

### APPENDIX B

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### PERSONNEL LIST

# Non-Responsive

FOIA Requested Record #J-15-0085 (MA) Released by National Guard Bureau Page 871 of 3473

### APPENDIX C

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### ANALYTICAL RESULTS

## AMA Analytical Services, Inc.

Attention:

A Specialized Environmental Laboratory

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### CERTIFICATE OF ANALYSIS

AIHA LAP, LLC ACCREDITED LABORATOR NOUSTRIAL HYGIENE, ENVIRONMENTAL LEAD & ENVIRONMENTAL MICROBIOLOGI ISONEC 17025-2005 www.aihaaccreditadtaba.cr LAB #100470





Page 1 of 2

| AMA Sample<br>Number | Client Sample<br>Number | Analysis Type | Sample Type | Air Volume<br>(L) | Area Wiped<br>(ft²) |     | orting<br>Limit    | Total ug | Final Res | ult    | Comments |
|----------------------|-------------------------|---------------|-------------|-------------------|---------------------|-----|--------------------|----------|-----------|--------|----------|
| 13065740             | Chicopee RC W-01        | Flame         | Wipe        | ****              | 0.108               | 110 | ug/fi²             | <12      | <110      | ug/ft² |          |
| 13065741             | Chicopee RC W-02        | Flame         | Wipe        | ****              | 0.108               | 110 | ug/ft²             | <12      | <110      | ug/fl² |          |
| 13065742             | Chicopee RC W-03        | Flame         | Wipe        | ****              | 0.108               | 110 | ug/ft²             | <12      | <110      | ug/ft² |          |
| 13065743             | Chicopce RC W-04        | Flame         | Wipe        | ****              | 0.108               | 110 | ug/ft <sup>2</sup> | <12      | <110      | ug/ft² |          |
| 13065744             | Chicopee RC W-05        | Flame         | Wipe        | ****              | 0.108               | 110 | ug/ft²             | <12      | <110      | ug/fl² |          |
| 13065745             | Chicopee RC W-06        | Flame         | Wipe        | ****              | 0.108               | 110 | ug/ft²             | 360      | 3400      | ug/fl² |          |
| 13065746             | Chicopee RC W-07        | Flame         | Wipe        | ****              | 0.108               | 110 | ug/ft²             | <12      | <110      | ug/ft² |          |
| 13065747             | Chicopee RC W-08        | Flame         | Wipe        | ****              | 0.108               | 110 | ug/fl <sup>2</sup> | <12      | <110      | ug/ft² |          |
| 13065748             | Chicopee RC W-09        | Flame         | Wipe        | ****              | 0.108               | 110 | ug/ft²             | 14       | 130       | ug/ft² |          |
| 13065749             | Chicopee RC W-10        | Flame         | Wipe        | ****              | 0.108               | 110 | ug/ft²             | <12      | <110      | ug/ft² |          |
| 13065750             | Chicopee RC TB-W        | Flame         | Wipe Blank  | ****              | N/A                 | 12  | ug                 |          | <12       | ug     |          |

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

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

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

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| Comments:       L 2 Day       Date Due:       Made to Accomedate)       L Fa       Dus.army.mil         Asbestos Ausilysis       U ELAP 198.4/Chatfield       (QTY)       Debestos Ausilysis       Debestos Ausilysis         CM Air - Please Indicate Filter Type:       U ELAP 198.4/Chatfield       (QTY)       Debestos Ausilysis         D Fiberglass       (QTY)       DNY State PLM/TEM       (QTY)       Debestos Ausilysis         D Fiberglass       (QTY)       U Residual Ash       (QTY)       Debestos Ausilysis         D Athr - Please Indicate Filter Type:       U ELAP 198.4/Chatfield       (QTY)       Debestos Wipe (wipe type Gloss)       ((((QTY)))         D Fiberglass       (QTY)       U Residual Ash       (QTY)       Debestos Solution       (((TY)))         D Athr - Please Indicate Filter Type:       U Residual Ash       (QTY)       Debestos Solution       (QTY)         D Athr - Please Indicate Filter Type:       U Qual. (pres/abs) Vacuum/Dust       (QTY)       Debestos Columnation       (QTY)         D NIOSH 7.402       (QTY)       U Quan. (s/area) Vacuum D5755-95       (QTY)       Defining Water DPb       (QTY) D Cu       (QTY) D As       (QTY)         U Other (specify       )       (QTY)       Dotan (s/area) Data D6480-99       (QTY)       Debetty D Cu       (QTY) D Cu <td< th=""><th></th><th>7</th><th></th><th></th><th></th><th></th><th>BEST</th><th>AVAILA</th><th>BLE C</th><th>OPY<br/>2024</th><th></th><th></th><th></th><th></th><th></th><th></th><th>15920</th><th>2</th><th>210 REV</th><th>/ 6.08</th><th></th></td<>   |   | 7   |                                       |  |           |                        | BEST     | AVAILA  | BLE C                | OPY<br>2024        |   |  |          |          |  |                      | 15920            | 2           | 210 REV   | / 6.08  |          |
|--|---|---|---------------------------------------|--|-----------|------------------------|----------|---------|----------------------|--------------------|---|--|----------|----------|--|----------------------|------------------|-------------|---|---------|----------|
| Address 1:   | Focused on Rest<br>AIHA (#100470)<br>4475 Forbes Bly  | ults www.amalab.<br>NVLAP (#101143-0)<br>d. • Lanham, MD 2070   | com<br>NYEL<br>%                      |  | ») (      | CH                     | AI       |         |                      | 8 - 2 <b>0</b> 240 | 10.0000000  | 1911-10  |          |          | ě.   |                      |                  |             | 51  | 597     | -<br>'9  |
| Address 1:   | 1. Client Name: Nat   | ional Guard Bureau  |                                       |  |           |                        |          | Sub.    | nittal li<br>lob Nan | nform              | ntion:  | 114  | AR       | NG       |  |                      |                  |             |   |         |          |
| Address 3: Harvandie Granos Margland 2028 Prove #:   | 2. Address 1: <u>301</u><br>3. Address 2: Attn  | -IH Old Bay Lane<br>NGB-AVN-SI State  | a Militar                             | v Reserv   | ation     |                        |          | . 4     | OD LOC               | MOR:               | C IN  | call   |          | C        |  | PO #                 | 10/912/6         | 3.09.4.00   | 02  |         |          |
| Heporting Information (Results will be provided in soon as technically feasibile): L-> provide Non-Responsive         Non-Responsive         AFTER HURRES from the provide in the provide in soon as technically feasibile): L-> provide in the provide integration integratintegration integration integration integration integrati  | 4. Address 3: Hav   | re de Grace. Marviar  | nd 210                                | 78   |           |                        |          | . 4. (  | Contact              | Perso              | NIC   | m-   | R        | e        | sn   | or                   | nsiv             | e           |   |         |          |
| AFTER HOURN (some be pre-scheduled)         Dimendiate         Data Date:         Dimendiate         Data Date:         Dimendiate   | 5. Phone #: (410) 9   | 42-0273   | Fax                                   |  |           |                        |          |         |                      |                    |   |  |          |          |  |                      |                  |             | n-Rest  | onsi    | ve       |
| Dimensitive Date Date:       Dimensitive Dimensitive Dimensitive Dimensitive Dimensitive Dimensitive Dimensitive Dimensitive Dimensitive Dimensione Dimensitive Dimensione Dimensi Dimensione Dimensione Dimensione Dimensione Dimensintere   | AFTER HOURS (m  | ust be pre-scheduled)   |                                       | меро   | ring mo   |                        |          |         |                      |                    |   | as teci  | 101681   | ly tes   | sidle)   |                      | priori           | RE          | 11100   | pontor  |          |
| Comments         U 2 Day         Date Date:         Made to Accompation         U Proprint Structure         Duts.army.mll           Authorston Analysis         Comments         U 2 Day         Date Date:         Made to Accompation         U Proprint Structure         Duts.army.mll           Authorston Analysis         Comments         (CTY)         U EA P 198.44Chaif eld         (CTY)         U EA P 198.44Chaif eld         (CTY)         U EN Soli2Solid         (CTY)         U Broglassis         (CTY)         U Broglasing Broglassis         <   | and the second se | Section Sector State And the  |                                       | and the second |           | 031                    | Day      | 11      | 0                    | D Re               | sults Requ  | ired B   | y Nooi   |          | 1 Inc  | Non-                 | Respor           | it it       | Report  | 100     |          |
| Molection Analysis         TIM Balk         TIM Balk <td></td> <td></td> <td></td> <td></td> <td></td> <td>Date  </td> <td>Due:</td> <td>DA</td> <td>3</td> <td>(E)</td> <td>retyAtten</td> <td>pt Will</td> <td>Be</td> <td>137</td> <td></td> <td></td> <td>resper</td> <td></td> <td></td> <td></td> <td></td>   |   |   |                                       |  |           | Date                   | Due:     | DA      | 3                    | (E)                | retyAtten   | pt Will  | Be       | 137      |  |                      | resper           |             |   |         |          |
| StMAir - Please Indicate Filter Type:       UBA P18.4Chaffeld       (OTY)         UNDERF AT00Q(Y)       UN State Findice Filter Type:       (OTY)         UNDERF AT00Q(Y)       UNDERF AT00Q(Y)       UNDERF AT00Q(Y)       UNDERF AT00Q(Y)         UNDERF AT00Q(Y)  |   |   |                                       |  |           |                        |          |         | 0                    |                    |   | onneen   |          | -        | Conception of the local division of the loca |                      |                  | Pu          | s.army.mi   | 1       |          |
| $ \begin{array}{c c c c c c c c c c c c c c c c c c c $  | Asbestos Analysis   | Filter Type:  |                                       |  |           |                        | Alland   | t at d  |                      | INTY               |   |  | 1        |          | Paint  | Chin                 |                  | OTV         |   |         |          |
| $ \begin{array}{c c c c c c c c c c c c c c c c c c c $  | UNIOSH 7400   | (QTY)   |                                       |  | <b>UN</b> | State 1                | LM/TE    | M       |                      | (QTY)              | ,   |  |          | MP       | Dust   | Wipe (w              | ipe type G       | hest ;      | <u> </u>  | _(QTY)  |          |
| □ AHERA(QTY)       □ Oal. (pres/bb) Vacuum/Dott(QTY)       □ Obt (pres/bb) Vacuum/Dott(QTY)       □ Ob   | IEM Air - Please Indicate   | Filter Type:  |                                       | - C.   |           |                        | sh       |         | (QTY)                |                    |   |  |          | CI P     | Air_   |                      | (QIY)            |             |   |         |          |
| U Other (specify)  | O AHERA   | (QTY)   |                                       |  | UQ        | al. (pres              |          |         |                      |                    |   |  |          | OP       | TCLI   | 2                    | (QT              | ()          |   |         |          |
| Database   | U Other (specify  | ((11)   | _(QTY)                                | 18   |           | ion. (s/a<br>ion. (s/a | rea) Vac | uum D57 | 55-95_               |                    | (Q1   | Y)   |          |          | rinking<br>Aste W  | Water (<br>ater C) P | 1 Pb(Q<br>b (OT) | YID Cu      | (QTY)C  |         | QTY)     |
| DEPA Point Count   | D EPA 600 - Visual I  | İstimate (  | OTY                                   |  | TEM Wat   | er                     |          |         |                      |                    | _(Q11)  |  | thir.    | UP       | Furne  | ice (Mec             | lia              | _)          | (QT   | Y)      |          |
| U Grav. Reduction ELAP 198.6   | CEPA Point Count_   | (QTY)   |                                       |  |           | AP 108                 | s/abs)   | 100.2   | _(QT)                | ()<br>()T          | <sup>co</sup>   |  |          |          |  |                      | atus for Spon    | e Trans/Air | Samples   |         |          |
| Clother (specify)  | Gray, Reduction E   | LAP 198.6   | (QTY)                                 |  | QEP       | A 100.1                |          | ((      | (YTY)                | - 14.              | .,  |  |          | C        | ollectio   | n Media              |                  |             |   |         |          |
| Overmiculie       Index Water samples       U       Usurface Tupe(QTY)       Octombe ID Species (Meda         Oxernative Time       Outer Specify       (QTY)       Octombe ID Species (Meda       Dotter (Specify)       (QTY)       Octombe ID Species (Meda         CLIENT ID       SAMPLE LOCATION       VOLUME       WIPH       7       7       7       7       0       Species (Meda)       Dotter (Specify)       (QTY)       Octombe ID Species (Meda)         CLIENT ID       SAMPLE LOCATION       VOLUME       WIPH       7       7       7       9       7       7       8       7       (LABORATORY STAFF ONLY)         Charageu       PC       ID SUITENCE TUPE       (DTY)       Volume:       Non-       No  | Cher (specify   | ))  |                                       | b)   |           |                        |          |         |                      | on unle            | ess otherw  | ise not  | ed.      | US<br>US | pore-Thurface  | swab                 | _(QTY)           | Cultural    | te Vacuum Dus<br>ble ID Genus (Me   | st(     | QTY)     |
| CLIENT ID     CRUME WIPH # # # # # # # # # # # # # # # # # # #   | C Vermiculite   |   | ar warta v                            |  | -         | Water                  | samples  |         | C)                   |                    |   |  |          | US       | urface !   | Tope                 | (OTY)            | Calcurab    | le ID Species (M  | edia1   |          |
| CLENT ID       SAMPLE LOCATION/<br>IDENTIFICATION       VOLUME       WIPH $\frac{3}{8}$  | Asbestos Soil PLM_  |   |                                       | PLM/TEM_(  | Quan)     |                        | -        |         |                      |                    |   | 4084   | Ministra | 40       | ner (apo   | city                 | (QII)            |             |   | 20      |          |
| Chicoper P.C       W-OI       y/29/3       Work       X       Date/Time:       Contact:       By:         Chicoper RC       W-O3       X <td>CLIENT ID</td> <td>SAMPLE LOCATION</td> <td>· · · · · · · · · · · · · · · · · · ·</td> <td></td> <td></td> <td>13</td> <td>13</td> <td>1 3 1</td> <td>313</td> <td>18</td> <td>111</td> <td>51</td> <td>Če Ž/</td> <td>23</td> <td>81</td> <td>AAB  </td> <td></td> <td></td> <td></td> <td></td> <td></td>   | CLIENT ID   | SAMPLE LOCATION   | · · · · · · · · · · · · · · · · · · · |  |           | 13                     | 13       | 1 3 1   | 313                  | 18                 | 111   | 51   | Če Ž/    | 23       | 81   | AAB                  |                  |             |   |         |          |
| Chicque RC W-08<br>Chicque RC W-08<br>Chicqu |   |   |                                       |  |           |                        | 18       | 5       | 4/2                  | 13                 |   |  | 848      | AF       | 61   | 1                    |                  | ABORATO     | Contract of the second states |         |          |
| Chicque RC       US-03       X       Image: RC       US-03         Chicque RC       US-04       X       Date/Time:       Contact:       By:         Chicque RC       US-05       Image: RC       US-06       Image: RC   | Chicoper RC   | the second se | 5124                                  | 0  | 10000     | -                      |          |         |                      | -                  | -   |  | -        | +        | +  |                      | ate/lime:        |             | Contact:  | Ву      | -        |
| Chrispin RC       W-OT       K       Date/Time:       Contact:       By:         Chrispin RC       W-OS       K       Date/Time:       Contact:       By:         Chrispin RC       W-OS       K       Date/Time:       Contact:       By:         Chrispin RC       W-OS       K       Hermitian       K       Hermitian         Chrispin RC       W-OS       K       Hermitian       K       Hermitian         Chrispin RC       W-OS       K       Hermitian       K       Hermitian         Chrispin RC       W-OS       K       Hermitian       Hermitian       Hermitian         Chrispin RC       W-IO       W       Hermitian       Hermitian       Hermitian         LABORATORY       1. Date/Time RCVD:       Other Methods       Hermitian       By (Print):       Hermitian  | Chicipu PC  | the second se | ++                                    |  |           | -                      |          |         | 1                    |                    |   | the second data  | +        | -        |  | -                    |                  |             |   | - 11    |          |
| $\begin{array}{c c c c c c c c c c c c c c c c c c c $   | Chicopie PC   |   | ++                                    |  |           | +                      |          |         |                      | 1-                 |   |  |          | -        | -  |                      |                  |             | and the second second   |         |          |
| Chicque RC     W-06     X     X     Date/Time:     Contact:     Dy:       Chicque RC     W-08     X     Date/Time:     Contact:     By:       Chicque RC     W-08     X     Date/Time:     Contact:     By:       Chicque RC     W-08     X     Date/Time:     Contact:     By:       Chicque RC     W-10     X     Date/Time:     Contact:     By:       Chicque RC     W-10     X     Non-Responsive       Chicque RC     I. Date/Time RCVD:     700     By (Print):   | Chingen RC  |   | ++-                                   |  |           | -                      |          |         |                      | -                  | -   | -  | -        | -        |  |                      | ste/Time:        |             | Contact   | Du      |          |
| Chrispin EC       W-07         Chrispin RC       W-08         Chrispin RC       W-08         Chrispin RC       W-09         Chrispin RC       W-09         Chrispin RC       W-09         Chrispin RC       W-10         Chrispin RC       W-10         Chrispin RC       W-10         LABORATORY       1. Date/Time RCVD:         2. Date/Time Analyzed:       ////////////////////////////////////   | Chargen PC  |   |                                       |  | ++        | -                      |          |         |                      | 1                  |   |  |          | -        | -  |                      | arei runc,       |             | contact,  | Ву      | <u>.</u> |
| Chicque RC     W-08       Chicque RC     W-09       Chicque RC     W-09       Chicque RC     W-10       Chicque RC     W-10       Chicque RC     W-10       LABORATORY     1. Date/Time RCVD:       2. Date/Time Analyzed:     ////////////////////////////////////  | Church RC   |   |                                       |  |           | 1                      |          |         |                      | 1                  | the second se | the second s | -        | -        |  | -                    |                  |             |   |         |          |
| Chitagen EC       U-09       X       Date/Time:       Contact:       By:         Chitagen EC       W-10       X       Date/Time:       Contact:       By:         Chitagen EC       W-10       X       Date/Time:       Contact:       By:         Chitagen EC       W-10       X       Date/Time:       Contact:       By:         Chitagen RC       TB-W       X       Non-Responsive         LABORATORY       1. Date/Time RCVD:       Contact:       By:       By:       By:         2. Date/Time Analyzed:  | d 0.  |   |                                       |  |           | 1                      |          |         |                      |                    | +   |  |          |          |  | -                    |                  |             |   |         |          |
| Chicope RC       W-IO       W       X         Chicope RC       TB-W       X       Non-Responsive         Chicope RC       1. Date/Time RCVD:       5. /2.0 /2.0 /2.0 /2.0 /2.0 /2.0 /2.0 /2.   | successful to the second se   |   |                                       |  |           |                        |          |         |                      |                    |   | X  |          |          | 4  | D                    | ate/Time:        |             | Contact:  | By      |          |
| Choicepe RC TB-W # Non-Responsive<br>Choicepe RC 1. Date/Time RCVD: 5 /2.5 /3 @ By (Print):By (   | Chicoper RC   | W-10  | 1                                     |  | V         |                        |          |         |                      |                    |   |  |          |          |  | T                    |                  |             |   |         |          |
| LABORATORY     1. Date/Time RCVD:  | Chicipe RC  | TB-W  | 4                                     |  |           |                        |          |         |                      |                    |   | X  |          | N        |  |                      | AC               | no          | nei   | VA      |          |
| LABORATORY     1. Date/Time RCVD:  |   |   |                                       | 0  | 10        |                        | 100      | ala     | DD                   | -                  |   |  |          |          |  |                      | 50               |             | 101   | VC      |          |
| 2. Date/lime Analyzed:/ @By (Print):   | 1.40  | 1. Date/Time RC   | VD:                                   | 9-10   | 01        | 2                      | COL      | Via:    |                      |                    | By (  | Prin   |          |          |  |                      |                  |             |   |         |          |
| ted to NGB FOIA Reading Roomults Reported To:  | OTH TH ONLY N   | 2. Date/Time An   |                                       | /  | /         |                        |          |         | Contraction and a    |                    |   | -  |          |          |  |                      |                  |             |   |         |          |
|  | ted to NGB FOIA Rea   | ding Roomults Report  | ted To:                               | 1 10   | 5         | Day                    | BES      | T AVAI  | ABLE                 | COP                | Υ   | Da   | ate:     |          | 1-   | _/                   | FOIAR            | Bruested    | Record #J   | 15:0085 | (MA)     |

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### APPENDIX D

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### PHOTOGRAPHIC LOG

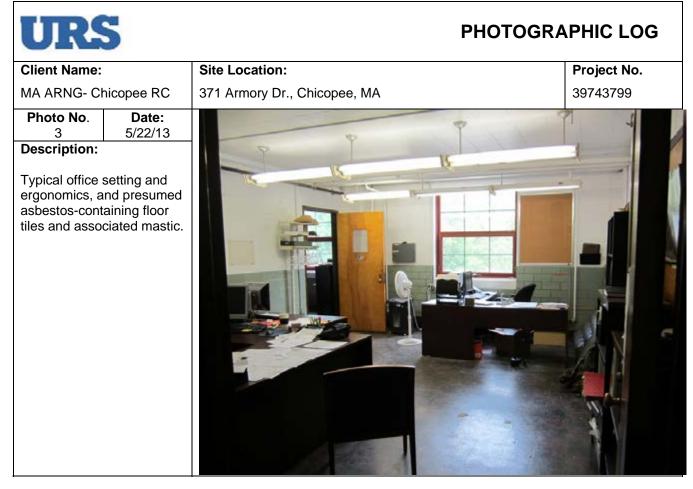


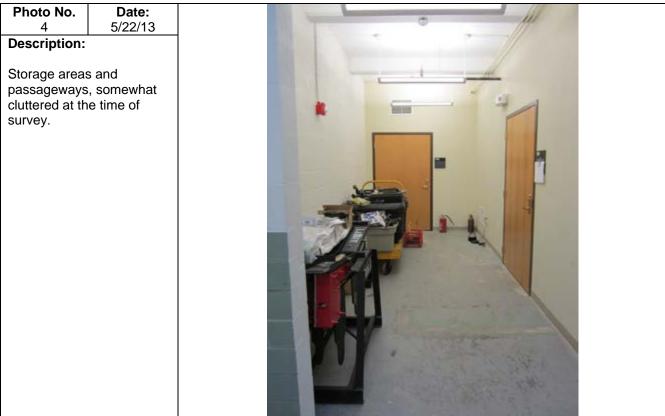
### PHOTOGRAPHIC LOG

| Client Name:  |                                   | Site Location:               | Project No. |
|---|-----------------------------------|------------------------------|-------------|
| MA ARNG- Chicopee RC  |                                   | 371 Armory Dr., Chicopee, MA | 39743799    |
| MA ARNG- Ch<br>Photo No.<br>1<br>Description:<br>Under charged<br>extinguisher wi<br>evidence of mo<br>inspections. | Date:<br>5/22/13<br>fire<br>th no | 371 Armory Dr., Chicopee, MA | 39743799    |

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

P:\Project\National Guard Bureau\39743798 IH Services ME & MA\39743799 - MA Sites\Reports\Chicopee RC\Chicopee RC Photo Log docx Room BEST AVAILABLE COPY FOIA Requested Record #J-15-0085 (MA) Released by National Guard Bureau Page 877 of 3473





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### APPENDIX E

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

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

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



### **Prepared For:**

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

Prepared By:

URS Corporation 5 Industrial Way Salem, New Hampshire 03079

INDUSTRIAL HYGIENE SURVEY REPORT CONCORD READINESS CENTER 25 EVERETT STREET CONCORD, MASSACHUSETTS





Non-Responsive

Project wanager

September 2005 PN: 39741508

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### FINDINGS AND RECOMMENDATIONS

| Findings  | Recommendation  | Risk<br>Assessment<br>Code  |
|---|---|-----------------------------|
| i Lighting  |   |                             |
| On the day of the survey, the illuminance in the administrative area was inadequate in most offices.  | Increase lighting in the<br>administrative areas. While work<br>is in progress, the administrative<br>area shall be lighted by at least the<br>minimum lighting intensities (ANSI<br>/ IESNA RP-1-04)                                 | RAC 4                       |
| Lead  |   |                             |
| Peeling lead-based paint was<br>present on the floor in storage<br>room # 9, former firing range,<br>classroom # 33 and office # 29.  | Personnel trained in accordance<br>with the OSHA Lead Standard<br>should stabilize peeling lead paint<br>(OSHA 29 CFR 1910.1025(h)(1))  | RAC 4                       |
| Lead was detected in wipe<br>samples collected from the<br>former firing range in amounts<br>greater than 200 µg/ft <sup>2</sup><br>Asbestos  | Personnel trained in accordance<br>with the OSHA Lead Standard<br>should clean the former firing<br>range where lead was detected in<br>quantitias of greater than 200<br>micrograms per square foot<br>(OSHA 29 CFR 1910.1025(h)(1)) | RAC 4                       |
|   |   | AN CONTRACTOR OF CONTRACTOR |
| Damaged and missing floor tile<br>was present in training room #<br>12. Exposed pipe fittings were<br>found in various locations.<br>Exposed tank insulation was<br>found in the boiler room. | Repair or remove asbestos-<br>containing floor tile, tank insulation<br>and pipe fittings. Work should be<br>completed by personnel trained in<br>accordance with federal<br>regulations (OSHA 29 CFR<br>1910.1001(k)(1))             | RAC 3                       |
| A site-specific asbestos<br>operations and maintenance<br>plan was available but not<br>implemented.  | Implement the site specific<br>asbestos operations and<br>maintenance plan to manage<br>asbestos-containing materials<br>(OSHA 29 CFR 1910.1001(j))   | RAC 3                       |
| Hazard Communication  |   |                             |
| No site specific hazard<br>communication plan available.  | Develop a site specific hazard<br>communication plan to manage<br>hazardous materials (OSHA 29<br>CFR 1910.1200(e))   | RAC 4                       |

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

### FINDINGS AND RECOMMENDATIONS (Cont.)

### 1.0 SUMMARY

At the request of the National Guard Bureau Region North Industrial Hygiene Office (NGB), URS Corporation (URS) conducted an industrial hygiene survey at the Readiness Center located at 25 Everett Street in Concord, Massachusetts 01742. This report includes an executive summary, a description of the survey protocol, a discussion of the survey evaluation and findings and a list of conclusions and recommendations.

On January 29, 2004, Mr. Non-Responsive an industrial hygienist with URS, conducted a site visit to the Readiness Center in Concord, Massachusetts. The purpose of this site visit was to conduct an industrial hygiene survey, which included the collection of air samples, bulk samples, lighting measurements, and a review of site health and safety procedures. Mr Non-Responsive of the State of Massachusetts was Mr Non-Responsive site contact for this survey.

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

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### 2.0 ADMINISTRATIVE AREA

### 2.1 Operation Description

This building area contains multiple offices located throughout the building with desks and computer workstations. Computer workstations were assessed during the walkthrough for ergonomic issues. URS was unable to gain access to office #'s 14, 15 and 16 because this unit was deployed at the time of URS' survey. The other rooms had no ergonomic issues to report.

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

### 2.2 Chemical and Physical Agents Sampled

### 2.2.1 Relative Humidity

Relative humidity levels were measured using a TSi Q-Track (Model 8551). Relative humidity on the day of the survey ranged from 20.4 - 25.1% with an average of 23.8% on the 1<sup>st</sup> floor. Levels of the 2<sup>nd</sup> floor ranged from 14.4 – 15.3% with an average of 14.6%. In the basement, levels ranged from 22.2 – 28.4% with an average of 24.7%. These readings were below the recommended range of 30.0% to 60.0% set by the American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. (ANSI / ASHRAE Standard 62.1-2004).

### 2.2.2 Carbon Dioxide

On the day of the survey, carbon dioxide measurements were made at various locations throughout the Readiness Center. Carbon dioxide concentrations on the 1<sup>st</sup> floor ranged from 325 to 398 parts per million (ppm), with an average of 332 ppm. Levels on the 2<sup>nd</sup> floor ranged from 332 to 385 ppm, with an average of 340 ppm. Basement levels ranged from 328 to 341 ppm, with an average of 332 ppm. Carbon dioxide levels were measured using a direct reading TSI Q-Track (Model 8551).

Carbon dioxide is a normal constituent of the atmosphere and ranges from about 250 to 450 ppm. The major source of excess carbon dioxide in the indoor environment is people. Other sources can include open-flame heaters, fermentation processes, and motor vehicles. Carbon dioxide itself is not normally a cause of indoor air quality problems because concentrations must exceed 5,000 to 10,000 ppm before health effects such as headache, drowsiness, and increased respiration are noted. Typically, carbon dioxide is used as an indicator of the adequacy of fresh air intake. As the concentration of carbon dioxide increases, so do the background levels of other air contaminants. ASHRAE (ANSI / ASHRAE Standard 62.1-2004) recommends that

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

### 2.2.3 Carbon Monoxide

Carbon monoxide levels were also measured in the Readiness Center. The carbon monoxide concentration remained at 0 parts per million (ppm) throughout the survey period for all building areas. The measured carbon monoxide levels were below the ASHRAE (ANSI / ASHRAE Standard 62.1-2004) guideline for indoor environments. Carbon monoxide was measured using a TSI Q-Track (Model 8551).

Key sources of carbon monoxide within indoor environments include internal combustion engines, motor vehicle and forklift exhaust, tobacco smoke, space heaters, and improperly adjusted oil or gas burners. Health effects from exposure to elevated concentrations of carbon monoxide may include fatigue, impairment of visual acuity, irregular heartbeat, headache, nausea, and confusion. ASHRAE (ANSI / ASHRAE Standard 62.1-2004) recommends that average carbon monoxide concentrations not exceed 9 ppm. Typical average concentrations found in commercial buildings range from 0 to 6 ppm.

### 2.2.4 Lighting

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

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

# Table 2-1 Lighting Measurements and Recommended Lighting Requirements

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

### 2.2.5 Lead

Paint chips were collected in five areas where paint was peeling and sent to AMA Analytical Services, Inc. (AMA) for analysis. Three samples were found to contain lead in a concentration below the U.S. Housing and Urban Development (HUD) Lead-Based Paint Guidelines. Levels of lead greater than 0.5% by weight are referred to as "leadcontaining" (Section 1017 of the Residential Lead-Based Paint Hazard Reduction Act of 1992 (also referred to as Title X)). Table 2-2 below shows the results of the lead paint testing.

 Table 2-2

 Levels of Lead in Paint Found in the Administrative Area

| Sample Location   | URS Sample | Reporting Limit<br>(% by Weight) | Final Result<br>(% by Weight) |
|-------------------|------------|----------------------------------|-------------------------------|
| Storage Room # 9  | 0129-LPC01 | 0.01                             | 0.017                         |
| Storage Room # 9  | 0129-LPC02 | 0.01                             | 0.6                           |
| Storage Room # 10 | 0129-LPC04 | 0.01                             | 0.18                          |
| Classroom # 33    | 0129-LPC07 | 0.01                             | 1.3                           |
| Office # 29       | 0129-LPC08 | 0.01                             | 4.4                           |

The analytical report from AMA is contained in Appendix D.

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

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

| Sample Location                        | URS Sample<br>Number | Area Wiped<br>(ft <sup>2</sup> ) | Result<br>(µg/ft <sup>2</sup> ) | Maximum Safe<br>Surface<br>Contamination<br>Level (µg/ft <sup>2</sup> ) |
|--|----------------------|----------------------------------|---------------------------------|---|
| Bathroom # 17 – Top<br>of a Table      | 0129-LW08            | 1.000                            | 17                              | 200   |
| Office # 12 - Top of a<br>Cabinet      | 0129-LW09            | 1.000                            | 130                             | 200   |
| Office # 26 – Top of a<br>File Cabinet | 0129-LW10            | 1.000                            | 31                              | 200   |
| Blank                                  | 0129-LWBlank         | N/A                              | <12                             | 200   |

### 2.2.6 Asbestos

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

### 2.3 Ventilation System Evaluation

Not applicable to this operation.

### 2.4 Noise Measurements

Not applicable to this operation.

### 2.5 Personal Protective Equipment

Not applicable to this operation.

### 2.6 Interpretation of Results

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

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

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

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

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

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### 3.0 FORMER FIRING RANGE

### 3.1 Operation Description

The Former Firing Range has been dismantled and this building area is now primarily used for storage.

### 3.2 Chemical and Physical Agents Sampled

### 3.2.1 Lead

Wipe testing for lead was conducted in the former firing range using ghost wipes, which meet ASTM E 1792 standards. The analytical report from AMA is contained in Appendix D. Table 3-1 below shows the results of the lead sampling.

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

Table 3-1 Levels of Lead Dust Found in the Former Firing Range

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

Table 3-2 Level of Lead Found in the Air

| Sample Location     | URS Sample<br>Number | Air Volume<br>(L) | Result<br>(µg/m <sup>3</sup> ) | OSHA's<br>PEL(µĝ/m³) |
|---------------------|----------------------|-------------------|--------------------------------|----------------------|
| Former Firing Range | 0129-LA02            | 948               | <3.2                           | 50.0                 |
| Blank               | 0129-LA03            | 0                 | <3.0                           | 50.0                 |

On the day of the survey, the airborne lead dust level in the former firing range was found to be acceptable, below OSHA's permissible exposure limit (PEL) for lead (29)

CFR 1910.1025(c)) of 50.0  $\mu$ g/m<sup>3</sup> averaged over an 8-hour day. The analytical report from AMA is contained in Appendix D.

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

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

| Sample Location           |            | Reporting Limit |      |
|---------------------------|------------|-----------------|------|
| Former Firing Range<br>#7 | 0129-LPC03 | 0.01            | 0.82 |

The analytical report from AMA is contained in Appendix D.

### 3.3 Ventilation System Evaluation

Not applicable to this operation.

### 3.4 Noise Measurements

Not applicable to this operation.

### 3.5 Personal Protective Equipment

Not applicable to this operation.

### 3.6 Interpretation of Results

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

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

### 4.0 DRILL HALL

### 4.1 Operation Description

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

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

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

### 4.2 Chemical and Physical Agents Sampled

### 4.2.1 Lead

Wipe testing for lead dust was conducted in the drill hall using ghost wipes, which meet ASTM E 1792 standards. The analytical report from AMA is contained in Appendix D. Table 4-1 below shows the results of the lead sampling.

| Sample/Location       | URS Sämple   | Area Wiped | Result | Maximum Safe<br>Surface                      |
|-----------------------|--------------|------------|--------|--|
|                       | Number       | (ft²)      |        | Contamination<br>Level (µg/ft <sup>2</sup> ) |
| Drill Hall # 22-Floor | 0129-LW06    | 1.000      | 72     | 200  |
| Drill Hall # 22-Floor | 0129-LW07    | 1.000      | 71     | 200  |
| Blank                 | 0129-LWBlank | N/A        | <12    | 200  |

 Table 4-1

 Levels of Lead Dust Found in the Drill Hall

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

| Sample Location | URS Sample Number | Air Volume<br>(L) | Result<br>(µg/m³) | OSHA's<br>PEL(µg/m³) |
|-----------------|-------------------|-------------------|-------------------|----------------------|
| Drill Hall      | 0129-LA01         | 968               | <3.1              | 50.0                 |
| Blank           | 0129-LA03         | 0                 | <3.0              | 50.0                 |

### Table 4-2 Levels of Lead Found in the Air

On the day of the survey, the airborne lead dust level in the drill hall was found to be acceptable, below OSHA's permissible exposure limit (PEL) for lead (29 CFR 1910.1025(c)) of 50.0  $\mu$ g/m<sup>3</sup> averaged over an 8-hour day.

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

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

| Sample Location | URS Sample<br>Number | Reporting Limit<br>(% by Weight) |       |
|-----------------|----------------------|----------------------------------|-------|
| Drill Hall # 22 | 0129-LPC06           | 0.01                             | 0.051 |

The analytical report from AMA is contained in Appendix D.

### 4.3 Ventilation System Evaluation

Not applicable to this operation.

### 4.4 Noise Measurements

Not applicable to this operation.

### 4.5 Personal Protective Equipment

Not applicable to this operation.

### 4.6 Interpretation of Results

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

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

### 5.0 BOILER ROOM

### 5.1 Operation Description

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

### 5.2 Chemical and Physical Agents Sampled

### 5.2.1 Lead

One paint chip was collected where paint was peeling and sent to AMA for analysis. The sample was found to contain lead in a concentration below the U.S. Housing and Urban Development (HUD) Lead-Based Paint Guidelines. Levels of lead greater than 0.5% by weight are referred to as "lead-containing" (Section 1017 of the Residential Lead-Based Paint Hazard Reduction Act of 1992 (also referred to as Title X)). Table 5-1 below shows the results of the lead paint testing.

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

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

The analytical report from AMA is contained in Appendix D.

### 5.3 Ventilation System Evaluation

Not applicable to this operation.

### 5.4 Noise Measurements

Not applicable to this operation.

### 5.5 Personal Protective Equipment

Not applicable to this operation.

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### 5.6 Interpretation of Results

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

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

### 6.0 SAFETY AND INDUSTRIAL HYGIENE PROGRAMS

### 6.1 Confined Spaces

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

### 6.2 Hearing Conservation

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

### 6.3 Respiratory Protection

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

### 6.4 Hazard Communication

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

### 6.5 Personal Protective Equipment

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

### 7.0 REFERENCES

American National Standards Institute

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

American Society of Heating Refrigerating and Air-Conditioning Engineers

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

Army Corps of Engineers

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

Department of the Army

Ergonomics Program Pamphlet 40-21 (15 August 2003)

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

### Department of Defense

DoD Hearing Conservation Program Standard 6055.12 April 1996

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

U.S. Environmental Protection Agency

Asbestos Hazard Emergency Response Act (40 CFR Part 763)

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

U.S. Housing and Urban Development

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

U. S. Occupational Safety and Health Administration

Standard for General Industry: 29 CFR 1910

**URS** 

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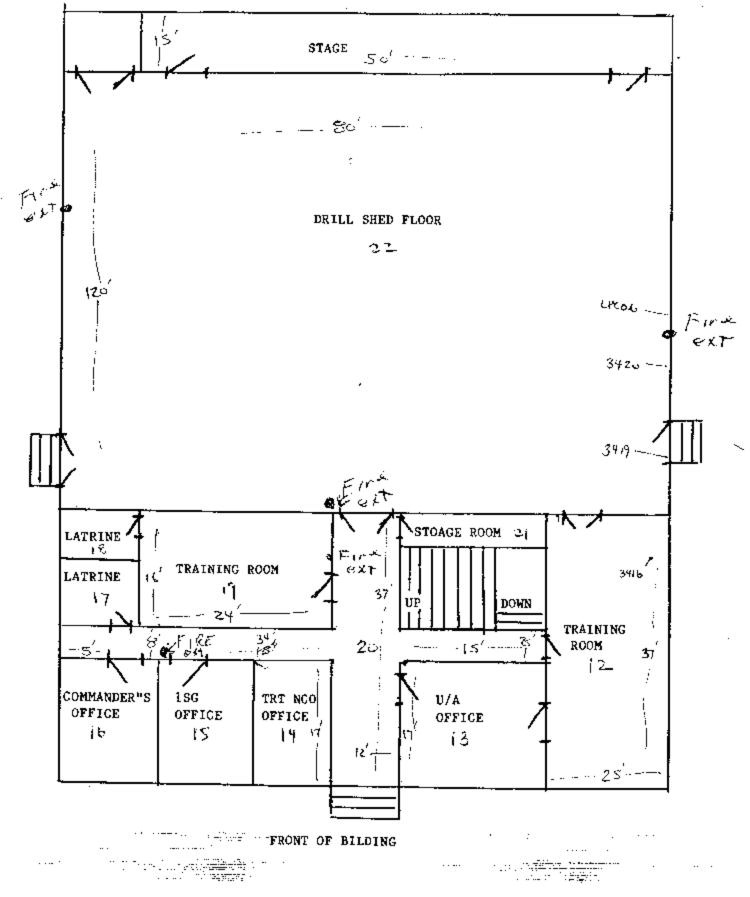
APPENDIX A

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SHOP DRAWING

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MAIN FLOOR EVACUATION PLAN FOLLOW RED ARROWS

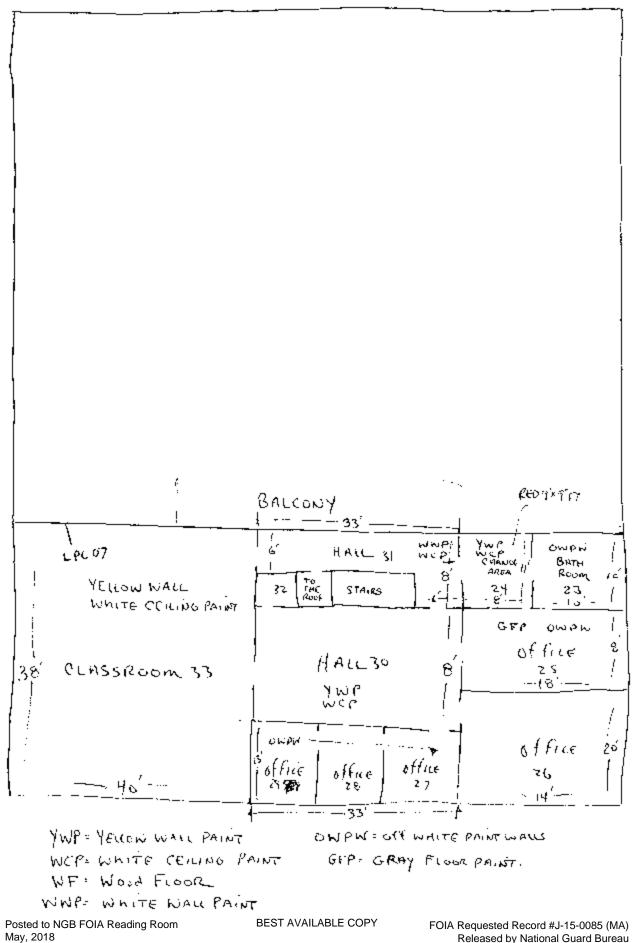


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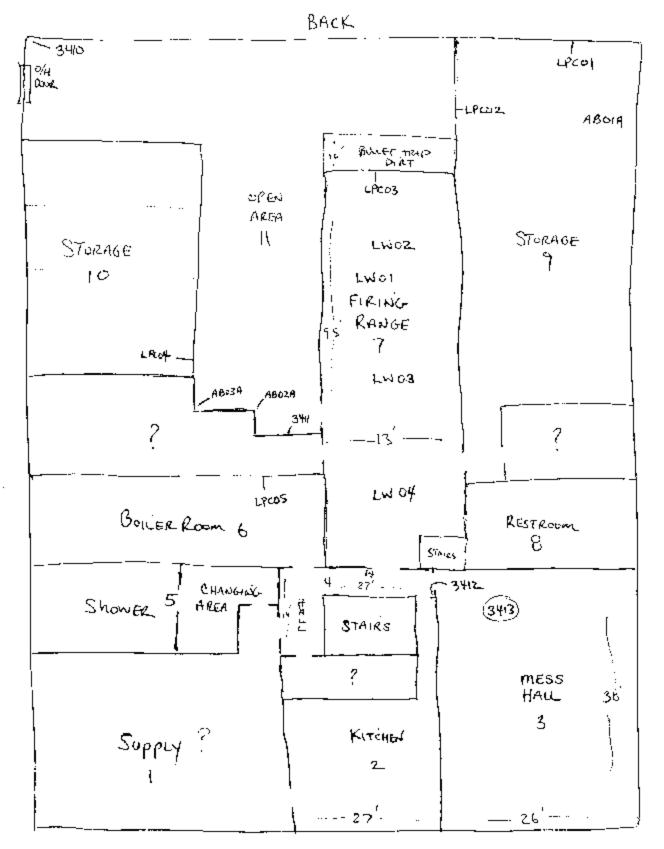
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### BASEMENT





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PERSONNEL LIST

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UNIT DEPLOYED NO STAFF ON SITE

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## APPENDIX C

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## HAZARDOUS MATERIALS LIST

## NOT AVAILABLE

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#### APPENDIX D

#### ANALYTICAL RESULTS

| A Specialized Environmental Laboratory |  |               | TIFICATE OF ANALYSIS       |                    | i)<br>je   | RIVLAG<br>NY ELA<br>AIHA |
|--|--|---------------|----------------------------|--------------------|------------|--------------------------|
| Client:                                | National Guard Burcau  | Job Name:     | Army National Guard        | Chain Of Custody:  | 122699     |                          |
| Address:                               | 301-IH Old Bay Lanc, Attn: NGB-AVN-SI,<br>State Military Reservation | Job Location: | 25 Everett St. Concord, MA | Date Analyzed:     | 02/10/2004 |                          |
|  | Havre de Grace, Maryland 21078                                       | Job Number:   | 42056-012-211              | Person Submitting: |            |                          |
|  |  | P.O. Number:  | Not Provided               | Report Dute:       | 10-Feb-04  |                          |
| Attention:                             |  |               |                            |                    |            | Pres 1 uf 2              |

Page 1 of 2

#### Summary of Atomic Absorption Analysis for Lead

|                | AMA Sample<br>Number | Client Sample<br>Number | Analysis Type | Sample Type | Air Volume<br>(L) | Area Wiped<br>(ft') |       | orting<br>mit      |   | Final Res | ult                | Comments   |
|----------------|----------------------|-------------------------|---------------|-------------|-------------------|---------------------|-------|--------------------|---|-----------|--------------------|--|
| 7              | =_ == ==             |                         |               |             |                   |                     |       |                    |   |           |                    |  |
| B              | 0422979              | 0129 LA 01              | Flame         | Air         | 968               | N/A                 | 3.10  | ug/m'              | < | 3.1       | ug/m³              |  |
| S              | 0422980              | 0129 1.A 02             | Flame         | Air         | 948               | N/A                 | 3.16  | ug/m²              | < | 3.2       | ug/m³              |  |
| BEST AVAILABLE | 0422981              | 01291.03                | Flame         | Air Blank   | 0                 | N/A                 | 3.00  | ug/m <sup>3</sup>  | < | 3         | ug                 |  |
| A              | 0422982              | 01291.PC 01             | Flame         | Paint Chip  | ****              | N/A                 | 0.01  | %Pb                |   | 0.017     | %Ph                |  |
| A              | 0422983              | 0129 I.PC 02            | Flame         | Paint Chip  | ****              | N/A                 | 0.01  | %Pb                |   | 0.6       | %РЬ                |  |
| Ĩ              | 0422984              | 0129 LPC 03             | Flame         | Paint Chip  | ****              | N/A                 | 0.01  | %Pb                |   | 0.82      | %Pb                |  |
| 2              | 0422985              | 0129 I.PC 04            | Flame         | Paint Chip  | ****              | N/A                 | 0.01  | %Pb                |   | 0.18      | %Pb                |  |
| COPY           | 0422986              | 0129 I.PC 05            | Flame         | Paint Chip  | ****              | N/A                 | 10.0  | %Pb                | < | 0.0093    | %Pb                |  |
|                | 0422987              | 0129 LPC 06             | Flame         | Paint Chip  | ****              | N/A                 | 0.01  | %Pb                |   | 0.051     | %РЬ                |  |
|                | 0422988              | 0129 LPC 07             | Flame         | Paint Chip  | ****              | N/A                 | 0.01  | %Pb                |   | 1.3       | %Pb                |  |
|                | 0422989              | 0129 I.PC 08            | Flame         | Paint Chip  | ****              | N/A                 | 0.01  | %Pb                |   | 4.4       | %Pb                |  |
| T              | 0422990              | 0129-LW 01              | Flame         | Wipe        | ****              | 0.750               | 16.00 | ug/fl <sup>2</sup> |   | 15000     | ug/ft²             |  |
| FOIA           | 0422991              | 0129-LW 02              | Flame         | Wipe        | ****              | 1.000               | 12.00 | ug/fi <sup>2</sup> |   | 1500      | ug/ft2             |  |
| Re             | 0422992              | 0129-LW 03              | Flame         | Wipe        | ****              | 1.000               | 12.00 | ug/ft²             |   | 670       | ug/fl²             | ts, the public and these Laborate<br>r without prior written authoriz<br>xpressly disclaim any knowledge<br>l by the client. NVLAP Accredit<br>cserved. AMA Analytical Services, |
| que            | 0422993              | 0129-LW 04              | Flame         | Wipc        | ****              | 1.000               | 12.00 | ug/ft²             |   | 800       | ug/ft²             |  |
| este           | 0422994              | 0129-LW 05              | Flame         | Wipe        | ****              | 1.000               | 12.00 | ug/il <sup>2</sup> |   | 10000     | ug/ft*             |  |
| dR             | 0422995              | 0129-LW 06              | Flame         | Wipe        | ****              | 1.000               | 12.00 | ug/ft²             |   | 72        | ug/ft²             |  |
| Na Na          | 0422996              | 0129-LW 07              | Flame         | Wipe        | ****              | 1.000               | 12.00 | ug/ft <sup>2</sup> |   | 71        | ug/ft²             |  |
| ion a          | 0422997              | 0129-I.W 08             | Flame         | Wipe        | ****              | 1.000               | 12.00 | ug/ft <sup>2</sup> |   | 17        | ug/ft <sup>2</sup> |  |
| 直楚             | 0422998              | 0129-LW 09              | Flame         | Wipe        | ****              | 1.000               | 12.00 | ug/ft²             |   | 130       | ug/Ω²              |  |

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| li.                 | A Spor                              | sialized Environmen                             | tal Laboratory | CER  | FIFICATE          | OF ANAI             | LYSIS    |                    |  |          |        | NY ELA<br><i>A</i> IHA |
|---------------------|-------------------------------------|---|----------------|--|-------------------|---------------------|----------|--------------------|--|----------|--------|------------------------|
|                     | Client:                             | National Guard Bureau                           | i .            | Job Name:                                    | Army Nationa      | l Guard             |          | Chain Of           | Custody:   | 1220     | 599    |                        |
|                     | Address:                            | 301-IH Old Bay Lane,<br>State Military Reservat |                | Job Location:                                | 25 Evercii St.    | Concord, MA         |          | Date Ana           | lyzed:   | 02/1     | 0/2004 |                        |
|                     |                                     | Havre de Grace, Maryl                           | and 21078      | Job Number:                                  | 42056-012-21      | 1                   |          | Person Si          | ubmitting:   |          |        |                        |
|                     |                                     |   |                | P.O. Number:                                 | Not Provided      |                     |          | Report D           | ale:   | 10-F     | eb-04  |                        |
| 2                   | Attention:                          |   |                |  |                   |                     |          |                    |  |          |        | Page 2 of 2            |
|                     |                                     | -   |                | Summary o                                    | f Atomic A        | Absorption          | Analys   | is for l           | Lead   |          |        |                        |
|                     | AMA Sumple<br>Number                | Client Sample<br>Number                         | Analysis Type  | Sumple Type                                  | Air Volume<br>(L) | Area Wiped<br>(ft²) |          | orting             | Ĩ  | inal Res | ult    | Comments               |
| Π                   | 0422999                             | 0129-LW 10                                      | Flame          | Wipe   | ****              | 1.000               | 12.00    | ug/ft <sup>1</sup> |  | 31       | ug/ft² |                        |
| BES.                | 0423000                             | 0129-I.W BLANK                                  | Flame          | Wipe Blank                                   | ****              | N/A                 | 12.00    | ug                 | <  | 12       | ug     |                        |
| BEST AVAILABLE COPY |                                     | for Flame: Air, Wipes, F                        |                |  | S S 102           |                     |          |                    |  |          |        |                        |
| AIL                 | Analysis Method<br>N/A = Not Applic | For Furnace: Air, Wipe                          |                | iolids : EPA 600/R-93<br>by weight mg/L = pa |                   |                     |          |                    |  |          |        |                        |
| ABI                 | %Pb = percent le                    |   |                | /L = parts per billion (                     |                   | <i><b>M</b></i> (1) |          |                    |  |          |        |                        |
| EC                  | Note: All results I                 | have two significant digit                      |                |  |                   |                     | Z        |                    |  |          |        |                        |
| ÖP                  | considered when                     | interpreting the result.                        |                |  |                   |                     | Ĕ        |                    |  |          |        |                        |
| $\prec$             |                                     |   |                |  | -                 |                     | <b>R</b> | -                  | and the second |          |        |                        |
|                     |                                     |   |                |  | Ar                |                     | ds       | Tech               | nical Mana;  | ger:     |        |                        |
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### APPENDIX E

#### TRAINING CERTIFICATES

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# Non-Responsive

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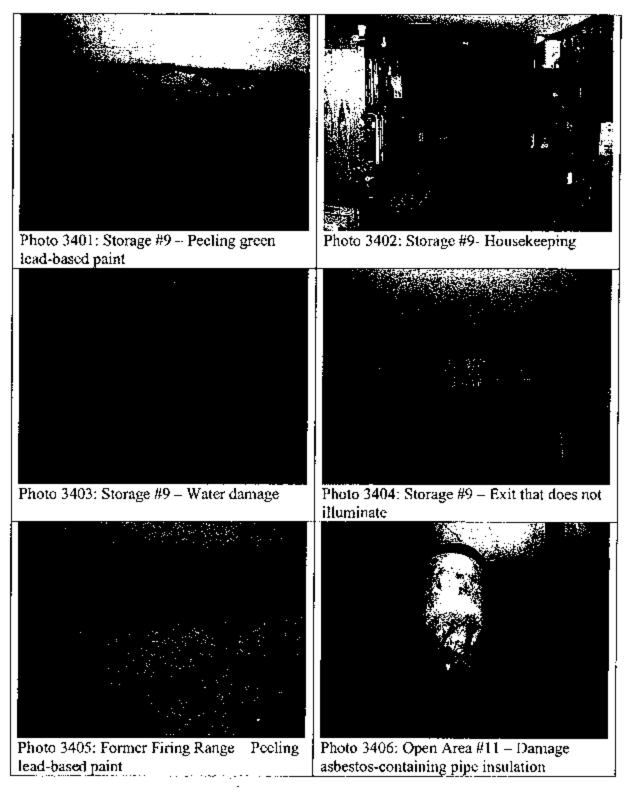
| ENVIR                                | INSTITUTE FOR<br>ONMENTAL EDUCATIO  | N, INC.                           |
|--------------------------------------|---|-----------------------------------|
| TPP                                  | 16 Upton Drive, Wilmington, MA 01887<br>(978) 658-5272  | TFF                               |
| IEE                                  | This is to certify that   | IEE                               |
| has compl                            | eted the requisite training, and has passed an exar<br>for reaccreditation as:                            | nination                          |
|                                      | Asbestos Inspector Refresher  |                                   |
| pursuar                              | nt to Title II of the Toxic Substance Control Act, 15 U.S.C   | 2. 2646                           |
|                                      | April 11, 2003<br>Course Dates  |                                   |
| April 11, 2003<br>Examination Date   | <u>Course Location</u><br>Institute for Environmental Education<br>16 Upton Drive<br>Wilmington, MA 01887 | April 10, 2004<br>Expiration Date |
| 03518010625349<br>Certificate Number |   | President/Director of Training    |
|                                      |   |                                   |

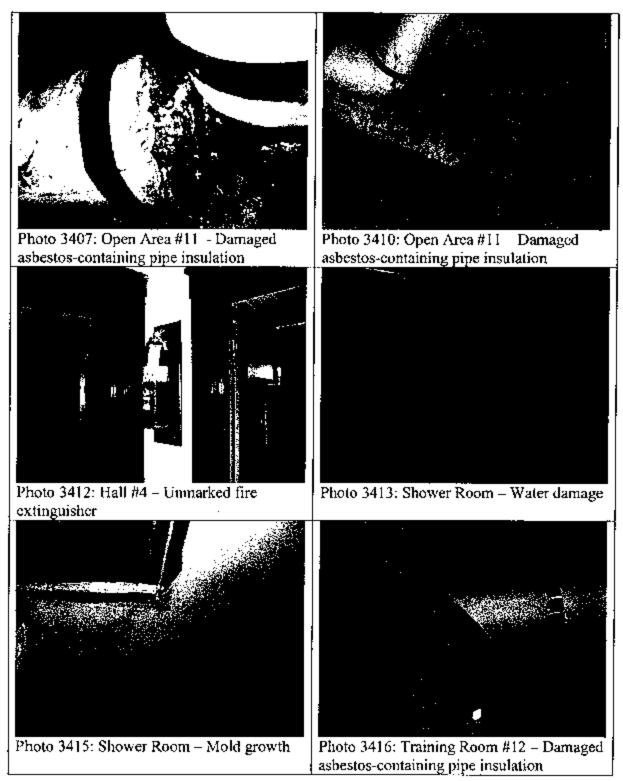
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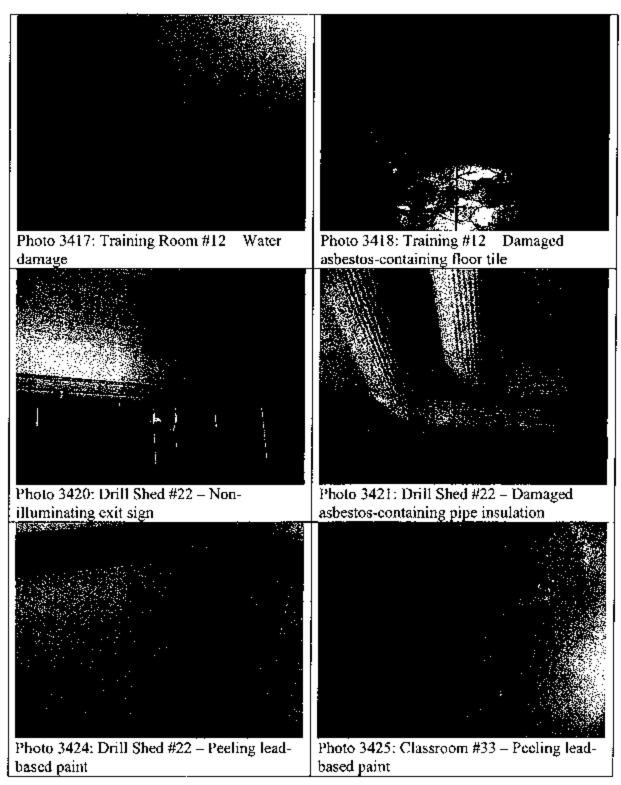
FOIA Requested Record #J-15-0085 (MA) Released by National Guard Bureau Page 914 of 3473 APPENDIX F

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## PHOTOGRAPHS







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APPENDIX G

## **RECOMMENDATIONS FOR SURFACE LEAD DUST IN ARMORIES**

#### Subject: Recommendations for Surface Lead Dust in Armories

1. In armories that do not contain childcare facilities, the National Guard Bureau (NGB) Region North Industrial Hygiene Office recommends cleaning the areas in which sample results are greater than 200 micrograms per square foot ( $\mu$ g/ll<sup>2</sup>). If a special function will be held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function. This guidance is based on professional judgment, risk assessments, adaptation of Occupational Safety and Health Administration (OSHA) guidance, and feasibility of cleaning to a certain level.

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

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

c. OSHA used to cite a level of 200  $\mu$ g/ft<sup>2</sup> 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<sup>2</sup> is a safe surface contamination level. They have also applied these standards as the decontamination levels for surfaces in administrative offices.

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

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

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

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



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

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

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

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



Project Manager



Section Manager - EHS Management

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

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## Executive Summary

On August 17, 2010, AECOM Environment conducted an Industrial Hygiene (IH) survey of the Concord Readiness Center facility located at 91 West Everett Street in Concord, Massachusetts. SSG was the point of contact for the facility, Non-Responsive, Program Coordinator I, was the point of contact for the facility and accompanied AECOM during the survey to provide access and information concerning the Concord Readiness Center operations.

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

The Concord Readiness Center is currently staffed by approximately three personnel. The facility was constructed in1915.

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

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

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

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

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

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

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

## 1.0 Facility Description and Operations

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

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

## 2.0 Sampling in Readiness Centers

#### 2.1.1 Wipe Sampling

Wipe sampling for lead was conducted in the drill hall and administrative areas following the OSHA wipe sampling method and using Ghost wipes. Samples were collected in areas that are not frequently cleaned and showed signs of dust whenever possible.

According to site personnel the indoor firing range at the facility is no longer in use and was abated on September 30, 2000. The following table presents the results of the lead wipe sampling conducted at the facility.

| Sample Number | Sample Location            | Lead Concentration       |
|---------------|----------------------------|--------------------------|
| CRC-1         | Range Floor                | 1300 ug/ft <sup>2</sup>  |
| CRC-2         | Range Table                | 800 ug/ft <sup>2</sup>   |
| CRC-3         | Range Wall                 | 36000 ug/ft <sup>2</sup> |
| CRC-4         | Range Duct                 | 11000 ug/ft <sup>2</sup> |
| CRC-5         | Exterior Range Floor       | 310 ug/ft <sup>2</sup>   |
| CRC-6         | Kitchen Stove              | 250 ug/ft <sup>2</sup>   |
| CRC-7         | Mess Hall Table            | 150 ug/ft <sup>2</sup>   |
| CRC-8         | Drill Shed Vending Machine | 110 ug/ft <sup>2</sup>   |
| CRC-9         | U/A Office Shelf           | <110 ug/ft <sup>2</sup>  |
| CRC-10        | Training Room Shelf        | 120 ug/ft <sup>2</sup>   |
| CRC-11        | Office #1 Shelf            | <110 ug/ft <sup>2</sup>  |
| CRC-12        | Classroom Table            | <110 ug/ft <sup>2</sup>  |

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

All of the wipe samples collected in the former firing range and in the kitchen indicated elevated levels of lead. All other samples showed levels that were below the ARNG action level of 200 ug/ft<sup>2</sup>. Laboratory analytical results are presented in Appendix C.

#### 2.1.2 Air Sampling

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

#### Table 2-2: Lead Air Sample Results

| Sample Number | Sample Location | Lead Concentration    |
|---------------|-----------------|-----------------------|
| CRC-01A       | Drill Hall      | <13 ug/m <sup>3</sup> |
| CRC-02A       | U/A Office      | <13 ug/m <sup>3</sup> |

None of the air samples collected indicated the presence of airborne lead above detectable limits. For reference, the OSHA Action Level for lead is 30 ug/m<sup>3</sup> and the Permissible Exposure Limit (PEL) is 50 ug/m<sup>3</sup>. Laboratory analytical results are presented in Appendix C.

## 3.0 Physical Condition of Facility and Personnel Concerns

#### 3.1.1 Lead Based Paint

Interior surfaces of walls are coated with paint. The paint on the walls appeared to be generally in good condition with the exception of localized areas, such as the upstairs classroom and some ceiling areas. A paint chip sample was collected in the upstairs classroom where the paint was peeling or otherwise damaged. The paint chip sample collected at the Concord Readiness Center showed the presence of quantifiable lead (29 CFR 1910.1025). Other painted building surfaces appeared to be generally in good condition with no peeling paint observed. Concrete flooring was generally tiled or unpainted. Laboratory analytical results are presented in Appendix C.

#### Table 3-11: Lead Paint Chip Sample Results

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

#### 3.1.2 Suspect Asbestos Containing Materials

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

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

#### 3.1.3 Water Damage/Mold

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

#### 3.1.4 Housekeeping

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

#### 3.1.5 Indoor Air Quality/ Ergonomics

The Administration Section contains general office space. The Administration Section is generally utilized by all of the Concord Readiness Center staff members. No Indoor Air Quality concerns were noted by the Concord Readiness Center personnel.

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

| Table 3-2: | Indoor | Air | Quality | Monitoring | Results |
|------------|--------|-----|---------|------------|---------|
|------------|--------|-----|---------|------------|---------|

| Location  | Carbon<br>Monoxide (ppm) | Carbon Dioxide<br>(ppm) | Temp (°F) | Relative<br>Humidity (%) |  |  |  |  |
|---|--------------------------|-------------------------|-----------|--------------------------|--|--|--|--|
| Exterior - Baseline   | 1.7                      | 455                     | 76.9      | 66.6                     |  |  |  |  |
| Training Room #1  | 1.8                      | 478                     | 79.0      | 60.3                     |  |  |  |  |
| Classroom   | 1.3                      | 498                     | 79.0      | 63.1                     |  |  |  |  |
| Kitchen   | 1.3                      | 516                     | 80.0      | 61.1                     |  |  |  |  |
| Kitchen       1.3       516       80.0       61.1         Table 1-3 Guidelines:       Carbon Monoxide: Office/Warehouse Space – 9 ppm based on EPA National Ambient Air Quality Standard.       OSHA Permissible Exposure Limit (PEL) = 50 ppm. ACGIH Threshold Limit value (TLV) = 25, ppm.         Carbon Dioxide: Office Space Approximately 700 ppm above background (Derived from ASHPAE Standard 62.1 |                          |                         |           |                          |  |  |  |  |

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

Relative Humidity: Mechanically air-conditioned space – Maximum 65% (Derived from ASHRAE Standard 62.1-2007 – 5.10.1).

Temperature: Winter (clothing insulation = 1.0 clo) Relative humidity 30-60% - Temp - 68 - 75°F Summer Temp - 73 - 79°F. (Derived from ASHRAE Standard 55-2004)

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

## 4.0 Ventilation and HVAC System

#### 4.1.1 Ventilation Systems and Potential for Contamination of Clean Air Sources

Potential for contamination of clean air sources was not observed in the facility.

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

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

#### 4.1.2 HVAC Maintenance

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

## 5.0 Lighting

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

Table 5-1: Light Survey

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

## 6.0 Evaluation of Attached Garage

There is no garage associated with the Concord Readiness Center.

