wipe | *** | 0.108 | 110 | ng/ft² | 926 | 3800 | ugiff: | |
| 12006863 | 1110756-12 | Plaine | Wipe | 安安安安 | 0.108 | 110 | ug/R2 | 982 | 000 | ng/ff? | |
| 12006864 | 1110756-13 | Mame | Wipe | *** | 0,168 | 110 | ug/ft² | 7 7 | or 12 | ug/ft ³ | |
| 12006865 | 1110736-14 | Flams | Wipe | *** | 801.0 | 110 | ug/ft² | <12 | 9 X | ug/Ω≠ | |
| 12006866 | 1110756-15 | Flame | Wipe | 旅學學是 | 0.108 | 110 | ne/ii: | 2 3 | 011p | ութ/Ու | |
| 12006867 | 1110756-16 | Flame | Wipe | 格格女女 | 6,103 | 110 | ug/fits | ZI2 | ×110 | ug/ff² | |
| 12006868 | 1110756-17 | Flame | Wipe Blank | 南的黄芩 | N/A | 12 | 50 | | ZI2 | an | |

locations, and collection protocols are based upon the information provided by the passons submitting them and, unless collected these Laboratories, we expressly disclains any knowledge and hability for the accuracy and completeness of this first material will be discarded in accordance with the appropriate regulatory guidelines, unless otherwise requested by the client. NVLAP accordance with accordance with the appropriate regulatory guidelines, unless otherwise requested by the client. NVLAP accordance with the appropriate regulatory guidelines, unless otherwise requested by the creditedion applies and to palarized light microscopy of balk samples and transmission electron microscopy of AHERA air samples. This report must not be used to claim, and does not imply product conflicted or endorsement by NY ELAP, ABHA, NVLAP, NIST, or any agency of the Federal Government. All rights reserved. AMA Analytical Services, Inc. This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or sample, or sample, and these Laboratories, this report is any advertising or publicity matter without prior written authorization from us. Sample types, arbuitted and accepted for the eschasive 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,

のでは、 できない できながら、 こうか

An Allia (#100470), NVLAP ([01143-0), and NV RLAP (#10920) Accredited Laboratory 4773 Forbes Bivg. - Lanhani, MD, 20706 - (301) 459-2649. Toll Free (#10) 346-0951 - Fax (301) 459-2643.

AMA Analytical Services, Inc.



A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS



| eational Cuard Bureau | Job Name | RC-Chorgetown | Chain Of Custody: | \$11595 | |
|----------------------------------------|---------------|----------------|--------------------|------------------------------------|---------------|
| 501-IH Old Bay Lane, Attn: ARNO-CIG-P. | Job Lacation: | Georgetown, DE | Date Submitted: | 10/19/2011 | |
| Bavre de Grace, Maryland 21078 | Job Winiber: | RC-Georgelown | Person Submitting: | Non-Re | |
| | P.O. Number: | NGB-IHNE | Date Analyzed: | 10/24/2011 Report Date: 10/26/2011 | et 10/26/2011 |
| Non-8 | | | | | |

| | | | | ITY OI ATO | nic Ansory | Atomic Absorption Analysi | Summary of Atomic Absorption Analysis for Lead | = | o for y ago s |
|----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|------------------|-------------------|-------------------------------------------------------------------------------------|---------------------------|------------------------------------------------|-------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| AMA Sample Number | Client Sample Number | Client Sample Analysis Type Sample Type Air Volume Area Wipe in Reporting Number (E) (ff*) Unit | Sample Type Air | Air Volume (C) | Area Wiped | Reporting | Total ug | Totsl ug, Final Result | Comments |
| | Annual Laboratory and Artist Laboratory (1997) | | | | | | | | The second statement of the second se |
| Analysis Melhod fit | Analysis Method for Flame: Air, Vilpas, Paints, and Soil/Solids: EPA 600/R-93/200(M)-7000B; Water: SM-3111B Analysis Method For Eumana: Air Whate, Bains, and Soil/Solids: * EPA 600/R-93/00/Mill-7M10; Water SM-3117 | Paints, and Soil/S | olids: EPA 600/R | -93/200(M)-7000 | 600/R-95/200(M)-7000B; Water: SM-3111B BA 600/B: 03/200/M)-7010: Water: SM-3111B | ŭ | See QC Summary for and associated with these | See QC Summary for analytical results of quality-centrol samples associated with these | confrol samples |

samples.

mg/L = parts per million (ppm)

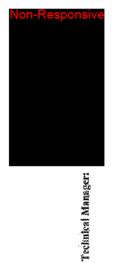
ug/L = parts per billion (ppb)

Anaysis Method For Furnace: Air, Wipes, Paints, and Soil/Solids! EPA 500/R-95/200(M-7010); Water: SM-3113B

mgAkg = parts per million (ppm) 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 Air and Wipe results are not corrected for any blank results change unless signed by the Technical Director or Deputy. All results are to be considered preliminary and subject to Final results for air and wipe samples are based on client should not be considered when interpreting the result. supplied information nor verified by this laboratory.



necisions, and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these Latoratories, we expressly disclaim any knowledge and faulity for the accordance with the appropriate regulatory guidelines, takes ofterwise requested by the client. NVLAF accreditation applies only to polarized light introscopy of bulk samples and transmission electron microscopy of AILERA alreading from the Footral Covernment. All transmission electron microscopy of AILERA alreadings of the Footral Covernment. All rights reserved. AMA Analytical Services, Inc. This report applies only to the sample, investigated and is not necessarily indicative of the quality or roughlan of apparently identical or similar products. As a mutual protection to eltents, the public, and these Laboratories, this report is consistent or the exclusive are of the electron and is not necessarily indicative of the quality or the samples of the electron and is not necessarily indicative of the quality or the rectangle of the electron and individual by the persons abminified from a more and the electron and individual by the persons abminified from a provided by the accuracy and completeness of because of the electron and individual to the electron and individual by the personal of these Laboratories, where the exclusive are shell and a completeness of the electron preducts are based to a provided by the approximate and the electron preducts and and accordance with the approximate and the electron provided are used in the appropriate regulatory guidelines, such so that indication and the partical legit must not be used to claim, and does not inquiry product certification, approvid, or endossement by NY ELAP, AIRA, NYLAR, NIST, or any agency of the Ecderal Government. All characterized the electron and the electr

An AITA (#100470), NVI AP (181143-4), and NV ELAP (#1092b) Accredited Laboratory

1875 Forbes Bred. "Lampan, MD, 20706 (361) 459-2640 - Toff Free (800) 346-6961 - Pax (301) 459-2643

%Pis = percent laad on a dry weight basis

N/A = Not Applicable

Affentions

Address Client

filth Brollticol Services, Inc. Foreset on Resits arwanishshoon.
AMEA (#100-07) NVLAP (#101-14-0) NV ELA) (109204-4475 Forese Blyd. Lanimus MD 2000.
(2019-439-2000) (800-348-090) (300-439-2003)

म्बद्धाः हो। इत्राह्म

CITAIN OF CUSTODY

Please Refer To This Number For Inquirest

no nev aga 5,000,000

| Abiling/Billing information; | Subgriffed influentitions. | 1 1 3 2 1 |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| L. Cleat Name, Malonal Buard Bureau | - Johnson RC - Cack october | Con |
| 2. Address 11. 301-IN Old Bay Lane | 2. Job Location Cres Color De D | |
| 3. Address 2: Alla: NGR-AVN-St, State, Williamy Reservation. | 3. July R. R.C. Cocordictor | SANTE SON COUNTY TO SANTE |
| 4. Authors F. Have de Gence, Maryland 21070. | .1. Contact Poss | E. t. to to the birth of the |
| 5, Thans It. (410) 942-0223 | 5, Sibmilied b | 138 C 188 |
| | Reporting information (Results will be provided as sond as lectures by tensink). | |
| The pro-schalatel) | NOTAL ILISINUS TIOCHS | SAL DATE |
| Thire Dies: O Pean Day | o "/"/cla | Non-Res |
| C. C. 134Jy Lynk: | | C Verbai |
| | | Kiefe ki kuntyske |
| D MOSH Para (277) 11 NV SEA (277) | (CITY) | C. Ph. Daid Chip Come College L. C. Control |
| (1) Photography (1) Annual the contract of the | (OTY) | Mun Air |
| T. | | T. P. StillSofid (UPY) |
| LI MOSIN 7/02 L'Americant Property Control (1977) | (3.1.3)1 | er J Pa |
| | (I. Quan, estachibrar De trapent | ייטר מיוסי |
| C. 1874 Gilb. Visual Befores (Orv.) Little 2000. U. 1954 Fibra Count. | in (org.) | Postgat Arabysis |
| (QTV) | ((0.00) | Collection Apparatus for Spare Trap 4A je Saimbles |
| Caronic Reduction (BLAD 1985) | , | Collections Aleeks (EFFV) 2. Stratum Variance Collections |
| | trad genedition indices wherever points. | (QPV) -1 Changles 10 Const. Chain |
| i nat then ten stant tenten men tenten in den | | CONTRACTOR |
| SAMPLE INFORMACION VOLLANTI WIPE 5 | WOLLDON WIPE 2 2 3 3 4 5 5 5 5 5 5 5 5 5 | CLIENT CUIENT CUINNCT |

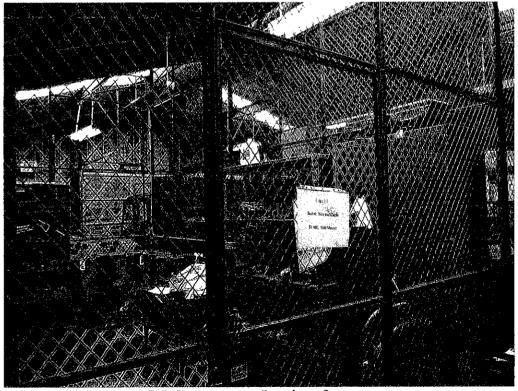
| (A) 74: (384) A) | 1,00 | | | | | 13.5 | | | | near Uy: | | lon-l | Resp | onsiv | Introfs: | |
|--------------------|--------------|------------|------------|----------|----------------|--------------|------------|--------------|---------------|--------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|-------------------------------|---------------------------|--------------------------|------|
| HABORAS STAIRS AND | Brith/Hunger | i i i | | | Notice (Thomas | Zigez i inec | | | | Language Cambridge | The state of the s | | | Slen | Time | |
| HIS | | | 1 | | 1 | | Ī | 1 | 1 | <u> </u> | Ť | <u>.</u> | | 35 | | |
| 114 | | | | | | Ţ | Í | ļ. | | | Ì | N | | • | 1 | |
| 1 5.5 | | | | | | | 1 | * | | | Ţ | | | | | |
| 25 | | | ļ., | | ļ., | | | _ | | | Ļ | | . 0 | | Diffe | |
| na na | - | <u> </u> | _ | \geq | <u>~</u> | -> | ∮ > | <u> </u> | | ₽ | 4> | ф< | Ny Irraino | . | : | - |
| 431- | | | <u> </u> | | | <u> </u> | | <u> </u> | | H | - | | | | | |
| AC. | | | | | | <u> </u> | <u> </u> | } | - | - | 1 | | المعالمة | T. Su | ## | |
| 3 | >< | \searrow | > | | ~ | >< | _ | | > < | 24 | - | ير | B | - ByiNsus | [| 3 |
| | : | | | | | | | | | | | | 5 | | Ť | 4 |
| 34 | | - | _ | | | | | | _ | | | | e dis | 3 | 3 | Ş |
| - | | | _ | (d) | | ļ | | | <u> </u> | _ | | | | | 2 | 7 |
| AREA | | | | 8 | | | - | - | - | 1 | | > | 0 / 1 | | רייור ריפטות שא אסני | |
| LITTERS | 5000 | 000 | 0 | | | | | - | | | | | | \-\{\\ \ | 200 | 1 |
| | | 10.7 | | | | | | | | <u> </u> | | > | 9 | | E | 1 |
| 11/ | 2 | | | | | | - | | I, | | | 72. | ΛV | allyzed | (E) 74 (F) (E) 74 | |
| MOUNTHING. | | | | | | | | | | | | | L. Date/Fine ICCVD; | 2. Dedections Analyzed; _ | 3. Restults Reported To. | - |
| 1111 | | | | | | | | | | | | | DaleT | Date | Restation | 3000 |
| 13 | | | | | | | | | | | | | <u></u> : | Ŧ | <u>.</u> | ě |
| MARKET | 1-30-C | 1107510-3 | 110-1510-3 | 1-051011 | 11107156-5 | 110 15G-C | 110100 - 1 | S-OKILON | 110756-9 | 0-9CION | 11-975 PH | 10000000000000000000000000000000000000 | T. A. INC. IE. S. P. Carp. V. | STAPPONIS | CHSTODY | |
| i. | | | 41 | | | | | - | | - | | | | | | |

1000 DIE (CID) 10.1 ž SIIS45 pase 2/1 CALCIE In Hinks अध्मतिक देशा HAMORATORY STAFFORES TOLLS AUTO CYTOL - Surface Sacramic Dust. - (Simplify ID Gene-tNofa). ACTION TO Specify Marie Or plaine # (4.19), 942-0273 Jus. army. mil CHENTCHNIKE (midnet; Comme Castact Collection Apparates to Space Emperate Samplese. 60 Indiales COCATOSI Data Sheen with Report Considera Copies HEROIEF TO: W9 12KG-09-A-0003 ROTTO LICE N. TOT CALC (Pense Refer 16 This Migsbyr For Inquiges). Finne 2000 E LEGITY Canting Synd _____ (OTV) 11.0 13:00 9 L. Ph. Diest Whye rivings 15 pt.
L. Po Alic.
L. Po Alic.
L. Po Ti'r.
L. Po Ti'r.
L. Po Ti'r.
L. O' Wiese Water L. Po.
L. U. Wiese Water L. Po.
L. Pic Promisee (Abella. ICTY: Dale/finer Dime/Tange Date/Time: in line: U. Stiffage Uspering Collection Media Sterie 金の重要を 65/95 - Spines-Trap. D. Verbah Metalikandabi Reporting Information (Texadis will be provided as spon as technically feaching). Sengel Amayor. Selvantist Information: 24 V Alexander of the second (HveryAttoney Will Be Ande to Accountable) NATURAL PROPERTY OF THE PROPER CHAIN OF CUSTODY Dales. [JAN] samples received in pasel confilma unless afactwise mifed, 1713A Wastersamples, 7,3 lly (Princh 10771 10771 10771 152 47,79 GLE Subheifled By \mathcal{U}_{V} Courter Person 2. Joh Location: PROBLESSANISH AMERICAN ON HAIL 2014 7023 Ville 1013 group. Bul #: 10171 - By thento L. Dann, reduced Marinim DS355-05 01.7 43 G PE Little of the winds of the standard of the sta SHALLYSIK Ca Quair, polarentana 100 filmote Controvator (119, AP. 198, W. Manfacki L.J. M.S. Shafe Pt. M.//T. 1984 S. Day One Direct ð, 3 N₂ LI BER HALL Page 2 of a Fax # (410) 942-0254 Deal Willer FALDER! Crans AHEA S S Alla: NGB AVILSI, State Millary Besevation. O Intigrodige O Next Day focused on flexible. www.annilab.com AUDA.thinip470b.NVLAP.t#thi1438B.NY ELAFTING30b A'CB. UNIT. Dry Day A.CHENS. (301) 450-3640 (Ship 340-998) · Per (300) 459-3543 Address 3: Havre de Grace, Maryland, 21028. S S DATE 1 (1) (1) T CALCE 2. Ihite/Fure Amilyzad: 3. Rearths Reported Dr. 10.00 SANITA DIPPORTATION SANITA L'OCATION DIPUTATATAN ANA Analytical Services, Inc. 1. Date/Thine RCVD: M.SFY1 4075 Forhes lifted. • Lenham, AID 2070M Clima Name: National Guard Burgati Address 1: 301-ft4 Old Bay Lane 4. Commonles (S) AFTER HERELIEF BOUSEDE pre-geherhilde OUNTY) CLM Alf - Please Indicate Pilea Diper CLA) HERA (OPT) EMANT - Bense Imitedie Pilas Types C NY State Frishle 198.1 Cl Carr. Reduction ELAP 1983. Phone 11: (11.10), 94(2:027.3 Mindiang Hilling Information: U. K. Lind. Control of Section 12. focused on Results Date Die: Thing Dise: SI-VISIONI LABORATORY ND 15%-16 C. E.P.A. Porint Course HOTOR-I STAFF ONLY: HC15(0-E) Chibactapacky. Charles specify A Sheeton Analyeis CUSTORY CENTOSH MAD CHENTID -92LO1 Address 2. U.Witegibes. THE PERSON Thurstelling. CL 25 Hauge Ornaments