## 7.0 Conclusions and Limitations

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

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

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

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

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

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

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

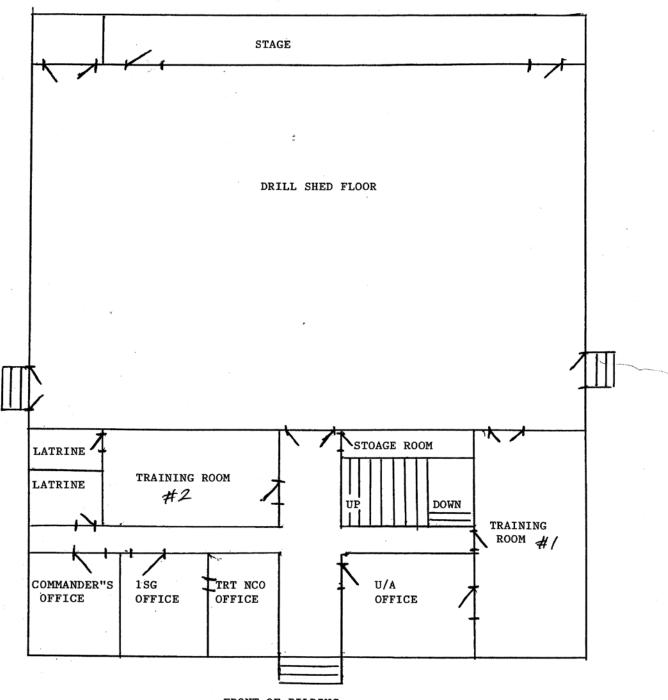
As with all such surveys, the results of the sampling represent conditions found on the date of the survey and may not represent conditions found at other times. Additionally, this survey was limited with respect to the specific parameters indicated above and should not be construed to be a comprehensive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

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

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Appendix A

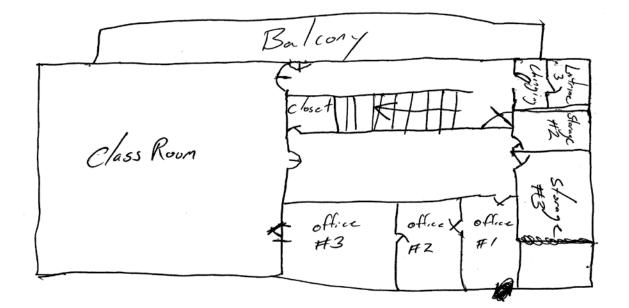
Concord Readiness Center Facility Layout



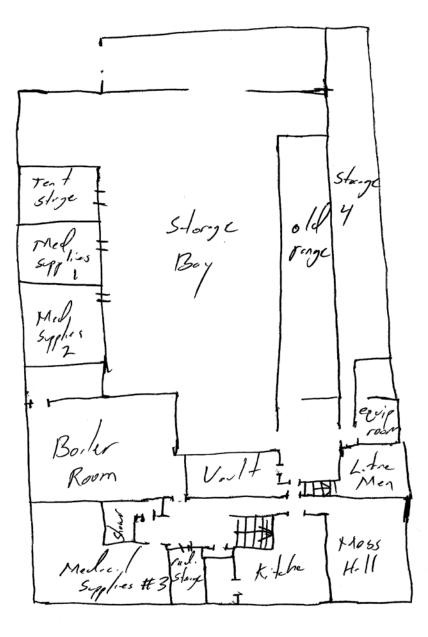
MAIN FLOOR EVACUATION PLAN FOLLOW RED ARROWS

FRONT OF BILDING

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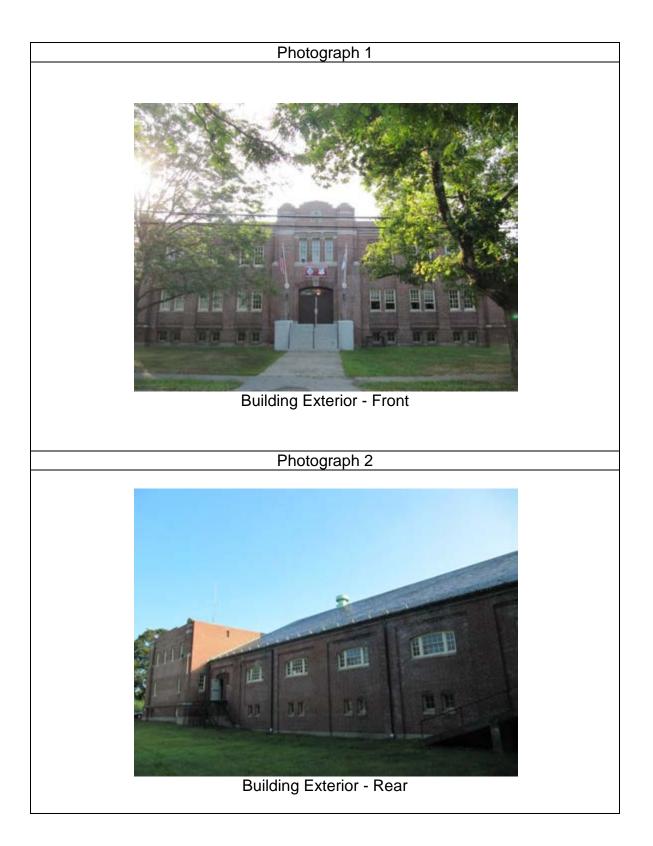


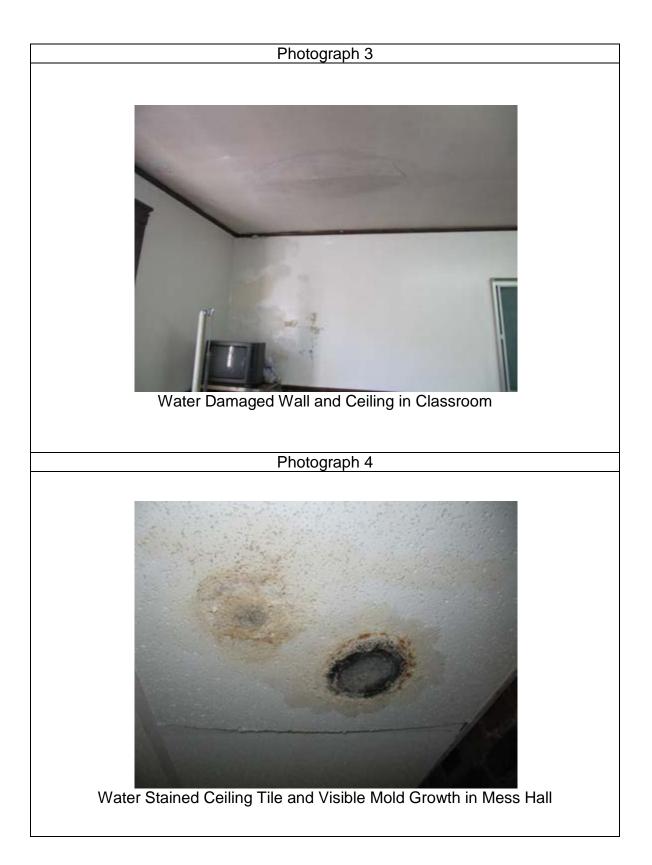
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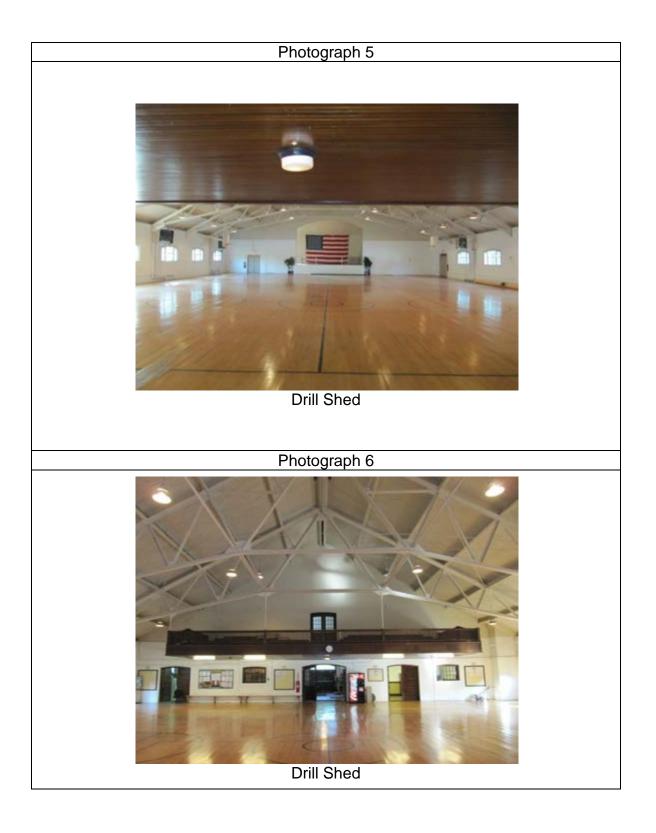


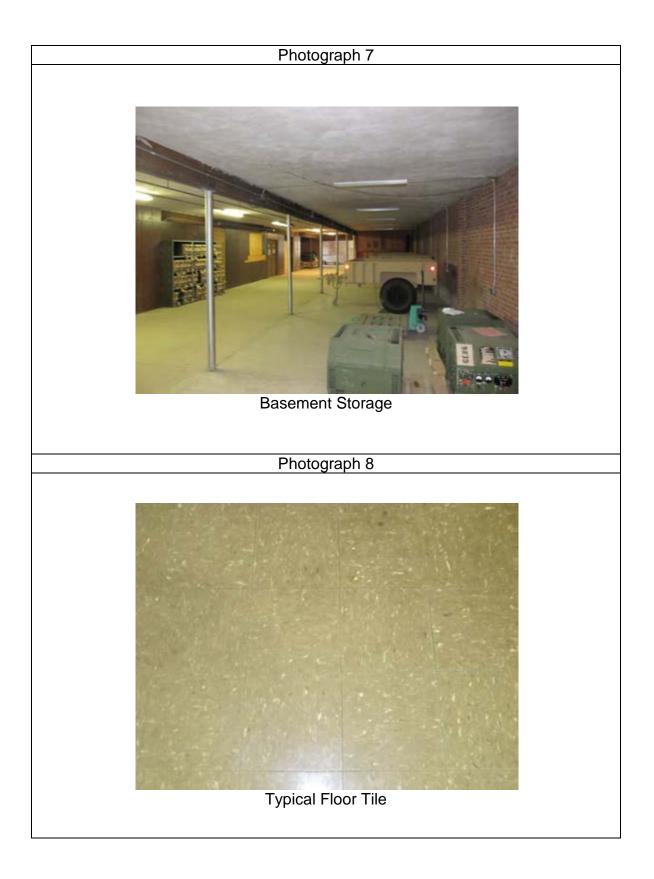
Appendix B

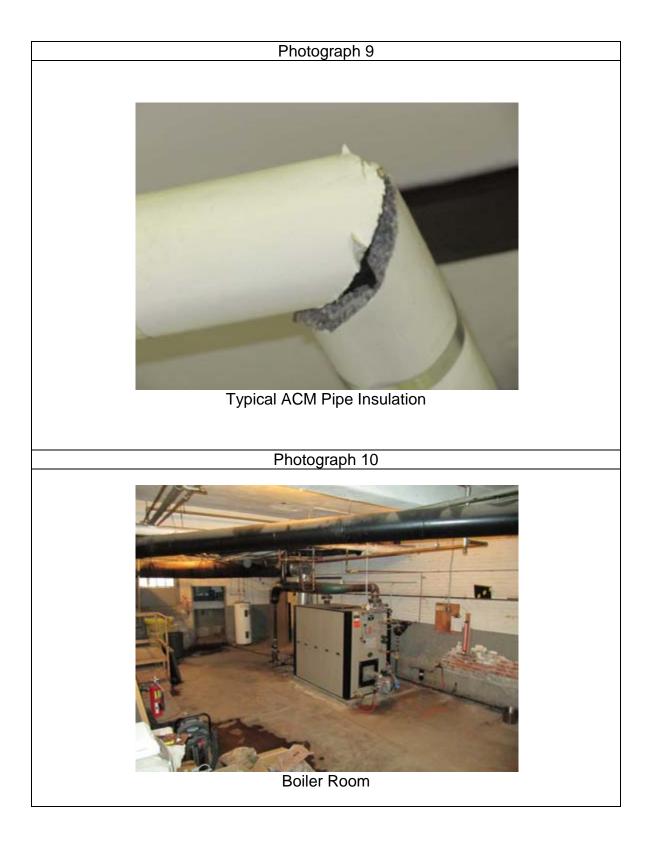
Concord Readiness Center Photographs

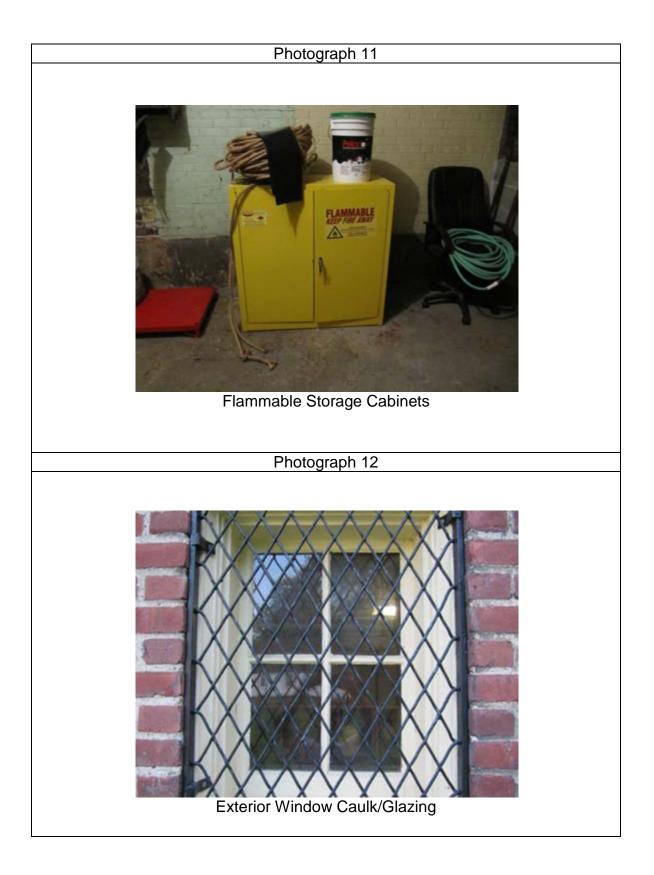














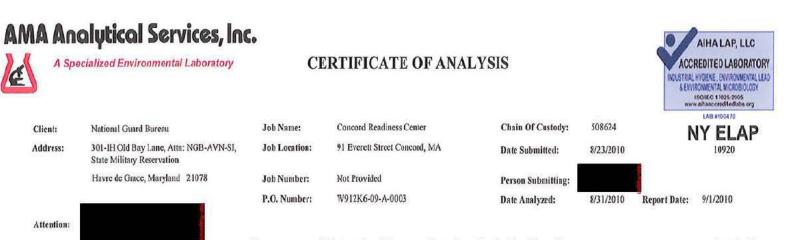






Appendix C

Analytical Results



#### Summary of Atomic Absorption Analysis for Lead

| Page 1 of. |
|------------|
|------------|

| AMA Sample Client Sample<br>Number Number |          |       |            |      | Total ug | Final Res | ult    | Comments |       |                    |  |
|---|----------|-------|------------|------|----------|-----------|--------|----------|-------|--------------------|--|
| 1073192                                   | CRC-01 C | Flame | Paint Chip | **** | N/A      | 0.0091    | %Pb    |          | 0.15  | %Pb                |  |
| 1073193                                   | CRC-01   | Flame | Wipe       | **** | 0.111    | 110       | ug/ft² | 140      | 1300  | ug/ft²             |  |
| 1073194                                   | CRC-02   | Flame | Wipe       | **** | 0.111    | 110       | ug/ft² | 89       | 800   | ug/ft²             |  |
| 1073195                                   | CRC-03   | Flame | Wipe       | **** | 0.111    | 110       | ug/ft² | 4000     | 36000 | ug/ft²             |  |
| 1073196                                   | CRC-04   | Flame | Wipe       | **** | 0.111    | 110       | ug/ft² | 1200     | 11000 | ug/ft²             |  |
| 1073197                                   | CRC-05   | Flame | Wipe       | **** | 0.111    | 110       | ug/ft² | 35       | 310   | ug/ft²             |  |
| 1073198                                   | CRC-06   | Flame | Wipc       | **** | 0.111    | 110       | ug/ft² | 28       | 250   | ug/ft²             |  |
| 1073199                                   | CRC-07   | Flame | Wipe       | **** | 0.111    | 110       | ug/ft² | 16       | 150   | ug/ft²             |  |
| 1073200                                   | CRC-08   | Flame | Wipe       | **** | 0.111    | 110       | ug/ft² | 13       | 110   | ug/ft²             |  |
| 1073201                                   | CRC-09   | Flame | Wipe       | **** | 0.111    | 110       | ug/ft² | 12       | <110  | ug/ft²             |  |
| 1073202                                   | CRC-10   | Flame | Wipe       | **** | 0.111    | 110       | ug/ft² | 13       | 120   | ug/ft²             |  |
| 1073203                                   | CRC-11   | Flame | Wipe       | **** | 0.111    | 110       | ug/ft² | <12      | <110  | ug/ft²             |  |
| 1073204                                   | CRC-12   | Flame | Wipe       | **** | 0.111    | 110       | ug/ft² | <12      | <110  | ug/ft <sup>2</sup> |  |
| 1073205                                   | CRC-01 A | Flame | Air        | 225  | N/A      | 13        | ug/m³  | <3       | <13   | ug/m³              |  |
| 1073206                                   | CRC-02 A | Flame | Air        | 225  | N/A      | 13        | ug/m*  | <3       | <13   | ug/m²              |  |

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

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| COTY)   | TE   | M Dust  | ol Ash   |                        |                            | 10       | TV)                            |         | Pb Air   | VSolid_  | wipe type<br>(QTY)<br>(QTY)  | FY)  |   |   |
| EPA 600 - Visual Estimate(QTY)     EPA Point Count(QTY)     NY State Friable 198.1(QTY)     Grav. Reduction ELAP 198.6(QTY)     Other (specify)(QTY)  | 71E  | Quan.<br>Quan.<br>M Water<br>Qual. (<br>ELAP<br>EPA 10<br>All* sar<br>(TEM Wa | (s/area) Vos<br>(s/area)Dus<br>(pres/abs)<br>198.2/EPA<br>00.1<br>mptes recei-<br>ater sample  | 100.2(Q                | 9(QTY)<br>(QTY)<br>(TY)    | (Q7      | .(QTY)<br>FY)                  |         | Drinki     Waste     Waste     Waste     Pb Fun     rigst Analy     Collece     Collece     Spore     Surfac     Surface     Surface | ng Water<br>Water D<br>mace (Mo<br>rsts<br>tion Appo<br>tion Med<br>Trap<br>e Swab<br>e Tape   | CIPb(QT)<br>Pb(QTY)<br>edia<br>mates for Spore 1<br>ia   | Y) Q Cu(Q<br>Q Cu(Q<br>_)(Q<br>Draps/Air Samp<br>Q Surface Vact<br>Q Culturable IDO                              | (TY) D As(QTY)<br>des:<br>aum Dust<br>Genu (Meča  | (QTY)                                       |
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| Other (specify)(QTY)     LM Bulk     DEPA 600 - Visual Estimate(QTY)     DEPA Point Count(QTY)     DIA Point Count(QTY)     Other (specify)(QTY)     Other (specify)(QTY) | )<br>PLMTEM_Quay<br>VOLUME<br>E_QUTERS)                        | Quan.<br>Quan.<br>Qual.<br>Qual.<br>ELAP<br>EPA IO<br>CAH'sau<br>(TEM Wa      | (s/area) Vos<br>(s/area)Dus<br>(pres/abs)_<br>198.2/EPA<br>00.1<br>nptes recei-<br>ater sample | 100.2(Q<br>ved in good | 9(QTY)<br>1 conditio<br>C) | (Q7      | .(QTY)<br>FY)                  |         | Drinki     Waste     Waste     Waste     Pb Fun     rigst Analy     Collece     Collece     Spore     Surfac     Surface     Surface | ng Water D<br>mace (Mo<br>rids<br>tion Appc<br>tion Med<br>Trap<br>re Tape<br>perify   | QPb(QTY) edia arates for Spore 1     ia(QTY)    (QTY)    (QTY)    (QTY)    (QTY)    (QTY)    (QTY)    (QTY)    (QTY) | Y) Cu(<br>Cu)<br>Draps/Air Samp<br>Surface Vacc<br>Culturable ID S<br>Culturable ID S<br>CLEENT CO<br>BORATORY S | ITY) D As(QTY)<br>des:<br>down Dust<br>down Dust<br>down (Meda<br>pecies (Meda<br>nTACT<br>:TAFF ONL)<br>itact; | (QTY)<br>(QTY)<br>)<br>)<br>)<br>)<br>)<br> |
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Posted to NGB FOIA Reading Room May, 2018

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|   |  | 3. Job #:   | P.O. # W912  | (6-09-A-0003   |
| 4. Address 3: Havre de Grace, Maryland 210  |  | 4. Contact Person:  |  |  |
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Appendix D

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# URS

Prepared For:

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

#### Prepared By:

URS Corporation 5 Industrial Way Salem, New Hampshire 03079



Office Manager

Non-Responsive

Project Manager

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

October 2005 PN: 39741508

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- Appendix G Recommendations for Surface Lead Dust in Armories

# FINDINGS AND RECOMMENDATIONS

| Findings  | Recommendation   | Risk<br>Assessment<br>Code              |
|---|--|---|
| Ergonomic   | Manager & State State State  |   |
| Computer work stations were<br>observed with fixed chairs,<br>armrests, keyboards and<br>monitors.                        | Ergonomic issues with the desks and<br>chairs should be corrected by fitting<br>the workplace to the worker (DoD,<br>OSHA General Duty)  | RAC 3                                   |
| Lighting States and the   |  |   |
| On the day of the survey, the<br>illuminance in the<br>administrative area was<br>inadequate in half of all<br>offices.   | Increase lighting in the administrative<br>areas. While work is in progress, the<br>administrative area shall be lighted<br>by at least the minimum lighting<br>intensities (ANSI / IESNA RP-1-04)                                     | RAC 4                                   |
| Lead  | MARKAR CALLS   |   |
| Lead was detected in wipe<br>samples collected from the<br>firing range in amounts<br>greater than 200 µg/ft <sup>2</sup> | Personnel trained in accordance with<br>the OSHA Lead Standard should<br>clean the former firing range where<br>lead was detected in quantities of<br>greater than 200 micrograms per<br>square foot (OSHA 29 CFR<br>1910.1025 (h)(1)) | RAC 4                                   |
| Asbestos  | Carle Contraction Contraction  | AND |
| Damaged floor tile containing greater than 1% asbestos is present throughout the facility.                                | Remove and replace damaged<br>asbestos-containing floor tile. Work<br>should be completed by personnel<br>trained in accordance with federal<br>regulations (OSHA 29 CFR<br>1910.1001(k)(1))   | RAC 3                                   |
| No site specific asbestos<br>operations and maintenance<br>plan available.  | Develop a site specific asbestos<br>operations and maintenance plan to<br>manage asbestos-containing<br>materials (OSHA 29 CFR<br>1910.1001(j))  | RAC 3                                   |
| Hazard Communication  |  | CARLES AR AND                           |
| No site specific hazard<br>communication plan available.  | Develop a site specific hazard<br>communication plan to manage<br>hazardous materials (OSHA 29 CFR<br>1910.1200(e))  | RAC 4                                   |

# FINDINGS AND RECOMMENDATIONS (Continued)

| Findings   | Recommendation  | Risk<br>Assessment<br>Code |
|--|---|----------------------------|
| Found an electrical power<br>outlet with exposed wires       | Any electrical openings shall be so<br>sized and located that persons are<br>not likely to come into accidental<br>contact with the live parts or to bring<br>conducting objects into contact with<br>them (OSHA 29 CFR 1910.305(b)(2)) | RAC 2                      |
| Mold Watermarks and mold growth were throughout.             | Determine and repair source of<br>water, Replace water damaged<br>building materials and implement a<br>moisture management program to<br>provide direction for future water<br>incursions (Best management<br>practice)                | RAC 4                      |
| An obstructed fire extinguisher<br>was found in the kitchen. | Fire extinguishers must be made<br>available when needed and that<br>employees are not subjected to injury<br>hazards when they try to obtain an<br>extinguisher (OSHA 29 CFR<br>1910.157(c)(1)).                                       | RAC 2                      |

# 1.0 SUMMARY

At the request of the National Guard Bureau Region North Industrial Hygiene Office (NGB), URS Corporation (URS) conducted an industrial hygiene survey at the Readiness Center located at 5 Sycamore Street in Danvers, Massachusetts 01923. This report includes an executive summary, a description of the survey protocol, a discussion of the survey evaluation and findings and a list of conclusions and recommendations.

On January 16, 2004, Mr. Non-Responsive an industrial hygienist with URS, conducted a site visit to the Readiness Center in Danvers, Massachusetts. The purpose of this site visit was to conduct an industrial hygiene survey, which included the collection of air samples, bulk samples, lighting measurements, and a review of site health and safety procedures. SFC Non-Responsive of the Massachusetts ARNG was Mr. Non-Responsive site contact for this survey.

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

# 2.0 ADMINISTRATIVE AREA

# 2.1 Operation Description

This building area contains multiple offices located throughout the building with desks and computer workstations. Computer workstations were assessed during the walk through for ergonomic issues. Computer workstation chairs could not be adjusted for height, the armrests were in a fixed position and keyboards could not be adjusted (Photo # 3166) in most of the offices. Computer monitors could not be adjusted for different individuals working at the workstations. If more than one person is using that station, then proper adjustments need to be made to accommodate each person.

Water marks were observed on the ceiling in the classrooms.

# 2.2 Chemical and Physical Agents Sampled

# 2.2.1 Relative Humidity

Relative humidity levels were measured using a TSI Q-Track (Model 8551). Relative humidity on the day of the survey ranged from 10.5-15.1 % with an average of 11.9%. This average reading was below the recommended range of 30.0% to 60.0% set by the American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. (ANSI / ASHRAE Standard 62.1-2004).

# 2.2.2 Carbon Dioxide

On the day of the survey, carbon dioxide measurements were made at various locations throughout the Readiness Center. Carbon dioxide concentrations ranged from 341 to 404 parts per million (ppm), with an average of 362 ppm. Carbon dioxide levels were measured using a direct reading TSI Q-Track (Model 8551).

Carbon dioxide is a normal constituent of the atmosphere and ranges from about 250 to 450 ppm. The major source of excess carbon dioxide in the indoor environment is people. Other sources can include open-flame heaters, fermentation processes, and motor vehicles. Carbon dioxide itself is not normally a cause of indoor air quality problems because concentrations must exceed 5,000 to 10,000 ppm before health effects such as headache, drowsiness, and increased respiration are noted. Typically, carbon dioxide is used as an indicator of the adequacy of fresh air intake. As the concentration of carbon dioxide increases, so do the background levels of other air contaminants. ASHRAE (62.1-2004) recommends that levels of carbon dioxide be maintained below 700 ppm, an outside reading was not collected.



# 2.2.3 Carbon Monoxide

Carbon monoxide was also measured in the Readiness Center. The carbon monoxide concentration remained at 0 parts per million (ppm) throughout the survey period. This measured level was below the ASHRAE guideline for indoor environments (62.1-2004). Carbon monoxide was measured using a TSI Q-Track (Model 8551).

Key sources of carbon monoxide within indoor environments include internal combustion engines, motor vehicle and forklift exhaust, tobacco smoke, space heaters, and improperly adjusted oil or gas burners. Health effects from exposure to elevated concentrations of carbon monoxide may include fatigue, impairment of visual acuity, irregular heartbeat, headache, nausea, and confusion. ASHRAE (62.1-2004) recommends that average carbon monoxide concentrations not exceed 9 ppm. Typical average concentrations found in commercial buildings range from 0 to 6 ppm.

# 2.2.4 Lighting

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

| Location                          | Function              | Measured<br>Illuminance<br>(lux / foot<br>candles) | Recommended<br>Minimum<br>Illuminance (lux<br>/ foot candles) |
|-----------------------------------|-----------------------|--|---|
| Office # 9                        | Administrative Duties | 947 / 88.0   | 500 / 50  |
| Office # 11                       | Administrative Duties | 1108 / 102.9                                       | 500 / 50  |
| Office # 12                       | Administrative Duties | 405/37.6   | 500 / 50  |
| Office # 16                       | Administrative Duties | 561 / 52.1   | 500 / 50  |
| Office # 17                       | Administrative Duties | 331/30.7   | 500 / 50  |
| Office # 19 - Desk 1              | Administrative Duties | 228/21.2   | 500 / 50  |
| Office # 19 – Desk 2              | Administrative Duties | 381/35.4   | 500 / 50  |
| Office # 20                       | Administrative Duties | 598 / 55.6   | 500 / 50  |
| Office # 21                       | Administrative Duties | 248 / 23.0   | 500 / 50  |
| Office # 22 – Left Front<br>Desk  | Administrative Duties | 663 / 61,6   | 500 / 50  |
| Office # 22 – Left<br>Center Desk | Administrative Duties | 362 / 33.6   | 500 / 50  |

Table 2-1 Lighting Measurements and Recommended Lighting Requirements

Page 966 of 3473

| Location                           | Function 7            | (lux / foot            | Recommended<br>Minimum<br>Illuminance (lux<br>/ foot candles) |
|------------------------------------|-----------------------|------------------------|---|
| Office # 22 – Left Rear<br>Desk    | Administrative Duties | 9,7 <b>10 / 902</b> .1 | 500 / 50  |
| Office # 22 – Right<br>Rear Desk   | Administrative Duties | 692 / 64.3             | 500   |
| Office # 22 – Right<br>Center Desk | Administrative Duties | 262/24.3               | 500   |
| Office # 22 – Right<br>Front Desk  | Administrative Duties | 560 / 52.0             | 500   |

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

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

# 2.2.5 Lead

Paint chips were collected in four areas where paint was peeling and sent to AMA Analytical Services, Inc. (AMA) for analysis. The four samples were found to contain lead in a concentration below the U.S. Housing and Urban Development (HUD) Lead-Based Paint Guidelines. Levels of lead greater than 0.5% by weight are referred to as "lead-containing" (Section 1017 of the Residential Lead-Based Paint Hazard Reduction Act of 1992 (also referred to as Title X)). Table 2-2 below shows the results of the lead paint testing.

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

| Sample Location    | URS Sample<br>Number | Reporting Limit (% by Weight) | Final Result<br>(% by Weight) |
|--------------------|----------------------|-------------------------------|-------------------------------|
| Kitchen # 5        | 0116-LPC03           | 0.01                          | 0.11                          |
| Men's Latrine # 28 | 0116-LPC04           | 0.01                          | 0.14                          |
| Supply Room # 26   | 0116-LPC05           | 0.01                          | 0.013                         |
| Supply Room # 26   | 0116-LPC06           | 0.01                          | 0.18                          |

The analytical report from AMA is contained in Appendix D.

# 2.2.6 Asbestos

Bulk samples were collected from damaged suspect asbestos-containing materials (ACM) in this area for a determination of asbestos content. Analytical procedures were performed in accordance with the U.S. Environmental Protection Agency (EPA) Recommended Method for the Determination of Asbestos in Bulk Samples by Polarized Light Microscopy and Dispersion Staining (PLM/DS)(EPA-600/M4-82-020, EPA-600/R-93-116). Table 2-3 below presents the results of the sample analysis.

| Sample Location     | Material Sampled              | URS Sample<br>Number | Total<br>Asbestos<br>(%) |
|---------------------|-------------------------------|----------------------|--------------------------|
| Hallway <b>#</b> 1A | 9"x9" Brown Floor Tile        | 0116-AB01A-FT        | 5<br>(chrysotile)        |
| Kitchen # 5         | 9"x9" Brown Floor Tile        | 0116-AB01B-FT        | NAD                      |
| Locker Room # 13    | 9"x9" Brown Floor Tile        | 0116-AB01C-FT        | NAD                      |
| Hallway # 1A        | Associated Mastic             | 0116-AB01A-M         | 2<br>(chrysotile)        |
| Kitchen # 5         | Associated Mastic             | 0116-AB018-M         | 3<br>(chrysotile)        |
| Locker Room # 13    | Associated Mastic             | 0116-AB01C-M         | 3<br>(chrysotile)        |
| Locker Room # 13    | 12"x12" White Ceiling         | 0116-AB02A           | NAD                      |
| Classroom # 3       | 12"x12" White Ceiling<br>Tile | 0116-AB02B           | NAD                      |
| Supply Room # 14    | 12"x12" White Ceiling<br>Tile | 0116-AB02C           | NAD                      |

Table 2-3 Sample Results of Suspect ACM

NAD = "No Asbestos Detected"

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

# 2.3 Ventilation System Evaluation

Not applicable to this operation.

FOIA Requested Record #J-15-0085 (MA) Released by National Guard Bureau Page 968 of 3473

#### 2.4 Noise Measurements

Not applicable to this operation.

#### 2.5 Personal Protective Equipment

Not applicable to this operation.

#### 2.6 Interpretation of Results

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

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

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

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

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

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

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

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

# 3.0 FORMER FIRING RANGE

#### 3.1 Operation Description

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

### 3.2 Chemical and Physical Agents Sampled

### 3.2.1 Lead

Wipe testing for lead was conducted in the former firing range using ghost wipes, which meet ASTM E 1792 standards. The analytical report from AMA is contained in Appendix D. Table 3-1 below shows the results of the lead sampling.

| Sample Location                    | URS Sample<br>Number | Area<br>Wiped<br>(ft <sup>2</sup> ) | Result<br>(µg/ft²) | Maximum<br>Acceptable<br>Surface<br>Contamination<br>Level (µg/ft <sup>2</sup> ) |
|------------------------------------|----------------------|-------------------------------------|--------------------|--|
| Firing Range-Top of Light<br>Guard | 0116-LW06            | 1.111                               | 19000              | 200  |
| Firing Range-Top of a<br>Table     | 0116-LW07            | 1.000                               | 30                 | 200  |
| Firing Range-Floor-Floor           | 0116-LW08            | 1.000                               | 260                | 200  |
| Firing Range-Floor-Center          | 0116-LW09            | 1.000                               | 240                | 200  |
| Firing Range-Floor-Bullet<br>Trap  | 0116-LW10            | 1.000                               | 13000              | 200  |
| Blank                              | 0116-<br>LWBlank1    | N/A                                 | <12                | 200  |

Table 3-1 Levels of Lead Dust Found in the Former Firing Range

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

Table 3-2 Level of Lead Found in the Air

| Sample Location     | URS Sample ()<br>Number_ | Air Volume<br>(L) | Result<br>(µg/m³) | OSHA's<br>'PEL(µg/m³) |
|---------------------|--------------------------|-------------------|-------------------|-----------------------|
| Former Firing Range | 0116-LA02                | 928               | <3.2              | 50.0                  |
| Blank               | 0116-LA-Blank            | 0                 | <3.0              | 50.0                  |

On the day of the survey, the airborne lead dust level in the former firing range was found to be acceptable, below OSHA's permissible exposure limit (PEL) for lead (29 CFR 1910.1025(c)) of 50.0  $\mu$ g/m<sup>3</sup> averaged over an 8-hour day. The analytical report from AMA is contained in Appendix D.

### 3.3 Ventilation System Evaluation

Not applicable to this operation.

#### 3.4 Noise Measurements

Not applicable to this operation.

#### 3.5 Personal Protective Equipment

Not applicable to this operation.

#### 3.6 Interpretation of Results

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

# 4.0 DRILL HALL

### 4.1 Operation Description

The drill hall is a 6,300 square foot area with about a 30 foot high ceiling used for assembling personnel and storing vehicles. The walls are constructed of cinder block with a concrete floor.

### 4.2 Chemical and Physical Agents Sampled

### 4.2.1 Lead

Wipe testing for lead dust was conducted in the drill hall using ghost wipes, which meet ASTM E 1792 standards. The analytical report from AMA is contained in Appendix D. Table 4-1 below shows the results of the lead sampling.

| Sample Location                                    | URS Sample<br>Number | Area Wiped<br>(ft <sup>2</sup> ) | Result<br>(µg/ft²) | Maximum<br>Acceptable<br>Surface<br>Contamination<br>Level (µg/ft <sup>2</sup> ) |
|--|----------------------|----------------------------------|--------------------|--|
| Drill Hall #27-Floor                               | 0116-LW01            | 1.000                            | 13                 | 200  |
| Drill Hall #27-Floor                               | 0116-LW02            | 1.000                            | 18                 | 200  |
| Drill Hall #27-Floor                               | 0116-LW03            | 1.000                            | <12                | 200  |
| Drill Hall #27-Top of a<br>Table                   | 0116-LW04            | 1.000                            | <12                | 200  |
| Drill Hall #27-Top of<br>Powerade Drink<br>Machine | 0116-LW05            | 1.000                            | 25                 | 200  |
| Blank  | 0116-<br>LWBlank1    | N/A                              | <12                | 200  |

Table 4-1 Levels of Lead Dust Found in the Drill Hall

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

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

| Sample Location | URS Sample Number | Air Volume ja<br>(L) | Result<br>(µg/m³)∛ | OSHA's<br>PEL(µg/m³) |
|-----------------|-------------------|----------------------|--------------------|----------------------|
| Drill Hall      | 0118-LA01         | 956                  | <3.1               | 50.0                 |
| Blank           | 0116-LABlank      | 0                    | <3.0               | 50.0                 |

On the day of the survey, the airborne lead dust level in the drill hall was found to be acceptable, below OSHA's permissible exposure limit (PEL) for lead (29 CFR 1910.1025(c)) of 50.0  $\mu$ g/m<sup>3</sup> averaged over an 8-hour day.

# 4.3 Ventilation System Evaluation

Not applicable to this operation.

### 4.4 Noise Measurements

Not applicable to this operation.

# 4.5 Personal Protective Equipment

Not applicable to this operation.

# 4.6 Interpretation of Results

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



# 5.0 BOILER ROOM

#### 5.1 Operation Description

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

# 5.2 Chemical and Physical Agents Sampled

# 5.2.1 Lead

Paint chips were collected in two areas where paint was peeling and sent to AMA for analysis. Both samples were found to contain lead in a concentration below the U.S. Housing and Urban Development (HUD) Lead-Based Paint Guidelines. Levels of lead greater than 0.5% by weight are referred to as "lead-containing" (Section 1017 of the Residential Lead-Based Paint Hazard Reduction Act of 1992 (also referred to as Title X)). Table 5-1 below shows the results of the lead paint testing.

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

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

The analytical report from AMA is contained in Appendix D.

# 5.3 Ventilation System Evaluation

Not applicable to this operation.

# 5.4 Noise Measurements

Not applicable to this operation.

# 5.5 Personal Protective Equipment

Not applicable to this operation.

#### 5.6 Interpretation of Results

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

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

# 6.0 SAFETY AND INDUSTRIAL HYGIENE PROGRAMS

#### 6.1 Confined Spaces

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

#### 6.2 Hearing Conservation

A written safety program for hearing conservation was found in the site's safety binder, tab 1, chapter 5. No training records were found on site. A hearing conservation program is not required for this site.

#### 6.3 Respiratory Protection

A written safety program for respiratory protection was found in the site's safety binder, tab I, chapter 5. No training records were found on site. A respiratory protection program is not required for this site.

#### 6.4 Hazard Communication

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

#### 6.5 Personal Protective Equipment

A written safety program for personal protective equipment was found in the site's safety binder, tab N, chapter 10. No training records were found on site. A personal protective equipment program is not required for this site.

## 7.0 REFERENCES

American National Standards Institute

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

American Society of Heating Refrigerating and Air-Conditioning Engineers

ANSI/ASHRAE Standard 55-2004: Thermal Environmental Conditions for Human Occupancy

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

Army Corps of Engineers

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

Department of the Army

Ergonomics Program Pamphlet 40-21 (15 August 2003)

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

Department of Defense

DoD Hearing Conservation Program Standard 6055.22 APR 96

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

U. S. Environmental Protection Agency

Asbestos Hazard Emergency Response Act (40 CFR Part 763)

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

U. S. Housing and Urban Development

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

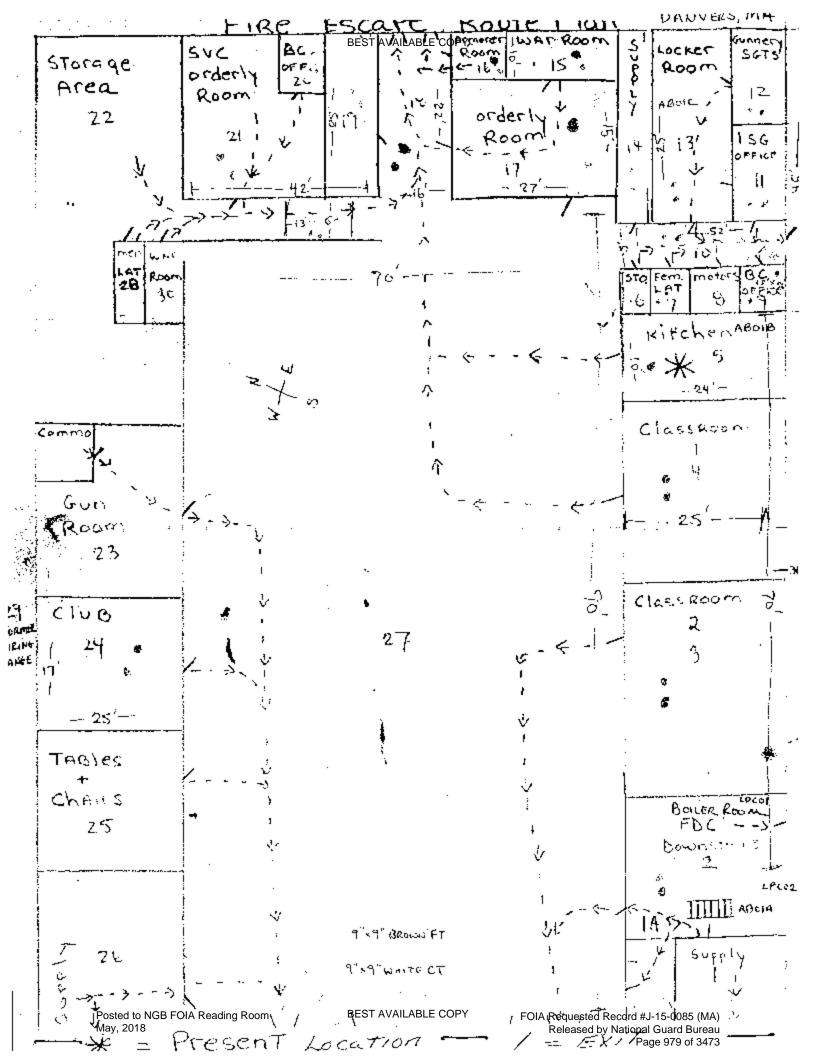
U. S. Occupational Safety and Health Administration

Standard for General Industry: 29 CFR 1910

## APPENDIX A

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## SHOP DRAWING



## APPENDIX B

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## PERSONNEL LIST

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

16 January 2004

SUBJECT: Full Time Personnel in the Danvers Armory

REPLY TO ATTENTION OF:

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



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



SFC, MAARNG Readiness NCO

## APPENDIX C

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## HAZARDOUS MATERIALS LIST

.

NO HAZARDOUS CHEMICALS INVENTORY ON SITE

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## APPENDIX D

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## ANALYTICAL RESULTS

## AMA Analytical Services, Inc.



A Specialized Environmental Laboratory

## CERTIFICATE OF ANALYSIS

# NTV(AQ NY ELAP AIHA

|   | Client:  | URS Corporation                                     | Job Name:    | Army National Guard<br>2 Annory Drive Danvers, MA | Chain Of Custudy:  | 122170<br>1/26/2004 |  |
|---|----------|---|--------------|---|--------------------|---------------------|--|
| 5 | Address: | 5 Industrial Way<br>Salem, New Hampshire 03079-2830 | Job Narober  | Not Provided                                      | Person Submitting: |                     |  |
| 2 |          |   | P.O. Number: | Not Provided                                      | Report Bate:       | 2ti-Jan-04          |  |

Attention: Tooki Young

Page I of 2

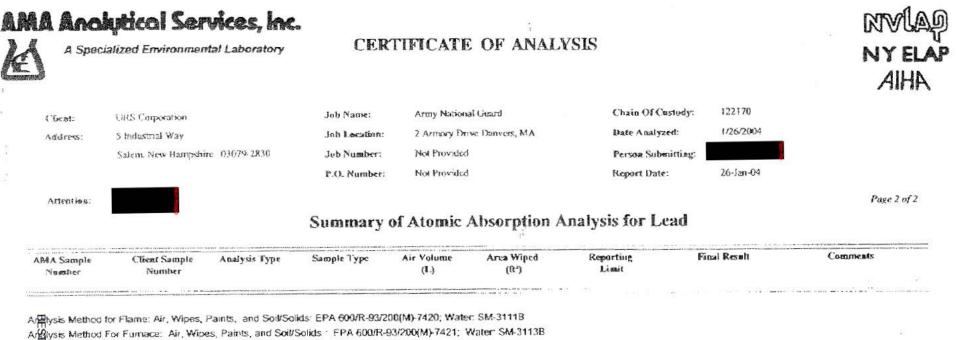
#### Summary of Atomic Absorption Analysis for Lead

| MA Sample<br>Number                         | Client Sample<br>Number | Analysis Type | Sample Type | Air Volume<br>(L) | Area Wiped<br>(ft <sup>*</sup> ) | 1     | orting<br>imit | ł | inal Res | elt          | Comments      | 31. I  |
|---|-------------------------|---------------|-------------|-------------------|----------------------------------|-------|----------------|---|----------|--------------|---------------|--|
|   |                         |               |             |                   |                                  | 1     |                |   | 97-39    |              | LE 1 CTARS ST | i da incidente<br>Nota incidente de la compositione d<br>Nota de la compositione de la composit |
| 80420756                                    | 01151.A-01              | Напе          | Arr         | 955               | N/A                              | 3.14  | ug/m'          | < | 31       | ug/m²        |               |  |
| S0420757                                    | 01161A-02               | Flame         | Aυ          | 928               | N/A                              | 3.23  | ughir          | < | 32       | ug/m*        |               |  |
| 20420758                                    | DITALA BLANK            | Flame         | Air Blank   | 0                 | N/A                              | 3.00  | ug/m²          | < | 3        | ug           |               |  |
| A0420759                                    | 0115-1.W01              | Flame         | Wipe        | 173 Q A           | 1.009                            | 12.00 | ug/A*          |   | 13       | ug/ft'       |               |  |
| B0420764                                    | 0115-1.W02              | Plance        | Wipe        | ****              | 1.000                            | 12.00 | ug/fl'         |   | 18       | ug/ft'       |               |  |
| m0420761                                    | 01161.903               | Flame         | Wipe        | ****              | 1.000                            | 12.00 | ught           | < | 12       | ug/fl²       |               |  |
| 80420762                                    | 0116-1.9/04             | Hame          | Wipe        | ****              | 1.000                            | 12.00 | ug/A?          | < | 12       | ug/ff*       |               |  |
| PC0420763                                   | 0116-LW05               | Flame         | Wipe        | 6 <b>9-8</b> E    | 1.000                            | 12.00 | ug/ftª         |   | 25       | ug/ft?       |               |  |
| 0420764                                     | 0116-LW06               | Flame         | Wipe        | ****              | 1.111                            | 10.80 | ug/ft'         |   | 19000    | ug/ft²       |               |  |
| 0420765                                     | 0116 LW07               | Planc         | Wipe        | 1548              | 1.000                            | 12 00 | ug/ft²         |   | 30       | ug/ft²       |               |  |
| 0420766                                     | 0116-LW08               | Flame         | Wipe        | ****              | 1.000                            | 12.00 | ug/ft²         |   | 260      | ug/ft²       |               |  |
| O420767                                     | 0116-1.909              | Flarne        | Wipe        | ÷ 6 + 9           | 1 0(10                           | 12 00 | ug/ft*         |   | 240      | ug/ft*       |               |  |
| O420767                                     | 0116-LW10               | Flame         | Wipe        | ****              | 1.000                            | 12 00 | ug/ft*         |   | 13000    | ug/ft2       |               |  |
| Re 1420769                                  | 01161.WBLANKI           | Палк          | Wipe Black  | 63.83             | N/A                              | 12.00 | ug             | < | 12       | ug           |               |  |
| Requested 0420771                           | 01161.PC 01             | Flame         | Paint Chip  | ** **             | N/A                              | 0.01  | <b>%</b> РЬ    |   | 0.052    | %РЪ          |               |  |
| 0420771                                     | 01164.PC 02             | Flame         | Paint Chip  | 4.91.0            | N/A                              | 0.01  | %Pb            |   | 0.06     | %Рь          |               |  |
|   | 0110-137-03             | Flame         | Pamt ( Dup  | 2424              | N/A                              | 0.01  | %Pb            |   | 011      | % <b>r</b> b |               | ÷  |
| Record 0420772                              | 0115-LPC 04             | Flame         | Paint Chip  |                   | N/A                              | 0.01  | · %1*b         |   | 0.14     | %l'b         |               |  |
| Q0420772<br>0420773<br>40420774<br>±0420774 | 0116-LPC 05             | Flame         | Point Chip  | 0.8.8 9           | N/A                              | 0.01  | %Pb            |   | 0.013    | %Pb          |               |  |
| L 0420775                                   | HI 16-LK" (b)           | Flame         | Paint Chip  |                   | NIA                              | 0.01  | 96476          |   | 0.18     | %Pb          |               |  |

B To be added by the products of the samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public and these Laboratories, we will be discussed and upon the condition of apparently identical or similar products. As a mutual protection to clients, the public and these Laboratories, we will be discussed and upon the condition of apparently identical or similar products. As a mutual protection to clients, the public and these Laboratories, we will be discussed 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 that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization is being types, locations and collection protocels are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaims any location is being types, locations of this information. Residual sample material will be discarded in accordance with the appropriate regulatory guidelines, noless otherwise requested by the client. NULAP Accreditation upplies only to polarized light microscopy of bulk samples and transagisted electron microscopy of AHERA at samples.

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

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N/2 = Not Applicable mg/Kg = parts per million (ppm) by weight mg/L = parts per million (ppm)

% - percent lead by weight ug = micrograms

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

Analyst:

ugAL = parts per billion (ppb)



COPY

Second applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a nutual protection to clients, the public and these Laboratories, which is submitted and accepted for the exclusive use of the client to whom it is addressed and opus the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization is understanded by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and ability for the accuracy and completeness of their information provided by the porsons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and ability for the accuracy and completeness of their information matter will be discarded in accordance with the appropriate regulatory guidelines, anless otherwise requested by the effect. NVLAP Accreditation projects and transmission cleators mittee of AHKRA air samples.

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

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| AMA Analytical Services, In | к. | R |
|-----------------------------|----|---|
|-----------------------------|----|---|



## **CERTIFICATE OF ANALYSIS**

| 0        | pecialized Environmental Laboratory | CERTIF        | ICATE OF ANALYSIS          |                    |           | ny elap |
|----------|-------------------------------------|---------------|----------------------------|--------------------|-----------|---------|
| Client:  | URS Corporation                     | Job Name:     | Army National Guard        | Chain Of Custody:  | 122170    | AIHA    |
| Address: | 5 Industrial Way                    | Jub Location: | 2 Armory Drive Danvers, MA | Date Analyzed:     | L/26/2004 |         |
|          | Salem, New Hampshire 03079-2830     | Job Number:   | Not Provided               | Person Submitting: |           |         |
|          |                                     | P.O. Number:  | Not Provided               |                    |           |         |

Attention:

Page 1 of 2

## Summary of Polarized Light Microscopy

| AMA Sample<br>Number | Client<br>Sample # | Total<br>Asbestos | Chrysotile<br>Percent | Amosite<br>Percent | Crocidolite<br>Percent | Other<br>Asbestos<br>Percent | Mineral<br>Wool<br>Percent | Fiberglass<br>Percent | Organic<br>Percent | Synthetic<br>Percent | Other<br>Percent | Particulate<br>Percent | Sample<br>Color | Analyst<br>ID | Comments |
|----------------------|--------------------|-------------------|-----------------------|--------------------|------------------------|------------------------------|----------------------------|-----------------------|--------------------|----------------------|------------------|------------------------|-----------------|---------------|----------|
| 0420776              | 0116-AB01 A-<br>FT | 5                 | 5                     |                    |                        |                              | -                          | •                     | -                  | <del></del> )        | -                | 95                     | Brown           | ск            |          |
| 0420777              | 0116-AB01 A-<br>M  | NAD               |                       |                    | -                      | -                            |                            | -                     | TR                 | -                    |                  | 100                    | Black           | CK            |          |
| 0420778              | 0116-AB01 B-<br>FT | NAD               | 844                   | 200                | 8 <b>2</b> -1          | -                            | ••                         | -                     | <u></u>            |                      | 122              | 100                    | Brown           | СК            |          |
| 0420779              | 0116-AB01 B-<br>M  | 2                 | 2                     |                    | (***)                  |                              | -                          |                       | 2                  |                      |                  | 96                     | Black           | СК            |          |
| 0420780              | 0116-AB01 C<br>FT  | 3                 | 3                     |                    |                        | -                            |                            |                       |                    |                      |                  | 97                     | Brown           | СК            |          |
| 0420781              | 0116-AB01 C-<br>M  | 3                 | 3                     |                    |                        | <del>11</del> .5             |                            |                       | TR                 |                      |                  | 97                     | Black           | СК            |          |
| 0420782              | 0116-AB02 A        | NAD               |                       |                    | **:0                   |                              | 35                         | 0.000                 | TR                 | -                    |                  | 65                     | Off-White       | CK            |          |
| 0420783              | 0116-AB02 B        | NAD               |                       |                    |                        |                              | 40                         |                       | TR                 | <del></del> )        |                  | 60                     | Off-White       | СК            |          |
| 0420784              | 0116-AB02 C        | NAD               | **                    | ••                 | -                      | <del></del> 3                | 40                         |                       | TR                 |                      |                  | 60                     | Off-White       | СК            |          |

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

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| AM |            | utical Services, Inc.  |                  | CATE OF ANALYSIS  |   | NY ELAP     |
|----|------------|--|------------------|---|---|-------------|
|    | Client:    | URS Corporation  | Job Name:        | Army National Guard   | Chain Of Custody: 122170                        | AIHA 🚆      |
|    | Address:   | 5 Industrial Way   | Job Location:    | 2 Armory Drive Danvers, MA  | Date Analyzed: 1/26/2004                        | <u></u>     |
|    |            | Salem, New Hampshire 03079-2830                                      | Job Number:      | Not Provided  | Person Submitting:                              |             |
|    |            |  | P.O. Number:     | Not Provided  |   | 29a         |
|    | Attention: |  |                  |   |   | Page 2 of 2 |
| 20 |            |  | Summary of       | Polarized Light Microscopy  | (   | АМА         |
|    |            | Client Total Chrysotile Amosite<br>Sample # Ashestos Percent Percent | Percent Asbestos | Mineral Fiberglass Organic Synthetic Other<br>Wool Percent Percent Percent Percent<br>Percent | l'articulate Sample Analyst<br>Percent Color ID | Comments D  |

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

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

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

NAD = "No Asbestos Detected"

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

N

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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 0 from us. Sample types, locations and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information. Residual sample material will be discarded in accordance with the appropriate regulatory guidelines, unless otherwise requested by the client. NVLAP Accreditation All rights reserved, AMA Analytical Services, Inc.

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## APPENDIX E

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## TRAINING CERTIFICATES

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| - <del>S</del>                       | INSTITUTE FOR  |                                   |
|--------------------------------------|--|-----------------------------------|
| ENVIRO                               | NMENTAL EDUCATIO   | N, INC.                           |
|                                      | 6 Upton Drive, Wilmington, MA 01887<br>(978) 658-5272<br>This is to certify that                   |                                   |
| has complete                         | d the requisite training, and has passed an exa<br>for reaccreditation as:                         | mination                          |
|                                      | Asbestos Inspector Refresher   |                                   |
| pursuant t                           | o Title II of the Toxic Substance Control Act, 15 U.S.   | C. 2646                           |
|                                      | April 11, 2003<br>Course Dates   |                                   |
| April 11, 2003<br>Examination Date   | Course Location<br>Institute for Environmental Education<br>16 Upton Drive<br>Wilmington, MA 01887 | April 10, 2004<br>Expiration Date |
| 03518010625349<br>Certificate Number |  | President/Director or Training    |
|                                      |  |                                   |

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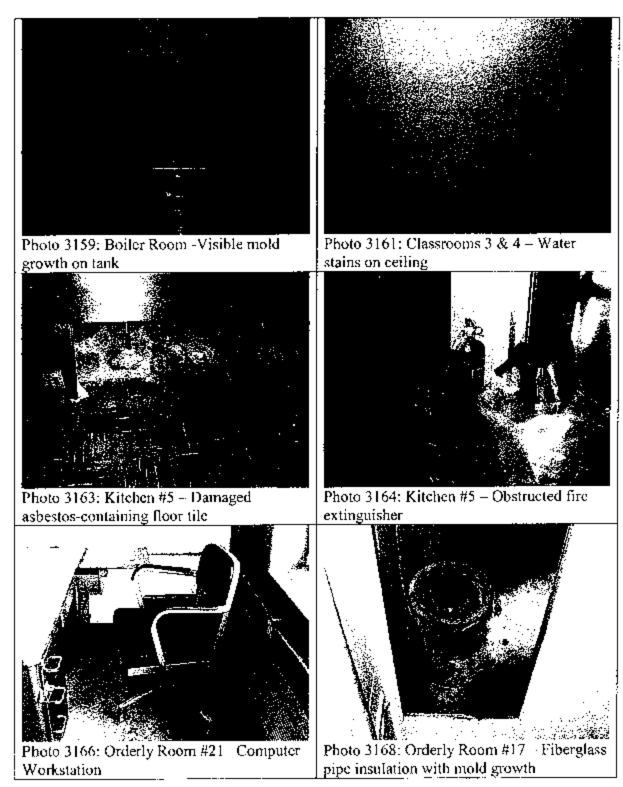
## APPENDIX F

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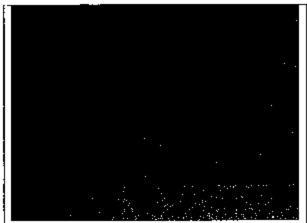
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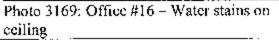
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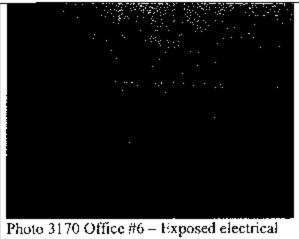
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## APPENDIX G

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## RECOMMENDATIONS FOR SURFACE LEAD DUST IN ARMORIES

Subject: Recommendations for Surface Lead Dust in Armories

1. In armories that do not contain childcare facilities, the National Guard Bureau (NGB) Region North Industrial Hygiene Office recommends cleaning the areas in which sample results are greater than 200 micrograms per square foot ( $\mu$ g/ft<sup>2</sup>). 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/ft<sup>2</sup>) and windowsills (250 µg/ft<sup>2</sup>) in residential dwellings and child occupied facilities. A child occupied facility is defined as a building, or portion of a building, constructed prior to 1978, visited regularly by the same child, 6 years of age or under, on at least two different days within any week (Sunday through Saturday period), provided that each day's visit lasts at least 3 hours and the combined weekly visit lasts at least 6 hours, and the combined annual visits last at least 60 hours. Most of the wipe samples in armories were collected in undisturbed areas and therefore, results are worst case scenarios and do not correlate to these standards.

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

c. OSHA used to cite a level of 200  $\mu$ g/ft<sup>2</sup> 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/fl<sup>2</sup> 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:

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



#### Prepared For:

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

#### Prepared By:

URS Corporation 5 Industrial Way Salem, New Hampshire 03079

#### INDUSTRIAL HYGIENE SURVEY REPORT MASSACHUSETTS NATIONAL GUARD READINESS CENTER 2 ARMORY ROAD DANVERS, MA 01923

June 17, 2013 PN: 39743799



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|            | ARMORIES                                 |

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

| Findings   | Recommendations  | Risk<br>Assessment<br>Code (RAC) |
|--|--|----------------------------------|
| Lighting   | Al-  |                                  |
| On the day of the survey, the illuminance was inadequate in several locations tested.  | Increase lighting in the work areas.<br>While work is in progress, these<br>areas must be lighted by at least the<br>minimum lighting intensities (ANSI /<br>IESNA RP-1-04).             | RAC 4                            |
| Ergonomics   |  |                                  |
| Computer workstations in the<br>Administrative Areas were<br>observed with un-adjustable<br>chairs, arm rests and<br>keyboards.  | Ergonomic issues with regard to the desks and chairs should be corrected by fitting the workplace to the worker (Department of the Army Pamphlet 40-21, Chapter 4, Page 7, Section 4-3). | RAC 3                            |
| Lead   |  |                                  |
| Four of the 9 lead wipe<br>samples indicated elevated<br>lead levels.  | Personnel trained in accordance with<br>the OSHA Lead Standard should<br>clean the areas where elevated lead<br>dust levels were identified (OSHA 29<br>CFR 1910.1025(h)(1)).            | RAC 3                            |
| Emergency Exits  | · · · · · · · · · · · · · · · · · · ·  |                                  |
| Emergency exit signs were not visible from all areas of the facility or illuminated.   | Emergency exits should be properly illuminated (29 CFR 1910.37 (q)(6)).  | RAC 3                            |
| Asbestos   |  |                                  |
| Presumed asbestos-containing<br>floor tile and mastic were<br>damaged throughout the<br>facility; an Asbestos Operation<br>and Maintenance Program was<br>not available on-Site. | Develop a site-specific asbestos<br>operations and maintenance program<br>for management of asbestos-<br>containing materials in place as<br>required by OSHA 29 CFR<br>1910.1001(j)(2). | RAC 3                            |
| PPE  |  |                                  |
| Hazard assessments have not<br>been conducted to determine<br>whether personal protective<br>equipment is required.  | Conduct a hazard assessment of site<br>operations to determine what types of<br>PPE are required for each type of<br>work (29 CFR 1910.132(d)(1)).                                       | RAC 4                            |

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

#### 1.0 SUMMARY

At the request of the National Guard Bureau (NGB) Region North Industrial Hygiene Office, URS Corporation (URS) conducted an industrial hygiene survey at the Readiness Center in Danvers, Massachusetts.

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

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

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

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

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

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

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

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

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

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

## 2.0 SUPPLY / TRAINING AREA

## 2.1 Operation Description

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

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

## 2.2 Chemical and Physical Agents Sampled

## 2.2.1 Carbon Dioxide

On the day of the survey, carbon dioxide measurements were made in the Readiness Center. Interior carbon dioxide concentrations were found to be between 453 and 699 parts per million (ppm). Carbon dioxide levels were measured using a direct-reading TSI Q-Trak (Model 8551).

Carbon dioxide is a normal constituent of the atmosphere and ranges from about 250 to 450 ppm. The major source of excess carbon dioxide in the indoor environment is human respiration. Other sources can include open-flame heaters, fermentation processes, and motor vehicles. Carbon dioxide itself is not normally a cause of indoor air quality problems but is typically used as an indicator of the adequacy of fresh air intake. As the concentration of carbon dioxide increases, so do the background levels of other air contaminants.

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

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

## 2.2.2 Carbon Monoxide

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

Key sources of carbon monoxide within indoor environments include internal combustion engines, motor vehicle and forklift exhaust, tobacco smoke, space heaters, and improperly adjusted oil or gas burners.

## 2.2.3 Relative Humidity

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

## 2.2.4 Temperature

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

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

## 2.2.5 Lighting

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

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

Table 2-1Lighting Measurements and Recommended Lighting Requirements

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

## 2.2.6 Lead

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

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

| Sample Location   | URS<br>Sample<br>Number | Area<br>Wiped<br>in<br>Square<br>Feet<br>(ft <sup>2</sup> ) | Result in<br>Micrograms/<br>Square Foot<br>(µg/ft <sup>2</sup> ) | Maximum<br>Surface<br>Contamination<br>Level in<br>Micrograms/<br>Square Foot<br>(μg/ft <sup>2</sup> ) |
|---|-------------------------|---|--|--|
| Supply Room, doorway to<br>former Indoor Firing Range,<br>floor | Danvers RC<br>Wipe-01   | 0.108   | 750  | 200  |
| North Storage, floor by rolling door                            | Danvers RC<br>Wipe-03   | 0.108   | 720  | 200  |
| South Storage, floor by door to vault                           | Danvers RC<br>Wipe-04   | 0.108   | 510  | 200  |
| Basement Boiler Room, floor by hot water heater                 | Danvers RC<br>Wipe-05   | 0.108   | 7600   | 200  |
| South Admin, conference room, floor behind copier               | Danvers RC<br>Wipe-06   | 0.108   | <110   | 200  |
| Recruiting Office, floor under<br>desk by window                | Danvers RC<br>Wipe-07   | 0.108   | <110   | 200  |
| Classroom, floor under<br>projector screen                      | Danvers RC<br>Wipe-08   | 0.108   | <110   | 200  |
| Kitchen, floor under storage locker                             | Danvers RC<br>Wipe-09   | 0.108   | <110   | 200  |
| PT Room, floor behind door                                      | Danvers RC<br>Wipe-10   | 0.108   | < <mark>11</mark> 0  | 200  |

 Table 2-2

 Levels of Lead Dust Found in the Readiness Center

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

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

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

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

Table 2-3 Lead Content in Painted Surfaces

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

#### 2.2.7 Asbestos

URS collected a total of three samples from damaged suspect friable asbestoscontaining material (ACM) in this area for a determination of asbestos content. Analytical procedures were performed in accordance with the U.S. Environmental Protection Agency (EPA) recommended method for the determination of asbestos in bulk samples by polarized light microscopy with dispersion staining (EPA-600/M4-82-020). Table 2-4 below shows the results of the asbestos sampling.

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

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

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

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

## 2.3 Ventilation System Evaluation

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

## 2.4 Noise Measurements

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

#### 2.5 Personal Protective Equipment

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

FOIA Requested Record #J-15-0085 (MA) Released by National Guard Bureau Page 1010 of 3473

## 3.0 SAFETY AND INDUSTRIAL HYGIENE PROGRAMS

## 3.1 Confined Spaces

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

## 3.2 Hearing Conservation

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

## 3.3 Respiratory Protection

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

#### 3.4 Hazard Communication

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

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

#### 3.5 Personal Protective Equipment

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

## 3.6 Asbestos Operations and Maintenance Program

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

#### 3.7 Safety

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

FOIA Requested Record #J-15-0085 (MA) Released by National Guard Bureau Page 1012 of 3473

### 4.0 REFERENCES

American Conference of Governmental Industrial Hygienists

Industrial Ventilation: A Manual of Recommended Practice, 27<sup>th</sup> Edition, 2010

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

American National Standards Institute

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

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

American Society of Heating, Refrigerating and Air-Conditioning Engineers

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

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

Department of the Army

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

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

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

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

National Guard Pamphlet 420-15

Department of Defense

DoDI 6055.12, Hearing Conservation, 3 December 2010

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

National Institute for Occupational Safety and Health

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

U. S. Environmental Protection Agency

Asbestos Hazard Emergency Response Act (40 CFR Part 763)

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

U. S. Department of Housing and Urban Development

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

U. S. Occupational Safety and Health Administration

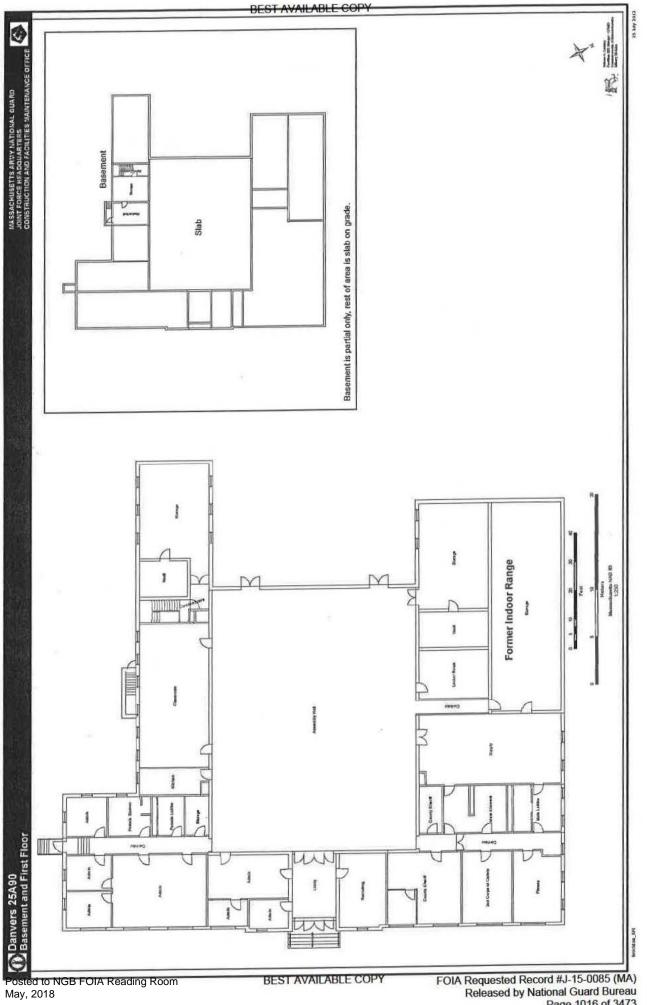
Standard for General Industry: 29 CFR 1910

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

## APPENDIX A

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## SHOP DRAWING



FOIA Requested Record #J-15-0085 (MA) Released by National Guard Bureau Page 1016 of 3473

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## APPENDIX B

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### PERSONNEL LIST



Fulltime

Fulltime

Fulltime

2days per week

5 Days per month

## APPENDIX C

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### ANALYTICAL RESULTS

# AMA Analytical Services, Inc.

<u>k</u>

Client: Address:

#### A Specialized Environmental Laboratory

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#### **CERTIFICATE OF ANALYSIS**

ISOIEC 17025-2005 LAB #105470 National Guard Bureau Job Name: MA ARNG Chain Of Custody: 515617 301-IH Old Bay Lane, Attn: ARNG-CJG-P, Job Location: 2 Armory Road, Danvers, MA Date Submitted: 4/17/2013 State Military Reservation Havre de Grace, Maryland 21078 Danvers RC Job Number: Person Submitting: P.O. Number: W912K6-09-A-0003 Date Analyzed: **Report Date:** 4/24/2013

#### Attention: Non-Responsive

#### Summary of Atomic Absorption Analysis for Lead

Page 1 of 2

AIHA LAP, LLC

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NOUSTRIAL HYGIENE, ENVIRONMENTAL LEAD & ENVIRONMENTAL MICROBIOLOGY

| AMA Sample<br>Number | Client Sample<br>Number | Analysis Type | Sample Type | Air Volume<br>(L) | Area Wiped<br>(ft²) |        | orting<br>imit | Total ug | Final Res | ult                | Comments |
|----------------------|-------------------------|---------------|-------------|-------------------|---------------------|--------|----------------|----------|-----------|--------------------|----------|
| 13054205             | DanversRC Wipe 01       | Flame         | Wipe        | ****              | 0.108               | 110    | ug/ft²         | 80       | 750       | ug/ft²             |          |
| 13054206             | DanversRC Wipe 03       | Flame         | Wipe        | ****              | 0.108               | 110    | ug/ft²         | 77       | 720       | ug/fl <sup>2</sup> |          |
| 13054207             | DanversRC Wipe 04       | Flame         | Wipe        | ****              | 0.108               | 110    | ug/ft²         | 55       | 510       | ug/ft²             |          |
| 13054208             | DanversRC Wipe 05       | Flame         | Wipe        | ****              | 0.108               | 110    | ug/ft²         | 820      | 7600      | ug/ft²             |          |
| 13054209             | DanversRC Wipe 06       | Flame         | Wipe        | ****              | 0.108               | 110    | ug/ft²         | <12      | <110      | ug/ft²             |          |
| 13054210             | DanversRC Wipe 07       | Flame         | Wipe        | ****              | 0.108               | 110    | ug/ft²         | <12      | <110      | ug/ft²             |          |
| 13054211             | DanversRC Wipe 08       | Flame         | Wipe        | ****              | 0.108               | 110    | ug/ft²         | <12      | <110      | ug/fl²             |          |
| 13054212             | DanversRC Wipe 09       | Flame         | Wipe        | ****              | 0.108               | 110    | ug/ft²         | <12      | <110      | ug/fl <sup>2</sup> |          |
| 13054213             | DanversRC Wipe 10       | Flame         | Wipe        | ****              | 0.108               | 110    | ug/ft²         | <12      | <110      | ug/ft²             |          |
| 13054214             | DanversRC Wipe FB       | Flame         | Wipe Blank  | ****              | N/A                 | 12     | ug             |          | <12       | ug                 |          |
| 13054215             | DanversRC LBP 01        | Flame         | Paint Chip  | ****              | N/A                 | 0.0091 | %Pb            |          | <0.0091   | %Pb                |          |
| 13054216             | DanversRC LBP 02        | Flame         | Paint Chip  | ****              | N/A                 | 0.0064 | %Pb            |          | 0.23      | %Pb                |          |

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

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### CERTIFICATE OF ANALYSIS

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

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

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





AIHA LAP. LLC **ACCREDITED LABORATORY** 

NOUSTRIAL HYGIENE, ENVIRONMENTAL LEAD & ENVIRONMENTAL MICROBIOLOGY ISONEC 17025-2005 LAS #100470

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### **CERTIFICATE OF ANALYSIS**



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

### **Summary of Polarized Light Microscopy**

| AMA Sample<br>Number | Client<br>Sample #   | Total<br>Asbestos | Chrysotile<br>Percent | Amosite<br>Percent | Crocidolite<br>Percent | Asbestos |    | Percent |        |               | Particulate<br>Percent | Sample<br>Type | Sample<br>Color | Homogeneity | Analyst<br>ID | Comments |
|----------------------|----------------------|-------------------|-----------------------|--------------------|------------------------|----------|----|---------|--------|---------------|------------------------|----------------|-----------------|-------------|---------------|----------|
| 13054217             | DanversRC<br>PLM 01A | NAD               | 9.883                 | 557                | 1000                   | 8551     | 30 | 55      | <br>   | 3 <b>55</b> 4 | 70                     | PI             | Gray            | Homogeneous | LBP           |          |
| 13054218             | DanversRC<br>PLM 01B | NAD               |                       |                    |                        |          | 30 |         | <br>** |               | 70                     | Ы              | Gray            | Homogeneous | LBP           |          |
| 13054219             | DanversRC<br>PLM 01C | NAD               | 0                     | -                  |                        |          | 30 | ••      | <br>   |               | 70                     | PI             | Gray            | Homogeneous | LBP           |          |

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

#### NVLAP (101143-0) Accredited Laboratory

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# AMA Analytical Services, Inc.

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#### A Specialized Environmental Laboratory

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#### **CERTIFICATE OF ANALYSIS**



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

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

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

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

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

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

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

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

**Technical Director** 



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

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| AMA Analytical Services, I<br>Focused on Results www.umalab.c<br>AIHA (#100470) NVLAP (#101143-0)  | NY ELAP (10                             | 920)                         | THA                                 | IN OI                   | r <b>C</b> I | กรา                 | 'n                      | V            |           |        | ease Refer To This<br>mber For Inquires) |  | .( |
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| Mailing/Billing Information:<br>1. Client Name: <u>National Guard Bureau</u>   |   |                              |                                     | Submi                   | ital Info    | ormation            | · 0/14                  | 14RN         | 9         |        |  |  |    |
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| 4. Address 3: Havre de Grace, Marylan  | d 21078                                 |                              |                                     | 4. Co                   |              |                     | on                      | -Re          | est       | 00     | onsive                                   |  |    |
| 5. Phone #: (410) 942-0273   | Fax #:(                                 | 10) 942-025<br>eporting Info | 4                                   | 5. 'SU                  | mitted       | 0y                  |                         |              |           |        |  | Non-Respon   | ns |
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| Asbestos Analysis<br><u>PCM Air</u> – Please Indicate Filter Type:   |   | TEM Bulk                     | ID IOS AICL                         | atfield                 |              | VELD.               |                         | Web          | Ph Pair   | A Chi  | (QTY                                     | <i>.</i>   |    |
| _I NIOSH 7400(QTY)   |   | UNY                          | State PLM/                          | TEM                     | (0)          | [Υ]<br>ΓΥ)          |                         | Ļ            | Pb Dus    | t Wip  | e (wipe type                             | )(Q  | TY |
| G Fiberglass (QTY)<br>TEM Air - Please Indicate Filter Type:   |   | LI Re:                       | idual Ash                           | (0                      | TY)          |                     |                         | L            | Pb Air    | Solid  | (QTY)                                    |  |    |
| AHERA (QTY)  |   | TEM Dust                     |                                     | Vacuum/Dust,            |              | TO)                 | Y)                      | 0            | Pb TCI    | P      | (OTY)                                    |  |    |
| Q NIOSH 7402(QTY)  | -(OTY)                                  |                              | Ouan (starea) Vacuum D5755-95 (OTY) |                         |              |                     |                         |              |           | g Wa   | er CI Pb(QTY)                            | Cu(QTY) CAs  |    |
| PLM Bulk   |   | TEM Wate                     |                                     | ust D6490-99_           |              | (QT                 | ¥)                      | ŭ            | Pb Fur    | nace ( | Media (QTY) CI                           | Си(QTY) D As<br>)(QTY)                                       |    |
| EPA 600 - Visual Estimate(QTY)   | (TY)                                    | C) Ou                        | al (pres/abs)                       |                         | (QTY)        |                     |                         | Willing .    | il Analy  | 4      |  |  |    |
| Q NY State Friable 198.1 (OTY)   | )                                       | Q EL                         | AP 198.2/EP                         | A 100.2(QT              |              | (QTY)               |                         |              | Collecti  | on Ap  | paratus for Spore Trap<br>edia           | ps/Air Samples:  | -  |
| Grav. Reduction ELAP 198.6   | (QTY)<br>_(OTY)                         |                              |                                     |                         |              |                     |                         | -            | Spore-    | Trap_  | (OTY) QS                                 | Surface Vacuum Dust  |    |
| MISC   |   | TEM                          | Water sample                        | ived in good c<br>cs°C) | ondition     | uniess oth          | cewise no               |              | Surface   | Swat   |  | Culturable ID Genus (Media_<br>Culturable ID Species (Media_ | -  |
| Vermiculite     Asbestos Soil PLM_(Quil) PLM_(Qua) PLM/TEM   | (Qual) PLM/TEM                          |                              |                                     |                         |              |                     | -                       | - 6          | Other (Sp | ecify_ | )(QT))                                   | conversione Its abories (picula                              |    |
| SAMPLE INFORMAT  | IÓN                                     |                              | 1                                   | WALVER                  | , 9,         |                     | . M                     | Wink         | 1.00      | , 40   | , C                                      | LIENT CONTACT  |    |
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| DUNESBCILLARG MANHENINGE   | 4113                                    | ERS) AREA                    |                                     | X                       |              |                     | X                       |              | 4         |        | Date/Time:                               | Contact:   | 1  |
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| AIHA (#100470) NVLAP (#101143-0) NY<br>4475 Forbes Blvd. * Lanham, MD 20706<br>(301) 459-2640 • (800) 346-0961 • Fax (30 |                 | CH                                    | AIN               | 1922         |           |  |           | 811122  |        |           | Number For     |             | P9-  | 2 ef 2 |
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| bestos Auslysia  |                 | MBulk                                 |                   |              |           |  |           |         | N THE  | Max       | 0              |             |  |        |
| M Air - Please Indicate Filter Type:   | 211             | UELAP 198.4                           | /Chatfield        | -            | (         | (YTY)  |           |         | A.P    | b Paint ( | Chip           | (QTY)       | <u>r) 11 (</u>                                     |        |
| UNIOSH 7400 (OTY)  |                 | ONY State Pl                          | M/TEM_            |              | (Q'       | (Y)  |           |         | SKI    | b Dust V  | Vipe (wipe typ | e ghus      | <u>r) // (</u>                                     | QTY)   |
| G Fiberglass (QTY)<br>M Air - Please Indicate Filter Type:   |                 | Residual As                           | h                 | (Q1          | FY)       |  |           |         |        | b Air     | olidf          | TYY         |  |        |
| CAHERA (OTY)   | TE              | Oual. (pres/                          | abr) Vanue        | Dual         |           | 1000   | 2         |         | OP     | h TCLP    |                | (QTTY)      |  |        |
| Q NIOSH 7402 (QTY)   | 002220          | Quan. (s/are                          |                   |              |           |  |           |         | Qr     | rinking   | Water CI Ph_   | (QTY)C      | Cu(QTY) DA   | s. (OT |
| an oritin ( )  | QTY)            | Quan (slare                           |                   |              |           |  |           |         | 01     | laste Wa  | ter C Pb       | OTY) D      | Cu (OTY) As  | (OTY   |
| M Bulk<br>DEPA 600 - Visual Estimate 3 (QTY  | TE TE           | M Water                               |                   |              |           |  |           | 10      | LIP    | b Furnac  | e (Media       | )           | (QTY)  |        |
| C EPA Point Count(QTY)<br>Q NY State Friable 198.1(QTY)  |                 | Qual. (pres/                          | abs)              | (            | QTY)      | C NUMBER   |           | . A.    |        | allection |                | Secon Tean  | s/Air Samples:                                     |        |
| Q NY State Friable 198.1 (QTY)   |                 | DELAP 198.3                           | 0/EPA 100         | (OTV         | · · · · · | QIY)   |           |         | c      | ollection | Media          | apore map   | soan samples.                                      |        |
| Grav. Reduction ELAP 198.6(QT  | IY)             |                                       |                   |              |           |  |           |         | Qs     | pore-Tra  | P(QT           | Y) OS       | Surface Vacuum Dust_                               | (QT    |
| SC SC  | 21.17           | C All samples                         |                   |              | ndition   | unless oth   | erwise n  | ioted.  | Qs     | urface S  | wab(           | OTY) QC     | ulturable ID Genus (Media,                         | )      |
| O Vermiculite  | a management    | (TEM Water si                         | imples            | _1)          |           |  |           |         | U S    | urface T  | ope (C         | TY) QC      | ulturable ID Species (Media                        |        |
| Asbestos Soil PLM_(Qual) PLM_(Qual) PLM/TEM_1  |                 | 100                                   | A. 1              |              |           |  |           | water   | in uro | nertopor  | ·)             | (1945)      |  |        |
| SAMPLE INFORMATIO  | N<br>VOLUME     |                                       | ANAX              | 10           | 191       | . 13   | 15        | laint   | 1 24   | #1        | 81             | CI          | LIENT CONTACT                                      |        |
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## APPENDIX D

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## PHOTOGRAPHIC LOG



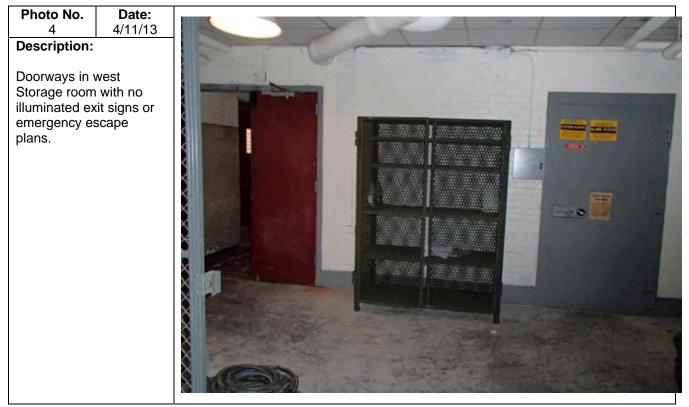
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## PHOTOGRAPHIC LOG

| <b>Client Name:</b>   |                            | Site Location:            | Project No. |
|---|----------------------------|---------------------------|-------------|
| MA ARNG- Da   | anvers RC                  | 2 Armory Rd., Danvers, MA | 39743799    |
| Photo No.<br>3  | <b>Date:</b> 4/11/13       |                           | Sall A      |
| Description:<br>Evidence of w<br>intrusion on bo<br>reportedly fror<br>break, in Supp | rater<br>oxes,<br>m a pipe |                           |             |



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### APPENDIX E

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

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

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



Prepared For:

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

Prepared By:

URS Corporation 5 Industrial Way Salem, New Hampshire 03079

INDUSTRIAL HYGIENE SURVEY REPORT DORCHESTER READINESS CENTER 70 VICTORY ROAD DORCHESTER, MASSACHUSETTS



Office Manager



July 2005 PN: 39741508

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### FINDINGS AND RECOMMENDATIONS

|  |   | Risk<br>Assessment<br>Code |
|--|---|----------------------------|
| Ergonomic  |   |                            |
| Computer work stations were<br>observed with fixed chairs,<br>armrests, keyboards and<br>monitors.   | Ergonomic issues with the desks<br>and chairs should be corrected by<br>fitting the workplace to the worker<br>(DoD, OSHA General Duty)   | RAC 3                      |
| Lighting   |   |                            |
| On the day of the survey, the<br>illuminance in the administrative<br>area was inadequate in<br>approximately half of the offices.                   | Increase lighting in the<br>administrative areas. While work is<br>in progress, the administrative area<br>shall be lighted by at least the<br>minimum lighting intensities (ANSI /<br>IESNA RP-1-04)                                 | RAC 4                      |
| Lead   | · · · · · · · · · · · · · · · · · · ·   |                            |
| Peeling lead-based paint was present in Kitchen #19 and the boiler room # 18.  | Personnel trained in accordance<br>with the OSHA Lead Standard<br>should stabilize peeling lead paint<br>(OSHA 29 CFR 1910.1025(h)(1))  | RAC 4                      |
| Lead was detected in wipe samples collected from the former firing range in amounts greater than 200 µg/ft <sup>2</sup>                              | Personnel trained in accordance<br>with the OSHA Lead Standard<br>should clean the former firing range<br>where lead was detected in<br>quantities of greater than 200<br>micrograms per square foot (OSHA<br>29 CFR 1910.1025(h)(1)) | RAC 4                      |
| Asbestos   |   |                            |
| Exposed pipe insulation, worn<br>out 9"x9" floor tile, and cracking<br>and loose window glazing were<br>found in various places of this<br>facility. | Repair and/or remove all asbestos<br>containing materials that are<br>exposed. Work should be<br>completed by personnel trained in<br>accordance with federal regulations<br>(OSHA 29 CFR 1910.1001(k)(1))                            | RAC 3                      |
| A site-specific asbestos operations and maintenance plan was available.  | Implement the site specific asbestos<br>operations and maintenance plan to<br>manage asbestos-containing<br>materials (OSHA 29 CFR<br>1910.1001(j))   | RAC 3                      |
| Hazard Communication   |   | ·                          |
| No site specific hazard communication plan was available.  | Develop a site specific hazard<br>communication plan to manage<br>hazardous materials (OSHA 29 CFR<br>1910.1200(e))   | RAC 4                      |

#### 1.0 SUMMARY

At the request of the National Guard Bureau Region North Industrial Hygiene Office (NGB), URS Corporation (URS) conducted an industrial hygiene survey at the Readiness Center located at 70 Victory Road in Dorchester, Massachusetts. This report includes an executive summary, a description of the survey protocol, a discussion of the survey evaluation and findings and a list of conclusions and recommendations.