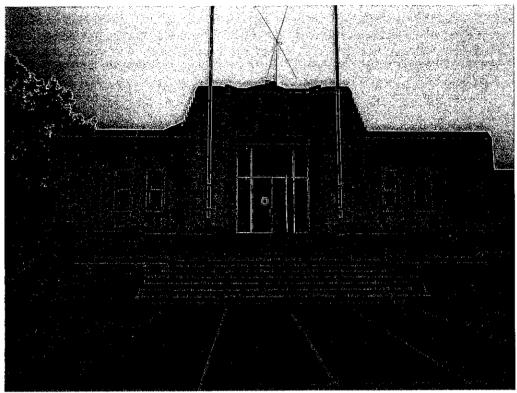
Appendix B. Photographs



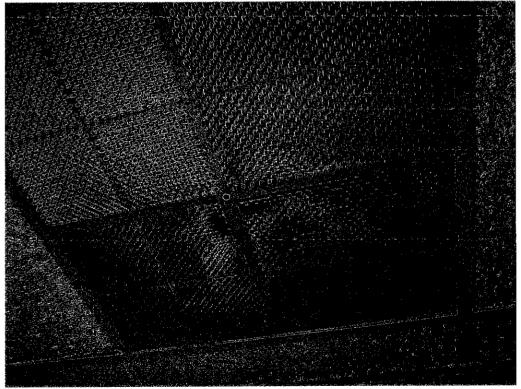
RC Georgetown- Garage



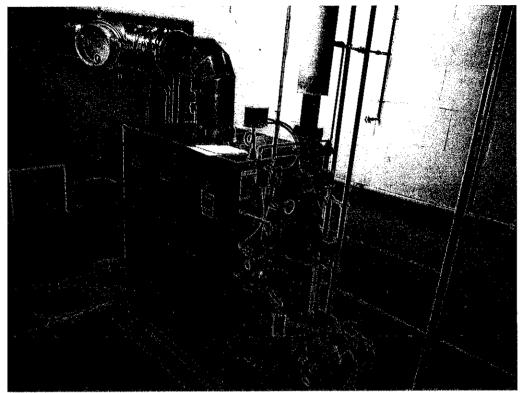
RC Georgetown- Interior of garage



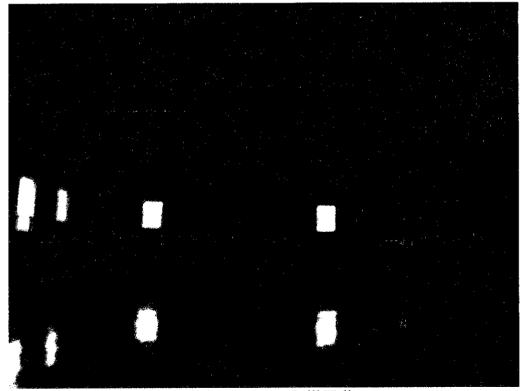
RC Georgetown-Exterior



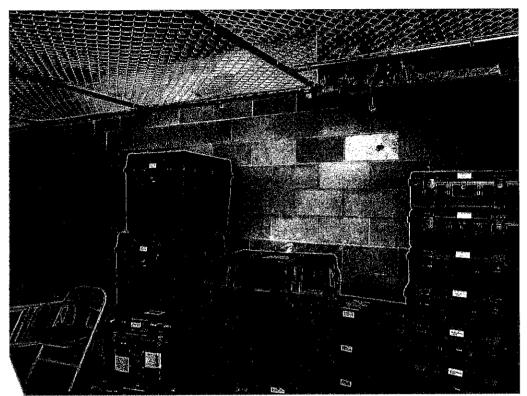
RC Georgetown- Dirty supplies



RC Georgetown- Boiler

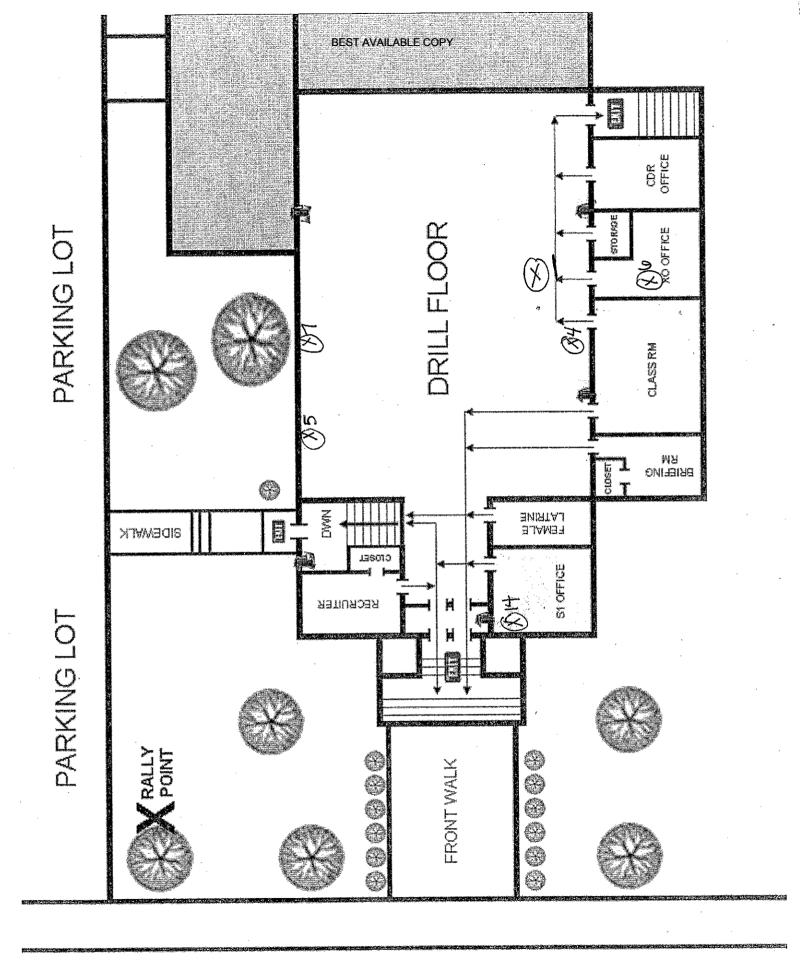


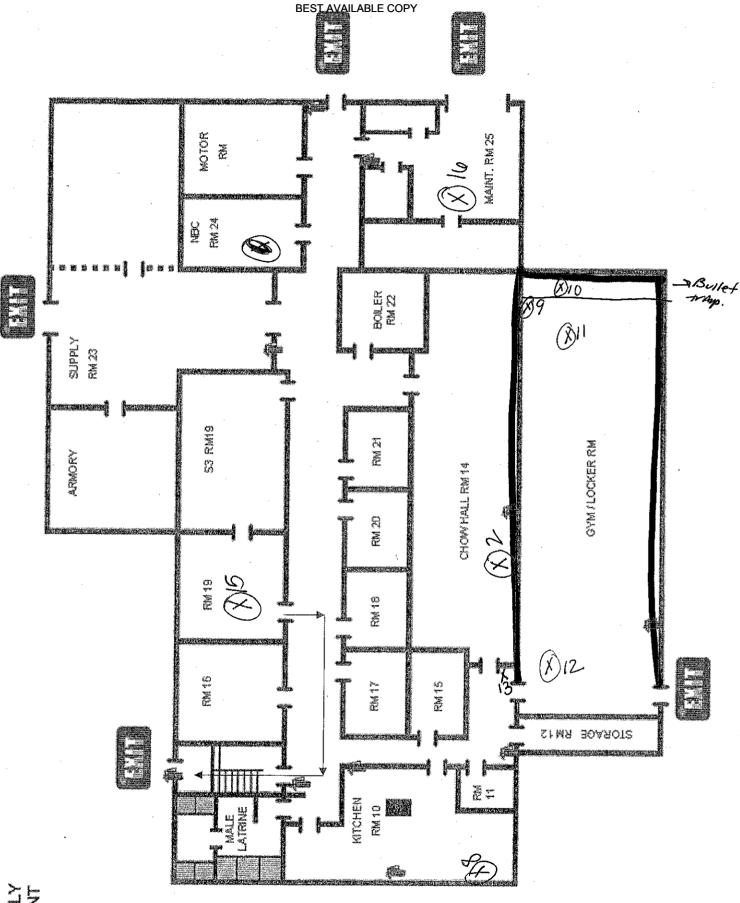
RC Georgetown- Drill Hall



RC Georgetown- Converted indoor firing range

Appendix C. Floor Plan





Appendix D. References

- 1. Title 29 Code of Federal Regulations (CFR), Part 1910.1025, Occupational Safety and Health Administration, Occupational Exposure to Lead
- 2. American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Values and Biological Exposure Indices, 2011 Edition
- 3. Industrial Ventilation: A Manual of Recommended Practice for Design, 27th Edition
- 4. American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE), Ventilation for Acceptable Indoor Air Quality, 62.1-2010
- 5. RP-1-2004, Industrial Lighting, Illuminating Engineering Society of North America/ANSI
- 6. RP-7-2001, Industrial Lighting, Illuminating Engineering Society of North America/ANSI
- 7. National Emission Standard Hazardous Air Pollutants (NESHAP) The standards for asbestos are contained in 40 CFR 61.140 through 61.157.
- 8. Environmental Protection Agency (EPA) standards [40 Code of Federal Regulations (CFR) 745.227(h)(3)]
- 9. Derivation of Wipe Surface Screening Levels for Environmental Chemicals, the US Army Center for Health Promotion and Preventive Medicine (USACHPPM)
- 10. The US Army Technical Guide 277 Army Facilities Management Information Document on Mold Remediation, February 2002.
- 11. NG PAM 420-15 Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges, 3 NOV 06.
- 12. American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE), Thermal Environmental Conditions for Human Occupancy, 55-2010.



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

Industrial Hygiene Survey Report

National Guard Facility Georgetown Readiness Center

Prepared For: National Guard Bureau Region North IH

301-IH Old Bay Lane

Havre de Grace, MD 21078

Survey Location: Georgetown Readiness Center

109 West Pine Street Georgetown, DE 19947

Prepared By: Compliance Management International

1215 Manor Drive

Suite 205

Mechanicsburg, PA 17055

Survey Date: November 14, 2012

Report Date: December 27, 2012



Senior Industrial Hygienist

Table of Contents

| Section 1.0 Executive Summary | 3 |
|------------------------------------------------------------|----|
| Section 2.0 Operation Description & Observations | 4 |
| Section 3.0 Lead Testing | 5 |
| Section 4.0 Lighting | 7 |
| Section 5.0 Indoor Air Quality | 8 |
| Section 6.0 Suspect Asbestos Containing Building Materials | 10 |
| Section 7.0 Equipment | 11 |
| Section 8.0 Limitations | 12 |
| Appendix A. Laboratory Analysis Report | 13 |
| Appendix B. Photographs | 14 |
| Annendix C References | 15 |

Section 1.0 Executive Summary

An industrial hygiene survey was conducted on November 14, 2012, at the Georgetown Readiness Center located at 109 West Pine Street, Georgetown, DE 19947. The survey was performed by Mr. Non-Responsive.

- 1. Lead surface and air samples were collected. Surface levels of lead exceeded 200 micrograms per square foot (ug/ft²) in three locations. Cleaning procedures should be improved and remedial action should be taken to maintain lead levels below 200 ug/ft². See Section 3.0 for sampling results.
- 2. Lighting levels did not meet the American National Standard Institute/Illuminating Engineering Society of North America (ANSI/IESNA) recommended guideline in the Garage. See Section 4.0 for detailed findings.
- 3. Indoor air quality (IAQ) parameters of temperature, relative humidity, carbon monoxide and carbon dioxide (ventilation) were within recommended guidelines during this survey.
- 4. Several conditions or factors that could affect indoor air quality were observed at the time of this survey. This includes:
 - a. Roof leaks and sources of water infiltration;
 - b. Poor housekeeping;
 - c. Dirty supply and return vents.

Section 2.0 Operation Description & Observations

The Georgetown Readiness Center is mainly an administrative facility with a drill hall, offices, classrooms, a garage and storage areas. There were approximately 10 full-time employees stationed at this facility at the time of this survey.

The building was initially constructed in 1940. There have been some renovations since its construction. The building is two stories with a brick exterior. The interior walls are concrete block or plaster. The floors are concrete with vinyl floor tile or carpet.

There is a storage/garage building located on the property. This building is used mainly to stores items used during deployments and maintenance equipment (e.g., lawn mowers). Minor tasks such as changing a tire or light can periodically be done in the garage area. The garage does not have a local exhaust ventilation system. Workers performing tasks in the garage wear hearing and eye protection. No safety hazards were observed in the garage.

There is a central Heating, Ventilation, and Air-Conditioning (HVAC) system present in the facility. HVAC units service the building via a boiler. Some offices have air conditioning window units. It was reported that the drill hall does not have a HVAC system.

The firing range has been converted into a storage area. Due to previous high surface lead sample results the area is posted as a lead hazard area.

There is no child-care facility in the building.

Overall housekeeping practices were poor. Housekeeping needs improved.

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

Section 3.0 Lead Testing

Due to the age of the building there is the potential for lead based paint to be present. Various surfaces within the facility were screened for lead using surface/wipe samples. Surface/wipe samples were collected in accordance with the American Society for Testing and Materials (ASTM) E 1792 protocols. Air samples were collected using 0.8 um mixed cellulose ester (MCE) filter cassettes attached to low volume air sampling pumps. Blank samples were submitted to the laboratory for quality control purposes. Samples were sent to AMA Analytical Services, Inc., in Lanham, Maryland, for lead analysis using Environmental Protection Agency (EPA) Method 600/R-93/200 (M)-7420. A copy of the laboratory analysis report can be found in Appendix A.

Lead Testing Results Summary

| Sample # | Location | Bulk | Air | Surface |
|----------|----------------------------------------|--------|-------------------|--------------------|
| | 5 111 22 11 | (%) | ug/m ³ | ug/ft ² |
| 1 | Drill Hall | * | <6.7 | * |
| 2 | Converted Firing Range – Storage Area | * | <6.7 | * |
| 3 | Drill Hall – Center of Floor | * | * | <110 |
| 4 | Drill Hall – Top of Lockers | * | * | <110 |
| 5 | Drill Hall – Top of Flag Stand | * | * | <110 |
| 6 | Kitchen – Top of Mixer | * | * | <110 |
| 7 | Kitchen – Top of Wall Locker | * | * | <110 |
| 8 | Hallway – Outside Converted Firing | * | * | 220 |
| 0 | Range | | | 230 |
| 9 | Converted Indoor Firing Range – Floor | * | * | 110,000 |
| 10 | Converted Indoor Firing Range – Top of | * | * | 120 |
| 10 | Locker | | | 130 |
| 11 | Converted Indoor Firing Range – Top | * | * | 6000 |
| 11 | of Shop Vac | | | 0000 |
| 12 | Classroom – Top of Wall Lockers | * | * | <110 |
| 13 | Dining Room – Top of Microwave | * | * | <110 |
| 14 | Office – Top of Desk | * | * | <110 |
| 15 | Supply Office – Top of Desk | * | * | <110 |
| 16 | Blank – Wipe | * | * | <12 ug |
| 17 | Blank – Air | * | <3 ug | * |
| 18 | Kitchen Pipes – Peeling Paint | 0.0095 | * | * |
| - | Criteria | 0.5 | 50 | 200 |

Table Notes:

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

Source: NG PAM 420-15 Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges

The National Guard Bureau currently utilizes 200 ug/ft² as a benchmark for identifying lead-contaminated surfaces. This guideline is referenced in NG PAM 420-15 "Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges" as a satisfactory surface contamination level unless the facility is utilized as a childcare facility. In such cases, U.S. Department of Housing and Urban Development (HUD) limit of 40 ug/ft² on floors and 250 ug/ft² on windowsills should be observed. There is no child care provided at this facility.

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

- Surface levels of lead were at or above the recommended guideline of 200 ug/ft² in the following locations:
 - o Drill Hall Top of Lockers
 - o Converted Indoor Firing Range Floor
 - o Converted Indoor Firing Range Light Fixture
 - o Converted Indoor Firing Range Overhead Heater

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

- Air samples for lead were below the Occupational Safety and Health Administration (OSHA) Permissible Exposure Limit of 50 micrograms per cubic meter (ug/m³).
- Paint was observed to be peeling in the kitchen on pipes. A bulk sample was collected and determined to contain 0.0095%Pb. This is less than the EPA definition of lead based paint = 0.5%. However, all areas of peeling paint should be repaired.

Section 4.0 Lighting

A lighting assessment was conducted throughout the facility. Measurements were collected using a Cooke Cal-Light 400L Precision Light Meter (Serial No. K98364). The light meter was last calibrated in April 2012. Measurements collected were compared to ANSI/IESNA RP-7-01 Lighting Industrial Facilities and RP-1-04 Office Lighting.

Light Survey Assessment Summary

| Location | Foot Candles (FC) | Recommended Lighting (FC) | Sufficient Lighting |
|-------------------------|----------------------|------------------------------|------------------------|
| Conference Room | 52.6 | 30-50 | Yes |
| Classroom 4 | 90.8 | 30-50 | Yes |
| Drill Hall | 43.1 | 10 | Yes |
| Kitchen | 93.1 | 50 | Yes |
| Converted Firing Range- | | | |
| Storage | 43.1 | 30 | Yes |
| Dining Room | 87.7 | 10 | Yes |
| Non-Responsive Office | 106.5 | 30-50 | Yes |
| Mechanical Room | 50.6 | 30 | Yes |
| Supply Room | 85 | 30 | Yes |
| Garage – Light Vehicle | | | |
| Maintenance | 67.8 | 75 | No |

Table Notes:

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

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

The lighting level did not meet the minimum recommended guideline in the Garage Area. Lighting should be improved in these areas.

Section 5.0 Indoor Air Quality

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

The American Society of Heating, Refrigerating, and Air Conditioning Engineers, Inc. (ASHRAE) have developed indoor air quality guidelines for mechanically ventilated office buildings and commercial settings (ASHRAE standard 62.1-2010). ASHRAE specifies temperature and relative humidity ranges for human comfort (ASHRAE 55-2010). The US Army Technical Guide 277 Army Facilities Management Information Document on Mold Remediation, recommends maintaining a relative humidity range between 30 to 60%.

The following table summarizes the measurements collected.

IAQ Assessment Summary

| | Q Mascasinent of | | | |
|------------------------------------|------------------|-----------------------------|----------------------------|-----------------------------|
| Location | Temperature (°F) | Relative Humidity (%) | Carbon Dioxide (ppm) | Carbon Monoxide (ppm) |
| Conference Room | 70.3 | 34.3 | 467 | 2.8 |
| Classroom 4 | 71.4 | 38.7 | 458 | 1.4 |
| Drill Hall | 70 | 38.6 | 465 | 2.0 |
| Kitchen | 74.1 | 40.1 | 511 | 2.1 |
| Converted Firing Range- Storage | 71.6 | 41.8 | 476 | 2.1 |
| Dining Room | 73.8 | 34.8 | 494 | 1.8 |
| Non-Responsive Office | 73 | 35.2 | 531 | 1.8 |
| Mechanical Room | 75.3 | 34.7 | 572 | 1.5 |
| Supply Room | 74.1 | 34.3 | 641 | 1.6 |
| Garage | 71.1 | 34.3 | 544 | 1.8 |
| Outdoors | 56.1 | 49.1 | 322 | 2.3 |
| Criteria | 68.0-79.0 | 30-60 | <1,022 | <9.0 |

Table Notes:

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

Source: The American Society of Heating, Refrigerating, and Air Conditioning Engineers, Inc. (ASHRAE) 55-2010 & The US Army Technical Guide 277 Army Facilities Management Information Document on Mold Remediation.

Summary of findings and recommendations:

- Temperature and relative humidity measurements were within the recommended guidelines.
- Carbon dioxide levels measured did not exceed the recommended ceiling of 1,022 parts per million (ppm). This indicates that outdoor air ventilation is adequate in all areas.
- Carbon monoxide levels measured were less than the recommended ceiling of 9 ppm.
- A visual inspection was conducted throughout accessible portions of the facility to assess sources or pathways of factors potentially deleterious to IAQ. The following observations were noted:
 - Numerous roof leaks and associated water damaged ceiling tile were present. All sources of water infiltration should be identified and repaired. Water stained ceiling tile should be removed and replaced.
 - o Overall housekeeping was poor. Housekeeping should be improved.
 - The HVAC supply grills located in some areas were dirty. These should be cleaned. Do not permit dirt, debris, microbial growth, etc. to accumulate in any portion of the HVAC system.

Section 6.0 Suspect Asbestos Containing Building Materials

Based on the age of the building (e.g., constructed in 1940) asbestos-containing materials (ACM) could be present in the facility. It was reported that all known asbestos-containing materials have been abated. No suspect ACM was observed at the time of this survey. Inaccessible areas such as behind walls or crawlspaces were not inspected.

Section 7.0 Equipment

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

| Equipment | Serial # | Calibration Date | Value |
|---------------------------|-------------|-------------------------|----------|
| TSI QTrak IAQ Meter | 02041015 | 8/2012 | NA |
| Cal Light 400 Light Meter | K98364 | 4/2012 | NA |
| TSI 4199 Calibrator | 41460827002 | 8/2012 | NA |
| SKC Air Sampling Pump | 647631 | 11/15/2012 | 2.49 LPM |
| SKC Air Sampling Pump | 647610 | 11/15/2012 | 2.49 LPM |

Section 8.0 Limitations

This report summarizes our evaluation of the conditions observed at the above referenced location. Our findings are based upon our observations and sampling results obtained at the facility at the time of our visit. The report, results, and subsequent recommendations reported herein are also limited to the information available at the time it was prepared and investigated. Conditions may have been in effect prior to the sampling events that have changed over time and which cannot be predicted within the scope of this limited investigation. Any conditions discovered which deviate from the data contained in this report should be presented to us for our evaluation.

This report is intended for the exclusive use of the client. This report and the findings herein shall not, in whole or in part, be relied upon by any other parties, disseminated or conveyed to any other party without prior written consent of the National Guard Bureau, and Compliance Management International, Inc. The findings are relative to the dates of our site visits and should not be relied upon for substantially later dates.

Appendix A. Laboratory Analysis Report

AMA Analytical Services, Inc.

BEST AVAILABLE COPY



A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS



Client:

National Guard Bureau

Job Name:

Delware National Guard

Chain Of Custody:

514547

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

Georgetown RC

Date Submitted:

11/26/2012

Havre de Grace, Maryland 21078

Job Number:

Not Provided

Person Submitting:

Non-Responsiv

Havie de Giace, Maryland 2107

P.O. Number:

W912K6-09-A-0003

Date Analyzed:

11/30/2012

11/30/2012

Report Date:

Attention:

Non-Responsive

Summary of Atomic Absorption Analysis for Lead

Page 1 of 2

| AMA Sample Number | Client Sample Number | Analysis Type | Sample Type | Air Volume (L) | Area Wiped (ft²) | | orting imit | Total ug | Final Res | ult | Comments |
|----------------------|-------------------------|---------------|-------------|-------------------|---------------------|--------|----------------|----------|-----------|--------|----------|
| 13016661 | 1 | Flame | Air | 448 | N/A | 6.7 | ug/m³ | <3 | <6.7 | ug/m³ | |
| 13016662 | 2 | Flame | Air | 448 | N/A | 6.7 | ug/m³ | <3 | <6.7 | ug/m³ | |
| 13016663 | 3 | Flame | Wipe | **** | 0.108 | 110 | ug/ft² | <12 | <110 | ug/ft² | |
| 13016664 | 4 | Flame | Wipe | **** | 0.108 | 110 | ug/ft² | <12 | <110 | ug/ft² | |
| 13016665 | 5 | Flame | Wipe | **** | 0.108 | 110 | ug/ft² | <12 | <110 | ug/ft² | |
| 13016666 | 6 | Flame | Wipe | **** | 0.108 | 110 | ug/ft² | <12 | <110 | ug/ft² | |
| 13016667 | 7 | Flame | Wipe | **** | 0.108 | 110 | ug/ft² | <12 | <110 | ug/ft² | |
| 13016668 | 8 | Flame | Wipe | **** | 0.108 | 110 | ug/ft² | 25 | 230 | ug/ft² | |
| 13016669 | 9 | Flame | Wipe | **** | 0.108 | 110 | ug/ft² | 11000 | 110000 | ug/ft² | |
| 13016670 | 10 | Flame | Wipe | **** | 0.108 | 110 | ug/ft² | 14 | 130 | ug/ft² | |
| 13016671 | 11 | Flame | Wipe | **** | 0.108 | 110 | ug/ft² | 650 | 6000 | ug/ft² | |
| 13016672 | 12 | Flame | Wipe | **** | 0.108 | 110 | ug/ft² | <12 | <110 | ug/ft² | |
| 13016673 | 13 | Flame | Wipe | *** | 0.108 | 110 | ug/ft² | <12 | <110 | ug/fl² | |
| 13016674 | 14 | Flame | Wipe | **** | 0.108 | 110 | ug/ft² | <12 | <110 | ug/ft² | |
| 13016675 | 15 | Flame | Wipe | **** | 0.108 | 110 | ug/fl² | <12 | <110 | ug/ft² | |
| 13016676 | 16 | Flame | Wipe Blank | **** | N/A | 12 | ug | | <12 | ug | |
| 13016677 | 17 | Flame | Air Blank | 0 | N/A | 3 | ug/m³ | | <3 | ug | |
| 13016678 | 18 | Flame | Paint Chip | **** | N/A | 0.0095 | %Pb | | < 0.0095 | %Pb | |

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

AMA Analytical Services, Inc.

A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS

BEST AVAILABLE COPY



Report Date:

Client:

National Guard Bureau

Job Name:

Delware National Guard

W912K6-09-A-0003

Chain Of Custody:

514547

Address:

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

Job Location:

Georgetown RC

Date Submitted:

11/26/2012

State Military Reservation Havre de Grace, Maryland 21078

Job Number: P.O. Number: Not Provided

Person Submitting: Date Analyzed:

11/30/2012

Attention:

Summary of Atomic Absorption Analysis for Lead

Page 2 of 2

11/30/2012

AMA Sample

Client Sample

Analysis Type

Sample Type

Air Volume

Area Wiped

Reporting

Total ug

associated with these

samples.

Final Result

Number

Number

(L)

(ft2)

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 N/A = Not Applicable

%Pb = percent lead on a dry weight basis

ug = micrograms

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

ug/L = parts per billion (ppb)

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

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

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

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.

Analys

Technical Manager:



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



AMR 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)

Page 452 of 547

| Mailing/Billing Information: | Submittal Information: | pose 1 of D |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. Client Name: National Guard Bureau | 1. Job Name: Del Aus | CE NATIONAL GEARS |
| 2. Address 1: 301-IH Old Bay Lane | 2. Job Location: George tow | n Rc |
| 3. Address 2: Attn: NGB-AVN-SI, State Military Reservation . | 3. Job#: | The second of the second |
| 4. Address 3: Hayre de Grace, Maryland 21078 | 4. Contact Person | Responsive 942-0273 |
| 5. Phone #:(410) 942-0273 Fax #:(410) 942-0254 | | tooponiono |
| Reporting Information (Re | | |
| | FAL BUSINESS HOURS | REPORT TO: |
| | Results Required By Noon (EveryAttempt Will Be | Minch Non-Responsive with Report |
| Comments: U2 Day Date Due: | (EveryAttempt Will Be Made to Accomodate) | @us.army.mil |
| | | @us.army.mil |
| Asbestos Analysis TEM Bulk | . ONESLA | (A) libylas |
| PCM Air - Please Indicate Filter Type: UELAP 198.4/Cha UNIOSH 7400 (QTY) UNI State PLM/I | affield(QTY) | Pb Paint Chip (QTY) |
| ☐ Fiberglass (QTY) | EM(QTY) | Pb Dust Wipe (wipe type Chart) /4 (QTY) Pb Air 3 (QTY) |
| TEM Air - Please Indicate Filter Type: | L | Pb Soil/Solid (OTY) |
| U AHERA (QTY) U Qual. (pres/abs) | Vacuum/Dust(OTY) | Pb TCLP(OTY) |
| U Other (specify)(QTY) | ist D6480-99(QTY) | Drinking Water DPb (QTY) DCu (QTY) DAs (QTY) Waste Water DPb (QTY) DCu (QTY) DAs (QTY) |
| ☐ EPA 600 - Visual Estimate (OTY) TEM Water | See Programme . | Pb Furnace (Media) (OTV) |
| D EPA Point Count (OTV) Qual. (pres/abs)_ | (QTY) | d Analysis . |
| ☐ NY State Friable 198.1 (QTY) ☐ ELAP 198.2/EPA☐ (QTY) ☐ EPA 100.1 | (QTY) | Collection Apparatus for Spore Traps/Air Samples: Collection Media |
| Other (consider | C | Spore-Trap_ (OTY) Surface Vacuum Dust (OTV) |
| MIN. | ived in good condition unless otherwise noted. | Surface Swab (QTY) Culturable ID Genus (Media) (QTY) |
| ☐ Vermiculite ☐ Asbestos Soil PLM_(Qual) PLM_(Qual) PLM/TEM_(Qual) PLM/TEM_(Qual) | | Surface Tape (QTY) Culturable ID Species (Media) (QTY) Other (Specify) (QTY) |
| The state of the s | idy Le salesis Lycathinistics 1 | |
| CLIENTID SAMPLELOCATION/ VOLUME WIPE / 😤 / 😤 | 2 2 2 2 2 2 2 2 2 2 | 12121 |
| NUMBER IDENTIFICATION DATE GLIERS) AREA (E) & | 3 3 4 4 8 9 9 4 4 6 6 6 | |
| 2 Converted Firing RAME 1 448 | X | Date/Time: Contact: By: |
| 3 Drill Hell Floor 100 CM2 | | |
| 4 Dry How locker | 12111 | |
| | 1 2 1 1 | |
| 5 Drill Hall Flag stoud | | Date/Time: Contact: By: |
| 6 Kitcher - Willer | | * |
| 7 Kitche Locker | X | and the second s |
| & Hallman outruse of Raye | - X - - - - - - - - | |
| 9 Range Comertal Range floor | X | Date/Time: Contact: By: |
| 10 Converted RANGE locker | X | |
| 11 Convert of Range - Shap YAC. | X | |
| 12 Classroom - Locker + Com | X | Doonopoisso |
| LABORATORY 1. Date/Time RCVD: 1 /36 / 12 @ 66 | Via: FEDEX. By (Prin | I-Responsive |
| 2. Date/Time Analyzed: / @ | By (Print): | Sign |
| 3. Results Reported To: REST | AVAILABLE COVEY Date: | //FOIA Requested Record #J-15-qqqqq(DE) |
| (CUSTODY) 4. Comments: 7939 3302 2830 | | Released by National Guard Bureau |

210 REV. 6.08

RMA 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)

Page 453 of 547

| 2. Address I: 301-IH Ok | | | | | | | | | | | | | | | VAT | tens | Gerral | | |
|-----------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|--------------------|------------------|---------------------|-----------------------------------------|----------------------------------------------|---------------------------------------|--------------------------------------------------------|----------|--------|-------------|-------|---------|----------|-----------------|------------------------------------|------------------------------------------------------|------------|
| | I Bay Lane | | | 2 | | | 2. | Job | Locati | on: | 50 | 012 | e to- | - | | - | | | |
| 3. Address 2: Attn: NGB- 4. Address 3: Havre de C 5. Phone #: (410) 942-027 | AVN-SI, State | Military | / Heaerva | ition ' | | | 3. | Jop | #: | N | | | | | | DO | " VID4010 | 00 4 0003 | |
| 4. Address 3: Havre de C | irace, Maryland | 210 | /B | 040 0054 | | - | 4. | Con | tact Pe | 2TSO1 | V (| 0) [| | | =} | 3 (| | 942-0273 | |
| 5. Phone #:(410) 942-021 | 3 | _ Fax | f:(41U)_ | 94Z-UZ04 | | (D | ٥. | Sub | mitted | by | | | | | | | | | |
| | | | Repor | ting Infor | пястог | ORMA | uits w | m be | broam | ied. | | | | | | | | | |
| AFTER HOURS (must be pr Immediate Date Due; | | *** | ☐ Immed | ista | D3D | | u bus | SINES | | | 1,_ | | | | 50 To | clude | COOM! UP . A | Cist OKT TO: | |
| 24 Hours Time Due: | | | Next D | av | Osn | av 4 | | | | · | | | By No | on | WI | N | on-Respon | SIVE CHARLENCE | lost con |
| Comments: | | | Li 2 Day Date Duc: | | | | (EveryAttempt Will Be Made to Accomodate) | | | | 9 | U Fax: | | | | | | | |
| | | | | | | - | | | | 4. | | | 136 | al way | O V | minutes and | | ្ឌិus.army.mil | - |
| Asbestos Analysis PCM Air – Pleuse Indicate Filter T | 'vne | | | TEM Bulk | n 100 | UCL | Salar . | | | OTTEN | | | · N | | A Mary | nt Ch | in the | 2777. | * |
| U NIOSH 7400(C) | _(QTY) | | | UNY: | P 198.4 State Pl | LM/TE | M | | -(0 | TY) | 6.5 | | | u | Pb Du | st Win | p(C |) | מדעי |
| TEM Air – Please Indicate Filter T | (YTÇ | | | ☐ Resi | dual As | h | | _(Q | TY) | , | | | | 4 | DAI | | (011) | | QII) |
| AHERA (Q | | | | TEM Dust | | | | | | | | | | u) | Pb Sol | l/Solid | (QTY) | (YTY) | |
| ☐ NIOSH 7402 | _(QTY) | 200000 | | U Qual □ Quar | . (presi | abs) va | mm D | Dust_ 5755.0 |)5 | | QIY) |) ירעיז | | a | Drinki | ng Wa | ter [] Ph (OT |) TY) □ Cu(QTY) □ A | |
| U Other (specify | _) | (QTY) | | Quar | n. (s/are | a)Dust | D6480 | 0-99_ | C. () | (| QTY | 11, | | - L | waste | Water | UPb (OTY | QCu (OTY) DAS | (OTV) |
| DEPA 600 - Visual Estimate | (Q? | TY) | | TEM Water Qual | | | | 74 | юти. | | 5. | | 11:40 | | TO FUI | nace (| Media | (QTY | |
| L EDA Doint Count | (OTV) | | | Q ELA | P 198 | 2/EPA I | 00.2 | | (QIY) | (OTY) | | | • | | | | maratus for Spore | Traps/Air Samples: | |
| O NY State Friable 198.1 | .6((| (YTC | | ☐ EPA | 100.1_ | | | (QTY |) | (411) | | | | (| ollect | tion M | edin | | |
| Other (specify | _) | (QTY) | | ☐ All s | amples | receive | ed in go | ood co | ndition | unless | other | wise n | oted. | 0: | Spore- | Trap_ | (QTY) | O Surface Vacuum Dust | (QTY) |
| MISC D Vermiculite | | | | (TEM V | | | | | | 35039550 | | | | ä | Surfac | e Swa e Tane | (Q1Y) | ☐ Culturable ID Genus (Medie |)(Q |
| Asbestos Soil PLM_tQuali PL | M (Oat) PLM/TEM | (Oal) P | LM/TEM_(Q | uan) | | | | | | | | | | \$200mm | | | | - christente In abceles fistent | |
| | THE PROPERTY OF | | | | | | | | | | | | | 00 | ther (S | pecify_ |)(QTY) | | |
| SAMP | LE THE WHITE | | | | , . | , AIN | ALVS | rig . | , 9 | , | ¥. | , N | MYM | in C | nher (S | pecity | | | |
| CLIENT ID SAMI | LE INFORMATION/ | DN | VOLUME | WIPE | ME | Minister States | EALVE | 100 ON AT | MOLD | <u>#</u> | BULK | Lusna | | in C | nher (S | pecity | 1 | CLIENT CONTACT | |
| CLIENT ID SAMI NUMBER IDE | LE INFORMATION/ PLE LOCATION/ NTIFICATION | DATE | VOLUME (LITERS) | AREA | | ain E | E E | NO OVET X | Moc | # | BULK | DUST | | in C | nher (S | pecity | / | CLIENT CONTACT ABORATORY STAFF ON | (X) |
| NUMBER IDE | LE TRIVINIMATE PLE LOCATION/ NTIFICATION | DN | VOLUME (LITERS) | | TEM | AND | ALVS | X END | MOLD | A.R. | BULK | Dustr | | in C | nher (S | pecity | 1 | CLIENT CONTACT | |
| CLIENTID SAM NUMBER DE 13 Day Roon - Mice 17 AR FOGEN OFFICE | PLE LOCATION/ NTIFICATION CWAYE — Derk | DATE | VOLUME (LITERS) | AREA | TEM | AND SECOND | E / | X (END | MOLD | , ka | BULK | Dustra | | in C | nher (S | Pocity_ | / | CLIENT CONTACT ABORATORY STAFF ON | (X) |
| CLIENTID SAMI NUMBER IDE 13 Ding Room - Mico 14 AR FOGEN OFFICE 15 Supply office - 0 | PLE LOCATION/ NTIFICATION CWAYE — Derk | DATE | VOLUME (LITERS) | AREA 100 CM L | Tey/ | AN E | ALVO E | XX | MOLD | Y Y | BULK | DUST | | in C | nher (S | pecity | / | CLIENT CONTACT ABORATORY STAFF ON | (X) |
| CLIENTID SAM NUMBER DE 13 Ding Room - Mice 14 AR FOGEN office 15 Jupily office - 0 16 Blanc | PLE LOCATION/ NTIFICATION CWAYE — Derk | DATE | VOLUME (LHERS) | AREA | TEM | AND SECOND | ALVIS E | 0187 × X X X | MOLD | , and a | BULK | DUST | A YAG | in C | nher (S | Pocity_ | Date/Time; | CLIENT CONTACT ABORATORY STAFF ON Contact: | (Y) By: |
| CLIENTID SAM NUMBER DE 13 Ding Room - mice 14 AR FOGEN office 15 Supply office - 0 16 Black | PLE TOMMINATE PLE LOCATION NTIFICATION CWAZE — Derk Cabluet | DATE | VOLUME (LITERS) | AREA 100 CM L | TEM | ANN So | ALVE S | OVAT X X X X X | MOLD | | | Dustry | AYAA | in C | nher (S | Pocity_ | / | CLIENT CONTACT ABORATORY STAFF ON Contact: | (X) |
| CLIENTID SAM NUMBER DE 13 Ding Room - Mice 14 AR FOGEN office 15 Jupily office - 0 16 Blanc | PLE TOMMINATE PLE LOCATION NTIFICATION CWAZE — Derk Cabluet | DATE | VOLUME (LHERS) | AREA 100 CM L | TEM | AIN E | IALVS | 0187 × X X X | MOLD | | × Bulk | Sura. | | in C | nher (S | Pocity_ | Date/Time; | CLIENT CONTACT ABORATORY STAFF ON Contact: | (Y) By: |
| CLIENTID SAM NUMBER DE 13 Ding Room - mice 14 AR FOGEN office 15 Supply office - 0 16 Black | PLE TOMMINATE PLE LOCATION NTIFICATION CWAZE — Derk Cabluet | DATE | VOLUME (LHERS) | AREA 100 CM L | LEW L | AN SAN | ATAYS | OVAT X X X X X | MOLD | | | Pusna. | | in C | nher (S | Pocity_ | Date/Time; | CLIENT CONTACT ABORATORY STAFF ON Contact: | (Y) By: |
| CLIENTID SAM NUMBER DE 13 Ding Room - mice 14 AR FOGEN office 15 Supply office - 0 16 Black | PLE TOMMINATE PLE LOCATION NTIFICATION CWAZE — Derk Cabluet | DATE | VOLUME (LHERS) | AREA 100 CM L | TEM | AN SOL | ALVS | OVAT X X X X X | MOL | | | Pusua. | | in C | nher (S | Pocity_ | Date/Time; | CLIENT CONTACT ABORATORY STAFF ON Contact: | (Y) By: |
| CLIENTID SAM NUMBER DE 13 Diny Room - Mice 14 AR FOGEN office 15 Supply office - 0 16 Black | PLE TOMMINATE PLE LOCATION NTIFICATION CWAZE — Derk Cabluet | DATE | VOLUME (LHERS) | AREA 100 CM L | , rey | AN NO. | ALVS E | OVAT X X X X X | More | | | Sura. | A THI | in C | nher (S | Pocity_ | Date/Time; | CLIENT CONTACT ABORATORY STAFF ON Contact: | By: |
| CLIENTID SAM NUMBER DE 13 Diny Room - Mice 14 AR FOGEN office 15 Supply office - 0 16 Black | PLE TOMMINATE PLE LOCATION NTIFICATION CWAZE — Derk Cabluet | DATE | VOLUME (LHERS) | AREA 100 CM L | /wag | | ALVS | OVAT X X X X X | MOLD | | | DUST | | in C | nher (S | Pocity_ | Date/Time; Date/Time: | CLIENT CONTACT ABORATORY STAFF ON Contact: Contact: | By: |
| CLIENTID SAM NUMBER DE 13 Diny Room - Mice 14 AR FOGEN office 15 Supply office - 0 16 Black | PLE TOMMINATE PLE LOCATION NTIFICATION CWAZE — Derk Cabluet | DATE | VOLUME (LHERS) | AREA 100 CM L | LEW LEW | #M | ALVS E | OVAT X X X X X | MOLD | | | *LEOJO | | in C | nher (S | Pocity_ | Date/Time; Date/Time: | CLIENT CONTACT ABORATORY STAFF ON Contact: Contact: | By: |
| CLIENTID SAM NUMBER DE 13 Ding Room - Mico 14 AR FOGEN Office 15 Supply office - 0 16 Blanc 17 Blanc 18 Kitchen Place | PLE TOMMINATE PLE LOCATION INTERCATION CONTROL CONTROL | DATE II-19 | VOLUME (LHERS) | AREA JOD CM1 | | | hr.w | × × × × × × | | | × | | | | Miner (S | pocity_ | Date/Time: Date/Time: | CLIENT CONTACT ABORATORY STAFF ON Contact: Contact: | By: By: |
| CLIENTID SAM NUMBER DE 13 Dang Room - Mice 14 AR FOGEN Office 15 Supply office - 0 16 Blanc 17 Blanc 18 Kitchen Place 18 Kitchen Place | Date/Time RCVI | DATE II-19 | VOLUME (LHERS) | AREA JOD CM1 | | · · · · · · · · · · · · · · · · · · · | Via | \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ | | | × By | (Print) | | | Maer (S | pocity_ | Date/Time: Date/Time: Date/Time: | CLIENT CONTACT ABORATORY STAFF ON Contact: Contact: | By: By: |
| CLIENTID SAM NUMBER DE 13 Dang Room - Mice 14 AR FOGEN Office 15 Supply office - 0 16 Blanc 17 Blanc 18 Kitchen Plac LABORATORY 2. | Date/Time RCVI | D: | VOLUME (LHERS) | AREA JOD CM1 | | | Via | O O O O O O O O O O | inth | | × By | (Print) | | | Maer (S | pocity_ | Date/Time: Date/Time: Date/Time: | CLIENT CONTACT ABORATORY STAFF ON Contact: Contact: | By: |