On March 2, 2004, Mr. Non-Responsive an industrial hygienist with URS, conducted a site visit to the Readiness Center in Dorchester, Massachusetts. The purpose of this site visit was to conduct an industrial hygiene survey, which included the collection of air samples, bulk samples, lighting measurements, and a review of site health and safety procedures. Mr.Non-Responsive of the State of Massachusetts was Mr. **Von-Responsive** Site contact for this survey.

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

## 2.0 ADMINISTRATIVE AREA

### 2.1 Operation Description

This building area contains multiple offices located throughout the building with desks and computer workstations. Computer workstations were assessed during the walkthrough for ergonomic issues. Computer workstation chairs and armrests were in a fixed position and keyboards could not be adjusted in office #1 (Photos # 4075-77), office #9 (Photo # 4082), office #10 (Photo # 4083), office #13 (Photo # 4086), office #23 (Photo # 4089) and room #24C (Photo # 4097). If more than one person is using that station, then proper adjustments need to be made to accommodate each person.

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

## 2.2 Chemical and Physical Agents Sampled

### 2.2.1 Relative Humidity

Relative humidity levels were measured using a TSI Q-Track (Model 8551). Relative humidity on the day of the survey ranged from 16.8 – 19.2% with an average of 17.9%. These readings were below the recommended comfort levels of between 30.0% and 60.0% set by the American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. (ANSI / ASHRAE Standard 55-2004).

### 2.2.2 Carbon Dioxide

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On the day of the survey, carbon dioxide measurements were made at various locations throughout the Readiness Center. Carbon dioxide concentrations ranged from 463 to 491 parts per million (ppm), with an average of 476 ppm. Carbon dioxide levels were measured using a direct reading TSI Q-Track (Model 8551).

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

ASHRAE recommends that levels of carbon dioxide be maintained below 700 ppm above background level. Given a background level of 350 ppm on the day of the survey, the ASHRAE limit would be 1050 ppm.

### 2.2.3 Carbon Monoxide

Carbon monoxide was also measured in the Readiness Center. Carbon monoxide concentrations read 0 ppm throughout the survey period. The measured levels were below the ASHRAE guideline for indoor environments. Carbon monoxide was measured using a TSI Q-Track (Model 8551).

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

### 2.2.4 Lighting

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

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

Table 2-1 Lighting Measurements and Recommended Lighting Requirements

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| Administrative Duties | 394   | 500  |
|-----------------------|---|--|
| Administrative Duties | 746   | 500  |
| Administrative Duties | 487   | 500  |
| Administrative Duties | 385   | 500  |
| Administrative Duties | 117   | 500  |
| Administrative Duties | 306   | 500  |
|                       |   |  |
| Administrative Duties | 1,105   | 500  |
|                       |   |  |
| Administrative Duties | 778   | 500  |
| Accessway             | 165   | 30   |
| Accessway             | 213   | 30   |
| Accessway             | 144   | 30   |
|                       | Administrative Duties<br>Administrative Duties<br>Administrative Duties<br>Administrative Duties<br>Administrative Duties<br>Administrative Duties<br>Administrative Duties<br>Accessway<br>Accessway | Administrative Duties746Administrative Duties487Administrative Duties385Administrative Duties117Administrative Duties306Administrative Duties1,105Administrative Duties1,105Administrative Duties778Administrative Duties778Accessway165Accessway213 |

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

#### 2.2.5 Lead

Three paint chips were collected where paint was peeling and sent to AMA Analytical Services, Inc. (AMA) for analysis. Sample # 0302-LPC03 was found to contain lead in a concentration above the allowable limits of the U.S. Housing and Urban Development (HUD) Lead-Based Paint Guidelines. Levels of lead greater than 0.5% by weight are referred to as "lead-containing" (Section 1017 of the Residential Lead-Based Paint Hazard Reduction Act of 1992 (also referred to as Title X)). Table 2-2 below shows the results of the lead paint testing.

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

| Sample Location | URS Sample<br>Number | Reporting Limit<br>(% by Weight) | Final Result<br>(% by Weight) |
|-----------------|----------------------|----------------------------------|-------------------------------|
| Office # 11     | 0302-LPC01           | 0.01                             | <0.011                        |
| Kitchen # 19    | 0302-LPC02           | 0.01                             | 0.1                           |
| Kitchen # 19    | 0302-LPC03           | 0.01                             | 1.2                           |

The analytical report from AMA is contained in Appendix D.

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

| Sample Location                         | URS Sample<br>Number | Area<br>Wiped<br>(ft <sup>2</sup> ) | Result<br>(µg/ft <sup>2</sup> ) | Maximum Safe<br>Surface<br>Contamination<br>Level (μg/ft <sup>2</sup> ) |
|---|----------------------|-------------------------------------|---------------------------------|---|
| Office # 23 – Top of a<br>Bookcase      | 0302-LW01            | 0.111                               | 17                              | 200   |
| Kitchen # 19 – Top of a<br>File Cabinet | 0302-LW02            | 0,111                               | 180                             | 200   |
| Office # 27 – Top of Desk<br>Bookcase   | 0302-LW03            | 0. <b>1</b> 11                      | 21                              | 200   |
| Kitchen # 5 – Top of a<br>Refrigerator  | 0302-LW05            | 0.111                               | 15                              | 200   |
| Office # 14 – Top of a File<br>Cabinet  | 0302-LW06            | 0.111                               | 8.8                             | 200   |
| Blank                                   | 0302-<br>LWBlank     | 0.111                               | 1.2                             | 200   |

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

## 2.2.5 Asbestos

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

#### 2.3 Ventilation System Evaluation

Not applicable to this operation.

#### 2.4 Noise Measurements

Not applicable to this operation.

#### 2.5 Personal Protective Equipment

Not applicable to this operation.

#### 2.6 Interpretation of Results

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

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

LEAD: The white paint chip from kitchen # 19 (Photo # 4091) that was tested for lead was found to contain lead above the allowable limits. Currently, there are no federal or state regulations that require removal of these materials prior to building demolition or renovation. The U.S. Occupational Safety and Health Administration (OSHA) regulations, 29 CFR 1910.1025 and 29 CFR 1926.62 are designed to protect workers. potentially exposed to elevated airborne levels of lead from lead-based paint.

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

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

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### 3.0 FORMER FIRING RANGE

### 3.1 Operation Description

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

### 3.2 Chemical and Physical Agents Sampled

### 3.2.1 Lead

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Wipe testing for lead was conducted in the former firing range using ghost wipes, which meet ASTM E 1792 standards. The analytical report from AMA is contained in Appendix D. Table 3-1 below shows the results of the lead sampling.

| Sample Location                                 | URS Sample<br>Number | Area<br>Wiped<br>(ft <sup>2</sup> ) | Result<br>(µg/ft <sup>2</sup> ) | Maximum Safe<br>Surface<br>Contamination<br>Level (µg/ft <sup>2</sup> ) |
|---|----------------------|-------------------------------------|---------------------------------|---|
| Former Firing Range-Top<br>of a Light Guard     | 0302-LW07            | 0.111                               | 1,200                           | 200   |
| Former Firing Range-Top<br>of a File Cabinet    | 0302-LW08            | 0.111                               | 190                             | 200   |
| Former Firing Range-Floor<br>of the Bullet Trap | 0302-LW09            | 0,111                               | 180                             | 200   |
| Former Firing Range-Floor<br>– Center           | 0302-LW10            | 0.111                               | 150                             | 200   |
| Former Firing Range-Floor<br>– Front            | 0302-LW11            | 0.111                               | 350                             | 200   |
| Blank   | 0302-<br>LWBlank     | N/A                                 | 1.2                             | 200   |

 Table 3-1

 Levels of Lead Dust Found in the Former Firing Range

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

#### Table 3-2 Level of Lead Found in the Air

| Sample Location     | URS Sample<br>Number | Air Volume<br>(L) | Result<br>(µg/m³) | OSHA's PEL<br>(µg/m <sup>3</sup> ) |
|---------------------|----------------------|-------------------|-------------------|------------------------------------|
| Former Firing Range | 0302-LA01            | 988               | <3.0              | 50.0                               |
| Blank               | 0302-LA03            | 0                 | <3.0              | 50.0                               |

On the day of the survey, the airborne lead dust level in the former firing range was found to be acceptable, below OSHA's permissible exposure limit (PEL) for lead (29) CFR 1910.1025(c)) of 50.0 μg/m<sup>3</sup> averaged over an 8-hour day. The analytical report from AMA is contained in Appendix D.

#### 3.3 Ventilation System Evaluation

Not applicable to this operation.

#### 3.4 Noise Measurements

Not applicable to this operation.

#### 3.5 Personal Protective Equipment

Not applicable to this operation.

#### 3.6 Interpretation of Results

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

#### URS я.

### 4.0 DRILL HALL

#### 4.1 Operation Description

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

#### 4.2 Chemical and Physical Agents Sampled

### 4.2.1 Lead

Wipe testing for lead dust was conducted in the drill hall using ghost wipes, which meet ASTM E 1792 standards. The analytical report from AMA is contained in Appendix D. Table 4-1 below shows the results of the lead sampling.

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

Table 4-1 Level of Lead Dust Found in the Drill Hall

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

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

| Sample Location | URS Sample Number | Air Volume<br>(L) | Result<br>(µg/m <sup>3</sup> ) | OSHA's PEL<br>(µg/m³) |
|-----------------|-------------------|-------------------|--------------------------------|-----------------------|
| Drill Hall      | 0302-LA02         | 964               | <3.1                           | 50.0                  |
| Blank           | 0302-LA03         | 0                 | <3.0                           | 50.0                  |

On the day of the survey, the airborne lead dust level in the drill hall was found to be acceptable, below OSHA's permissible exposure limit (PEL) for lead (29 CFR 1910,1025(c)) of 50.0  $\mu$ g/m<sup>3</sup> averaged over an 8-hour day.

#### Ventilation System Evaluation 4.3

Not applicable to this operation.

#### 4.4 **Noise Measurements**

Not applicable to this operation.

#### **Personal Protective Equipment** 4.5

Not applicable to this operation.

#### 4.6 Interpretation of Results

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

### 5.0 BOILER ROOM / BASEMENT AREA

#### 5.1 Operation Description

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

#### 5.2 Chemical and Physical Agents Sampled

### 5.2.1 Lead

Paint chips were collected in two areas where paint was peeling and sent to AMA for analysis. The brown paint chip (Photo # 4093) was found to contain lead in a concentration above the allowable limits of the U.S. Housing and Urban Development (HUD) Lead-Based Paint Guidelines. Levels of lead greater than 0.5% by weight are referred to as "lead-containing" (Section 1017 of the Residential Lead-Based Paint Hazard Reduction Act of 1992 (also referred to as Title X)). Table 5-1 below shows the results of the lead paint testing.

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

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

The analytical report from AMA is contained in Appendix D.

### 5.2.2 Asbestos

No issues were found concerning asbestos-containing materials.

#### 5.3 Ventilation System Evaluation

Not applicable to this operation.

#### 5.4 Noise Measurements

Not applicable to this operation.

#### Personal Protective Equipment 5.5

Not applicable to this operation.

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#### 5.6 Interpretation of Results

<u>LEAD:</u> The brown paint chip that was tested for lead was found to contain lead above the allowable limits. Currently, there are no federal or state regulations that require removal of these materials prior to building demolition or renovation. The U.S. Occupational Safety and Health Administration (OSHA) regulations, 29 CFR 1910.1025 and 29 CFR 1926.62 are designed to protect workers potentially exposed to elevated airborne levels of lead from lead-based paint.

### 6.0 SAFETY AND INDUSTRIAL HYGIENE PROGRAMS

#### 6.1 Confined Spaces

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

#### 6.2 Hearing Conservation

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

#### 6.3 Respiratory Protection

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

#### Hazard Communication 6.4

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

#### Personal Protective Equipment 6.5

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

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### 7.0 REFERENCES

American National Standards Institute

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

American Society of Heating Refrigerating and Air-Conditioning Engineers

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

Army Corps of Engineers

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

Department of the Army

Ergonomics Program Pamphlet 40-21 (15 August 2003)

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

### Department of Defense

DoD Hearing Conservation Program Standard 6055.12 April 1996

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

U. S. Environmental Protection Agency

Asbestos Hazard Emergency Response Act (40 CFR Part 763)

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

U. S. Housing and Urban Development

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

U. S. Occupational Safety and Health Administration

Standard for General Industry: 29 CFR 1910

URS

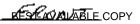
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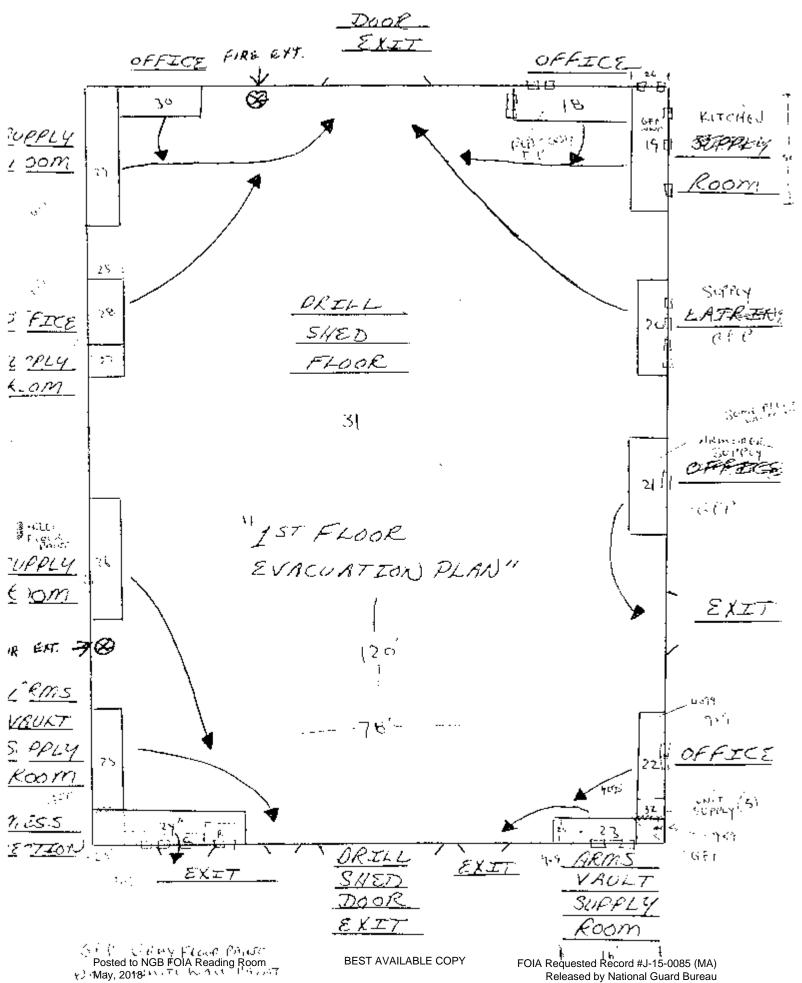
APPENDIX A

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### SHOP DRAWING

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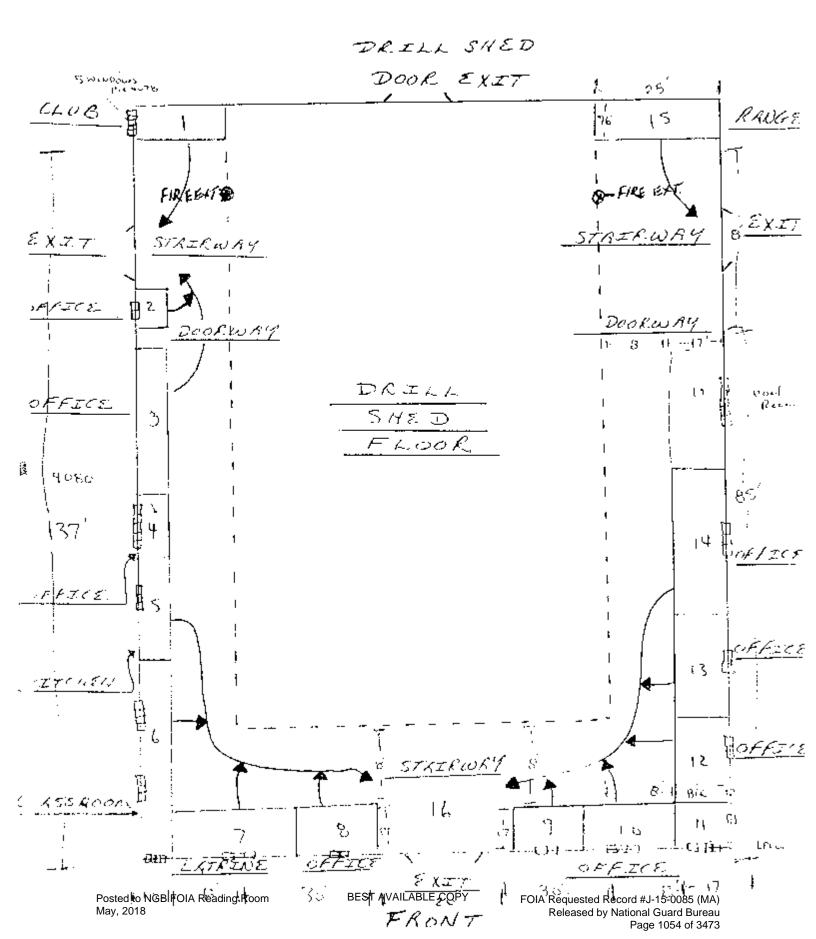




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DORCHESTER, MA

"ZND BESTAVAILABLE GOPA EVACURTION PLAN"



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APPENDIX B

PERSONNEL LIST

.

#### BEST AVAILABLE COPY PERSONEL LIST DORCHESTER ARMORY

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

APPENDIX C

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### HAZARDOUS MATERIALS LIST

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## NO CHEMICAL INVENTORY AVAILABLE

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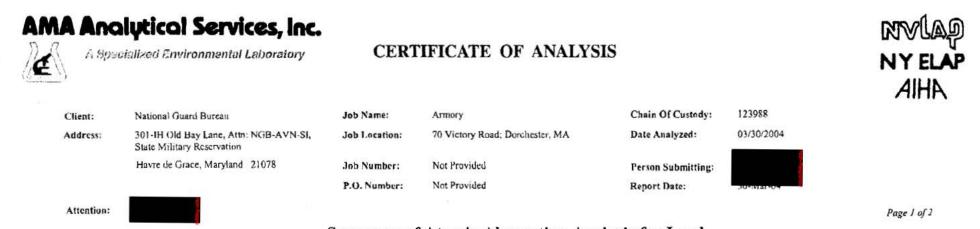
APPENDIX D

### ANALYTICAL RESULTS

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FOIA Requested Record #J-15-0085 (MA) Released by National Guard Bureau Page 1059 of 3473



Lev

#### Summary of Atomic Absorption Analysis for Lead

|             | AMA Sample<br>Number | Client Sample<br>Number | Analysis Type | Sample Type | Air Volume<br>(L) | Arca Wiped<br>(ft²) |        | orting<br>invit    | 1 | Final Res | uit                | Comments |
|-------------|----------------------|-------------------------|---------------|-------------|-------------------|---------------------|--------|--------------------|---|-----------|--------------------|----------|
| BEST        | 0432329              | 0302-LPC 01             | Flame         | Paint Chip  |                   | N/A                 | 0.01   | %РЪ                | < | 0.011     | %РЪ                |          |
| TA          | 0432330              | 0302-LPC 02             | Flame         | Paint Chip  | ••••              | N/A                 | 0.01   | %Pb                |   | 0.1       | %РЬ                |          |
| AVAII ABI F | 0432331              | 0302-LPC 03             | Flame         | Paint Chip  | ••••              | N/A                 | 0.01   | %Pb                |   | 1.2       | %Pb                |          |
| A           | 0432332              | 0302-LPC 04             | Flame         | Paint Chip  | ****              | N/A                 | 0.01   | %Pb                |   | 0.27      | %Pb                |          |
|             | 0432333              | 0302-LPC 05             | Flame         | Paint Chip  | ••••              | N/A                 | 0.01   | %Pb                |   | 2.8       | %РЬ                |          |
| 2           | 0432334              | 0302-LW 01              | Furnace       | Wipe        | ••••              | 0.111               | 2.70   | ug/ft <sup>2</sup> |   | 17        | ug/ft <sup>2</sup> |          |
| CODV        | 0432335              | 0302-LW 02              | Furnace       | Wipe        | ••••              | 0.111               | 33.75  | ug/ft2             |   | 180       | ug/ftª             |          |
|             | 0432336              | 0302-LW 03              | Furnace       | Wipe        | ••••              | 0.111               | 2.70   | ug/ft²             |   | 21        | սք/Ո՞              |          |
|             | 0432337              | 0302-LW 04              | Furnace       | Wipe        | ****              | 0.111               | 2.70   | ug/ft²             |   | 14        | ug/ft²             |          |
|             | 0432338              | 0302-LW 05              | Furnace       | Wipe        | ••••              | 0.111               | 2.70   | ug/ft²             |   | 15        | ug/ft²             |          |
| 1           | 0432339              | 0302-LW 06              | Furnace       | Wipe        | ••••              | 0.111               | 2.70   | ug/ft²             |   | 8.8       | ug/fl²             |          |
|             | 0432340              | 0302-LW 07              | Flame         | Wipe        | ••••              | 0.111               | 108.01 | ug/fl²             |   | 1200      | ug/ít²             |          |
| )           | 0432341              | 0302-LW 08              | Furnace       | Wipe        | ****              | 0.111               | 33.75  | ug/ft*             |   | 190       | ug/ft²             |          |
|             | 0432342              | 0302-I.W 09             | Furnace       | Wipe        | ••••              | 0.111               | 33.75  | ug/ft²             |   | 180       | ug/fl <sup>2</sup> |          |
|             | 0432343              | 0302-LW 10              | Furnace       | Wipe        | ****              | 0.111               | 33.75  | ug/ft²             |   | 150       | ug/ft <sup>2</sup> |          |
| i -         | 0432344              | 0302-LW 11              | Flame         | Wipe        | ****              | 0.111               | 108.01 | ug/ft²             |   | 350       | ug/fl²             |          |
|             | 0432345              | 0302-LW BLANK           | Furnace       | Wipe Blank  | ****              | N/A                 | 0.30   | ug                 |   | 1.2       | ug                 |          |
|             | 0432346              | 0302-LA 01              | Flame         | Air         | 988               | N/A                 | 3.04   | ug/m³              | < | 3         | ug/m³              |          |
| Thi         | 0432347              | 0302-LA 02              | Flame         | Air         | 964               | N/A                 | 3.11   | ug/m'              | < | 3.1       | ug/m'              |          |
|             | 0432348              | 0302-LA 03              | Flame         | Air Blank   | 0                 | N/A                 | 3.00   | ug/m²              | < | 3         | ыg                 |          |

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, 2 this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization From us. Sample types, locations and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information. Residual sample material will be discarded in accordance with the appropriate regulatory guidelines, unless otherwise requested by the client. NVI.AP Accreditation applies only to polarized light microscopy of bulk samples and transmission electron microscopy of AHERA air samples. This report must not be used to claim, and does not imply product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government. All rights reserved. AMA Analytical Services, Inc.

An AIHA (#8663), NVLAP (# 101143), & New York ELAP (#10920) Accredited Laboratory

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### SCILAB BOSTON, INC.

8 SCHOOL STREET WEYMOUTH, MA 02189 TEL: (781) 337-9334 • FAX: (781) 337-7642

June 5, 2000

ATC Associates Inc., Woburn Attn 600 West Cummings Park Suite 6500 Woburn, MA 01801

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

Dear Mr.

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

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

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

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

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



Aspestos Laboratory Manager



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SCILAB BOSTON, INC.

8 SCHOOL STREET WEYMOUTH, MA 02189 TEL: (781) 337-9334 • FAX: (781) 337-7642

## **PLM Bulk Asbestos Report**

ATC Associates Inc., Woburn

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

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

 Page
 1
 of
 8

Attr<mark>Non-Responsive</mark> 600 West Cummings Park Suite 6500 Woburn, MA 01801

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

| Client No. / HGA              | Lab No.   | Asbestos Present                   | <b>Total % Asbesto</b>   |
|-------------------------------|---|------------------------------------|--------------------------|
| 01A                           | 500062259-01  | Yes                                | 65 %                     |
| 1 Lo                          | cation:   |                                    |                          |
| Asbestos                      | ription: Grey, Homogeneous, F<br>Types: Chrysotile 65. %<br>aterial: Cellulose 10. %, No  | Pipe Insulation<br>n-fibrous 25. % | R                        |
| 01B                           | 500062259-02  |                                    | NA/PS                    |
| 1 Lo                          | cation:   |                                    |                          |
| Descr<br>Asbestos<br>Other Ma |   |                                    | <u>n_</u>                |
| 02A                           | 500062259-03  | Yes                                | 40 %                     |
| 2 Lo                          | cation:   |                                    |                          |
| Asbestos                      | iption: Beige, Homogeneous, I<br>Types: Chrysotile 40. %<br>aterial: Fibrous glass 10. %, |                                    |                          |
| 02B                           | 500062259-04  |                                    | NA/PS                    |
| 2 Lo                          | cation:   |                                    |                          |
| Descr<br>Asbestos<br>Other Ma |   |                                    |                          |
| 03A                           | 500062259-05  | Yes                                | 70 %                     |
| 3 Lo                          | cation:   |                                    |                          |
| Asbestos                      | iption: Tan, Homogeneous, Bo<br>Types: Amosite 40. %, Chry<br>iterial: Non-fibrous 30. %  | sotile 30. %                       | d Record #J 15 0085 (MA) |
| May, 2018                     |   |                                    | by National Guard Bureau |

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### SCILAB BOSTON, INC.

8 SCHOOL STREET WEYMOUTH, MA 02189 TEL: (781) 337-9334 • FAX: (781) 337-7642

# **PLM Bulk Asbestos Report**

ATC Associates Inc., Woburn<br/>AttnDate Received06/01/2000SciLab Job No.500062259Date Examined06/05/2000P.O. #91348600 West Cummings ParkPage 2 of 8Suite 6500<br/>Woburn, MA 01801RE: 60-17533-0001; State Quartermaster; Dorchester Armory

|  | E000(22E0 0(  |  | NTA /DC   |
|--|---|--|---|
| Location:  | 500062259-06  |  | NA/PS   |
| Description:<br>Asbestos Types:                    | Boiler Jacket   | 2  |   |
|  | 500062259-07  |  | NA/PS   |
| Location:  |   |  |   |
| Asbestos Types:                                    |   |  |   |
|  | 500062259-08  | Yes  | 65 %  |
| Location:  |   |  |   |
| Asbestos Types:                                    | Amosite 45. %, Chry   |  |   |
|  | 500062259-09  |  | NA/PS   |
| Location:  |   |  |   |
| Description:<br>Asbestos Types:<br>Other Material: | Tank Insulation   |  |   |
|  | 500062259-10  |  | NA/PS   |
| Location:  |   |  |   |
| Description:<br>Asbestos Types:<br>Other Material: | Tank Insulation   |  |   |
|  | Asbestos Types:<br>Other Material:<br>Location:<br>Description:<br>Asbestos Types:<br>Other Material:<br>Location:<br>Description:<br>Asbestos Types:<br>Other Material:<br>Location:<br>Description:<br>Asbestos Types:<br>Other Material:<br>Location:<br>Description:<br>Asbestos Types: | Location:<br>Description: Boiler Jacket<br>Asbestos Types:<br>Other Material:<br>500062259-08<br>Location:<br>Description: White, Homogeneous,<br>Asbestos Types: Amosite 45. %, Chry<br>Other Material: Non-fibrous 35. %<br>500062259-09<br>Location:<br>Description: Tank Insulation<br>Asbestos Types:<br>Other Material:<br>500062259-10<br>Location:<br>500062259-10<br>Location:<br>Description: Tank Insulation<br>Asbestos Types: | Asbestos Types:<br>Other Material:<br>500062259-07<br>Location:<br>Description: Boiler Jacket<br>Asbestos Types:<br>Other Material:<br>500062259-08<br>Fes<br>Location:<br>Description: White, Homogeneous, Tank Insulation<br>Asbestos Types: Amosite 45. %, Chrysotile 20. %<br>Other Material: Non-fibrous 35. %<br>500062259-09<br>Location:<br>500062259-09<br>Location:<br>Description: Tank Insulation<br>Asbestos Types:<br>Other Material:<br>500062259-10<br>Location:<br>Description: Tank Insulation<br>Asbestos Types: |



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SCILAB BOSTON, INC.

8 SCHOOL STREET WEYMOUTH, MA 02189 TEL: (781) 337-9334 • FAX: (781) 337-7642

# **PLM Bulk Asbestos Report**

ATC Associates Inc., Woburn<br/>Attn:Date Received06/01/2000SciLab Job No.500062259Attn:Non-Responsive<br/>000 West Cummings ParkDate Examined06/05/2000P.O. #91348600 West Cummings Park<br/>Suite 6500<br/>Woburn, MA 01801RE: 60-17533-0001; State Quartermaster; Dorchester Armory

| Client No. / HGA             | Lab No.  | <b>Asbestos Present</b> | Total % Asbesto                                    |
|------------------------------|--|-------------------------|--|
| 05                           | 500062259-11   | No                      | NAD  |
|                              | Location: Yankee Division  |                         |  |
| Asbest                       | escription: Grey, Homogeneous, Sh<br>tos Types:<br>Material: Cellulose 4. %, Non-f             |                         |  |
| 06                           | 500062259-12<br>Location: Yankee Division  | No                      | NAD  |
| Asbest                       | escription: Off-White, Homogeneo<br>tos Types:<br>Material: Non-fibrous 100. %                 | us, Joint Compound      |  |
| 07A                          | 500062259-13   | Yes                     | 3 %  |
| 7                            | Location: Supply   |                         |  |
| Asbest                       | scription: Beige, Homogeneous, In<br>tos Types: Chrysotile 3. %<br>Material: Non-fibrous 97. % | nterior Window Glazing  |  |
| 07B                          | 500062259-14   |                         | NA/PS  |
| 7                            | Location: Kitchen  |                         |  |
| Asbest                       | scription: Interior Window Glazing<br>tos Types:<br>Material:                                  | g                       |  |
| 08                           | 500062259-15   | No                      | NAD  |
|                              | Location: Recruters  |                         |  |
| Asbest                       | scription: Brown/White, Homogen<br>tos Types:<br>Material: Cellulose 35. %, Fibro              |                         | 35. %  |
| Posted to NGB F<br>May, 2018 | OIA Reading Room BEST AVA  |                         | Record #J-15-0085 (MA)<br>ov National Guard Bureau |



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Page 1066 of 3473

# **PLM Bulk Asbestos Report**

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| Attn:Non-Re        | ımmings Park   | Date Received06/01/2000SciLab Job No.Date Examined06/05/2000P.O. #91348Page 4 of 8RE: 60-17533-0001;State Quartermaster;Dorches |                   |        |              |
|--------------------|--|---|-------------------|--------|--------------|
| <br>Client No. / ] | HGA Lab No   | 0.  | Asbestos Presen   | t Tota | al % Asbesto |
| 09                 | 5000622  | 259-16  | No                |        | NAD          |
|                    | Location: Recruters  | Office  |                   |        |              |
|                    | Description: Brown,<br>asbestos Types:<br>Other Material: Cellulos           | Homogeneous, 2'x4' Cose 90. %, Non-fibrou   |                   |        |              |
| 10                 | 5000622  | 259-17  | Yes               |        | 65 %         |
|                    | Location: Weight Ro  |   |                   |        |              |
|                    | Description: Grey, H<br>sbestos Types: Chrysot<br>)ther Material: Cellulos   |   |                   | ÷:     |              |
| 11                 | 5000622  | 259-18  | Yes               |        | 20 %         |
| 11                 | Location:  |   |                   |        |              |
|                    | Description: Black, H<br>sbestos Types: Chrysot<br>Other Material: Non-fib   |   | Γ (Black w/ White | e Str) |              |
| 11M                | 5000622  | 259-19  | Yes               |        | ≤1.%         |
| 11                 | Location:  |   |                   |        |              |
|                    | Description: Black, H<br>sbestos Types: Chrysott<br>Other Material: Cellulos |   |                   |        |              |
| 12                 | 5000622  | 259-20  | Yes               |        | 10 %         |
| 12                 | Location:  |   |                   |        |              |
|                    | Description: Green, H<br>sbestos Types: Chrysoti                             | Homogeneous, 9"x9" F  | ſ (Green)         |        |              |



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REPART R. Cong R. R. Channes BEST AVAILABLE COPY SCILAB BOSTON, INC.

**8 SCHOOL STREET** WEYMOUTH, MA 02189 TEL: (781) 337-9334 • FAX: (781) 337-7642

# **PLM Bulk Asbestos Report**

| Attn: Non-F      | ummings Park   | Date Receive<br>Date Examin<br>RE: 60-1753  |                        | P.O. # 91348<br>Page 5 of 8 | 500062259<br>ter Armory |
|------------------|--|---|------------------------|-----------------------------|-------------------------|
| <br>Client No. / | HGA I  | ab No.                                      | Asbestos Prese         | nt Tot                      | al % Asbesto            |
| 12M              | 5  | 00062259-21                                 | Yes                    |                             | 6 %                     |
| 12               | Location:  |   |                        |                             |                         |
|                  | Description: B<br>Asbestos Types: C<br>Other Material: N |   | oc. Black Mastic       |                             |                         |
| 13               | 5  | 00062259-22                                 | Yes                    |                             | 7 %                     |
| 13               | Location:  |   |                        |                             |                         |
|                  | Asbestos Types: C<br>Other Material: N                   | on-fibrous 93. %                            |                        | iled)                       |                         |
| 13M              | 5  | 00062259-23                                 | No                     |                             | NAD                     |
| 13               | Location:  |   |                        |                             |                         |
|                  | Asbestos Types:  | lack, Homogeneous, Ass<br>on-fibrous 100. % | oc. Black Mastic       |                             |                         |
| 14               | 5  | 00062259-24                                 | No                     |                             | NAD                     |
| 5-0/E)           | Location:  | annan Alberta Talaina - Alberta             |                        |                             |                         |
|                  | Description: T<br>Asbestos Types:                        | an, Homogeneous, Tan C<br>on-fibrous 100. % | ovebase Mastic         |                             |                         |
| 15               | 5  | 00062259-25                                 | No                     |                             | NAD                     |
|                  | Location: Ca   | ulk-XO's                                    |                        |                             |                         |
|                  | Description: G   | rey, Homogeneous, Cem                       | entitious, Interior Wi | ndow Cement                 |                         |



# SCILAB BOSTON, INC.

8 SCHOOL STREET WEYMOUTH, MA 02189 TEL: (781) 337-9334 • FAX: (781) 337-7642

# **PLM Bulk Asbestos Report**

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| 600 West<br>Suite 650 | I <mark>-Responsive</mark><br>Cummings Parl<br>0<br>MA 01801 |   | nined 06/05/2000<br>7533-0001; State Quarte | P.O. # 91348<br>Page 6 of 8<br>ermaster; Dorches | ster Armory   |
|-----------------------|--|---|---|--|---------------|
| Client No             | o. / HGA   | Lab No.   | Asbestos Prese                              | nt To  | tal % Asbesto |
| 16                    | Locati   | 500062259-26<br>on: @ Roof Hatch                            | No  |  | NAD           |
|                       | Descriptic<br>Asbestos Typ                                   | on: Brown/Off-White, Hon                                    |   | g Tile   |               |
| 17                    | Locatio  | 500062259-27<br>on: @ Roof Hatch                            | No  |  | NAD           |
|                       | Asbestos Typ   | on: Tan, Homogeneous, Gl<br>es:<br>al: Talc <1. %, Non-fibr |   |  |               |
| 18                    |  | 500062259-28  | No  |  | NAD           |
|                       | Asbestos Typ   | on: Off-White, Homogeneo                                    |   | Wall Paint                                       |               |
| 19                    | Locatio  | 500062259-29  | No  | 13<br>192  | NAD           |
| 382<br>               | Asbestos Typ   | on: Tan, Homogeneous, Ca<br>es:<br>al: Non-fibrous 100. %   | rpet Mastic                                 |  |               |
| 20                    | Locatio  | 500062259-30  | No  |  | NAD           |
|                       | Descriptio<br>Asbestos Typ                                   | on: Black, Homogeneous, I                                   | Black Covebase Mastic                       |  |               |

May, 2018

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### SCILAB BOSTON, INC

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21 Str. 14"

8 SCHOOL STREET WEYMOUTH, MA 02189 TEL: (781) 337-9334 • FAX: (781) 337-7642

### **PLM Bulk Asbestos Report**

**Date Received** 06/01/2000 SciLab Job No. 500062259 ATC Associates Inc., Woburn Attn: Non-Responsive 06/05/2000 P.O. # 91348 **Date Examined** 600 West Cummings Park Page 7 of 8 Suite 6500 RE: 60-17533-0001; State Quartermaster; Dorchester Armory Woburn, MA 01801 Client No. / HGA Lab No. **Asbestos Present Total % Asbestos** Yes 21 500062259-31 8 % Location: Drill Shed Description: Brown, Homogeneous, Exterior Door Caulk Asbestos Types: Chrysotile 8. % Other Material: Talc 10. %, Non-fibrous 82. % Yes 22A 500062259-32 8 % Location: Boiler Room 22 Description: Brown, Homogeneous, Exterior Window Caulk Asbestos Types: Chrysotile 8. % Other Material: Talc 10. %, Non-fibrous 82. % NA/PS 22B 500062259-33 22 Location: XO's Description: Exterior Window Caulk Asbestos Types: **Other Material:** No NAD 23 500062259-34 Location: Shop Description: Grey, Homogeneous, 12"x12" FT (Grey Mottled) Asbestos Types: Other Material: Non-fibrous 100. %

| 24 | 500062259   | -35                                 | No NAD                                |  |
|----|---|-------------------------------------|---------------------------------------|--|
|    | Location: Shop  |                                     |                                       |  |
|    | Description: Grey, Hom<br>Asbestos Types:<br>Other Material: Non-fibrou | ogeneous, Grey HVAC Duc<br>s 100. % | t Sealant                             |  |
|    | Posted to NGB FOIA Reading Room<br>May, 2018                            | BEST AVAILABLE COPY                 | FOIA Requested Record #J-15-0085 (MA) |  |



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# **PLM Bulk Asbestos Report**

ATC Associates Inc., Woburn Attn Non-Responsive 600 West Cummings Park Date Received Date Examined

06/01/2000 SciLab Job No. 500062259 06/05/2000 P.O.# 91348

Page 8 of 8

Suite 6500 Woburn, MA 01801 RE: 60-17533-0001; State Quartermaster; Dorchester Armory

# Ion-Responsive

#### Reporting Notes: Analyzed b

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

Reviewed by:\_\_\_

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| Asbestos-Containing Material                          | Estimated<br>Quantity | Repair<br>Cost         | Removal<br>Cost         |
|---|-----------------------|------------------------|-------------------------|
| Boiler Insulation Debris and Damage<br>Boiler Room    | l Boilers             | \$500.00               | \$4,500.00              |
| Boiler Tank Insulation                                | 1 Tunk                | 500.00                 | 2,000/00                |
| Pipe Insulation Boiler Room                           | 140 I.F               | 1,400.00               | 2,800.00                |
| Pipe Insulation - Locked Storage One                  | 60 LF                 | 600.00                 | 1,200.00                |
| Pipe Insulation - Locked Storage One                  | 55 L.F                | 550.00                 | 1,100.00                |
| Pipe Insulation Supply Room                           | 660 LF                | 6,600,00               | 13,200.00               |
| Pipe Insulation Supply Room Vault                     | 50 LF                 | 500,00                 | 1,000.00                |
| Pipe Insulation - Kitchen Vault                       | 50 LF                 | 500,00                 | 1,000.00                |
| Pipe Insulation Kitchen                               | 270 I.F               | 2,700,00               | 5,400.00                |
| Pipe Insulation - Weight Room                         | 275 LF                | 500,00                 | 5,500.00                |
| Pipe Insulation Scout's Room                          | 160 L.F               | 500,00                 | 3,200.00                |
| Pipe Insulation - Yankee Division                     | 250                   | 2,500.00               | 5,000.00                |
| Pipe Insulation Rear Exit Hall                        | 20 I.F                | 500.00                 | 500.00                  |
| 9" x 9" Floor Tile and Mastic                         | 3,100 SF              | 1,000,00               | 9,300.00                |
| Contaminated 21 x 41 Ceiling Tiles<br>Yankee Division | 1,400 SF              |                        | 4,200,00                |
| Total Co  | st Estimates:         | Repair:<br>\$18,850.00 | Removal:<br>\$59,900.00 |

### TABLE II - COST ESTIMATES FOR IMMEDIATE RESPONSE ACTIONS

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

Pipe Insulation

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- Boiler Jacket Insulation
- Boiler Vent Gasket Insulation (Assumed)
- Boiler Holding Tank Insulation
- 9" x 9" Green Floor Tiles and Mastic
- 9" x 9" Black Floor Tiles and Mastic
- HVAC Duct Insulation (Assumed)

- HVAC Damper Cloth
- Exterior HVAC Vent Caulking
- [2" x 12" Beige Floor Tiles and Mastic
- Exterior Door Caulking
- · Window Glazing and Caulking
- Door Caulking.

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

| Location                                | Material                                | Estimated<br>Quantity | Condition |
|---|---|-----------------------|-----------|
| Ground Floor                            |   |                       |           |
|   | Pipe Insulation                         | 60 I.F                | Fair-Poor |
| Locker Storage One                      | Pipe Fitting Insulation                 | 7 EA                  | Poor      |
|   | Pipe Insulation                         | 45 I.F                | hair      |
| Locker Storage Two                      | Pipe Insulation                         | 101.F                 | Poor      |
|   | Pipe Fitting Insulation                 | 10 EA                 | ] Fair    |
|   | Pipe Insulation                         | 1201.F                | lair      |
|   | Pipe Insulation                         | 204.F                 | Poor      |
|   | Pipe Fitting Insulation                 | 20 EA                 | Fair      |
|   | Pipe Fitting Insulation                 | 124:A                 | Poor      |
| Barler Room                             | Boiler Jacket Insulation - Damaged End  | 520 SF                | Pair      |
| Botter Koom                             | Boiler Tank Insulation                  | 300 SF                | Fair      |
|   | Boiler Vent Gasket Insulation (Assumed) | <u>12 I.F</u>         | Fair      |
|   | Gross Contamination on Floor            | 15 SF                 | Роог      |
|   | Window Caulking and Glazing             | 6 EA                  | Fair      |
|   | Door Caulking                           | 1 EA                  | Good      |
|   | Pipe Insulation                         | 6304.F                | lann      |
|   | Pipe Insulation                         | 30 LF                 | Poor      |
|   | Pipe Fitting Insulation                 | 30 EA                 | Faur      |
| Supply Room                             | Pipe Fitting Insulation                 | 3 EA                  | Poor      |
|   | Exterior Window Caulking and Glazing    | 4 EA                  | Fair      |
|   | Door Caulking                           | I EA                  | Fair      |
| 1 I I I I I I I I I I I I I I I I I I I | Pipe Insulation                         | 50 I.F                | Poor      |
| Supply Room - Vault                     | Pipe Fitting Insulation                 | 6 I(A                 | Fair      |
| 25 1 55 2.                              | Pipe Insulation                         | 50 1.F                | Poor      |
| Kitchen - Vault                         | Pipe Fitting Insulation                 | 5 EA                  | Fair      |

#### **TABLE 1 - Asbestos-Containing Building Materials**



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| Location  | Material                             | Estimated<br>Quantity | Condition    |
|---|--------------------------------------|-----------------------|--------------|
| Ground Floor (Continued)  |                                      |                       |              |
|   | Pipe Insulation                      | 240 LF                | Fair-Good    |
|   | Pipe Insulation                      | 30 LF                 | Poor         |
| Kstehen   | Pipe Fitting Insulation              | 25 EA                 | Fair         |
|   | Exterior Window Caulking and Glazing | 5 EA                  | F <u>air</u> |
| · - · · · · · · · · · · · · · · · · · ·   | Pipe Insulation                      | 1 <u>30</u> 1.F       | Fair         |
| Januar Supply   | Pipe Fitting Insulation              | 12 EA                 | Fair         |
| nunuu vulda)  | Window Caulking and Glazing          | 1 EA                  | Fair         |
|   | Pipe Insulation                      | 250 LF                | Fair         |
| Company Commandet's<br>Office, DAV Room &<br>Day to Param   | Pipe Fitting Insulation              | 40 IEA                | Fair         |
|   | 9" x 9" Floor Tile and Mastic        | 650 SF                | Good         |
| Ready Room  | Window Caulking and Glazing          | <u>4 EA</u>           | <u>Fair</u>  |
|   | Pipe Insulation                      | 275 I.F               | Fair         |
|   | Pipe Fitting Insulation              | 40 <u>EA</u>          | Fair         |
| Unit Rooms (Access to   | Window Caulking and Glazing          | 8 EA                  | hair         |
| Outside Hall Only)  | HVAC Damper Cloth                    | 12 SF                 | Fair         |
|   | Exterior HVAC Vent Caulk             | 10 L.F                | Fair         |
|   | Pipe Insulation                      | 50 I.F                | Fair         |
| Registry of Motor Vehicles  | Pipe Fitting Insulation              | 5 EA                  | Fair         |
| (mace)  | 9" x 9" Floor Tile and Mastic        | 130 SF                | Good         |
| ( inter   | Window Caulking and Glazing          | _ 2 EA                | Good         |
| ······································  | Pipe Insulation                      | 120 LF                | Good         |
|   | Pipe Fitting Insulation              | 6 EA                  | Good         |
| Recruiting Office   | 9" x 9" Floor Tile and Mastic        | 500 SF                | Good         |
|   | Exterior Window Caulking and Glazing | 3 EA                  | Good         |
| · · · · · · · · · · · · · · · · · · ·   | Pipe Insulation                      | 25 <u>1.</u> F        | Good         |
| Recruting Office Supply   | Pipe Fitting Insulation              | 4 E <u>A</u>          | Good         |
| Closet  | 9" x 9" Floor Tile and Mastic        | 15 SF                 | Good         |
| ·   | Pipe Insulation                      | 60 LF                 | Fair-Goo     |
|   | Pipe Fitting Insulation              | 7 <u>EA</u>           | Good         |
| Clerk's Office  | 9" x 9" Floor Tile and Mastic        | 400 SF                | Good         |
|   | Exterior Window Caulking and Glazing | 3 EA                  | Good         |
| <b></b>   | Pipe Insulation                      | 80 LF                 | Баг          |
|   | Pipe Fitting Insulation              | 6 EA                  | Fair         |
| Readiness NCO   | 9" x 9" Floor Tile and Mastic        | 250 SF                | Good         |
|   | Exterior Window Caulking and Glazing | 2 EA                  | Pair         |
| The second | Pipe Insulation                      | 125 L.F               | Fair-Goo     |
| Fover Entrance to   | Pipe Fitting Insulation              | 61 <sup>-</sup> A     | Fair         |
| Clerk's and Readiness<br>NCO Offices  | 9" x 9" Floor Tile and Mastic        | 300 SF                | Good         |

# TABLE 1 - Asbestos-Containing Building Materials (Continued)



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| Location                        | Material                                   | Estimated<br>Quantity | Condition |
|---------------------------------|--|-----------------------|-----------|
| Main Floor (Continued)          |  |                       |           |
|                                 | Pipe Insulation                            | 250 LF                | Fair-Good |
| Weight Room                     | Pipe Fitting Insulation                    | 25 EA                 | Fair-Good |
|                                 | Pipe Fitting Insulation                    | 5 EA                  | Poor      |
|                                 | HVAC Damper Cloth                          | 12 SF                 | Fair      |
|                                 | HVAC Vent Caulk                            | 10 SF                 | Fair      |
|                                 | Window Caulking and Glazing                | 2 1:A                 | Poor-Fair |
|                                 | Pipe Insulation                            | 150 L.F               | Fair      |
|                                 | Pipe Insulation Reserve                    | 101.F                 | Poor      |
| Scout's Room                    | Pipe Fitting Insulation                    | 22 EA                 | Good      |
|                                 | Window Caulking and Glazing                | 6 EA                  | Poor Fair |
|                                 |  | 185 LF                | Fair      |
| Men's Showers and<br>Bathroom   | Pipe Insulation Pipe Fitting Insulation    | 28 EA                 | Good      |
|                                 |  | 2 EA                  | Fair      |
|                                 | Window Caulking and Glazing                | 250 LF                | Poor-Fai  |
|                                 | Pipe Insulation                            | 32 EA                 | Poor-Fai  |
|                                 | Pipe Fitting Insulation                    | 1,400 SF              | Good      |
| Yankee Division                 | 2' x 4' Contaminated Ceiling Tiles         | 12 SF                 | Fair      |
| / (//inf ( L 1 // ( // // // // | HVAC Damper Cloth                          | 101.F                 | Fair      |
|                                 | Exterior HVAC Vent Caulk                   | 3 EA                  | Poor-Fai  |
| . <u> </u>                      | Window Caulking and Glazing                | 20 LF                 | Poor      |
| Rear Exit Hall                  | Pipe Insulation                            | 1 EA                  | Fair      |
| Keur FAR (Ra)                   | Hall Door Caulking                         | 265 LF                | Fair      |
|                                 | Pipe Insulation                            | 19 EA                 | Fair      |
| Transportation Support          | Pipe Fitting Insulation                    | 950 SF                | Fair      |
| Offices                         | 9" x 9" Floor Tile and Mastic              | 5 EA                  | Fair      |
|                                 | Window Caulking and Glazing                | 300 LF                | Fair      |
|                                 | Pipe Insulation                            |                       | Fair-Goo  |
|                                 | Pipe Fitting Insulation                    | 20 EA                 | Fair      |
| Drift Shed                      | HVAC Duct Insulation                       | 500 SF                | Fair      |
|                                 | HVAC Damper Cloth                          | 35 SF                 |           |
|                                 | Door Caulking                              | 2 F.A                 | Fair      |
|                                 | Garage Door Caulking                       | 1 EA                  | Fair      |
|                                 | Pipe Insulation                            | 1201 F                | Fair      |
| Main Entrance Foyer             | Window Caulking and Glazing                | 24 EA                 | Fair      |
|                                 | Door Caulking                              | 4 EA                  | Fair      |
| Second Floor                    |  |                       |           |
| Hallway Ontside All<br>Offices  | 9" x 9" Floor Tile and Mastic              | 2,800 SF              | Fair      |
|                                 | 9" x 9" Floor Tile and Mastic - Outside SI | 300 SF                | Loose     |
| Caller Co                       | 9" 8 9" Floor Tile and Mastic              | 800 SF                | Fair      |
| OPN Sgt.                        | Window Caulking and Glazing                | 4 <u>EA</u>           | Fair      |

# **TABLE I - Asbestos-Containing Building Materials (Continued)**





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| Location                               | Material   | Estimated<br>Quantity | Condition |
|--|--|-----------------------|-----------|
| Second Floor (Continu                  | ed)  |                       |           |
| Medic's Room                           | HVAC Damper Cloth  | 15 SF                 | Fair      |
|  | Window Caulking and Glazing                              | I EA                  | Poor-Fair |
| Mortar's Room                          | HVAC Damper Cloth  | 2 SF                  | Fair      |
| CSM Office                             | 9" x 9" Floor Tile and Mastic                            | 310 SF                | Fair      |
|  | Window Caulking and Glazing                              | 3 EA                  | Poor-Fair |
| Battalion Training<br>Officer's Office | 9" x 9" Floor Tile and Mastic                            | 490 SF                | Fair      |
|  | Window Caulking and Glazing                              | 1 EA                  | Poor-Fair |
| S3 Office and Bathroom                 | 9" x 9" Ploor Tile and Mastie                            | 330 SF                | Fair      |
|  | Window Caulking and Glazing                              | 3 EA                  | Poor-Fair |
| Battalion Commanders<br>Office         | 9" x 9" Floor Tile and Mastic                            | 420 SF                | Fair      |
|  | Window Caulking and Glazing                              | 5 EA                  | Poor-Fair |
| ())itt                                 | 9" x 9" Floor Tile and Mastic                            | 500 SF                | Fair      |
| XO's Office                            | Window Caulking and Glazing                              | 3 EA                  | Poor-Fair |
|  | 9" x 9" Ploor Tile and Mastic                            | 450 SF                | Fair      |
| S2 Office                              | Window Caulking and Glazing                              | 2 EA                  | Poor-Fair |
| Office - 28 (At Top of                 | 9" x 9" Floor Tile and Mastic                            | 330 SF                | Fair      |
| Entrance Stars)                        | Window Caulking and Glazing                              | 2 EA                  | Poor-Fait |
| Women's Bathroom                       | Window Caulking and Glazing                              | 3 EA                  | Poor-Fait |
| Classroom                              | 9" x 9" Floor Tile and Mastic                            | 1,300 SF              | Fair      |
|  | Window Caulking and Glazing                              | 14 EA                 | Poor-Fair |
| Kitchen                                | 12" x 12" Floor Tile and Mastic                          | 240 SF                | Fair      |
|  | Window Caulking and Glazing                              | 5 I:A                 | Poor-Fair |
| Staff Room                             | 9" x 9" Floor Tile and Mastic                            | 450 SF                | Fair      |
|  | Window Caulking and Glazing                              | 5 EA                  | Poor-Fair |
| Maintenance Office                     | 9" x 9" Floor Tile and Mastic                            | 450 SF                | Fair      |
|  | Window Caulking and Glazing                              | 2 EA                  | Poor-Fai  |
| SI Office                              | 9" x 9" Floor Tile and Mastic (Possibly<br>Under Carpet) | 800 SF                | Fair      |
|  | Window Caulking and Glazing                              | 6 E.A                 | Poor-Fair |

### **TABLE 1 - Asbestos-Containing Building Materials (Continued)**

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



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APPENDIX E

## TRAINING CERTIFICATES

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APPENDIX F

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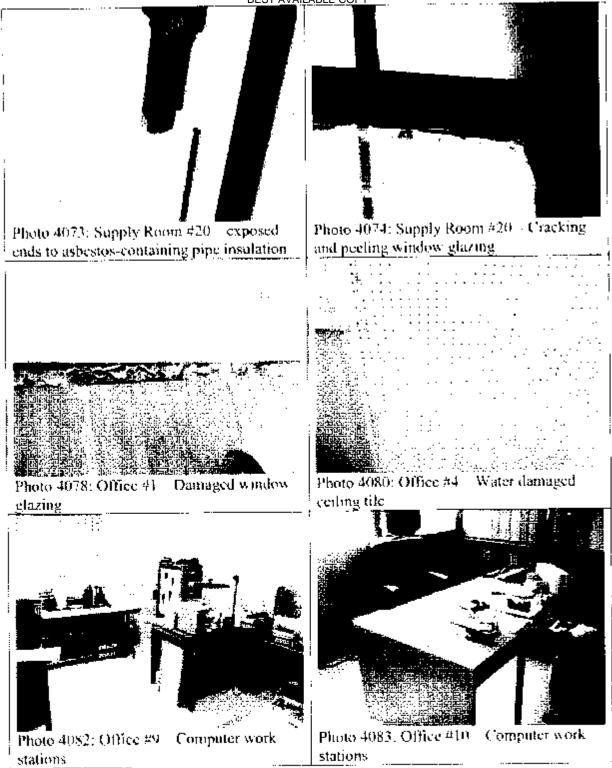
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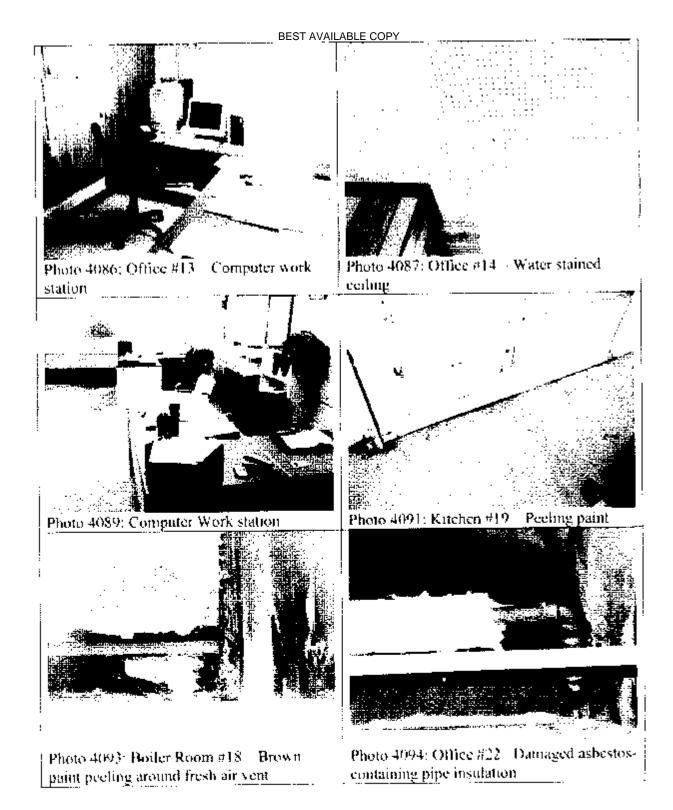
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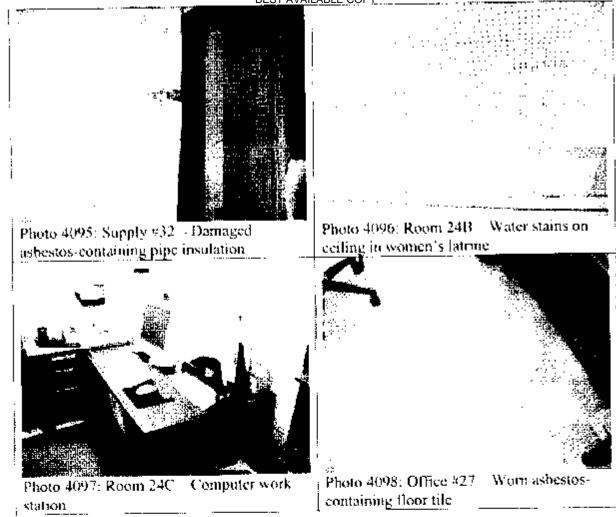


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APPENDIX G

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# RECOMMENDATIONS FOR SURFACE LEAD DUST IN ARMORIES

Subject: Recommendations for Surface Lead Dust in Armories

1. In armories that do not contain childcare facilities, the National Guard Bureau (NGB) Region North Industrial Hygiene Office recommends cleaning the areas in which sample results are greater than 200 micrograms per square foot ( $\mu$ g/ft<sup>2</sup>). If a special function will be held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function. This guidance is based on professional judgment, risk assessments, adaptation of Occupational Safety and Health Administration (OSHA) guidance, and feasibility of cleaning to a certain level.

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

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

c. OSHA used to cite a level of 200  $\mu$ g/ft<sup>2</sup> 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<sup>2</sup> 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:

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



#### Prepared For:

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

#### Prepared By:

URS Corporation 5 Industrial Way Salem, New Hampshire 03079

INDUSTRIAL HYGIENE SURVEY REPORT MASSACHUSETTS NATIONAL GUARD READINESS CENTER 70 VICTORY ROAD DORCHESTER, MA 02122

June 17, 2013 PN: 39743799



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

| Findings  | Recommendations   | Risk<br>Assessment<br>Code (RAC) |
|---|---|----------------------------------|
| Lighting  |   |                                  |
| On the day of the survey, the illuminance was inadequate in several locations tested.   | Increase lighting in the work areas.<br>While work is in progress, these<br>areas must be lighted by at least the<br>minimum lighting intensities (ANSI /<br>IESNA RP-1-04).  | RAC 4                            |
| Ergonomics  |   |                                  |
| Computer workstations in the<br>Administrative Areas were<br>observed with un-adjustable<br>chairs, arm rests and<br>keyboards.   | Ergonomic issues with regard to the<br>desks and chairs should be<br>corrected by fitting the workplace to<br>the worker (Department of the Army<br>Pamphlet 40-21, Chapter 4, Page 7,<br>Section 4-3).                                       | RAC 3                            |
| Lead  |   |                                  |
| Five of the 10 lead wipe<br>samples indicated elevated lead<br>levels.  | Personnel trained in accordance<br>with the OSHA Lead Standard<br>should clean the areas where<br>elevated lead dust levels were<br>identified (OSHA 29 CFR<br>1910.1025(h)(1)).  | RAC 3                            |
| Former Indoor Firing Range  |   |                                  |
| The former Indoor Firing Range<br>has been posted as unsafe due<br>to lead contamination; however<br>the area is still regularly used.<br>The door to the area was not<br>secured.  | Personnel trained in accordance<br>with the OSHA Lead Standard<br>should decontaminate the areas<br>where elevated lead dust levels<br>were identified in accordance with<br>National Guard Pamphlet 420-15<br>(OSHA 29 CFR 1910.1025(h)(1)). | RAC 3                            |
| Since the former indoor firing<br>range is contaminated with lead<br>and several wipe samples were<br>found to contain elevated lead<br>levels, access should be<br>restricted and an assessment<br>should be made as to whether<br>respiratory protection and other<br>PPE should be worn by<br>individuals who must enter this<br>area. | A respirator shall be provided for<br>each employee when such<br>equipment is necessary to protect<br>the health of the employee (29 CFR<br>1910.134 (a)(2)).   | RAC 3                            |

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

| Findings  | Recommendations   | Risk<br>Assessment<br>Code (RAC) |
|---|---|----------------------------------|
| Ladders   |   |                                  |
| Two ladders were observed not<br>properly stored in the first floor<br>classroom and basement boiler<br>room. | Ladders not in use shall be properly<br>stored in a vertical position fastened<br>to walls. (29 CFR 1910.25 (c)(2)(i)). | RAC 4                            |

#### 1.0 SUMMARY

At the request of the National Guard Bureau (NGB) Region North Industrial Hygiene Office, URS Corporation (URS) conducted an industrial hygiene survey at the Readiness Center in Dorchester, Massachusetts.

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

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

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

<u>LIGHTING</u>: Lighting in the Readiness Center was found to be inadequate in several of the areas measured. Areas noted within the report as having inadequate lighting require upgrading by either increasing the general lighting or through the use of task lighting. While work is in progress, work areas must be lighted by at least the minimum light intensities. <u>LEAD</u>: Five of ten wipe samples collected in the Readiness Center were found to contain lead in a concentration above the recommended limit set by the NGB, Region North IH Office.

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

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

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

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

#### 2.0 SUPPLY / TRAINING AREA

#### 2.1 Operation Description

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

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

#### 2.2 Chemical and Physical Agents Sampled

#### 2.2.1 Carbon Dioxide

On the day of the survey, carbon dioxide measurements were made in the Readiness Center. Interior carbon dioxide concentrations were found to be between 443 and 569 parts per million (ppm). Carbon dioxide levels were measured using a direct-reading TSI Q-Trak (Model 8551).

Carbon dioxide is a normal constituent of the atmosphere and ranges from about 250 to 450 ppm. The major source of excess carbon dioxide in the indoor environment is human respiration. Other sources can include open-flame heaters, fermentation processes, and motor vehicles. Carbon dioxide itself is not normally a cause of indoor air quality problems but is typically used as an indicator of the adequacy of fresh air intake. As the concentration of carbon dioxide increases, so do the background levels of other air contaminants.

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

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

#### 2.2.2 Carbon Monoxide

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

Key sources of carbon monoxide within indoor environments include internal combustion engines, motor vehicle and forklift exhaust, tobacco smoke, space heaters, and improperly adjusted oil or gas burners.