Appendix B. Photographs



Exterior of facility



Garage area



Garage flammable storage, fire extinguisher and spill kit



Garage fist aid kit



Peeling paint on pipes in kitchen



Lead warning sign on door to converted firing range



Inside view of the converted firing range



Broom inside the converted firing range, note that dry sweeping should not be performed in a lead dust hazard area



Shop vac inside the converted firing range note that only HEPA vacuums should be used in a lead dust hazard area



Front entrance water damage on ceiling plaster



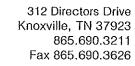
Drill Hall



Classroom water stained ceiling tile

Appendix C. References

- 1. Title 29 Code of Federal Regulations (CFR), Part 1910.1025, Occupational Safety and Health Administration, Occupational Exposure to Lead
- 2. American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Values and Biological Exposure Indices, 2011 Edition
- 3. Industrial Ventilation: A Manual of Recommended Practice for Design, 27th Edition
- 4. American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE), Ventilation for Acceptable Indoor Air Quality, 62.1-2010
- 5. RP-1-2004, Industrial Lighting, Illuminating Engineering Society of North America/ANSI
- 6. RP-7-2001, Industrial Lighting, Illuminating Engineering Society of North America/ANSI
- 7. National Emission Standard Hazardous Air Pollutants (NESHAP) The standards for asbestos are contained in 40 CFR 61.140 through 61.157.
- 8. Environmental Protection Agency (EPA) standards [40 Code of Federal Regulations (CFR) 745.227(h)(3)]
- 9. Derivation of Wipe Surface Screening Levels for Environmental Chemicals, the US Army Center for Health Promotion and Preventive Medicine (USACHPPM)
- 10. The US Army Technical Guide 277 Army Facilities Management Information Document on Mold Remediation, February 2002.
- 11. NG PAM 420-15 Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges, 3 NOV 06.
- 12. American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE), Thermal Environmental Conditions for Human Occupancy, 55-2010.





National Guard Armory Duncan Readiness Center – New Castle, Delaware

Industrial Hygiene Evaluation

Prepared for:

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

Prepared by:

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

26 October 2003

National Guard Armory Duncan Readiness Center – New Castle, Delaware

Industrial Hygiene Evaluation

Prepared for:

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

Prepared by:
Shaw Environmental, Inc.
312 Directors Drive
Knoxville, Tennessee 37923

26 October 2003

Prepared by:

Non-Responsive

Industrial Hygienist

Reviewed by:

Non-Responsive

Business Line Manager

Table of Contents

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

List of Tables

| Table 1 | Wipe Sampling for Lead |
|---------|--------------------------------------|
| Table 2 | Air Sampling for Lead |
| Table 3 | Peeling Paint |
| Table 4 | Indoor Air Quality Measurements |
| Table 5 | Illumination Readings |
| Table 6 | Indoor Firing Ranges – Wipe Sampling |

List of Appendices

| Appendix A | HHIM Data Forms |
|------------|---------------------------------------------------|
| Appendix B | Building Layout |
| Appendix C | Sampling Sheets and Laboratory Analyses |
| Appendix D | References |
| Appendix E | Recommendations for Surface Lead Dust in Armories |

Executive Summary

Shaw Environmental, Inc. was contracted to perform an industrial hygiene evaluation for the Duncan Readiness Center in New Castle, Delaware Non-Responsive performed the evaluation on 6 June 2003. The point of contact at the readiness center was SFC

The following industrial hygiene concerns were evaluated.

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

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

- Wipe Sampling for Lead
- Air Sampling for Lead
- Peeling Paint Lead
- Suspected Asbestos Containing Material
- Presence of Mold
- Visual Inspection Housekeeping
- Indoor Air Quality

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

Areas where there were industrial hygiene concerns are as follows:

- Water damage was observed in the lobby at the armory. The source of the water damage was likely from roof leaks, however, the source should be identified and actions taken to eliminate the source in order to prevent the possibility of mold growth that may lead to indoor air quality problems.
- Interviews with office employees revealed that there are ergonomic concerns at the armory. The office workstations should be evaluated to determine if they could be modified in order to improve ergonomic conditions.
- Lighting measurements were conducted at the armory. The lighting did not meet the
 minimum requirements in almost all areas evaluated, therefore, consideration should
 be given to providing more lighting to the areas evaluated.
- One wipe sample collected for lead on the exhaust ventilation system floor in the
 converted indoor firing range revealed lead exceeded recommended levels. Based on
 Department of Army guidelines, this area must be decontaminated by a thorough
 cleaning along with re-sampling until surface lead concentrations are reduced to
 below recommended levels. Employees should not be allowed to work in this area
 without protective clothing.
- It was deemed that maintenance does not occur on a regular basis for the heating and cooling systems. Maintenance should occur on a regular basis to ensure that the heating and cooling systems are maintained in a good condition.

1.0 Introduction

Shaw Environmental, Inc. was contracted to perform an industrial hygiene evaluation for the Duncan Readiness Center in New Castle, Delaware. Non-Responsive performed the evaluation on 6 June 2003. The point of contact at the readiness center was SFC

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

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

2.0 Findings, Discussion, and Interpretation of Results

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

2.1. Sampling for Lead

2.1.1 Wipe Sampling

Wipe samples were collected for lead from the drill floor. Also, wipe samples were collected for lead in rooms, hallways, foyers, etc. The sampling in rooms, hallways, foyers, etc. represented approximately 25% of the building. Approximately half of the samples were collected from surfaces in common areas, such as surfaces of a desk. The remaining samples were collected from uncommon surface areas, such as a supply vent or the top of a file cabinet. The samples were collected and analyzed in accordance with the Instructions for *Completing the Sampling of ARMY National Guard Armories* procedure.

Results of the wipe sampling are provided in Table 1. The results revealed lead below the recommended level of 200 micrograms per square foot ($\mu g/ft^2$) (see Appendix E); therefore, no actions are necessary.

The only samples initially submitted for analysis were those from the drill floor. If there were any positive results from the drill floor, the other samples would be submitted for analysis. Since the results revealed lead at levels below 200 $\mu g/ft^2$, the other wipe samples were not submitted for analysis.

2.1.2 Air Sampling

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

The results of the sampling are provided in Table 2. The results revealed nondetectable concentrations of lead in the breathing zone of the employees, therefore no action is necessary.

2.2 Physical Condition of Facility

2.2.1 Peeling Paint - Lead

Peeling paint was observed in the armory. Bulk sampling results revealed lead concentrations at levels below 0.5 percent by weight. The Department of Housing and Urban Development (HUD) defines a lead-based paint as paint or other surface coatings that contain lead equal to or exceeding 0.5 percent by weight. Since HUD does not consider the paint a lead-based paint, no actions are necessary. The results of the sampling are provided in Table 3.

2.2.2 Visual Inspection - Asbestos

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

2.2.3 Visual Inspection - Water Damage and Mold

A visual inspection was made to determine if there was any water damage or visible mold at the armory. Visible mold was not observed, however, water damage was observed at the armory. The water damage was observed at the lobby ceiling.

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

2.2.4 Visual Inspection - Housekeeping

The housekeeping was determined to be good. No dirt or trash was visible on the floors.

2.3. Building Concerns

2.3.1 Ergonomic Concerns

Interviews with employees and observation of work activities revealed that there are ergonomic concerns at the armory. One office employee stated that he had carpal tunnel surgery last summer. The office workstations should be evaluated to determine if they could be modified in order to improve ergonomic conditions.

2.3.2 Indoor Air Quality

Interviews with employees and measurements for carbon dioxide, humidity, and temperature revealed no indoor air quality concerns at the armory. The results of the measurements for carbon dioxide, humidity, and temperature are provided in Table 4.

2.4. Safety and Industrial Hygiene Programs

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

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

It was determined that the confined space, respiratory protection, and hazard communication programs were not applicable at the armory.

It was determined that the hearing conservation and PPE programs were applicable at the facility. The applicable programs were reviewed and it was determined that the programs met minimum requirements.

2.5. Ventilation

2.5.1 Ventilation System Evaluation

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

2.5.2 Contamination of Clean Air Sources

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

2.6. Noise Dosimetry

An evaluation was performed to determine if there was any hazardous noise areas at the armory. It was determined that the motor pool may be an area at the armory that would exceed the permissible exposure limit for noise, however, no employees were using any equipment that generated noise, therefore, sampling could not be performed.

2. 7 Lighting

Lighting measurements were conducted at the armory. The lighting did not meet the minimum requirements in the following areas:

- 1st Floor Conference Room
- 1st Floor Office Area (SFC
- 1st Floor Women's Latrine
- 1st Floor Exercise Room
- 1st Floor Lobby
- 1st Floor Motor Pool Offices
- Stairwell
- 2nd Floor Hallway
- 2nd Floor Locker Room
- 2nd Floor Training Room
- 2nd Floor Office Area

Results of the lighting evaluation are provided in Table 5. Consideration should be given to providing more lighting to the areas listed above. This may be accomplished by replacing burnt out luminaries, cleaning fixtures, cleaning windows, painting walls with a lighter color, repositioning detailed work to higher illuminated areas, and using supplemental lighting.

2. 8. Converted Indoor Firing Ranges

There was a converted indoor firing range at the facility, therefore, wipe samples were taken for lead at various locations in or near the range. The results are provided in Table 6. The results revealed lead, with concentrations, at the following locations:

- Exhaust ventilation system floor, at 436 micrograms lead per square foot (μg/ft²); and
- Floor, at 101 µg/ft².

The lead concentration on the floor of the converted range was below the

recommended level of 200 μ g/ft², a level recommended in the *Guidelines for Converting Indoor Firing Ranges to Other Uses* document (Department of Army), therefore, no actions are necessary. However, the surface concentration of lead on the bullet trap floor was well above the recommended level of 200 μ g/ft². This area must be decontaminated by a thorough cleaning along with re-sampling until the surface lead concentration is reduced to below recommended levels. In addition, employees should not be allowed to work in this area without protective clothing.

2.9. HVAC System

The maintenance schedule for the heating and cooling systems was evaluated to verify that maintenance occurs on a regular basis. Also, the condition of the HVAC system was evaluated to determine if the maintenance performed is effective. It was deemed that maintenance does not occur on a regular basis. The evaluation revealed that the heating and cooling systems appeared to be clean.

Maintenance should occur on a regular basis to ensure that the HVAC system is maintained in a good condition.

2.10. HHIM

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

3.0 Conclusions

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

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

TABLES

Table 1 Wipe Sampling for Lead National Guard Armory New Castle (RC, Duncan), Delaware

Date of Sampling: 6 June 2003

| Sample Number | Location | Results, µg/ft ^{2 a} |
|------------------|----------------------------------------|----------------------------------|
| DENEW157-1 | Assembly Hall – On Floor | < 23 |
| DENEW157-2 | Assembly Hall – On Floor | < 23 |
| DENEW157-3 | Assembly Hall – On Floor | < 23 |
| DENEW157-4 | Assembly Hall – On Floor | < 23 |
| DENEW157-5 | Assembly Hall – On Floor | < 23 |
| DENEW157-6 | Field Blank | < 23 μg |
| DENEW276-1 | Assembly Hall – Top of Trophy Case | 15 |
| DENEW276-2 | Assembly Hall –Top of Television | 11 |
| DENEW276-3 | Assembly Hall – Top of Vending Machine | 32 |
| DENEW276-4 | Kitchen – Top of Refrigerator | 7 |
| DENEW276-5 | SGT Office – Heating Air Grill | 170 |
| DENEW157-6 | Field Blank | 0.73 μg |

^a Micrograms lead per square foot

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

Table 2 Breathing Zone Air Samples for Lead **National Guard Armory** New Castle (RC, Duncan), Delaware Date of Sampling: 6 June 2003

| d | | Samplin | g Informatio | n | Results | |
|------------------|----------------|---------------------------|------------------------------------|--------------------|-----------------------------------|--|
| Sample Number | Employee | Time Sampled / Minutes | Flow Rate (lpm) ^b | Volume (liters) | (mg/m ³) ^a | |
| DENEW157-A1 | Non-Responsive | 1248-1422/ 94 | 2.443 | 229.64 | < 0.004 | |
| DENEW157-A2 | | 1250-1423 / 93 | 2.441 | 226.97 | < 0.004 | |
| DENEW157-A3 | Field Blank | - | - | T | None Detected | |

^a Milligrams lead per cubic meter of air. ^b Liters of air per minute.

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

Table 3 Peeling Paint Sampling for Lead National Guard Armory New Castle (RC, Duncan), Delaware Date of Sampling: 6 June 2003

| Sample Number | Location | Results, % By Weight |
|------------------|-----------------|----------------------------|
| DEMIL167-PC1 | Bay Garage Door | 0.013 |

The Department of Housing and Urban Development (HUD) defines lead-based as paint or other surface coatings that contain lead equal to or exceeding 0.5 percent by weight.

Indoor Air Quality Measurements for Carbon Dioxide, Humidity, and Temperature National Guard Armory New Castle (RC, Duncan), Delaware

| ~ ** ' | Justin | c (1.0, Dui | icarij, <i>D</i> | CIAWAI |
|--------|--------|-------------|------------------|--------|
| Da | te of | Sampling: | 6 June | 2003 |

| Location | Occupants in Area | Carbon Dioxide, parts per million parts of air (ppm) | Percent (%) Humidity | Temperature (°F) |
|-----------------------------------------------------|----------------------|------------------------------------------------------------|----------------------------|---------------------|
| 1 st Floor- Office A rea (SFC | 2 | 407 | 49.3 | 72.9 |
| 2 nd Floor Office Area | 2 | 436 | 45.3 | 68.7 |
| Outdoors | ~ | 388 | 52.4 | 75.6 |

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

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

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

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

Table 5 Illumination Readings National Guard Armory New Castle (RC, Duncan), Delaware Date of Sampling: 6 June 03

| Location | Luminance (fc) ^a | Standard (fc) ^a | Standard Met |
|------------------------------------------|--------------------------------|-------------------------------|-----------------|
| 1 st Floor Conference Room | 62.7-89.9 | 70 | Some Areas |
| 1 st Floor Office (SFC | 53.2-83.8 | 70 | Some Areas |
| 1 st Floor Women's Restroom | 18.1-44.4 | 40 | Some Areas |
| 1 st Floor Exercise Room | 3.1-75.6 | 70 | Some Areas |
| 1 st Floor Lobby | 21.4-63.7 | 70 | No |
| 1 st Floor Motor Pool Offices | 4.2-16.8 | 70 | No |
| 1 st Floor Supply Office | 24.3-55.8 | 70 | No |
| Stairwell | 4.3-56.4 | 7.5 | Some Areas |
| 2 nd Floor Hallway | 4.7-46.0 | 7.5 | Some Ares |
| 2 nd Floor Locker Room | 5.7-16.6 | 40 | No |
| 2 nd Floor Training Room | 51.7-85.0 | 70 | Some Areas |
| 2 nd Floor Office Area | 27.4-42.3 | 70 | No |

^a fc - Footcandles

The readings were taken with a Cooke Corporation cal-LIGHT 400 Calibrated Precision Lightmeter, calibrated on 19 Aug 2002.

The standards listed above are from Design Guide DG-415-2, Logistics Facilities, published by the National Guard Bureau Installation Division.

Table 6 Wipe Sampling for Lead – Converted Firing Range National Guard Armory New Castle (RC, Duncan), Delaware Date of Sampling: 6 June 2003

| Sample Number | Location | Results, µg/ft ^{2 a} |
|------------------|---------------------------------------------------------------|----------------------------------|
| DENEW157-7 | Exhaust ventilation system | BDL^b |
| DENEW157-8 | Exhaust ventilation system floor (bullet trap not accessible) | 436 |
| DENEW157-9 | Stored items | BDL |
| DENEW157-10 | Floor | 101 |
| DENEW157-11 | Outside range | BDL |
| DENEW157-12 | Field Blank | BDL |

^a Micrograms lead per square foot

Note that a sample was not taken inside the remaining ventilation ductwork because it was not accessible. Also, a sample was not taken on an overhead heater because there were no overhead heaters.

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

^b Below Detectable Limits, at a detection level of 23 μg/ft²

Appendix A HHIM Data Forms

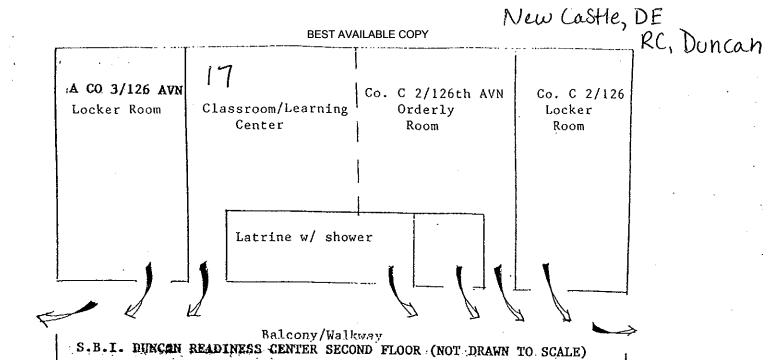
| HE | ALTH | HAZARI |) INFORMA | PEA | MODULE: II orm, see HHIM U | NDUST! | JALF | YGIENE SU | (VEY | was interest |
|---------------------------------------|----------------|-----------------------|---------------------------------------------|---------------|-------------------------------------------------|--------------|--------------|--------------------|--------------|--------------|
| to the same of the same of | | *** | | | DEMOGRAPH | | 7 | | | |
| ARLOC | ``· | | NSTALLATION | | S. C. L. C. | | | BLDG/RM NO. | ., | |
| | 394 | 1 | RC, | Dune | can | | | New Ca | stle | |
| LOCATION/COL | - • | | 7.9 | | | ATION/CO | DDE | 1, | -5 . , (| |
| | | , 1 | | 11 | | | | /· / | f | . /41 |
| Adn | 11013 | strati | ve Hrea | 5/4 | H HO | (M/N) S | strai | tive Open | 2Hons | /ADC |
| | · •— | 1 | ` D | - | ` م | | | | | |
| (1 | <u>Ju</u> | ne O | <u>5</u> | | AG. | | Toller- | W00F | | ···· |
| MACOWCODE | | | SUBMA | | DUE . | | SUPER | Non-Responsive | | • |
| 71 | 4 | | | $\chi\chi$ | | | SF | C | | |
| TELEPHONE/DS | N NO. | Į | JNIT/ORGANIZA | TION | | RAC | ' | FREQU | JENCY (h | rs/day) |
| (302)326 NO. CIV(S) | 722 | 7 | Nation | 1/6 | word | 15 | | 18 | | |
| No. CIV(S) | 700 | INO. MIL | 1 470770710 | INO. CO | NTRACTOR(S) | NO. LO | C(S) | NO. 01 | HER | |
| | | 1 | | | | | 1.27 | · [| | |
| | | 0 | | - A | o cool by | ATA | | • | | |
| LAB HOODS | | ~ | | DEGRE | 2. FACILITY D Asers | ATA | SPRAY | BOOTHS | | |
| | | 0 | | | 0 | | |) | | |
| MAINTENANCE BAYS | | | OPEN SURFACE TANKS | | | VENTIL | ATION UNITS | | | |
| the gray | • | | 9 |) चलगण | ノ. R SURVEY D | ΑΤΑ | | | | |
| CONTROLS PRESENT | | | SECTION 3. SURVEY DATA EVALUATION UNIT CODE | | | | | | TUS | |
| | | | | • | | | | | 1 | |
| | , | | | | ļ | | ····· | | | |
| | | · | • • | | | | | • | 1 | |
| | | | | | | | | | 1 | |
| · · · · · · · · · · · · · · · · · · · | | | | | ļ | | | | ļ | |
| | |] | | v. | | 1. | | | | |
| | | | | | | | | | 1 | |
| | <u>.</u> | | | | | | | | | |
| | | | | | | | | | | |
| DEDCOMA: SEC | XF. (2) | <u>-</u> | ENT/D D | | thutb | | | | ! | |
| PERSONAL PRO | | EEQUIPM | | rea; V = | | | | ·,• | | |
| GLOVES | R/U | AIQUINE | RESPIRATOR | | NIOSH TC | NO. | | MANUFACTURER | | ₽∕U |
| ACID COLD SURFACES | | AIRLINE ABRASIVE B | LASTING HOOD | | <u> </u> | | <u> </u> | · | · | 1 |
| HOT SURFACES | ' | DISPOSABL | | | | ·· | | | | ' |
| NBC AGENTS | 1 | 1 | AIR PURIFYING | | | | | | | 7 |
| OIL | 1 | | R PURIFYING | | | | | | 1 | |
| SOLVENTS | / | POWERED AIR PURIFYING | | | | | | | | |
| SURGICAL GLOVES | ' | | R PURIFYING | · · · · · · · | ļ | | ļ | | | / |
| | <u> </u> | SELF CONT | MINCO | | <u> </u> | | L | | | |
| EYES/FACE | R/U | F | EARING | R/U | BODY | | R/U | HEAD/FI | ſ, | R/U |
| CHEMICAL SPLASH | 7 | CANAL CAP | | , | APRONS | | 1. | COLD WEATHER BO | | 1 |
| FULL FACE SHIELD | | EARPLUGS | | 1 | COLD WEATHER C | LOTHING | , | HARD HATS | | , |
| CHEMICAL/SAFETY | , | HELMETS | | / | COVERALLS | | ′ | IMPERMEABLE BOO | TS | 1 |
| SAFETY/IMPACT | 1 | MUFFS | | 1 | FULL BODY SUIT | | ′ | SAFETY/CONDUCTI | | / |
| WELDING HELMET | | 1 | LUG COMBO | | HEAT REFLECTIVE | | / | SAFETY/NON-CONDUCT | NE SHOES | 1 |
| | ŀ | IWOLL/FURL | LUG W/TIME LIMIT | 1 | SAFETY BELTHAR | NESS | 1 | F | | 1 |

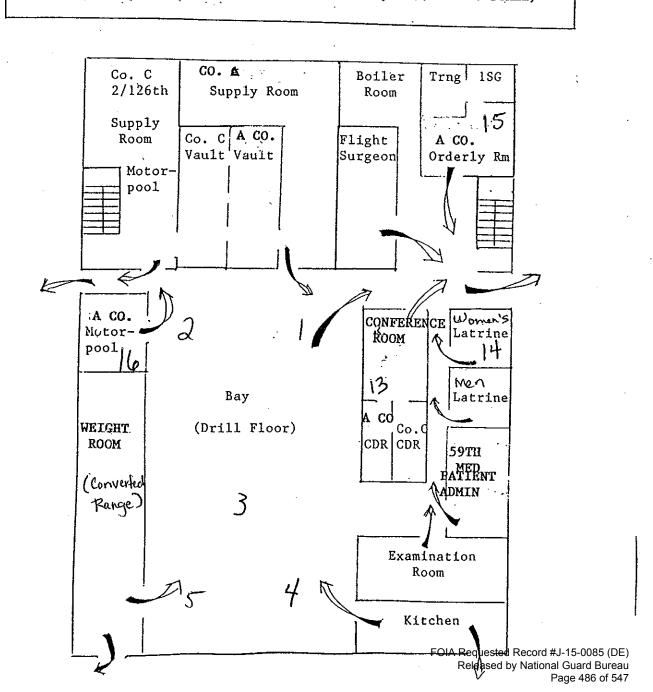
AEHA Form 271-R (Test), 1 JAN 92

(HSHB-MI-I)

| | SECTION 4. HAZARD INVENT | ORY D | ATA | 5 gr, 179.0 | | · · · - |
|----------------------------------------------------------------|--------------------------------------------------------------------------------|------------------------------|-------------|-----------------------------|-----------|-----------------|
| CAS CODE | HAZARD DESCRIPTION | | PAC | ; | | EPC |
| POVDTXXXX | Video Display Termina |] 3 | | | D | |
| | | - | | | ļ . | · |
| | | | | | | • |
| | | | | | | ··- |
| <u> </u> | | | | | | |
| | | | | | | |
| | | | | | | |
| LAST NAME | • | ATA MI | SEX | SS | SN | CATEGORY |
| INON-R | lesponsive | 2 | m m | Non-Res | sponsive | ML ML MIL |
| - - | | | F M F | · | | MIL MIL |
| | | | | | | |
| | SECTION 6. COMMENTS O No comments | | bod obe | | | |
| Title 5 US Code, Section 301 The purpose of this informatic | d bu Ms Non-Responsive p | ildino IT pe ocial Sec | urity Nun | ains n Mai | identific | administle |
| Disclosure of your Social Sec | curity Number is not mandatory; however, nondisclose or pool area performs rou | sures ma Hine | y result in | in worker. I untimely Hen a | provision | n of proper |

Appendix B Building Layout





Appendix C Sampling Sheets and Laboratory Analyses



NYEA 至

CERTIFICATE OF ANALYSIS

| 118604 | 10/15/2003 | Von-Res | 15-Oct-03 | |
|--------------------------------|----------------------------------------------------------------------|--------------------------------|--------------|------------|
| Chain Of Custody: | Date Analyzed: | Person Submitting: | Report Date: | |
| Delaware National Guard Survey | New Castle, Duncan | Not Provided | 1602 | |
| Job Name: | Job Location: | Job Number: | P.O. Number: | |
| National Guard Burcau | 301-IH Old Bay Lane, Atm: NGB-AV'N-SI, State Military Reservation | Savre de Grace, Maryland 21078 | | Non-R |
| Client | Address: | | | Attention: |

Summary of Atomic Absorption Analysis for Lead

Page i of I

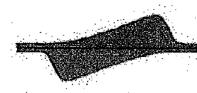
| AMA Sampie Number | Client Sample Number | Analysis Type | Sample Type Air | Air Volume (L.) | Area Wiped (ftº) | · % | Reporting Limit | Final Result | | Comments |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|---------------------|--------------------|---------------------|------|----------------------------------------|--------------|--------|----------|
| | | 1 | | | *** | | | | ! ! | |
| A STATE STREET, STREET | the first of the contract of t | | | | | | | | (m) | |
| 0401652 | DENEW776-1 | Firmace | Wine | *** | 0.11 | 2.70 | ug/ft- | 3 | 11/2 | |
| contoed | | | • | ***** | | • | 10.2 | 13 11 | 110/62 | •• |
| 0401654 | DENEW276-2 | Furnace | Wipe | *** | 11.0 | 2.7 | ugar. | : | | } |
| 1000 | | | • | **** | ***** | 44.2 | 707 | 32 45 | 1 | 5 |
| 0401655 | DENEW276-3 | Furnace | Wipe | | 0.111 | 1 | 1160 | | : : | |
| 30000 | | : | · ; | **** | 1110 | 3.20 | ************************************** | 7 | JU: | |
| 0401656 | DENEW276-4 | Furnace | Wipe | | | 2 | 1 4 | | 3 | |
| | | , | 1 | **** | 1110 | 5 63 | no/Ht | 170 | ŧ | |
| 0401657 | DENEW276-5 | Furnace | od.× | | | | h | | | |
| | | | W. D. D. | **** | Ž | 6.30 | 118 | D 51.0 | | |
| 0403658 | DENEWZ76-6 | Fumace | With the ment | | | | þ | | | |
| Annthonia Mashood | Annual Manual de Elemo, Air Wines, Paints, and Soil/Solide: EPA 600/R-93/200(M)-7420; Water: SM-3111B | Paints and Soil/So | lids: EPA 600/R-93/ | 200(M)-7420; Water | :: SM-3111B | | | | | |
| The same | | | | | | | | | | |
| Analysis Mathod | Analysis Method For Eumange: Air Wildes, Paints, and SolifSolids: EPA 600/R-93/200(M)-7421; Water: SM-31138 | bes. Paints, and Soll/ | Solids: EPA 600/R | 93/200(M)-7421; V | Vater: SM-3113B | | | | | |
| | | | | | | | | | | |

mg/Kg = parts per million (ppm) by weight mg/L = parts per million (ppm) ugit, = parts per billion (ppb) Note: All results have two significant digits. Any additional digits shown should not be ug ≈ micrograms considered when interpreting the result. %Pb = percent lead by weight N/A = Not Applicable



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 ellent. NVLAP Accreditation this report is submitted and accepted for the exclusive me 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, tocations and collection protocols are basted upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and This regort applies only to the samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a murual protection to cheerts, the public and these Laboratories. An AIHA (#8863), NVLAP (# 101143), & New York ELAP (#10920) Accredited Laboratory appites only to polarized high unkrescopy of bulk samples and transmission electron inderescopy of AHERA air samples.

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



Reservoirs Environmental, Inc.

2059 Bryant St. Denver, CO 80211 (303) 964-1986 Fax (303) 477-4275 Toll Free (866) RESI-ENV

June 19, 2003

Project Description: RES 93989-1 06 01 Delaware-Milford, New Castle

Non-Responsive

Shaw Environmental, Inc. 312 Directors Drive Knoxville TN 37923

Dear Customer,

Reservoirs Environmental, Inc. is an environmental analytical laboratory accredited for the analysis of Industrial Hygiene and Environmental matrices by the American Industrial Hygiene Association, Lab ID 101533 - Accreditation Certificate #480. The laboratory is currently proficient in both PAT & ELPAT programs respectively.

Reservoirs has analyzed the following sample(s) using Atomic Absorption (AA) / Atomic Emission Spectroscopy - Inductively Coupled Plasma (AES-ICP) per your request. The analysis has been completed in general accordance with the appropriate methodology as stated in Table I. Results have been faxed to your office.

RES 93989-1 Is the job number assigned to this study. This report is considered highly confidential and property of the customer. Reservoirs Environmental, Inc. will not discuss any part of this study with personnel other than those authorized by the client. Samples will be disposed of after sixty days unless longer storage is requested. If you should have any questions about this report, please feel free to call me at 303-964-1986.

Sincerely,

Non-Responsive

President

RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Accredited Laboratory #101896 AIHA Certificate of Accredidation #480 LAB ID 101533

TABLE I. ANALYSIS: LEAD BY WIPE SAMPLING

RES Job Number:

RES 93989-1

Client:

Shaw Environmental, Inc.

Client Project Number / P.O.:

06 01

Client Project Description:

Delaware-Milford, New Castle

Date Samples Received:

June 12, 2003

Analysis Type:

USEPA SW846 3050B / AA(7420)

Turnaround:

3-5 Day June 19, 2003

Date Samples Analyzed:

| Client | Lab | Sample | LEAD | Detection | LEAD CONCENTRATION |
|-------------|-----------|------------------|---------------|----------------------|-----------------------|
| ID Number | ID Number | Area (sq.ft.) | (μ <u>g</u>) | Limit (µg/sq.ft.) | (µg/sq.ft.) |
| DEMIL157-1 | EM 783113 | 0.11 | BDL | 23 | BDL |
| DEMIL157-2 | EM 783114 | 0.11 | BDL | 23 | BDL |
| DEMIL157-3 | EM 783115 | 0.11 | BDL | 23 | BDL |
| DEMIL157-4 | EM 783116 | 0.11 | BDL | 23 | BDL |
| DEMIL157-5 | EM 783117 | 0.11 | BDL | 23 | BDL |
| DEMIL157-6 | EM 783118 | 0,11 | BDL | 23 | BDL |
| DEMIL157-13 | EM 783119 | 0.11 | 174.0 | 23 | 1582 |
| DEMIL157-14 | EM 783120 | 0.11 | 41.0 | 23 | 373 |
| DEMIL157-15 | EM 783121 | 0.11 | 997.0 | 23 | 9064 |
| DEMIL157-16 | EM 783122 | 0.11 | 230.0 | 23 | 2091 |
| DEMIL157-17 | EM 783123 | 0.11 | 9.0 | 23 | 82 |
| DEMIL157-18 | EM 783124 | 0.11 | BDL | 23 | BDL |
| DEMIL157-19 | EM 783125 | 0.11 | BDL | 23 | BDL |
| DEMIL157-23 | EM 783126 | 0.11 | BDL | 23 | BDL |
| DENEW157-1 | EM 783127 | 0.11 | BDL | 23 | BDL |
| DENEW157-2 | EM 783128 | 0.11 | BDL | 23 | BDL |
| DENEW157-3 | EM 783129 | 0,11 | BDL | 23 | BDL |
| DENEW157-4 | EM 783130 | 0.11 | BDL | 23 | BDL |
| DENEW157-5 | EM 783131 | 0.11 | BDL | 23 | BDL |
| DENEW157-6 | EM 783132 | 0.11 | BDL | 23 | BDL |
| DENEW157-7 | EM 783133 | 0.11 | BDL | 23 | BDL |
| DENEW157-8 | EM 783134 | 0.11 | 48.0 | 23 | 436 |
| DENEW157-9 | EM 783135 | 0.11 | BDL | 23 | BDL |
| DENEW157-10 | EM 783136 | 0.11 | 11.1 | 23 | 101 |
| DENEW157-11 | EM 783137 | 0.11 | BDL | 23 | BDL |
| DENEW157-12 | EM 783138 | 0.11 | BDL | 23 | BDL |

^{*}Calculations Based On A 1 sq.ft, Sample Area Unless Otherwise Noted

Data Qa



RESERVOIRS ENVIRONMENTAL, INC

2059 Bryant St., Denver CO 80211. RES RESI Job #. Due Dale: Due Time! (DIVOIGNAM) (IE DIEGERENT SAMPLES SUBMITTED BY: Shaw Environmental, Inc im-y Naponal Guard RoW 312 Oracion Drive ht No Bey Liv (1964) de Gropo, NO 2100/ Fac (410)436-2163 Prise: ible Fried Address Poslect than see session P.O. it 66-00 04-01 oltern . Extra Doleware (Millos Q Now Least) C Authorized by: After Houre/Weekend CHARGE: Amount \$ Adultional fees apply for ofter hours and holidays for all analysis types. Samples will be analyzed during normal laboratory hours unless otherwise arranged and appealed on the chain of custody. Turnaround is subject to faboratory volume. You will be notified if dislays are ASSESTOS LABORATORY HOURS: ANALYTICAL METHOD Weekdays: PCM TROOK 74008, USHA 7am + 7pm TEM AMERA, LOVELL, 7402, 150, Presides (SO-Valetal Preps Chaisera POMPLM 2 Hour RUSH 24 how ___NON___RCFIA D AA / ICE Dust Telal Respiratio 24 hode J-S weekdeys 6 HOW RUSH PRO HAP A REDUITED BY TELKETION RUSH PLIA Shod report. Long report. Park Court BULK: (EM 1) - Oceant Seral-week METALS LABORATORY HOURS Weekdays; Melal ACRA 6 A4/ICP 8am - 5pm Pant Soi, Dust, Migg. TCUP SPECIAL RUCH 24 Hour X 3.5 Day (ASTIME 1792 Approved when only TEM District Weste Waves
AA Water Meda WATER 16 Day RCHA B SPECIAL RUSH . 6 Day PURA Districtor Waste 1788 SPECIAL RUBH 6Dev Pilotances recoursed in special relicitian board in TCL P OTHER specify. NORA and TOLK SPECIAL PUBLISES THE TOMMHUND Spesjal instructions: Please report in h 2. Contract # 78-287. Email results to kenneth foreythe@radingb.army.m8 Client Sergets Number Volunio 414-614 44 11 11 10 11 12 iso carendo con la calvano. 13, 40 14. 16 (Veg. as many sortisional objects at his school) NOTE: If he participates schlared existential demograw the curricy sent is broken. Uso and contact adject represent and bipper, First with analyze incoming semples bester the participation and adject to the contact of the participation of the contact of the con hazadis on limes of no Relinquished By: Laboratory L decyled By cosy used upon recogn helials Time Fax Email REBULTS: ab Berigh/Count Spotts Received By: Authorization By/Time: Analytical Method/Tumaround: SPLITS!

> Phone: (193) | 884-1986 | Paie (190) 477-1275 | Wats | 1-356-8651 ENV (1717-4168) PAGEA: ONCALL PAGE: DECIME EVANUES ALL BUT AREMAND HABERS, PLIMITEM SON 2101 PCANAS AND ASSESS (AFTER HOURS USE ORUY)

Results Out.