#### 2.2.3 Relative Humidity

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

#### 2.2.4 Temperature

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

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

#### 2.2.5 Lighting

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

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

 Table 2-1

 Lighting Measurements and Recommended Lighting Requirements

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

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

#### 2.2.6 Lead

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

| Sample Location  | URS Sample<br>Number     | Area<br>Wiped<br>in<br>Square<br>Feet<br>(ft <sup>2</sup> ) | Result in<br>Micrograms/<br>Square Foot<br>(µg/ft <sup>2</sup> ) | Maximum<br>Surface<br>Contamination<br>Level in<br>Micrograms/<br>Square Foot<br>(μg/ft <sup>2</sup> ) |
|--|--------------------------|---|--|--|
| 1 <sup>st</sup> Floor, Kitchen, floor<br>under fridge                | Dorchester RC<br>Wipe-01 | 0.108   | <110   | 200  |
| 2 <sup>nd</sup> Floor, Classroom/<br>Mess Hall, top of heater        | Dorchester RC<br>Wipe-02 | 0.108   | 480  | 200  |
| 2 <sup>nd</sup> Floor, West Wing,<br>Conference Room,<br>window sill | Dorchester RC<br>Wipe-03 | 0.108   | 310  | 200  |
| 1 <sup>st</sup> Floor, PT Room, Floor                                | Dorchester RC<br>Wipe-04 | 0.108   | <110   | 200  |
| 2 <sup>nd</sup> Floor, East Wing, S4<br>Offices, floor under table   | Dorchester RC<br>Wipe-05 | 0.108   | <110   | 200  |
| Former Indoor Firing<br>Range, door at south<br>entrance, floor      | Dorchester RC<br>Wipe-06 | 0.108   | 210  | 200  |
| Former Indoor Firing<br>Range, door at north<br>entrance, floor      | Dorchester RC<br>Wipe-07 | 0.108   | 2500   | 200  |
| 1 <sup>st</sup> Floor, Supply, floor at storage pallets              | Dorchester RC<br>Wipe-08 | 0.108   | 710  | 200  |
| 1 <sup>st</sup> Floor, East Wing,<br>Storage, under storage<br>crate | Dorchester RC<br>Wipe-09 | 0.108   | 160  | 200  |
| Drill Hall, top of flammable cabinet                                 | Dorchester RC<br>Wipe-10 | 0.108   | <1 <b>1</b> 0  | 200  |

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

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

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

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

Table 2-3 Lead Content in Painted Surfaces

| Paint Location   | Lead<br>Concentration<br>(Percent Weight) | HUD Lead-Based<br>Quantity<br>(Percent Weight) |
|--|---|--|
| Beige paint, walls, 1 <sup>st</sup> Floor Storage Room | 0.054                                     | 0.5  |

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

#### 2.2.7 Asbestos

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

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

#### 2.3 Ventilation System Evaluation

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

#### 2.4 Noise Measurements

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

Table 2-5 Noise Dosimetry Data

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

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

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

#### 2.5 Personal Protective Equipment

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

#### 3.0 SAFETY AND INDUSTRIAL HYGIENE PROGRAMS

#### 3.1 Confined Spaces

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

#### 3.2 Hearing Conservation

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

#### 3.3 Respiratory Protection

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

#### 3.4 Hazard Communication

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

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

#### 3.5 Personal Protective Equipment

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

#### 3.6 Asbestos Operations and Maintenance Program

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

#### 3.7 Safety

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

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#### 4.0 REFERENCES

American Conference of Governmental Industrial Hygienists

Industrial Ventilation: A Manual of Recommended Practice, 27<sup>th</sup> Edition, 2010

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

American National Standards Institute

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

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

American Society of Heating, Refrigerating and Air-Conditioning Engineers

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

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

Department of the Army

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

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

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

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

National Institute for Occupational Safety and Health

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U. S. Environmental Protection Agency

Asbestos Hazard Emergency Response Act (40 CFR Part 763)

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

U. S. Department of Housing and Urban Development

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

U. S. Occupational Safety and Health Administration

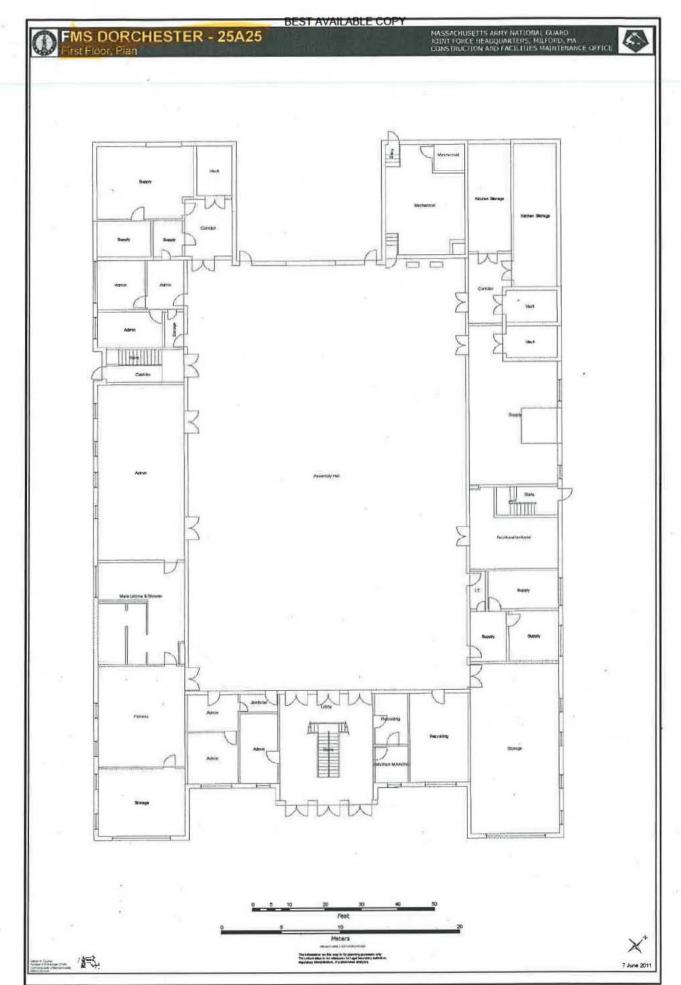
Standard for General Industry: 29 CFR 1910

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

## APPENDIX A

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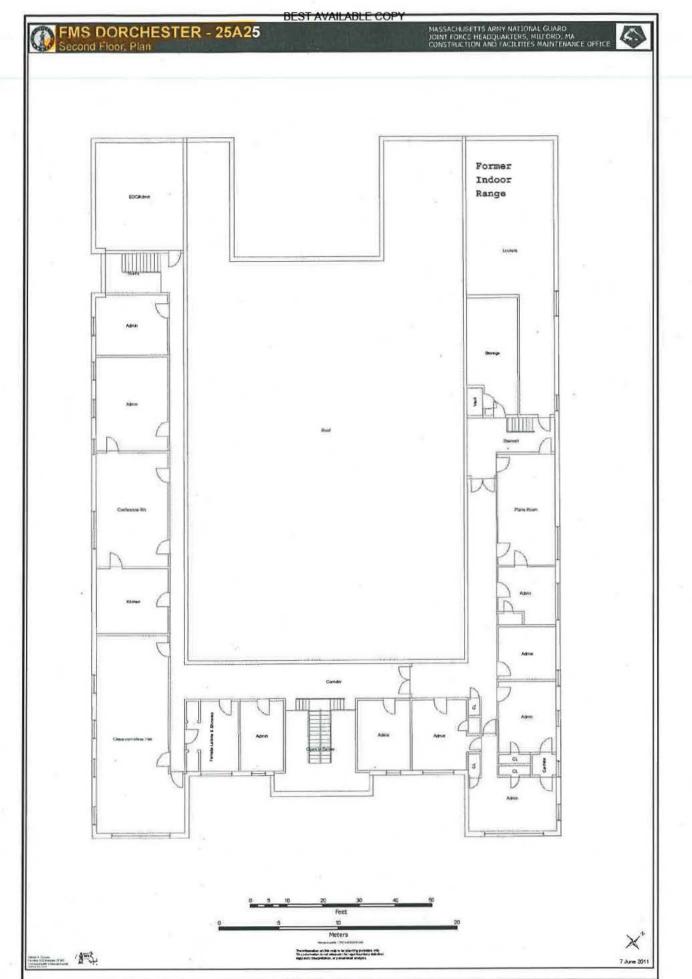
## SHOP DRAWING



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#### APPENDIX B

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#### PERSONNEL LIST



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## APPENDIX C

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#### ANALYTICAL RESULTS

## AMA Analytical Services, Inc.



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| Address: | 301-IH Old Bay Lane, Attn: ARNG-CJG-P,<br>State Military Reservation | Job Location: | 70 Victory Road, Dorchester, MA | Date Submitted:    | 4/29/2013      |              |          |
|          | Havre de Grace, Maryland 21078                                       | Job Number:   | Dorchester RC                   | Person Submitting: | Non-Responsive |              |          |
|          |  | P.O. Number:  | W912K6-09-A-0003                | Date Analyzed:     | 5/6/2013       | Report Date: | 5/6/2013 |

#### Summary of Atomic Absorption Analysis for Lead

Page 1 of 2

| AMA Sample<br>Number | Client Sample<br>Number    | Analysis Type | Sample Type | Air Volume<br>(L) | Area Wiped<br>(ft²) |     | porting<br>Limit | Total ug | Final Res | ult    | Comments |
|----------------------|----------------------------|---------------|-------------|-------------------|---------------------|-----|------------------|----------|-----------|--------|----------|
| 13058039             | DorchesterRC Wipe-<br>01   | Flame         | Wipe        | ****              | 0.108               | 110 | ug/ft²           | <12      | <110      | ug/fl² |          |
| 13058040             | DorchesterRC Wipe-<br>02   | Flame         | Wipe        | ****              | 0.108               | 110 | ug/ft²           | 52       | 480       | ug/ft² |          |
| 13058041             | DorchesterRC Wipe-<br>03   | Flame         | Wipe        | ****              | 0.108               | 110 | ug/ft²           | 34       | 310       | ug/ft² |          |
| 13058042             | DorchesterRC Wipe-<br>04   | Flame         | Wipe        | ****              | 0.108               | 110 | ug/ft²           | <12      | <110      | ug/ft² |          |
| 13058043             | DorchesterRC Wipe-<br>05   | Flame         | Wipe        | ****              | 0.108               | 110 | ug/ft²           | <12      | <110      | ug/ft² |          |
| 13058044             | DorchesterRC Wipe-<br>06   | Flame         | Wipe        | ****              | 0.108               | 110 | ug/ft²           | 22       | 210       | ug/ft² |          |
| 13058045             | DorchesterRC Wipe-<br>07   | Flame         | Wipe        | ****              | 0.108               | 110 | ug/ft²           | 270      | 2500      | ug/ft² |          |
| 13058046             | DorchesterRC Wipe-<br>08   | Flame         | Wipe        | ****              | 0.108               | 110 | ug/ft²           | 76       | 710       | ug/ft² |          |
| 13058047             | · DorchesterRC Wipe-<br>09 | Flame         | Wipe        | ****              | 0.108               | 110 | ug/ft²           | 17       | 160       | ug/ft² |          |
| 13058048             | DorchesterRC Wipe-<br>10   | Flame         | Wipe        | ****              | 0.108               | 110 | ug/ft²           | <12      | <110      | ug/ft² |          |
| 13058049             | DorchesterRC Wipe-<br>FB   | Flame         | Wipe Blank  | ****              | N/A                 | 12  | ug               |          | <12       | ug     |          |

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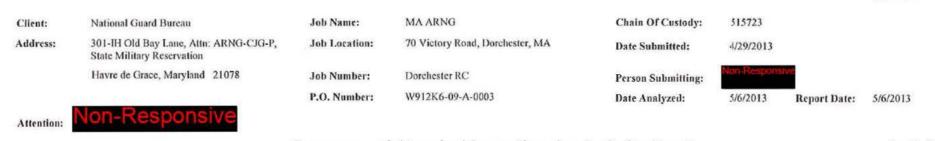
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#### Summary of Atomic Absorption Analysis for Lead

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NOUSTRIAL HYGENE, ENVIRONMENTAL LEAD & ENVIRONMENTAL MICROBIOLOGY 180MEC 17925;2005 www.ahunecreatestation.org LAB #100470

| AMA Sample<br>Number   | Client Sample<br>Number                                | Analysis Type   | Sample Type   | Air Volume<br>(L) | Area Wiped<br>(ft²)                  |         | orting<br>imit | Total ug        | Final Result        | Comments                |
|--|--|---|---|-------------------|--------------------------------------|---------|----------------|-----------------|---------------------|-------------------------|
| 13058050   | DorchesterRC LBP-<br>01                                | Flame   | Paint Chip  | 推击推动              | N/A                                  | 0.0064  | %Pb            |                 | 0.054 %             | БРЬ                     |
| Analysis Method<br>N/A = Not Applic<br>%Pb = percent le<br>Note: All samples<br>Note: All results I<br>should not be con | for Flame: Air, Wipes, F<br>For Furnace: Air, Wipe     | es, Paints, and So<br>s per million (ppm<br>s ug = microg<br>condition unless<br>ts. Any additiona<br>ing the result. | il/Solids : EPA 6<br>n) on a dry weight<br>prams ug/L<br>otherwise noted.<br>I digits shown |                   | 7010; Water: SM<br>parts per million | M-3113B |                | ited with these | alytical results of | quality control samples |
| Final results for a  | ir and wipe samples are<br>ion nor verified by this la | e based on client   |   |                   |                                      |         |                |                 |                     |                         |
|  | be considered prelimina<br>gned by the Technical D     |   |   |                   | Analys                               |         |                | Tec             | hnical Manager:     |                         |

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| AFTER HOURS (must be pre-scheduled)  |  |                                |  |  | L BUSINE   |                | Contraction of the   |  |         |  |  | 00000   | REP   |                                    |
| Immediate Date Due:  | 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1                | nmediaté<br>ext Day            | O 3D   | ay design  | 1, 1.  |                | Results Re           |  |         | 1 78   | Includ   | on-Respo  | ISIVE vith Report CO  | 21                                 |
| omments:   | 1.11.11.11.11.11.11.11.11.11.11.11.11.1              | Next Day<br>2 Day<br>Date Due; |  |  | 16 13 (EveryAttempt Will Be<br>Made to Accomodate) |                |                      | 1.4                                    | U Fax:  |  |  | my.mil  |   |                                    |
| · · · · · · · · · · · · · · · · · · ·  |  |                                |  |  |  |                |                      |  |         | PROPERTY AND INCOME.                                       | Vert   |   | Pus.army.mil  |                                    |
| sbestos Analysis<br><u>CM Air</u> – Please Indicate Filter Type:   |  | TEM BI                         | lk   |  |  | 1922           | 4                    |  | - 清清    | AMA AN   | lynn   | p <u> </u>  |   |                                    |
| J NIOSH 7400(QTY)  |  |                                | LAP 198.<br>IV State P                                       | 4/Chatlie<br>I M/TEM   | eld  | (0             | UTY)                 |  |         | Pb 1   | aunt Chi<br>Just Wig   | p   |   | (OTY)                              |
| UNIOSH 7400(QTY)<br>Fiberglass(QTY)<br>EM Air – Please Indicate Filter Type:   |  | UF                             | tesidual A   | sh   |  | QTY)           | 31                   |  | 15.     | O Pb/  | ir   | (OTY)   |   |                                    |
| U AHERA (QTY)  |  | TEMD                           |  | laber Very   | (Deal  | (              | (OT)                 | 5                                      |         | CIP6:  | ioil/Solii   | 1   | (QTY)   |                                    |
| Q NIOSH 7402 (QTY)   | OTH  | QC                             | Juan. (s/ar  | ea) Vacuu  | um D5755-  | .95            |                      | OTY)                                   |         | DDrit  | king Wa  | ter C) Pb ((  | OTY) Cu (OTY) C   | As(QTY                             |
| U Other (specify)  |  | Q                              | )uan. (s/ar  | ea)Dust I  | D6480-99_  | 1              | (QTY                 | 1                                      |         | U Wa   | te Water   | DPbOT   | Y) D Cu (OTY) D A   | s (OTY)                            |
| Q EPA 600 - Visual Estimate(Q  | TY)  | TEM W                          | iter   | (aba)  |  | 10721          |                      |  | -       | U Pb   | urnace   | Media   | )(QT)   | ()                                 |
|  |  |                                |  |  |  |                |                      |  |         |  |  |   |   |                                    |
| Q EPA Point Count(QTY)   |  |                                | LAP 198.   | 2/EPA 10   | 0.2  | .(011)         | (OTY)                |  |         | Coll   | ection A   | pparatus for Spor   | re Traps/Air Samples:   |                                    |
| QTY) ONY State Friable 198.1 (QTY) Grav, Reduction ELAP 198.6 (QTY)  | QTY)   |                                | ELAP 198.<br>PA 100.1  | 2/EPA 10   | 00.2(QT  | (Q11)<br>(Y)   | (QTY)                |  |         | Coll   | ection A   | ledia   | re Traps/Air Samples:   |                                    |
| EPA Point Count(QTY)     NY State Friable 198.1(QTY)     Grav. Reduction ELAP 198.6(     Other (specify)   | QTY)   | Q E                            | PA 100.1_  | -  | (QT  | Y)             |                      | rwise n                                | oted.   | Coll<br>Coll   | ection A<br>ection M<br>re-Trap                                      | ledia(OTY)  | C Surface Vacuum Dust   | OTY                                |
| EPA Point Count(QTY)     NY State Friable 198.1(QTY)     Grav. Reduction ELAP 198.6(     Other (specify)   | QTY)   | DI DI                          | PA 100.1   | received   | (QT  | Y)<br>ondition | (QTY)<br>unless othe | rwise n                                | oted.   | Coll<br>Coll<br>Spo<br>Sur<br>Q Sur                        | ection A<br>ection M<br>re-Trap<br>ace Swa<br>ace Tap                | ledia(QTY)<br>b(QTY)<br>A(QTY)  | Culturable ID Genus (Med  |                                    |
| Grav. Reduction ELAP 198.6(QTY)     Grav. Reduction ELAP 198.6(QTY)     Grav. Reduction ELAP 198.6(  | QTY)<br>(QTY)  |                                | PA 100.1   | s received<br>amples   | d in good e  | Y)<br>ondition |                      | rwise n                                | oted.   | Coll<br>Coll<br>Spo<br>Sur<br>Q Sur                        | ection A<br>ection M<br>re-Trap<br>ace Swa<br>ace Tap                | ledia(QTY)<br>b(QTY)  | Culturable ID Genus (Med  |                                    |
| EPA Point Count (QTY)     NY State Friable 198.1 (QTY)     Grav. Reduction ELAP 198.6 (<br>Other (specify)     Sc     Vermiculite     Asbestos Suil PLM_(Qual) PLM_(Quan) PLM/TEM     SAMPLE INFORMATION   | QTY)<br>(QTY)<br>_(Qali FLM/TE)<br><b>(ON</b>        |                                | PA 100.1_<br>Il sample:<br>M Water s                         | s received<br>amples   | d in good o  | Y)<br>ondition | unless othe          | 1                                      |         | Coll<br>Coll<br>Q Spo<br>Q Sur<br>Q Sur<br>Q Sur<br>Q Othe | ection A<br>ection M<br>re-Trap,<br>ace Swa<br>ace Tapa<br>(Specify, | ledia(QTY)<br>b(QTY)<br>A(QTY)<br>)(QTY)  | Culturable ID Genus (Med  |                                    |
| LEPA Point Count(QTY)     NY State Friable 198.1(QTY)     Grav. Reduction ELAP 198.6(     Other (specify)     Sc     Vermiculite     Asbestos Soil PLM_(Qual) PLM_(Quan) PLM/TEM   | QTY)<br>.(QTY)<br>Qali FLM/TEN<br>ON VOL<br>DATEQ.IT | UME WIPI                       | PA 100.1   | s received<br>amples   | d in good e  | Y)<br>ondition |                      | 1                                      |         | Coll<br>Coll<br>Spo<br>Sur<br>Q Sur                        | ection A<br>ection M<br>re-Trap,<br>ace Swa<br>ace Tapa<br>(Specify, | ledia(QTY)<br>b(QTY)<br>A(QTY)<br>)(QTY)  | Surface Vacuum Dust     Gruns (Med     Colturable ID Species (Med     Colturable ID Species (Med                                      | (QTY<br>ia)<br>iia1                |
| CLIENT ID SAMPLE LOCATION CLIENT ID SAMPLE LOCATION CLIENT ID SAMPLE LOCATION SC CLIENT ID SAMPLE LOCATION SC CLIENT ID SAMPLE LOCATION SC CLIENT ID SC CLIENT I  | QTY)<br>(QTY)<br>_(Qali FLM/TEM<br>ON<br>VOL         | UME WIPI                       | PA 100.1   | s received<br>amples   | (QT<br>d in good o<br>"C)<br>ACTIVITIO             | Y)<br>ondition | unless othe          | * Dust                                 |         | Coll<br>Coll<br>Q Spo<br>Q Sur<br>Q Sur<br>Q Sur<br>Q Othe | ection A<br>ection M<br>re-Trap,<br>ace Swa<br>ace Tapa<br>(Specify, | ledia(QTY)<br>b(QTY)<br>A(QTY)<br>)(QTY)  | CLIENT CONTACT  | (QTY)<br>ia)<br>ifia1              |
| EPA Point Count(QTY)     NY State Friable 198.1(QTY)     Grav. Reduction ELAP 198.6(     Other (specify))      Sc     Overniculite     Asbestos Soil PLM_(Qui) PLM_(Qui) PLM/TEM     SAMPLE INFORMATI     CLIENT ID SAMPLE LOCATION/     NUMBER DENTIFICATION     municulate Control Adminent  | QTY)<br>.(QTY)<br>Qali FLM/TEN<br>ON VOL<br>DATEQ.IT | UME WIPI                       | PA 100.1   | s received<br>amples   | (QT<br>d in good o<br>                             | Y)<br>ondition | unless othe          | × × pust                               |         | Coll<br>Coll<br>Q Spo<br>Q Sur<br>Q Sur<br>Q Sur<br>Q Othe | ection A<br>ection M<br>re-Trap,<br>ace Swa<br>ace Tapa<br>(Specify, | ledia(QTY)<br>b(QTY)<br>A(QTY)<br>(QTY)   | Surface Vacuum Dust     Culturable ID Gemas (Med     Culturable ID Species (Med     CLIENT CONTACT     LABORATORY STAFF O)            | (QTY(QTY)<br>ia)<br>dta1           |
| LEPA Point Count (QTY)     QTY)     QTY)     QTY   | QTY)<br>.(QTY)<br>Qali FLM/TEN<br>ON VOL<br>DATEQ.IT | UME WIPI                       | PA 100.1   | s received<br>amples   | (QT<br>d in good o<br>"C)<br>ACTIVITIO             | Y)<br>ondition | unless othe          | × × × punt                             |         | Coll<br>Coll<br>Q Spo<br>Q Sur<br>Q Sur<br>Q Sur<br>Q Othe | ection A<br>ection M<br>re-Trap,<br>ace Swa<br>ace Tapa<br>(Specify, | ledia(QTY)<br>b(QTY)<br>A(QTY)<br>(QTY)   | Surface Vacuum Dust     Culturable ID Gemas (Med     Culturable ID Species (Med     CLIENT CONTACT     LABORATORY STAFF O)            | (QTY<br>ia)<br>fia1                |
| LEPA Point Count (QTY)     Q NY State Friable 198.1 (QTY)     Grav. Reduction ELAP 198.6 (QTY)     Grav. Reduction ELAP 198.6 (QTY)     Governiculite     Asbestos Soil PLM_(Qual) PLM_(Qual) PLM/TEM     SAMPLE TOPORTION     SAMPLE TOPORTION     NUMBER UDENTIFICATION     NUMBER UDENTIFICATION     Sample Admin     Counter RC unperter R Admin     Counter RC unperter R Admin     Counter RC unperter R Admin   | QTY)<br>.(QTY)<br>Qali FLM/TEN<br>ON VOL<br>DATEQ.IT | UME WIPI                       | PA 100.1   | s received<br>amples   | (QT<br>d in good o<br>                             | Y)<br>ondition | unless othe          | ×××× preve                             |         | Coll<br>Coll<br>Q Spo<br>Q Sur<br>Q Sur<br>Q Sur           | ection A<br>ection M<br>re-Trap,<br>ace Swa<br>ace Tapa<br>(Specify, | ledia(QTY)<br>b(QTY)<br>A(QTY)<br>(QTY)<br>(QTY)  | Surface Vacuum Dust     Culturable ID Gemas (Med     Culturable ID Species (Med     CLIENT CONTACT     LABORATORY STAFF O)            | (QTY(QTY)<br>ia)<br>dta1           |
| CLIENT ID SAMPLE LOCATION<br>NUMBER DENTECTION<br>NUMBER DENTECTION<br>Sample The State Plant State  | QTY)<br>.(QTY)<br>Qali FLM/TEN<br>ON VOL<br>DATEQ.IT | UME WIPI                       | PA 100.1   | s received<br>amples   | (QT<br>d in good c                                 | Y)<br>ondition | unless othe          | × × × × pust                           |         | Coll<br>Coll<br>Q Spo<br>Q Sur<br>Q Sur<br>Q Sur           | ection A<br>ection M<br>re-Trap,<br>ace Swa<br>ace Tapa<br>(Specify, | ledia(QTY)<br>b(QTY)<br>A(QTY)<br>(QTY)<br>(QTY)  | Surface Vacuum Dusi Culturable ID Gemus (Med Culturable ID Species (Med CLIENT CONTACT LABORATORY STAFF O) Contact:                   | (QTY<br>ia)<br>fia1<br>VLY)<br>By: |
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| CLIENT ID SAMPLE INFORMATION<br>NUMBER IDENTIFICATION<br>Sample Admin<br>CLIENT ID COUPE OF Admin<br>CLIENT ID SAMPLE IOCATION<br>NUMBER IDENTIFICATION<br>Sample Admin<br>Cabeste RC unpege Admin<br>Sample Admin<br>Sample RC unpege Admin<br>Sample RC unpege Admin   | QTY)<br>.(QTY)<br>Qali FLM/TEN<br>ON VOL<br>DATEQ.IT | UME WIPI                       | PA 100.1   | s received<br>amples   |  | Y)<br>ondition | unless othe          | × × × × pust                           |         | Coll<br>Coll<br>Q Spo<br>Q Sur<br>Q Sur<br>Q Sur           | ection A<br>ection M<br>re-Trap,<br>ace Swa<br>ace Tapa<br>(Specify, | ledia(QTY)<br>b(QTY)<br>A(QTY)<br>)(QTV)<br>/(I)<br>Date/Time:  | Surface Vacuum Dusi Culturable ID Gemus (Med Culturable ID Species (Med CLIENT CONTACT LABORATORY STAFF O) Contact:                   | (QTY,<br>ia)                       |
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## APPENDIX D

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## PHOTOGRAPHIC LOG



## PHOTOGRAPHIC LOG

| Client Name:  | Site Location:                 | Project No. |
|---|--------------------------------|-------------|
| MA ARNG- Dorchester RC                              | 70 Victory Rd., Dorchester, MA | 39743799    |
| Photo No.         Date:           1         4/25/13 | -                              | -           |
| Description:  |                                |             |
| Exit blocked in second floor<br>Plans Room.         |                                |             |
| Photo No. Date:<br>2 4/25/13                        |                                |             |

| Date:<br>4/25/13                      |                                      |
|---------------------------------------|--------------------------------------|
| 4/20/10                               |                                      |
| econd floor<br>om with no<br>nergency |                                      |
|                                       |                                      |
|                                       | 4/25/13<br>econd floor<br>om with no |

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#### APPENDIX E

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

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

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

#### **Prepared For:**

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

#### **Prepared By:**

**URS** Corporation 5 Industrial Way Salem, New Hampshire 03079

INDUSTRIAL HYGIENE SURVEY REPORT FALL RIVER READINESS CENTER **1089 DWELLY STREET** FALL RIVER, MASSACHUSETTS

April 2006 PN: 39741508



Office Manager

Project Manager

Posted to NGB FOIA Reading Room May, 2018

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## FINDINGS AND RECOMMENDATIONS

| Findings  | Recommendation  | Risk<br>Assessment<br>Code                |
|---|---|---|
| Ergonomic   | the second s  | <u></u>                                   |
| Computer work stations were<br>observed with fixed chairs,<br>armrests, keyboards and monitors.   | Ergonomic issues with the desks and<br>chairs should be corrected by fitting the<br>workplace to the worker (DoD, OSHA<br>General Duty)   | RAC 3                                     |
| Lighting  |   | te lista i                                |
| On the day of the survey, the illuminance in the administrative area was inadequate in over half of all offices.                                | Increase lighting in the administrative<br>areas. While work is in progress, the<br>administrative area shall be lighted by at<br>least the minimum lighting intensities<br>(ANSI / IESNA RP-1-04)                                  | RAC 4                                     |
| Lead i i i i i i i i i i i i i i i i i i i  |   | <u>e te ki ji</u>                         |
| Lead was detected in wipe samples<br>collected from the former firing<br>range and drill hall in amounts<br>greater than 200 µg/ft <sup>2</sup> | Personnel trained in accordance with the<br>OSHA Lead Standard should clean the<br>former firing range where lead was<br>detected in quantities of greater than 200<br>micrograms per square foot (OSHA 29<br>CFR 1910.1025 (h)(1)) | RAC 4                                     |
| Asbestos  |   | 2<br>2                                    |
| Exposed pipefittings and pipe insulation was found throughout the facility.   | Repair or remove exposed asbestos<br>pipefittings and pipe insulation. Work<br>should be completed by personnel<br>trained in accordance with federal<br>regulations (OSHA 29 CFR<br>1910.1001(k)(1))                               | RAC 3                                     |
| A site-specific asbestos operations<br>and maintenance plan was not<br>available.   | Develop a site specific asbestos<br>operations and maintenance plan to<br>manage asbestos-containing materials<br>(OSHA 29 CFR 1910.1001(j))  | RAC 3                                     |
| Hazard Communication  |   | 1. S. |
| No site specific hazard communication plan available.   | Develop a site specific hazard<br>communication plan to manage<br>hazardous materials (OSHA 29 CFR<br>1910.1200(e))   | RAC 4                                     |
| Housekeeping  |   |   |
| Found a few areas that were in disarray, which could cause trips and falls.   | All places of employment, passageways,<br>storerooms, and service rooms shall be<br>kept clean and orderly and in a sanitary<br>condition (OSHA 29 CFR 1910.22(a)(1)).  | RAC 4                                     |
| Mold  |   |   |
| Evidence of water incursions throughout building that may promoter growth of mold.  | Repair leaks in roof and institute a<br>moisture management plan to inform<br>employees of best practice in handling<br>water incursions (Best management<br>practice)  | RAC 4                                     |

#### 1.0 SUMMARY

At the request of the National Guard Bureau (NGB) Region North Industrial Hygiene Office, URS Corporation (URS) conducted an industrial hygiene survey at the Readiness Center located at 1089 Dwelly Street in Fall River, Massachusetts 02724. This report includes an executive summary, a description of the survey protocol, a discussion of the survey evaluation and findings and a list of conclusions and recommendations.

On February 5, 2004, Mr. Non-Responsive an industrial hygienist with URS, conducted a site visit to the Readiness Center in Fall River, Massachusetts. The purpose of this site visit was to conduct an industrial hygiene survey, which included the collection of air samples, bulk samples, lighting measurements, and a review of site health and safety procedures. Mr. Non-Responsive of the State of Massachusetts was Mr. Non-Responsive site contact for this survey.

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

## 2.0 ADMINISTRATIVE AREA

## 2.1 OPERATION DESCRIPTION

This building area contains multiple offices located throughout the building with desks and computer workstations. Computer workstations were assessed during the walkthrough for ergonomic issues. Computer workstation chairs and armrests were in a fixed position and keyboards could not be adjusted in only a few offices. If more than one person is using that station, then proper adjustments need to be made to accommodate each person.

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

## 2.2 CHEMICAL AND PHYSICAL AGENTS SAMPLED

## 2.2.1 Relative Humidity

Relative humidity levels were measured using a TSI Q-Track (Model 8551). Relative humidity on the day of the survey ranged from 19.2 - 21.0% with an average of 20.2% on the 1<sup>st</sup> floor. The 2<sup>nd</sup> floor ranged from 18.7 - 20.5% with an average of 19.7%. These readings were below the recommended maximum of 65% set by the American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. (ANSI / ASHRAE Standard 62.1-2004).

## 2.2.2 Carbon Dioxide

On the day of the survey, carbon dioxide measurements were made at various locations throughout the Readiness Center. Carbon dioxide concentrations ranged from 446 to 508 parts per million (ppm), with an average of 464 ppm on the 1<sup>st</sup> floor. The 2<sup>nd</sup> floor concentrations ranged from 451 to 498 ppm, with an average of 473 ppm. Carbon dioxide levels were measured using a direct reading TSI Q-Track (Model 8551).

Carbon dioxide is a normal constituent of the atmosphere and ranges from about 250 to 450 ppm. The major source of excess carbon dioxide in the indoor environment is people. Other sources can include open-flame heaters, fermentation processes, and

motor vehicles. Carbon dioxide itself is not normally a cause of indoor air quality problems because concentrations must exceed 5,000 to 10,000 ppm before health effects such as headache, drowsiness, and increased respiration are noted. Typically, carbon dioxide is used as an indicator of the adequacy of fresh air intake. As the concentration of carbon dioxide increases, so do the background levels of other air contaminants.

ASHRAE (62.1-2004) recommends that levels of carbon dioxide be maintained below 700 ppm above background level. Given a background level of 350 ppm on the day of the survey, the ASHRAE limit would be 1050 ppm.

## 2.2.3 Carbon Monoxide

Carbon monoxide was also measured in the Readiness Center. Carbon monoxide concentrations were 0 ppm throughout the survey period for both floors. The measured levels were below the ASHRAE guideline for indoor environments (62.1-2004). Carbon monoxide was measured using a TSI Q-Track (Model 8551).

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

## 2.2.4 Lighting

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

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 Table 2-1

 Lighting Measurements and Recommended Lighting Requirements

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

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

## 2.2.5 Lead

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

 Table 2-2

 Levels of Lead Dust Found in the Administrative Area

| Sample Location                        | URS Sample<br>Number | Area<br>Wiped<br>(ft <sup>2</sup> ) | Result<br>(µg/ft²) | Maximum<br>Surface<br>Contamination<br>Level (μg/ft <sup>2</sup> ) |
|--|----------------------|-------------------------------------|--------------------|--|
| Office # 14 – Top of a<br>File Cabinet | 0205-LW05            | 1.000                               | 24                 | 200  |
| Office # 21 – Top of a<br>File Cabinet | 0205-LW06            | 1.000                               | 50                 | 200  |
| Blank                                  | 0205-LWBlank         | N/A                                 | <12 μg             | N/A  |

## 2.2.6 Asbestos

Bulk samples were collected from damaged suspect asbestos-containing materials (ACM) in this area for a determination of asbestos content. Analytical procedures were performed in accordance with the U.S. Environmental Protection Agency (EPA) Recommended Method for the Determination of Asbestos in Bulk Samples by Polarized Light Microscopy and Dispersion Staining (PLM/DS)(EPA-600/M4-82-020. EPA-600/R-93-116). Table 2-3 below presents the results of the sample analysis.

## Table 2-3 Sample Results of Suspect ACM

| Sample Location | Material Sampled           | URS Sample<br>Number | Total<br>Asbestos<br>(%) |
|-----------------|----------------------------|----------------------|--------------------------|
| Office # 21     | 12"x12" White Ceiling Tile | 0205-AB05A           | NAD                      |
| Room # 21       | 12"x12" White Ceiling Tile | 0205-AB05B           | NAD                      |

NAD = "No Asbestos Detected"

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

## 2.3 VENTILATION SYSTEM EVALUATION

Not applicable to this operation.

# 2.4 NOISE MEASUREMENTS

Not applicable to this operation.

# 2.5 PERSONAL PROTECTIVE EQUIPMENT

Not applicable to this operation.

# 2.6 INTERPRETATION OF RESULTS

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

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

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

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

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

#### 3.D FORMER FIRING RANGE

#### 3.1 OPERATION DESCRIPTION

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

#### 3.2 CHEMICAL AND PHYSICAL AGENTS SAMPLED

## 3.2.1 Lead

Wipe testing for lead was conducted in the former firing range using ghost wipes, which The analytical report from AMA is contained in meet ASTM E 1792 standards. · . Appendix D, Table 3-1 below shows the results of the lead sampling.

| Sample Location                             | URS Sample<br>Number | Area<br>Wipe <b>đ</b><br>(ft <sup>2</sup> ) | Result<br>(µg/ft²) | Maximum<br>Surface<br>Contamination<br>Level (μg/ft <sup>2</sup> ) |
|---|----------------------|---|--------------------|--|
| Former Firing Range-Top<br>of a Desk        | 0205-LW07            | 1.000                                       | 13                 | 200  |
| Former Firing Range-Top of a Heating Unit   | 0205-LW08            | 1.000                                       | 76,000             | 200  |
| Former Firing Range-Floor                   | 0205-LW09            | 1.000                                       | 160                | 200  |
| Former Firing Range-Top<br>of a Light Guard | 0205-LW10            | 1.000                                       | 16,000             | 200  |
| Former Firing Range-Floor                   | 0205-LW011           | 1.000                                       | 3,300              | 200  |
| Blank                                       | 0205-<br>LWBlank     | N/A   | <12 μg             | N/A  |

Table 3-1 Levels of Lead Dust Found in the Former Firing Range

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

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## Table 3-2 Level of Lead Found in the Air

| Sample Location     | URS Sample<br>Number | Air Volume<br>(L) | Result<br>(µg/m <sup>3</sup> ) | OSHA's<br>PEL(µg/m³) |
|---------------------|----------------------|-------------------|--------------------------------|----------------------|
| Former Firing Range | 0205-LA01            | 1132              | <2.7                           | 50.0                 |
| Blank               | 0205-LA03            | N/A               | <3.0 μg                        | N/A                  |

On the day of the survey, the airborne lead dust level in the former firing range was found to be acceptable, below OSHA's permissible exposure limit (PEL) for lead (29 CFR 1910.1025(c)) of 50.0  $\mu$ g/m<sup>3</sup> averaged over an 8-hour day. The analytical report from AMA is contained in Appendix D.

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

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

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

The analytical report from AMA is contained in Appendix D.

# 3.2.2 Asbestos

Bulk samples were collected from damaged suspect asbestos-containing materials (ACM) in this area for a determination of asbestos content. Analytical procedures were performed in accordance with the U.S. Environmental Protection Agency (EPA) Recommended Method for the Determination of Asbestos in Bulk Samples by Polarized

Light Microscopy and Dispersion Staining (PLM/DS)(EPA-600/M4-82-020. EPA-600/R-93-116). Table 3-4 below presents the results of the sample analysis.

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

Table 3-4 Sample Results of Suspect ACM

NAD = "No Asbestos Detected"

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

## 3.3 VENTILATION SYSTEM EVALUATION

Not applicable to this operation.

## 3.4 NOISE MEASUREMENTS

Not applicable to this operation.

## 3.5 PERSONAL PROTECTIVE EQUIPMENT

Not applicable to this operation.

## 3.6 INTERPRETATION OF RESULTS

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

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## 4.0 DRILL HALL

## 4.1 OPERATION DESCRIPTION

The drill hall is a 9,000 square foot area used for assembling personnel and storing equipment. The walls are constructed of cinder blocks with a concrete floor.

## 4.2 CHEMICAL AND PHYSICAL AGENTS SAMPLED

## 4.2.1 Lead

Wipe testing for lead dust was conducted in the drill hall using ghost wipes, which meet ASTM E 1792 standards. The analytical report from AMA is contained in Appendix D. Table 4-1 below shows the results of the lead sampling.

| Sample Location   | URS Sample<br>Number | Area Wiped<br>(11 <sup>2</sup> ) | Result<br>(µg/ft²) | Maximum<br>Surface<br>Contamination<br>Level (µg/ft <sup>2</sup> ) |
|---|----------------------|----------------------------------|--------------------|--|
| Drill Hall – Floor –<br>Rear                            | 0205-LW01            | 1.000                            | 84                 | 200  |
| Drill Hall – Floor –<br>Center                          | 0205-LW02            | 1.000                            | 1000               | 200  |
| Drill Hall – Top of the<br>Flammable Storage<br>Cabinet | 0205-LW03            | 1.000                            | <12                | 200  |
| Drill Hall – Top of the<br>Powerade Machine             | 0205-LW04            | 1.000                            | 320                | 200  |
| Blank   | 0205-LWBlank         | N/A                              | <12 μg             | N/A  |

Table 4-1 Levels of Lead Dust Found in the Drill Hall

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

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| Sample Location | URS Sample Number | Air Volume<br>(L) | Result<br>(µg/m <sup>3</sup> ) | OSHA's<br>PEL <u>(</u> μg/m³) |
|-----------------|-------------------|-------------------|--------------------------------|-------------------------------|
| Drill Hall      | 0205-LA02         | 1132              | <2.7                           | 50.0                          |
| Blank           | 0205-LA03         | N/A               | <3.0 μg                        | N/A                           |

Table 4-2 Levels of Lead Found in the Air

On the day of the survey, the airborne lead dust level in the drill hall was found to be acceptable, below OSHA's permissible exposure limit (PEL) for lead (29 CFR 1910.1025(c)) of 50.0  $\mu$ g/m<sup>3</sup> averaged over an 8-hour day.

Three paint chip samples were collected from the drill hall where paint was peeling and sent to AMA for analysis. The samples were found to contain lead in a concentration below the U.S. Housing and Urban Development (HUD) Lead-Based Paint Guidelines. Levels of lead greater than 0.5% by weight are referred to as "lead-containing" (Section 1017 of the Residential Lead-Based Paint Hazard Reduction Act of 1992 (also referred to as Title X)). Table 4-3 below shows the results of the lead paint testing.

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

| Sample Location | URS Sample<br>Number | Reporting Limit<br>(% by Weight) | Final Result<br>(% by Weight) |
|-----------------|----------------------|----------------------------------|-------------------------------|
| Drill Hall      | 0205-LPC05           | 0.01                             | 0.23                          |
| Drill Hall      | 0205-LPC06           | 0.01                             | 0.15                          |
| Drill Hall      | 0205-LPC07           | 0.01                             | 0.22                          |

The analytical report from AMA is contained in Appendix D.

## 4.2.2 Asbestos

Bulk samples were collected from damaged suspect asbestos-containing materials (ACM) in this area for a determination of asbestos content. Analytical procedures were performed in accordance with the U.S. Environmental Protection Agency (EPA) Recommended Method for the Determination of Asbestos in Bulk Samples by Polarized

Light Microscopy and Dispersion Staining (PLM/DS)(EPA-600/M4-82-020. EPA-600/R-93-116). Table 4-4 below presents the results of the sample analysis.

| Sample Location | Material Sampled       | URS Sample<br>Number | Total<br>Asbestos<br>(%) |
|-----------------|------------------------|----------------------|--------------------------|
| Drill Hall # 19 | 9"x9" Brown Floor Tile | 0205-AB04A-FT        | 3                        |
| Drill Hall # 19 | 9"x9" Brown Floor Tile | 0205-AB04B-FT        | 3                        |
| Drill Hall # 19 | 9"x9" Brown Floor Tile | 0205-AB04C-FT        | 2                        |
| Drill Hall # 19 | Associated Mastic      | 0205-AB04A-M         | 5                        |
| Drill Hall # 19 | Associated Mastic      | 0205-AB04B-M         | 5                        |
| Drill Hall # 19 | Associated Mastic      | 0205-AB04C-M         | 5                        |

## Table 4-4 Sample Results of Suspect ACM

NAD = "No Asbestos Detected"

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

## 4.3 VENTILATION SYSTEM EVALUATION

Not applicable to this operation.

# 4.4 NOISE MEASUREMENTS

Not applicable to this operation.

# 4.5 PERSONAL PROTECTIVE EQUIPMENT

Not applicable to this operation.

# 4.6 INTERPRETATON OF RESULTS

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

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

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



## 5.0 BOILER ROOM / BASEMENT AREA

## 5.1 OPERATION DESCRIPTION

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

## 5.2 CHEMICAL AND PHYSICAL AGENTS SAMPLED

## 5.2.1 Lead

Paint chips were collected where paint was peeling and sent to AMA for analysis. Both samples were found to contain lead in a concentration within the U.S. Housing and Urban Development (HUD) Lead-Based Paint Guidelines. Levels of lead greater than 0.5% by weight are referred to as "lead-containing" (Section 1017 of the Residential Lead-Based Paint Hazard Reduction Act of 1992 (also referred to as Title X)). Table 5-1 below shows the results of the lead paint testing.

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

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

The analytical report from AMA is contained in Appendix D.

## 5.2.2 Asbestos

Bulk samples were collected from damaged suspect asbestos-containing materials (ACM) in this area for a determination of asbestos content. Analytical procedures were performed in accordance with the U.S. Environmental Protection Agency (EPA) Recommended Method for the Determination of Asbestos in Bulk Samples by Polarized Light Microscopy and Dispersion Staining (PLM/DS)(EPA-600/M4-82-020, EPA-600/R-93-116). Table 5-2 below presents the results of the sample analysis.

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

## Table 5-2 Sample Results of Suspect ACM

NAD = "No Asbestos Detected"

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

## 5.3 VENTILATION SYSTEM EVALUATION

Not applicable to this operation.

## 5.4 NOISE MEASUREMENTS

Not applicable to this operation.

## 5.5 PERSONAL PROTECTIVE EQUIPMENT

Not applicable to this operation.

## 5.6 INTERPRETATION OF RESULTS

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

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

 $\mathcal{M}_{\mathcal{T}_{1},\mathcal{T}_{2}}$ 

## 6.0 SAFETY AND INDUSTRIAL HYGIENE PROGRAMS

## 6.1 CONFINED SPACES

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

## 6.2 HEARING CONSERVATION

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

## 6.3 RESPIRATORY PROTECTION

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

#### 6.4 HAZARD COMMUNICATION

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

#### 6.5 PERSONAL PROTECTIVE EQUIPMENT

The personal protective equipment program was found in the safety book, under tab N, chapter 10. No training records were found on site. A personal protective equipment program is not required for this site.

## 7.0 REFERENCES

American National Standards Institute

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

American Society of Heating Refrigerating and Air-Conditioning Engineers

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

Army Corps of Engineers

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

Department of the Army

Ergonomics Program Pamphlet 40-21 (15 August 2003)

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

## Department of Defense

DoD Hearing Conservation Program Standard 6055.12 April 1996

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

U. S. Environmental Protection Agency

Asbestos Hazard Emergency Response Act (40 CFR Part 763)

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

U. S. Housing and Urban Development

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

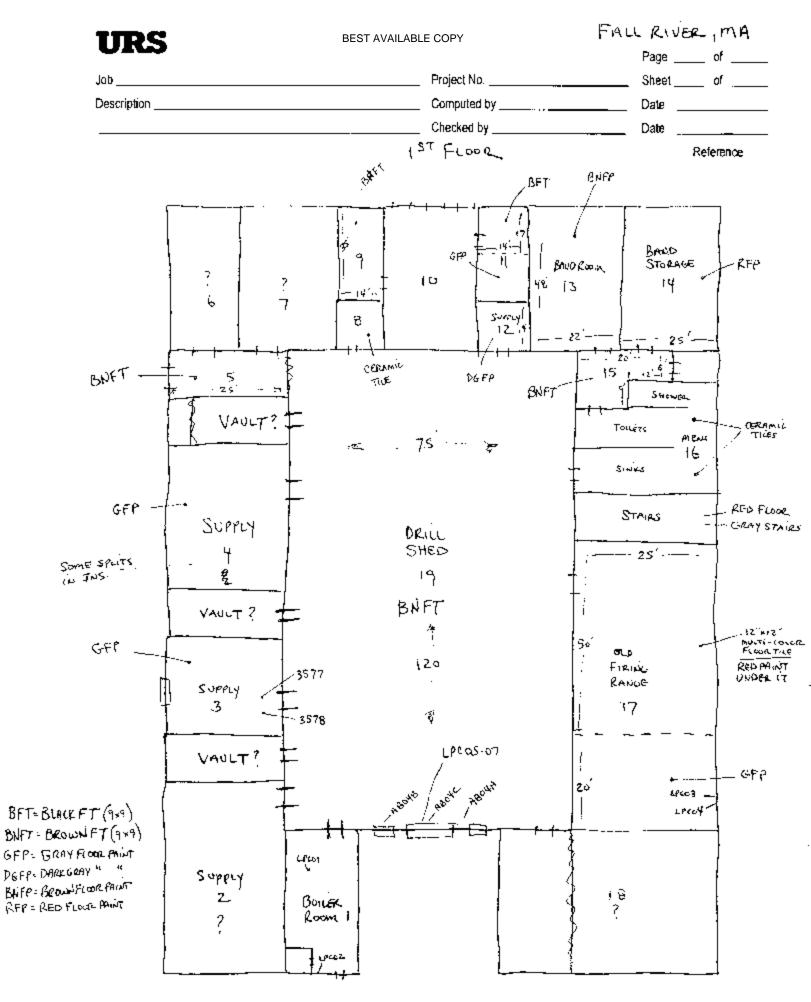
U. S. Occupational Safety and Health Administration

Standard for General Industry: 29 CFR 1910

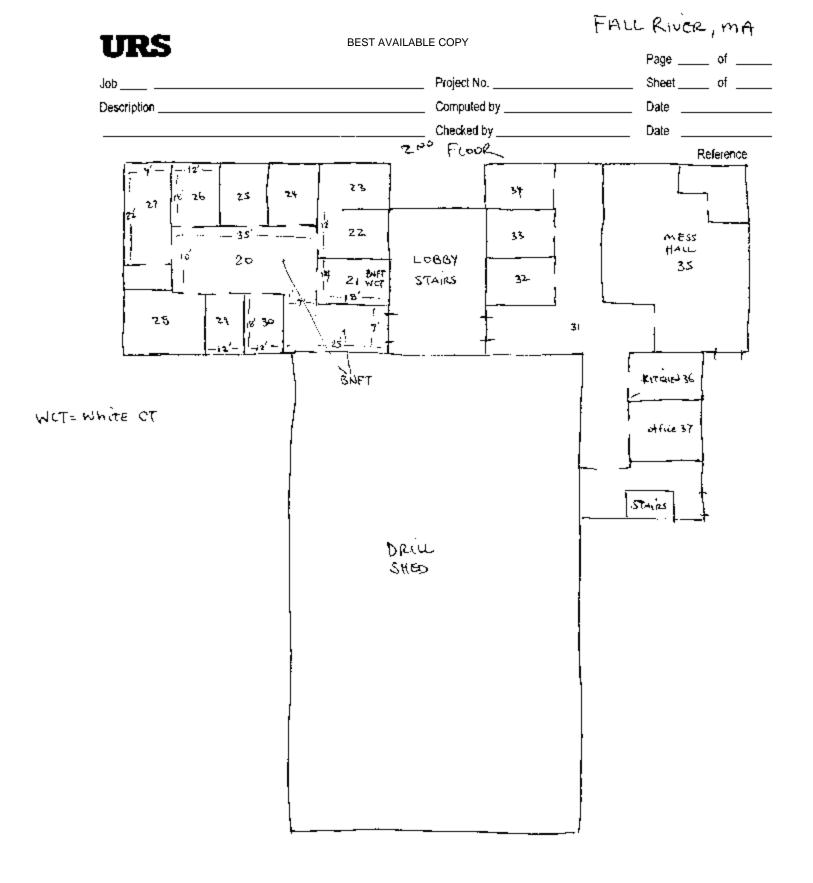
## APPENDIX A

.

## READINESS CENTER DRAWING



FOIA Requested Record #J-15-0085 (MA) Released by National Guard Bureau Page 1140 of 3473

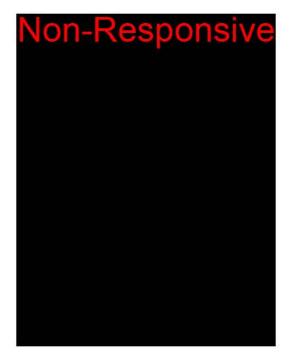


APPENDIX B

BEST AVAILABLE COPY

PERSONNEL LIST

#### BEST AVAILABLE COPY PERSONNEL ROSTER FALL RIVER ARMORY



C BATTERY 1-101 FA C BATTERY 1-101 FA 215<sup>TH</sup> ARMY BAND 215<sup>TH</sup> ARMY BAND RECRUITER RECRUITER ARMORER ARMORER APPENDIX C

BEST AVAILABLE COPY

HAZARDOUS MATERIALS LIST

**BEST AVAILABLE COPY** 

spons

SHELF - A FROM - LEFT TO RIGHT I-QUART TWO CYCLE ENGINE OIL Q-IQOZ. CANS LITHIUM GREASE Q-IQOZ CANS CARBURETOR & CHOKE CLEANER I-GALLON LAQUER THINNER I-IIOZ. SPRAY CAN OF ENGINE STARTER

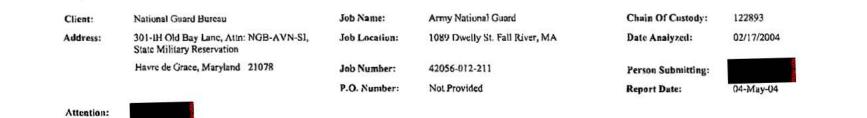
SHELF - B - FROM LEFT TO RIGHT I - I-GALLON CAN OF GASOLINE I - 2½ - GALLON OF GASOLINE I - 2½ - GALLON OF GASOLINE + OIL MIX 2 - I-GALLON CANS OF FLOOR TILE ADHESIVE I - I-GALLON CAN OF TRAFFIC PAINT

BEST AVAILABLE COPY

FOIA

# APPENDIX D

## ANALYTICAL RESULTS

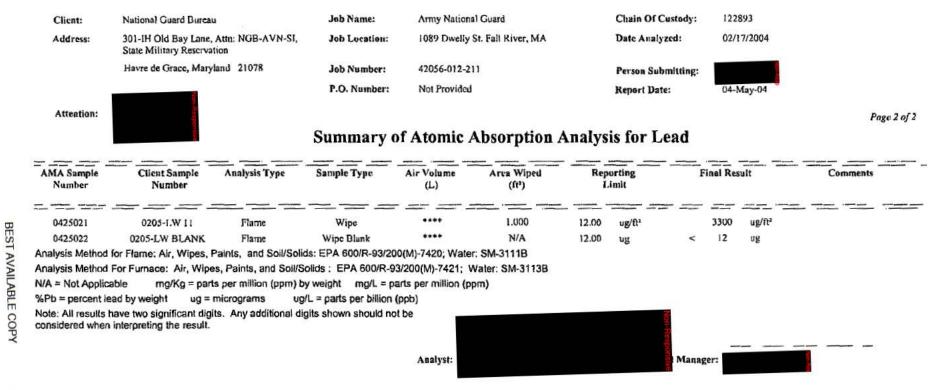


Summary of Atomic Absorption Analysis for Lead

Page I of 2

p.1

| AMA Sample<br>Number<br>0425001<br>0425002 | Client Sample<br>Number   | Analysis Type   | Sample Type   | Air Volume<br>(1.)   | Area Wiped   | Rep   | orting   |  | inal Res   |  | Comments  |
|--|---|---|---|--|--|---|--|--|--|--|---|
|  | 0205-1 PC 01  |   |   | 101  | (ft²)  |   | imit   |  | mar eca  | uit  | Comments  |
| 0475002                                    |   | Flame   | Paint Chip  | ****   |  | 0.01  | %Pb  |  | 0.33   | %Pb  |   |
| 042.002                                    | 0205-LPC 02   | Flame   | Paint Chip  | ****   | N/A  | 0.01  | %РЬ  |  | 0.34   | %Pb  |   |
| 0425003                                    | 0205-LPC 03   | Flame   | Paint Chip  | ****   | N/A  | 0.01  | %Pb  |  | 0.052  | %РЬ  |   |
| 0425004                                    | 0205-LPC 04   | Flame   | Paint Chip  | ****   | N/A  | 0.01  | %РЬ  |  | 0.05   | %РЪ  |   |
| 0425005                                    | 0205-LPC 05   | Flame   | Paint Chip  | ****   | N/A  | 0.01  | %РЬ  |  | 0.23   | %Pb  |   |
| 0425006                                    | 0205-LPC 06   | Flame   | Paint Chip  | ****   | N/A  | 0.01  | %Pb  |  | 0.15   | %Pb  |   |
| 0425007                                    | 0205-LPC 07   | Flame   | Paint Chip  | ****   | N/A  | 0.01  | %Рь  |  | 0.22   | %Pb  |   |
| 0425008                                    | 0205-LA 01  | Flame   | Air   | 1132   | N/A  | 2.65  | ug/m'  | <  | 2.7  | ug/m'  |   |
| 0425009                                    | 0205-LA 02  | Flame   | Air   | 1132   | N/A  | 2.65  | ug/m'  | <  | 2.7  | ug/m³  |   |
| 0425010                                    | 0205-LA 03  | Flame   | Air Blank   | 0  | N/A  | 3.00  | ug/m³  | <  | 3  | ug   |   |
| 0425011                                    | 0205-LW 01  | Flame   | Wipe  | ****   | 1.000  | 12.00   | ug/ft <sup>2</sup>   |  | 84   | ug/N²  |   |
| 0425012                                    | 0205-LW 02  | Flame   | Wipc  | ****   | 1.000  | 12.00   | ug/ft²   |  | 1000   | ug/ft²   |   |
| 0425013                                    | 0205-LW 03  | Flame   | Wipe  | ****   | 1.000  | 12.00   | ug/ft <sup>a</sup>   | <  | 12   | ug/fl <sup>2</sup>   |   |
| 0425014                                    | 0205-LW 04  | Flame   | Wipe  | ****   | 1.000  | 12.00   | ug/ft <sup>z</sup>   |  | 320  | ug/ft²   |   |
| 0425015                                    | 0205-LW 05  | Flame   | Wipe  | ****   | 1.000  | 12.00   | ug/ft²   |  | 24   | ug/ft²   |   |
| 0425016                                    | 0205-LW 06  | Flame   | Wipe  | ****   | 1.000  | 12.00   | ug/ft²   |  | 50   | ug/ft <sup>2</sup>   |   |
| 0425017                                    | 0205-LW 07  | Flame   | Wipe  | ****   | 1.000  | 12.00   | ug/ft²   |  | 13   | ug/ft*   |   |
| 0425018                                    | 0205-LW 08  | Flame   | Wipe  | ****   | 1.000  | 12.00   | ug/ft²   |  | 76000  | ug/ft²   |   |
| 0425019                                    | 0205-LW 09  | Flame   | Wipe  | ****   | 1.000  | 12.00   | ug/ft <sup>2</sup>   |  | 160  | ug/ft²   |   |
| 0425020                                    | 0205-LW 10  | Flame   | Wipe  | ****   | 1.000  | 12.00   | ug/ft²   |  | 16000  | ug/ft²   |   |
|  | 0425002<br>0425003<br>0425004<br>0425005<br>0425006<br>0425007<br>0425008<br>0425009<br>0425010<br>0425011<br>0425012<br>0425013<br>0425013<br>0425014<br>0425015<br>0425016<br>0425017<br>0425018<br>0425019 | 0425002         0205-LPC 02           0425003         0205-LPC 03           0425004         0205-LPC 04           0425005         0205-LPC 05           0425006         0205-LPC 06           0425007         0205-LPC 07           0425008         0205-LA 01           0425010         0205-LA 01           0425010         0205-LA 02           0425011         0205-LW 01           0425012         0205-LW 01           0425013         0205-LW 03           0425014         0205-LW 03           0425015         0205-LW 04           0425016         0205-LW 05           0425017         0205-LW 06           0425018         0205-LW 08           0425019         0205-LW 08 | 0425002         020S-LPC 02         Flame           0425003         020S-LPC 03         Flame           0425004         020S-LPC 04         Flame           0425005         020S-LPC 05         Flame           0425006         020S-LPC 06         Flame           0425007         020S-LPC 07         Flame           0425008         020S-LA 01         Flame           0425009         020S-LA 02         Flame           0425010         020S-LA 02         Flame           0425011         020S-LA 03         Flame           0425012         020S-LW 01         Flame           0425013         020S-LW 03         Flame           0425014         020S-LW 03         Flame           0425015         020S-LW 03         Flame           0425016         020S-LW 05         Flame           0425015         020S-LW 05         Flame           0425016         020S-LW 06         Flame           0425017         020S-LW 08         Flame           0425018         020S-LW 08         Flame           0425019         020S-LW 09         Flame | 0425002         0205-LPC 02         Flame         Paint Chip           0425003         0205-LPC 03         Flame         Paint Chip           0425004         0205-LPC 04         Flame         Paint Chip           0425005         0205-LPC 05         Flame         Paint Chip           0425006         0205-LPC 05         Flame         Paint Chip           0425007         0205-LPC 06         Flame         Paint Chip           0425008         0205-LPC 07         Flame         Paint Chip           0425009         0205-LA 01         Flame         Air           0425010         0205-LA 02         Flame         Air           0425010         0205-LW 01         Flame         Air           0425011         0205-LW 02         Flame         Wipe           0425012         0205-LW 03         Flame         Wipe           0425013         0205-LW 03         Flame         Wipe           0425014         0205-LW 04         Flame         Wipe           0425015         0205-LW 05         Flame         Wipe           0425015         0205-LW 05         Flame         Wipe           0425016         0205-LW 06         Flame         Wipe      0 | 0425002         020S-LPC 02         Flame         Paint Chip         ****           0425003         020S-LPC 03         Flame         Paint Chip         ****           0425004         020S-LPC 04         Flame         Paint Chip         ****           0425005         020S-LPC 05         Flame         Paint Chip         ****           0425006         020S-LPC 06         Flame         Paint Chip         ****           0425007         020S-LPC 07         Flame         Paint Chip         ****           0425008         020S-LAC 07         Flame         Paint Chip         ****           0425009         020S-LA 01         Flame         Air         1132           0425010         020S-LA 02         Flame         Air         1132           0425010         020S-LW 03         Flame         Air         1132           0425011         020S-LW 03         Flame         Wipe         *****           0425012         020S-LW 02         Flame         Wipe         *****           0425013         020S-LW 03         Flame         Wipe         *****           0425014         020S-LW 04         Flame         Wipe         *****           0425015         02 | 0425002         0205-LPC 02         Flame         Paint Chip         ****         N/A           0425003         0205-LPC 03         Flame         Paint Chip         ****         N/A           0425004         0205-LPC 04         Flame         Paint Chip         ****         N/A           0425005         0205-LPC 05         Flame         Paint Chip         ****         N/A           0425006         0205-LPC 06         Flame         Paint Chip         ****         N/A           0425007         0205-LPC 07         Flame         Paint Chip         ****         N/A           0425008         0205-LA 01         Flame         Air         1132         N/A           0425009         0205-LA 02         Flame         Air         1132         N/A           0425010         0205-LW 02         Flame         Air         Blank         0         N/A           0425011         0205-LW 01         Flame         Wipe         *****         1.000           0425012         0205-LW 02         Flame         Wipe         *****         1.000           0425013         0205-LW 03         Flame         Wipe         *****         1.000           0425014         0205-LW 05 | 0425002         0205-LPC 02         Flame         Paint Chip         ****         N/A         0.01           0425003         0205-LPC 03         Flame         Paint Chip         ****         N/A         0.01           0425004         0205-LPC 04         Flame         Paint Chip         ****         N/A         0.01           0425005         0205-LPC 05         Flame         Paint Chip         ****         N/A         0.01           0425006         0205-LPC 06         Flame         Paint Chip         ****         N/A         0.01           0425006         0205-LPC 07         Flame         Paint Chip         ****         N/A         0.01           0425007         0205-LA 01         Flame         Paint Chip         ****         N/A         0.01           0425008         0205-LA 01         Flame         Air         1132         N/A         2.65           0425010         0205-LA 02         Flame         Air         1132         N/A         2.65           0425011         0205-LW 03         Flame         Wipe         *****         1.000         12.00           0425012         0205-LW 02         Flame         Wipe         *****         1.000         12.00 <td>0425002         0205-LPC 02         Flame         Paint Chip         ****         N/A         0.01         %Pb           0425003         0205-LPC 03         Flame         Paint Chip         ****         N/A         0.01         %Pb           0425004         0205-LPC 04         Flame         Paint Chip         ****         N/A         0.01         %Pb           0425005         0205-LPC 05         Flame         Paint Chip         ****         N/A         0.01         %Pb           0425006         0205-LPC 06         Flame         Paint Chip         ****         N/A         0.01         %Pb           0425007         0205-LPC 07         Flame         Paint Chip         ****         N/A         0.01         %Pb           0425008         0205-LA 01         Flame         Air         1132         N/A         2.65         ug/m'           0425010         0205-LA 02         Flame         Air         1132         N/A         2.65         ug/m'           0425010         0205-LA 03         Flame         Air         1132         N/A         2.65         ug/m'           0425011         0205-LW 01         Flame         Wipe         1.000         12.00         ug/ft²&lt;</td> <td>0425002         0205-LPC 02         Flame         Paint Chip         ****         N/A         0.01         %Pb           0425003         0205-LPC 03         Flame         Paint Chip         ****         N/A         0.01         %Pb           0425004         0205-LPC 04         Flame         Paint Chip         ****         N/A         0.01         %Pb           0425005         0205-LPC 05         Flame         Paint Chip         ****         N/A         0.01         %Pb           0425006         0205-LPC 06         Flame         Paint Chip         ****         N/A         0.01         %Pb           0425007         0205-LPC 07         Flame         Paint Chip         ****         N/A         0.01         %Pb           0425008         0205-LA 01         Flame         Air         1132         N/A         2.65         ug/m³         &lt;</td> 0425010         0205-LA 02         Flame         Air         1132         N/A         2.65         ug/m³            0425011         0205-LW 03         Flame         Wipe         1.000         12.00         ug/ñ³            0425012         0205-LW 03         Flame         Wipe         1.000 | 0425002         0205-LPC 02         Flame         Paint Chip         ****         N/A         0.01         %Pb           0425003         0205-LPC 03         Flame         Paint Chip         ****         N/A         0.01         %Pb           0425004         0205-LPC 04         Flame         Paint Chip         ****         N/A         0.01         %Pb           0425005         0205-LPC 05         Flame         Paint Chip         ****         N/A         0.01         %Pb           0425006         0205-LPC 06         Flame         Paint Chip         ****         N/A         0.01         %Pb           0425007         0205-LPC 07         Flame         Paint Chip         ****         N/A         0.01         %Pb           0425008         0205-LA 01         Flame         Air         1132         N/A         2.65         ug/m'           0425010         0205-LA 02         Flame         Air         1132         N/A         2.65         ug/m'           0425010         0205-LA 03         Flame         Air         1132         N/A         2.65         ug/m'           0425011         0205-LW 01         Flame         Wipe         1.000         12.00         ug/ft²< | 0425002         0205-LPC 02         Flame         Paint Chip         ****         N/A         0.01         %Pb           0425003         0205-LPC 03         Flame         Paint Chip         ****         N/A         0.01         %Pb           0425004         0205-LPC 04         Flame         Paint Chip         ****         N/A         0.01         %Pb           0425005         0205-LPC 05         Flame         Paint Chip         ****         N/A         0.01         %Pb           0425006         0205-LPC 06         Flame         Paint Chip         ****         N/A         0.01         %Pb           0425007         0205-LPC 07         Flame         Paint Chip         ****         N/A         0.01         %Pb           0425008         0205-LA 01         Flame         Air         1132         N/A         2.65         ug/m³         < | 0425002         0205-LPC 02         Flame         Paint Chip         ****         N/A         0.01         %Pb         0.34           0425003         0205-LPC 03         Flame         Paint Chip         ****         N/A         0.01         %Pb         0.052           0425004         0205-LPC 04         Flame         Paint Chip         ****         N/A         0.01         %Pb         0.053           0425005         0205-LPC 05         Flame         Paint Chip         ****         N/A         0.01         %Pb         0.23           0425006         0205-LPC 06         Flame         Paint Chip         ****         N/A         0.01         %Pb         0.23           0425007         0205-LPC 07         Flame         Paint Chip         ****         N/A         0.01         %Pb         0.22           0425008         0205-LA 01         Flame         Air         1132         N/A         2.65         ug/m³         < | 04250020205-LPC 02FlumePaint Chip****N/A0.01%Pb0.34%Pb04250030205-LPC 03FlamePaint Chip****N/A0.01%Pb0.052%Pb04250040205-LPC 04FlamePaint Chip****N/A0.01%Pb0.05%Pb04250050205-LPC 05FlamePaint Chip****N/A0.01%Pb0.23%Pb04250060205-LPC 06FlamePaint Chip****N/A0.01%Pb0.22%Pb04250070205-LPC 07FlamePaint Chip****N/A0.01%Pb0.22%Pb04250080205-LA 01FlameAir1132N/A2.65ug/m³< |



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| AMA Analy | ical Servic | es, Inc. |
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A Specialized Environmental Laboratory

## **CERTIFICATE OF ANALYSIS**

|          |  |               |                                |                    |            | ALLIN |
|----------|--|---------------|--------------------------------|--------------------|------------|-------|
| Client:  | National Guard Bureau  | Job Name:     | Army National Guard            | Chain Of Custody:  | 122893     | AIHA  |
| Address: | 301-IH Old Bay Lanc, Attn: NGB-AVN-SI,<br>State Military Reservation | Job Location: | 1089 Dwelly St. Fall River, MA | Date Analyzed:     | 02/17/2004 |       |
|          | Havre de Grace, Maryland 21078                                       | Job Number:   | 42056-012-211                  | Person Submitting: |            |       |
|          |  | P.O. Number:  | Not Provided                   |                    |            |       |

Summary of Polarized Light Microscopy

Attention:

|                      |                     |                   |                       |                    |                        |                              |                            |                       |            | r                    |                      | _                      |                 |               |         |
|----------------------|---------------------|-------------------|-----------------------|--------------------|------------------------|------------------------------|----------------------------|-----------------------|------------|----------------------|----------------------|------------------------|-----------------|---------------|---------|
| AMA Sample<br>Number |                     | Total<br>Asbestos | Chrysotile<br>Percent | Amosite<br>Percent | Crocidolite<br>Percent | Other<br>Asbestos<br>Percent | Mineral<br>Wool<br>Percent | Fiberglass<br>Percent |            | Synthetic<br>Percent | Other<br>Percent     | Particulate<br>Percent | Sample<br>Color | Analyst<br>ID | Comment |
|                      |                     |                   |                       |                    |                        |                              |                            |                       |            |                      |                      |                        |                 |               |         |
| 0425023              | 0205-AB 01 A        | 30                | 30                    |                    | -                      |                              |                            |                       | 10         |                      | -                    | 60                     | Gray            | СК            |         |
| 0425024              | 0205-AB 01 B        | 25                | 25                    | -                  | 31 <del>39</del> 1.    | 77                           | -                          |                       | 15         |                      | ್                    | 60                     | Gray            | CK            |         |
| 0425025              | 0205-AB 01 C        | 20                | 20                    | 244                |                        |                              | 122                        |                       | 15         |                      | _                    | 65                     | Gray            | СК            |         |
| 0425026              | 0205-AB 02 A        | 40                | 35                    | 5                  |                        |                              |                            |                       |            |                      | ÷                    | 60                     | Gray            | СК            |         |
| 0425027              | 0205-AB 02 B        | 60                | 45                    | 15                 | 020                    |                              | -                          |                       | <u></u> e: |                      |                      | 40                     | Gray            | СК            |         |
| 0425028              | 0205-AB 02 C        | 60                | 45                    | 15                 |                        |                              |                            |                       | 10         |                      | :: <del>:::</del> :: | 30                     | Gray            | СК            |         |
| 0425029              | 0205-AB 03 A        | NAD               | ••                    |                    |                        |                              |                            |                       |            |                      | -                    | 100                    | Multi           | СК            |         |
| 0425030              | 0205-AB 03 B        | NAD               |                       |                    |                        |                              |                            |                       |            | -                    |                      | 100                    | Multi           | CK            |         |
| 0425031              | 0205-AB 03 C        | NAD               |                       | -                  |                        |                              |                            | -                     |            |                      | -                    | 100                    | Multi           | CK            |         |
| 0425032              | 0205-AB 04 A-       | • 3               | 3                     | -                  | -                      |                              |                            |                       |            |                      | -                    | 97                     | Brown           | CK            |         |
| 0425033              | 0205-AB 04 B-<br>FT | . 3               | 3                     | 0.000              | •••                    |                              |                            | ~                     | ~          | -                    |                      | 97                     | Brown           | СК            |         |
| 0425034              | 0205-AB 04 C-<br>FT | 2                 | 2                     | -                  |                        |                              | -                          |                       | •          |                      | -                    | 98                     | Brown           | СК            |         |
| 0425035              | 0205-AB 04 A-<br>M  | - 5               | 5                     | -                  | -                      |                              |                            |                       | TR         |                      | -                    | 95                     | Black           | CK,           |         |
| 0425036              | 0205-AB 04 B-<br>M  | - 5               | 5                     | -                  |                        |                              | -                          | -                     | TR         |                      | 5 <b>**</b> 5        | 95                     | Black           | CK            |         |
| 0425037              | 0205-AB 04 C-<br>M  | - 5               | 5                     | <del></del>        | -                      |                              | -                          |                       | TR         | -                    |                      | 95                     | Black           | CK            |         |

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

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

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|-------------------|---|--|-----------------------------|--|--|--|--|-----------------------|-------------------------------|----------------------|------------------|------------------------|---------------------------------|----------------|-------------------|
| Client:           | Natio   | tional Guard Bureau Job Name: Army National Guard Chain Of Cua |                             |  |  |  |  | ustody:               | 122893                        | AIHA                 |                  |                        |                                 |                |                   |
| Address:          |   | H Old Bay L<br>Military Res                                    | anc, Attn: NG               | iB-AVN-SI,                                     | Job La   | b Location: 1089 Dwelly St. Fall River, MA Date Analyzed: 02 |  |                       |                               | 02/17/2004           | _                |                        |                                 |                |                   |
|                   | Elavre  | de Grace, M  | Maryland 210                | 078  | Job N  | umber:   | 42056  | -012-211              |                               |                      |                  | Person Sub             | mitting:                        |                |                   |
| Attentio          | n:  |  |                             |  |  | Number:  | Not Pr   | ized Lig              | bt Mi                         | 2205000              | <b>x</b> ,       |                        |                                 |                | Page 2 of 2       |
|                   |   |  | -                           |  |  |  |  | izeu Lig              | , III 19110                   | croscop              |                  |                        |                                 |                |                   |
| MA Samp<br>Number | le Client<br>Sample #   | Total<br>Asbestos  | Chrysotile<br>Percent       | Amosite<br>Percent                             | Crocidolite<br>Percent                                   | Other<br>Asbestos<br>Percent                                 | Mineral<br>Wool<br>Percent                     | Fiberglass<br>Percent | Organic<br>Percent            | Synthetic<br>Percent | Other<br>Percent | Particulate<br>Percent | Sample<br>Color                 | Analyst<br>ID  | Comments          |
| 0425038           | 0205-AB 05 A  | NAD  | -                           |  | -  |  | 60   |                       | TR                            |                      |                  | 40                     | Off-White                       | ск             |                   |
| 0425039           | 0205-AB 05 B  | NAD  | ••                          |  | - <u></u>  |  | 40   |                       | TR                            |                      |                  | 60                     | Off-White                       | СК             |                   |
|                   | The following foo   | inotes only a  | apply to those              | samples whi                                    | ich the total ask  | pestos result i  | is flagged wi                                  | lh a note numb        | ber.                          |                      |                  |                        |                                 |                |                   |
| 2                 | TEM RECOMME<br>or trace (<1%) for<br>of optical microse<br>MATRLX REDUC<br>contain a significa<br>obscuring effects | r asbestos m<br>copy.<br>CTJON REC<br>ant quantity             | COMMENDAT<br>of asbestos wh | ignificant qu<br>TION - Pleas<br>hich is obscu | antity of ashest<br>se note, due to i<br>tred from view. | interference fr  | mmended th<br>form the mate<br>included that t | at the addition       | al analytica<br>s of this san | I technique of       | f TEM be u       | sed to check f         | or asbestos fi<br>M as negativo | bors below the | resolution limits |
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# APPENDIX E

## TRAINING CERTIFICATES

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|                                    | 6 Upton Drive, Wilmington, MA 01887<br>(978) 658-5272<br>This is to certify that |                                   |
|------------------------------------|--|-----------------------------------|
| has complete                       | ed the requisite training, and has passed an exa<br>for reaccreditation as:      | mination                          |
|                                    | Asbestos Inspector Refresher   |                                   |
| pursuant                           | to Title II of the Toxic Substance Control Act, 15 U.S.                          | C. 2646                           |
| ×<br>5                             | April 11, 2003<br>Course Dates   |                                   |
|                                    | Course Location  |                                   |
| April 11, 2003<br>Examination Date | Institute for Environmental Education<br>16 Upton Drive<br>Wilmington, MA 01887  | April 10, 2004<br>Expiration Date |
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| Certificate Number                 |  | President/Director of Training    |
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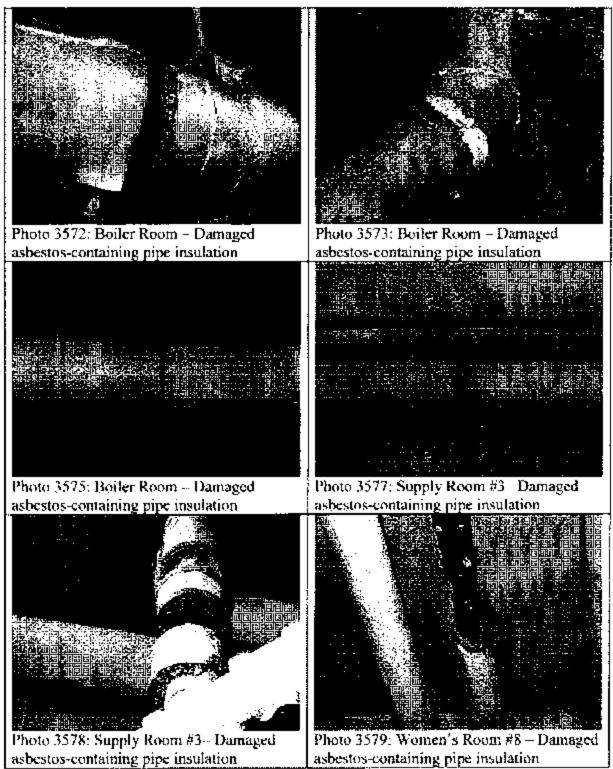
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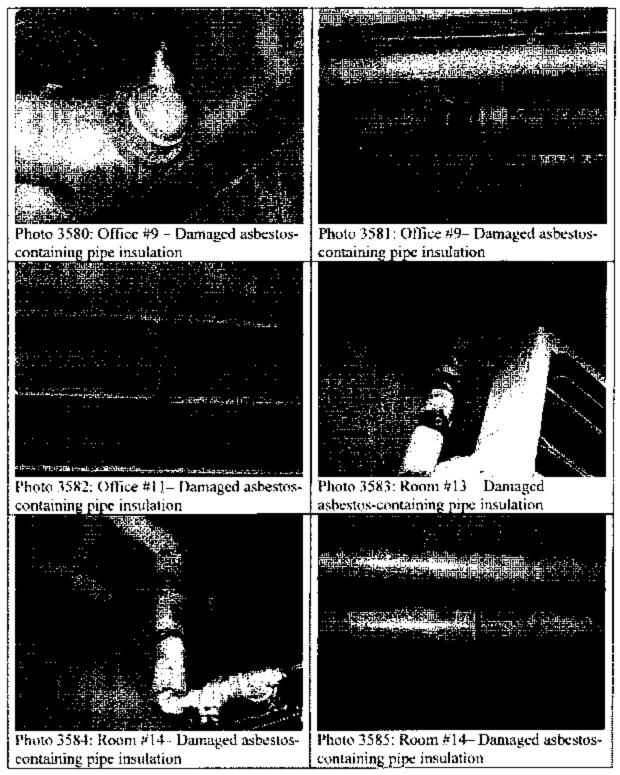
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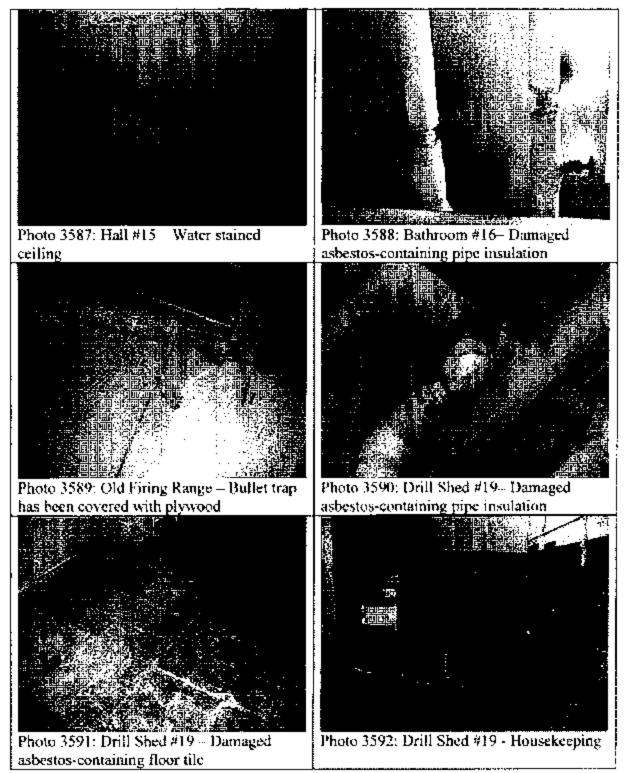
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APPENDIX G

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# RECOMMENDATIONS FOR SURFACE LEAD DUST IN ARMORIES

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Subject: Recommendations for Surface Lead Dust in Armories

1. In armories that do not contain childcare facilities, the National Guard Bureau (NGB) Region North Industrial Hygiene Office recommends cleaning the areas in which sample results are greater than 200 micrograms per square foot ( $\mu$ g/ft<sup>2</sup>). If a special function will be held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function. This guidance is based on professional judgment, risk assessments, adaptation of Occupational Safety and Health Administration (OSHA) guidance, and feasibility of cleaning to a certain level.

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

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

c. OSHA used to cite a level of 200  $\mu$ g/ft<sup>2</sup> 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<sup>2</sup> is a safe surface contamination level. They have also applied these standards as the decontamination levels for surfaces in administrative offices.

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

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

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

# APPENDIX H

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

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

## ADDENDUM

## GUIDELINES FOR IFR REHABILITATION, CONVERSION, AND CLEANING

CONTENTS (Listed by paragraph number)

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# Appendices

Appendix A - General Procedures for Collecting Wipe Samples

Appendix B - Sampling Strategy for Collection of Wipe Samples

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

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Appendix E - Recommended Sample Media and Containers

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

Appendix G - Surface Wipe Sample Sheet

Appendix H - Air Sampling Sheet

Appendix 1 - Glossary

Purpose

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

#### 2. References

Related publications are listed below.

a DODI 6055.1 (Department of Defense Instruction, Occupational Safety and Health (OSH) Program).

- b. AR 11-34 (The Army Respiratory Protection Program)
- c. AR 40-5 (Preventive Medicine).

 d. NGR 385-15 Policy, Responsibilities, and Procedures for Inspection, Evaluation, and Operation of ARNG Indoor Firing Ranges).

e. 29 Code of Federal Regulations (CFR), Part 1910. Occupational Safety and Health Standards.

- f. OSHA Technical Manual, Edition VII.
- g. DHEW NIOSH 76-139 (Lead Exposure and Design Considerations for Indoor Firing Ranges).

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

3. Explanation of Abbreviations and Terms

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

## 4. Policy and Procedures

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

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

b. The level of cleanliness is to be determined by sampling. The Occupational Safety and Health Administration's (OSHA) Technical Manual, <sup>5th</sup> Edition, provides guidance on the methods and techniques needed to collect wipe samples (Appendix A).

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

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

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

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

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

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

## 5. Goal

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

#### 6. Background

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

## 7. Wipe Sample Media

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

(1) Acceptable Media consists of -

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

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

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

(2) Unacceptable Media consists of but is not limited to --

- (a) Cotton balls
- (b) Baby wipes or wet wipes

b. Documentation of Sample Collection. A Surface Wipe Sample Sheet must be completed and submitted with samples to your supporting laboratory. A copy of this form is located in Appendix G. Refer to Appendix A on how to collect wipe samples.

8. Wipe Sampling Protocol

See Appendix A.