Roswis Due

cy 6/2/01

RESERVOIRS ENVIRONMENTAL, INC. 2059 Bryant St., Denver CO 80211

| RDF Date: | RESI Job # <u>1579</u> |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| rje Time: | |
| AMPLES SUBMITTED BY: Noti-Responsive Stray Environmental Inc. | (IP DIFFERENT) |
| stress 312 Directors Drive Fathers | Guiller (I) (V LN, Havre de Graco, MO: 21078 |
| wite: Non-Responsive Pixxs (302) 389:3736 Fac. | (410)438-2383 Pask |
| 还是一种的现在分词,我们就没有一种的人的是是有的人的人,这一个重要的一个人的人的人,这个人的人的人的人的人的人的人的人的人的人的人的人的人的人的人的人的人的人的 | Pager Designation Enfantesides: |
| react Myrataer particus P.O. B. 204 - D.I. crés: Dobargethreens adus. Délawara - M. I. (1974 (Maria) Cass-H.S.) | quetzero (CAN) |
| tor House/Weekend CHARGET Amount \$ Au | thorized by: |
| dditional lee's apply for after hours and holidays for all analysis types. Samplas will therwise arranged and spacifies on the chain of custody. Turnaround is subject to pocked. | ha ensiyyəd durkıq normal laboratoly liptirs untess latioratory volume: You killi be notified if dalays and |
| SHESTOS LABORATORY HOURS: Weskdays: ANALYTICAL | METHOD POK 7400A - 7400B - 08HA |
| CMPLM 2 Hour Rush 24 book3-5 weekseys | TEM ALIETIA Constit 2402, ISO. Frontis ISO, extract Prope Charlett |
| EM 6 Hodi RUSH 26 hold 3-5 Weekdays | M/ICE Walah, fichage Dugi Total Respirable |
| PROCENIES RECORDING 15 M O HOW RUSH BULK: | Pldd Stiort Report Lighing report Point Count |
| RTALS LABORATORY HOURS: Weekdays: | TELL VS. Quest. Dent-quies |
| ASPECIAL AUSH?#Heiu X 74F Dey' | Paint, Bod, Dust, <u>Mine</u> , ICEF (ASTM E-1792 governed wignes being) |
| ORA E STEMAL RUSH CORP CORA C | TEM Drinking, Weste Water AAVVery Mickel KCRAP |
| CILE SPECIAL RUSH 60ay 10 Day av nobia regulated of SPECIAL RUSH ANDROA (1016) OTHER | Disking Visite Visite 50001 |
| RCRA and TOUP SPECIAL INITIALS Per Turnsown | Landing and Washington |
| | |
| Otton Sample Number DEMILIST - 1 | Volume EME |
| | 10 (4) |
| | الأراق المستحدد المست |
| | |
| - BE WERRED ON BYOVEL | 19 |
| -18 -14 | <u> </u> |
| <u> </u> | <u></u> |
| / <u>- </u> | |
| <u> </u> | 2 |
| 23 crin special crowned | |
| relate of the proper property of the control of the | nesdel) Alaska tahun aka Kuputa (1915 uda 1915 ya Makada Kusata Kusata |
| tife if the passage has contenued exterior of decised or the custor's said is lateral, supplied contest p on yearphaless recover with those services. Religion to separate or enters or maliciaries in categories and those times of very table to the content of the content of decising (his serior) is the first of | sa tozoted had the necessary or others now indication mass em- |
| Non-Responsive | basylvine <u>6/10/03 12 20</u> |
| auxilory Non Posponsiyo | 27 28 27 28 3 |
| CORNER BY CHECK SHOP IN CONTROL OF THE CONTROL OF T | taid in 6 1170 3 1 20 |
| <u>ESULTS</u> Fax Email = | pate Time Initiats |
| EDLITS: Authorization By/Tima: | Lab Banch/Count Share Rocelyed By |
| Analytica) / Aathou/Tunaround; urozo) Rasuljs Ouo! Rosults Out! | Time: Dala; |

Finore: 1803) 864-1900 - Faxi (1803) 477-4275 - VVATS: 1.456-RESIGNY (137-4355) PAGERI CHICAEL Pagor risidde ayrabade ai lad. Alfordae F48401, planten 609-2187 poundada 809-2008 (After Houris Usis Chily).



TEST REPORT Page 1 of 2 6/18/03

Submitted To:

Non-Responsive

Shaw Environmental, Inc.

312 Directors Drive Knoxville, OH 37923

Reference Data:

Lead

Client Sample No.:

DENEW157-PC1 through DEMIL157-PC1

P,O. No.:

06-02

Sample Location:

Delaware

Sample Type:

Paint Chip

Method Reference:

3050B/6010B

DCL Set ID No.:

03-5-2866

DCL Sample ID No.:

03-18309 through 03-18313

Sample Receipt Date:

6/11/2003 06/16/03

Preparation Date: Analysis Date:

06/18/03

The samples were prepared in accordance with EPA method 3050B. Sample condition was acceptable upon receipt except where noted. The samples were then analyzed in accordance with EPA method 6010B using a Perkin Elmer 3000XL ICP.

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

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



Analyst

CINCINNATI OFFICE 4386 GLENDALE-MILFORD ROAD CINCINNATI, OHIO 45242-3706 513 733-5336, FAX 513 733-5347



WEST COAST OFFICE 11 SANTA YORMA COURT NOVATO, CALIFORNIA 84845 800 280-8071, FAX 415 893-8469 иь/24/2003 14:31

PAGE 03/05

BEST AVAILABLE COPY

TEST REPORT Page 2 of 2 03-8-2866

Results Lead

| | DOT # | mg/Kg (ppm) | % by weight |
|--------------|------------|-------------|-------------|
| Client # | DCT # | 130. | 0.013 |
| DENEW157-PC1 | 03-18309 | | 0.011 |
| DEMIL157-PC1 | 03-18313 | 110. | |
| | | | |
| | Prep Blank | MD | <u> </u> |
| A December | LCS | 98 | |
| % Recovery | MS | Au | |
| % Recovery | MSD | NA | |
| % Recovery | | <u> </u> | |
| | | 25. | 0.0025 |
| RPL | | | PT.) |

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

LCS = laboratory control sample.

MS/MSD = matrix spike/matrix spike duplicate.

NA indicates the sample result was greater than four times the spiked amount.



Analyst



BEST AVAILABLE COPY



TEST REPORT Page 1 of 2 6/18/03

Submitted To:

Non-Responsive

Shaw Environmental, Inc. 312 Directors Drive Knoxville, OH 37923

Reference Data:

Lead

Client Sample No.:

DENEW157-A1 through DEMIL157-A3

P.O. No.:

06-02

Sample Location:

Delaware

Sample Type:

Filter

Method Reference:

NIOSH 7300

DCL Set ID No.:

03-S-2866

DCL Sample ID No.:

03-18306 through 03-18312

Sample Receipt Date:

6/11/2003

Preparation Date:

06/13/03

Analysis Date:

06/16/03

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

The sample condition upon receipt was acceptable except where noted.

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

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



Non-Responsive

Reviewer

CINCINNATI OFFICE 4388 GLENDALE-MILFORD ROAD CINCINNATI, OHIO 45242-3706 513 733-6338, FAX 513 733-5347 WEST COAST OFFICE 11 SANTA YORMA COURT NOVATO, CALIFORNIA 84945 800 280-8071, FAX 415 893-9469

TEST REPORT Page 2 of 2 03-S-2866

Results Lead

| Client # | DCL # | Sample Volume (L) | hd\ambje | mg/m³ |
|-------------|------------|----------------------|----------|--------|
| | 03-18306 | 229.64 | ND | <0.004 |
| DENEW157-A1 | | 226.97 | ND | <0.004 |
| DENEW157-A2 | 03-18307 | 220.77 | ND | |
| DENEW157-A3 | 03-18308 | | ND | <0.004 |
| DEMIL157-A1 | 03-18310 | 279.76 | | <0.004 |
| DEMIL157-A2 | 03-18311 | 279.87 | ND | ₹0.004 |
| DEMIL157-A3 | 03-18312 | 0 | ND | |
| | Prep Blank | | ND | |
| % Recovery | LCS | | 111. | |
| RPL | | | 1. | |

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



Analyst



BEST AVAILABLE COPY



5134836668

| DATA | ANALYTICAL REQUEST FORM 1. X REGULAR Status RUSH Status Requested - ADDITIONAL CHARGE RESULTS REQUIRED BY |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| LATERATORIES | CONTACT DATACHEM LABS PRIOR TO SENDING SAMPLES. |
| 2. Date 6/10/03 Purchase Order No. 05-03 3. Company Name Shaw Environmental, Address 312 Directors Drive Knoxville, TN 37923 Person to Contact Non-Responsive Telephone (30) 369-3736 FaxTelephone (410) 436-2163 Billing Address (il different from above) Non-Responsive Army National Sol-14 Old Bay L.D. Havrede Grau B. REQUEST FOR ANALYSES | DCL Project Manager 5. Sample Collection Sampling Site Delaware Industrial Process Date of Collection Ultipo3 Time Collected Various Date of Shipment Ultipo3 County IH-Wicheln of Custody No. |
| i.nborstory Client Sample Modia Sample Volum 2 Use Only Number Type (Uters) | ANALYSES REQUESTED - Upo Mothod Number & Known |
| 1830 G DENEWIST-N MCCF LOOK | Lead |
| 18308 "-A3 V Blank (8309 DINFOIST-842 BLAK 18310 DEMILIST-A1 MICEF 279.76 18310 "-A3 V Blank 18313 "-PCI Bulk | 7 |
| MUST BE COMPLETED FOR ENVIRONMENTAL SAMPLES - See General Services Torms and Conditions: QC samples billed At regular sample rate (Lab QC according to the condition of the con | CC SAMPLES Ording to provided QA/QC Plan) AMPLES REQUESTED form to Agency requirements) |
| Comments | |
| Possible Contain Non-Responsive 3. Requested by 960 West Levoy Drive / Selt Lake City, UT 64 4888 Glandale-Milford Road / Cincinneti, OH | 123 000-358-9135 o/ 801-266-7700 / Fax: 801-258-9992 |
| • | BORATORIES - A SORENSON COMPANY |

DISTRIBUTION:

WHITE - LABORATORY COPY

CANARY - CUSTOMER COPY

BEST AVAILABLE COPY

Industrial Hygiene Sampling Calculation Worksheet

| National Guard Armory | Location: New Castle | |
|------------------------------------------------------------------|--------------------------------------------|---|
| Date: 6/6/03 | 41 Corporate Circle | 2 |
| Sample 1 | , | |
| • | PENEW 157-AL | |
| Pump: (| 4 7 6 1 5 Pre Flow Rate Post Flow Rate | |
| | 2.428 2.431 | |
| | 2.436 | |
| | 0.700 | |
| Average | 2.458 2.441 | |
| Average Pre and Post 2.44 | | |
| Time 1 /2:48 | • | |
| Time 2 2.22 Total Time Sampled | | |
| Minutes Sampled $94m$ | notes | |
| | | |
| Volume 229.64 | Liters | |
| Sample 2 | DENEW157- A2 | |
| Sample Number: Pumb: | 12 1 2 2 2 9 | |
| · umpi | ゆが 8 3 3 9 Pre Flow Rate Post Flow Rate | |
| · | 2.448 2.437 | |
| | 2.42 | |
| Avorago | 2.448 2.432 | |
| Average | 2.440 | |
| _ | 2,432 | |
| Average Pre and Post | 2.449 | |
| 7.44 Time 1 /2:50 Time 2 2:23 | 2.449 | |
| Time 1 /2:50 Time 2 2:23 Total Time Sampled | 2.44 9 11 | |
| Time 1 /2:50 Time 2 2:23 Total Time Sampled | 2.449 | |
| Time 1 /2:50 Time 2 2:23 Total Time Sampled Minutes Sampled 93 m | 2.44 9 11 | |
| Time 1 /2:50 Time 2 2:23 Total Time Sampled | 11 Vinutes | |

Appendix D References

References

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

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

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

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

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

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

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

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

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

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

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

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

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

Appendix E Recommendations for Surface Lead Dust in Armories

Subject: Recommendations for Surface Lead Dust in Armories

- 1. In armories that do not contain childcare facilities, the National Guard Bureau (NGB) Region North Industrial Hygiene Office recommends cleaning the areas in which sample results are greater than 200 micrograms per square foot (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 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:

BEST AVAILABLE COPY

- a. Clean all areas that will be accessible to children to the EPA dust-lead standard for children 6 years of age or under (40 μ g/ft² on floors and 250 μ g/ft² on windowsills).
- b. Refer to the local authorities' regulations since they can be more stringent than federal regulations.
- c. Post signs in the area to inform people of the presence of lead dust and its effects.
- d. If soldiers clean weapons in the facility change the policy so that they cannot clean their weapons in the facility, or if they are allowed to clean their weapons indoors, they must clean the area by wet wiping and mopping the area when they are done.
- e. If the paint is peeling, contact the state Environmental Office to test for lead content and provide recommendations.
- 3. Air samples collected on individuals in the armory were well below OSHA's permissible exposure limit for lead (29 CFR 1910.1025(c)) of 0.05 mg/m³ averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead dust in this building.

Shaw Environmental, Inc.

312 Directors Drive Knoxville, TN 37923 865.690.3211 Fax 865.690.3626



National Guard Readiness Center Pigman Readiness Center, Seaford, Delaware

Industrial Hygiene Evaluation

Prepared for:

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

Prepared by:

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

26 October 2003

National Guard Readiness Center Pigman Readiness Center, Seaford, Delaware

Industrial Hygiene Evaluation

Prepared for:

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

Prepared by:
Shaw Environmental, Inc.
312 Directors Drive
Knoxville, Tennessee 37923

26 October 2003

Prepared by:

Non-Responsive

Industrial Hygienist

Reviewed by:

Non-Responsive

Business Line Manager

Table of Contents

| | į |
|------------------------------------------------------------------|----------------|
| Table of Contents | |
| Table of Contents List of Tables | ii |
| List of Tables List of Appendices | E-1 |
| List of Appendices Executive Summary | 1-1 |
| Executive Summary | 2-1 |
| | |
| 2.0 Findings, Discussion, and Interpretation of Results | 2-1 |
| | |
| | |
| | |
| 2.2 Physical Condition of Facility 2.2.1 Peeling Paint - Lead | |
| | |
| | |
| | |
| | |
| | |
| 2.3.1 Ergonomic Concerns 2.3.2 Indoor Air Quality | 2-3 |
| 4 77 1 Dec 24 000 C | |
| 2.4 Safety and Industrial Hygiene Programs 2.5 Ventilation | 2-3 |
| | |
| | |
| | |
| 2.6 Noise Dosimetry 2.7 Lighting | 2-5 |
| 2.7 Lighting 2.8 Converted Indoor Firing Ranges | 2-5 |
| 2.8 Converted Indoor Firing Ranges 2.9 HVAC Systems | 2-5 |
| 2.9 HVAC Systems 2.10 HHIM | 3-1 |
| | |
| 3.0 Conclusions Tables | Follows Tables |
| Tables Figure 1 | Follows Figure |
| Figure 1 | |

List of Tables

| Table 1 Table 2 Table 3 Table 4 Table 5 | Wipe Sampling for Lead Air Sampling for Lead Peeling Paint Indoor Air Quality Measurements Illumination Readings | |
|-----------------------------------------|------------------------------------------------------------------------------------------------------------------|--|
| | | |

List of Figures

Figure 1

Airflow Patterns

List of Appendices

| Appendix A | HHIM Data Forms |
|------------|---------------------------------------------------|
| Appendix B | Building Layout |
| Appendix C | Sampling Sheets and Laboratory Analyses |
| | References |
| Appendix D | Recommendations for Surface Lead Dust in Armories |
| Appendix E | I/COMmission |

Executive Summary

Shaw Environmental, Inc. was contracted to perform an industrial hygiene evaluation for the Pigman Readiness Center in Seaford, Delaware performed the evaluation on 13 June 2003. The point of contact at the readiness center was SSG

The following industrial hygiene concerns were evaluated.

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

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

- Wipe Sampling for Lead
- Air Sampling for Lead
- Peeling Paint Lead
- Suspected Asbestos Containing Material
- Presence of Mold
- Housekeeping
- Ergonomic Concerns

BEST AVAILABLE COPY

- Safety and Industrial Hygiene Programs
- Ventilation System Evaluation
- Contamination of Clean Air Sources
- Noise Dosimetry
- Converted Indoor Firing Ranges
- HVAC Systems

Areas where there were industrial hygiene concerns are as follows:

- Water damage was observed on the cafeteria wall (near entrance doors). The source
 was probably from roof leaks, however, the source should be identified and actions
 taken to eliminate the source in order to prevent the possibility of mold growth that
 may lead to indoor air quality problems.
- Indoor air quality measurements revealed there are indoor air quality concerns at the armory. The humidity and temperature were above the American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE) indoor air quality recommendations. It appeared that the HVAC system is inadequate in controlling the temperature and humidity within the comfort parameters. Consideration should be given to evaluating the HVAC system to ensure that it is working properly so that it will provide adequate cooling and humidity control for the armory. In addition, a fan could be used for cooling purposes to circulate the air.
- Lighting measurements were conducted at the armory. The lighting did not meet the
 minimum requirements in some areas evaluated, therefore, consideration should be
 given to providing more lighting to the areas evaluated.

1.0 Introduction

Shaw Environmental, Inc. was contracted to perform an industrial hygiene evaluation for the Pigman Readiness Center in Seaford, Delaware Non-Responsive performed the evaluation on 13 June 2003. The point of contact at the readiness center was SSC Non-Responsive performed the evaluation on 13 June 2003.

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

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

2.0 Findings, Discussion, and Interpretation of Results

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

2.1. Sampling for Lead

2.1.1 Wipe Sampling

Wipe samples were collected for lead from the drill floor. Also, wipe samples were collected for lead in rooms, hallways, foyers, etc. The sampling in rooms, hallways, foyers, etc. represented approximately 25% of the building. Approximately half of the samples were collected from surfaces in common areas, such as surfaces of a desk. The remaining samples were collected from uncommon surface areas, such as a supply vent or the top of a file cabinet. The samples were collected and analyzed in accordance with the Instructions for *Completing the Sampling of ARMY National Guard Armories* procedure.

Results of the wipe sampling are provided in Table 1. The results revealed lead below the recommended level of 200 micrograms per square foot ($\mu g/ft^2$) (see Appendix E); therefore, no actions are necessary.

The only samples initially submitted for analysis were those from the drill floor. If there were any positive results from the drill floor, the other samples would be submitted for analysis. Since the results revealed lead at levels below 200 $\mu g/ft^2$, the other wipe samples were not submitted for analysis.

2.1.2 Breathing Zone Air Sampling

Breathing zone air sampling was collected on one (1) full-time building occupant (the only employee present). (Please note that no State employees were monitored.) The sample was collected and analyzed in accordance with Method 7082 of the National Institute of Occupational Safety and Health (NIOSH) Manual of Analytical Methods. The results of the sampling are provided in Table 2. The results revealed non-detectable concentrations of lead in the breathing zone of the employee, therefore, no action is necessary.

2.2 Physical Condition of Facility

2.2.1 Peeling Paint - Lead

Peeling paint was observed in the armory. Bulk sampling results revealed lead concentrations at levels below 0.5 percent by weight. The Department of Housing and Urban Development (HUD) defines a lead-based paint as paint or other surface coatings that contain lead equal to or exceeding 0.5 percent by weight. Since HUD does not consider the paint a lead-based paint, no actions are necessary. The results of the sampling are provided in Table 3.

2.2.2 Visual Inspection - Asbestos

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

2.2.3 Visual Inspection - Water Damage and Mold

A visual inspection was made to determine if there was any water damage or visible mold at the armory. Visible mold was not observed, however, water damage was observed at the armory. The water damage was observed at the cafeteria wall near entrance doors.

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

2.2.4 Visual Inspection - Housekeeping

The housekeeping was determined to be good. No trash was visible on the floors.

2.3. Building Concerns

2.3.1 Ergonomic Concerns

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

2.3.2 Indoor Air Quality

Measurements for carbon dioxide, humidity, and temperature revealed there were indoor air quality concerns at the armory. The humidity and temperature were above the American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE) indoor air quality recommendations. It appeared that the HVAC system is inadequate in controlling the temperature and humidity within the comfort parameters. Consideration should be given to evaluating the HVAC system to ensure that it is working properly so that it will provide adequate cooling and humidity control for the armory. In addition, a fan could be used for cooling purposes to circulate the air.

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

2.4. Safety and Industrial Hygiene Programs

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

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

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

2.5. Ventilation

2.5.1 Ventilation System Evaluation

There were no local exhaust ventilation systems in use at this armory; therefore, no ventilation studies were performed. The armory contains a maintenance shop with local exhaust; however, the shop is no longer in use. A ventilation evaluation was performed in the maintenance bay. Airflow patterns were observed with the use of Gastec smoke tubes, and the airflow was deemed acceptable. The airflow patterns are shown in Figure 1.