## 9. Ranges Cleaning Instructions

a. Written procedures, such as a scope of work, or Standing Operating Procedure (SOP) that complias with all federal, state and local regulations must be established prior to decontamination operations. The range ventilation system will be in operation during range cleaning to ensure that a negative pressure environment is maintained. In the absence of mechanical ventilation system, all doors and windows will be seafed to eliminate fugilive emissions. A High Efficiency Particulate Air (HEPA) filtered vacuum system is the preferred method of cleanup followed by wet wiping of the range. The HEPA vacuum is designed to collect loose surface lead dust particles.

b. Any general purpose cleaning solution can be used. However, Spic and Span ™ has been found to be an effective cleaning solution by other Army organizations. Mix new solutions of cleaning solution frequency. Wet wiping will require dual containers of water; one container for wetting the applicator (mops, rags, sponge, etc.) and the other container for rinsing the applicator after the dust has been wiped from the surfaces. When placed in containers, wastewater should be left to evaporate.

c. PROPERLY DISPOSE OF ALL HAZARDOUS WASTE. DO NOT PLACE LEAD CONTAMINATED WASTE INTO THE SEWER SYSTEM OR ONTO THE GROUND.

d. Mop-heads, sponges and rags will be discarded as hazardous waste following cleanup.

e. Wel cleaning by a high-pressure system is prohibited, as this method may embed the lead into the substratum and generate large quantilies of unwanted hazardous waste.

f. Dry sweeping is not permitted.

g. All surface areas of the range must be cleaned. Do not remove the coating on smooth painted surfaces that are properly sealed.

h. Wood floors should receive a coat of dock enamel or urethane; concrete floors should be seated with dock enamel and linoleum or tile floors should be waxed.

i. A progression of cleaning from top to bottom and from behind the steel backstop to the firing line should be used. After removing the sand, if applicable, and the steel backstop, areas in front of and behind the bullet trap along with the steel backstop plato(s) should be cleaned. Next, clean the ceiling, lights, baffles, retrieval system, heating system(s), and ventilation duct(s). Acoustical material should be vacuumed and removed rather than painted over.

j. A Toxic Characteristic Leaching Procedures (TCLP) test for lead only may need to be performed on the acoustical material. A TCLP test will determine if the material is classified as "hazardous" and can be disposed of in a sanitary landfill. Contact your State Environmental Office for assistance before arranging for this laboratory testing. The floor should be the last surface cleaned, starting at the bullet trap and ending behind the firing line.

k. After wet wiping all surfaces, permit the area to dry. Vacuum all surface areas until no dust or residue can be seen using the HEPA.

I. A thorough visual inspection to detect dust should be made following cleanup and prior to collecting post surface wipe samples.

m. As a variety of conditions exist in ranges, unique situation may arise and specific written guidance from your Regional Industrial Hygione Office may be required.

## 10 Cleaning Stored Contaminated Equipment

a. Equipment contaminated (sample result is higher than 200 micrograms/sq ft) with lead dust must be decontaminated before it is removed from the range.

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

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

## 11. Contaminated Sand and Lead Waste

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

#### 12. Medical Surveillance

a. A pre-placement medical examination is required for all individuals involved with range cleanup operations. Consult 29 CFR 1910.1025 for additional information on medical surveillance requirements. A medical examination must include---

- (1) A detailed work and medical history
- (2) A thorough physical examination
- (3) A respirator use evaluation
- (4) A blood pressure measurement
- (5) Blood sample analysis to include:
  - (a) A baseline blood lead level
  - (b) A complete blood count (CBC)
  - (c) Blood urea nitrogen (BUN)
- (6) Serum creatinine
- (7) Zine protoporphyrin
- (8) A routine urine analysis
- (9) Recordkeeping

b. Air Monttoring. Worker breathing zone (BZ) air samples must be collected to ensure personnel are not overexposed to airborne lead during the cleanup phase. Representative air samples will be collected on all personnel involved in the cleanup operation. These exposure levels will be used to evaluate work practices and personal protective equipment. Within five (5) working days after receipt of monitoring results, each employee will be notified in writing of the air sampling results. Contact your Regional Industrial Hygiene Office for additional information pertaining to air sampling.

#### Worker Education

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

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

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g. Employees must wash their hands and other exposed skin whenever they leave the work area.

h. The engineering controls and work practices associated with the individual's job assignment.

i. The contents of any compliance plan in effect.

# 14. Personal Protective Equipment

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

a. Employees engaged in range rehabilitation and/or range conversion, the employer shall provide at no cost to the employee, and assure that the employee uses appropriate protective work clothing and equipment such as, but not limited to:

Protective coverails with hood and shoe covers or disposable Tyvek ™ full body suit.

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

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

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

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

d. The employer shall assure that all protective clothing is removed at the completion of a work shift only in areas designated for that purpose (Change Areas or Change Rooms).

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

f. The employer will further inform in writing any person who cleans or launders protective clothing or equipment of the potentially harmful effects of exposure to lead.

## 15. Housekeeping

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

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

 b. The range ventilation system will be in operation during all cleaning operations, to ensure a negative pressure environment is maintained.

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

d. A NIOSH approved respirator (P-100) for protection against fead dust, fume, and mist will be worn at all times white cleaning.

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

# 16 Maintenance

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

 Inspect the ventilation system fan for condition of belts to ensure that they are not frayed or slipping.

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

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

d. Inspect the bullet trap for pitting or other damage and for sharp edges on venetian blind type bullet traps.

e. Butlet Trap. The bullet trap will be cleaned every 480 hours of operation at a minimum, or when the trap is three quarters full.

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

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

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

17. Range Rehabilitation.

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

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

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

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

#### Conversion of Indoor Ranges.

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

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

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

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

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

e. Light fixtures and ventilation system grills must be removed and decontaminated.

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

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

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

#### 19. Deviation

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

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# APPENDIX A GENERAL PROCEDURES FOR COLLECTING WIPE SAMPLES

A-1 If multiple samples are to be collected at the work site, prepare a rough sketch of the area(s) or room(s), which are to be wipe sampled.

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

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

(2) If using a dry media such as MCE or Whatman™ filter, morsten the filter with distilled or deionized water prior to sampling.

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

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

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

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

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

#### APPENDIX B

#### SAMPLING STRATEGY FOR COLLECTION OF WIPE SAMPLES

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

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

#### APPENDIX C

# INTERPRETATION OF SAMPLE RESULTS (PRIOR TO CLEANING)

C-1 200 micrograms/sq ft or LESS

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

C-28ETWEEN 201 and 200,000 micrograms/sq ft

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

C-3 Over 200,000 micrograms/sq ft

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

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# APPENDIX C (Continued)

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

# APPENDIX D

# INTERPRETATION OF SAMPLE RESULTS (AFTER CLEANING)

D-1 200 micrograms/sq. ft or less

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

## APPENDIX E

## RECOMMENDED SAMPLE MEDIA AND CONTAINERS

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

E-2 Pre-loaded 3 piece cassette with mixed cellulose ester (MCE) filter and pad, 37 millimeter (mm), pore size 0.8 microns, breathing zone (BZ) and general area (GA) air samples.

Order From Catalog Number

- a. Millipore Corp. MAWP-037-A0 Ashdy Road Bedford, MA 01730 617-275-9200 800-225-1380
- b. Gelman Sciences 64678 (GN-4) 600 South Wagner Rd Ann Arbor, MI 48106 313-665-0651 600-521-1520
- c. Supelco. Inc. 2-3368M
   Supelco Park
   Bellefonto, PA 16823
   800-247-6628
   800-359-3041

E-3.37 mm MCE Filter with pad, no cassetto included, for fead surface wipe samples.

# Order From <u>Catalog Number</u>

 a. Supelco Inc 2-3381IM Supelco Park Belletonte IPA 16823 NGB-AVS-SG SUBJECT: All States (Log Number P01-0075) Army National Guard (ARNG) Safety and Occupational Health Program -- POLICY AND RESPONSIBILITIES FOR INSPECTION, EVALUATION AND OPERATION OF ARMY NATIONAL GUARD INDOOR FIRING RANGES

# APPENDIX E (Continued)

800-247-6628 800-359-3041

b. Millipore Corp. AAWP-037-00
 Ashdy Road
 Bedford, MA 01730
 617-275-9200
 800-225-1380

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

# 

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

Order From Catalog Number

- a. Pierce Chemical Co. 13219 (screw cap)
   P.O. Box 117
   Rockford, IL 61105
   815-968-0747
   800-874-3723
- b. Altech Associates, Inc. 95321 (screw cap) Applied Science Labs 2051 Wackegan Rd Deerfield, II, 60015 312-948-8600

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# **APPENDIX E (Continued)**

800-255-8324

E-6. Ghost Wipes™.

## Order From Catalog Number

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

E-7, Ghost Wipe<sup>™</sup> Containers

Order From Catalog Number

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

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

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

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

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

| <u>75 ug</u>        | - 92 | 29 cm²              |   |                |
|---------------------|------|---------------------|---|----------------|
| 100 cm <sup>2</sup> |      | 1 sq lt             |   |                |
|                     | =    | <u>69675</u><br>100 | = | 696.75ug/sq fl |

ug - Microgram

Cm2 - Contimeters squared

Sq It - Square foot

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FOIA Requested Record #J-15-0085 (MA) Released by National Guard Bureau Page 1172 of 3473

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|                   |                | Hygiene Surfa | -                    | act (name & phone #)                  |  |  |  |  |  |
|-------------------|----------------|---------------|----------------------|---------------------------------------|--|--|--|--|--|
| Return Address    |                |               |                      | aor hioine o buoue #)                 |  |  |  |  |  |
|                   |                |               | Samples Collected By |                                       |  |  |  |  |  |
|                   |                |               |                      |                                       |  |  |  |  |  |
| Sampled Facility  | npled Facility |               | State                | Location (bldg/area)                  |  |  |  |  |  |
| Description of Op | eration        |               | Date Collecte        | d Date Shipped                        |  |  |  |  |  |
| , ,               |                |               |                      |                                       |  |  |  |  |  |
| Analysis Desired  |                |               |                      |                                       |  |  |  |  |  |
|                   |                |               |                      | · · · · · · · · · · · · · · · · · · · |  |  |  |  |  |
| Sampling Data     |                |               |                      |                                       |  |  |  |  |  |
| ab Use Only       | Sample #       | Results       |                      | Remarks                               |  |  |  |  |  |
|                   |                |               |                      |                                       |  |  |  |  |  |
|                   |                |               |                      |                                       |  |  |  |  |  |
|                   | ·· · •         |               | ·····                | <u> </u>                              |  |  |  |  |  |
|                   |                | ····          |                      | · · ·                                 |  |  |  |  |  |
|                   |                |               |                      |                                       |  |  |  |  |  |
| ļ                 |                |               |                      |                                       |  |  |  |  |  |
|                   |                |               |                      | ·                                     |  |  |  |  |  |
|                   |                |               |                      |                                       |  |  |  |  |  |
|                   |                |               |                      |                                       |  |  |  |  |  |
|                   |                |               |                      |                                       |  |  |  |  |  |
|                   |                |               |                      | ······                                |  |  |  |  |  |
|                   |                |               |                      |                                       |  |  |  |  |  |
|                   |                |               |                      |                                       |  |  |  |  |  |
|                   |                |               |                      |                                       |  |  |  |  |  |
|                   |                |               |                      |                                       |  |  |  |  |  |
|                   |                |               |                      |                                       |  |  |  |  |  |

APPENDIX G SURFACE WIPE SAMPLING SHEET

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

|                     |              | Industrial Hy                     | giene Ai     | r Samp     | le Sheet         |   |
|---------------------|--------------|-----------------------------------|--------------|------------|------------------|---|
| Return Add          | 18\$\$       |                                   | Point of C   | Contact (r | name/phone #)    |   |
|                     |              |                                   | Samples      | Collected  | By               |   |
| Sampled Fa          | cility       | City                              | State        | Location   | n (bldg/area)    |   |
| Description o       | of Operation | Persons Exposed                   | L Hre/Day    |            | od of Collection |   |
| Analysis De         | sirêd        |                                   | A se comerce | L          |                  | ·····                                   |
| Sampling D          | ata          |                                   |              |            |                  |   |
| Sampte<br>No.       |              |                                   |              |            |                  |   |
| Pump No.            |              |                                   |              |            |                  | B                                       |
| Time On             |              |                                   |              |            |                  | L                                       |
| Time Off            |              |                                   | <b>.</b>     |            |                  | A                                       |
| Total Time<br>(min) |              |                                   |              |            |                  | N                                       |
| Flow Rate<br>(LPM)  |              |                                   |              |            |                  | ĸ                                       |
| Volume<br>(liters)  |              |                                   |              |            |                  |   |
| GAVBZ               |              |                                   |              |            |                  |   |
| Employee<br>Name10  |              |                                   |              |            |                  |   |
| Laboratory<br>No.   |              |                                   |              |            |                  |   |
| Calibration I       | nformation   |                                   | I            | J.         |                  |   |
| Pump No.            |              | ralion (LPM)                      | Rotameter    | Setting    |                  | Date                                    |
|                     | Pre-Use      | Post-Use                          |              |            |                  |   |
|                     | ··· ··       |                                   |              |            |                  | · · · · · ·                             |
|                     |              | · · · · · · · · · · · · · · · · · |              |            | ···              |   |
|                     |              |                                   |              |            |                  |   |
|                     |              |                                   |              |            |                  | • |
|                     |              |                                   |              |            |                  |   |
|                     |              |                                   |              |            | [<br>            |   |
| Name of Calibia     | alor         | Calibration Date                  | Pump Marin   | facturer   | ·                |   |
| Comments to L       | ab           | ····                              | *            |            |                  |   |

APPENDIX H AIR SAMPLING SHEET

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

APPENDIX I ABBREVIATIONS AND TERMS

# Section I Abbrevlations

ARNG Army National Guard

BUN Blood urea nitrogen

**BZ** Breathing zone

CBC Complete blood count

CFR Code of Federal Regulations

**cm** Centimeter

DHEW Department of Health, Education and Welfare

EPA Environmental Protection Agency

GA . General area

OMPF Official Military Personnel File

OPF Official Personnel File

**OSHA** Occupational Safety and Health Administration

TCLP Toxic Characteristic Leaching Procedures

ug/sq\_ft Micrograms per square foot

# NG8-AVS-SG SUBJECT: All States (Log Number P01-0075) Army National Guard (ARNG) Safety and Occupational Health Program – POLICY AND RESPONSIBILITIES FOR INSPECTION, EVALUATION AND OPERATION OF ARMY NATIONAL GUARD INDOOR FIRING RANGES

# APPENDIX I (Continued)

# Section II Terms

# HEPA

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

# Lead-Contaminated Range

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

# Wipe Sample

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

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# **Industrial Hygiene Survey**

Massachusetts Army National Guard (MA ARNG)

Prepared For: NGB ARNG - Region North IH Office

Survey Location:

# Fall River Readiness Center 1089 Dwelly Street Fall River, MA 02724-3199

Prepared By: Aria Environmental, Inc. (AEI) PO Box 286 Woodbine, MD 21797

Survey Date: August 17, 2010 Report Date: September 30, 2010

AEI Project #: J10-515 3d MA Fall River RC

Non-Responsive

Industrial Hygienist



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- Appendix B Certificates of Analysis for Air, Dust Wipe and Bulk Samples
- Appendix C Photo Documentation
- Appendix D IAQ and Lighting Survey Log Sheets

# **Executive Summary**

Aria Environmental, Inc. (AEI) was contracted to perform an industrial hygiene evaluation for the Readiness Center located at 1089 Dwelly Street, Fall River, MA, 02724-3199. Non-Responsive performed the evaluation on August 17, 2010. The point of contact for the facility was Sergeant First Class and the evaluation of the evaluation was to identify and measure the existence and extent of potentially hazardous operations or conditions at Army National Guard (ARNG) facilities. The survey included: (1) evaluations of operations including operation description, sampling for chemicals or particulates if appropriate, ventilation system evaluational information pertinent to the operations; (2) an evaluation of the physical condition of the facility and personnel concerns including visual inspections for peeling lead-based paint, damaged asbestos-containing materials, water damage or mold problems; indoor air quality concerns; potential ergonomic problems; hazardous material storage; and housekeeping practices; and (3) photographs of the exterior and interior of the FMS. The results of the evaluation indicated industrial hygiene concerns in the following areas:

**Noise Hazards:** No noise-generating activities were taking place on the day of the survey. Due to the nature of the tasks performed onsite, no activities requiring noise monitoring are anticipated to occur at the RC.

**Lead in Air Samples:** Lead in air samples to determine if any airborne contamination of lead existed in the facility were not collected at the Fall River Readiness Center due to sample pump malfunction.

Paint Chip and Wipe Samples for Lead Contamination: A visual inspection was performed to determine if there were any areas of peeling paint at the facility that could pose a lead exposure hazard. No areas of peeling or flaking paint were observed. Three wipe samples collected from the former firing range that has not been converted and that is being used as storage were above the National Guard criteria for lead contamination (200  $\mu$ g/ft<sup>2</sup>). Samples ranged from 2.45 to 125 times the National Guard criteria. Lead was identified in samples collected the overhead heater vent, the bullet trap, and on the floor of the range.

**Visual Inspection for Damaged Asbestos-Containing Materials:** Damaged TSI pipe insulation was observed in the kitchen and damaged floor tile was located in the gym/band storage area and the drill hall. Bulk samples of the floor tiles were analyzed and reported as non-asbestos-containing. The submitted sample of TSI pipe insulation resulted in 50% and trace amounts of Chrysotile asbestos respectively.

**Visual Inspection for Water Damage and Mold Growth:** A visual inspection was performed to determine if there was any water damage or visible mold growth at the facility. Extensive water damage was observed in the gym/band storage area. The water had loosened and removed floor tile from the area. No visible mold was observed in the space.

**Visual Inspection for Housekeeping Concerns:** A visual inspection was performed to assess the state of housekeeping in the facility. The housekeeping was good. All areas were clean and tidy.

**Lighting:** The evaluation indicated that there are some illumination deficiencies in several offices and the kitchen. The illumination measurements indoors ranged from a low of 10.3 foot candles (fc) to a high of 97 fc.

**Indoor Air Quality:** Temperatures and relative humidity measurements were outside the acceptable range in most of the facility. These results are not unexpected due to outdoor conditions on the day of the survey and the lack of air conditioning in most of the facility. Those areas with window air conditioning units were within acceptable ranges. Indoor levels of CO<sub>2</sub> ranged from 303 to 436 parts per million (ppm) and outdoor CO<sub>2</sub> levels were approximately 310 ppm during the monitored period. CO<sub>2</sub> measurements were below the guideline in all areas, indicating adequate fresh air exchange. Indoor levels of CO ranged from 0 to 0.7 ppm; therefore, concentrations are below occupational exposure limits, ASHRAE and the NAAQS-recommended CO concentrations.

# 1 Introduction

Aria Environmental, Inc. (AEI) was contracted to perform an industrial hygiene evaluation for the Massachusetts Army National Guard (MA ARNG) Readiness Center located at 1089 Dwelly Street, Fall River, MA, 02724-3199. Non-Responsive performed the evaluation on August 17, 2010. The point of contact for the facility was Sergeant First Class Non-Responsive. The purpose of the evaluation was to identify and measure the existence and extent of potentially hazardous operations or conditions at Army National Guard (ARNG) facilities.

The Fall River Readiness Center is staffed with 3 administrative personnel. The operations conducted at the facility include supply and administrative duties. A diagram of the building layout is provided in Appendix A. All sampling sheets and laboratory certificates of analysis are provided in Appendix B. Selected photographs taken during the evaluation are provided in Appendix C. Indoor air quality and lighting survey measurement log sheets are provided in Appendix D. Lists of all references used during the evaluation are included in the main body of the report.

# 2 Evaluation Methods

The industrial hygiene survey of the Fall River Readiness Center consisted of visual inspections, interviews with employees, and sampling plan development in order to achieve the following: (1) evaluations of operations including operation description, sampling for lead in air or on surfaces if appropriate, ventilation system evaluations, noise measurements if appropriate, lighting surveys, hazard control evaluations and any additional information pertinent to the operations; (2) an evaluation of the physical condition of the facility and personnel concerns including visual inspections for peeling potentially lead-based paint, damaged suspect asbestos-containing materials, water damage or mold problems; indoor air quality concerns; and housekeeping practices; and (3) a building layout and photographic documentation of the interior of the facility.

The National Guard Bureau (NGB) Region North IH Office provided all industrial hygiene equipment for air sampling (equipment and media), ventilation, lighting, noise and IAQ survey instruments and paid for laboratory analytical fees. Laboratories were chosen or approved by the NGB IH office.

# 3 Operations

Operations conducted at the Fall River facility consists exclusively of supply and administrative duties. No maintenance of vehicles, painting of equipment or other physical tasks are performed at the facility. Ground maintenance and upkeep of the building are the responsibility of the state employed Armorer and not part of the duties of National Guard personnel.

# 4 Noise Hazards

No noise-generating activities were taking place on the day of the survey. Due to the nature of the tasks performed onsite, no activities requiring noise monitoring are anticipated to occur at the RC.

# 5 Hazard Controls

# **Ventilation Systems**

Heat is supplied to the facility through a boiler located in the boiler room and overhead heaters in the drill hall. The boiler certificate for the Fall River facility is expired and is not up to date. Any air conditioning provided to the building is through window air conditioning units. No local ventilation systems were present at the facility.

# 6 Physical Condition of the Facility and Personnel Concerns

An evaluation of the physical condition of the facility and personnel concerns was performed including visual inspections for water damage or mold problems; potential ergonomic problems; and housekeeping practices. Lighting and indoor air quality measurements were taken in all areas of the facility as well.

# Lead in Air Samples

Lead in air samples to determine if any airborne contamination of lead existed in the facility were not collected at the Fall River Readiness Center due to sample pump malfunction.

# Paint Chip and Dust Wipe Samples for Lead Contamination

A visual inspection was performed to determine if there were any areas of peeling paint at the facility that could pose a lead exposure hazard. No areas of peeling or flaking paint were observed.

To determine if any cross contamination of lead from any source into areas of the facility existed, wipe samples were collected using ghost wipes and 10cm x 10cm templates. Wipe samples for surface dust were collected in 19 locations. The Environmental Protection Agency (EPA) and the Commonwealth of Massachusetts limits for lead in dust are 40 microarams per square foot  $(\mu g/ft^2)$  on floors, 250  $\mu g/ft^2$  on window sills, and 400  $\mu g/ft^2$  in window troughs. These limits apply to pre-1978 Army facilities only if children under 6 years of age occupy them for 60 or more hours per year. The NGB Region North Industrial Hygiene Office concurs with the US Army Center for Health Promotion and Preventive Medicine (USACHPPM) recommended maximum level for adult exposures of 200 µg/ft<sup>2</sup> on floors and frequently contacted surfaces, which is more stringent for window sills than the EPA/State standards. Dust wipe samples were submitted to Aerosol Monitoring and Analysis Analytical Services, Inc. (AMA) for atomic absorption spectrophotometry (AAS) following the analytical method ASTM D3335-85A. Three wipe samples collected from the former firing range were above the National Guard criteria for lead contamination (200 µg/ft<sup>2</sup>). Samples ranged from 2.45 to 125 times the National Guard criteria. Lead was identified in samples collected from the overhead heater vent, the bullet trap, and on the floor of the range. The history of the indoor firing range was not known to current employees at the Readiness Center. It appeared not to have been converted in accordance with NG PAM 420-15 and it was being used for storage. Results are given in Table 1 and certificates of analysis are included in Appendix B.

| Wipe Sample #  | Fall River Readiness Center on August 17 Sample Location     | Result (µg/ft²)* |  |  |  |
|--|--|------------------|--|--|--|
| FAL-PB-01  | Drill Hall, Ceremonial Artillery                             | <110             |  |  |  |
| FAL-PB-02  | Drill Hall, Middle of Floor                                  | <110             |  |  |  |
| FAL-PB-03  | FAL-PB-03 Drill Hall, From Bench Top                         |                  |  |  |  |
| FAL-PB-04  | Kitchen, From Prep Table                                     | <110             |  |  |  |
| FAL-PB-05 SFC Non-Responsive Office, From Supply Grill on Radiator |  | <110             |  |  |  |
| FAL-PB-06  | Old Firing Range, From Overhead Heater                       | 25,000           |  |  |  |
| FAL-PB-07  | Old Firing Range, Bullet Trap                                | 840              |  |  |  |
| FAL-PB-08 Old Firing Range, Light Fixture                          |  | <110             |  |  |  |
| FAL-PB-09  | Old Firing Range, Stored Equipment                           | <110             |  |  |  |
| FAL-PB-10  | Old Firing Range, Middle of Floor                            | 490              |  |  |  |
| FAL-PB-11  | Drill hall, Immediately Outside Old Firing<br>Range on Floor | <110             |  |  |  |
| FAL-PB-12  | Office (1), From Desktop                                     | <110             |  |  |  |
| FAL-PB-13  | Copy Room, From Top of Cabinet                               | <110             |  |  |  |
| FAL-PB-14  | Storage Room (14), From Top of<br>Footlocker                 | <110             |  |  |  |
| FAL-PB-15  | Office (24), From Top of Cabinet                             | <110             |  |  |  |
| FAL-PB-16  | Entry, Middle of Main Door on Floor                          | <110             |  |  |  |
| FAL-PB-17  | Mess Hall, From Table  | <110             |  |  |  |
| FAL-PB-18  | Office (22), Window Sill                                     | <110             |  |  |  |
| FAL-PB-19  | Supply Room (5), From Supply Shelf                           | <110             |  |  |  |

# Table 1 – Results of Dust Wipe Sampling for MA ARNG Fall River Readiness Center on August 17, 2010.

\*The US Army CHPPM recommends a maximum level for adult exposures of 200 µg/ft<sup>2</sup> lead on floors

# Visual Inspection for Damaged Asbestos-Containing Materials

A visual inspection was performed to determine if there were any suspect asbestos-containing material and its condition. Damaged TSI pipe insulation was observed in the kitchen and damaged floor tile was located in the gym/band storage area and the drill hall. Three bulk samples were collected and submitted to AMA Analytical Services, Inc. of Lanham, MD 20706 (NIST-NVLAP Accreditation No. 101143-0) for analysis by Polarized Light Microscopy (PLM) using EPA method 600/R-93/116. The EPA defines an asbestos-containing material as one percent (1%) or more asbestos by visual estimation. Submitted samples of the floor tiles were reported as non-asbestos-containing. The submitted sample of TSI pipe insulation resulted in 50% and Trace

amounts of Chrysotile asbestos respectively. Results are given in Table 2 and certificates of analysis are included in Appendix B.

| Table 2 – Results of Asbestos Sampling for the MA ARNG RC |
|---|
| Fall River, MA on August 17, 2010.                        |

| Bulk Sample # | Sample Location                                       | Result* (% by wt ) |
|---------------|---|--------------------|
| FAL-ASB-01    | 12"x12" Brown Floor Tile, Gym/Former<br>Firing Range  | NAD**              |
| FAL-ASB-02    | Aircell Pipe Insulation, Kitchen at<br>Damage by Door | 50% Chrysotile     |
| FAL-ASB-03    | 9"x9" Floor Tile and Mastic, Drill Hall               | NAD                |

\*The EPA defines an asbestos-containing material as one percent or more asbestos by visual estimation. \*\*NAD = No asbestos detected.

# Visual Inspection for Water Damage and Mold Growth

A visual inspection was performed to determine if there was any water damage or visible mold growth at the facility. Extensive water damage was observed in the gym/band storage area. The water had loosened and removed floor tile from the area. No visible mold was observed in the space.

# Visual Inspection for Housekeeping Concerns

A visual inspection was performed to assess the state of housekeeping in the facility. The housekeeping was good. All areas were clean and tidy.

# Lighting

Illumination levels were measured using a Cal-Light 400L, calibrated on July 30, 2010, and compared to minimum lighting requirements for various facilities and functions based on the following references: American National Standards Institute/Illumination Engineering Society of North America (ANSI/IESNA) Standard RP-1-04 (Office Lighting) and ANSI/IESNA Standard RP-7-01 (Lighting Industrial Facilities).

A lighting survey was performed in all areas within the readiness center. The evaluation indicated that there are some illumination deficiencies in several offices and the kitchen. The illumination measurements indoors ranged from a low of 10.3 foot candles (fc) to a high of 97 fc. The complete results of the evaluation are presented in Appendix D, including whether the results met minimum requirements for illumination. Additional illumination can be achieved by replacing burned-out lamps, cleaning fixtures, relocating detailed work to more illuminated areas, using supplemental task lighting, and opening doors or windows to provide more natural lighting.

# Indoor Air Quality (IAQ)

Indoor air quality measurements (i.e., temperature, relative humidity, carbon dioxide and carbon monoxide) were taken using a TSI Q-Trak Plus Model 8554, factory calibrated in March 2010. Temperature, relative humidity and carbon dioxide (CO<sub>2</sub>) measurements were compared to the recommended levels established by the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE). Carbon monoxide (CO) concentrations were compared to the ACGIH Threshold Limit Value (TLV) for CO and the Environmental Protection Agency's (EPA's) National Ambient Air Quality Standard (NAAQS) for CO.

Industry guidelines or standards for seasonal temperature and humidity ranges for thermal comfort are established by ASHRAE standard 55-2004. These ranges are presented in Table 3. The U.S. EPA also recommends maintaining relative humidity below 60% and ideally between 30 and 50% to prevent mold growth. Complete results are provided in Appendix G with the lighting survey measurements.

| Relative Humidity in Summer and Wintera |                 |                 |  |  |  |  |  |  |  |  |
|---|-----------------|-----------------|--|--|--|--|--|--|--|--|
| Relative                                | Winter          | Summer          |  |  |  |  |  |  |  |  |
| Humidity                                | Temperature     | Temperature     |  |  |  |  |  |  |  |  |
| 30%                                     | 68.5°F – 76.0°F | 74.0°F – 80°F   |  |  |  |  |  |  |  |  |
| 40%                                     | 68.5°F – 75.5°F | 73.5°F – 79.5°F |  |  |  |  |  |  |  |  |
| 50%                                     | 68.5°F – 74.5°F | 73.0°F – 79.0°F |  |  |  |  |  |  |  |  |
| 60%                                     | 68.0°F – 74.0°F | 72.5°F – 78.0°F |  |  |  |  |  |  |  |  |

# Table 3 - Acceptable Ranges of Temperature and Relative Humidity in Summer and Winter<sup>a</sup>

<sup>a</sup>adapted from ASHRAE Standard 55-2004

# Temperature and Relative Humidity

Indoor temperature and relative humidity (Rh) measurements in the facility ranged from 74.7 to 79.5° F and 62.4 to 88.5% Rh. Outdoor temperature and humidity measurements were 77.0° F and 80.4% on the day of monitoring. Temperatures and relative humidity measurements were outside the acceptable range in most of the facility. These results are not unexpected due to outdoor conditions on the day of the survey and the lack of air conditioning in most of the facility. Those areas with window air conditioning units were within acceptable ranges.

# Carbon Dioxide (CO<sub>2</sub>) and Carbon Monoxide (CO)

Carbon dioxide and carbon monoxide measurements are used to assess ventilation system performance. The exhaled breath of building occupants is the main indoor source of carbon dioxide; therefore, the build up of  $CO_2$  indicates inadequate ventilation. The concentration of concern for carbon dioxide is set by ASHRAE standard 62.1 - 2007 as 700 ppm above outdoor concentrations. Indoor levels of  $CO_2$  ranged from 303 to 436 parts per million (ppm) and outdoor  $CO_2$  levels were approximately 310 ppm during the monitored period.  $CO_2$  measurements were below the guideline in all areas, indicating adequate fresh air exchange.

Carbon monoxide is a byproduct of incomplete combustion. Indoor concentrations indicate contamination caused by improperly vented or malfunctioning boilers, furnaces or stoves or from vehicle exhaust entering the building from garages, loading docks, nearby roads or parking lots. The concentration of interest set by ASHRAE standard 62.1-2007 and the National Ambient Air Quality Standards (NAAQS) for carbon monoxide is an 8 hour average of 9 ppm. The ACGIH TLV for CO is 25 ppm. Indoor levels of CO ranged from 0 to 0.7 ppm; therefore, concentrations are below occupational exposure limits, ASHRAE and the NAAQS-recommended CO concentrations.

# 7 Conclusions

The results of the evaluation indicated no concerns with the following at the facility: contamination of clean air sources, peeling potentially lead-based paints, noise hazards, indoor air quality, visible mold, and housekeeping. The results of the evaluation indicated industrial hygiene concerns in the following areas: contamination of lead dust, water intrusion, lighting and the presence of damaged suspect asbestos-containing materials. Overall, Fall River Readiness Center has few industrial hygiene issues, and programs are in place to protect, inform and train employees.

# 8 Limitations

This report has been prepared for the exclusive use of the U.S. Army National Guard (USARNG) and/or their agents. This service has been performed in accordance with generally accepted industrial hygiene and environmental practices. No other warranty, expressed or implied, is made. Our conclusions and recommendations are based, in part, upon information provided to us by others and our site observations. We have not verified the completeness or accuracy of the information provided to us by others, unless otherwise noted. Our observations and recommendations readily visible at the site at the time of our site visit, and upon current industry standards.

By virtue of providing the services described in this report, the preparer does not assume the responsibility of the person(s) in charge of the site, or otherwise undertake responsibility for reporting to any local, state, or federal public agencies any conditions at the site that my present a potential danger to public health, safety, or the environment. It is the Client's responsibility to notify the appropriate local, state, or federal public agencies as required by law, or otherwise to disclose, in a timely manner, any information that may be necessary to prevent any danger to public health, safety, or the environment. Under this scope of services, the preparer assumes no responsibility regarding response actions initiated as a result of these findings. Response actions are the sole responsibility of the Client and should be conducted in accordance with local, state, and/or federal requirements, and should be performed by appropriately licensed personnel as warranted.

# 9 References

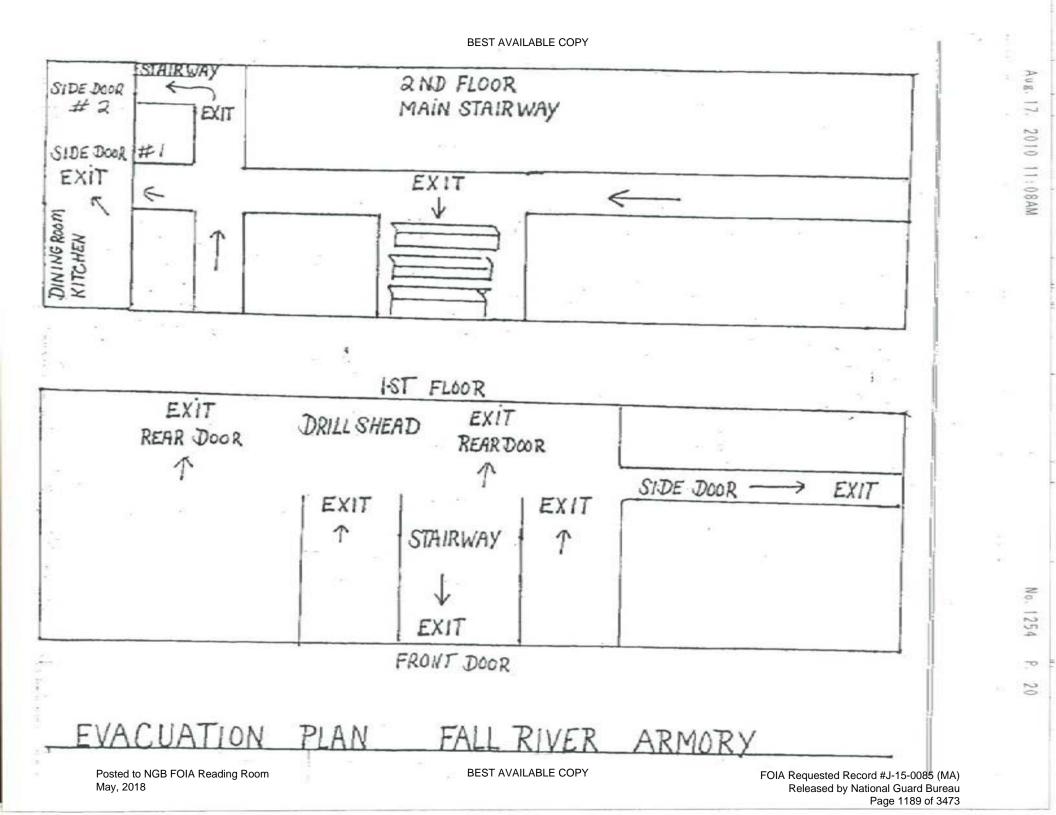
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# Industrial Hygiene Survey Report Massachusetts Army National Guard (MA ARNG) Fall River Readiness Center

- 11. The American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE), Standard 62.1-2007, "Ventilation for Acceptable Indoor Air Quality" and Standard 55-2004, "Thermal Environmental Conditions for Human Occupancy".
- 12. NIOSH website: <a href="http://www.cdc.gov/niosh/">http://www.cdc.gov/niosh/</a>
- 13. OSHA website: <u>http://www.osha.gov/</u>.
- 14. Army CHPPM website: http://chppm-www.apgea.army.mil/.
- 15. EPA website: <u>http://www.epa.gov</u>.

Appendix A Building Layout



Appendix B Certificates of Analysis for Dust Wipe and Bulk Samples

# AMA Analytical Services, Inc.

A Specialized Environmental Laboratory

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# CERTIFICATE OF ANALYSIS



| Client:    | National Guard Bureau  | Job Name:     | Fall River Readiness Center | Chain Of Custody:  | 508591         |             |
|------------|--|---------------|-----------------------------|--------------------|----------------|-------------|
| Address:   | 301-IH Old Bay Lane, Attn: NGB-AVN-SI,<br>State Military Reservation | Job Location: | Fall River, MA              | Date Analyzed:     | 8/25/2010      |             |
|            | Havre de Grace, Maryland 21078                                       | Job Number:   | Not Provided                | Person Submitting: | Non-Responsive |             |
|            |  | P.O. Number:  | W912K6-09-0003              |                    |                |             |
| Attention: | Non-Responsive   |               |                             |                    |                | Page 1 of 1 |

# Summary of Polarized Light Microscopy

| AMA Sample<br>Number | Client<br>Sample # | Total<br>Asbestos | Chrysotile<br>Percent | Amosite<br>Percent | Crocidolite<br>Percent | Asbestos | Mineral<br>Wool<br>Percent | Percent | Sector Contractor Contractor | Synthetic<br>Percent |         | Sample<br>Color | Homogeneity | Analyst<br>ID | Comments |
|----------------------|--------------------|-------------------|-----------------------|--------------------|------------------------|----------|----------------------------|---------|------------------------------|----------------------|---------|-----------------|-------------|---------------|----------|
| 1071935              | FAL-ASB-01         | NAD               |                       |                    |                        |          |                            |         | TR                           |                      | <br>100 | Multi           | Homogeneous | SW            |          |
| 1071936              | FAL-ASB-02         | 50                | 50                    |                    |                        |          |                            |         | 20                           |                      | <br>30  | Multi           | Homogeneous | SW            |          |
|                      | FAL-ASB-03         | NAD               | **                    |                    | (1 <b>9</b> 17) (      | .55      |                            |         | TR                           |                      | <br>100 | Brown           | Homogeneous | SW            |          |

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

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

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

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

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

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





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

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| FAL-PB-15<br>PAL-PB-16<br>FAL-PB-17<br>FAL-PB-F<br>FAL-AB-19<br>FAL-ASB-01                |  |                 |  |                     | X                    |                |             | -         | *        |          |          |                            |  |                                    |                   |
| FAL-B3-15<br>PAL-B3-16<br>FAL-B3-17<br>FAL-B3-17<br>FAL-B3-19<br>FAL-ASB-01<br>FAL-ASB-01 |  |                 |  |                     | *                    |                |             |           | *        |          |          |                            |  | -                                  |                   |
| FAL-B3-15<br>PAL-B3-16<br>FAL-B3-17<br>FAL-B3-17<br>FAL-B3-19<br>FAL-ASB-01<br>FAL-ASB-01 |  |                 |  |                     | *                    |                |             |           |          |          |          |                            |  |                                    | siv               |

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#### A Specialized Environmental Laboratory

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#### Summary of Atomic Absorption Analysis for Lead

Page 1 of 2

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| AMA Sample<br>Number | Client Sample<br>Number | Analysis Type | Sample Type | Air Volume<br>(L) | Area Wiped<br>(ft²) | Reporting<br>Limit |        | Total ug | Final Res | ult                | Comments |
|----------------------|-------------------------|---------------|-------------|-------------------|---------------------|--------------------|--------|----------|-----------|--------------------|----------|
| 1071916              | FAL-PB-01               | Flame         | Wipe        | ****              | 0.108               | 110                | ug/ft² | <12      | <110      | ug/ft²             |          |
| 1071917              | FAL-PB-02               | Flame         | Wipe        | ****              | 0.108               | 110                | ug/ft² | <12      | <110      | ug/ft²             |          |
| 1071918              | FAL-PB-03               | Flame         | Wipe        | ****              | 0.108               | 110                | ug/ft² | <12      | <110      | ug/ft²             |          |
| 1071919              | FAL-PB-04               | Flame         | Wipe        | ****              | 0.108               | 110                | ug/ft² | <12      | <110      | ug/ft²             |          |
| 1071920              | FAL-PB-05               | Flame         | Wipe        | ****              | 0.108               | 110                | ug/ft² | <12      | <110      | ug/ft²             |          |
| 1071921              | FAL-PB-06               | Flame         | Wipe        | ****              | 0.108               | 110                | ug/ft² | 2600     | 25000     | ug/ft²             |          |
| 1071922              | FAL-PB-07               | Flame         | Wipe        | ****              | 0.108               | 110                | ug/ft² | 90       | 840       | ug/ft²             |          |
| 1071923              | FAL-PB-08               | Flame         | Wipe        | ****              | 0.108               | 110                | ug/ft² | <12      | <110      | ug/fl <sup>2</sup> |          |
| 1071924              | FAL-PB-09               | Flame         | Wipe        | ****              | 0.108               | 110                | ug/ft² | <12      | <110      | ug/ft²             |          |
| 1071925              | FAL-PB-10               | Flame         | Wipe        | ****              | 0.108               | 110                | ug/ft² | 53       | 490       | ug/ft²             |          |
| 1071926              | FAL-PB-11               | Flame         | Wipe        | ****              | 0.108               | 110                | ug/fl² | <12      | <110      | ug/ft²             |          |
| 1071927              | FAL-PB-12               | Flame         | Wipe        | ****              | 0.108               | 110                | ug/ft² | <12      | <110      | ug/ft²             |          |
| 1071928              | FAL-PB-13               | Flame         | Wipe        | ****              | 0.108               | 110                | ug/fl² | <12      | <110      | ug/ft²             |          |
| 1071929              | FAL-PB-14               | Flame         | Wipe        | ****              | 0.108               | 110                | ug/ft² | <12      | <110      | ug/fl²             |          |
| 1071930              | FAL-PB-15               | Flame         | Wipe        | ****              | 0.108               | 110                | ug/ft² | <12      | <110      | ug/ft²             |          |
| 1071931              | FAL-PB-16               | Flame         | Wipe        | ****              | 0.108               | 110                | ug/ft² | <12      | <110      | ug/ft²             |          |
| 1071932              | FAL-PB-17               | Flame         | Wipc        | ****              | 0.108               | 110                | ug/ft² | <12      | <110      | ug/ft²             |          |
| 1071933              | FAL-PB-18               | Flame         | Wipe        | ****              | 0.108               | 110                | ug/ft² | <12      | <110      | ug/ft²             |          |
| 1071934              | FAL-PB-19               | Flame         | Wipe        | ****              | 0.108               | 110                | ug/ft² | <12      | <110      | ug/ft²             |          |

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

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|            |  | Summary of    | Atomic Absorption A         | nalysis for Lead   |             |              | Page 2 of 2    |
|------------|--|---------------|-----------------------------|--------------------|-------------|--------------|----------------|
| Attention: | Non-Responsive   |               |                             |                    |             |              |                |
|            |  | P.O. Number:  | W912K6-09-0003              | Date Analyzed:     | 8/25/2010   | Report Date: | 8/26/2010      |
|            | Havre de Grace, Maryland 21078                                       | Job Number:   | Not Provided                | Person Submitting: | Non-Respons | stve         |                |
| Address:   | 301-IH Old Bay Lane, Attn: NGB-AVN-SI,<br>State Military Reservation | Job Location: | Fall River, MA              | Date Submitted:    | 8/19/2010   |              | 10920          |
| Client:    | National Guard Bureau  | Job Name:     | Fall River Readiness Center | Chain Of Custody:  | 508591      | N            | <b>NY ELAP</b> |

AIHA LAP. LLC

ACCREDITED LABORATOR NOUSTRIAL HYGIENE, ENVIRONMENTAL LEAD **& ENVIRONMENTAL MICROBIOLOGY** ISOIEC 17025-2005

| AMA Sample<br>Number   | Client Sample<br>Number   | Analysis Type  | Sample Type   | Air Volume<br>(L)                                       | Area Wiped<br>(ft <sup>2</sup> )         | Reporting<br>Limit | Total ug                                 | Final Result  | Comments  |
|--|---|--|---|---|--|--------------------|--|---|---|
| Analysis Method F<br>N/A = Not Applicat<br>%Pb = percent lear<br>Note: All samples of<br>Note: All results has<br>should not be cons | d on a dry weight bas<br>vere received in good<br>ve two significant dig<br>idered when interpret | es, Paints, and So<br>ts per million (ppm<br>is ug = microg<br>I condition unless<br>its. Any additiona<br>ing the result. | il/Solids : EPA 6<br>a) on a dry weight<br>arams ug/L<br>otherwise noted.<br>I digits shown | 00/R-93/200(M)-7<br>basis mg/L = p<br>parts per billion | 421; Water: SM-3<br>parts per million (p | 3113B associa      | ated with these sa<br>AP accreditation a | nalytical results of qualit<br>ampes.<br>applies only to paint chip | •   |
| Air and Wipe result  | s are not corrected for   | or any blank result  | S   |   | T TOT                                    | Responsi           | V C                                      |   | and the second |
|  | and wipe samples ar<br>n nor verified by this   |  |   |   |  |                    |  |   |   |
|  | considered preliminated by the Technical  |  |   |   | Analyst:                                 |                    | Te                                       | chnical Manager:  |   |

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

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May, 2018

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| Day Hours       Disk Day       Starty array full Bas       Disk Day       Starty Attage Y Will Bas       Disk Day       Starty Attage Y Will Bas       Disk Day       Attage Y Utica   |                                    |   |                     |                        |              |                    | E                    | BEST /            | AVAIL        | ABL        | E COP     | C           |           |              |            |   |         |  |  |  |
|--|------------------------------------|---|---------------------|------------------------|--------------|--------------------|----------------------|-------------------|--------------|------------|-----------|-------------|-----------|--------------|------------|---|---------|--|--|--|
| Client Name _ Mattical Guard Bureau     1. Job Name _ FALL _ TLUCRE _ PEND NES _ CAPEX     Address 1 _ Marking and Guard Bureau     1. Job Name _ FALL _ TLUCRE _ PEND NES _ CAPEX     Address 2 _ Mark NGBANNS, State Marking 2 _ Job Participation     Address 3 _ Marking and Guard Bureau     1. Job Name _ FALL _ TLUCRE _ PEND NES _ CAPEX     NAME     Address 3 _ Marking and Guard Bureau     1. Job Name _ FALL _ TLUCRE _ PEND NES _ CAPEX     NAME     NAME _ TLUCRE _ PEND NES _ CAPEX     NAME     NAME _ TLUCRE _ PEND NES _ CAPEX     NAME     NAME _ TLUCRE _ PEND NES _ CAPEX     NAME     NAME _ TLUCRE _ PEND NES _ CAPEX     NAME     NAME _ TLUCRE _ PEND NES _ CAPEX     NAME     NAME _ TLUCRE _ PEND NES _ CAPEX     NAME     NAME _ TLUCRE _ PEND NES _ CAPEX     NAME     NAME _ TLUCRE _ PEND NES _ CAPEX     NAME     NAME _ TLUCRE _ PEND NES _ CAPEX     NAME     NAME _ TLUCRE _ PEND NES _ CAPEX     NAME     NAME _ TLUCRE _ PEND NES _ CAPEX     NAME _ TLUCRE _ |                                    |   |                     |                        |              |                    |                      |                   | OWN (4       | 10) 247    | -2024     |             |           |              |            |   |         | 이 전자의 적장 감독 문                              |  |  |
| Client Name _ Mattical Guard Bureau     1. Job Name _ FALL _ TLUCRE _ PEND NES _ CAPEX     Address 1 _ Marking and Guard Bureau     1. Job Name _ FALL _ TLUCRE _ PEND NES _ CAPEX     Address 2 _ Mark NGBANNS, State Marking 2 _ Job Participation     Address 3 _ Marking and Guard Bureau     1. Job Name _ FALL _ TLUCRE _ PEND NES _ CAPEX     NAME     Address 3 _ Marking and Guard Bureau     1. Job Name _ FALL _ TLUCRE _ PEND NES _ CAPEX     NAME     NAME _ TLUCRE _ PEND NES _ CAPEX     NAME     NAME _ TLUCRE _ PEND NES _ CAPEX     NAME     NAME _ TLUCRE _ PEND NES _ CAPEX     NAME     NAME _ TLUCRE _ PEND NES _ CAPEX     NAME     NAME _ TLUCRE _ PEND NES _ CAPEX     NAME     NAME _ TLUCRE _ PEND NES _ CAPEX     NAME     NAME _ TLUCRE _ PEND NES _ CAPEX     NAME     NAME _ TLUCRE _ PEND NES _ CAPEX     NAME     NAME _ TLUCRE _ PEND NES _ CAPEX     NAME     NAME _ TLUCRE _ PEND NES _ CAPEX     NAME     NAME _ TLUCRE _ PEND NES _ CAPEX     NAME _ TLUCRE _ | AIHA (#100470)<br>4475 Forbes Blve | ilts www.amalab.<br>NVLAP (#101143-0)<br>d. • Lanham, MD 2070 | .com<br>NY EL<br>06 |                        | 0)           | C                  | HA                   | IN                | 0            | F (        | CUS       | STO         | DI        | DY           |            |   |         | lease Refer To This<br>unber For Inquires) | 50                                     | 8591                                   |
| Address :       201:1F(2):E8V Lans       2. 1ob / action:       PAL:       VOIDER:       PO #: W2/26.004-0003         Address :       Have a Grace. Manyland. 21078       4. Cause: Person       Po #: W2/26.004-0003       Point #: W2/26.004-0003         Address :       Have a Grace. Manyland. 21078       4. Cause: Person       Non-Responsive         Address :       Address :       Address :       Address :       Watch Reporting Information (Results will be provided evenue sectormany) resources         ATER MOUS (such benededide)       Inmodula:       Distant Distant Benededide)       Distant Distant Benededide)       Baselia Radio Responsive (CTY)         Date Date:       Distant Distant Benededide)       Distant Distant Benededide)       Distant Distant Benededide)       Baselia Radio Responsive (CTY)       Distant Distant Benededide)         Distant Advertises Indicate Filter Type:       Distant Presson Filter Type:  | Mailing/Billing Inform             | nation:   |                     |                        |              |                    |                      |                   |              |            |           | tion:       |           |              |            |   | 0       |  |  | 2002                                   |
| Address :       201:1F(2):E8V Lans       2. 1ob / action:       PAL:       VOIDER:       PO #: W2/26.004-0003         Address :       Have a Grace. Manyland. 21078       4. Cause: Person       Po #: W2/26.004-0003       Point #: W2/26.004-0003         Address :       Have a Grace. Manyland. 21078       4. Cause: Person       Non-Responsive         Address :       Address :       Address :       Address :       Watch Reporting Information (Results will be provided evenue sectormany) resources         ATER MOUS (such benededide)       Inmodula:       Distant Distant Benededide)       Distant Distant Benededide)       Baselia Radio Responsive (CTY)         Date Date:       Distant Distant Benededide)       Distant Distant Benededide)       Distant Distant Benededide)       Baselia Radio Responsive (CTY)       Distant Distant Benededide)         Distant Advertises Indicate Filter Type:       Distant Presson Filter Type:  |                                    |   |                     |                        |              |                    |                      |                   |              |            |           | PAI         | LL_       | R            | ive        | que.                                    | KE      | ADINESS                                    | Coner                                  |  |
| Address 3:       Hare do Grace. Maryland 21078       4. Counce (Person Non-Responsive)         Phone #: [410) 942-0273       Yest #: [410) 942-0274       5. Subnitted State Provided Person According (State)         Arres Hoults (read to pre-scheded)       NORAL Parts Revolution       NORAL Parts Revolution       0. Best Base (State)         Januard Base (State)       Immediate       Display       Display (State)       0. Best Base (State)       0. Best Base (State)         Januard Base (State)       Immediate       Display (State)       Display (State)       0. Best Base   | and a second state prime state of  |   |                     |                        |              |                    | 1011                 |                   |              |            |           | FF          | ALL       | -            | 2101       | <u>en_</u>                              | , N     | AVL  |  |  |
| Reporting information (Results will be provided mean recommenty resultor):         NORMAL DUSINGS: MOURDER<br>Jamodiate Date Date:   |                                    |   |                     |                        |              |                    |                      |                   |              |            |           |             |           |              |            |   | _P.O    | #:W912K6-09-A                              | -0003 Non-Respo                        | nsive                                  |
| Reporting information (Results will be provided mean recommenty resultor):         NORMAL DUSINGS: MOURDER<br>Jamodiate Date Date:   | 4. Address 3: Hav                  | re de Grace, Maryla   | nd 21               | U/8                    | 042.0        | DEA                |                      |                   | 4. U<br>5. R | ontact     | Person    |             |           | 1-1          | R          |   | :0      | onsive                                     | 9                                      |  |
| APRE NOURS (mult be pre-scheduled)       NORMAL DUSINESS NOURS       REDUCT TO:         Damodate Det::::::::::::::::::::::::::::::::::   | 5. Phone #: 14101 5                | +2-02/3   | Pax                 | #: <u>(410</u><br>Reno | rting Ir     | forms              | tion (               | Rogulte           | J. al        | Jongu      | vided     |             |           |              |            |   |         |  |  |  |
| Jinmediate       Date Des:   | AFTER HOURS (m)                    | ust be pre-scheduled)   |                     | керс                   | tting n      | погша              |                      |                   |              |            |           | 3 3001      | 43 0      | cean         | l          | casibi                                  | e/.     | REPO                                       | RT TO:                                 |  |
| 228 Hours       Time Due:  |                                    | 이 가장 집안 집안 집 집에 집에 가지 않는 것 같아요. 이 것                           |                     |                        |              |                    | 3 Day                |                   |              |            | D Per     | its Rea     | nuined    | By No        | ion l      |   |         | on-Responsiv                               | th Report                              |  |
| Seleto Analysis         Immediate  |                                    | · <u> </u>  |                     |                        |              | 2                  | Day                  | 61:               | 21.          | In         | (Eve      | yAtten      | upt V     | Vill Be      |            | 100000000000000000000000000000000000000 |         |  | ARLAER                                 | JIRO, CUM                              |
| CAMALE - Pleas Indicate Filter Type:       UNIOR 1 Ava0  | Comments:                          |   | _                   |                        |              | Da                 | te Due               | 40                | ~~           | μC         | - Mac     | 610 AC      | como      | odate)       |            |   |         |  |  |  |
| CAMALE - Pleas Indicate Filter Type:       UNIOR 1 Ava0  | Ashestos Analysis                  |   |                     |                        | TEM B        | hulk               |                      |                   |              |            |           |             |           | 1            | Metals     | Anely                                   | sis     |  |  | ······································ |
| Clipholitiks       Clipholitiks       Clipholitiks       Clipholitiks       Clipholitiks         Clipholitiks       Clipholitiks       Clipholitiks       Clipholitiks       Clipholitiks       Clipholitiks         Clipholitiks   |                                    |   |                     |                        | u            | ELAP               | 98,4/C               | hatfield          |              |            | _(QTY)    |             |           |              | 0          | Ph Pai                                  | nt Chi  | 0(QTY)                                     | 10                                     | 2011                                   |
| EMAIL: Please Indicate Filter Type:       Textures Product State Sta                                   | G Fiberglass                       | (OTY)   |                     |                        | 0            | NY Sta             | e PLM                | TEM_              |              | OTV.       | (QTY)     |             |           |              | <u> </u>   | PhAir                                   |         | (OTY)                                      | _)                                     | (QTY)                                  |
| On NOSH 7402   | TEM Air - Please Indicate          | Filter Type:  |                     |                        |              |                    | a Asa                |                   | '            | Q11)       |           |             |           |              | <u>_</u>   | Pb Soi                                  | VSolid  | (QTY)                                      |  |  |
| □ Other (specify)(QTY)       □ Other (spe  |                                    |   |                     |                        | U U          | Qual. (            | ores/ab              | ) Vacuu           | m/Dus        | t          |           | (QTY)       | )         |              | - 8        | Pb TC                                   | LP_     | (QTY)                                      | 0.000                                  | - A. (1979)                            |
| Image: Sector 1  |                                    | )   | _(QTY               | )                      | ä            | Quan. (<br>Ouan. ( | s/area)]<br>s/area)] | Vacuum<br>Dust D6 | 480-99       | o-90       |           | (OTY)       | 1 Y }     |              | <u> </u>   | Waste                                   | Water   | QTY) QC                                    | u(QTY) .                               | As(OTY)                                |
| CHEPA Point Countar(QTY)       Clock (preschas)       C(TY)       Collection Apparatus for Spore Trap./Air Samples:(QTY)         D NY State Frishle 198.1       (QTY)       Collection Media       Collection Media       Collection Media         O thank reduction ELAP 198.2 EXPA 100.2       (QTY)       Collection Media       Collection Media       (QTY)         O thank reduction ELAP 198.6       (QTY)       Collection Media       (QTY)       Surface Vacuum Dust(QTY)         I Abestos Sol RNL_(Qust) PLATEM       (Qust) (preschas)       (QTY)       Collection Media       (QTY)         Collection Media       (QTY)       Surface Spore Trap./QTY)       Collection Media       (QTY)         Collection Media       (QTY)       Surface Spore Trap(QTY)       Collection Media       (QTY)         Collection Media       (QTY)       Surface Spore Trap(QTY)       Collection Media       (QTY)         Collection Media       (QTY)       Collection Media       (QTY)       Collection Media       (QTY)         Collection Media       (QTY)       Surface Spore Trap(QTY)       Collection Media       (QTY)       Collection Media       (QTY)         Mather Internation       (Qust) PMEM_(Qust) PMEM_(Qust) PMEM_(Qust) PMEM_(Qust) PMEM_(Qust)       (QTY)       Collection Media       (QTY)       (Qust) PMEM_(Qust) PMEM_(   | EPA 600 - Visual F                 | stimate 3   | OTY                 |                        | TEM V        | Vater              |                      |                   |              |            |           |             |           |              | u          | Pb Fu                                   | nace (  | Media)_                                    | (Q1                                    | (Y)                                    |
| Class Field       Collection ELAP 198.6       (QTY)         Collection ELAP 198.6       (QTY)       Collection ELAP 198.6       (QTY)         Collection ELAP 198.6       (QTY)       Collection ELAP 198.6       (QTY)         Collection ELAP 198.6       (QTY)       Collection ELAP 198.6       (QTY)       Surface Vacuum Dust       (QTY)         Collection ELAP 198.6       (QTY)       Collection ELAP 198.6       (QTY)       Collection Media       (QTY)         Collection ELAP 198.6       (QTY)       Collection ELAP 198.6       (QTY)       Collection Media       (QTY)         Collection ELAP 198.6       (QTY)       Collection ELAP 198.6       (QTY)       Collection Media       (QTY)         Collection ELAP 198.6       (QTY)       Collection Media       (QTY)       Collection Media       (QTY)         Collection ELAP 198.6       (QTY)       Collection Media       (QTY)       Collection Media       (QTY)         Collection ELAP 198.6       (QTY)       Surface Stable 10 6688 (Media       (QTY)       Collection Media       (QTY)         Collection ELAP 198.6       (QTY)       Surface Stable 10 6688 (Media       (QTY)       Collection Media       (QTY)         Collection ELAP 198.6       (QTY)       Numbel 10 6688 (Media       (QTY)       Collection M  | EPA Point Count                    | (OTY)   |                     |                        |              |                    |                      |                   |              |            |           |             |           |              |            |   |         | maratus for Spore Trans                    | /Ait Samples:                          |  |
| □ Other (specify)  | Gray, Reduction EL                 | AP 198.6(Q11  | (OTY)               |                        |              |                    |                      |                   |              |            | _ (Q11    | ,           |           |              | -          | Collec                                  | tion M  | edia                                       |  |  |
| Instruction       ITEM Water samples   | Other (specify                     |   |                     | )                      | 12           | All sam            | ples re-             | eived in          | n good       | conditi    | ion unles | s otherw    | wiser     | noted.       |            | Spore-                                  | Trap_   |  | inface Vacuum Du                       | st(QTY)                                |
| SAMPLE INFORMATION       VOLUME       WIPE       ANALYSIS       MATKIX       CLIENT CONTACT         NUMBER       SAMPLE LOCATION       DATE OUTRESS       AREA       2       3       3       3       4   |                                    |   |                     |                        |              |                    |                      |                   |              |            |           | 00004494383 | -96363437 | 0.62517115-2 |            | Surfac                                  | e Tape  | (QTY) DCu                                  | Iturable ID Species (M                 | edia(Q1                                |
| CLERNT ID       SAMPLE LOCATION       VOLUME       WIPE       2       2       3       2       3       2       4  | Asbestos Soil PLM                  | .(Quat) PLM_(Quan) PLM/TEL                                    | M_(Q.al)            | PLM/TEM                | Quan)        |                    |                      |                   |              |            |           |             |           |              | 0          | Other (S                                | parify_ | )(QTY)                                     |  |  |
| Querter     Strike     X     X       Au-R3 - 02     Date/Time:     Contact:     By:       Au-R3 - 02     Date/Time:     Contact:     By:       Au-R3 - 04     Date/Time:     Contact:     By:       Au-R3 - 05     Date/Time:     Contact:     By:       Au-R3 - 07     Date/Time:     Contact:     By:       Au-R3 - 1/     Date/Time:     Contact:     By:       Au-R3 - 1/     By:     By:     Date/Time:     Contact:       By:     By:     Date/Time:     Contact:     By:   |                                    |   |                     | NOLTR                  | P 11/11      | e 1                | - 1                  |                   | YSIS         | 15         | 91        | 1 4         |           | MATR         | X Ha       | 1 44                                    | 1 2     | / CL                                       | IENT CONTACT                           | e.                                     |
| AL-R3-02       AL-R3-02       AL-R3-02       AL-R3-02         AL-R3-02       AL-R3-02       AL-R3-02       AL-R3-02         AL-R3-03       AL-R3-02       AL-R3-02       AL-R3-02         AL-R3-04       AL-R3-02       AL-R3-02       AL-R3-02         AL-R3-03       AL-R3-02       AL-R3-02       AL-R3-02         AL-R3-04       AL-R3-02       AL-R3-02       AL-R3-02         AL-R3-01       AL-R3-03       AL-R3-03       AL-R3-03         AL-R3-01       AL-R3-04       AL-R3-04       AL-R3-04         AL-R3-01       AL-R3-01       AL-R3-04       AL-R3-04         AL-R3-01       AL-R3-01       AL-R3-04       AL-R3-04         AL-R3-01       AL-R3-01       AL-R3-04       AL-R3-04         AL-R3-11       AL-R3-11       AL-R3-11       AL-R3-11         AL-R3-12       AL-R3-12       AL-R3-12       AL-R3-12         AL-R3-12       AL-R3-12       AL-R3-12 <td></td> <td>IDENTIFICATION</td> <td>DAT</td> <td>E ALTERS</td> <td>ARE</td> <td>A /</td> <td>ē.</td> <td></td> <td>1/3</td> <td>18</td> <td>15</td> <td>BUI</td> <td>DC</td> <td>1</td> <td><b>B</b>E</td> <td>12</td> <td>1 B</td> <td>(LABOR</td> <td>ATORY STAFF C</td> <td>ONLY)</td>   |                                    | IDENTIFICATION  | DAT                 | E ALTERS               | ARE          | A /                | ē.                   |                   | 1/3          | 18         | 15        | BUI         | DC        | 1            | <b>B</b> E | 12                                      | 1 B     | (LABOR                                     | ATORY STAFF C                          | ONLY)                                  |
| AL-PB-02       Date/Time: Contact: By:         AL-AB-04       Date/Time: Contact: By:         AL-AB-04       Date/Time: Contact: By:         AL-PB-04       Date/Time: Contact: By:         AL-PB-05       Date/Time: Contact: By:         AL-PB-11       Date/Time: Contact: By:         CAL-PB-11       Date/Time: Contact: By:         AL-PB-12       Date/Time: Contact: By:         AL-PB-11       Date/Time: Contact: By:         CALORATORY       1. Date/Time Analyzed: /// @ By (Print):         LABORATORY       1. Date/Time Analyzed: // @ By (Print):  | AL-98-01                           |   | 217/1               | 0                      | DXK          | 44                 |                      |                   | 17           | -          |           | 1           | ×         |              |            |   |         | Date/Time:                                 | Contact:                               | By:                                    |
| Au-A3-64       Date/Time: Contact: By:         Au-A3-65       Date/Time: Contact: Contact: Contact: By:         Au-A3-65       Date/Time: Contact: Conta   | FAL-P3-02                          |   |                     |                        | r            |                    |                      |                   | 1            |            |           |             | 1         |              |            |   |         |  |  |  |
| FAL-AB ~ 65       Date/Time; Contact: By:         FAL-AB ~ 07       FAL-PB ~ 07         FAL-PB ~ 10       FAL-PB ~ 10         FAL-PB ~ 10       FAL ~ 10         FAL ~ 10       FAL ~ 1   | FAL-PB-03                          |   |                     |                        |              |                    |                      |                   |              |            |           |             |           |              |            |   | 12      |  |  |  |
| A(B-o)c       A(B-o)c         A(B-o)c       A(B-o)c         A(B-o)c       Date/Time:         Contact:       By:         A(B-o)c       By:         B(B-o)c       B(B-o)c         B(B-o)c       B(B-o)c         B(B-o)c       B(B-o)c <td>FAL-A3-UH</td> <td></td> <td></td> <td></td> <td><math>\square</math></td> <td>-</td> <td>_</td> <td></td> <td>11</td> <td></td>   | FAL-A3-UH                          |   |                     |                        | $\square$    | -                  | _                    |                   | 11           |            |           |             |           |              |            |   |         |  |  |  |
| Pac P3 - 07       Date/Time       Contact:       By:         Pac - 03 - 07       Date/Time:       Contact:       By:         Pac - 03 - 07       Date/Time:       Contact:       By:         Pac - 03 - 10       Date/Time RCVD:       Date/Time RCVD:       Date/Time RCVD:         I. Date/Time RCVD:       Date/Time RCVD:       Date/Time RCVD:       Date/Time RCVD:         I. Date/Time RCVD:       Date/Time RCVD:       Date/Time RCVD:       Date/Time RCVD:         I. Date/Time RCVD:       Date/Time RCVD:       Date/Time RCVD:       Date/Time RCVD:         I. Date/Time RCVD:       Date/Time RCVD:       Date/Time RCVD:       Date/Time RCVD:         I. Date/Time RCVD:       Date/Time RCVD:       Date/Time RCVD:       Date/Time RCVD:         I. Date/Time Analyzed:       Date/Time RCVD:       Date/Time RCVD:       Date/Time RCVD:         I. Date/Time Analyzed:       Date/Time RCVD:       Date/Time RCVD:       Date/Time RCVD:         I. Date/Time Analyzed:       Date/Time RCVD:       Date/Time RCVD:       Date/Time RCVD:   | FAL-93-65                          |   | $\square$           | _                      |              | _                  |                      |                   | 11           |            |           |             | $\perp$   |              | 200        | 1                                       |         | Date/Time;                                 | Contact:                               | By:                                    |
| Pac P3 - 07       Date/Time       Contact:       By:         Pac - 03 - 07       Date/Time:       Contact:       By:         Pac - 03 - 07       Date/Time:       Contact:       By:         Pac - 03 - 10       Date/Time RCVD:       Date/Time RCVD:       Date/Time RCVD:         I. Date/Time RCVD:       Date/Time RCVD:       Date/Time RCVD:       Date/Time RCVD:         I. Date/Time RCVD:       Date/Time RCVD:       Date/Time RCVD:       Date/Time RCVD:         I. Date/Time RCVD:       Date/Time RCVD:       Date/Time RCVD:       Date/Time RCVD:         I. Date/Time RCVD:       Date/Time RCVD:       Date/Time RCVD:       Date/Time RCVD:         I. Date/Time RCVD:       Date/Time RCVD:       Date/Time RCVD:       Date/Time RCVD:         I. Date/Time Analyzed:       Date/Time RCVD:       Date/Time RCVD:       Date/Time RCVD:         I. Date/Time Analyzed:       Date/Time RCVD:       Date/Time RCVD:       Date/Time RCVD:         I. Date/Time Analyzed:       Date/Time RCVD:       Date/Time RCVD:       Date/Time RCVD:   | FALTB-OB                           |   |                     |                        |              |                    |                      | -                 | 11           |            |           |             |           | <u> </u>     |            |   |         |  | ······································ |  |
| AL-P3 - 01       Date/Time:       Contact:       By:         FAL-P3 - 10       FAL-P3 - 11       FAL-P3 - 12       Non-Responsive         LABORATORY       1. Date/Time RCVD:       1.9       1.9       Image: Contact:       By:         LABORATORY       2. Date/Time Analyzed:       1       Image: Contact:       By:       Image: Contact:       By:         LABORATORY       1. Date/Time RCVD:       1.9       Image: Contact:       By:       Image: Contact:       By:  | FAL 83-07                          |   |                     |                        | $\downarrow$ |                    | _                    |                   | 11           | -          |           | _           | 1         |              | 225        |   |         |  |  |  |
| PL-P3 -10           PL-P3 -1/           PL-P3 -1/           LABORATORY           1. Date/Time RCVD:         1.9           1. Date/Time RCVD:         1.9           I. Date/Time RCVD:         1.9           I. Date/Time RCVD:         1.9           I. Date/Time RCVD:         1.9           I. Date/Time Analyzed:         9           I. Date/Time Analyzed:         9  |                                    |   | 11                  | _                      |              |                    | _                    |                   | 11-          | -          | -         | _           |           |              |            |   |         |  |  |  |
| LABORATORY 1. Date/Time RCVD: 8 / 19 / 10 @ By (Pr Non-Responsive<br>2. Date/Time Analyzed:@ By (Print):   | FAL-P3-09                          |   | 11_                 |                        | 11.          | _                  | _                    |                   | 41           | -          | 1.3       |             | 1         | 1.15         |            |   | 1.4.1   | Date/Time:                                 | Contact;                               | By:                                    |
| LABORATORY 1. Date/Time RCVD: 8 / 9 / 10 @ 020 Via: Cedex By (Pr Non-Responsive<br>2. Date/Time Analyzed:/ @ By (Print): Organ   | FAL-PO-10                          |   | 11                  | _                      | 11/          |                    |                      |                   | -16          | -          |           |             | 4         | -            |            |   |         |  |  | 1000                                   |
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| ay, 2018 4. Comments: Released by National Guard Bureau<br>Page 1196 of 347  | May, 2018                          | 4. Comments:  |                     |                        |              |                    |                      |                   |              |            |           |             |           |              |            |   |         | Relea                                      | ased by Nation                         | al Guard Bureau                        |

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| bestos Analysis   |  | L                          |               |               |                            |                |                  |                    |              |               |         | felals           |          | ***            |  | sustainty.mit  |            |
| MAir - Please Indicate Filter Ty  | pe:                                    |                            | TEM Bulk      |               | /Chatfield                 |                |                  | (OTY)              |              |               | r       | QI               | b Pair   | t Chi          | (QTY)  |  |            |
| U NIOSH 7400(Q  | (QTY)                                  |                            | <b>NY</b>     | State PI      | M/TEM_                     |                | (0               | TY)                |              |               |         | <u> </u>         | b Dus    | t Wip          | e (wipe type   | )  | (QTY)      |
| M Air - Please Indicate Filter Ty   | pe:                                    |                            | TEM Dust      | idual As      | h                          | (              | (YTY)            |                    |              |               |         | <b>U</b> I       | b Soil   | /Solid         | (QTY)<br>(QTY)   |  |            |
| Q AHERA(Q)<br>Q NIOSH 7402  | Y)<br>(OTY)                            |                            | L) Qua        |               | abs) Vacuu                 |                |                  |                    |              |               |         | 01               | 5 TCI    | P              | (QTY)  |  | 2 STEEL    |
| U Other (specify  |  | n                          |               |               | a) Vacuum<br>a)Dust D6     |                |                  |                    |              | Y)            |         |                  | Vaste V  | ng wa<br>Water | ler 🗆 Pb(QTY) 🗔 (<br>🗆 Pb(QTY) 🗆 Cu  |  | AS(QT)     |
| M Bulk<br>EPA 600 Visual Estimate_  | (OTY)                                  |                            | TEM Wate      | r             | 65060/10000A               |                |                  |                    | ,            |               | 1       | u I              | b Fur    | nave (         | Media)_  | (QTY   | )          |
| C EPA Point Count   | _(QTY)                                 |                            |               | l. (pres/     | abs) <u></u><br>/EPA 100.3 | 2              | (QTY)            | (OTV)              |              |               |         | ungal.           | Analy    | sis<br>on Ar   | paratus for Spore Traps/   | Air Samples:   |            |
| NY State Friable 198.1<br>Grav. Reduction ELAP 198.   | (QTY)<br>5(QTY)                        | )                          | O EPA         | 100.1         | CIA IW.                    | (QT            | Y)               | .(Q11)             |              |               |         | C                | ollect   | ion M          | edia   | ·  |            |
| Other (specify  | )(QT)                                  | Y)                         |               | samples       | received in                | good o         | ondition         | a unless o         | therw        | ise no        | oted.   |                  | pore-    | Trap_          | (QTY) Su<br>(QTY) Col  | rface Vacuum Dust,   |            |
| SC<br>U Vermiculite   |  |                            |               |               | mples                      |                |                  | -1919-9910-9910-99 |              | 2424294.00    |         | Qs               | urface   | Tape           | (OTY) Clock  | urable ID Species (Med   | ia         |
| CAsbestos Soil PLM_(Qual) PLM   |  | i) PLM/TEM_(Q              | (66)          |               | 10000                      |                |                  |                    |              |               |         | 00               | ther (Sp | erify_         | _)(QTY)  |  |            |
|   | E INFORMATION                          | VOLUME                     | WIPE          | 1             | ANAL                       | YSIS           | 12               | #                  | 31           | M             | ATRI    | × .              | LAPE     | 1 3            |  | ENT CONTACT  |            |
| NUMBER IDEN   | TIFICATION DA                          | TE alters                  |               |               | 8/2                        | 19             | 1 ×              | 131                | 21           | ă             | 148     | <u><u>G</u>E</u> | E        | 15             | and the second | ATORY STAFF ON   | LY)        |
| 42-08-13  | 8 17                                   | 10                         | KOF IDU       |               |                            | 1~             |                  |                    | +            | +             |         |                  |          | _              | Date/Time:   | Contact:   | By:        |
| AL-PB-14  |  | _                          | <u> </u>      |               |                            | ++             |                  |                    |              | ++            |         |                  |          |                |  |  |            |
| <u>AL-778-15</u>  |  |                            |               |               |                            | ++             |                  |                    | -            | +             |         |                  |          | - 8            |  |  |            |
| AL-B3.VC  | · · · · · · · · · · · · · · · · · · ·  |                            |               | +             |                            | ++             | $\left  \right $ |                    |              | +             |         | -+               | -        |                | D  |  |            |
| A2-P3-17  |  |                            |               |               |                            | ++             |                  | -                  | -            |               | 2       |                  |          |                | Date/Time:   | Contact:   | By:        |
| AL-P3-18<br>AL-203-19   | <del></del> +{                         |                            | 11            |               |                            | 1              |                  |                    | -            | И             |         | -                |          | _              |  | and the second sec |            |
| AL-ASB-01   |  | _                          |               | +             | ~                          | X              | -                | · · · · ·          | ×            | -             | -       | -+               | -        |                |  |  |            |
| AL - ASB-02-  |  | -                          |               |               | X                          | -              |                  | _                  | +            |               |         | +                | -        | -              | Date/Time:   | Contact:   | By:        |
| N-ASB-03  | 1                                      |                            | and the state |               | <u> </u>                   |                |                  |                    | +            | -             |         | <del></del> †    | -        |                | Loues Time.  | Contacti   | Dy.        |
|   | ¥                                      | 11                         | <sup>2</sup>  |               | - 14                       | 1              |                  |                    | 4            |               |         |                  |          |                | _  |  |            |
|   |  |                            |               |               |                            | 1              |                  |                    | +            | -             |         | -                |          |                |  | Ion-Re   | spon       |
|   |  |                            |               |               |                            | -              | 1                |                    |              |               |         |                  |          |                |  |  |            |
| ·   | Date/Time RCVD                         | /                          | _/_           | 0             | <u> </u>                   | /ia:           |                  |                    | Byn          | Print):       | 8       |                  |          |                |  |  |            |
| I A DODATYNDV   | Date/Time RCVD:<br>Date/Time Analyzed: | . /                        |               | 2010-10-865-0 | . <u>@</u> \               | in Griger      | Print):          | 1                  | _By ()       | Print):       |         |                  |          |                | Sign:  |  |            |