2.5.2 Contamination of Clean Air Sources

An evaluation was performed to determine if clean air sources could be contaminated by exhaust air. The evaluation revealed that there was no evidence that clean air 2-3

sources could be contaminated by exhaust air.

2.6. Noise Dosimetry

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

2.7 Lighting

Lighting measurements were conducted at the armory. The lighting did not meet the minimum requirements in the following areas:

- Training Room
- Room 114
- Room 115
- Room 119
- Room 120
- Library
- Women's Restroom
- Men's Restroom
- Room 112
- NBC Room
- Room 107
- Cafeteria
- Room 102
- Kitchen
- Kitchen Storage
- Room 215
- Room 214
- Room 211
- Room 210
- Room 208
- Room 207
- Room 128
- Room 124
- Room 123
- Exercise Room
- Drill Floor

Results of the lighting evaluation are provided in Table 5. Consideration should be given to providing more lighting to the areas listed above. This may be accomplished by replacing burnt out luminaries, cleaning fixtures, cleaning windows, painting walls with a lighter color, repositioning detailed work to higher illuminated areas, and using supplemental lighting.

2. 8. Converted Indoor Firing Ranges

There was not a converted indoor firing range at the armory. Note that there was an inactive firing range that had not been converted. Lead wipe samples were taken to determine the degree of lead surface contamination, As expected, lead levels were well above $200 \, \mu g/ft^2$ since this was an active firing range. The results of the lead wipe sampling are provided in Table 6.

2.9. HVAC System

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

Maintenance should occur on a regular basis to ensure that the HVAC system is maintained in a good condition.

2.10. HHIM

A Health Hazard Information Module (HHIM) form was completed for the armory. In addition, a HHIM was completed for the maintenance bay at the armory. The completed forms are provided in Appendix A.

3.0 Conclusions

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

There were industrial hygiene concerns at the armory with regards to water damage, indoor air quality, and lighting. These concerns are discussed in detail in Section 2.0 of this report.

TABLES

Table 1 Wipe Sampling for Lead **National Guard Armory** Seaford, Delaware

Date of Sampling: 13 June 2003 and 2 October 2003

| | Location | Results, µg/ft ^{2 a} |
|------------------|----------------------------------------|----------------------------------|
| Sample Number | | < 23 |
| DESEA164-1 | Assembly Hall – On Floor | < 23 |
| DESEA164-2 | Assembly Hall – On Floor | < 23 |
| DESEA164-3 | Assembly Hall – On Floor | 35 |
| DESEA164-4 | Assembly Hall – On Floor | < 23 |
| DESEA164-5 | Assembly Hall – On Floor | < 23 μg |
| DESEA164-6 | Elold Blank | 12 |
| DESEA275-1 | A reambly Hall - HVAC Supply Air Grill | 18 |
| | A -combly Hall - HVAC Exhaust All Offi | 19 |
| DESEA275-2 | CPT Cooke's Office – Exhaust Air Grill | 7.5 |
| DESEA275-3 | Hall - Window Sill | 8 |
| DESEA275-4 | Kitchen – Top of Dishwashing Machine | |
| DESEA275-5 | Field Blank | 0.70 μβ |
| DESEA164-6 | Field Diank | |

^a Micrograms lead per square foot

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

Table 2 Breathing Zone Air Samples for Lead National Guard Armory Seaford, Delaware

Date of Sampling: 13 June 2003

| | | Samplin | g Informatio |)n | Results |
|-------------------------|----------------|------------------------|------------------------------------|--------------------|-----------------------------------|
| Sample Number | Employee | Time Sampled / Minutes | Flow Rate (lpm) ^b | Volume (liters) | (mg/m ³) ^a |
| DEGEATOR AT | Non-Responsive | 1251-1421 / 90 | 2.484 | 223.25 | <0.004 |
| DESEA164-A1 DESEA164-A3 | Field Blank | - | - | - | None Detected |

^a Milligrams lead per cubic meter of air.

Only one employee was sampled because there were no other employees at the armory on the date of the survey.

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

b Liters of air per minute.

Table 3 Peeling Paint Sampling for Lead National Guard Armory Seaford, Delaware

Date of Sampling: 13 June 2003

| Sample Number | Location | Results, % By Weight |
|---------------|-------------------|----------------------------|
| DESEA164-PC1 | Firing Range Wall | 0.0056 |

The Department of Housing and Urban Development (HUD) defines lead-based as paint or other surface coatings that contain lead equal to or exceeding 0.5 percent by weight.

BEST AVAILABLE COPY

Table 4 Indoor Air Quality Measurements for Carbon Dioxide, Humidity, and Temperature National Guard Armory Seaford, Delaware

Date of Sampling: 13 June 2003

| Location | Occupants in Area | Carbon Dioxide, parts per million parts of air (ppm) | Percent (%) Humidity | Temperature (°F) |
|-----------------------------------|----------------------|------------------------------------------------------------|----------------------------|---------------------|
| 1 st Floor–Drill Floor | 2 | 495 | 82.0 | 80.6 |
| Outdoors | - | 495 | 79.0 | 82.2 |

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

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

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

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

Table 5 Illumination Readings National Guard Armory Seaford, Delaware

Date of Sampling: 13 June 2003

| Location | Luminance (fc) ^a | Standard (fe) ^a | Standard Met |
|-------------------------|-----------------------------|-------------------------------|-----------------|
| Training Room | 33.2-80.7 | 70 | Some Areas |
| Office Area - Room 114 | 6.2-47.4 | 70 | No |
| | 7.1-84.9 | 70 | Some Areas |
| Office Area - Room 115 | 25.7-48.3 | 70 | No |
| Office Area - Room 119 | 18.6-23.4 | 70 | No |
| Office Area - Room 120 | 45.8-88.8 | 70 | Some Areas |
| Library - Room 113 | 10.8-44.6 | 40 | Some Areas |
| Women's Restroom | 6.2-34.3 | 40 | No |
| Men's Restroom | 7,3-40.7 | 70 | No |
| Office Area - Room 112 | 5.2-14.5 | 30 | No |
| NBC Room (Storage Room) | 18,1-105.5 | 70 | Some Areas |
| Office Area - Room 107 | 22.7-34.4 | 30 | Some Areas |
| Cafeteria | 6,7-15.6 | 30 | No |
| Storage Room - Room 102 | 34.7-60.4 | $\frac{1}{70}$ | No |
| Kitchen | 8.7-27.1 | 30 | No |
| Kitchen Storage | 51.0-71.3 | 70 | Some Areas |
| Office Area - Room 215 | 59.9-83.1 | 70 | Some Areas |
| Office Area - Room 214 | 43,3-57.3 | 70 | No |
| Office Area - Room 211 | | 70 | Some Area |
| Office Area- Room 210 | 47.2-93.1 | | No |
| Office Area - Room 208 | 14.4-33.3 | 70 | No |
| Office Area - Room 207 | 9.3-22.7 | 70 | Some Area |
| Office Area - Room 124 | 32.4-71.9 | 70 | No No |
| Storage Room - Room 123 | 4.1-9.8 | 30 | \ |
| Storage Room - Room 216 | 39.4-52.8 | 30 | Yes |
| Exercise Room | 39.4-52.8 | 70 | No |
| Drill Floor | 48.5-59.4 | 70 | No |

BEST AVAILABLE COPY

Table 5 (Continued)
Illumination Readings
National Guard Armory
Seaford, Delaware
Date of Sampling: 13 June 2003

^a fc - Footcandles

The readings were taken with a Cooke Corporation cal-LIGHT 400 Calibrated Precision Lightmeter, calibrated on 19 Aug 2002.

The standards listed above are from Design Guide DG-415-2, Logistics Facilities, published by the National Guard Bureau Installation Division.

Table 6 Wipe Sampling for Lead – Firing Range National Guard Armory Seaford, Delaware Date of Sampling: 13 June 2003

Results, Location $\mu g/ft^{2a}$ Sample Number 1482 Inside remaining ventilation ductwork DESEA164-8 2500 Exhaust ventilation system DESEA164-7 11,000 Light fixtures (couldn't reach - wiped pulleys) DESEA164-9 1909 Overhead heaters DESEA164-10 4455 Stored items DESEA164-11 51,909 DESEA164-12 Floor 42,455 Outside the range **DESEA164-13** $\overline{\mathrm{BDL}}^{\mathrm{b}}$ Field Blank DESEA164-14

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

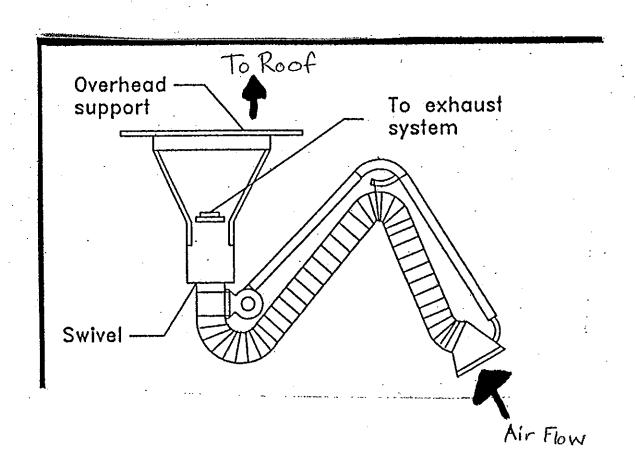
^a Micrograms lead per square foot

^b Below Detectable Limits, at a detection level of 23 μg/ft²

FIGURE 1 AIRFLOW PATTERNS

Cone Hood

- Present in Maintenance Areas
- Attaches to exhaust
- All cone hoods were adequate



Appendix A HHIM Data Form

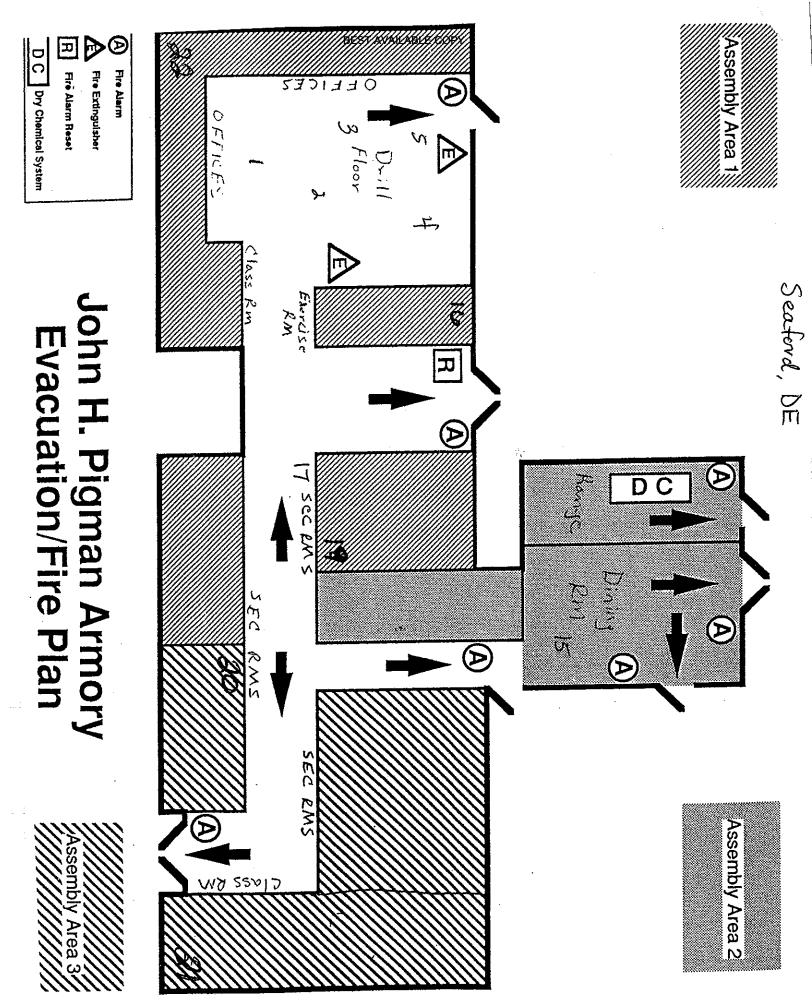
| 1 (1-1-1-1) | | | NFORMATIO (For use of thi | s lorm, se | OB HUIW OSAL | DATA | | | | | · |
|-------------------------------------|-------------|----------|-----------------------------------|-----------------------------------------|------------------------------|----------------------|-----------------|-------------|------------|-------------|--------|
| | * *** | | SECTION | 1. DEM | OGRAPHIC I | DATA | BL | OG/RM | NO. | | |
| OC | | IN: | STALLATION | | | | ے ا | | Ford | | |
| | | | RC, Pigm | in | | | 2 | eat | ora | | |
| 42394 | | | 1 C) / 19/11 | w. | TOPERAT | 10N/CODE | | | , | , | • |
| ATION/CODE | | | | | 11.1 | non/code nuinistr | afill | e. 0 | perati | ions IAD | 0 |
| Al inich | L' | 10 1 | Areas/AA | | Han | NMOTI | wiive | | | | , |
| HUMI MST | van | 16 1 | Treading | TEV | ALUATOR (in | tials) | | • | | | |
| RVEY DATE | | | | | 10 | | | | | | |
| 13 | Ju | n O | 3 | - 1 | A 6 | 101 | PERVIS | OR . | | | _ |
| COMCODE | | | SUBMACO | WCODE | • | 130 | No | n-Resp | onsive | | |
| | - 1 | | \downarrow χ | X | | 15 | 56 | Поор | | | |
| . 7 | 7A | | | | | TRAC | | | FREQUEN | CY (hrs/da | iy) |
| LEPHONE/DSN N | 0. | - Ju | NIT/ORGANIZATIO |)N | | 1 . | | · | 08 | | |
| 1 | 21 | | National | Gua | erd | :5 | | | 8 | <u> </u> | |
| 302)326-76 | 034 | | INC | CONT | RACTOR(S) | NO. LOC(S | 5) | | NO. OTHE | :H | |
|), CIV(S) | NO | , MIL | 11 | ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,, | • • | | | • | | | |
| | i | | 4 | | | | | | | | |
| | | | SEC | TION 2. | FACILITY D | ATA | PRAY B | 001148 | | | |
| | | | VAPOR DE | GREAS | ERS | ا | PRAI D | 501110 | | | |
| AB HOODS | | 0 | | 0 | A SUIZO | v | ENTILAT | ION U | NITS | | |
| AINTENANCE BA | ΥS | | OPEN SUF | RFACE | ANKS | ľ | 0 | | | | |
| Militario | | 0 | SEC | 0 | CHEVEY D | ATA | | | | | |
| 40 800 | . J. P. | | SEC | HOWE. | UNIT CODE | , COV | TROLS | REQUI | RED | STATU | 5 |
| CONTROLS P | RESENT | | EVALUATION | ` | Olive Service | | | | | | |
| : | | · | | | | | | 3 6 | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | _ |
| | | | | | | : | | | | | |
| | | | | | | | | | | | |
| | • | | | [| | | | • | | | |
| • | | | | | | | | | | | |
| | | | 1 | ł | | | | | | | |
| | | | 1 | | | | | | · | 1 | |
| | | | | 1 | | | | | | | عند |
| | | | | المالية | (horills | , | | · | | | |
| PERSONAL PROT | ECTIVE | EQUIP | MENT (R = Requir | ea; 0 = 0 | Milizou/ | 2.410 | | | FACTURER | | R |
| GLOVES | R/U | | RESPIRATOR | | NIOSH T | G NO. | | | | | _ |
| ACID | | VIRLINE | | | | | | | | | _ |
| COLD SURFACES | | | E BLASTING HOOD | | | | | | | | |
| HOT SURFACES | / | DISPOSA | ABLE | | | | | | | | |
| NBC AGENTS | ′ | FULL FA | CE AIR PURIFYING | | | | | | | | |
| OIL | / | 1/2 FACE | AIR PURIFYING ED AIR PURIFYING | | | | | | | | |
| SOLVENTS | | POWER | E AIR PURIFYING | | | | | | | | |
| SURGICAL GLOVES | | | ONTAINED | | | | | | | 1 | |
| | | SELF U | 71.11.01.01 | | | | T | | HEAD/F | r I | |
| | F/U | | HEARING | R/U | ВО | DY | R/U | 0010 | | OOTS/HATS | - |
| EYES/FACE | / | CANAL | | 1 | APRONS | | 1. | HARD | | | _ |
| CHEMICAL SPLASH FULL FACE SHIELD | | EARPL | | 1 | COLD WEATHE | R CLOTHING | '- | IMPE | MEABLE BO | OTS | Γ |
| CHEMICAL/SAFETY | | HELME | | 1 | COVERALLS | | 1 | SAFE | TY/CONDUC | TIVE SHOES | Γ |
| SAFETY/IMPACT | | MUFFS | | Ι, | FULL BODY SU HEAT REFLECT | INE VESTISIN | | SAFET | YMON-CONDU | CTIVE SHOES | \Box |
| | | MUFF/E | ARPLUG COMBO | | SAFETY BELTA | TATE LEGISOR | ' | + | | | |
| WELDING HELMET | | 1 | EARPLUG W/TIME LIMIT | | ICACETY DELIV | | | | | | |

| | SEC | CTION 4. HAZARD INVENT | ORY DATA | | | | : |
|------------------------------------------|------------------------|----------------------------------------------------------------------------------------------------------|--------------|--------------------|--------------|--------------|----------------|
| CAS CODE | | RD DESCRIPTION | | PAC | . | | EPC |
| | | - 1 | | | | | |
| POVDTXXXX | Video Disp | lay Terminal | 3 | | | D | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | : | |
| | | | | | | · | |
| | | | _ | | | | |
| | | | | | | | |
| | | | | | | | |
| · | | | | | | | |
| | , | | | | | | • |
| <u> </u> | | | | | | | |
| | | SECTION 5. PERSONNE | I DATA | | | | |
| | | FIRST NAME | МІ | SEX | | SSN | CATEGO |
| Mon | Poen | | | 20 | , | | mu |
| | VE2h | onsive | | M | Non-R | esponsiv | mic |
| | | | A | M | | | mil |
| | | | _ | F_ | | | MIL |
| | | | | m | | | MIL |
| | | | | - | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | SECTION 6. COMME | NTS | | | | |
| · | D. No. 201 | | ☐ See alla | ched sh | eet | | |
| | | | | | | or full | 1-time |
| Survey condi | cted by M Employees | PRIVACY ACT STATE | MING COV | ntain. overline | s ia | ainh | ۸ |
| employees. | tmployees | 1 - coo7 - who does the use of a | our Social S | Activity No | ımbar a | s an ident | lification num |
| Title 5 US Code, Sect | ion 301; Executive On | der 9397 authorizes the use of y and monitor data relating each ormation is to provide histories o | | | | | sed to a haza |
| Disclosure of your Somedical monitoring. | ocial Security Number | is not mandatory; however, non | | | | | sion of prope |
| administ | rative func | tions. | | | | | |
| - | | BEST AVAILABLE COPY | FOIA Re | quested Re | cord #J- | 15-0085 (D | E) |

FOIA Requested Record #J-15-0085 (DE)
Released by National Guard Bureau
Page 529 of 547

Page 529 of 547

Appendix B Building Layout



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

Appendix C Sampling Sheets and Laboratory Analyses

ug/III gn

Š

0.30



A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS

NYEL 美

| National Guard Bureau | Job Name: | Delaware National Quard Survey | Chain Of Custoday | 110007 |
|---------------------------------------------------------------------|--------------|--------------------------------|-------------------|------------|
| 301-IH Old Bay Lane, Atm: NGB-AVN-SI, State Military Reservation | Ë | Seaford | Date Analyzed: | 10/14/2003 |
| Flavte de Grace, Maryland 21078 | Job Number: | Not Provided | Percon Submining | Non- |
| | P.O. Number: | 1002 | Report Date: | 14-Oct-03 |

Address: Cleat

Attention:

Summary of Atomic Absorption Analysis for Lead

Page I of I

| Comments | | é. |
|-----------------------------------------|--------------------------|-------------------------------------------------------------------------------|
| Final Result Com | 12 ug/ft | 15 ug/ft ² 7.5 ug/ft ² 8 ug/ft ² |
| Reporting | i I. | 2.70 ug/ft ² 2.70 ug/ft ² 2.70 ug/ft ² |
| Alr Volume Area Wiped (L) (ft²) | 6,111 | 0.111 |
| Sample Type | Wipe | Wipe Wipe Wipe |
| 1 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 | Rumace Fumace | Furnace Furnace |
| Client Sample An Number | DESEA275-1 DESEA275-2 | DESEA275-3 DESEA275-4 DESEA275-5 DESEA275-5 |
| AMA Sampte Number | 0401605 | 0401608 0401608 0401609 |

Analysis Method For Furnace: Air, Wipes, Paints, and Soli/Solids: EPA 600/R-93/200(M)-7421; Water. SM-3113B Analysis Method for Flame: Air, Wipes, Paints, and Soll/Solids: EPA 600/R-93/200(M)-7420; Water. SM-3111B mg/Kg ≃ parts per million (ppm) by weight mg/L ≈ parts per million (ppm) Wipe Blank Furnate DESEA275-6 N/A = Not Applicable

ugif. ~ parts per billion (ppb) Note: All results have two significant digits. Any additional digits shown should not be tig :: micrograms considered when interpreting the result. %Pb = percent lead by weight



Analyst:

| Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: | Analyst: |

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

All rights reserved AMA Ambytical Services, Inc.