Appendix C Photo Documentation BEST AVAILABLE COPY

# Falls River RC



#### Drill Hall



Kitchen

Front Entry



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FOIA Requested Record #J-15-0085 (MA) Released by National Guard Bureau Page 1199 of 3473

May, 2018

Posted to NGB FOIA Reading Room

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# Falls River RC



Storage Area, Former Firing Range





Bullet Trap



BEST AVAILABLE COPY

Boiler Room FOIA Requested Record #J-15-0085 (MA) Released by National Guard Bureau Page 1200 of 3473

May, 2018

Posted to NGB FOIA Reading Room

Appendix D IAQ and Lighting Survey Log Sheets

| State                | MA              |                                  |                | IAQ  |          |        | 0.0   | ty and Ligh           |          |          |          | Light               |              |  |
|----------------------|-----------------|----------------------------------|----------------|--|----------|--------|---|-----------------------|----------|----------|----------|---------------------|--------------|--|
| Date                 | 8/17/2010       | Inspector                        | Non-Responsive | Instrument   |          | ר      | rsi (   | Q-Trak Plus           | Moc      | lel 8554 |          | Instrument          |              | CAL-LIGHT 400                          |
| Facility Description | Readiness Ctr   |                                  |                | Serial Numb  | er       |        |   | 8554-0204             | 101      | 5        |          | Serial Numbe        | ər           | K070277                                |
| Weather Conditions   |                 |                                  |                | Last Calibrat  | ion      |        |   | Mar-1                 | 0        |          |          | Last Calibrat       | ion          | 30-Jul-10                              |
| Location             | Function        | No.<br>Occupants                 | Time           | Temp. (°F)   | Exceeded | RH (%) | Exceeded  | CO <sub>2</sub> (ppm) | Exceeded | CO (ppm) | Exceeded | Illuminance<br>(fc) | Insufficient | Illuminance<br>Reference<br>Value (fc) |
| 1                    | Office          |                                  |                | 77.2   | х        | 88.5   | х   | 347                   |          | 0.7      |          | 40.6                | х            | 50                                     |
| 2                    | Office          |                                  |                | 77.5   | х        | 76.0   | х   | 332                   |          | 0.4      |          | 53.4                |              | 50                                     |
| 3                    | Entry           |                                  |                | 77.7   | х        | 80.1   | х   | 388                   |          | 0.3      |          | 58.3                |              | 10                                     |
| 4                    | Women's Room    |                                  |                | 77.2   | х        | 87.5   | х   | 361                   |          | 0.1      |          | 16.8                |              | 5                                      |
| 5                    | Supply Room     |                                  |                | 77.2   | х        | 85.9   | х   | 326                   |          | 0.1      |          | 28.7                |              | 10                                     |
| 6                    | Boiler Room     |                                  |                | 77.5   | х        | 87.9   | х   | 346                   |          | 0.1      |          | 40.0                |              | 30                                     |
| 7                    | Storage         |                                  |                | 77.2   | х        | 82.3   | х   | 326                   |          | 0.2      |          | 59.7                |              | 30                                     |
| 8                    | Gym             |                                  |                | 77.0   | х        | 86.6   | х   | 337                   |          | 0.1      |          | 59.7                |              | 30                                     |
| 9                    | Men's Room      |                                  |                | 77.0   | х        | 86.9   | х   | 339                   |          | 0.0      |          | 6.4                 |              | 5                                      |
| 10                   | Storage         |                                  |                | 76.8   | x        | 87.8   | х   | 320                   |          | 0.1      |          | 10.3                |              | 10                                     |
| 11                   | Storage         |                                  |                | 77.2   | х        | 83.8   | х   | 327                   |          | 0.0      |          | 16.5                |              | 10                                     |
| 12                   | Office/ Storage |                                  |                | 77.5   | х        | 82.5   | х   | 395                   |          | 0.0      |          | 63.3                |              | 50                                     |
| 13                   | Storage         |                                  |                | 77.5   | х        | 80.3   | х   | 315                   |          | 0.0      |          | 57.9                |              | 30                                     |
| 14                   | Storage         |                                  |                | 77.5   | х        | 79.5   | х   | 360                   |          | 0.0      |          | 34.3                |              | 30                                     |
| 15                   | Storage         |                                  |                | 77.2   | х        | 84.1   | х   | 334                   |          | 0.0      |          | 13.0                |              | 10                                     |
| 16                   | Storage         |                                  |                | 77.2   | х        | 80.3   | х   | 322                   |          | 0.1      |          | 11.3                |              | 10                                     |
| 17                   | Copy Room       |                                  |                | 77.4   | х        | 85.4   | х   | 336                   |          | 0.0      |          | 67.8                |              | 50                                     |
| 18                   | Office          |                                  |                | 78.3   | х        | 80.1   | х   | 334                   |          | 0.0      |          | 29.3                | Х            | 50                                     |
| Notes:               |                 | Relative<br>30<br>40<br>50<br>60 | nidity         | Winter Temp.           68.5°F-76.0°F           68.5°F-75.5°F           68.5°F-74.5°F           68.0°F-74.0°F |          |        | ummer Tem<br>4.0°F-80.0°<br>3.5°F-79.5°<br>3.0°F-79.0°<br>2.5°F-78.0° | F<br>F<br>F           |          |          |          |                     |              |  |

#### National Guard Industrial Hygiene Survey For Indoor Air Quality and Light Level

| State                | MA            |                  | Fall River     |              | vey For Indoor Air Quality and Light Level |        |                   |  |             |   |             |                     |              |  |
|----------------------|---------------|------------------|----------------|--------------|--|--------|-------------------|--|-------------|---|-------------|---------------------|--------------|--|
|                      | 8/17/2010     | Inspector        | Non-Responsive | Instrument   |  | Т      | SI Q-             | -Trak Plus N   | /lode       | el 8554   |             | Instrument          |              | CAL-LIGHT 400                          |
| Facility Description | Readiness Ctr |                  |                | Serial Num   | ber  |        |                   | 8554-02041   | 015         | 5   |             | Serial Numb         | er           | K070277                                |
| Weather Conditions   |               |                  |                | Last Calibra |  |        |                   | Mar-10   |             |   |             | Last Calibra        |              | 30-Jul-10                              |
| Location             | Function      | No.<br>Occupants | Time           | Temp. (°F)   | Exceeded                                   | RH (%) | Exceeded          | CO <sub>2</sub> (ppm)  | Exceeded    | CO (ppm)  | Exceeded    | Illuminance<br>(fc) | Insufficient | Illuminance<br>Reference<br>Value (fc) |
| 19                   | Office        |                  |                | 78.8         | х  | 69.5   | х                 | 358  |             | 0.5   |             | 31.6                | х            | 50                                     |
| 20                   | Office        |                  |                | 79.0         | х  | 80.0   | х                 | 369  |             | 0.1   |             | 64.4                |              | 50                                     |
| 21                   | Office        |                  |                | 79.0         | х  | 77.3   | х                 | 326  |             | 0.0   |             | 97.0                |              | 50                                     |
| 22                   | Office        |                  |                | 79.0         | х  | 71.0   | х                 | 317  |             | 0.0   |             | 38.9                | x            | 50                                     |
| 23                   | Latrine       |                  |                | 79.5         | х  | 75.5   | х                 | 335  |             | 0.0   |             | 76.8                |              | 5                                      |
| 24                   | Office        |                  |                | 75.2         |  | 62.4   |                   | 342  |             | 0.1   |             | 57.7                |              | 50                                     |
| 25                   | Office        |                  |                | 74.7         | х  | 80.9   | х                 | 433  |             | 0.2   |             | 71.4                |              | 50                                     |
| 26                   | Office        |                  |                | 78.6         | х  | 77.7   | х                 | 436  |             | 0.0   |             | 69.1                |              | 50                                     |
| 27                   | Mess Hall     |                  |                | 78.8         | х  | 80.4   | х                 | 387  |             | 0.2   |             | 37.1                |              | 10                                     |
| 28                   | Kitchen       |                  |                | 78.8         | х  | 79.5   | х                 | 352  |             | 0.0   |             | 41.1                | x            | 50                                     |
| 29                   | Office        |                  |                | 78.8         | х  | 78.5   | х                 | 370  |             | 0.1   |             | 60.3                |              | 50                                     |
| 30                   | Rehersal Room |                  |                | 78.1         | х  | 69.0   | х                 | 319  |             | 0.2   |             | 57.3                |              | 50                                     |
| 31                   | Band Storage  |                  |                | 71.2         | х  | 80.7   | х                 | 320  |             | 0.1   |             | 22.9                |              | 30                                     |
| 32                   | Rehersal Hall |                  |                | 77.2         | х  | 80.1   | х                 | 303  |             | 0.0   |             | 52.3                |              | 50                                     |
| 33                   | Storage       |                  |                | 77.0         | х  | 68.5   | х                 | 327  |             | 0.1   |             | 28.7                |              | 10                                     |
| 34                   | Drill Hall    |                  |                | 77.0         | х  | 80.4   | Х                 | 313  |             | 0.1   |             | 25.6                |              | 10-30                                  |
|                      |               |                  |                |              |  |        |                   |  |             |   |             |                     |              |  |
| Notes:               | <u> </u>      | <u> </u>         | <u> </u>       |              | e Hi<br>30%<br>40%<br>50%<br>60%           | )      | 68.<br>68.<br>68. | nter Temp.<br>5°F-76.0°F<br>5°F-75.5°F<br>5°F-74.5°F<br>0°F-74.0°F | 7<br>7<br>7 | ummer Tem<br>4.0°F-80.0°<br>3.5°F-79.5°<br>3.0°F-79.0°<br>2.5°F-78.0° | F<br>F<br>F |                     |              |  |



#### Prepared For:

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

#### Prepared By:

URS Corporation 5 Industrial Way Salem, New Hampshire 03079

INDUSTRIAL HYGIENE SURVEY REPORT MASSACHUSETTS NATIONAL GUARD READINESS CENTER 1089 DWELLY STREET FALL RIVER, MA 02724

June 17, 2013 PN: 39743799



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#### FINDINGS AND RECOMMENDATIONS MASSACHUSETTS NATIONAL GUARD READINESS CENTER 1089 DWELLY ST., FALL RIVER, MA

| Findings  | Recommendations   | Risk<br>Assessment<br>Code (RAC) |
|---|---|----------------------------------|
| Lighting  | ······································  |                                  |
| On the day of the survey, the illuminance was inadequate in several locations tested.   | Increase lighting in the work areas.<br>While work is in progress, these<br>areas must be lighted by at least<br>the minimum lighting intensities<br>(ANSI / IESNA RP-1-04).                            | RAC 4                            |
| Ergonomics  |   |                                  |
| Computer workstations in the<br>Administrative Areas were<br>observed with un-adjustable<br>chairs, arm rests and keyboards.<br>Several wheeled chairs with four<br>casters were noted. | Ergonomic issues with regard to the<br>desks and chairs should be<br>corrected by fitting the workplace to<br>the worker (Department of the Army<br>Pamphlet 40-21, Chapter 4, Page<br>7, Section 4-3). | RAC 3                            |
| Former Indoor Firing Range  | 1   |                                  |
| The former Indoor Firing Range<br>was reported to have been<br>abated however elevated lead<br>levels were detected in dust wipe<br>samples.  | Personnel trained in accordance<br>with the OSHA Lead Standard<br>should clean the areas where<br>elevated lead dust levels were<br>identified (OSHA 29 CFR<br>1910.1025(h)(1)).                        | RAC 3                            |
| Lead  |   |                                  |
| Six of the 10 lead wipe samples indicated elevated lead levels.   | Personnel trained in accordance<br>with the OSHA Lead Standard<br>should clean the areas where<br>elevated lead dust levels were<br>identified (OSHA 29 CFR<br>1910.1025(h)(1)).                        | RAC 3                            |
| Emergency Exits   |   |                                  |
| Emergency exit signs were not visible from all areas of the facility or illuminated.  | Emergency exits should be properly illuminated (29 CFR 1910.37 (q)(6)).   | RAC 3                            |
| Ladder Storage  |   |                                  |
| Ladders were observed not<br>properly secured and stored in<br>the Assembly Hall.   | Ladders not in use must be properly<br>stored in a vertical position fastened<br>to walls. (29 CFR 1910.25 (c)(2)(i)).  | RAC 4                            |

| Findings   | Recommendations   | Risk<br>Assessment<br>Code (RAC) |
|--|---|----------------------------------|
| Asbestos   | <b>.</b>  |                                  |
| Asbestos-containing pipe<br>insulation and presumed<br>asbestos-containing floor tile and<br>mastic were observed throughout<br>the facility; an Asbestos<br>Operation and Maintenance<br>Program was not available on-<br>Site. | Repair damaged areas of asbestos-<br>containing materials and develop a<br>site-specific asbestos operations<br>and maintenance program for<br>management of asbestos-<br>containing materials in place as<br>required by OSHA 29 CFR<br>1910.1001(j)(2). | RAC 3                            |
| PPE  |   |                                  |
| Hazard assessments have not<br>been conducted to determine<br>whether personal protective<br>equipment is required.  | Conduct a hazard assessment of<br>site operations to determine what<br>types of PPE are required for each<br>type of work (29 CFR<br>1910.132(d)(1)).   | RAC 4                            |
| Water Intrusion  |   |                                  |
| Water staining was observed on<br>the ceiling of the first floor vault<br>and in the stairwell in the area of<br>the roof hatch.   | The source of the water intrusion<br>should be identified and repaired.<br>The water-stained materials should<br>be repaired or replaced (ACGIH –<br>Guidelines for the Assessment of<br>Bio-aerosols in the Indoor<br>Environment).                      | RAC 4                            |
| Fire Extinguishers   |   |                                  |
| No evidence was found that all<br>fire extinguishers were being<br>inspected on a monthly basis.<br>One fire extinguisher in the<br>Assembly hall was blocked.   | All fire extinguishers must be<br>inspected on a monthly basis to<br>determine that they are full and<br>readily accessible. (OSHA 29 CFR<br>1910.157(e)(2))  | RAC 3                            |

#### 1.0 SUMMARY

At the request of the National Guard Bureau (NGB) Region North Industrial Hygiene Office, URS Corporation (URS) conducted an industrial hygiene survey at the Readiness Center in Fall River, Massachusetts.

URS representative, Ms. Non-Responsive, conducted the Industrial Hygiene Survey on April 8, 2013. The scope of work included an overall assessment of the facility as it relates to industrial hygiene and included a walkthrough of the facility, collection of photographs, and when required, measurements for illumination (light), area and personal air sampling, and noise mapping.

The Fall River Readiness Center is a two-story brick building, consisting of offices, classrooms, a supply area, gender separate bathrooms, locker storage rooms, storage rooms, a kitchen, a classroom/mess hall, an Assembly Hall and a former Indoor Firing Range. A layout of the Readiness Center is provided in Appendix A.

<u>GENERAL</u>: Ladders were observed not properly secured and stored in the Assembly Hall. A folding table was not properly stored overhead in the Assembly Hall. Emergency exit signs were not posted and illuminated throughout the facility. Emergency escape plans were not posted throughout the facility. Several fire extinguishers without inspection tags were identified in the first floor storage rooms. One fire extinguisher in the Assembly Hall was blocked. Ceiling tiles in the second floor classroom were waterdamaged and falling.

<u>LIGHTING</u>: Lighting in the Readiness Center was found to be inadequate in seven of the areas measured. Areas noted within the report as having inadequate lighting require upgrading by either increasing the general lighting or through the use of task lighting. While work is in progress work areas must be lighted by at least the minimum light intensities. <u>LEAD</u>: The former Indoor Firing Range was taken out of service and abated approximately three years ago; however elevated lead levels were detected in dust wipe samples at various locations within the Readiness Center.

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

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

<u>ASBESTOS</u>: Asbestos-containing pipe insulation was identified during this survey. Presumed asbestos-containing floor tiles were noted to be damaged and pulling up at entrances in the Assembly Hall. No Asbestos Operations and Maintenance Program was found on site. Until suspect materials have been sampled and determined not to contain asbestos, they must be presumed to be asbestos-containing and managed accordingly.

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

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

#### 2.0 SUPPLY / TRAINING AREA

#### 2.1 Operation Description

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

The Readiness Center was found to be neat and organized at the time of URS' site visit.

#### 2.2 Chemical and Physical Agents Sampled

#### 2.2.1 Carbon Dioxide

On the day of the survey, carbon dioxide measurements were made in the Readiness Center. Interior carbon dioxide concentrations were found to be between 499 and 623 parts per million (ppm). Carbon dioxide levels were measured using a direct-reading TSI Q-Trak (Model 8551).

Carbon dioxide is a normal constituent of the atmosphere and ranges from about 250 to 450 ppm. The major source of excess carbon dioxide in the indoor environment is human respiration. Other sources can include open-flame heaters, fermentation processes, and motor vehicles. Carbon dioxide itself is not normally a cause of indoor air quality problems but is typically used as an indicator of the adequacy of fresh air intake. As the concentration of carbon dioxide increases, so do the background levels of other air contaminants.

To minimize air quality complaints, the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) has proposed that the carbon dioxide concentration within an occupied workspace be maintained below 700 ppm above ambient outside levels. For example, on the day of the survey, the outside carbon dioxide level was measured at 444 ppm. Therefore ASHRAE (Standard 62.1-2010) would recommend that interior carbon dioxide concentrations be maintained at or below 1144 ppm. Using the ASHRAE guideline, the readings at the subject site were found to be below the suggested indoor to outdoor differential concentration.

#### 2.2.2 Carbon Monoxide

The carbon monoxide concentration in the Readiness Center was measured between 0.0 ppm and 0.3 ppm on the day of the survey. ASHRAE recommends that average carbon monoxide concentrations not exceed 9 ppm. Typical average concentrations found in commercial buildings range from 0 to 6 ppm. The measured levels were below the ASHRAE guideline for indoor environments. Carbon monoxide was measured using a TSI Q-Trak Plus (Model 8554).

Key sources of carbon monoxide within indoor environments include internal combustion engines, motor vehicle and forklift exhaust, tobacco smoke, space heaters, and improperly adjusted oil or gas burners.

#### 2.2.3 Relative Humidity

The average relative humidity within the Readiness Center measured with the Q-Trak Plus was 35.6%, which was within the guideline of less than 65% recommended by ASHRAE.

#### 2.2.4 Temperature

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

The average temperature inside the Readiness Center was, 67 °F, which was below the guideline of 68 to 75 °F recommended by ASHRAE for thermal comfort. No complaints regarding temperature were received by URS during this survey.

### 2.2.5 Lighting

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

| Location   | Function   | Measured<br>Illuminance<br>in Foot<br>Candles<br>(FC) | Recommended<br>Minimum<br>Illuminance in<br>Foot Candles<br>(FC) |  |
|--|------------|---|--|--|
| Storage/ Supply Office, desk-                            | Admin      | 10.1  | 50   |  |
| Band Storage Room, off Drill Hall                        | Storage    | 116.3   | 30   |  |
| Instrument Storage, Office, desk-<br>Non-Responsive      | Admin      | 14.6  | 50   |  |
| 2 <sup>nd</sup> Floor, Fmr. Recruiter's Office, desk     | Admin      | 32.1  | 50   |  |
| 2 <sup>nd</sup> Floor, Mess Hall, table                  | Break Room | 71.4  | 10   |  |
| 2 <sup>nd</sup> Floor, Mess Hall, table                  | Break Room | 133.0   | 10   |  |
| 2 <sup>nd</sup> Floor, Classroom, table                  | Admin      | 63.9  | 50   |  |
| 2 <sup>nd</sup> Floor, Classroom, table                  | Admin      | 99.9  | 50   |  |
| 2 <sup>nd</sup> Floor, TNG NCO Office, desk              | Admin      | 50.1  | 50   |  |
| 2 <sup>nd</sup> Floor, Library/ Server Room, table       | Admin      | 15.1  | 50   |  |
| 2 <sup>nd</sup> Floor, Break Room                        | Break Room | 76.3  | 10   |  |
| 2 <sup>nd</sup> Floor, 1 <sup>st</sup> Sgt. Office, desk | Admin      | 78.9  | 50   |  |
| 2 <sup>nd</sup> Floor, Office, Desk-                     | Admin      | 41.9  | 50   |  |
| 2 <sup>nd</sup> Floor, Office, keyboard desk             | Admin      | 86.7  | 50   |  |
| 2 <sup>nd</sup> Floor, Office, desk-                     | Admin      | 63.0  | 50   |  |
| 2 <sup>nd</sup> Floor, Office, desk-                     | Admin      | 76.5  | 50   |  |
| 1 <sup>st</sup> Floor, Office, desk-                     | Admin      | 52.3  | 50   |  |

 Table 2-1

 Lighting Measurements and Recommended Lighting Requirements

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

### 2.2.6 Lead

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

| Sample Location  | URS Sample<br>Number     | Area<br>Wiped<br>in<br>Square<br>Feet<br>(ft <sup>2</sup> ) | Result in<br>Micrograms/<br>Square Foot<br>(µg/ft <sup>2</sup> ) | Maximum<br>Surface<br>Contamination<br>in Micrograms/<br>Square Foot<br>Level (μg/ft <sup>2</sup> ) |
|--|--------------------------|---|--|---|
| 1 <sup>st</sup> Floor, Band Office off<br>Lobby, floor under window                  | Fall River RC<br>Wipe-01 | 0.108   | 170  | 200   |
| 1 <sup>st</sup> Floor, Men's Latrines, floor behind door                             | Fall River RC<br>Wipe-02 | 0.108   | 240  | 200   |
| 2 <sup>nd</sup> Floor, Mess Hall, floor<br>behind door towards kitchen               | Fall River RC<br>Wipe-03 | 0.108   | <110   | 200   |
| 2 <sup>nd</sup> Floor, Break Room, TV<br>Stand, top shelf                            | Fall River RC<br>Wipe-04 | 0.108   | <110   | 200   |
| 2 <sup>nd</sup> Floor, Latrines, floor<br>behind door                                | Fall River RC<br>Wipe-05 | 0.108   | <110   | 200   |
| 1 <sup>st</sup> Floor, PT Room, floor at<br>door to former Indoor Firing<br>Range    | Fall River RC<br>Wipe-06 | 0.108   | 220  | 200   |
| 1 <sup>st</sup> Floor, PT Room, floor<br>behind weights by entrance                  | Fall River RC<br>Wipe-07 | 0.108   | 590  | 200   |
| 1 <sup>st</sup> Floor, Drill Shed, floor<br>along PT Room, corner to<br>Band Storage | Fall River RC<br>Wipe-08 | 0.108   | 210  | 200   |
| Drill Shed, floor along<br>storage/ vaults, under<br>storage container               | Fall River RC<br>Wipe-09 | <mark>0.108</mark>  | 240  | 200   |
| 1 <sup>st</sup> Floor, Storage, floor by<br>counter and desk, by<br>entrance         | Fall River RC<br>Wipe-10 | 0.108   | 520  | 200   |

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

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

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

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

Table 2-3 Lead Content in Painted Surfaces

| Paint Location             | Lead<br>Concentration<br>(Percent Weight) | HUD Lead-Based<br>Quantity<br>(Percent Weight) |  |  |
|----------------------------|---|--|--|--|
| Gray paint, floor, PT Room | 0.18                                      | 0.5  |  |  |

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

#### 2.2.7 Asbestos

URS collected a total of three samples from damaged suspect friable asbestoscontaining material (ACM) in the Readiness Center for a determination of asbestos content. Analytical procedures were performed in accordance with the U.S. Environmental Protection Agency (EPA) recommended method for the determination of asbestos in bulk samples by polarized light microscopy with dispersion staining (EPA-600/M4-82-020). Table 2-4 below shows the results of the asbestos sampling.

 Table 2-4

 Asbestos Bulk Sample Results – Basement

| Sample Location              | Sample<br>Description | URS Sample<br>Number     | Result<br>Total Asbestos      |
|------------------------------|-----------------------|--------------------------|-------------------------------|
| 1 <sup>st</sup> Floor, Vault | Pipe Insulation       | Fall River RC<br>PLM-01A | 50% Chrysotile<br>10% Amosite |
| 1 <sup>st</sup> Floor, Vault | Pipe Insulation       | Fall River RC<br>PLM-01B | 50% Chrysotile<br>5% Amosite  |

| Sample Location                                   | Sample          | URS Sample               | Result         |
|---|-----------------|--------------------------|----------------|
|   | Description     | Number                   | Total Asbestos |
| 1 <sup>st</sup> Floor, Office (Hyde) off<br>lobby | Pipe Insulation | Fall River RC<br>PLM-01C | 40% Chrysotile |

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

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

### 2.3 Ventilation System Evaluation

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

### 2.4 Noise Measurements

Noise mapping was conducted throughout the Readiness Center. Area noise mapping results indicated that, on the day of the survey, noise levels throughout the Readiness Center ranged from 56.2 decibels to 61.2 decibels. All noise mapping results were below the DoDI Hearing Conservation Standard (6055.12 3 December 2010) of 85 decibels, A scale (dBA)/8-hour day.

### 2.5 Personal Protective Equipment

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

### 3.0 SAFETY AND INDUSTRIAL HYGIENE PROGRAMS

#### 3.1 Confined Spaces

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

#### 3.2 Hearing Conservation

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

#### 3.3 Respiratory Protection

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

#### 3.4 Hazard Communication

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

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

#### 3.5 Personal Protective Equipment

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

#### 3.6 Asbestos Operations and Maintenance Program

A written asbestos operations and maintenance program was not identified on site. Since both confirmed and presumed ACM were identified during URS' site visit, a sitespecific operations and maintenance program is required.

#### 3.7 Safety

The former Indoor Firing Range was taken out of service and abated approximately three years ago; however wipe samples detected elevated lead levels in multiple locations within the Readiness Center. Ladders were observed not properly secured and stored in the Assembly Hall. A folding table was not properly stored overhead in the Assembly Hall. Presumed asbestos-containing floor tiles were noted to be damaged and pulling up at entrances in the Assembly Hall. Wheeled chairs with four casters were identified throughout the admin areas. Emergency exit signs were not posted and illuminated throughout the facility. Emergency escape plans were not posted throughout the facility. Several fire extinguishers without inspection tags were identified on the first floor storage rooms. One fire extinguisher in the Assembly Hall was blocked.

#### 4.0 REFERENCES

American Conference of Governmental Industrial Hygienists

Industrial Ventilation: A Manual of Recommended Practice, 27<sup>th</sup> Edition, 2010

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

American National Standards Institute

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

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

American Society of Heating, Refrigerating and Air-Conditioning Engineers

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

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

Department of the Army

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

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

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

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

National Guard Pamphlet 420-15

Department of Defense

DoDI 6055.12, Hearing Conservation, 3 December 2010

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

National Institute for Occupational Safety and Health

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

U. S. Environmental Protection Agency

Asbestos Hazard Emergency Response Act (40 CFR Part 763)

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

U. S. Department of Housing and Urban Development

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

U. S. Occupational Safety and Health Administration

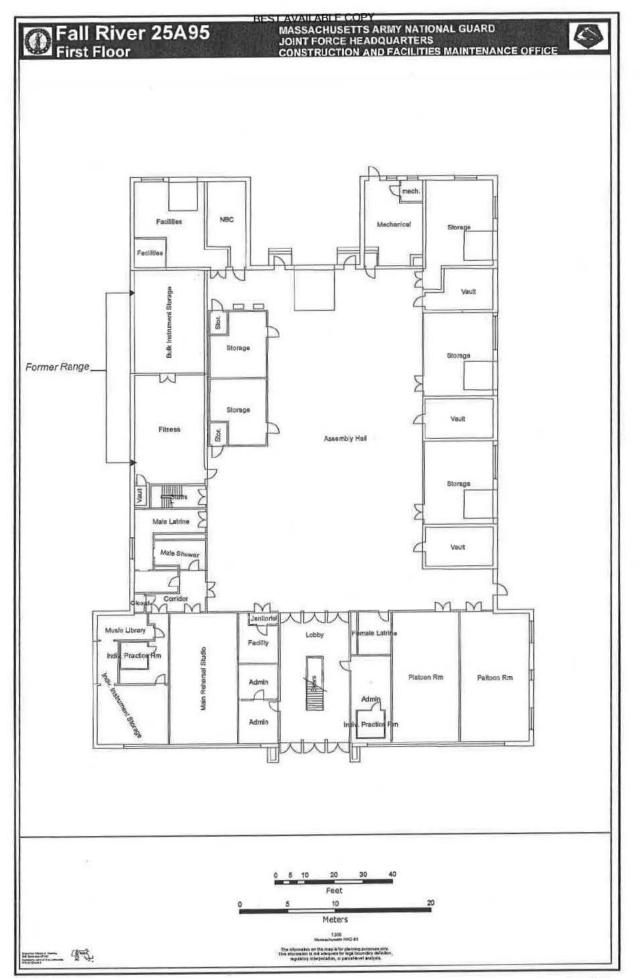
Standard for General Industry: 29 CFR 1910

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

## APPENDIX A

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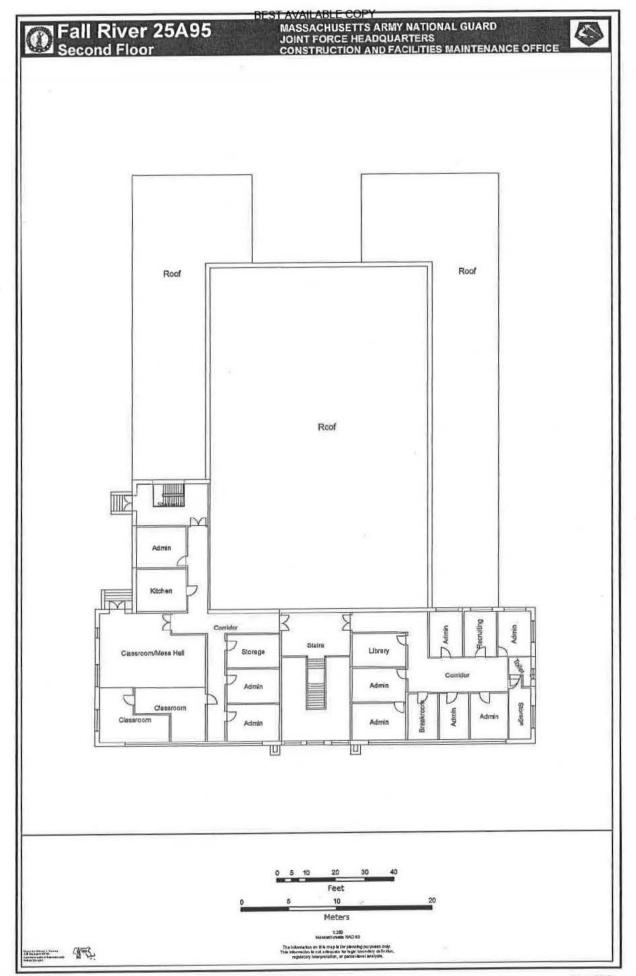
## SHOP DRAWING



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## APPENDIX B

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#### PERSONNEL LIST



REPLY TO ATTENTION OF BEST AVAILABLE COPY DEPARTMENT OF THE ARMY MASSACHUSETTS ARMY NATIONAL GUARD DETACHMENT 1 ALPHA BATTERY, 1<sup>ST</sup> BATTALION, 101<sup>ST</sup> FIELD ARTILLERY 1089 DWELLY STREET FALL RIVER, MA 02724-3119 508-679-5454/508-672-2466

NGMA-FAB-AB

08 April 2013

MEMORANDUM FOR URS 5 Industrial Way, Salem NH 03079

SUBJECT: Memorandum for Record

1. The following Full-Time Massachusetts National Guard Soldiers work at the Fall River Armory:



4. Point-of-Contact is above letterhead, attention: SSG

Unit Training NCO.





SSG, MAARNG Unit Training NCO

215th Band

## APPENDIX C

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#### ANALYTICAL RESULTS

## AMA Analytical Services, Inc.



#### A Specialized Environmental Laboratory

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#### **CERTIFICATE OF ANALYSIS**

ISONEC 17025-2005 LAB #100470 National Guard Bureau Job Name: MA ARNG **Chain Of Custody:** \$15613 Client: 301-IH Old Bay Lane, Attn: ARNG-CJG-P, 1089 Dwelly Street, Fall River, MA Address: Job Location: Date Submitted: 4/17/2013 State Military Reservation Havre de Grace, Maryland 21078 Job Number: Fall River RC **Person Submitting:** P.O. Number: W912K6-09-A-0003 Date Analyzed: 4/23/2013 **Report Date:** 4/23/2013



#### Summary of Atomic Absorption Analysis for Lead

Page 1 of 2

AIHA LAP, LLC ACCREDITED LABORATORY

NOUSTRIAL HYGIENE, ENVIRONMENTAL LEAS **8 ENVIRONMENTAL MICROBIOLOGY** 

| AMA Sample<br>Number | Client Sample Analysis Type Sample Type Air Volume Area Wiped Reporting<br>Number (L) (ft²) Limit |                     |                     | Total ug | Final Result |        | Comments |     |        |                    |     |        |  |
|----------------------|---|---------------------|---------------------|----------|--------------|--------|----------|-----|--------|--------------------|-----|--------|--|
| 13054160             | 13054160  | FallRiverRC Wipe 01 | FallRiverRC Wipe 01 | Flame    | Wipe         | ****   | 0.108    | 110 | ug/ft² | 18                 | 170 | ug/ft² |  |
| 13054161             | FallRiverRC Wipe 02   | Flame               | Wipe                | ***      | 0.108        | 110    | ug/ft²   | 26  | 240    | ug/fi²             |     |        |  |
| 13054162             | FallRiverRC Wipe 03   | Flame               | Wipe                | ****     | 0.108        | 110    | ug/ft²   | <12 | <110   | ug/ft²             |     |        |  |
| 13054163             | FallRiverRC Wipe 04   | Flame               | Wipe                | ****     | 0.108        | 110    | ug/ft²   | <12 | <110   | ug/ft²             |     |        |  |
| 13054164             | FallRiverRC Wipe 05   | Flame               | Wipe                | ****     | 0.108        | 110    | ug/ft²   | <12 | <110   | ug/ft²             |     |        |  |
| 13054165             | FallRiverRC Wipe 06   | Flame               | Wipe                | ****     | 0.108        | 110    | ug/ft²   | 23  | 220    | ug/ft²             |     |        |  |
| 13054166             | FallRiverRC Wipe 07   | Flame               | Wipe                | ****     | 0.108        | 110    | ug/ft²   | 64  | 590    | ug/ft²             |     |        |  |
| 13054167             | FallRiverRC Wipe 08   | Flame               | Wipe                | ****     | 0.108        | 110    | ug/ft²   | 22  | 210    | ug/ft²             |     |        |  |
| 13054168             | FallRiverRC Wipe 09   | Flame               | Wipe                | ****     | 0.108        | 110    | ug/ft²   | 26  | 240    | ug/fl <sup>2</sup> |     |        |  |
| 13054169             | FallRiverRC Wipe 10   | Flame               | Wipe                | ****     | 0.108        | 110    | ug/ft²   | 56  | 520    | ug/ft²             |     |        |  |
| 13054170             | FallRiverRC Wipe<br>FB  | Flame               | Wipe Blank          | ****     | N/A          | 12     | ug       |     | <12    | ug                 |     |        |  |
| 13054171             | FallRiverRC LBP 01  | Flame               | Paint Chip          | ****     | N/A          | 0.0082 | %Pb      |     | 0.18   | %Pb                |     |        |  |

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

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Posted to NGB FOIA Reading Room FOIA Requested Record #J-15-0085 (MA) 4475 Forbes Blvd. · Lanham, MD, 20706 · (301) 459-2640 · Toll Free (800) 346-0961 · Fax (301) 459-2643 May, 2018 Released by National Guard Bureau Page 1226 of 3473

# AMA Analytical Services, Inc. BEST AVAILABLE COPY A Specialized Environmental Laboratory CERTIFICATE OF ANALYSIS

National Guard Bureau Job Name: MA ARNG Chain Of Custody: 515613 Client: 301-IH Old Bay Lane, Attn: ARNG-CJG-P, 1089 Dwelly Street, Fall River, MA Address: Job Location: Date Submitted: 4/17/2013 State Military Reservation Havre de Grace, Maryland 21078 Job Number: Fall River RC Person Submitting: P.O. Number: W912K6-09-A-0003 Date Analyzed: 4/23/2013 **Report Date:** 4/23/2013 Attention: Summary of Atomic Absorption Analysis for Lead Page 2 of 2 Analysis Type Air Volume Area Wiped **Final Result** AMA Sample **Client Sample** Sample Type Reporting Total ug Comments Limit Number Number (L) (ft2)

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

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

 N/A = Not Applicable
 mg/Kg = parts per million (ppm) on a dry weight basis

 mg/L = parts per million (ppm)

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

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

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

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

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

associated with these

samples.

**Technical Manager:** 

See QC Summary for analytical results of quality control samples

AIHA LAP, LLC ACCREDITED LABORATOR

NOUSTRIAL HYGENE, ENVIRONMENTAL LEAL & ENVIRONMENTAL MICROBIOLOGY ISONEC 717025.2005 www.anhanecoreditediate.org LAB #150470

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#### BEST AVAILABLE COPY OWI(410) 247-2024 159202 210 REV. 6.08 **AMA Analutical Services, Inc.** Focused on Results www.amalab.com (Please Refer To This 515613 Baselotz ALHA (#100470) NVLAP (#101143-0) NY ELAP (10920) CHAIN OF CUSTODY Number For Inquires) 4475 Forbes Blvd. . Lanham, MD 20706 (301) 459-2640 • (800) 346-0961 • Fax (301) 459-2643 Submittal Information: Mailing/Billing Information: MA JARNG 1. Job Name: . I. Client Name: National Guard Bureau 2. lob Location: 1089 DWELLY St. FAU KIVO , WUA 2. Address 1: 301-IH Old Bay Lane 3. Job #: Fall River Address 2: Attn: NGB-AVN-SI. State Military Reservation 3. 4. Contact Pers 4. Address 3: Havre de Grace, Maryland 21078. 5. Phone #: (410) 942-0273 Fax #: (410) 942-0254 5. Submitted Reporting Information (Results will be provide PRIMIX . NORMAL BUSINESS HOURS AFTER HOURS (must be pro-scheduled) RT TO: TYS. CON 80 Incl 3 Day S Day + C) Immediate Dimmediate Date Duc: Results Required By Noon Next Day 24 Hours Time Due: (HveryAtterupt Will Be @us.army.mil Date Due: U Fax LI 2 Day Made to Accomodate) Comments: Q Vert aus.army.mi Wester Analysis Asbestos Analysis TEM Balk Po Paint Chip\_\_\_ PCM Air - Please Indicate Filter Type: LI ELAP 198,4/Chatfield (YTO). (OTY) Po Dust Wipe (wipe type 4105t J NIOSH 7400 (YTO) NY State PLM/TEM\_\_\_\_\_ (OTY) \_(QTY) G Fibernlass (YTOL OPb Air\_ U Residual Ash OTY OTY TEM Air - Please Indicate Filter Type: U Pb Soll/Solid (OTY) TEM Dust QAHERA\_ · (OTY) OPh TCLP. (QTY) U Qual. (pres/abs) Vacuum/Dust\_ (OTY) Q NIOSH 7402\_ \_(OTY) Drinking Water Q Pb\_\_\_\_(QTY) Q Cu\_\_\_\_(QTY) Q As\_\_\_\_(QTY) Quan, (s/area) Vacuum D5755-95 \_(QTY) (OTY) U Other (specify\_ Waste Water Q Pb\_\_\_\_(QTY) Q Cu\_\_\_\_(QTY) Q As\_\_\_\_(QTY) Quan (slarea)Dust D6480-99\_ (OTY) PLM Bull. ZHEPA 600 -- Visual Estimate 21 UPb Furnace (Media \_\_\_)\_\_\_\_(QTY) TEM Water (QTY) And Analysis Q Qual. (pres/abs)\_\_\_\_ \_(OTY) DEPA Point Count\_ (QTY) Collection Apparatus for Spore Traps/Air Samples:\_\_ GELAP 198.2/EPA 100.2 QTY) ONY State Friable 198.1\_ (OTY) Collection Media\_ Q EPA 100.1 (YTQ) Gray, Reduction ELAP 198.6 (OTY) Spore-Trap\_\_\_\_(OTY) Surface Vacuum Dust (OTY) (QTY) Other (specify\_ All samples received in good condition unless otherwise noted, Q Surface Swab\_\_\_\_\_ (QTY) Q Culturable ID Genus (Media\_ (OTY) MISC (TEM Water samples \_\_\_\_\_°C) G Surface Tope\_\_\_\_ (QTY) Culturable ID Species (Media (OTY) O Vermiculite Other (Specify\_\_\_\_)\_\_\_(QTY) C Asbestos Soil PLM\_(Quali PLM\_(Quan) PLM/TEM\_(Quali PLM/TEM\_(Quan) SAMPLE INFURMATION ANALYSIS CLIENT CONTACT 2 | s | 170 VOLUME WIPE CAD Sac CLIENTID SAMPLE LOCATION/ (LABORATORY STAFF ONLY) AREA NUMBER **IDENTIFICATION** DATE (LITERS) 418/15 10xpri FAILRINGYKCUNAG MMM Date/Time: Contact: By: FILL REPORT DIA APIRCUMP-X Date/Time; Contact: By: siver aciusto a maintenance FAILPARY RC II De 1 RC IU D2-1 Date/Time: Contact: By: X X field blank MM-OF TS ARWAD Respons dus viateril 1. Date/Time RCVD: By (Print): LABORATORY BEST AVAILABLE COPY 2. Date/Time Analyzed Posted to NGB POIA Reading Roomits Reported To FOIA Requested Record #J-15 1085 (MA) Date: - Fieldased by National Guard Bureau May, 20((SUSTODY) 487 4. Comments: Page 1228 of 3473

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| AMAR Analytical Services, Inc.<br>Focused on Results www.umalab.com<br>AIHA (#100470) NVLAP (#101143-0) NY ELA<br>4475 Forbes Blvd. • Lanham, MD 20706<br>(301) 459-2640 • (800) 346-0961 • Fax (301) 45  |                                      | CHAI   | N OI  | F CUS  | TOD        | Y       |   | Please Refer To Th<br>Number For Inquire   | <sup>is</sup> 5150  | 013<br>1920f                      |
|---|--------------------------------------|--|---|--|------------|---------|---|--|---|-----------------------------------|
| Adiling/Billing Information:         Client Name:       National Guard Bureau         Address 1:       301-IH Old Bay Lane         Address 2:       Ath: NGB-AVN-SI, State Millian         Address 3:       Havre de Grace, Maryland, 210         Phone #:       (410) 942-0273   | V Reservation                        | 254  | d lite still h  | a provided   |            | ABNG    | it, FA  | ureiver, MP<br>Donsi   | Ve <sup>Rancesponsiv</sup><br>Non-Respon                                      | nsive                             |
| AFTER HOURS (must be pre-scheduled) Immediate Date Duc; 124 Hours Time Duc; Comments:   | C Immediate<br>C Next Day<br>C 2 Day | 100000   |   | D Resu<br>(Even<br>Made  |            |         | U Ferci   | Non-Respons  | with Report<br>a <u>UIS-CAN</u><br><u>@us.army.mil</u><br><u>@us.army.mil</u> |                                   |
| Asbestos Auslysis  Mair – Please Indicate Filter Type:  I NIOSH 7400(QTY)  Fiberglass(QTY)  I Fiberglass(QTY)  I MISH 7402(QTY)  NIOSH 7402(QTY)  Other (specify)(QTY)  L Other (specify)(QTY)  EPA Point Count(QTY)  D EPA Point Count(QTY)  G EPA Point Count(QTY)  G Grav. Reduction ELAP 198.6(QTY)  G Other (specify)(QTY)  MISC  Other (specify)(QTY)  MISC  Asbestos Soit PLM_1Quelt FLM_(Quelt FLMTEM_1Quelt) |                                      | I ELAP 198,4/Chu<br>I NY State PLM/J<br>I Residual Ash<br><u>Dust</u><br>I Qual. (pres/obs)<br>I Quan. (s/area) V<br>I Quan. (s/area)D | EM()<br>Vacuum/Dast<br>actum D5755<br>actum D57555<br>actum D57555<br>actum D57555<br>actum D57555<br>actum D57555<br>actum D57555<br>actum D57555<br>actum D57555<br>actum D57555<br>actum D575555<br>actum D57555<br>actum D575555<br>actum D575555<br>actum D575555<br>actum D5755555<br>actum D5755555<br>actum D575555555<br>actum D57555555555<br>actum D5755555555555555555555555555555555555 | (QTY)<br>(95<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>condition unles. | QTY)       | ned net | Pb Dust V<br>Pb Air<br>Pb Soll/So<br>Pb TCLP.<br>Drinking<br>Waste Wa<br>Pb Fumac<br>Collection<br>Collection<br>Spore-Tra<br>Surface S<br>Swface T | hip(QTY)<br>hip (wipe type_f)(A<br>(QTY)<br>hid(QTY)<br>Water □ Pb(QTY)<br>ter □ Pb(QTY)<br>c (Media)<br>Apparatus for Spore<br>Media(QTY)<br>wab(QTY) | Y) [] Cu(QTY) [] A<br>[] Cu(QTY) [] As<br>) (QTY<br>Frans/Air Samples:        | U(QTY)<br>(QTY)<br>(QTY)<br>(QTY) |
| FAILBING BC PLACED TSI PRE WAR 48/1   | VOLUME W<br>E GUIERSI AR             | PE I X I X   | XX  | MOLD AN  | X X BULK   | I See K | 1412  | Date/Time:   | CLIENT CONFACT<br>BORATORY STAFF ON<br>Contact;                               | LY)<br>By;                        |
| Fail River AS LEP OI Gray Paint 1   |                                      |  |   |  |            |         |   | Date/Tune:   | Contact:  | By:                               |
|   |                                      |  |   |  |            |         |   | Date/lime;   | Contact:  | <u>Βγ:</u>                        |
| 1. Date/Time RCVD:  |                                      | /@_  |   | <u> - </u>   | By (Frint) |         |   |  | Sigu:<br>A Requested Record   |                                   |

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# CERTIFICATE OF ANALYSIS



| Client:    | National Guard Bureau  | Job Name:     | MA ARNG                            | Chain Of Custody;  | 515613         |             |
|------------|--|---------------|------------------------------------|--------------------|----------------|-------------|
| Address:   | 301-IH Old Bay Lane, Attn: ARNG-CJG-P,<br>State Military Reservation | Job Location: | 1089 Dwelly Street, Fall River, MA | Date Analyzed:     | 4/24/2013      |             |
|            | Havre de Grace, Maryland 21078                                       | Job Number:   | Fall River RC                      | Person Submitting: | Non-Responsive |             |
|            |  | P.O. Number:  | W912K6-09-A-0003                   |                    |                |             |
| Attention: | Non-Responsive   |               |                                    |                    |                | Page 1 of 2 |
|            |  | Summary       | of Polarized Light Microscopy      |                    |                |             |

| AMA Sample<br>Number | Client<br>Sample #     | Total<br>Asbestos | Chrysotile<br>Percent | Amosite<br>Percent | Crocidolite<br>Percent | Asbestos | Percent | Organic<br>Percent | 1.033 | Particulate<br>Percent | Sample<br>Type | Sample<br>Color | Homogeneity | Analyst<br>ID | Comments |
|----------------------|------------------------|-------------------|-----------------------|--------------------|------------------------|----------|---------|--------------------|-------|------------------------|----------------|-----------------|-------------|---------------|----------|
| 13054172             | FallRiverRC<br>PLM 01A | 60                | 50                    | 10                 |                        |          | <br>    |                    |       | <br>40                 | Pipe wrap      | Off-White       | Homogeneous | PC            |          |
| 13054173             | FallRiverRC<br>PLM 01B | 55                | 50                    | 5                  |                        |          | <br>144 | 5                  |       | <br>40                 | Pipe wrap      | Off-White       | Homogeneous | PC            |          |
| 13054174             | FallRiverRC<br>PLM 01C | 40                | 40                    |                    |                        |          | <br>    | 25                 |       | <br>35                 | Pipe wrap      | Off-White       | Homogeneous | PC            |          |

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# **CERTIFICATE OF ANALYSIS**



| Address:   | 301-IH Old Bay Lane, Attn: ARNG-CJG-P, | Job Location: | 1089 Dwelly Street, Fall River, MA | Date Analyzed:     | 4/24/2013      |             |
|------------|--|---------------|------------------------------------|--------------------|----------------|-------------|
|            | State Military Reservation             | Job Number:   | Fall River RC                      | Person Submitting: | Non-Responsive |             |
|            | Havre de Grace, Maryland 21078         | Job Number:   | Fail River RC                      | rerson Submitting: |                |             |
|            |  | P.O. Number:  | W912K6-09-A-0003                   |                    |                |             |
| Attention: | Non-Responsive                         |               |                                    |                    |                | Page 2 of 2 |
|            |  | Summary       | of Polarized Light Microscopy      |                    |                |             |

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

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

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

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

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

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

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

**Technical Director** 

1-Responsive



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|--|---|---|---|----------------|------------------------------|---------------|--|---|-----------------------------------|
| AMA Anolytical Services, Inc.<br>Focused on Results www.amalab.com<br>AIHA (#100470) NVLAP (#101143-0) NY E<br>4475 Forbes Blvd. • Lanham, MD 20706<br>(301) 459-2640 • (800) 346-0961 • Fax (301)   |   | CHAI  |   |                |                              | Nu            | ease Refer To This<br>mber For Inquires)   | 515   | 613                               |
| Mailing/Billing Information:         1. Client Name: <u>National Guard Bureau</u> 2. Address 1: <u>301-IH Old Bay Lane</u> 3. Address 2: <u>Attn: NGB-AVN-SI, State Milit</u> 4. Address 3: <u>Havre de Grace, Maryland 2</u> 5. Phone #: <u>(410) 942-0273</u>  | ary Reservation<br>1078<br>x #: (410) 942-0 | 0254  | 2. Job Lo<br>3. Job #:<br>4. Contac<br>5. Submit  | Fall<br>t Pers | DA-F                         | Resp          | onsiv  | erion Responsive  | nsive                             |
| AFTER HOURS (must be pre-scheduled) Immediate Date Due: 24 Hours Time Due: Comments:   | Immediate                                   | NORM/   | 11. BUSINESS F  | D Results Rec  | uired By Noon<br>mpt Will Bo | 100 1 1 1     | REPOR  |   | 1                                 |
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| FUI BNEY BCULLE CI   |   |   |   |                |                              |               |  |   |                                   |
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| AMA Analytical Services, Inc.<br>Focused on Results www.amalab.com<br>AIHA (#100470) NVLAP (#101143-0) NY EJ<br>4475 Forbes Blvd. • Lauham, MD 20706<br>(301) 459-2640 • (800) 346-0961 • Fax (301)  |                                      | CHA   | 10030100000000   |                     |           |                                  |                              |                          |   | 0.539   | lease Refer To This<br>unber For Inquires)   |  | 1920                   |
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| SAMPLE INFORMATION<br>CLIENT ID SAMPLE LOCATION/<br>NUMBER IDENTIFICATION DA   | TE (LITERS)                          | WIPE / 5/   |  | 13                  | 2         | 130                              | 1500                         |                          |   | 2 Mar   |  | IENT CONTACT   | LY)                    |
| MIRNAY RCPUR-OIB TSI PIPE WAP 418<br>MIRNAY RCPUR-OIL UNAL PUMP  |                                      |   | X  | X                   | -         | XX                               |                              |                          |   | <del> </del>  | Date/Time:   | Contact:   | <u>By:</u>             |
| attiv d==k signag failig   |                                      |   |  |                     |           |                                  |                              |                          |   |   | Date/Tune:   | Contact:   | By;                    |
|  |                                      |   |  |                     |           |                                  |                              |                          |   |   |  |  |                        |
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|  |                                      |   |  |                     | -         |                                  |                              |                          |   |   |  |  |                        |
| LABORATORY 1. Date/Time RCVD:  |                                      | _/@   |  |                     |           |                                  |                              |                          |   |   |  | Sign:  |                        |
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# APPENDIX D

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# PHOTOGRAPHIC LOG



# PHOTOGRAPHIC LOG

| <b>Client Name:</b>            |                           | Site Location:                  | Project No. |
|--------------------------------|---------------------------|---------------------------------|-------------|
| MA ARNG- Fa                    | all River RC              | 1089 Dwelly St., Fall River, MA | 39743799    |
| Photo No.<br>1                 | <b>Date:</b> 4/8/13       |                                 |             |
| Description:                   |                           |                                 |             |
| Damaged ceil<br>second floor c | ing tiles in<br>lassroom. |                                 |             |

| Photo No.<br>2                              | <b>Date:</b> 4/8/13 |    |
|---|---------------------|----|
| Description:                                |                     | H. |
| Ladder not prosecured and s<br>Assembly Hal | stored in           |    |
|   |                     |    |

P:Project/National Guard Bureau/39743798 IH Services ME & MA/39743799 - MA Sites/Reports/Fall River RC/Fall River RC Photo Log docx Room BEST AVAILABLE COPY FOIA Requested Record #J-15-0085 (MA) Released by National Guard Bureau Page 1235 of 3473



# PHOTOGRAPHIC LOG

| Client Name:                                  |                      | Site Location:   | Project No. |
|---|----------------------|--|-------------|
|   |                      |  |             |
| MA ARNG- Fa                                   | all River RC         | 1089 Dwelly St., Fall River, MA  | 39743799    |
| Photo No.<br>3                                | <b>Date:</b> 4/8/13  |  |             |
| Description:                                  |                      | a set of the second |             |
| Evidence of w<br>intrusion in 1 <sup>st</sup> | ater<br>floor vault. |  |             |
|   |                      | - and the addition   | France      |
|   |                      |  |             |

# Photo No. Date: 4 4/8/13 Description: Damaged presumed asbestos-containing floor tiles at Assembly Hall entrance.

P:Project\National Guard Bureau\39743798 IH Services ME & MA\39743799 - MA Sites\Reports\Fall River RC\Fall River RC Photo Log docx Room BEST AVAILABLE COPY FOIA Requested Record #J-15-0085 (MA) Released by National Guard Bureau Page 1236 of 3473

# APPENDIX E

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

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

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

# **Prepared For:**

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

## Prepared By:

URS Corporation 5 Industrial Way Salem, New Hampshire 03079

INDUSTRIAL HYGIENE SURVEY REPORT AGAWAM ARMORY 140 MAYNARD STREET FEEDING HILLS, MASSACHUSETTS 01030



Office Manager

## October 2005 PN: 39741508

URS Corporation 5 Industrial Way Salem, NH 03079-2830 Tel: 603.893.0616 Fax: 603.893.6240 Posted to NGB FOIA Reading Room May, 2018 Non-Responsive

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- Appendix F PHOTOGRAPHS
- Appendix G RECOMMENDATIONS FOR SURFACE LEAD DUST IN ARMORIES

# **FINDINGS AND RECOMENDATIONS**

| Findings  | Recommendation   | Risk  |  |  |
|---|--|---|--|--|
|   |  | Assessment  |  |  |
| Lighting  |  | Code  |  |  |
| On the day of the survey, the                         | Increase lighting through task                                 | Contract of the second |  |  |
| illuminance in the Commander's                        | lighting (ANSI / IESNA RP-1-04)                                | <b></b>   |  |  |
| Office and Storage (Former                            | ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,                        | RAC 4   |  |  |
| Firing Range).  |  |   |  |  |
| Lead and solution of sense as                         |  | C State of the second  |  |  |
| Lead was detected in wipe                             | Personnel trained in accordance                                |   |  |  |
| samples in amounts greater                            | with the OSHA Lead Standard                                    |   |  |  |
| than 200 μg/ft <sup>2</sup>                           | should clean the former indoor firing                          |   |  |  |
|   | range where lead was detected in                               | RAC 4   |  |  |
|   | quantities of greater than 200                                 |   |  |  |
|   | micrograms per square foot (OSHA                               |   |  |  |
|   | 29 CFR 1910.1025(h)(1))  |   |  |  |
| Asbestos  | · · · · · · · · · · · · · · · · · · ·                          | 也是形式建筑。确定   |  |  |
| Damaged asbestos containing                           | Repair or remove asbestos-                                     |   |  |  |
| pipe and breeching insulation is                      | containing floor tile and tank                                 |   |  |  |
| present   | insulation. Work should be                                     | RAC 3   |  |  |
|   | completed by personnel trained in                              | 10.00   |  |  |
|   | accordance with federal regulations                            |   |  |  |
|   | (OSHA 29 CFR 1910.1001(k)(1))                                  |   |  |  |
| No site specific asbestos                             | Develop a site specific asbestos                               |   |  |  |
| operations and maintenance                            | operations and maintenance plan to                             | <b>D</b> 100  |  |  |
| plan available.                                       | manage asbestos-containing                                     | RAC 3   |  |  |
|   | materials (OSHA 29 CFR   |   |  |  |
|   | 1910.1001(j))  | a kata hara adalar  |  |  |
| Hazard Communication                                  | Develop a site specific bazard                                 | 2084250000000000000000000000000000000000  |  |  |
| No site specific hazard communication plan available. | Develop a site specific hazard<br>communication plan to manage |   |  |  |
| communication plan available.                         | hazardous materials and to educate                             | RAC 4   |  |  |
|   | employees (OSHA 29 CFR   | FVAC 4  |  |  |
|   | 1910.1200(e))  |   |  |  |
| Electrical Safety                                     |  | Revent en en el   |  |  |
| Exposed electrical outlet was                         | Cover live electrical outlets with                             | the Alley of the Chapter State of   |  |  |
| observed in the Former Firing                         | approved outlet cover (OSHA 29                                 | RAC 2   |  |  |
| range   | CFR1910.305(b)(2))   |   |  |  |
|   |  |   |  |  |
| Water damage was observed on                          | Determine and repair source of                                 |   |  |  |
| the ceiling in the men's room.                        | water. Replace water damaged                                   |   |  |  |
| Mold growth could become an                           | building materials and implement a                             |   |  |  |
| issue if left unattended.                             | moisture management program to                                 | RAC 4   |  |  |
|   | provide direction for future water                             |   |  |  |
|   | incursions (Best management                                    |   |  |  |
|   | practice)  |   |  |  |

# 1.0 SUMMARY

At the request of the National Guard Bureau Region North Industrial Hygiene Office (NGB), URS Corporation (URS) conducted an industrial hygiene survey at the Agawam Armory located at 140 Maynard Street in Feeding Hills, Massachusetts. This report includes an executive summary, a description of the survey protocol, a discussion of the survey evaluation and findings and a list of conclusions and recommendations.

On February 10, 2004, Mr Non-Responsive an industrial hygienist with URS, conducted a site visit to the Agawam Armory in Feeding Hills, Massachusetts 01030. The purpose of this site visit was to conduct an industrial hygiene survey, which included the collection of air samples, bulk samples, lighting measurements, and a review of site health and safety procedures. SGT Non-Responsive of the Commonwealth of Massachusetts National Guard was Mr Non-Responsive site contact for this survey.

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

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# 2.0 ADMINISTRATIVE AREA

# 2.1 Operation Description

The Administrative areas include offices, classrooms, the kitchen and hallways. Housekeeping was orderly. The floor was covered with presumed asbestos-containing floor tiles that were in good condition.

Water damage on the ceiling of the Men's Room (Photo # 0013) may indicate the potential for mold growth.

Damaged asbestos-containing pipe insulation was observed outside of Boiler Room "A".

# 2.2 Chemical and Physical Agents Sampled

# 2.2.1 Relative Humidity

Relative humidity levels were measured using a TSI Q-Track (Model 8551) directreading instrument. Relative humidity on the day of the survey averaged 19.9 %. This average reading was below the recommended range of 30.0% to 60.0% set by the American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. (ANSI / ASHRAE Standard 55-2004).

# 2.2.2 Carbon Dioxide

On the day of the survey, carbon dioxide measurements were made at various locations throughout the Armory. Carbon dioxide concentrations averaged 532 parts per million (ppm). Carbon dioxide levels were measured using a direct reading TSI Q-Track (Model 8551).

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

ASHRAE recommends that levels of carbon dioxide be maintained below 700 ppm above background level. Since the average interior reading was recorded at 532 ppm an outside reading was not collected.

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# 2.2.3 Carbon Monoxide

Carbon monoxide was also measured in the Readiness Center. Carbon monoxide levels remained at 0.1 ppm throughout the survey period. The measured level was below the ASHRAE guideline for indoor environments (62.1-2004). Carbon monoxide was measured using a TSI Q-Track (Model 8551).

Key sources of carbon monoxide within indoor environments include internal combustion engines, motor vehicle and forklift exhaust, tobacco smoke, space heaters, and improperly adjusted oil or gas burners. Health effects from exposure to elevated concentrations of carbon monoxide may include fatigue, impairment of visual acuity, irregular heartbeat, headache, nausea, and confusion. ASHRAE (62.1-2004) recommends that average carbon monoxide concentrations not exceed 9 ppm. Typical average concentrations found in commercial buildings range from 0 to 6 ppm.

# 2.2.4 Lighting

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

 Table 2-1

 Lighting Measurements and Recommended Lighting Requirements

| Location           | Function              | Measured<br>Illuminance<br>(lux / foot<br>candles) | Recommended<br>Minimum<br>Illuminance (lux<br>/ foot candles) |
|--------------------|-----------------------|--|---|
| Classroom 1        | Administrative Duties | 916 / 85.1   | 500 / 50  |
| Commander's Office | Administrative Duties | 394 / 36.6   | 500 / 50  |

On the day of the survey the illuminance in the Commander's Office was inadequate.

# 2.2.5 Lead

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

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| Sample Location    | URS <sup>i</sup> Sample<br>Number | Area Wiped<br>(ff) | (µg/ft²) | Maximum<br>Recommended<br>Surface<br>Contamination<br>Level (µg/ft <sup>2</sup> ) |
|--------------------|-----------------------------------|--------------------|----------|---|
| Commander's Office | 0210-15                           | 1.000              | <12      | 200   |
| Classroom 2        | 0210-16                           | 1.000              | 12       | 200   |
| Blank              | 0210-09                           | N/A                | <12      | 200   |

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

One paint chip was collected in the Men's Room where paint was peeling and sent to AMA for analysis. The sample was found to contain lead in a concentration within the allowable limits of the U.S. Housing and Urban Development (HUD) Lead-Based Paint Guidelines. Levels of lead greater than 0.5% by weight are referred to as "lead-containing" (Section 1017 of the Residential Lead-Based Paint Hazard Reduction Act of 1992 (also referred to as Title X)). Table 2-4 below shows the results of the lead paint testing.

# Table 2-4 Level of Lead in Paint Found in the Men's Room

| Sample Location    | URS Sample | Reporting Limit | Final Result  |
|--------------------|------------|-----------------|---------------|
|                    | Number     | (% by Weight)   | (% by Weight) |
| Men's Room Ceiling | 0210-20    | 0.01            | 0.01          |

The analytical report from AMA is contained in Appendix D.

# 2.2.6 Asbestos

One bulk sample was collected from damaged suspect asbestos-containing pipe insulation located in the hall in front of Boiler Room "A" (Photo # 0010) for a determination of asbestos content. Analytical procedures were performed in accordance with the U.S. Environmental Protection Agency (EPA) Recommended Method for the Determination of Asbestos in Bulk Samples by Polarized Light Microscopy and Dispersion Staining (PLM/DS)(EPA-600/M4-82-020. EPA-600/R-93-116). Table 2-5 below presents the results of the sample analysis.

FOIA Requested Record #J-15-0085 (MA) Released by National Guard Bureau Page 1247 of 3473

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# Table 2-5 Sample Results of Suspect ACM

| Sample Location                    | Material Sampled | URS Sample<br>Number | Total<br>Asbestos<br>(%) |
|------------------------------------|------------------|----------------------|--------------------------|
| Hal in Front of Boiler<br>Room "A" | Pipe insulation  | 0210-18A             | 15<br>(chrysotile)       |
| Hal in Front of Boiler<br>Room "A" | Pipe insulation  | 0210-18B             | 15<br>(chrysotile)       |
| Hal in Front of Boiler<br>Room "A" | Pipe insulation  | 0210-18C             | 15<br>(chrysotile)       |

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

# 2.3 Ventilation System Evaluation

Not applicable to this operation.

# 2.4 Noise Measurements

Not applicable to this operation.

# 2.5 Personal Protective Equipment

Not applicable to this operation.

# 2.6 Interpretation of Results

<u>LIGHTING</u>: On the day of the survey, the illuminance in the Commander's Office was inadequate. URS recommends increasing lighting through use of task lights.

<u>ASBESTOS:</u> Damaged asbestos-containing pipe insulation was observed in the hallway in front of Boiler Room "A". This material should be either repaired or removed by a Commonwealth of Massachusetts licensed Asbestos Abatement Contractor.

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

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URS 5

# 3.0 FORMER FIRING RANGE

# 3.1 Operation Description

The firing range has been dismantled and this building area is now primarily used for storage. An electrical outlet was observed in the Former Firing Range without a cover.

# 3.2 Chemical and Physical Agents Sampled

# 3.2.1 Lighting

Lighting in the Former Firing Range was measured using a Sper Scientific Ltd. Light Meter (Model 840020C). Table 3-1 below shows lighting measurements and the recommended lighting requirement (ANSI / IESNA RP –1-04 American National Standard Practice for Office Lighting)

 Table 3-1

 Lighting Measurements and Recommended Lighting Requirements

| Location                      | Function | Measured<br>Illuminance<br>(lux / foot<br>candles) | Recommended<br>Minimum<br>Illuminance (lux<br>/ foot candles) |
|-------------------------------|----------|--|---|
| Former Firing Range<br>Center | Storage  | 17 / 1.6   | 100 / 10  |

The lighting in the storage area (Former Firing Range) was inadequate.

# 3.2.2 Lead

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

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| Sample Location       | URS Sample<br>Number | Area<br>Wiped<br>(ft <sup>2</sup> ) | Result.<br>(µg/ft²) | Maximum<br>Recommended<br>Surface<br>Contamination<br>Level (µg/ft <sup>2</sup> ) |
|-----------------------|----------------------|-------------------------------------|---------------------|---|
| Former Firing Range – | 0210-04              | 1,00                                | 280                 | 200   |
| Impact Area (floor)   |                      |                                     |                     |   |
| Former Firing Range - | 0210-05              | 1.00                                | 220                 | 200   |
| Center (Floor)        |                      |                                     |                     |   |
| Former Firing Range - | 0210-12              | 1.00                                | 210                 | 200   |
| Impact Area (locker)  |                      |                                     |                     |   |
| Former Firing Range - | 0210-13              | 1.00                                | 47                  | 200   |
| Center (locker)       |                      |                                     |                     |   |
| Former Firing Range - | 0210-14              | 1.00                                | 210                 | 200   |
| East (locker)         |                      |                                     |                     |   |
| Blank                 | 0210-09              | N/A                                 | <12                 | 200   |

# Table 3-2 Levels of Lead Dust Found in the Former Firing Range

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

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

| Sample Location     | URS Sample<br>Number |      | Final Result<br>(% by Weight) |
|---------------------|----------------------|------|-------------------------------|
| Former Firing Range | 0210-21              | 0.01 | 0 02                          |

The analytical report from AMA is contained in Appendix D.

# 3.3 Ventilation System Evaluation

Not applicable to this operation.

# 3.4 Noise Measurements

Not applicable to this operation.

# 3.5 Personal Protective Equipment

Not applicable to this operation.

# 3.6 Interpretation of Results

LIGHTING: On the day of the survey lighting in the storage area was inadequate and should be increased.

<u>LEAD</u>: Four of the five surface wipe samples collected in the former firing range were found to contain lead dust levels above the maximum limit set by the National Guard Bureau (See Appendix F). URS recommends that this area be cleaned by properly trained technicians. The NGB has prepared a memorandum titled "Recommendations for Surface Lead Dust in Armories" which is provided in Appendix G.

<u>ELECTRICAL</u>: An electrical outlet was observed in the Former Firing Range without a cover.

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# 4.0 DRILL HALL

# 4.1 Operation Description

The drill hall is used for assembling personnel and storing equipment. The walls are constructed of cinder-block with a concrete floor.

# 4.2 Chemical and Physical Agents Sampled

# 4.2.1 Lighting

Lighting in the drill hall was measured using a Sper Scientific Ltd. Light Meter (Model 840020C). Table 4-1 below shows lighting measurements and the recommended lighting requirement (ANSI / IESNA RP –1-04 American National Standard Practice for Office Lighting)

Table 4-1 Lighting Measurements and Recommended Lighting Requirements

| Location             | Function | Measured<br>Illuminance<br>(lux / foot<br>candles) | Recommended<br>Minimum<br>Illuminance (lux<br>/ foot candles) |
|----------------------|----------|--|---|
| Drill Floor - Center | Assembly | 394 / 36.6   | 100 / 10  |

# 4.2.1 Lead

Wipe testing for lead dust was conducted in the drill hall using ghost wipes, which meet ASTM E 1792 standards. The analytical report from AMA is contained in Appendix D. Table 4-1 below shows the results of the lead sampling.

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| Sample Location         | URS Sample<br>Number | Area Wiped<br>(ff²) | ¦Result <sup>i</sup><br>(µg/ft <sup>2</sup> ) | Maximum<br>Recommended<br>Surface<br>Contamination<br>Level (µg/ff?) |
|-------------------------|----------------------|---------------------|---|--|
| Drill Floor - Northwest | 0210-04              | 1.00                | 38  | 200  |
| Drill Floor Center      | 0210-05              | 1.00                | 50  | 200  |
| Drill Floor Southeast   | 0210-06              | 1.00                | <12   | 200  |
| Drill Floor – North     | 0210-10              | 1.00                | 74  | 200  |
| Drill Floor - Southwest | 0210-11              | 1.00                | 45  | 200  |
| Blank                   | 0210-09              | N/A                 | <12   | 200  |

# Table 4-1 Levels of Lead Dust Found in the Drill Hall

# 4.3 Ventilation System Evaluation

Not applicable to this operation.

# 4.4 Noise Measurements

Not applicable to this operation.

# 4.5 Personal Protective Equipment

Not applicable to this operation.

# 4.6 Interpretation of Results

LIGHTING: On the day of the survey lighting was adequate in the Drill Half.

URS 10

# 5.0 BOILER ROOM

# 5.1 Operation Description

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

# 5.2 Chemical and Physical Agents Sampled

# 5.2.1 Asbestos

Bulk samples were collected from damaged suspect asbestos-containing breeching insulation (Photo # 0011) for a determination of asbestos content. Analytical procedures were performed in accordance with the U.S. Environmental Protection Agency (EPA) Recommended Method for the Determination of Asbestos in Bulk Samples by Polarized Light Microscopy and Dispersion Staining (PLM/DS)(EPA-600/M4-82-020. EPA-600/R-93-116). Table 5-1 below presents the results of the sample analysis.

| Sample Location | Material Sampled     | URS Sample<br>Number | Total<br>Asbestos<br>(%) |
|-----------------|----------------------|----------------------|--------------------------|
| Boiler Room "A" | Breeching Insulation | 0210-19A             | 60<br>(chrysotile)       |
| Boiler Room "A" | Breeching Insulation | 0210-19B             | 60<br>(chrysotile)       |
| Boiler Room "A" | Breeching Insulation | 0210-19C             | 60<br>(chrysotile)       |

Table 5-1 Sample Results of Suspect ACM

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

# 5.3 Ventilation System Evaluation

Not applicable to this operation.

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# 5.4 Noise Measurements

Not applicable to this operation.

# 5.5 Personal Protective Equipment

Not applicable to this operation.

# 5.6 Interpretation of Results

<u>ASBESTOS:</u> Samples of the breeching insulation where found to contain asbestos in a concentration greater than one percent. The breeching insulation had some damaged sections. It is recommended that the insulation be removed of repaired by a licensed Commonwealth of Massachusetts Asbestos Abatement Contractor.