BEST AVAILABLE COPY

0401610



Reservoirs Environmental, Inc.

2059 Bryant St. Denver, CO 80211 (303) 964-1986 Fax (303) 477-4275 Toll Free (866) RESI-ENV

June 26, 2003

Project Description: RES 94325-1 06-06 Delaware-Dagsboro,(Seaford)

Shaw Environmental, inc. 312 Directors Drive Knoxville TN 37923

Dear Customer.

Reservoirs Environmental, Inc. is an environmental analytical laboratory accredited for the analysis of Industrial Hygiene and Environmental matrices by the American Industrial Hygiene Association, Lab ID 101533 - Accreditation Certificate #480. The laboratory is currently proficient in both PAT & ELPAT programs respectively.

Reservoirs has analyzed the following sample(s) using Atomic Absorption (AA) / Atomic Emission Spectroscopy - Inductively Coupled Plasma (AES-ICP) per your request. The analysis has been completed in general accordance with the appropriate methodology as stated in Table I. Results have been faxed to your office.

RES 94326-1 is the job number assigned to this study. This report is considered highly confidential and property of the customer. Reservoirs Environmental, Inc. will not discuss any part of this study with personnel other than those authorized by the client. Samples will be disposed of after sixty days unless longer storage is requested. If you should have any questions about this report, please feel free to call me at 303-964-1986.

Non-Responsive

President

RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Accredited Laboratory #101896 AIHA Certificate of Accredidation #480 LAB ID 101533

TABLE I.

ANALYSIS:

LEAD BY WIPE SAMPLING

RES Job Number:

RES 94325-1

Client:

Shaw Environmental, Inc.

Client Project Number / P.O.:

06-06

Client Project Description:

Delaware-Dagsboro,(Seaford)

Date Samples Received:

June 18, 2003

Analysis Type:

USEPA SW846 3050B / AA(7420)

Turnaround:

3-5 Day

Date Samples Analyzed:

June 26, 2003

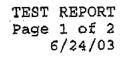
| Client | Lab | Sample | LEAD | Detection | LEAD CONCENTED A SECON |
|-------------|------------|------------------|--------|----------------------|---------------------------|
| ID Number | ID Number | Area (sq.ft.) | (µg) | Limit (µg/sq.ft.) | CONCENTRATION (μg/sq.ft.) |
| DESEA164-1 | EM 7851112 | 0.11 | BDL | 23 | BDL |
| DESEA164-2 | EM 7851113 | 0.11 | BDL | 23 | BDL |
| DESEA164-3 | EM 7851114 | 0.11 | BDL | 23 | BDL |
| DESEA164-4 | EM 7851115 | 0.11 | 3.8 | 23 | 35 |
| DESEA164-5 | EM 7851116 | 0.11 | BDL | 23 | BDL |
| DESEA164-6 | EM 7851117 | 0.11 | BDL | 23 | BDL |
| DESEA164-7 | EM 7851118 | 0.11 | 275.0 | 23 | 2500 |
| DESEA164-8 | EM 7851119 | 0.11 | 163.0 | 23 | 1482 |
| DESEA164-9 | EM 7851120 | 0.11 | 1210.0 | 23 | 11000 |
| DESEA164-10 | EM 7851121 | 0.11 | 210.0 | 23 | 1909 |
| DESEA164-11 | EM 7851122 | 0.11 | 490.0 | 23 | 4455 |
| DESEA164-12 | EM 7851123 | 0.11 | BDL | 23 | BDL |
| DESEA164-13 | EM 7851124 | 0.11 | 5710.0 | 23 | 51909 |
| DESEA164-14 | EM 7851125 | 0.11 | 4670.0 | 23 | 42455 |

^{*}Calculations Based On A 1 sq.ft. Sample Area Unless Otherwise Noted

Data Qa

| Due Date: 6/03-6/05 2059 Brya | ENVIRONMENTAL, INC. init st., Denvey CO 80211 | RESIJONALI |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------|
| Due-fige: SAMPLES SUBMITTED BY: Contrast, Shaly Environmental Inc. Askets: 312 Chinoless (nive Krioxylie TN 37923 Cottest North Street Planting Cottest North Street Planting Cottest Pla | O; (IF DIFFERENT) Any Katoni Gara III W 201-41 Outen Le hero de cres and 210 | ros Lie_(|
| Routed Provide P.O. R. Phys. Delaware - Dred S. Law 2015. Protect Peacewhold dealth - Delaware - Dred S. Law 2015. | FML Page | Responsive has play backer Profession of the h |
| Additional fees apply for effer hours and holidays for all analysis otherwise arranged and specified on the chain of distody. Turns expected. ASBESTOS LABORATORY HOURS: Weekdays: 7am - 7pm | ANALYTICAL METHOD | Will be notified it delays are |
| PCINIPLIM 2 Hour RUSH 25 hour 3-5 weakdays TEM 6 Hour RUSH 24 hour 3-3 weakdays Price Not se in COUNTED for 15 M or Hour RUSH | Dust Tolsz, Respirate | 7402 ISB History Press Charlest MetalRCRA 6 |
| METAL'S LABORATORY HOURS: Weekdays: BRITY - 6pm AA EPECIAL RUSH 24 Hour X 3-5 bay RORA 5 SPECIAL RUSH 4 Day 40 Day | BULKS PLAN Stori (spect, Loo 1EM U Cours, See 1XX AA (ppt 1 EA S) (pst 1 EA S) | rikajeri Nikal — RCRA 6 Yibag, TGLP Yord urbas (bil) (Yibas |
| ICLPSPECIAL RUSH & Day 12 Day yes Aside NEOUSTED 6- apecial RUSH AA ROBA'S TOJEROFA AND TOJE SPECIAL RUSH I- \$ Day Ternahound]POE(\$[Instructions] Please (epoil of R.2. Control # 78-28) Cilent Sample Number | OTHER Seed) 7. Evials results to kennoth for Sythogono ingle | e aumy mil |
| DESEATERS I | Votens 1x4*+0 | pes 7.85/12 1.3 1.4 1.5 |
| | | |
| 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - | | 21 22 23 23 |
| OTE, Vara pecsous fee contentos sobraved sorbuje of the control/seet is blocked information accentratival tipose samples. (IV) is not responsible for annos one seed togot imple of sec. Non-Responsible (Control Control C | milestada in solutistas renutira itam the inscouracy of purcentado in stant suniscopad pictole (2034–112) 5 (00777 | original daka. Turkerolahd lifties ava |
| Non-Responsive | Configure Config | S OCO |
| PLITS: Authorization By/Time: Analytical Method/Fulharopas: Septi Results Dua; Results Qui; | Lab Banct/Cd Time: | Junt Sheets Received By |

Prima: (30)) 984-1688 - Fact (30)) 177-1278 (WATS: 1-865-RESI ENV (731-4168) BAGER: CNCALL Pager norther symbolic at Lat., Alternate Pagers. BLUTTEN SCHOOLS FCRONLEIGE BOX-2008 (AFTER HOURS USE ORLY)



UAC 07



Submitted To:

011 107 2000 171.00

J_U_UUUUU

Shaw Environmental, Inc. 312 Directors Drive Knoxville, TN 37923

Reference Data:

Lead

Client Sample No.:

DEDAG164-Al through DESEA164-A3

P.O. No.:

Not Available

Sample Location:

Delaware

Sample Type:

Filter

Method Reference:

NIOSH 7300

DCL Set ID No.:

03-8-2977

DCL Sample ID No :

03-18840 through 03-18845

Sample Receipt Date:

6/18/2003

Preparation Date:

06/19/03

Analysis Date:

06/19/03

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

The sample condition upon receipt was acceptable except where noted.

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

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



Reviewer

CINCINNATI OFFICE 4388 GLENDALE-MILFORD ROAD CINCINNATI, OHIO 45242-3706 513 733-5336, FAX 513 733-6347

WEST COAST OFFICE 11 SANTA YORMA COURT NOVATO, CALIFORNIA 94945 600 280-8071, FAX 415 893-9469

TEST REPORT Page 2 of 2 03-S-2977

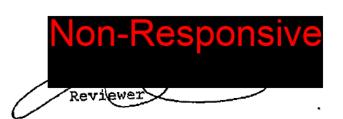
Results Lead

BEST AVAILABLE COPY

| Client # | DCI # | Sample Volume (L) | µg/sample | mg/m³ |
|-------------|------------|----------------------|-----------|----------|
| DEDAG164-A1 | 03-18840 | 173.88 | ND | <0.006 |
| DEDAG164-A2 | 03-18841 | 114.77 | ND | <0.009 |
| DEDAG164-A3 | 03-18842 | 0 | ND | |
| DESEA164-A1 | 03-18844 | 223.25 | ND | <0.004 |
| DESEA164-A3 | 03-18845 | 0 | ND | <u> </u> |
| | | | ND | |
| | Prep Blank | ļ | 103. | · ··- |
| % Recovery | LCS | | 103. | |
| RPL | | <u> </u> | 1. | |

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





Laboratory Use Only

Comments

Possible Contai



0154030000

ANALYTICAL REQUEST FORM

REGULAR Status RUSH Status Requested - ADDITIONAL CHARGE RESULTS REQUIRED BY CONTACT DATACHEM LABS PRIOR TO SENDING SAMPLES. 0.3 Purchase Order No. 4. Quote No. Environmental DCL Project Manager Sample Collection 5. Address 312 Directors Driv Sampling Site Delaware Industrial Process Telephone (304) 369 - 3 Date of Collection 6113103 FaxTelephone (40) 436 Time Collected Various Date of Shipment Nuna Address (if different from above) -Army National Guard IH-W 301-IH, Old Bay Lanc, Havre de Grace, MD REQUEST FOR ANALYSES Media Type Sample Volumo (Ulera) Client Sample ANALYSES REQUESTED . Use Method Number If Known Number 840 Lead 173.88 MCEF DEDAGI64-ALL Blank Bulk *Specify: Solid sorbent tube, e.g. Charcost; Filter type; Impinger solution; Bulk Sample; Blood; Urine; Tissue; Soli; Water; Other METHOD QC SAMPLES Q C REQUIREMENTS (Lab QC according to published methods) MUST BE COMPLETED FOR PROJECT PLAN QC SAMPLES ENVIRONMENTAL SAMPLES - See (Lab QC according to provided QA/QC Plan) General Services Terms and NO QC SAMPLES REQUESTED Conditions: QC samples billed (May not conform to Agency requirements) at regular sample rate 8. Requested by 800-356-9135 or 901-266-7700 / Fex: 801-268-9992 800-458-5493 or 513-799-5336 / Fex: 513-733-5347 950 West Levoy Drive / Salt Lake City, UT 84123 4388 Glandale-Millord Road / Cincinnett, OH 45242

DATACHEM LABORATORIES - A SORENSON COMPANY

DISTRIBUTION:

WHITE - LABORATORY COPY

CANARY - CUSTOMER COPY

Industrial Hygiene Sampling Calculation Worksheet

Location: Seaford **National Guard Armory** Date: 6/13/03 Sample 1 Sample Number: DESEA 164-A1 Pump: 647615 Pre Flow Rate **Post Flow Rate** 2.457 2.482 2.489 2,479 Average Average Pre and Post 2.481 12:51 Time 1 2:21 Time 2 **Total Time Sampled** 90 minutes Minutes Sampled 2.481 223.25 Liters Sample 2 Sample Number: DESEA164-A2 Pump: 648339 Pre Flow Rate Post Flow Rate 2.439 2.466

Average Pre and Post

Time 1
Time 2
Total Time Sampled
Minutes Sampled

Volume

Average

Liters

I HULL UER UM



TEST REPORT Page 1 of 2 6/25/03

Submitted To:

Shaw Environmental, Inc. 312 Directors Drive Knoxville, TN 37923

Reference Data:

Lead

Client Sample No .:

DEDAG164-PC1 through DESEA164-PC1

P.O. No.:

Not Available

Sample Location:

Delaware

Sample Type:

Paint Chip 3050B/6010B

Method Reference:

03-S-2977

DCL Set ID No.: DCL Sample ID No .:

03-18843 through 03-18846

Sample Receipt Date:

6/18/2003 6/23/2003

Preparation Date:

Analysis Date:

6/25/2003

The samples were prepared in accordance with EPA method 3050B. Sample condition was acceptable upon receipt except where noted. The samples were then analyzed in accordance with EPA method 6010B using a Jarrell Ash 61E ICP.

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

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



Analyst

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



Reviewer

WEST COAST OFFICE 11 SANTA YORMA COURT NOVATO, CALIFORNIA 94945 800 280-8071, FAX 416 893-9469

TEST REPORT Page 2 of 2 03-S-2977

Results Lead

| Client # | DCL # | mg/Kg (ppm) | % by weight |
|--------------|------------|-------------|-------------|
| DEDAG164-PC1 | 03-18843 | ND | <0.0030 |
| DESEA164-PC1 | 03-18846 | 56. | 0.0056 |
| | Prep Blank | ND | |
| % Recovery | LCS | 97. | |
| % Recovery | 18725MS | 96. | |
| % Recovery | 18725MSD | 97. | |
| RPL | | 30. | 0.0030 |

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

LCS = laboratory control sample.

MS/MSD = matrix spike/matrix spike duplicate.



Reviewer



ANALYTICAL REQUEST FORM

REGULAR Status

| | RUSH Status Requested - ADDITIONAL CHARGE | | | |
|---------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|
| | RESULTS REQUIRED BY | | | |
| LA O HATORIES | CONTACT DATACHEM LABS PRIOR TO SENDING SAMPLES. | | | |
| 2. Date U/13/03 Purchase Order No. | , 4. Quote No, | | | |
| 3. Company Namo Shaw Environmental | LOC. BOLDS | | | |
| Address 312 Directors Drive | 5. Sample Collection | | | |
| <u> Knokville, IN</u> 37923 | Sampling She Delaware | | | |
| Person to Contact Non-Responsive | Industrial Process | | | |
| Telephone (302) 369-3736 | Date of Collection 6/13/03 | | | |
| Fax Telephone (40) 434 - 216 3 | Time Collected Various | | | |
| Non-Responsive rent from above) | Date of Shipment 6/17/03 | | | |
| :Army National Guo | TH-W Chalastownship of a a c | | | |
| 301-IH, Old Bay Lane, Havre de Gr | ace, MD collector Non-Responsive | | | |
| 6. REQUEST FOR ANALYSES 03-57 | - 29 - 3 | | | |
| Laboratory Criem Sample Media Sample Volume | | | | |
| 1 OCCO | ANALYSES REQUESTED - Use Method Number If Knorm | | | |
| 117 E1 13.53 | Lead | | | |
| 18841 1 - A2 " 114.77 | 4 -4-4117-16 (a) 1-4-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1 | | | |
| 188 12 1 - A3 " Blank | | | | |
| 18943 -PC1 Bulk | | | | |
| 18844 DESFAULY-AL MYEF 223.25 | | | | |
| 18845 " -A3 MCEF Blank | | | | |
| 18846 " - PC1 Bulk | √ | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| Scacilly Sold sorbest to be a Country | | | | |
| Specify: Solid sorbent tube, e.g. Ohercoat, Filter type; Impinger solution; Bulk Sa | umple; Blood; Urkra; Tisaua; Sof; Water; Other | | | |
| 7. Q C REQUIREMENTS METHOD QC | SAMPLES CONTRACTOR | | | |
| MUST BE COMPLETED FOR (Lab QC according | ng to published methods) | | | |
| PROJECT PL | AN QC SAMPLES | | | |
| (444, 444, 444, 444, 444, 444, 444, 444 | ng to provided QA/QC Plan) PLES REQUESTED | | | |
| | n lo Agéncy requirements) | | | |
| Comments | | | | |
| | | | | |
| Possible Contamination and/or Charlies Library | | | | |
| Non-Responsive | - Marie - Mari | | | |
| riodogated by | | | | |
| 960 Web Levoy Drive / Salt Lake City, UT 84123 4888 Glendale-Milford Road / Cincinneti, OH 452 | 600-355-9136 or 601-266-7700 / Fax: 601-260-9992 42 800-456-1493 or 513-793-5336 / Fax: 613-733-5347 | | | |
| | RATORIES - A SORENSON COMPANY | | | |
| | 20170EN ACTIVITY OF THE PROPERTY OF THE PROPER | | | |

CANARY - CUSTOMER COPY

Appendix D References

References

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

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

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

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

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

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

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

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

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

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

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

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

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

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 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 μ g/ft² is a safe surface contamination level. They have also applied these standards as the decontamination levels for surfaces in administrative offices.
- e. It should be noted that levels above these recommendations do not necessarily mean there is a significant hazard to workers who are following good cleaning and hygienic practices since there is no correlation between wipe and air samples. Rather, we recommend these levels as a 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

BEST AVAILABLE COPY

for children 6 years of age or under (40 µg/ft² on floors and 250 µg/ft² on windowsills).

- b. Refer to the local authorities' regulations since they can be more stringent than federal regulations.
- c. Post signs in the area to inform people of the presence of lead dust and its effects.
- d. If soldiers clean weapons in the facility change the policy so that they cannot clean their weapons in the facility, or if they are allowed to clean their weapons indoors, they must clean the area by wet wiping and mopping the area when they are done.
- e. If the paint is peeling, contact the state Environmental Office to test for lead content and provide recommendations.
- 3. Air samples collected on individuals in the armory were well below OSHA's permissible exposure limit for lead (29 CFR 1910.1025(c)) of 0.05 mg/m³ averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead dust in this building.