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URS 12

# 6.0 SAFETY AND INDUSTRIAL HYGIENE PROGRAMS

# 6.1 Confined Spaces

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

# 6.2 Hearing Conservation

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

# 6.3 Respiratory Protection

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

# 6.4 Hazard Communication

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

# 6.5 Personal Protective Equipment

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

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# 7.0 REFERENCES

American National Standards Institute

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

American Society of Heating Refrigerating and Air-Conditioning Engineers

ANSI/ASHRAE Standard 55-2004: Thermal Environmental Conditions for Human Occupancy

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

Army Corps of Engineers

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

Department of the Army Ergonomics Program Pamphlet 40-21 (15 August 2003)

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

# Department of Defense

DoD Hearing Conservation Program Standard 6055.12 April 1996

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

# U.S. Environmental Protection Agency

Asbestos Hazard Emergency Response Act (40 CFR Part 763)

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

U.S. Housing and Urban Development

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

U. S. Occupational Safety and Health Administration

Standard for General Industry: 29 CFR 1910

APPENDIX A

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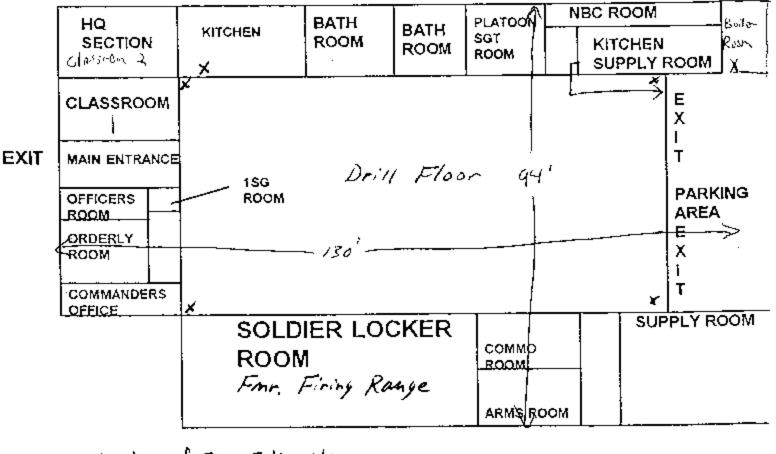
SHOP DRAWING

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# LAY OUT OF ARMORY

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X - Location of Fire Estinguishers

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FOIA Requested Record #J-15-0085 (MA) Released by National Guard Bureau Page 1259 of 3473 APPENDIX B

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# APPENDIX C

# HAZARDOUS MATERIALS LIST

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NO CHEMICAL INVENTORY AVAILABLE

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APPENDIX D

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ANALYTICAL RESULTS

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#### AMA Analytical Services, Inc. CERTIFICATE OF ANALYSIS A Specialized Environmental Laboratory 128471 Chain Of Custody: National Guard Bureau Clicut: Date Analyzed: 6/8/2004 301-IH Old Bay Lane, Altn: NGB-AVN-SL .1 Address:

ŝ 0 No.2746

Attention:

State Military Reservation Havre de Grace, Maryland 21078

| Job Name:     | Аттолу               | Chain Of Cus |
|---------------|----------------------|--------------|
| Jub Location: | Agawam, MA           | Date Analyze |
| Job Number:   | Not Provided         | Person Submi |
| P.O. Number:  | BPA #W912K6-04-A0002 | Report Date: |

Person Submitting:

08-Jun-04

Page 1 of 1

NY ELAP AIHA

#### Summary of Atomic Absorption Analysis for Lead

|     | A Sample<br>Number | Client Sample<br>Number | Analysis Type | Sample Type | Air Valume<br>(L) | Area Wiped<br>(ft <sup>a</sup> ) |       | orting<br>imit     |   | final Res | olt                | Comments |
|-----|--------------------|-------------------------|---------------|-------------|-------------------|----------------------------------|-------|--------------------|---|-----------|--------------------|----------|
|     | 448996             | 0210-04                 | Flame         | Wipe        | ****              | 1.000                            | 12.00 | ug/fP              |   | 280       | ug/ft²             |          |
|     | 448997             | 0210-05                 | Flame         | Wipe        | ****              | 1.000                            | 12.00 | ug/ff <sup>2</sup> |   | 220       | ug/ft <sup>2</sup> |          |
| D   | 448998             | 0210-05                 | Flame         | Wipe        |                   | 1.000                            | 12.00 | ug/ff              |   | 38        | ug/ft²             |          |
| 0   | 4489999            | 0210-07                 | Flame         | Wipe        |                   | 1.000                            | 12.00 | ug/ftª             |   | 50        | ught               |          |
| 5 0 | 449000             | 0210-08                 | Flame         | Wipe        | ****              | 1.000                            | 12.00 | ug/ft²             | < | 12        | ug/ft²             |          |
|     | 449001             | 0210-09                 | Flame         | Wipe Blank  | ****              | N/A                              | 12.00 | ug                 | < | 12        | ug                 |          |
| 3 0 | 449002             | 0210-20                 | Flame         | Paint Chip  | ****              | N/A                              | 0.01  | %РЪ                | < | 0.01      | %P5                |          |
|     | 449003             | 0210-21                 | Flame         | Paint Chip  | ****              | N/A                              | 0.01  | %РЪ                |   | 0.02      | %Ръ                |          |

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

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

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

ug = micrograms ug/L = parts per billion (ppb)

. terme: A . For Furnace: . opticable mg/Kg . percent lead by weight . ste: All results have two significant of requested Record #J-1 . eleased by National GL MdIG: E Ph00022 Shote: All results have two significant digits. Any additional digits shown should not be

Analyst

Technical Manager:



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# AMA Analytical Services, Inc.

#### NY ELAP CERTIFICATE OF ANALYSIS A Specialized Environmental Laboratory AIHA 128471 Chain Of Custody: National Guard Bureau Clicot: Job Name: Armory 05/28/2004 301-IH Old Bay Lane, Attn: NGB-AVN-SI, Job Location: Agawam, MA Date Analyzed: Address: State Military Reservation Person Submitting: Not Provided Job Number: Havre de Grace, Maryland 21078 BPA #W912K6-04-A0002 P.O. Number:

Attention:

# Summary of Polarized Light Microscopy

| MA Sample<br>Number | Client<br>Sample # | Total<br>Asbestos | Chrysotile<br>Percent | Amosite<br>Percent | Crocidolite<br>Percent | Other<br>Asbestos<br>Percent | Mineral<br>Wool<br>Percent | Fiberglass<br>Percent | Organic<br>Percent | Synthelic<br>Percent | Other<br>Percent | Particulate<br>Percent | Sample<br>Color | Analyst<br>ID | Comments |
|---------------------|--------------------|-------------------|-----------------------|--------------------|------------------------|------------------------------|----------------------------|-----------------------|--------------------|----------------------|------------------|------------------------|-----------------|---------------|----------|
| 0449004             | 0210-18 A          | 15                | 15                    |                    |                        |                              | 20                         | -                     |                    | <u> 1944</u>         | -                | 65                     | Gray            | СК            |          |
| 0449005             | 0210-18 B          | 15                | 15                    |                    | -                      | **                           | 20                         |                       |                    | -                    |                  | 65                     | Gray            | CK            |          |
| 0449006             | 0210-18 C          | 15                | 15                    |                    | -                      |                              | 25                         |                       | TR                 | -                    |                  | 60                     | Gray            | СК            |          |
| 0449007             | 0210-19 A          | 60                | 60                    |                    | -                      | ••                           | ••                         | -                     |                    | -                    |                  | 40                     | Gray            | СК            |          |
| 0449008             | 0210-19 B          | 60                | 60                    |                    |                        | 52                           |                            |                       |                    |                      |                  | 40                     | Gray            | CK            |          |
| 0449009             | 0210-19 C          | 60                | 60                    |                    |                        |                              |                            |                       |                    | ***                  | 3 <del>44</del>  | 40                     | Gray            | CK            |          |

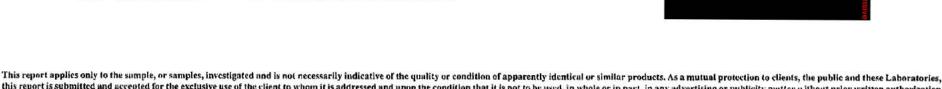
The following footnotes only apply to those samples which the total asbestos result is flagged with a note number.

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

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

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





this report 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 uppropriate regulatory guidelines, unless otherwise requested by the client. NVLAP Accreditation applies only to polarized light microscopy of bulk samples and transmission electron microscopy of AITERA air samples. This report must not be used to claim, and does not imply product certification, approval, or endorscment by NVLAP, NIST, or any agency of the Federal Government.

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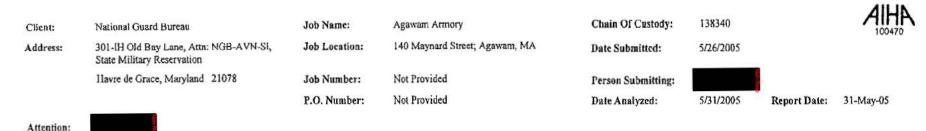
May

# AMA Analytical Services, Inc.



A Specialized Environmental Laboratory

#### CERTIFICATE OF ANALYSIS



Summary of Atomic Absorption Analysis for Lead

Page 1 of 1

| AMA Sample<br>Number | Client Sample<br>Number | Analysis Type | Sample Type | Air Volume<br>(L) | Area Wiped<br>(ft²) |       | orting<br>imit | F | inal Res | alt    | Comment |
|----------------------|-------------------------|---------------|-------------|-------------------|---------------------|-------|----------------|---|----------|--------|---------|
| 0542001              | 0210-10                 | Flame         | Wipe        | ++++              | 1.000               | 12.00 | ug/ft²         |   | 74       | ug/fl² |         |
| 0542002              | 0210-11                 | Flame         | Wipe        | ****              | 1.000               | 12.00 | ug/ft²         |   | 45       | ug/ft² |         |
| 0542003              | 0210-12                 | Flame         | Wipe        | ••••              | 1.000               | 12.00 | ug/ft²         |   | 210      | ug/fl² |         |
| 0542004              | 0210-13                 | Flame         | Wipe        | ****              | 1.000               | 12.00 | ug/ft²         |   | 47       | ug/fl² |         |
| 0542005              | 0210-14                 | Flame         | Wipe        | ****              | 1.000               | 12.00 | ug/ft²         |   | 210      | ug/ft² |         |
| 0542006              | 0210-15                 | Flame         | Wipe        | ****              | 1.000               | 12.00 | ug/fl²         | < | 12       | ug/ft² |         |
| 0542007              | 0210-16                 | Flame         | Wipe        | ****              | 1.000               | 12.00 | ug/fl²         |   | 12       | ug/ft² |         |
| 0542008              | 0210-17                 | Flame         | Wipe Blank  | ****              | N/A                 | 12.00 | ug             | < | 12       | ug     |         |

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

ug = micrograms

Note: All samples were received in good condition unless otherwise noted. Note: All results have two significant digits. Any additional digits shown

should not be considered when interpreting the result.

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

ug/L = parts per billion (ppb)

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



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N/A = Not Applicable

%Pb = percent lead by weight

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

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### APPENDIX E

#### TRAINING CERTIFICATES

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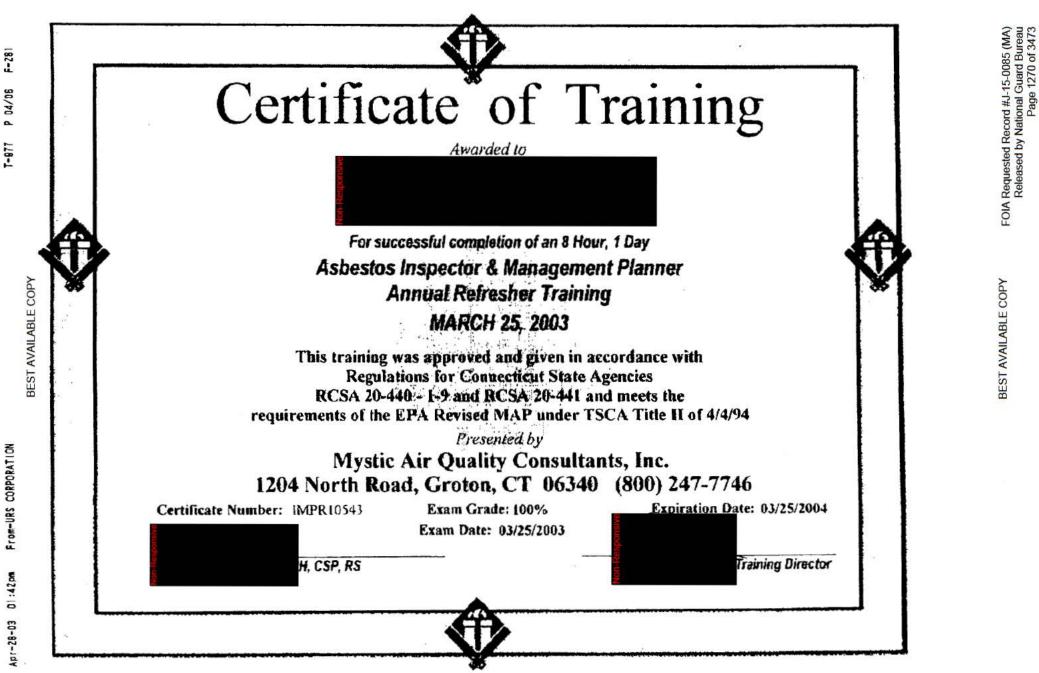
T-295 P.02/07 F-966

# Non-Responsive

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FOIA Requested Record #J-15-0085 (MA) Released by National Guard Bureau Page 1269 of 3473



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APPENDIX F

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**PHOTOGRAPHS** 

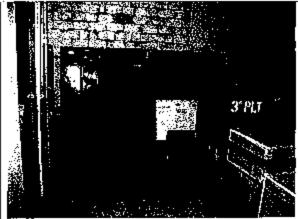


Photo 0001: Former Firing Range – Wipe sample 0210-04 (floor); wipe sample 0210-12 (locker)



Photo 0003: Former Firing Range – Wipe sample 0210-14

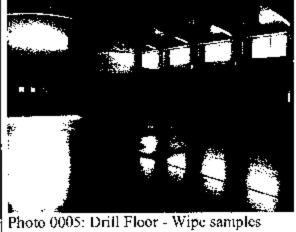


Photo 0005: Drill Floor - Wipe sample 0210-07 and 0210-08



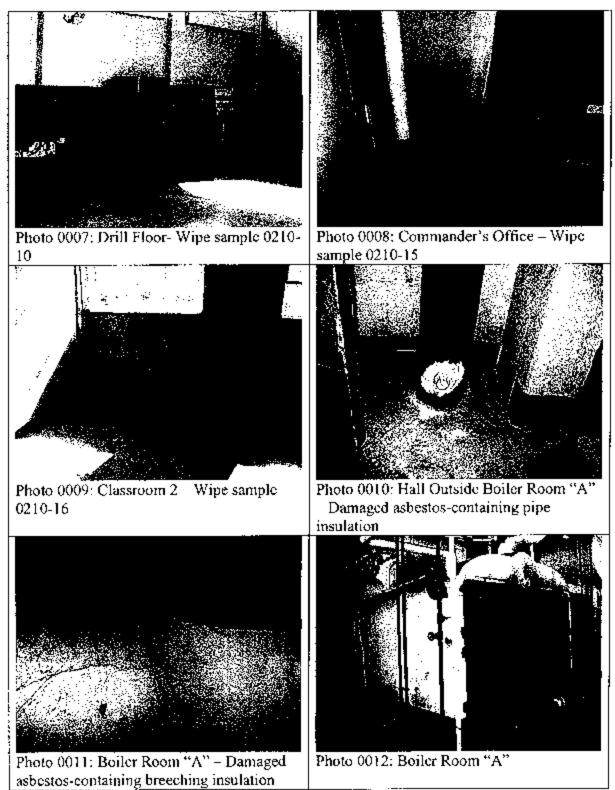
Photo 0002: Former Firing Range - Wipe sample 0210-05 (floor); wipe sample 0210-13 (locker)

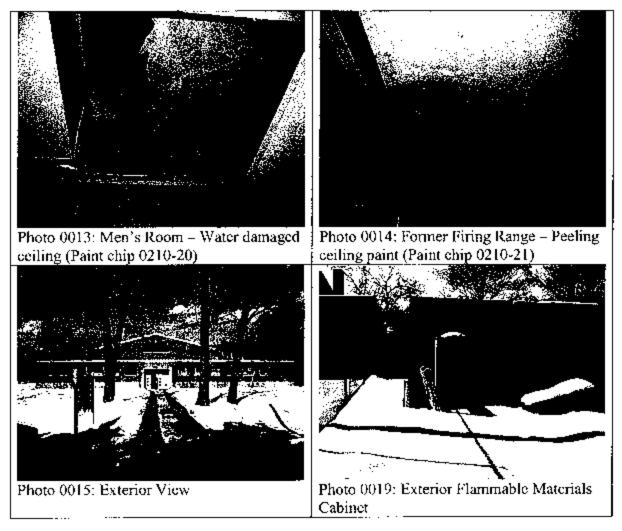


Photo 0004: Drill Floor - Wipe sample 0210-06



Photo 0006: Drill Floor - Wipe sample 0210-11





APPENDIX G

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## RECOMMENDATIONS FOR SURFACE LEAD DUST IN ARMORIES

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Subject: Recommendations for Surface Lead Dust in Armories

1. In armories that do not contain childcare facilities, the National Guard Bureau (NGB) Region North Industrial Hygiene Office recommends cleaning the areas in which sample results are greater than 200 micrograms per square foot ( $\mu$ g/ft<sup>2</sup>). 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/ft<sup>2</sup>) and windowsills (250 µg/ft<sup>2</sup>) in residential dwellings and child occupied facilities. A child occupied facility is defined as a building, or portion of a building, constructed prior to 1978, visited regularly by the same child, 6 years of age or under, on at least two different days within any week (Sunday through Saturday period), provided that each day's visit lasts at least 3 hours and the combined weekly visit lasts at least 6 hours, and the combined annual visits last at least 60 hours. Most of the wipe samples in armories were collected in undisturbed areas and therefore, results are worst case scenarios and do not correlate to these standards.

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

c. OSHA used to cite a level of 200  $\mu$ g/ft<sup>2</sup> 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<sup>2</sup> is a safe surface contamination level. They have also applied these standards as the decontamination levels for surfaces in administrative offices.

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

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

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



#### Prepared For:

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

#### **Prepared By:**

URS Corporation 5 Industrial Way Salem, New Hampshire 03079

INDUSTRIAL HYGIENE SURVEY REPORT MASSACHUSETTS NATIONAL GUARD AGAWAM READINESS CENTER 140 MAYNARD STREET FEEDING HILLS, MA 01030

July 9, 2013 PN: 39743799





Project Manager

Director, Industrial Hygiene Services

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#### FINDINGS AND RECOMMENDATIONS MASSACHUSETTS NATIONAL GUARD READINESS CENTER AGAWAM, 140 MAYNARD ST., FEEDING HILLS, MA

| Findings   | Recommendations  | Risk<br>Assessment<br>Code (RAC) |
|--|--|----------------------------------|
| Lighting   |  |                                  |
| On the day of the survey, the illuminance was inadequate in several locations tested.  | Increase lighting in the work areas.<br>While work is in progress, these<br>areas must be lighted by at least the<br>minimum lighting intensities (ANSI /<br>IESNA RP-1-04).             | RAC 4                            |
| Ergonomics   |  |                                  |
| Computer workstations in the<br>Administrative Areas were<br>observed with un-adjustable<br>chairs, arm rests and<br>keyboards.  | Ergonomic issues with regard to the desks and chairs should be corrected by fitting the workplace to the worker (Department of the Army Pamphlet 40-21, Chapter 4, Page 7, Section 4-3). | RAC 3                            |
| Lead   |  |                                  |
| One of the 10 lead wipe<br>samples indicated elevated<br>lead levels.  | Personnel trained in accordance with<br>the OSHA Lead Standard should<br>clean the areas where elevated lead<br>dust levels were identified (OSHA 29<br>CFR 1910.1025(h)(1)).            | RAC 3                            |
| <b>Emergency Action Plans</b>  |  |                                  |
| Emergency escape routes were<br>not posted throughout the<br>facility.   | Facilities must have emergency<br>action plans including emergency<br>escape procedures and route<br>assignments (29 CFR 1910.38<br>(a)(2)(i)).  | RAC 3                            |
| Asbestos   |  |                                  |
| Presumed asbestos-containing<br>floor tiles and associated<br>mastic were observed<br>throughout the facility; an<br>Asbestos Operation and<br>Maintenance Program was not<br>available on-Site. | Develop a site-specific asbestos<br>operations and maintenance program<br>for management of asbestos-<br>containing materials in place as<br>required by OSHA 29 CFR<br>1910.1001(j)(2). | RAC 4                            |
| PPE  |  |                                  |
| Hazard assessments have not<br>been conducted to determine<br>whether personal protective<br>equipment is required.  | Conduct a hazard assessment of site<br>operations to determine what types of<br>PPE are required for each type of<br>work (29 CFR 1910.132(d)(1)).                                       | RAC 4                            |

| Findings  | Recommendations   | Risk<br>Assessment<br>Code (RAC) |
|---|---|----------------------------------|
| Relative Humidity   |   |                                  |
| The average relative humidity<br>level in the Readiness Center<br>was above the recommended<br>range. | Relative humidity levels should be<br>maintained within the comfort range<br>recommended by ASHRAE (55-<br>2010).   | RAC 4                            |
| Chemical Storage  |   |                                  |
| Chemicals/ flammable<br>materials were observed<br>improperly stored and labeled.                     | Each container of hazardous<br>chemicals in the work place must be<br>labeled with the identity of the<br>chemical and appropriate hazard<br>warnings (29 CFR 1910.1200). | RAC 3                            |

#### 1.0 SUMMARY

At the request of the National Guard Bureau (NGB) Region North Industrial Hygiene Office, URS Corporation (URS) conducted an industrial hygiene survey at the Readiness Center in Agawam/Feeding Hills, Massachusetts.

URS representative, Ms. **Non-Responsive**, conducted the Industrial Hygiene Survey on May 24, 2013. The scope of work included an overall assessment of the facility as it relates to industrial hygiene and included a walkthrough of the facility, collection of photographs, and when required, measurements for illumination (light), area and personal air sampling, and noise monitoring.

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

<u>GENERAL</u>: Chemicals/ flammable materials in the Supply Room and administration areas were observed not properly stored in a flammables cabinet. Illuminated emergency exit signs and escape plans were not posted throughout the facility.

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

<u>LEAD</u>: One of ten wipe samples collected in the Readiness Center was found to contain lead in a concentration above the recommended limit set by the NGB, Region North IH Office. None of paint chip samples collected in the Readiness Center were found to contain lead in a concentration above the recommended limit set by the NGB, Region North IH Office. <u>ASBESTOS</u>: Presumed asbestos-containing floor tiles and associated mastic were identified during this survey, however no Asbestos Operations and Maintenance Program was found on site. Until suspect materials have been sampled and determined not to contain asbestos, they must be presumed to be asbestos-containing and managed accordingly.

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

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

#### 2.0 SUPPLY / TRAINING AREA

#### 2.1 Operation Description

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

#### 2.2 Chemical and Physical Agents Sampled

#### 2.2.1 Carbon Dioxide

On the day of the survey, carbon dioxide measurements were made in the Readiness Center. Interior carbon dioxide concentrations were found to be between 429 and 554 parts per million (ppm). Carbon dioxide levels were measured using a direct-reading TSI Q-Trak (Model 8551).

Carbon dioxide is a normal constituent of the atmosphere and ranges from about 250 to 450 ppm. The major source of excess carbon dioxide in the indoor environment is human respiration. Other sources can include open-flame heaters, fermentation processes, and motor vehicles. Carbon dioxide itself is not normally a cause of indoor air quality problems but is typically used as an indicator of the adequacy of fresh air intake. As the concentration of carbon dioxide increases, so do the background levels of other air contaminants.

To minimize air quality complaints, the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) has proposed that the carbon dioxide concentration within an occupied workspace be maintained below 700 ppm above ambient outside levels. For example, on the day of the survey, the outside carbon dioxide level was measured at 408 ppm. Therefore ASHRAE (Standard 62.1-2010) would recommend that interior carbon dioxide concentrations be maintained at or below 1,108 ppm. Using the ASHRAE guideline, the readings at the subject site were found to be below the suggested indoor to outdoor differential concentration.

#### 2.2.2 Carbon Monoxide

The carbon monoxide concentration in the Readiness Center was measured to range from 0.1 ppm to 0.6 ppm on the day of the survey. ASHRAE recommends that average carbon monoxide concentrations not exceed 9 ppm. Typical average concentrations found in commercial buildings range from 0 to 6 ppm. The measured levels were below the ASHRAE guideline for indoor environments. Carbon monoxide was measured using a TSI Q-Trak Plus (Model 8554).

Key sources of carbon monoxide within indoor environments include internal combustion engines, motor vehicle and forklift exhaust, tobacco smoke, space heaters, and improperly adjusted oil or gas burners.

#### 2.2.3 Relative Humidity

The average relative humidity within the Readiness Center measured with the Q-Trak Plus was 70.7%, which was above the guideline of less than 65% recommended by ASHRAE.

#### 2.2.4 Temperature

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

The average temperature inside the Readiness Center was, 74.5 °F, which was within the guideline of 68 to 75 °F recommended by ASHRAE for thermal comfort.

### 2.2.5 Lighting

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

| Location  | Function      | Measured<br>Illuminance<br>in Foot<br>Candles<br>(FC) | Recommended<br>Minimum<br>Illuminance in<br>Foot Candles<br>(FC) |
|---|---------------|---|--|
| Classroom, table, adjacent to<br>projection screen      | Admin         | 21.7  | 50   |
| Kitchen, counter, adjacent to sink and microwave        | Break<br>Room | 20.0  | 50   |
| Alpha Company office, desk- 1 <sup>st</sup><br>Sergeant | Admin         | 26.3  | 50   |
| Office, desk  | Admin         | 17.2  | 50   |
| Office, conference table                                | Admin         | 18.8  | 50   |
| Office, desk, next to clock and printer                 | Admin         | 12.6  | 50   |
| Office, desk, next to printer and<br>windows            | Admin         | 17.1  | 50   |
| Office, desk, next to windows                           | Admin         | 26.1  | 50   |
| Office, desk-   | Admin         | 17.3  | 50   |
| Office, desk-   | Admin         | 36.4  | 50   |
| Office, south desk- vacant                              | Admin         | 46.7  | 50   |
| Training Room, desk, adjacent to<br>cabinet             | Admin         | 29.1  | 50   |
| Training Room, desk-                                    | Admin         | 35.0  | 50   |
| Corridor, adjacent to PT Room                           | Hall          | 10.3  | 5  |
| Corridor, adjacent to Training Room                     | Hall          | 12.5  | 5  |
| Supply Room, desk-                                      | Admin         | 39.3  | 50   |
| Assembly Hall, loading area                             | Hall          | 20.2  | 5  |
| Locker Room, middle isle                                | Storage       | 55.2  | 30   |
| Corridor, admin west                                    | Hall          | 15.2  | 5  |
| Corridor, admin east                                    | Hall          | 92.5  | 5  |

 Table 2-1

 Lighting Measurements and Recommended Lighting Requirements

On the day of the survey, the illuminance in the Readiness Center was determined to be inadequate in thirteen of the office/administrative locations.

#### 2.2.6 Lead

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

| Sample Location   | URS<br>Sample<br>Number | Area<br>Wiped<br>in<br>Square<br>Feet<br>(ft <sup>2</sup> ) | Result in<br>Micrograms/<br>Square Foot<br>(µg/ft <sup>2</sup> ) | Maximum<br>Surface<br>Contamination<br>Level in<br>Micrograms/<br>Square Foot<br>(μg/ft <sup>2</sup> ) |
|---|-------------------------|---|--|--|
| Office, Non-Responsive<br>cabinet adjacent to door<br>and desk        | Agawam RC<br>W-01       | 0.108   | <110   | 200  |
| Office, window sill<br>adjacent to conference<br>table                | Agawam RC<br>W-02       | 0.10 <mark>8</mark>   | <110   | 200  |
| Office, window sill<br>adjacent to desk                               | Agawam RC<br>W-03       | 0.108   | <110   | 200  |
| Women's Latrine, window sill adjacent to toilet                       | Agawam RC<br>W-04       | 0.108   | <110   | 200  |
| Training Room, middle,<br>top of cabinet adjacent to<br>door and desk | Agawam RC<br>W-05       | 0.108   | < <mark>11</mark> 0  | 200  |
| Classroom, east end, corner, floor                                    | Agawam RC<br>W-06       | 0.108   | <110   | 200  |
| Men's Locker Room,<br>north corner, window sill<br>behind locker      | Agawam RC<br>W-07       | 0.10 <mark>8</mark>   | 2,700  | 200  |
| Supply Room, top of<br>cabinet adjacent to<br>loading area            | Agawam RC<br>W-08       | 0.108   | <110   | 200  |
| Assembly Hall, top of<br>cabinet adjacent to<br>storage door          | Agawam RC<br>W-09       | 0.108   | <110   | 200  |
| PT Room, top of cabinet<br>adjacent to doorway                        | Agawam RC<br>W-10       | 0.108   | <110   | 200  |

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

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

No areas of peeling paint were identified for sample collection during this survey.

#### 2.2.7 Asbestos

No damaged, friable suspect material was identified during this survey for sample collection.

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

#### 2.3 Ventilation System Evaluation

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

#### 2.4 Noise Measurements

Area noise dosimetry was conducted within the administrative office area. Area exposures were measured using a data-logging Spark 703+ Noise Dosimeter. Area noise dosimetry results indicated that, on the day of the survey, workers were not exposed to noise levels above the DoDI Hearing Conservation Standard (6055.12 3 December 2010) of 85 decibels, A scale (dBA)/8-hour day. Table 2-4 indicates the individual monitored, the tasks performed and noise exposures.

Table 2-4 Noise Dosimetry Data

| Location               | Task           | Sample<br>Duration in<br>Minutes | Monitoring<br>Result TWA<br>(dBA)* | Hearing<br>Protection |
|------------------------|----------------|----------------------------------|------------------------------------|-----------------------|
| Office- Non-Responsive | Administrative | 364                              | 64.0                               | N/A                   |

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

#### 2.5 Personal Protective Equipment

Personal protective equipment was orderly and readily available to employees in the Readiness Center. Personal protective equipment included safety glasses, ear plugs and nitrile gloves. No personal protective equipment was observed in use on the day of URS' site visit.

#### 3.0 SAFETY AND INDUSTRIAL HYGIENE PROGRAMS

#### 3.1 Confined Spaces

A written confined spaces program is not applicable to this facility. A confined space program was identified at the facility.

#### 3.2 Hearing Conservation

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

#### 3.3 **Respiratory Protection**

A site-specific written program regarding Respiratory Protection was not identified on site. No operations were observed by URS that would require the use of respiratory protection.

#### 3.4 Hazard Communication

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

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

#### 3.5 Personal Protective Equipment

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

#### 3.6 Asbestos Operations and Maintenance Program

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

#### 3.7 Safety

Chemicals/flammable materials in the Supply Room and administrative areas were observed not properly stored in a flammables cabinet. Illuminated emergency exit signs and escape plans were not posted throughout the facility.

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#### 4.0 REFERENCES

American Conference of Governmental Industrial Hygienists

Industrial Ventilation: A Manual of Recommended Practice, 27<sup>th</sup> Edition, 2010

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

American National Standards Institute

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

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

American Society of Heating, Refrigerating and Air-Conditioning Engineers

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

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

Department of the Army

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

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

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

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

National Guard Pamphlet 420-15, Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges, 3 November 2006

Department of Defense

DoDI 6055.12, Hearing Conservation, 3 December 2010

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

National Institute for Occupational Safety and Health

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

U. S. Environmental Protection Agency

Asbestos Hazard Emergency Response Act (40 CFR Part 763)

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

U. S. Department of Housing and Urban Development

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

U. S. Occupational Safety and Health Administration

Standard for General Industry: 29 CFR 1910

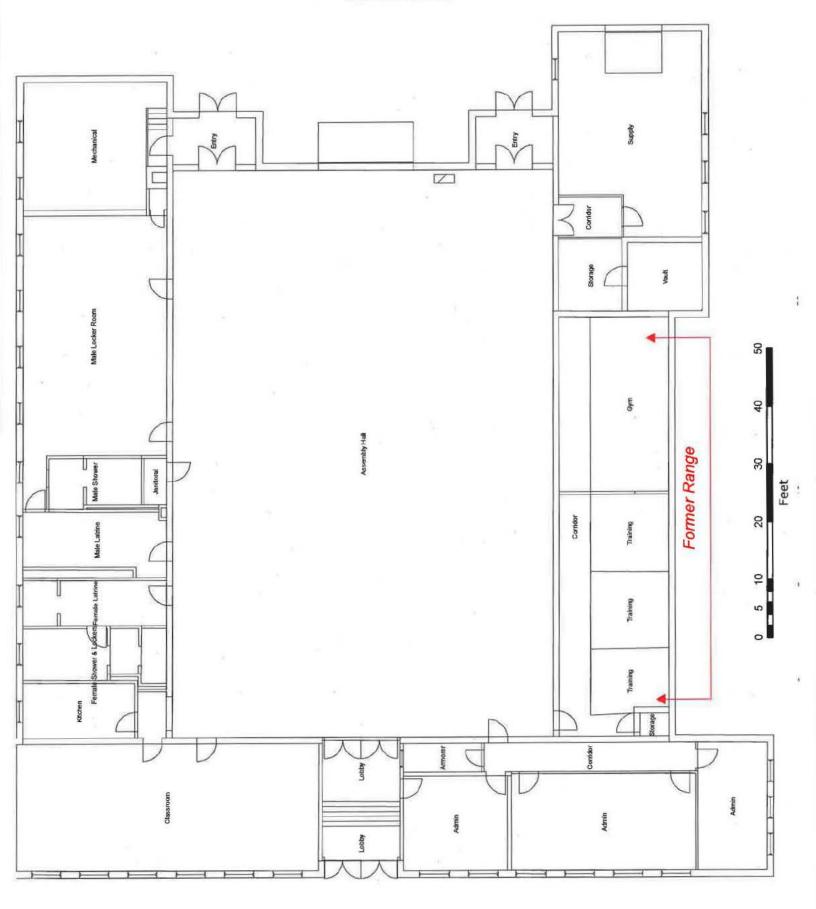
OSHA Clarification Letter – Clarification of "as free as practicable" of lead contamination under 29 CFR 1926.62, 13 January 2003.

### APPENDIX A

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### SHOP DRAWING

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#### APPENDIX B

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#### PERSONNEL LIST

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e

Fill time staff

-Responsi



F

# Non-Responsive

List of fall time staff

#### APPENDIX C

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#### ANALYTICAL RESULTS

# **AMA Analytical Services, Inc.**

Æ

Attention:

#### A Specialized Environmental Laboratory

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#### **CERTIFICATE OF ANALYSIS**

AIHA LAP, LLC ACCREDITED LABORATORY INDUSTRIAL HYGIENE, ENVIRONMENTAL LEAD & ENVIRONMENTAL MICROBIOLOGY ISOME 17095-2005 WWW althouscreditediates org

LAS #100470

| Client:  | National Guard Bureau  | Job Name:     | MA ARNG          | Chain Of Custody:  | 515977                         |
|----------|--|---------------|------------------|--------------------|--------------------------------|
| Address: | 301-IH Old Bay Lane, Attn: ARNG-CJG-P,<br>State Military Reservation | Job Location: | Agawam RC        | Date Submitted:    | 5/28/2013                      |
|          | Havre de Grace, Maryland 21078                                       | Job Number:   | 39743799.00001   | Person Submitting: | Non-Responsive                 |
|          |  | P.O. Number:  | W912K6-09-A-0003 | Date Analyzed:     | 6/3/2013 Report Date: 6/3/2013 |

Summary of Atomic Absorption Analysis for Lead

Page 1 of 2

| AMA Sample<br>Number<br>13065715 | Client Sample<br>Number<br>RC Agawam W-01 | Analysis Type<br>Flame | Sample Type<br>Wipe | Air Volume<br>(L)<br>**** | Area Wiped<br>(ft²) | 20000 | oorting<br>Jimit | Total ug | Final Res | Comments |  |
|----------------------------------|---|------------------------|---------------------|---------------------------|---------------------|-------|------------------|----------|-----------|----------|--|
|                                  |   |                        |                     |                           | 0.108               | 110   | ug/ft²           | <12      | <110      | ug/ft²   |  |
| 13065716                         | RC Agawam W-02                            | Flame                  | Wipe                | ****                      | 0.108               | 110   | ug/ft²           | <12      | <110      | ug/ft²   |  |
| 13065717                         | RC Agawam W-03                            | Flame                  | Wipe                | ****                      | 0.108               | 110   | ug/ft²           | <12      | <110      | ug/ft²   |  |
| 13065718                         | RC Agawam W-04                            | Flame                  | Wipe                | ****                      | 0.108               | 110   | ug/ft²           | <12      | <110      | ug/ft²   |  |
| 13065719                         | RC Agawam W-05                            | Flame                  | Wipe                | ****                      | 0.108               | 110   | ug/ft²           | <12      | <110      | ug/ft²   |  |
| 13065720                         | RC Agawam W-06                            | Flame                  | Wipe                | ****                      | 0.108               | 110   | ug/ft²           | <12      | <110      | ug/fl²   |  |
| 13065721                         | RC Agawam W-07                            | Flame                  | Wipe                | ****                      | 0.108               | 110   | ug/ft²           | 290      | 2700      | ug/ft²   |  |
| 13065722                         | RC Agawam W-08                            | Flame                  | Wipe                | ****                      | 0.108               | 110   | ug/ft²           | <12      | <110      | ug/îl²   |  |
| 13065723                         | RC Agawam W-09                            | Flame                  | Wipe                | ****                      | 0.108               | 110   | ug/ft²           | <12      | <110      | ug/ft²   |  |
| 13065724                         | RC Agawam W-10                            | Flame                  | Wipe                | ****                      | 0.108               | 110   | ug/ft²           | <12      | <110      | ug/ft²   |  |
| 13065725                         | RC Agawam TB-W                            | Flame                  | Wipe Blank          | ****                      | N/A                 | 12    | ug               |          | <12       | ug       |  |
|                                  |   |                        |                     |                           |                     |       |                  |          |           |          |  |

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

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| AIHA (#100470)<br>4475 Forbes Bly                       | NVLAP (#101143-0  | .com<br>) NY E<br>06 |          |  | (               | CH            | AI                  | N            | OF  | 'C     | US       | TC   | D           | Y             |         |              |        | ease Refer To This<br>mber For Inquires) | 515   | 5977   |
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| ACCOUNTS AND ACCOUNTS                                   | (800) 346-0961 • Faz  | x (301)              | 459      | -2643  |                 |               |                     | P.,          |   |        |          |  |             |               |         |              |        |  |   |  |
| ailing/Billing Inform<br>Client Name: Nat               | ional Guard Bureau  |                      |          |  |                 |               |                     | . 1.         | numu<br>Loot  | Nania  | torma    | tion:  | 114         | AR            | NG      |              |        |  |   |  |
| Address I: 301  | -IH Old Bay Lane  |                      | _        |  |                 |               |                     |              | 1001  | LOCAL  | 10001    | PACH   | unp         | a h           | S       | _            |        |  |   |  |
|   | NGB-AVN-SI, Stal  |                      |          |  |                 |               |                     | 3.           | Job   | #:     | 5174     | (3Ŧ  | 9.1         | Yer           | ~/      |              | 26     |  | Non-Respor                                  |  |
| Address 3: Hay  | re de Grace, Maryle<br>12-0273  | IND 2                | 10/1     |  | 42.025          |               |                     | . 4.         | Subr  | tact P | ers      | 10   |             | - 1           | 16      |              |        | onsive                                   | -   |  |
| Filone #  | 16-VET 0  |                      | ах п.,   |  | ing Info        |               |                     |              |   |        |          | soon   | stec        | Indica        | lly fea | sible        | ):     | Ion-Res                                  | nonsi                                       | 10   |
| AFTER HOURS (m  | ust be pre-scheduled)   |                      | T        |  |                 | P             | IORM/               |              |   |        |          | λų.  |             |               | 1       |              | -      |  |   |  |
| Immediate Date Due<br>24 Hours Time Due                 | ·   |                      | 1.1.27   | ] Immedia<br>] Next Da                               | de la           | 031           | ay                  | IN           | 10  | 2 (    |          | its Requ   |             |               | HI 3    | ol lo<br>回 弦 | cluN(  | n-Responsive wi                          | th Report                                   | И  |
| 24 Hours Third Due                                      |   | _                    |          | U Immediaté U 3 Day<br>Next Day<br>U 2 Day Date Duo: |                 |               |                     |              | (EveryAttempt Will Be<br>Made to Accomodate)  |        |          |  |             |               |         | LI Fa        | IX:    | @  | us.army.mil<br>us.army.mil                  |  |
| had a shale   | and the Architecture of the Architecture of the   |                      |          |  |                 |               |                     |              |   |        |          |  |             | -             | N SINGA | Ve Ve        |        | (W                                       | us.army.mil                                 |  |
| <b>bestos Analysis</b><br><u>MAir</u> – Please Indicate | Filter Type:  |                      |          |  | IEM Bulk        | AP 198        | 4/Chat              | field        |   |        | QTY      | 8  |             | -(IV)         | Q P     | Pair         | nt Chi |  |   |  |
| C Fiberglass  | (OTY)   |                      |          |  | QNY             | State I       | LM/IE<br>sh         | M            |   | ((     | (YTY)    |  |             |               | 24P     | Dus          | t Wip  | (wipe type <u>Glass</u> †                | .)[\  | (QTY)  |
| M Air - Please Indicate                                 | Filter Type:  |                      |          | 13   | TEM Dust        |               |                     |              |   |        |          |  |             |               | UP      | Soll         | /Solid | (QTY)                                    |   |  |
| O AHERA   | (QTY)   |                      |          |  | L Qu            | al. (pres     | Jabs) V             | acuum/       | Dust_   | 15     |          | (QTY)<br>(QT   | 5           |               | UP      | ) TCI        | P      | er CI Pb(QTY) CI Ci                      |   | Ar (OT   |
| U Other (specify<br>M Bulk                              |   | (QT                  | Y)       |  | Qu              | nn. (s/a      | ea)Dus              | D6-18        | 0-99  |        |          | (QTY)  | .,          |               | O N     | aste         | Water  | DPb (OTY) Cu                             | AD(YTO)                                     | (OTY   |
| C EPA 600 - Visual 1                                    | Istimate(QTY)   | (QTY)                |          | 1  | IEM Wate        | L<br>1. (pres | /abs)               |              | (   | OTY    |          |  |             | 柳             | (a)     | p Fur        | nace ( | Media                                    | (QTY  | )  |
| INV State Friable                                       | 181   | Y)                   |          |  | Q EL            | AP 198        | 2/EPA               | 100.2_       |   |        | (QTY     | )  |             |               | C       | llecti       | ion Ap | paratus for Spore Traps/Ai<br>edia       | ir Samples:                                 |  |
| Grav. Reduction E                                       | AP 198.6  | _(QTY                | ')<br>Y) |  | Prove statement |               |                     |              | -   |        |          |  |             |               | QS      | bore-        | Trap_  | (OTY) Q Surfa                            | ace Vacuum Dust                             | (QT  |
| SC<br>Vermiculite                                       |   |                      |          |  |                 |               | s receiv<br>samples |              |   | nditio | i unles: | s otherw   | ise noi     | led.          |         | urface       | Swal   |  | able ID Genus (Medi<br>able ID Species (Med | s)   |
|   | Quali PLM_(Quan) PLM/T  | M_Q                  | alı PLA  | UTEM_Q   | 11.5)           | (             |                     |              |   |        |          |  |             | _             | 00      | her (Sp      | ecify_ | ((TV)                                    | ente als allevita (1966                     | ······   |
|   | SAMPLE INFORMA  |                      |          | VOLUME   | WIDU            | 1 -           |                     | ALVE         | 19  | 19     | 1        | 131  | M           | Artal<br>B. B | P. Na I | 41           | 1 9    | / CLIE                                   | NT CONTACT                                  |  |
| CLIENT ID<br>NUMBER                                     | SAMPLE LOCATION   | D/                   | TE       | (LITERS)   | AREA            |               | 15                  | 12           | 4   | No     | 1 A      |  |             | E SE          |         | E            | ms     | (LABORAT                                 | ORY STAFF ON                                | LY)  |
| gewan RE  | W-01  | sta                  | 4/12     |  | 1000            | -             |                     |              |   | -      |          |  | 4           | -             | -       | _            |        | Date/Time:                               | Contact:                                    | By:  |
| Agriwan   | W-02  |                      | -        |  |                 | -             |                     |              |   |        |          | -  | X           |               |         | -            |        |  |   |  |
| C Aginein   | 6-03  |                      | -        |  |                 | -             |                     |              |   |        |          |  | X           |               |         | -            | -      |  |   |  |
| L Agawayn   | W-04<br>W-05  |                      | $\vdash$ |  |                 |               |                     |              |   |        | -        | of the local division  | X           | -             |         | -            |        | Data                                     | 0   |  |
| C Aguwan  | 6.05  |                      | -        |  |                 | 1             |                     |              |   | -      |          |  | <u> </u>    | -+            | -       | -            | -      | Date/Time:                               | Contact:                                    | By:  |
|   | 60-07   | -                    |          |  |                 | -             |                     | -            | -   |        | -        |  | 4           | -             | -       | -            |        |  |   |  |
| C Againson  | W-08  |                      |          |  |                 |               |                     |              |   |        |          | 1  | X           | -             | -       | -            |        |  |   |  |
|   | 10-09   |                      |          |  |                 |               |                     |              |   |        |          |  | K           |               |         | 1            | -      | Date/Time:                               | Contact:                                    | By:  |
| LC Againam  | 10 10   |                      |          |  | V               |               |                     |              |   |        |          | 2  | $\langle [$ |               |         |              |        |  |   | an and the second s |
| C Agawam<br>20 Agawam<br>20 Agawam                      | 0 10  |                      |          |  |                 | 1             |                     |              |   |        |          |  | X           |               |         |              |        | lacha                                    | noi   |  |
| LC Agawam<br>LC Agawam                                  | TB-W  | 1                    | 1        |  |                 | -             |                     |              | and the second se |        |          |  |             |               |         |              |        |  |   |  |
| 20 Agewan<br>20 Agewan<br>20 Agewan                     | TB-W  |                      | e        |  | 6 19            | E             | 1                   | 0            | d   | 1      | -1       |  |             |               |         |              |        | lespo                                    | 11210                                       |  |
| C Agewam<br>C Agewam                                    | the local data in the local data was not been as a second data was a second data was a second data was a second | CVD:_                | 5        | 12   | 6.1             | 5             | a A                 | <b>D</b> vie | 8   | di     | V        | _By (I   |             |               |         |              |        | <i>cesho</i>                             | 11510                                       | 6  |

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## APPENDIX D

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## PHOTOGRAPHIC LOG



# PHOTOGRAPHIC LOG

| <b>Client Name:</b>  |                                       | Site Location:                     | Project No. |
|--|---------------------------------------|------------------------------------|-------------|
| MA ARNG- Agawam RC   |                                       | 140 Maynard St., Feeding Hills, MA | 39743799    |
| Photo No.<br>1   | <b>Date:</b> 5/24/13                  |                                    |             |
| Description:<br>Former Indoor I<br>currently being<br>storage, with im<br>stored flammab<br>cylinders. | Firing Range,<br>used for<br>properly |                                    |             |

P:Project\National Guard Bureau\39743798 - IH Services ME & MA\39743799 - MA Sites\Reports\Agawam RC\Agawam RC photolog docx coom BEST AVAILABLE COPY FOIA Requested Record #J-15-0085 (MA) Released by National Guard Bureau Page 1302 of 3473



# PHOTOGRAPHIC LOG

| Client Name:    | Site Location:                          | Project No. |
|-----------------|---|-------------|
| MA ARNG- Agawar | n RC 140 Maynard St., Feeding Hills, MA | 39743799    |
| Photo No. D     | ate:<br>24/13<br>and                    |             |
|                 |   |             |



P:Project\National Guard Bureau\39743798 - IH Services ME & MA\39743799 - MA Sites\Reports\Agawam RC\Agawam RC photolog docx coom BEST AVAILABLE COPY FOIA Requested Record #J-15-0085 (MA) Released by National Guard Bureau

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## APPENDIX E

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

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

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

#### Prepared For:

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

#### **Prepared By:**

URS Corporation 5 Industrial Way Salem, New Hampshire 03079

#### FINAL INDUSTRIAL HYGIENE SURVEY REPORT FRAMINGHAM READINESS CENTER 522 CONCORDSTREET FRAMINGHAM, MASSACHUSETTS

April 2006 PN: 39741508





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- Appendix B Personnel List
- Appendix C Hazardous Materials List
- Appendix D Analytical Results
- Appendix E Training Certificates
- Appendix F Photographs
- Appendix G Recommendations for Surface Lead Dust in Armories
- Appendix H Policy and Responsibilities For Inspection, Evaluation and Operation of Army National Guard Indoor Firing Ranges (National Guard Regulation 385-15 30 December 2002)

-

#### FINDINGS AND RECOMMENDATIONS

| Findings   | Recommendation   | Risk<br>Assessment<br>Code  |
|--|--|---|
| Ergonomic  |  | NR.   |
| Computer work stations were<br>observed with fixed chairs,<br>armrests, keyboards and<br>monitors.   | Ergonomic issues with the desks and chairs should be corrected by fitting the workplace to the worker (DoD, OSHA General Duty)   | RAC 3   |
| Lighting 👔   |  | 1998 - 1995 - 1995 - 1995 - 1995 - 1995 - 1995 - 1995 - 1995 - 1995 - 1995 - 1995 - 1995 - 1995 - 1995 - 1995 - |
| On the day of the survey, the illuminance in the administrative area was inadequate in most of the offices.  | Increase lighting in the administrative areas.<br>While work is in progress, the administrative<br>area shall be lighted by at least the<br>minimum lighting intensities (ANSI / IESNA<br>RP-1-04)                                 | RAC 4   |
| Lead   | 化微微石罐的化力 化乙基乙基胆石   | 동네 111년 중 중 문서  |
| Lead was detected in wipe samples collected from the former firing range in amounts greater than 200 $\mu$ g/ft <sup>2</sup>                         | Personnel trained in accordance with the<br>OSHA Lead Standard should clean the<br>former firing range where lead was detected<br>in quantities of greater than 200 micrograms<br>per square foot (OSHA 29 CFR<br>1910.1025(h)(1)) | RAC 4   |
| Asbestos   |  |   |
| Splits in the pipe insulation were found throughout the facility.  | Repair the exposed asbestos pipe<br>insulation. Work should be completed by<br>personnel trained in accordance with federal<br>regulations (OSHA 29 CFR<br>1910.1001(k)(1))  | RAC 3   |
| A site-specific asbestos operations and maintenance plan was available.  | Implement the site specific asbestos<br>operations and maintenance plan to<br>manage asbestos-containing materials<br>(OSHA 29 CFR 1910.1001(j))   | RAC 3   |
| Hazard Communication   |  |   |
| No site specific hazard<br>communication plan was<br>available.  | Develop a site specific hazard communication plan to manage hazardous materials (OSHA 29 CFR 1910.1200(e))   | RAC 4   |
| Housekeeping   |  | 4 <b>1</b> 977  |
| Electrical panels were<br>obstructed by equipment in<br>room #18. Electrical panels<br>must be kept clear of<br>obstruction                          | Remove all obstructions in front of electrical panels in the drill hall for a minimum of 3 feet (OSHA 29 CFR 1910.303(g)(1)(i)).   | RAC 4   |
| Mold   |  |   |
| Water damage was observed<br>throughout. Mold growth<br>could become an issue if left<br>unattended. Employees did<br>complain of respiratory issues | Determine and repair source of water,<br>Replace water damaged building materials<br>and implement a moisture management<br>program to provide direction for future water<br>incursions (Best management practice)                 | RAC 3   |

#### 1.0 SUMMARY

At the request of the National Guard Bureau (NGB) Region North Industrial Hygiene Office, URS Corporation (URS) conducted an industrial hygiene survey at the Readiness Center located at 522 Concord Street in Framingham, Massachusetts 01702. This report includes an executive summary, a description of the survey protocol, a discussion of the survey evaluation and findings and a list of conclusions and recommendations.

On February 24, 2004, Mr Non-Responsive an industrial hygienist with URS, conducted a site visit to the Readiness Center in Framingham, Massachusetts. The purpose of this site visit was to conduct an industrial hygiene survey, which included the collection of air samples, bulk samples, lighting measurements, and a review of site health and safety procedures. Mr. Non-Responsive of the State of Massachusetts was Mr Non-Responsive site contact for this survey.

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

## 2.0 ADMINISTRATIVE AREA

#### 2.1 Operation Description

This building area contains multiple offices located throughout the building with desks and computer workstations. Computer workstations were assessed during the walkthrough for ergonomic issues. Computer workstation chairs and armrests were in a fixed position and keyboards could not be adjusted in office #7 (Photo # 3959), office #12 (Photo # 3964) and office #18 (Photo # 3969). If more than one person is using that station, then proper adjustments need to be made to accommodate each person.

Water marks and damage on the ceilings of room # 5 (Photo # 3958); office #12 (Photo # 3966); office #18 (Photo # 3968); office #20 (Photo # 3971) and office #21 (Photo # 3972). The major concern was in office #21 where some of the occupants voiced their concerns about the water staining. The occupants stated that they have experienced respiratory problems and eye irritations. They claim that when they leave the site these problems lessen or subside until they return to the site.

An obstructed electrical box was found in office #18 (Photo # 3970).

## 2.2 Chemical and Physical Agents Sampled

#### 2.2.1 Relative Humidity

Relative humidity levels were measured using a TSI Q-Track (Model 8551). Relative humidity on the day of the survey ranged from 11.2 – 15.3% with an average of 12.5%. These readings were below the recommended maximum of 65% set by the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ANSI / ASHRAE Standard 62.1-2004).

## 2.2.2 Carbon Dioxide

On the day of the survey, carbon dioxide measurements were made at various locations throughout the Readiness Center. Carbon dioxide concentrations ranged from 387 to

454 parts per million (ppm), with an average of 425 ppm. Carbon dioxide levels were measured using a direct reading TSI Q-Track (Model 8551).

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

ASHRAE (62.1-2004) recommends that levels of carbon dioxide be maintained below 700 ppm above the outside level. Given an outside level of 425 ppm on the day of the survey, the ASHRAE limit would be 1125 ppm.

#### 2.2.3 Carbon Monoxide

Carbon monoxide was also measured in the Readiness Center. Carbon monoxide concentrations ranged from 0 to 2 ppm throughout the survey period for all floor levels. The measured levels were below the ASHRAE guideline for indoor environments. Carbon monoxide was measured using a TSI Q-Track (Model 8551).

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

## 2.2.4 Lighting

Lighting in the administrative area was measured using a Sper Scientific Ltd. Light Meter (Model 840020C). Table 2-1 below shows lighting measurements and the

recommended lighting requirement ANSI / IESNA RP –1-04 American National Standard Practice for Office Lighting).

| Location                           | Function              | Measured<br>Illuminance<br>(foot<br>candles) | Recommended<br>Illuminance (foot<br>candles) |  |
|------------------------------------|-----------------------|--|--|--|
| Office # 5                         | Administrative Duties | 26   | 50   |  |
| Office # 6                         | Administrative Duties | 44   | 50   |  |
| Office # 7                         | Administrative Duties | 25   | 50   |  |
| Office # 12                        | Administrative Duties | 26   | 50   |  |
| Office # 13                        | Administrative Duties | 33   | 50   |  |
| Office # 14                        | Administrative Duties | 53   | 50   |  |
| Office # 15                        | Administrative Duties | 34   | 50   |  |
| Office # 17                        | Administrative Duties | 43   | 50   |  |
| Office # 18 – Lobby Side           | Administrative Duties | 28   | 50   |  |
| Office # 18 – Copier Side          | Administrative Duties | 39   | 50   |  |
| Office # 18 – Little Office        | Administrative Duties | 52   | 50   |  |
| Office # 20                        | Administrative Duties | 30   | 50   |  |
| Office # 21 – Desk Near<br>Door    | Administrative Duties | 34   | 50   |  |
| Office # 21 – Desk Near<br>Windows | Administrative Duties | 55   | 50   |  |
| Office # 23                        | Administrative Duties | 40   | 50   |  |
| Office # 24                        | Administrative Duties | 25   | 50   |  |
| Office # 25                        | Administrative Duties | 46   | 50   |  |
| Office # 33                        | Administrative Duties | 18   | 50   |  |
| Haliway # 16                       | Accessway             | 39   | 3  |  |

 Table 2-1

 Lighting Measurements and Recommended Lighting Requirements

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

#### 2.2.5 Lead

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

| Samplè Location                        | URS Sample<br>Number | Area<br>Wipe <b>d</b><br>(ft <sup>2</sup> ) | Result<br>(µg/ft²) | Maximum<br>Surface<br>Contamination<br>Level (μg/ft <sup>2</sup> ) |
|--|----------------------|---|--------------------|--|
| Admin #11 – Top of<br>Cabinet          | 0224-LW21            | 0.111                                       | 11                 | 200  |
| Admin #13 – Top of File<br>Cabinet     | 0224-LW22            | 0.111                                       | 17                 | 200  |
| Admin #18 – Top of File<br>Cabinet     | 0224-LW23            | 0.111                                       | 10                 | 200  |
| Admin #25 – Top of File<br>Cabinet     | 0224-LW24            | 0.111                                       | 490                | 200  |
| Admin # 348 – Floor                    | 0224-LW25            | 0.111                                       | 21                 | 200  |
| Admin #30 – Top of<br>Powerade Machine | 0224-LW26            | 0.111                                       | 61                 | 200  |
| Admin #6 – Top of File<br>Cabinet      | 0224-LW27            | <b>Q.11</b> 1                               | 24                 | 200  |
| Blank                                  | 0224-<br>LWBlank2    | N/A   | 0.78 μg            | N/A  |

 Table 2-2

 Levels of Lead Dust Found in the Administrative Area

## 2.2.6 Asbestos

ATC Associates of Woburn, Massachusetts conducted an asbestos survey at this facility in May of 2000. Broken asbestos containing 9"x9" floor tile was found in room #13 (Photos # 3961-62), room #14 (Photo # 3960), room #12 (Photo # 3965), room #18 (Photo # 3967), room #21 (Photo # 3972) and room #30 (Photos 3974-75). Splits were found in the asbestos-containing pipe insulation in room #6 (Photo # 3955), room #7 (Photo # 3957) and room #21 (Photo # 3973). A calendar was tacked to the pipe insulation in room #6 (Photo # 3956) which was causing the insulation to be exposed. The window chalking and glazing in room #1 was in poor condition (Photo # 3963).

## 2.3 Ventilation System Evaluation

Not applicable to this operation.

## 2.4 Noise Measurements

Not applicable to this operation.

#### 2.5 Personal Protective Equipment

Not applicable to this operation.

#### 2.6 Interpretation of Results

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

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

<u>LEAD:</u> Lead was detected in the dust wipe sample collected from Admin #25 in an amount that exceeded the NGB Region North Industrial Hygiene Office recommended maximum of 200 micrograms per square foot (See Appendix G). Personnel trained in accordance with OSHA's lead standard (29 CFR 1910.1025 and 1926.62) should clean this area.

<u>ASBESTOS:</u> The identified damaged asbestos-containing materials should be removed or repaired by a properly trained, licensed technician. The work should be performed in a timely manner to avoid further damage to these materials.

<u>MOLD</u>: The water stains on the ceilings could lead to mold growth if not addressed. Further evaluation should be undertaken in room #21 where the complaints were made concerning respiratory issues.

<u>ELECTRICAL</u>: An obstructed electrical box was observed in office #18. Electrical control boxes should be clear of obstruction.

#### 3.0 FORMER FIRING RANGE

## 3.1 Operation Description

The firing range has been dismantled and is now used as a fitness room.

## 3.2 Chemical and Physical Agents Sampled

## 3.2.1 Lead

Wipe testing for lead was conducted in the former firing range using ghost wipes, which meet ASTM E 1792 standards. The analytical report from AMA Analytical Services, Inc. (AMA) is contained in Appendix D. Table 3-1 below contains the results of the lead sampling.

| Sample Location                    | URS Sample<br>Number | Area<br>Wiped<br>(ft <sup>2</sup> ) | Result<br>(µg/ft²) | Maximum<br>Surface<br>Contamination<br>Level (μg/ft <sup>2</sup> ) |
|------------------------------------|----------------------|-------------------------------------|--------------------|--|
| Firing Range-Floor – Rear          | 0224-LW16            | 0.111                               | 2,200              | 200  |
| Firing Range-Floor –<br>Center     | 0224-LW17            | 0.111                               | 620                | 200  |
| Firing Range-Floor – Front         | 0224-LW18            | 0.111                               | 310                | 200  |
| Firing Range-Top of Light<br>Guard | 0224-LW19            | 0.111                               | 60                 | 20 <b>0</b>  |
| Firing Range-Top of a<br>Table     | 0224-LW20            | 0.111                               | 160                | 200  |
| Blank                              | 0224-<br>LWBlank2    | N/A                                 | 0.78 μg            | N/A  |

 Table 3-1

 Levels of Lead Dust Found in the Former Firing Range

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

#### Table 3-2 Levels of Lead Found in the Air

| Sample Location     | URS Sample<br>Number | Air Volume<br>(L) | Result<br>(µg/m <sup>3</sup> ) | OSHA's<br>PEL(µg/m³) |
|---------------------|----------------------|-------------------|--------------------------------|----------------------|
| Former Firing Range | 0224-LA05            | 724               | <4.1                           | 50.0                 |
| Blank               | 0224-LA06            | N/A               | <3.0 μg                        | N/A                  |

April 12, 2006 PN: 39741509 I. J. Aviry National Guard 397/1508 - Francingham, MARReports MASS Frankryson Avirony - Reviewed Final add On the day of the survey, the airborne lead dust level in the former firing range was found to be acceptable, below OSHA's permissible exposure limit (PEL) for lead (29 CFR 1910.1025(c)) of 50.0  $\mu$ g/m<sup>3</sup> averaged over an 8-hour day. The analytical report from AMA is contained in Appendix D.

## 3.3 Ventilation System Evaluation

Not applicable to this operation.

#### 3.4 Noise Measurements

Not applicable to this operation.

#### 3.5 Personal Protective Equipment

Not applicable to this operation.

#### 3.6 Interpretation of Results

<u>LEAD</u>: Three of the five surface wipe samples collected within the former firing range were found to contain lead dust levels which exceed the maximum limit set by the National Guard Bureau Region North Industrial Hygiene Office (See Appendix G). URS recommends that an appropriately licensed lead contractor clean the former firing range. Appendix H contains guidelines for the cleanup and rehabilitation of indoor firing ranges.

#### 4.0 DRILL HALL

#### 4.1 Operation Description

The drill hall is a 7,000 square foot area used for assembling personnel and storing equipment. The walls are constructed of cinder blocks with a concrete floor.

## 4.2 Chemical and Physical Agents Sampled

#### 4.2.1 Lead

Wipe testing for lead dust was conducted in the drill hall using ghost wipes, which meet ASTM E 1792 standards. The analytical report from AMA is contained in Appendix D. Table 4-1 below shows the results of the lead sampling.

| Sample Location  | URS Sample<br>Number | Area Wiped<br>(ft <sup>2</sup> ) | Result<br>(µg/ft²) | : Maximum<br>Surface<br>Contamination<br>Level (µg/ft <sup>2</sup> ) |
|--|----------------------|----------------------------------|--------------------|--|
| Drill Hall – Top of a<br>Flammable Storage<br>Cabinet #1 | 0224-LW11            | 0.111                            | 46                 | 200  |
| Drill Hall – Top of a<br>Flammable Storage<br>Cabinet #2 | 0224-LW12            | 0.111                            | 63                 | 200  |
| Drill Hall – Floor –<br>Rear                             | 0224-LW13            | 0.111                            | 49                 | 200  |
| Drill Hall – Floor –<br>Center                           | 0224-LW14            | 0.111                            | 34                 | 200  |
| Drill Hall – Floor –<br>Front                            | 0224-LW15            | 0.111                            | 29                 | 200  |
| Blank  | 0224-<br>LWBlank2    | N/A                              | 0.78 µg            | N/A  |

Table 4-1 Levels of Lead Dust Found in the Drill Hall

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

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

| Sample Location | URS Sample Number | Air Volume<br>(L) | Result<br>(µg/m <sup>3</sup> ) | OSHA's<br>PEL(μg/m³) |
|-----------------|-------------------|-------------------|--------------------------------|----------------------|
| Drill Hall      | 0224-LA04         | 764               | <3.9                           | 50.0                 |
| Blank           | 0224-LA06         | N/A               | <3.0 μg                        | N/A                  |

On the day of the survey, the airborne fead dust level in the drill hall was found to be acceptable, below OSHA's permissible exposure limit (PEL) for lead (29 CFR 1910.1025(c)) of 50.0  $\mu$ g/m<sup>3</sup> averaged over an 8-hour day.

## 4.3 Ventilation System Evaluation

Not applicable to this operation.

## 4.4 Noise Measurements

Not applicable to this operation.

## 4.5 Personal Protective Equipment

Not applicable to this operation.

## 4.6 Interpretation of Results

<u>LEAD:</u> The five surface wipe samples and one air sample collected for lead dust in this area were found to be within the allowable limits and require no further testing at this time. The NGB Region North Industrial Hygiene Office has prepared a memorandum titled "Recommendations for Surface Lead Dust in Armories" which is provided in Appendix G.

## 5.0 BOILER ROOM / BASEMENT AREA

#### 5.1 Operation Description

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

#### 5.2 Chemical and Physical Agents Sampled

#### 5.2.1 Lead

No issues regarding lead in the boiler room were observed during the site visit.

#### 5.2.2 Asbestos

The asbestos-containing boiler and pipe insulation has been properly repaired throughout the boiler room (Photo # 3954) and requires no attention at this time.

#### 5.3 Ventilation System Evaluation

Not applicable to this operation.

#### 5.4 Noise Measurements

Not applicable to this operation.

#### 5.5 Personal Protective Equipment

Not applicable to this operation.

#### 5.6 Interpretation of Results

No issues were observed in the boiler room during the site visit.

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## 6.0 SAFETY AND INDUSTRIAL HYGIENE PROGRAMS

#### 6.1 Confined Spaces

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

#### 6.2 Hearing Conservation

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

#### 6.3 Respiratory Protection

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

#### 6.4 Hazard Communication

The hazard communication program was found in the safety book, under tab L. An Operations and Maintenance Written Plan (O & M) was provided to URS before the inspection regarding asbestos at the site. The main issues concerning this program were that the asbestos has not been labeled as containing asbestos and no training records were available.

#### 6.5 Personal Protective Equipment

May, 2018

The personal protective equipment program was found in the safety book, under tab N, chapter 10. No training records were found on site. A personal protective equipment program is not required for this site.

#### 7.0 REFERENCES

American National Standards Institute

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

American Society of Heating Refrigerating and Air-Conditioning Engineers

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

Department of the Army

Ergonomics Program Pamphlet 40-21 (15 August 2003)

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

Department of Defense

DoD Hearing Conservation Program Standard 6055.12 April 1996

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

U. S. Environmental Protection Agency

Asbestos Hazard Emergency Response Act (40 CFR Part 763) National Emissions Standards for Hazardous Pollutants (40 CFR Part 61)

U. S. Housing and Urban Development

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

U.S. Occupational Safety and Health Administration

Standard for General Industry: 29 CFR 1910

APPENDIX A

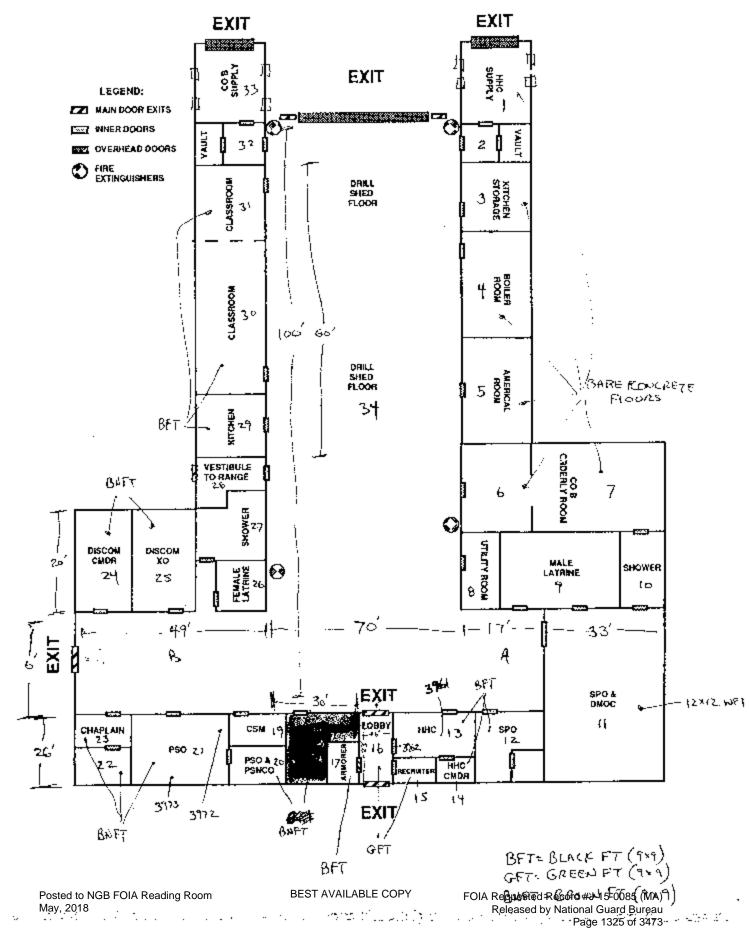
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READINESS CENTER DRAWING

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FRAMINGHAM MA

#### FIRE EVACUATION FRAMINGHAM ARMORY



APPENDIX B

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PERSONNEL LIST

# BEST AVAILABLE COPY 101 QM FTS Framingham Armory

| xo Non-Responsive |  |
|-------------------|--|
| S1 NC             |  |
| S3 NC             |  |
| Asst S            |  |
| S4 NC             |  |
| HHD               |  |
| 1060th            |  |
| 1164th            |  |
| 1164th            |  |
| 1164th            |  |
| HHD               |  |
| HHD               |  |
| QtrMst            |  |
| QtrMst            |  |
|                   |  |

APPENDIX C

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HAZARDOUS MATERIALS LIST

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NO CHEMICAL INVENTORY AVAILABLE

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## APPENDIX D

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## ANALYTICAL RESULTS

|  | AMA | Analy | rical | Servi | ces, Inc. |
|--|-----|-------|-------|-------|-----------|
|--|-----|-------|-------|-------|-----------|

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## **CERTIFICATE OF ANALYSIS**

| Client:  | National Guard Bureau  | Job Name:     | Аттогу                          | Chain Of Custody:  | 123985    |
|----------|--|---------------|---------------------------------|--------------------|-----------|
| Address: | 301-IH Old Bay Lanc, Attn: NGB-AVN-SI,<br>State Military Reservation | Job Location: | 522 Concord St., Framingham, MA | Date Analyzed:     | 3/26/2004 |
|          | Havre de Grace, Maryland 21078                                       | Job Number:   | Nut Provided                    | Person Submitting: |           |
|          |  | P.O. Number:  | Not Provided                    | Report Date:       | 26-Mar-04 |

Attention:

#### Summary of Atomic Absorption Analysis for Lead

| AMA Sample<br>Number | Client Sample<br>Number | Analysis Type | Sample Type | Air Volume<br>(L) | Area Wiped<br>(ft²) | 2 2 1 1 1 2 2 3 3 4 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 | orting<br>imit     | F | inal Res | ult        | Comment |
|----------------------|-------------------------|---------------|-------------|-------------------|---------------------|---|--------------------|---|----------|------------|---------|
|                      | 0224-LW11               | Furnacc       | Wipe        | ****              | 0.111               | 6.75  | ug/ft²             |   | 46       | <br>ug/ມີ" |         |
| 0432264              | 0224-LW12               | Furnace       | Wipe        | ****              | 0.111               | 6.75  | ug/ft²             |   | 63       | ug/ft²     |         |
| 0432265              | 0224-LW13               | Furnace       | Wipe        | ****              | 0.111               | 6.75  | ug/ft²             |   | 49       | ug/ft²     |         |
| 0432266              | 0224-LW14               | Furnace       | Wipe        | ****              | 0.111               | 5.40  | ug/ft²             |   | 34       | ug/ft²     |         |
| 0432267              | 0224-LW15               | Furnace       | Wipc        | ****              | 0.111               | 5.40  | ug/ft²             |   | 29       | ug/ft²     |         |
| 0432268              | 0224-LW16               | Flame         | Wipc        | ****              | 0.111               | 108.01  | ug/ft <sup>z</sup> |   | 2200     | ug/ft²     |         |
| 0432269              | 0224-LW17               | Flame         | Wipe        | ***               | 0.111               | 108.01  | ug/ft²             |   | 620      | ug/ft²     |         |
| 0432270              | 0224-LW18               | Flame         | Wipc        | ****              | 0.111               | 108.01  | ug/ft²             |   | 310      | ug/ft²     |         |
| 0432271              | 0224-LW19               | Furnace       | Wipe        | ****              | 0.111               | 13.50   | ug/ft²             |   | 60       | ug/ft²     |         |
| 0432272              | 0224-LW20               | Furnace       | Wipe        | ****              | 0.111               | 33.75   | ug/ft²             |   | 160      | ug/ft²     |         |
| 0432273              | 0224-LW-BLANK2          | Furnace       | Wipe        | ****              | N/A                 | 0.30  | ug                 |   | 0.78     | ug         |         |
| 0432274              | 0224-LA 04              | Flame         | Air         | 764               | N/A                 | 3.93  | ug/m³              | < | 3.9      | ug/m²      |         |
| 0432275              | 0224-LA 05              | Flame         | Air         | 724               | N/A                 | 4.14  | ug/ni <sup>3</sup> | < | 4.1      | ug/m³      |         |
| 0432276              | 0224-LA 06              | Flame         | Air Blank   | 0                 | N/A                 | 3.00  | ug/m³              | < | 3        | ug         |         |

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|----------------------|---|--------------------------|---|--------------------|-------------|----------------|
| Clicat;              | National Guard Bureau   | Job Name:                | Armory  | Chain Of Custody:  | 123985      |                |
| Address:             | 301-IH Old Bay Lane, Atm: NGB-AVN-SI,<br>State Military Reservation | Job Location:            | 522 Concord St., Framingham, MA                       | Date Analyzed:     | 3/26/2004   |                |
|                      | Havre de Grace, Maryland 21078                                      | Job Number:              | Not Provided  | Person Submitting: |             |                |
|                      |   | P.O. Number:             | Not Provided  | Report Date:       | 26-Mar-04   |                |
|                      |   | <b>A</b>                 | £   |                    |             |                |
| AMA Sample<br>Number | Client Sample Analysis Type<br>Number                               | Summary 0<br>Sample Type | Air Volume<br>(L)<br>Area Wiped<br>(ft <sup>*</sup> ) |                    | inal Result | Comments       |

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# AMA Analytical Services, Inc.



Attention:

A Specialized Environmental Laboratory

# CERTIFICATE OF ANALYSIS

| Client:<br>Address: | National Guard Bureau<br>301-IH Old Bay Lane, Attn: NGB-AVN-SI,<br>State Military Reservation | Job Name:<br>Job Location: | Armory<br>Framingham, MA | Chain Of Custody:<br>Date Submitted: | 138227<br>5/20/2005 |              | AIHA<br>100470 |  |
|---------------------|---|----------------------------|--------------------------|--------------------------------------|---------------------|--------------|----------------|--|
|                     | Havre de Grace, Maryland 21078  | Job Number:                | Not Provided             | Person Submitting:                   |                     |              |                |  |
|                     |   | P.O. Number:               | Not Provided             | Date Analyzed:                       | 5/26/2005           | Report Date: | 26-May-05      |  |

#### Summary of Atomic Absorption Analysis for Lead

Page 1 of 1

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| AMA Sample<br>Number  | Client Sample<br>Number  | Analysis Type   | Sample Type   | Air Volume<br>(L)                         | Area Wiped<br>(ft²) | Reporting<br>Limit |                              |                               |                  | Comments      |  |
|---|--------------------------|---|---|---|---------------------|--------------------|------------------------------|-------------------------------|------------------|---------------|--|
| 0540463   | 0224-LW21                | Furnace   | Wipe  | ****                                      | 0.111               | 2.70               | ug/ft²                       |                               | ug/ll²           |               |  |
| 0540464   | 0224-LW22                | Furnace   | Wipe  | ****                                      | 0.111               | 2.70               | ug/ft²                       | 17                            | ug/ft²           |               |  |
| 0540465   | 0224-LW23                | Furnace   | Wipe  | ****                                      | 0.111               | 2.70               | ug/ft²                       | 10                            | ug/ft²           |               |  |
| 0540466   | 0224-LW24                | Furnace   | Wipe  | ****                                      | 0.111               | 67.51              | ug/ft²                       | 490                           | ug/ft²           |               |  |
| 0540467   | 0224-LW25                | Furnace   | Wipe  | ****                                      | 0.111               | 2.70               | ug/ft²                       | 21                            | ug/û²            |               |  |
| 0540468   | 0224-LW26                | Furnace   | Wipe  | ****                                      | 0.111               | 13.50              | ug/ft²                       | 61                            | ug/ft²           |               |  |
| 0540469   | 0224-LW27                | Furnace   | Wipe  | ****                                      | 0.111               | 2.70               | ug/ft²                       | 24                            | ug/ft²           |               |  |
| Analysis Method F<br>N/A = Not Applicat<br>%Pb = percent lea<br>Note: All samples<br>Note: All results ha | •••                      | es, Paints, and Soil/<br>ts per million (ppm)<br>micrograms u<br>d condition unless of<br>jits. Any additional of | Solids : EPA 600/R-<br>by weight mg/L =<br>g/L = parts per billion<br>therwise noted. | 93/200(M)-7421; N<br>parts per million (p | Water: SM-3113B     |                    | Summary for<br>ed with these | analytical result<br>samples. | is of quality co | ntrol samples |  |
|   | ts are not corrected for | or any blank results  |   |   |                     |                    |                              |                               | <u>.</u>         |               |  |
| Air and Wipe resul  |                          |   |   |   |                     |                    |                              |                               |                  |               |  |

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

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APPENDIX E

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## TRAINING CERTIFICATES

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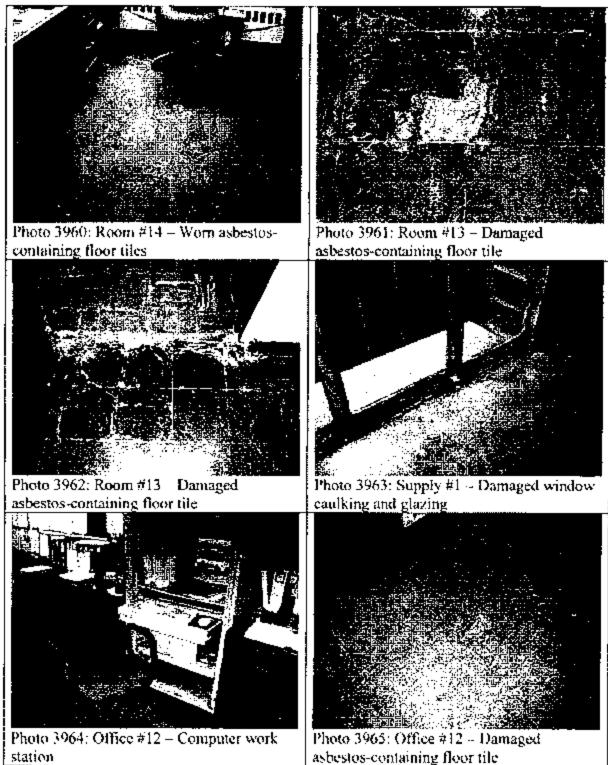
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APPENDIX F

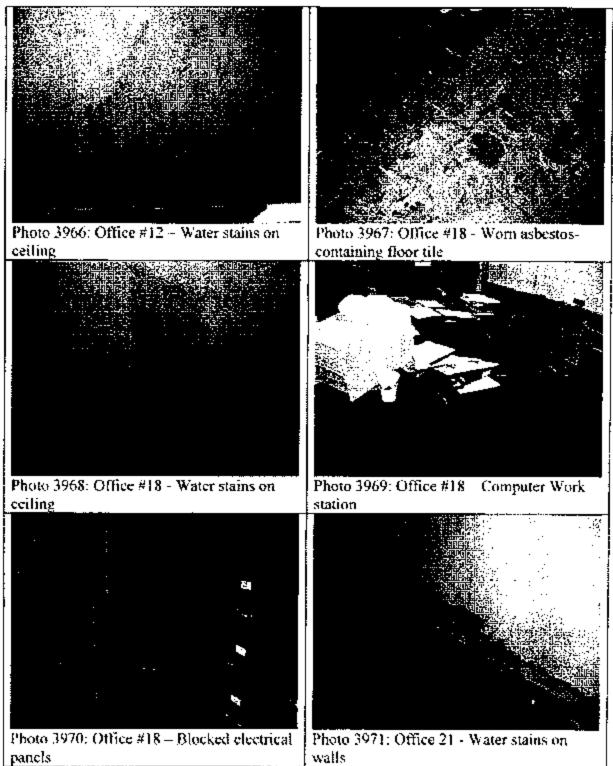
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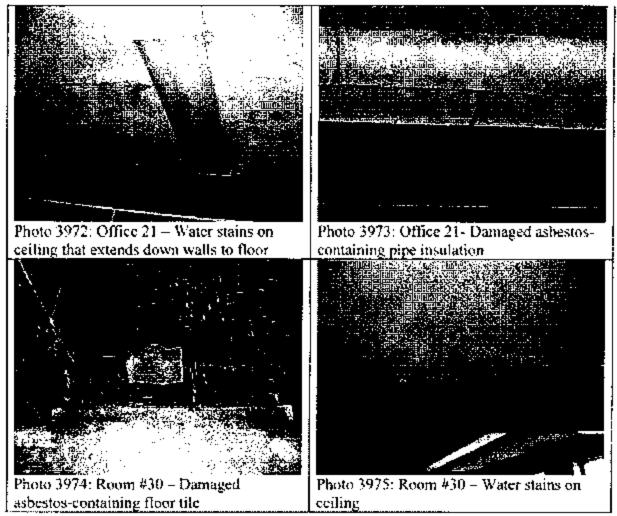
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APPENDIX G

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### RECOMMENDATIONS FOR SURFACE LEAD DUST IN ARMORIES

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Subject: Recommendations for Surface Lead Dust in Armories

1. In armories that do not contain childcare facilities, the National Guard Bureau (NGB) Region North Industrial Hygiene Office recommends cleaning the areas in which sample results are greater than 200 micrograms per square foot ( $\mu$ g/ft<sup>2</sup>). If a special function will be held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function. This guidance is based on professional judgment, risk assessments, adaptation of Occupational Safety and Health Administration (OSHA) guidance, and feasibility of cleaning to a certain level.

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

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

c. OSHA used to cite a level of 200  $\mu$ g/ft<sup>2</sup> 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<sup>2</sup> 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:

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

## APPENDIX H

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

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#### ADOENDUM

#### GUIDELINES FOR IFR REHABILITATION, CONVERSION, AND CLEANING

CONTENTS (Listed by paragraph number)

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#### Appendices

Appendix A - General Procedures for Collecting Wipe Samples

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Appendix E - Recommended Sample Media and Containers

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

Appendix G - Surface Wipe Sample Sheet

Appendix H - Air Sampling Sheet

Appendix 1 - Glossary

Purpose

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

#### 2. References

Related publications are listed below.

- a. DODI 6055.1 (Department of Defense Instruction, Occupational Safety and Health (OSH) Program).
- b. AR 11-34 (The Army Respiratory Protection Program).
- c. AR 40-5 (Preventive Medicine)

d. NGR 385-15 Policy. Responsibilities, and Procedures for Inspection, Evaluation, and Operation of ARNG Indoor Firing Ranges).

e. 29 Code of Federal Regulations (CFR), Part 1910, Occupational Safety and Health Standards.

- OSHA Technical Manual, Edition VII.
- DHEW NIOSH 76-130 (Lead Exposure and Design Considerations for Indoor Fining Ranges).

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3. Explanation of Abbreviations and Terms

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

#### Policy and Procedures

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

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

b. The fevel of cleanliness is to be determined by sampling. The Occupational Safety and Health Administration's (OSHA) Technical Manual, <sup>5th</sup> Edition, provides guidance on the methods and techniques needed to collect wipe samples (Appendix A).

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

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

c. Equipment/Items previously stored in the range must be decontaminated and cleaned to acceptable tevels.

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

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

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

#### 5. Goat

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

#### 6. Background

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

#### 7. Wipe Sample Media

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

(1) Acceptable Modia consists of -

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

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

#### for meride (11) centimeter (chivitar) action 12/040 pager

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(2) Unacceptable Media consists of but is not limited to --

- (a) Cotton balls
- (b) Baby wipes or wel wipes

b. Documentation of Sample Collection. A Surface Wipe Sample Sheet must be completed and submitted with samples to your supporting laboratory. A copy of this form is located in Appendix G. Refer to Appendix A on how to collect wipe samples.

8. Wipe Sampling Protocol

See Appendix A.

#### 9. Ranges Cleaning Instructions

a. Written procedures, such as a scope of work, or Standing Operating Procedure (SOP) that complies with all federal, state and local regulations must be established prior to decontamination operations. The range ventilation system will be in operation during range cleaning to ensure that a negative pressure environment is maintained. In the absence of mechanical ventilation system, all doors and windows will be sealed to eliminate fugitive emissions. A High Efficiency Particulate Air (HEPA) filtered vacuum system is the preferred method of cleanup followed by wet wiping of the range. The HEPA vacuum is designed to collect loose surface lead dust particles.

b. Any general purpose cleaning solution can be used. However, Spic and Span<sup>™</sup> has been found to be an effective cleaning solution by other Army organizations. Mix new solutions of cleaning solution frequency. Wet wiping will require dual containers of water; one container for wetting the applicator (mops, rags, sponge, etc.) and the other container for rinsing the applicator after the dust has been wiped from the surfaces. When placed in containers, wastewater should be left to evaporate.

6. PROPERLY DISPOSE OF ALL HAZARDOUS WASTE. DO NOT PLACE LEAD CONTAMINATED WASTE INTO THE SEWER SYSTEM OR ONTO THE GROUND.

d. Mop-heads, sponges and rags will be discarded as hazardous waste following cleanup.

e. Wet cleaning by a high-pressure system is prohibited, as this method may embed the lead into the substratium and generate large quantities of unwanted hazardous waste.

f. Dry sweeping is not permitted.

g. All surface areas of the range must be cleaned. Do not remove the coating on smooth painted surfaces that are properly sealed.

h. Wood floors should receive a cost of deck enamel or urethane; concrete floors should be sealed with deck enamel and linoleum or tile floors should be waxed.

i. A progression of cleaning from top to bottom and from behind the steel backstop to the firing line should be used. After removing the sand, if applicable, and the steel backstop, areas in front of and behind the bullet trap along with the steel backstop plate(s) should be cleaned. Next, clean the ceiling, lights, bafflas, retrieval system, heating system(s), and ventilation duct(s). Acoustical material should be vacuumed and removed rather than painted over.

j. A Toxic Characteristic Leaching Procedures (TCLP) lest for lead only may need to be performed on the acoustical material. A TCLP test will determine if the material is classified as "hazardous" and can be disposed of in a sanitary landfill. Contact your State Environmental Office for assistance before arranging for this laboratory testing. The floor should be the last surface cleaned, starting at the built trap and ending behind the firing lino.

k. After wet wiping all surfaces, permit the area to dry. Vacuum all surface areas until no dust or residue can be seen using the HEPA.

 A thorough visual inspection to detect dust should be made following cleanup and prior to collecting post surface wipe samples.

 m. As a variety of conditions exist in ranges, unique situation may arise and specific written guidance from your Regional Industrial Hygiene Office may be required.

#### 10. Cleaning Stored Contaminated Equipment

a. Equipment contaminated (sample result is higher than 200 micrograms/sq ft) with lead dust must be decontaminated before it is removed from the range.

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

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

#### 11. Contaminated Sand and Lead Waste

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

#### 12. Medical Surveillance

a A pre-placement medical examination is required for all individuals involved with range cleanup operations. Consult 29 CFR 1910.1025 for additional information on medical surveillance requirements. A medical examination must include--

- (1) A detailed work and medical history
- (2) A thorough physical examination
- (3) A respirator use evaluation.
- (4) A blood pressure measurement
- (5) Blood sample analysis to include:
  - (a) A baseline blood lead levol
  - (b) A complete blood count (CBC)
  - (c) Blood urea nitrogen (BUN)
- (6) Serum creatinine
- (7) Zine protoporphyrin
- (8) A routine urine analysis
- (9) Recordkeeping

b. Air Monitoring. Worker breathing zone (BZ) air samples must be collected to ensure personnel are not overexposed to airborne lead during the cleanup phase. Representative air samples will be collected on all personnel involved in the cleanup operation. These exposure levels will be used to evaluate work practices and personal protective equipment. Within five (5) working days after receipt of monitoring results, each employee will be notified in writing of the air sampling results. Contact your Regional Industrial Hygiono Office for additional information pertaining to air sampling.

#### 13. Worker Education

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

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

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g. Employees must wash their hands and other exposed skin whenever they leave the work area.

b. The engineering controls and work practices associated with the individual's job assignment.

i. The contents of any compliance plan in effect.

#### 14. Personal Protective Equipment

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

a. Employees engaged in range rehabilitation and/or range conversion, the employer shall provide at no cost to the employee, and assure that the employee uses appropriate protective work clothing and equipment such as, but not limited to:

(1) Protective coveralis with hood and shoe covers or disposable Tyvek ™ full body suit.

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

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

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

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

d. The employer shall assure that all protective clothing is removed at the completion of a work shift only in areas designated for that purpose (Change Areas or Change Rooms).

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

f. The employer will further inform in writing any person who cleans or launders protective clothing or equipment of the potentially harmful effects of exposure to lead.

#### 15. Housekeeping

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

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

b. The range ventilation system will be in operation during all cleaning operations, to ensure a regalive pressure environment is maintained.

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

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

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

#### 16 Maintenance

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

a. Inspect the ventriation system fan for condition of boits to ensure that they are not frayed or slipping.

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

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

 Inspect the bullet trap for pitting or other damage and for sharp edges on venetian blind type bullet traps.

e. Bullet Trap. The bullet trap will be cleaned every 480 hours of operation at a minimum, or when the trap is three quarters full.

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

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

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

#### 17. Range Rehabilitation.

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

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

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

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

#### 18. Conversion of Indoor Ranges

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

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

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

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

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

e. Light fixtures and ventilation system grills must be removed and decontaminated.

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

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

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

#### 19. Deviation

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

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#### APPENDIX A GENERAL PROCEDURES FOR COLLECTING WIPE SAMPLES

A-1 If multiple samples are to be collected at the work site, prepare a rough sketch of the area(s) or room(s), which are to be wipe sampled.

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

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

(2) If using a dry media such as MCE or Whatman<sup>™</sup> filter, moisten the filter with distilled or deionized water prior to sampling

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

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

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

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

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

#### APPENDIX B

#### SAMPLING STRATEGY FOR COLLECTION OF WIPE SAMPLES

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

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

#### APPENDIX C

#### INTERPRETATION OF SAMPLE RESULTS (PRIOR TO CLEANING)

C-1 200 micrograms/sq ft or LESS

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

C-2 BETWEEN 201 and 200,000 micrograms/sq 8.

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

C-3 Over 200,000 micrograms/sq ft

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

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#### APPENDIX C (Continued)

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

#### APPENDIX D

#### INTERPRETATION OF SAMPLE RESULTS (AFTER CLEANING)

D-1 200 micrograms/sq. ft or less

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

#### APPENDIX E

#### RECOMMENDED SAMPLE MEDIA AND CONTAINERS

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

E-2 Pre-baded 3 piece cassette with mixed cellulose ester (MCE) filter and pad, 37 millimeter (mm), pore size 0.8 microns, breathing zone (BZ) and general area (GA) air samples.

Order From Catalog Number

- a. Millipore Corp. MAWP-037-A0 Ashdy Road Bedford, MA 01730 617-275-9200 800-225-1380
- b. Gelman Sciences 64678 (GN-4)
   600 South Wagner Rd
   Ann Arbor, MI 48106
   313-665-0651
   800-521-1520
- c. Supelco, Inc. 2-3368M
   Supelco Park
   Bellefonte, PA 16823
   800-247-6628
   800-359-3041

E-3.37 mm MCE Filter with pad, no cassette included, for load surface wipe samples

Order From Catalog Number

 a. Supelco Inc 2-3381IM Supelco Park Belletonte, PA (5823)

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#### APPENDIX & (Continued)

800-247-6628 800-359-3041

b. Millipore Corp. AAWP-037-00 Ashdy Road Bedford, MA 01730 617-275-9200 800-225-1380

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

# E-5. Glass container (25 milliiter) for collection and shipment of media.

Order From

Catalog Number

- a. Pierce Chemical Co 13219 (screw cap)
   P.O. Box 117
   Rockford, IL 61105
   815–968-0747
   600–874-3723
- Alitech Associates, Inc. 95321 (screw cap) Applied Science Labs 2051 Waukegan Rd Deerfield, IL 60015 312-948-8600

#### APPENDIX E (Continued)

800-255-8324

E-6. Ghost Wipes™.

Order From Catalog Number

Environmental Express SC4200 490 Wando Park Bivd. Mt. Pleasant, SC 29464 1-600-343-5319

E-7. Ghost Wipe™ Containers

Order From Catalog Number

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

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

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

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

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

| <u>75 ug</u>           | <u>, 9</u> 2 | 2 <u>9 cm²</u>      |                  |
|------------------------|--------------|---------------------|------------------|
| 100 cm <sup>2</sup>    |              | 1 sq ft             |                  |
| <u>75 x 929</u><br>100 | =            | <u>69675</u><br>100 | = 696.75ug/sq ft |

ug – Microgram

Cm2 - Centimeters squared

Sq ft - Square foot

| industri                 | al Hygiene S | urface Wipe S | Sample Sheet                      |          |
|--------------------------|--------------|---------------|-----------------------------------|----------|
| Return Address           |              | Point of Co   | intact (name & phone #)           |          |
|                          |              | Samples C     | offected By                       |          |
|                          |              |               | Unecido Dy                        |          |
| Sampled Facility         | City         | State         | Cocation (bldg/area)              |          |
| Description of Operation | <u>-</u>     | Date Collec   | ted Oate Shipped                  |          |
| 1                        |              |               |                                   |          |
| Analysis Desired         |              |               |                                   |          |
| Sampling Data            |              |               | · · · · · · · · · · · · · · · · · |          |
| Lab Use Only Sample (    | Res          | ults          | Remarks                           | ·· _ ·   |
|                          |              |               |                                   |          |
|                          | <b>_</b>     |               |                                   |          |
|                          | ·            |               |                                   |          |
|                          |              |               |                                   |          |
|                          |              |               |                                   |          |
|                          |              |               |                                   |          |
|                          |              |               |                                   |          |
|                          |              |               |                                   |          |
|                          |              |               |                                   |          |
|                          |              |               |                                   | <u> </u> |
|                          |              |               |                                   | — .      |
| • ·                      |              |               |                                   |          |
|                          |              |               |                                   |          |
|                          |              |               |                                   |          |
| comments to Lab:         |              |               |                                   |          |

#### APPENDIX G SURFACE WIPE SAMPLING SHEET

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#### APPENDIX H AIR SAMPLING SHEET

|                     |                  | Industrial H     |             |   |               | ,        |
|---------------------|------------------|------------------|-------------|---|---------------|----------|
| Return Add          | ress             |                  | Point of Co | ontact (nam                             | e/phone #)    | •••      |
|                     |                  |                  | Samples C   | ollected By                             |               |          |
| Sampled Fa          | acility          | City             | State       | Location (b                             | dg/area)      |          |
| Description         |                  | Parsons Exposed  | Hrs/Day     | Method                                  | of Collection |          |
| Sampling D          |                  |                  |             |   |               |          |
| Sample<br>No.       |                  |                  |             | · · - · · · · · · · · · · · · · · · · · | •••••         | - [      |
| Pump No.            |                  |                  |             |   |               | 8        |
| Time On             |                  |                  |             |   |               | L        |
| Time Off            |                  |                  |             |   |               | A        |
| Total Time<br>(min) |                  |                  |             |   |               | N        |
| Flow Rate<br>(LPM)  |                  | ff               |             |   |               | к        |
| Volume<br>(liters)  |                  |                  |             |   |               |          |
| GA/BZ               |                  |                  |             |   |               |          |
| Employee<br>Name/ID |                  |                  |             |   |               |          |
| Laboralory<br>No.   |                  |                  |             |   |               | <u> </u> |
| Calibration         |                  |                  |             |   |               |          |
| Punip No.           | Callt<br>Pre-Uso | Post-Use         | Rotameter S | atting                                  | Date          |          |
|                     |                  | - [              |             | · · · · · · · · · · · · · · · · · · ·   |               |          |
| ······              | <b>..</b> .      |                  |             |   |               |          |
|                     |                  |                  |             |   |               |          |
|                     |                  |                  | · · · · · · | ·                                       | ···           |          |
|                     |                  |                  |             |   |               |          |
| Name of Calibra     | ator             | Calibration Date | Pump Manuf  | acturer                                 |               |          |
| Comments to L       | ab ·             |                  |             | -                                       |               |          |

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APPENDIX I ABBREVIATIONS AND TERMS

#### Section I Abbreviations

ARNG Army National Guard

BUN Blood urea nitrogen

**BZ** Breathing zone

CBC Complete blood count

CFR Code of Federal Regulations

*om* Centimeter

DHEW Department of Health, Education and Welfare

EPA Environmental Protection Agency

GA General area

OMPF Official Military Personnel File

OPF Official Personnel File

OSHA Occupational Safety and Health Administration

TOXIC Characteristic Leaching Procedures

ug/sq\_ft Micrograms per square foot

#### APPENDIX I (Continued)

#### Section II Terms

#### HEPA

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

#### Lead-Contaminated Range

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

#### Wipe Sample

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

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



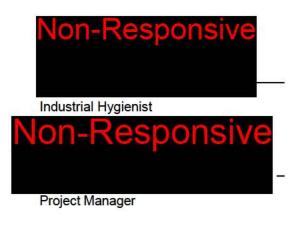
# Industrial Hygiene Survey for MAARNG – Framingham Readiness Center 522 Concord Street Framingham, Massachusetts 01701

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

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

Industrial Hygiene Survey for MAARNG – Framingham Readiness Center 522 Concord Street Framingham, Massachusetts 01701





Section Manager - EHS Management

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

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## **Executive Summary**

On August 18, 2010, AECOM Environment conducted an Industrial Hygiene (IH) survey of the Framingham Readiness Center facility located at the armory at 522 Concord Street in Framingham, Massachusetts. Steve Raymond, Program Coordinator I, was the point of contact for the facility and accompanied AECOM during the survey to provide access and information concerning the Framingham Readiness Center operations.

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

The Framingham Readiness Center is currently staffed by approximately 24 personnel. The facility is configured as an administrative area and a Drill/Assembly Hall.

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

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

The Framingham Readiness Center is housed in a one story masonry slab-on grade building, consisting of approximately 50% administrative space and 50% drill hall.

Lighting levels measured throughout the facility were generally adequate as per <u>ANSI/IESNA RP-1-2004</u>, <u>Office Lighting</u>, <u>ANSI/IESNA RP-7-2001</u>, <u>Industrial Lighting</u>, and the <u>IESNA Lighting Handbook</u>, 9<sup>th</sup> <u>Edition</u>, 11 <u>April 2005</u>, with the exception of the weight room and a few offices

Wipe samples collected throughout the facility indicated lead levels below the ARNG action level with the exception of the duct sample in the former firing range.

There was no suspect mold growth or water damaged observed during the survey of the facility.

The HVAC system in the building consists of a boiler room that feeds radiant heaters throughout the building. There is no HVAC system that provides fresh air from the building exterior in administrative areas. The Drill Hall is equipped with two overhead air handling units. The two units in the Drill Hall were inaccessible at the time of the survey. According to **Non-Responsive** the units are serviced every six months.

# 1.0 Facility Description and Operations

The Framingham Readiness Center is an administrative facility within a masonry structure, slab on grade. The building consists of two main sections. The center section consists of the drill hall and is surrounded with administrative offices and supply storage. The drill hall is finished with painted cinder block walls, an exposed roof deck painted to match the walls, and concrete floors.

The primary activity at the Framingham Readiness Center is routine administrative duties and occasional use by units for support and training of soldiers. The Framingham Readiness Center is currently staffed by approximately 24 personnel. No vehicle maintenance activities are undertaken at the facility.

# 2.0 Sampling in Readiness Centers

#### 2.1.1 Wipe Sampling

Wipe sampling for lead was conducted in the drill hall, former firing range and administrative areas following the OSHA wipe sampling method and using Ghost wipes. Samples were collected in areas that are not frequently cleaned and showed signs of dust whenever possible.

According to site personnel there is no record of the indoor firing range at the facility being abated for lead. The following table presents the results of the lead wipe sampling conducted at the facility.

| Sample Number | Sample Location                | Lead Concentration       |
|---------------|--------------------------------|--------------------------|
| FRC-1         | Firing Range Floor             | <110 ug/ft <sup>2</sup>  |
| FRC-2         | Firing Range Duct              | 27000 ug/ft <sup>2</sup> |
| FRC-3         | Stairway to Firing Range       | 120 ug/ft <sup>2</sup>   |
| FRC-4         | Firing Range Bench             | <110 ug/ft <sup>2</sup>  |
| FRC-5         | Bullet Trap                    | <110 ug/ft <sup>2</sup>  |
| FRC-6         | Cafeteria Table                | <110 ug/ft <sup>2</sup>  |
| FRC-7         | Drill Shed Floor               | <110 ug/ft <sup>2</sup>  |
| FRC-8         | Drill Shed Cabinet             | 120 ug/ft <sup>2</sup>   |
| FRC-9         | Kitchen Stove                  | <110 ug/ft <sup>2</sup>  |
| FRC-10        | Armorer's Desk                 | <110 ug/ft <sup>2</sup>  |
| FRC-11        | S 2/3 Training Operations Desk | <110 ug/ft <sup>2</sup>  |
| FRC-12        | Recruiter's Desk               | <110 ug/ft <sup>2</sup>  |

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

The wipe sample collected on top of a duct in the former firing range indicated detectable levels of lead. Levels detected were above the ARNG action level of 200 ug/ft<sup>2</sup>. Laboratory analytical results are presented in Appendix C.

#### 2.1.2 Air Sampling

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

#### Table 2-2: Lead Air Sample Results

| Sample Number | Sample Location     | Lead Concentration    |
|---------------|---------------------|-----------------------|
| HRC-10        | Drill Shed          | <17 ug/m <sup>3</sup> |
| HRC-11        | Former Firing Range | <17 ug/m <sup>3</sup> |

None of the air samples collected indicated the presence of airborne lead above detectable limits. For reference, the OSHA Action Level for lead is 30 ug/m<sup>3</sup> and the Permissible Exposure Limit (PEL) is 50 ug/m<sup>3</sup>. Laboratory analytical results are presented in Appendix C.

# 3.0 Physical Condition of Facility and Personnel Concerns

#### 3.1.1 Lead Based Paint

Interior surfaces of walls are coated with paint. The paint on the walls appeared to be generally in good condition. Concrete flooring was generally tiled or unpainted. AECOM did not observe damaged or peeling paint during this evaluation.

#### 3.1.2 Suspect Asbestos Containing Materials

AECOM did not observe damaged, friable suspect asbestos containing materials (ACM) in readily accessible areas of the Framingham Readiness Center during this survey. Thermal system piping is typically covered in fiberglass insulation with associated fittings in good condition.

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

#### 3.1.3 Water Damage/Mold

AECOM did not observe any evidence of water intrusion in the facility during this survey.

#### 3.1.4 Housekeeping

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

#### 3.1.5 Indoor Air Quality/ Ergonomics

The Administration Section contains general office space. The Administration Section is generally utilized by all of the Framingham Readiness Center staff members. No Indoor Air Quality concerns were noted by the Framingham Readiness Center personnel.

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

#### Table 3-1: Indoor Air Quality Monitoring Results

| Location   | Carbon<br>Monoxide (ppm)   | Carbon Dioxide<br>(ppm)  | Temp (°F)   | Relative<br>Humidity (%) |
|--|--|--|---|--------------------------|
| Exterior - Baseline  | 1.2  | 461  | 81.8  | 54.6                     |
| Cafeteria  | 1.7  | 452  | 74.9  | 52.9                     |
| Table 1-3 Guidelines:<br>Carbon Monoxide: Office/Wareh<br>OSHA Permissible Exposure Lin<br>Carbon Dioxide: Office Space -A<br>2007). Not Applicable to wareho<br>Relative Humidity: Mechanically<br>5.10.1).<br>Temperature: Winter (clothing in<br>Summer Temp - 73 – 79°F. (De | nit (PEL) = 50 ppm. ACG<br>Approximately 700 ppm a<br>use and vehicle mainten<br>air-conditioned space –<br>sulation = 1.0 clo) Relati | SIH Threshold Limit value<br>bove background (Deriv<br>ance bays.<br>Maximum 65% (Derived<br>ve humidity 30-60% - Te | e (TLV) = 25, ppm<br>ved from ASHRAE<br>I from ASHRAE S | n.<br>Standard 62.1-     |

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

# 4.0 Ventilation and HVAC System

#### 4.1.1 Ventilation Systems and Potential for Contamination of Clean Air Sources

Potential for contamination of clean air sources was not observed in the facility.

The Framingham Readiness Center is heated by a radiant heating system fed by a boiler located in the boiler room that is adjacent to the drill hall. Supply and return air is not provided by mechanical means.

Two air handling units are located in the overhead space of the drill hall, but the units were inaccessible and site personnel could not provide information on the use or status of the system. The fans were not observed in operation during the survey.

#### 4.1.2 HVAC Maintenance

According to Non-Responsive, Units are serviced once every six months.

# 5.0 Lighting

Lighting levels in all areas were measured utilizing a Cal-Light 400 light meter that displays lighting levels in foot-candles. Lighting levels were adequate in most areas measured except for a few office areas and the weight room.

#### Table 5-1: Light Survey

| Location   | Results – (Foot candles) | Met Standard<br>(Y/N) | Standard* |  |  |  |
|--|--------------------------|-----------------------|-----------|--|--|--|
| Cafeteria  | 43.5                     | Y                     | 10        |  |  |  |
| Kitchen  | 30.6                     | Y                     | 10        |  |  |  |
| BN CDR   | 59.0                     | Y                     | 50        |  |  |  |
| CSM  | 40.9                     | N                     | 50        |  |  |  |
| AO   | 26.7                     | N                     | 50        |  |  |  |
| S1   | 63.0                     | Y                     | 50        |  |  |  |
| S1 MSG   | 93.1                     | Y                     | 50        |  |  |  |
| WO   | 73.4                     | Y                     | 50        |  |  |  |
| JAG  | 70.0                     | Y                     | 50        |  |  |  |
| S 2/3  | 59.0                     | Y                     | 50        |  |  |  |
| S 2/3 LTC  | 62.0                     | Y                     | 50        |  |  |  |
| Armorer  | 75.5                     | Y                     | 50        |  |  |  |
| Recruiter  | 37.2                     | N                     | 50        |  |  |  |
| Training and Operations  | 64.0                     | Y                     | 50        |  |  |  |
| Training and Operations SGM  | 45.5                     | N                     | 50        |  |  |  |
| S4 Supply  | 40.7                     | Y                     | 30        |  |  |  |
| Classroom  | 56.0                     | Y                     | 50        |  |  |  |
| 1060 <sup>th</sup> TC  | 41.6                     | N                     | 50        |  |  |  |
| 1060 <sup>th</sup> CDR   | 18.1                     | N                     | 50        |  |  |  |
| 1060 <sup>th</sup> 1SG   | 16.5                     | Ν                     | 50        |  |  |  |
| Boiler Room  | 34.5                     | Y                     | 30        |  |  |  |
| 151 Orderly  | 60.2                     | Y                     | 50        |  |  |  |
| HHC Supply   | 35.3                     | Y                     | 30        |  |  |  |
| Drill Shed   | 42.5                     | Y                     | 10        |  |  |  |
| 1060 <sup>th</sup> Supply  | 35.1                     | Y                     | 30        |  |  |  |
| Weight Room  | 19.2                     | N                     | 30        |  |  |  |
| Office Lighting (ANSI/IESNA RP-1-04) and Industrial Lighting Facilities (ANSI RP-7-01) |                          |                       |           |  |  |  |

# 6.0 Evaluation of Attached Garage

There is no garage associated with the Framingham Readiness Center.

# 7.0 Conclusions and Limitations

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

Housekeeping is performed regularly at the Framingham Readiness Center, and AECOM did not observe any damaged, suspect asbestos containing materials or peeling paint during the evaluation.

Evidence of water intrusion was not observed anywhere within the facility.

Lighting levels in most areas of the facility were in compliance with ANSI/IESNA guideline levels.

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

Wipe samples collected in various locations throughout the building did not indicate levels of lead on surfaces in excess of the ARNG action level except for the duct in the former firing range.

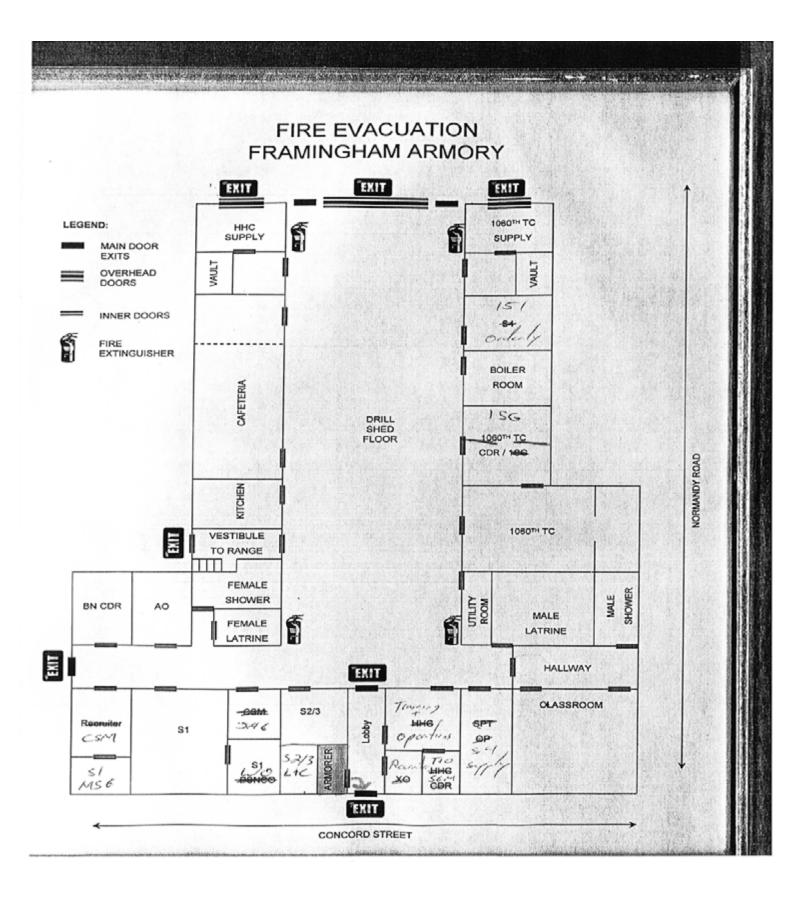
AECOM provided these services consistent with the level and skill ordinarily exercised by members of the profession currently providing similar services under similar circumstances at the time the services were provided. This statement is in lieu of other statements either expressed or implied. This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

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

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

Appendix A

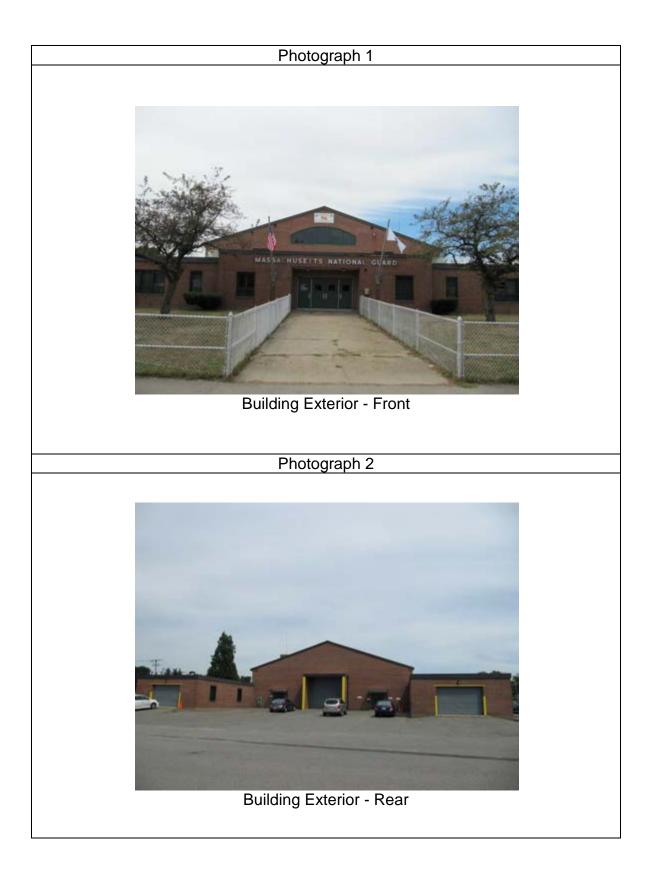
Framingham Readiness Center Facility Layout

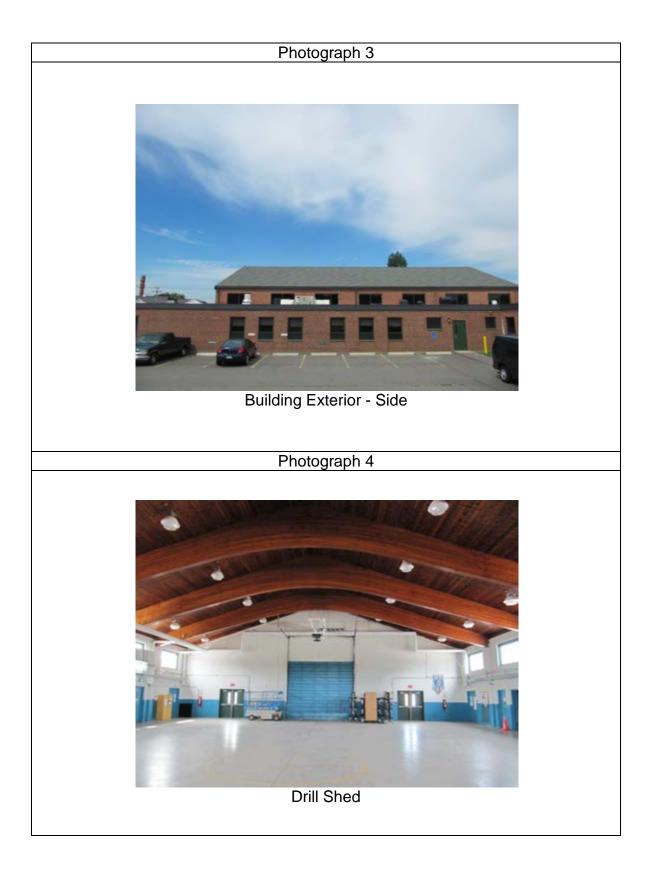


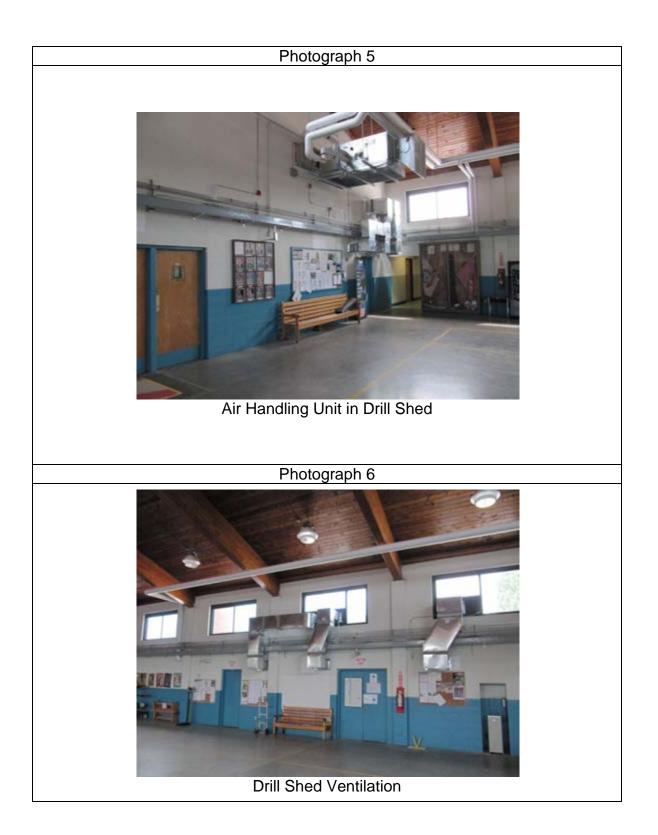
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Hillsborough Readiness Center Photographs

















Appendix C

Analytical Results

# AMA Analytical Services, Inc.

É

A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS

| Client:  | National Guard Bureau  | Job Name:     |
|----------|--|---------------|
| Address: | 301-IH Old Bay Lane, Attn: NGB-AVN-SI,<br>State Military Reservation | Job Location: |
|          | Havre de Grace, Maryland 21078                                       | Job Number:   |
|          |  | P.O. Number:  |

Framingham RC C 522 Concord Street, Framingham, MA E Not Provided P W912K6-09-A-0003 E



AIHA LAP, LLC

Page 1 of 2

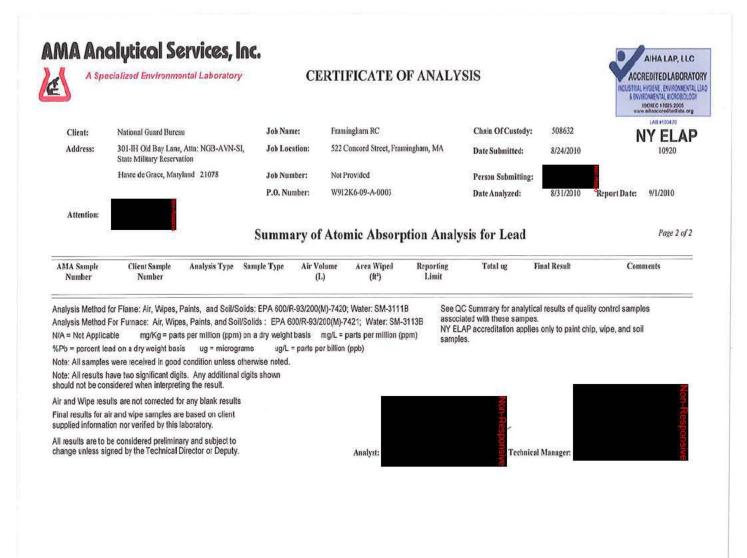
#### Summary of Atomic Absorption Analysis for Lead

AMA Sample **Client Sample** Analysis Type Sample Type Air Volume Area Wiped Reporting Total ug Final Result Comments Limit Number Number (L) (ft2) 175 N/A <3 <17 1073254 FRC-01A Flame Air 17 ug/m<sup>3</sup> ug/m3 175 N/A <3 <17 1073255 FRC-02A Flame Air 17 ug/m<sup>3</sup> ug/m3 .... Wipe 0.111 <12 1073256 FRC-01 Flame 110 ug/ft2 <110 ug/fl<sup>a</sup> 1073257 FRC-02 Wipe .... 0.111 110 3000 27000 ug/ft2 Flame ug/N<sup>4</sup> .... ug/ft² 1073258 FRC-03 Fame Wipe 0.111 110 14 120 ug/ft² ug/ft2 FRC-04 Wipe .... 0.111 110 <12 <110 ug/ft<sup>2</sup> 1073259 Flame .... ug/ft² <12 1073260 FRC-05 Wipe 0.111 110 ug/fl? <110 Fame .... <12 ug/ft2 0.111 110 <110 1073261 FRC-06 Flame Wipe ug/ft2 .... <12 1073262 FRC-07 Fame Wipe 0.111 110 112/112 <110 ug/ft2 .... 13 1073263 **FRC-08** Flame Wipe 0.111 110 ug/ft3 120 ug/ft2 .... 0.111 <12 <110 ug/fl² 1073264 FRC-09 Flame Wipe 110 ug/ft3 .... ug/ft\* <12 1073265 FRC-10 Flame Wipe 0.111 110 <110 ug/ft? FRC-11 \*\*\*\* 0.111 <12 <110 ug/ft2 1073266 Wipe 110 ug/ft2 Fame .... <12 1073267 FRC-12 Wipe 0.111 110 ug/ft2 <110 ug/ft2 Flame

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|   |   |   | OWI (410) 247-2024  |   |  | 159902  | 210 REV. 6.0  | •                  |
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| AMA Analytical Services, Inc.<br>Focused on Results www.amulub.com<br>AIHA (#100470) NVLAP (#101143-6) NV<br>4475 Forbes Bivd. • Lanham, MD 20706<br>(301) 459-2640 • (800) 346-0961 • Fax (30  | 1<br>ELAP (10920)   | CHAI  |   | JSTODY  |  | ease Refer To This<br>mber For Inquires)  |   | 32                 |
| iling/Billing Information:<br>Chent Name: <u>National Guard Bureau</u>  |   |   | Submittal Info<br>1. Job Name:  |   | RC.  |   |   |                    |
| Address I: 301-IH Old Bay Lane  |   |   | 1. Job Pame:  | 1: 522 Conc   | 10   | Frominhon   | Md  |                    |
| Address 2: Attn: NGB-AVN-SI, Stale M  | Descelles   |   | 2. Job Locato<br>3. Job #:  | STA CODE  |  | # W912K6-09   | 1 0000  |                    |
| Address 3: Havre de Grace, Maryland   |   |   | 4. Contact Fer  | -   | PO   | #:V912K0-U9   | A-1013  |                    |
|   | Fax #: (410) 942-   |   | 5. Submitted b  |   |  |   |   |                    |
| none #. 14101 342-0215  |   |   | sults will be provide   |   | KINSSENTE  |   | /   |                    |
| AFTER HOURS (must be pre-scheduled)   | Inchorang.  |   | AL BUSINESS HOUR  |   | ay reasone).   | DED   | ORT TO:   |                    |
| Interdiate Date Due:  | Immediate     Next Day     U 2 Day  | Date Due:   | 131/10  | Results Required By Nor<br>(EveryAttempt Will Be<br>Made to Accomodate) | n Stricture<br>Stricture<br>U Fax:<br>O Vert   |   | with Report<br>A.F.C.M.C.<br>Dus.army.ml<br>Pus.army.ml | en                 |
| Bulk     EPA 600 - Visual Estimate(QTT)       D EPA 600 - Visual Estimate(QTY)       D FPA Point Count(QTY)       O Y State Friable 198.1(QTY)       O Grav. Reduction ELAP 198.6(Q)       O ther (specify)(C)       O Vernicolite       O Vernicolite       SAMPLE INFORMATIO       CLIENT ID       SAMPLE LOCATION  | TEM<br>QTY) (<br>Y) TEM<br>(<br>Y) TEM<br>(<br>UTY) (<br>(<br>QTY) (<br>(<br>)<br>QTY) (<br>(<br>)<br>QTY) (<br>)<br>QTY) (<br>)<br>QTY) (<br>)<br>(<br>)<br>QTY) (<br>)<br>(<br>)<br>(<br>)<br>(<br>)<br>(<br>)<br>(<br>)<br>(<br>)<br>(<br>)<br>(<br>)<br>( | Quan. (slarea)Du<br>LWattr<br>Qual. (pres/abs)<br>ELAP 198.2/EPA<br>EPA 100.1<br>All samples recei<br>(TEM Water sample | /acuuny/Dust<br>cuum D5155-95<br>at D6480-99<br>100.2(QTY)<br>100.2(QTY)<br>ved in good condition | (QTY)<br>F<br>QTY)  | □ Waste Water<br>□ Pb Furnace (<br>ungal Analysis<br>Collection A<br>Collection A<br>□ Spore-Trap<br>□ Surface Swa<br>□ Surface Tap<br>□ Other (Specify. | (QTY)     ( | Q Cu(QTY) Q As<br>Cu(QTY) Q As<br>)(QTY)                | (QTY)<br>(QTY)<br> |
| RC. Ol Reve Floor, 1  | 8/19/0 10   | Sin 2   |   |   | X  | Date/Time:  | Contact:  | By:                |
| RC. Oh Resse Pret   |   |   | X   |   | X  |   |   |                    |
| (C'03 Sterring to Rings   |   |   | X   |   | X  |   |   |                    |
|   |   |   | X   |   | X  |   |   |                    |
| 1C.04 Ruge Berch  |   |   |   |   |  | and the second se   | Contact:  | By:                |
| C.04 Ringt Berch  |   |   |   |   | ľX   | Date/Time:  | Contact.  |                    |
| C. 05 Billet Tre<br>C. 05 Billet Tre<br>C. 06 Cotering Trille   |   |   |   |   | - K  | Date/Time:  | Conad:  |                    |
| 1C. 04 Ringt Beach<br>IC. 05 Billef tine<br>IC. 06 Cotetin Fill<br>RC. 01 Bill Substance-   |   |   | - X   |   | X  | Date/Time:  | Comad.  |                    |
| RC:04 Ringt Beach<br>RC:05 Billef Time<br>RC:06 Coletin FT.MC<br>RC:07 Bill Substance<br>RC:08 Dillshill Physich  |   |   |   |   |  | Date/Time:  | Context.  |                    |
| RC:04 Ringt Beach<br>RC:05 Billef Time<br>RC:06 Coletin FT.MC<br>RC:07 Bill Stall Floo-<br>RC:08 Dillshill Florich<br>RC:09 Kilden Store  |   |   | X   |   | X  | Date/Time:  | Contaci:  | By;                |
| RC:04 Ringt Beach<br>RC:05 Billef Time<br>RC:06 Cofetin ATMC<br>RC:07 Bill Staffoo-<br>RC:08 Dill Staffoo-<br>RC:09 Killin Store<br>RC:10 Agmore Ret  |   |   |   |   |  |   |   | By:                |
| RC:04 Ringh Beach<br>RC:05 Billef Tine<br>RC:06 Cofetin Mille<br>RC:07 Bill Still Floo-<br>RC:08 Dill Still Floo<br>RC:09 Killing Store<br>RC:10 Armone Best<br>RC:11 Statum Or   |   |   |   |   |  |   |   | By:                |
| RC. 05 Billet Tire<br>RC. 06 Coletin Till<br>RC. 07 R.II Selfton-<br>RC. 08 D.II Stelfton-<br>RC. 09 Kilden Story<br>RC. 10 Aymerer Desk  |   |   |   |   |  |   |   | By:                |
| C. OS BACK time<br>C. OG Lotting IT.HC<br>RC. OT B.H. Sedgt floo.<br>RC. OB D.H.Sted Floor Ch.<br>RC. OP K. Ichen Store<br>RC. IO Armore Desk<br>RC. II SLS Trajning Or<br>RC. I SLS Trajning OF<br>RC. I SLS TRAJNA<br>RC. I SLS | × 8/2   | // do2  |   | M By @  |  |   |   | By:                |
| C. OS Billet Time<br>C. OG Coletin Hill<br>RC. OT Bill Sed Atro-<br>RC. OB Dill Sed Atro-<br>RC. OB Kilder Store<br>RC. OP Kilder Store<br>RC. I Armore Rest<br>RC. I Store Rest<br>I. Date/Time RCVI   |   |   | X<br>X<br>X<br>X<br>X<br>X  |   |  |   |   | By:                |
| C. OS BAlef time<br>C. OG Loteria IT.HC<br>RC. OT B.II Selfton<br>RC. OB D. II Selfton<br>RC. OB D. II Selfton<br>RC. OP K. Ichen Store<br>RC. IO Armere Best<br>RC. II SUSTayne, Gr<br>RC. I SUSTayne, Gr<br>RC. I SUSTAY  | ned:/_  | / <u>u</u> e  | X<br>X<br>X<br>Via: Fode E  | <b>P</b>  |  | Date/Time:  |   |                    |

| AMMA Realifield Services, Inc.       (Picase Refer To This SOG63.2.)         ATTRAINING TO PROPERTY (2007)       CHAIN OF CUSTODY         Diright 2017 Model (2017)       Submittel Information:         Circumster State (2017)       Submittel Information:         Atters 3.       Atters 1.         Atters 3.       Atter 1.         Atters 3.       Atter 1.         Atter 1.       Atter 1.   | Focused on Results www.amalub.com  |   |  |   |     |              |   |   |                      |                |  |  |               | 210 REV 6.08  | 100000                            |
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| Address 1:       20.141 Cdd Bay Lane       2. Job Location: 5.82./ Coxced. St. Treatmann. MAA         Address 2:       Address 2:       Address 2:       Address 2:         Address 3:       Job St. (410) 962/0273       Fixe 4: (410) 962/0274       5. Submitted by:         Reporting Information Results alls provided a       NORMAL BUSINESS MORES       NORMAL BUSINESS MORES         ATTER MORE (and by and base in the results all by provided a       NORMAL BUSINESS MORES       Normal State (and base in the results all by provided a         Atter State More in the result of the provided a       NORMAL BUSINESS MORES       Normal State (and base in the result of the provided a         Miles Analysic       Discrete Type:       Discrete Type:       Normal State (and base in the result of the provided a         Mair: Price Information:       Discrete Type:       TEM Bale       (0TY)  |  |   |  |   |     |              |   |   |                      | 1              | e c  |  |               |   |                                   |
| Address 2:   |  |   |  | -   | - ! | . Job M      | lame:                                       | Fran                                      | info                 | cm /           | Y  | 1 +  |               | CT A  |                                   |
| Address 3:       Have da Grace. Maryland. 21078       4. Conset Person         Proce #: (410) 842-0073       Fue #: (410) 842-0073       Fue #: (410) 842-0073         Reporting Information (Results will be provided a mention.       NORMAL BUSINESS HORES         APTER HORES (see the pre-soluble) mention.       NORMAL BUSINESS HORES         Nomediate Data Des       Dimediate Data Des       Dimediate Data Des         Nets Analysis       Dimediate Data Des       Dimediate Data Des       Meta Accompanie)         Betes Analysis       TEM Bais       TEM Bais       Meta Accompanie)         Dimediate Data Des       O(TY)       Dimediate Data Des(0TY)       Dimediate Data Des(0TY)         Dimediate Data Des(0TY)       Dimediate Data Des(0TY)       Dimediate Data Des(0TY)       Dimediate Data Des(0TY)         Dimediate Data Des(0TY)       Dimediate Data Des(0TY)       Dimediate Data Des(0TY)       Dimediate Data Des(0TY)         Dimediate Data Des(0TY)       Dimediate Data Des(0TY)       Dimediate Data Des(0TY)       Dimediate Data Des(0TY)         Dimediate Data Des(0TY)       Data Des(0TY)       Dimediate Data Des(0TY)       Dimediate Data Des(0TY)         Descendent Descendent Descendent Descendenter Descendent Descendenter Descendenter Descendenter  |  | any Descustio   |  |   |     |              |   | 522                                       | ~0                   | toria:         | d s  | En   | angen 1       | *(4   |                                   |
| Phone #:   |  |   |  |   |     |              |   |   |                      |                |  |  |               |   | 2                                 |
| Reporting Information Results will be provided a           NORMAL BUSINESS HOURS           NORMAL DUSINESS HOURS           Normal Dusines Colspan="2">Normal Dusines Colspan="2"           Normal   |  |   |  |   |     |              |   | 102                                       |                      |                |  |  |               |   |                                   |
| APTER HOUSS Gent be pre-scheduled<br>mediate       Dimediate<br>Dat Date   |  |   |  |   |     |              |   |   |                      |                |  |  |               |   |                                   |
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| Innerets:         U 2 Day         Date   |  |   |  | 1 Day   |     |              |   |   |                      |                |  |  |               | th Report   | 1                                 |
| TEM Bulk       Metak Analyzis         LAir - Please Indicate Filter Type:       U ELAF 198.4/Chartled:      (0TY)       UP 6 Fair Carp      (0TY)         UNOSH7.2000(0TY)       U Reideal Ash      (0TY)       UP 6 Fair Carp      (0TY)         UNOSH7.2000(0TY)       U Reideal Ash      (0TY)       UP 6 Fair Carp      (0TY)         UNOSH7.2000(0TY)       U Reideal Ash      (0TY)       UP 6 Fair Carp      (0TY)         OARE RAAL      (0TY)       U Reideal Ash      (0TY)       UP 6 Fair Carp      (0TY)         OARE RAAL      (0TY)       U Reideal Ash      (0TY)       UP 6 Fair Carp      (0TY)         UD Ober (see:dr)      (0TY)       U Ober (see:dr)      (0TY)       UP 6 Fair Carp      (0TY)         U Ober (see:dr)      (0TY)       U Ober (see:dr)      (0TY)       UP 6 Fair Carp      (0TY)         U Ober (see:dr)      (0TY)       U Ober (see:dr)      (0TY)       UP 6 Fair Carp      (0TY)         U Ober (see:dr)      (0TY)       U Ober (see:dr)      (0TY)       UP 6 fair Carp      (0TY)       UP 6 fair Carp      (0TY)       UP 6 fair Carp      (0TY)   |  |   | D  | ate Duc.  | _   |              | N   | lade to A                                 | como                 | in Be<br>Inte) | L  |  |               | us.army.mil   |                                   |
| Adir - Preve Indicate Filter Type:       Image: Preve Filter Type:       Image: Preve Filter Type  | peter Analysic   |   |  |   | -   | -            |   |   |                      | M              | _  | -  |               | us.army.ma  |                                   |
| LABORATORY   | INOSH 7400(QTY)           IF berglass         QTY)           IF berglass         QTY)           IAILER - Plass Indicate Filter Type:         QTY)           O AHERA(QTY)         INOSH 7402(QTY)           INOSH 7402(QTY)         QOTY)           Derk operity        (QTY)           Derk operity        (QTY)           DERA foot Count(QTY)        (QTY)           Offer (specify)        (QTY)           Usanterinate HAL (Moit) RM_(Quot) RM_(Quot) RMTEM_(Quot) PMTEM_(QUOT)        (QTY)           Offer (specify)        (QTY)        (QTY)           Usanteriative        (QTY)        (QTY)           Other (specify)        (QTY)        (QTY)           Usanteriative        (QTY)        (QTY)           Other (specify)        (QTY)        (QTY)           Vermicelite | 11)<br>11<br>11)<br>11)<br>12)<br>13)<br>14)<br>14)<br>14)<br>15)<br>14)<br>15)<br>15)<br>16)<br>17)<br>16)<br>17)<br>16)<br>16)<br>16)<br>16)<br>16)<br>16)<br>16)<br>16 | D NY St<br>U Reside<br>MDug<br>U Qual.<br>U Qual.<br>D Quan.<br>M Water<br>D Qual.<br>D P D D D D D D D D D D D D D D D D D D | ate PLM/<br>val Ash_<br>(pres/abs<br>(s/area)I<br>(s/area)I<br>(pres/abs<br>198.2/E)<br>00.1<br>mples res | TEM | (Q1<br>#Dust | (QTY)<br>S<br>QTY)<br>(Q<br>)<br>ndition so | (QT)<br>(QT)<br>(OTY<br>TY)<br>uless othe | QTY)<br>)<br>(wise n | inted.         | UPb<br>UPb<br>Dri<br>UPb<br>Dri<br>UPb<br>Dri<br>UPb<br>Dri<br>UPb<br>Dri<br>Col<br>Spi<br>Sou<br>Sou<br>Sou | Dest Wij<br>Air<br>Sol/Soli<br>TCLP<br>nking W.<br>ste Water<br>Furnace<br>unlysis<br>lection A<br>lection A<br>bre-Trup.<br>face Swa<br>face Tap<br>r (Specily. | ve (wipe type | (QTY)<br>) Cu(QTY) D A;<br>) Cu(QTY) D A;<br>) Cu(QTY) D A;<br>(QTY)<br>aps/Air Sample:<br>(QTY)<br>aps/Air Sample:<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY) | (QTY)<br>(QTY)<br>(QTY)<br>)<br>) |
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| LABURATORY 2. Date/Time Analyzed: / / @ By man: Sign:  | 1. Date/fime RCVD:   | /_  | _/_  | _@_   |     | /in:         | -   | В   | y (Print)            | k              |  | -  |               | Sign:   | _                                 |
|  | LABORATORY   | . /   | . 1  |   | a   |              |   |   | 94395713             |                |  |  |               |   |                                   |

Appendix D

References

#### References

1. Title 29, Code of Federal Regulations (CFR), Part 1910, Occupational Safety and Health Administration, current Ed. http://www.osha.gov/comp-links.html

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#### Prepared For:

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

#### Prepared By:

URS Corporation 5 Industrial Way Salem, New Hampshire 03079

#### INDUSTRIAL HYGIENE SURVEY REPORT MASSACHUSETTS NATIONAL GUARD READINESS CENTER 522 CONCORD STREET FRAMINGHAM, MA 01701

June 17, 2013 PN: 39743799



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#### FINDINGS AND RECOMMENDATIONS MASSACHUSETTS NATIONAL GUARD READINESS CENTER 522 CONCORD ST., FRAMINGHAM, MA

| Findings  | Recommendations   | Risk<br>Assessment<br>Code (RAC) |
|---|---|----------------------------------|
| Lighting  |   |                                  |
| On the day of the survey, the<br>illuminance was inadequate in<br>several locations tested. One<br>light fixture was not operational.   | Increase lighting in the work areas.<br>While work is in progress, these<br>areas must be lighted by at least the<br>minimum lighting intensities (ANSI /<br>IESNA RP-1-04).                            | RAC 4                            |
| Ergonomics  |   | ·                                |
| Computer workstations in the<br>Administrative Areas were<br>observed with un-adjustable<br>chairs, arm rests and keyboards   | Ergonomic issues with regard to the<br>desks and chairs should be<br>corrected by fitting the workplace to<br>the worker (Department of the Army<br>Pamphlet 40-21, Chapter 4, Page 7,<br>Section 4-3). | RAC 3                            |
| Former Indoor Firing Range  |   |                                  |
| The former Indoor Firing Range<br>has been posted as unsafe due<br>to lead contamination; however<br>the area is still accessed.  | Materials removed from the firing range should be cleaned by trained individuals. (29 CFR 1910.1025 (h)(1)).  | RAC 3                            |
| Lead  |   |                                  |
| Four of the 10 lead wipe<br>samples indicated elevated lead<br>levels.  | Personnel trained in accordance<br>with the OSHA Lead Standard<br>should clean the areas where<br>elevated lead dust levels were<br>identified (OSHA 29 CFR<br>1910.1025(h)(1)).                        | RAC 3                            |
| Emergency Exits   |   |                                  |
| Emergency exit signs were not visible from all areas of the facility or illuminated.  | Emergency exits should be properly illuminated (29 CFR 1910.37 (q)(6)).   | RAC 3                            |
| Asbestos  |   |                                  |
| Presumed asbestos-containing<br>floor tiles and associated mastic<br>were observed throughout the<br>facility; an Asbestos Operation<br>and Maintenance Program was<br>not available on-Site. | Employees were not informed of the<br>hazards of the presumed ACM in the<br>building and procedures were not<br>put in place for managing such<br>materials. (29 CFR 1910.1001 (j)).                    | RAC 4                            |

| Findings  | Recommendations   | Risk<br>Assessment<br>Code (RAC) |
|---|---|----------------------------------|
| Fire Protection   |   |                                  |
| One fire extinguisher didn't have<br>an inspection tag and wasn't<br>properly secured to the wall.<br>Emergency escape plans were<br>not posted throughout the<br>facility. | Portable fire extinguishers shall be<br>provided, mounted and located so<br>that they are readily available. (29<br>FR 1910.157 (c)(1) and 29 CFR<br>1910.38 (c)(2)). | RAC 3                            |
| PPE   |   |                                  |
| Hazard assessments have not<br>been conducted to determine<br>whether personal protective<br>equipment is required.   | The workplace shall be assessed to determine if hazards are present to determine the need for PPE. (29 CFR 1910.132 (d)(1)).  | RAC 4                            |

#### 1.0 SUMMARY

At the request of the National Guard Bureau (NGB) Region North Industrial Hygiene Office, URS Corporation (URS) conducted an industrial hygiene survey at the Readiness Center in Framingham, Massachusetts.

URS representative, Ms. Mon-Responsive, conducted the Industrial Hygiene Survey on March 27, 2013. The scope of work included an overall assessment of the facility as it relates to industrial hygiene and included a walkthrough of the facility, collection of photographs, and when required, measurements for illumination (light), area and personal air sampling, and noise mapping.

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

<u>GENERAL</u>: The basement former Indoor Firing Range is posted as unsafe due to lead contamination; however the area is still accessed. One fire extinguisher didn't have an inspection tag and wasn't properly secured to the wall. Emergency escape plans were not posted throughout the facility. Emergency exit signs were not observed properly illuminated with directional arrows throughout the Center.

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

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

<u>ASBESTOS</u>: On the day of the survey none of the bulk samples were determined to be asbestos-containing. Presumed asbestos-containing floor tiles and associated mastic were identified during this survey, however no Asbestos Operations and Maintenance Program was found on site. Until suspect materials have been sampled and determined not to contain asbestos, they must be presumed to be asbestos-containing and managed accordingly.

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

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

### 2.0 SUPPLY / TRAINING AREA

### 2.1 Operation Description

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

The Readiness Center was found to be clean and organized at the time of URS' site visit.

### 2.2 Chemical and Physical Agents Sampled

### 2.2.1 Carbon Dioxide

On the day of the survey, carbon dioxide measurements were made in the Readiness Center. Interior carbon dioxide concentrations were found to be between 516 and 613 parts per million (ppm). Carbon dioxide levels were measured using a direct-reading TSI Q-Trak (Model 8551).

Carbon dioxide is a normal constituent of the atmosphere and ranges from about 250 to 450 ppm. The major source of excess carbon dioxide in the indoor environment is human respiration. Other sources can include open-flame heaters, fermentation processes, and motor vehicles. Carbon dioxide itself is not normally a cause of indoor air quality problems but is typically used as an indicator of the adequacy of fresh air intake. As the concentration of carbon dioxide increases, so do the background levels of other air contaminants.

To minimize air quality complaints, the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) has proposed that the carbon dioxide concentration within an occupied workspace be maintained below 700 ppm above ambient outside levels. For example, on the day of the survey, the outside carbon dioxide level was measured at 444 ppm. Therefore ASHRAE (Standard 62.1-2010) would recommend that interior carbon dioxide concentrations be maintained at or below

1144 ppm. Using the ASHRAE guideline, the readings at the subject site were found to be below the suggested indoor to outdoor differential concentration.

### 2.2.2 Carbon Monoxide

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

Key sources of carbon monoxide within indoor environments include internal combustion engines, motor vehicle and forklift exhaust, tobacco smoke, space heaters, and improperly adjusted oil or gas burners.

### 2.2.3 Relative Humidity

The average relative humidity within the Readiness Center measured with the Q-Trak Plus was 22.7%, which was within the guideline of less than 65% recommended by ASHRAE.

### 2.2.4 Temperature

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

The average temperature inside the Readiness Center was, 68.8 °F, which was within the guideline of 68 to 75 °F recommended by ASHRAE for thermal comfort.

### 2.2.5 Lighting

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

| Location   | Function | Measured<br>Illuminance<br>in Foot<br>Candles<br>(FC) | Recommended<br>Minimum<br>Illuminance in<br>Foot Candles<br>(FC) |
|--|----------|---|--|
| Classroom/ Conference Room, table                        | Admin    | 48.9  | 50   |
| Supply Office, desk-                                     | Admin    | 55.1  | 50   |
| Supply Office, storage tables                            | Admin    | 29.2  | 50   |
| Drill Office, computer work station, table               | Admin    | 31.2  | 50   |
| Drill Office, work station 7, desk                       | Admin    | 26.8  | 50   |
| Hallway to basement                                      | Hall     | 19.4  | 5  |
| Office, desk-  | Admin    | 97.5  | 50   |
| Office, desk- Non-Responsive                             | Admin    | 40.4  | 50   |
| Office, desk-  | Admin    | 65.1  | 50   |
| Office, desk-  | Admin    | 71.2  | 50   |
| Office, desk- Office 04B                                 | Admin    | 46.0  | 50   |
| Office, desk   | Admin    | 53.0  | 50   |
| S3 Office, conference table                              | Admin    | 61.5  | 50   |
| S4 Office, desk-   | Admin    | 50.5  | 50   |
| S4 Office, desk-   | Admin    | 41.4  | 50   |
| Library/ Classroom, computer tables, front               | Admin    | 75.3  | 50   |
| Library/ Classroom, computer tables, rear                | Admin    | 47.3  | 50   |
| Library/ Classroom, desk-Non-Responsive                  | Admin    | 52.5  | 50   |
| Library/ Classroom, desk-                                | Admin    | 42.3  | 50   |
| Library/ Classroom, desk-                                | Admin    | 10.1  | 50   |
| Corridor, to Men's Latrines                              | Hall     | 61.3  | 5  |
| 1060 <sup>th</sup> TC OPS Office, front conference table | Admin    | 52.9  | 50   |
| 1060 <sup>th</sup> TC OPS Office, desk-                  | Admin    | 54.2  | 50   |
| 1060 <sup>th</sup> TC OPS Office, desk-                  | Admin    | 64.7  | 50   |
| 1060 <sup>th</sup> TC OPS Office, desk- Non-Responsive   | Admin    | 20.3  | 50   |

Table 2-1Lighting Measurements and Recommended Lighting Requirements

| Location                     | Function | Measured<br>Illuminance<br>in Foot<br>Candles<br>(FC) | Recommended<br>Minimum<br>Illuminance in<br>Foot Candles<br>(FC) |
|------------------------------|----------|---|--|
| Detachment NCO Office, desk- | Admin    | 47.6*   | 50   |
| Supply Room, desk            | Admin    | 30.3  | 50   |
| Supply Room, desk            | Admin    | 37.3  | 50   |

\*Note- light fixture above desk not operational

On the day of the survey, the illuminance in the Readiness Center was determined to be inadequate in several of the office/administrative locations. One light fixture was not operational at the time of the survey.

#### 2.2.6 Lead

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

| Sample Location   | URS Sample<br>Number     | Area<br>Wiped<br>in<br>Square<br>Feet<br>(ft <sup>2</sup> ) | Result in<br>Micrograms/<br>Square Foot<br>(µg/ft <sup>2</sup> ) | Maximum<br>Surface<br>Contamination<br>Level in<br>Micrograms/<br>Square Foot<br>(μg/ft <sup>2</sup> ) |
|---|--------------------------|---|--|--|
| S1 Personnel Office,<br>center, window sill                                 | Framingham RC<br>Wipe-01 | 0.108   | <110   | 200  |
| 1060 <sup>th</sup> TC OPS Office,<br>office floor- Westberg,<br>behind door | Framingham RC<br>Wipe-02 | 0.108   | 710  | 200  |
| Library/ Classroom, floor,<br>front of classroom, under<br>screen           | Framingham RC<br>Wipe-03 | 0.10 <mark>8</mark>   | <110   | 200  |
| Conference/ Classroom, counter to kitchen                                   | Framingham RC<br>Wipe-04 | 0.108   | <1 <b>1</b> 0  | 200  |

 Table 2-2

 Levels of Lead Dust Found in the Readiness Center

| Sample Location  | URS Sample<br>Number      | Area<br>Wiped<br>in<br>Square<br>Feet<br>(ft <sup>2</sup> ) | Result in<br>Micrograms/<br>Square Foot<br>(µg/ft <sup>2</sup> ) | Maximum<br>Surface<br>Contamination<br>Level in<br>Micrograms/<br>Square Foot<br>(μg/ft <sup>2</sup> ) |
|--|---------------------------|---|--|--|
| Latrine- Men's shower,<br>corner to 1060 <sup>th</sup> NCO<br>Office | Framingham RC<br>Wipe-05  | <mark>0.108</mark>  | <110   | 200  |
| Storage Room, floor at rolling door                                  | Framingham RC<br>Wipe-06  | 0.108   | 140  | 200  |
| Supply Room, shelves by rolling door                                 | Framingham RC<br>Wipe-07  | 0.108   | 380  | 200  |
| Drill Hall, floor, at door to<br>Supply Room                         | Framingham RC<br>Wipe-09A | 0.108   | <110   | 200  |
| Former Indoor Firing<br>Range, floor at door                         | Framingham RC<br>Wipe-09B | 0.108   | 500  | 200  |
| Former Indoor Firing<br>Range, floor, stairwell<br>landing           | Framingham RC<br>Wipe-10  | 0.108   | 450  | 200  |

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

No areas of peeling paint were observed on the day of this survey for sample collection.

### 2.2.7 Asbestos

URS collected a total of three samples from damaged suspect friable asbestoscontaining material (ACM) for a determination of asbestos content. Analytical procedures were performed in accordance with the U.S. Environmental Protection Agency (EPA) recommended method for the determination of asbestos in bulk samples by polarized light microscopy with dispersion staining (EPA-600/M4-82-020). Table 2-3 below shows the results of the asbestos sampling.

|          | Table 2-4           |
|----------|---------------------|
| Asbestos | Bulk Sample Results |

| Sample Location                               | Sample          | URS Sample                    | Result         |
|---|-----------------|-------------------------------|----------------|
|   | Description     | Number                        | Total Asbestos |
| Drill Office, above<br>computer work stations | Ceiling Plaster | Framingham RC<br>PLM-01A- 01C | Non-detect     |

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

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

### 2.3 Ventilation System Evaluation

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

### 2.4 Noise Measurements

Noise mapping was conducted throughout the Readiness Center. On the day of the survey, noise levels throughout the facility ranged from 56.1 decibels to 61.4 decibels. All noise mapping results were below the DoDI Hearing Conservation Standard (6055.12 3 December 2010) of 85 decibels, A scale (dBA)/8-hour day.

### 2.5 Personal Protective Equipment

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

## 3.0 SAFETY AND INDUSTRIAL HYGIENE PROGRAMS

### 3.1 Confined Spaces

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

### 3.2 Hearing Conservation

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

### 3.3 Respiratory Protection

A site-specific written program regarding Respiratory Protection was identified on site, however current fit tests, list of employees who have been issued respirators or who have been medically cleared for respirator use was not available during this survey. No operations were observed by URS that would require the use of respiratory protection.

### 3.4 Hazard Communication

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

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

### 3.5 Personal Protective Equipment

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

## 3.6 Asbestos Operations and Maintenance Program

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

#### 3.7 Safety

The basement former Indoor Firing Range was posted as unsafe due to lead contamination. According to interviews with site personnel, the former Indoor Firing Range is still used for storage and is accessed approximately once per month. Not all emergency exit signs were properly illuminated with directional arrows throughout the facility. Emergency escape plans were not observed posted throughout the facility. One fire extinguisher was observed without an inspection tag and not mounted to the wall.

### 4.0 REFERENCES

American Conference of Governmental Industrial Hygienists

Industrial Ventilation: A Manual of Recommended Practice, 27<sup>th</sup> Edition, 2010

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

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

National Guard Pamphlet 420-15

Department of Defense

DoDI 6055.12, Hearing Conservation, 3 December 2010

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

National Institute for Occupational Safety and Health

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

U. S. Environmental Protection Agency

Asbestos Hazard Emergency Response Act (40 CFR Part 763)

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

U. S. Department of Housing and Urban Development

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

U. S. Occupational Safety and Health Administration

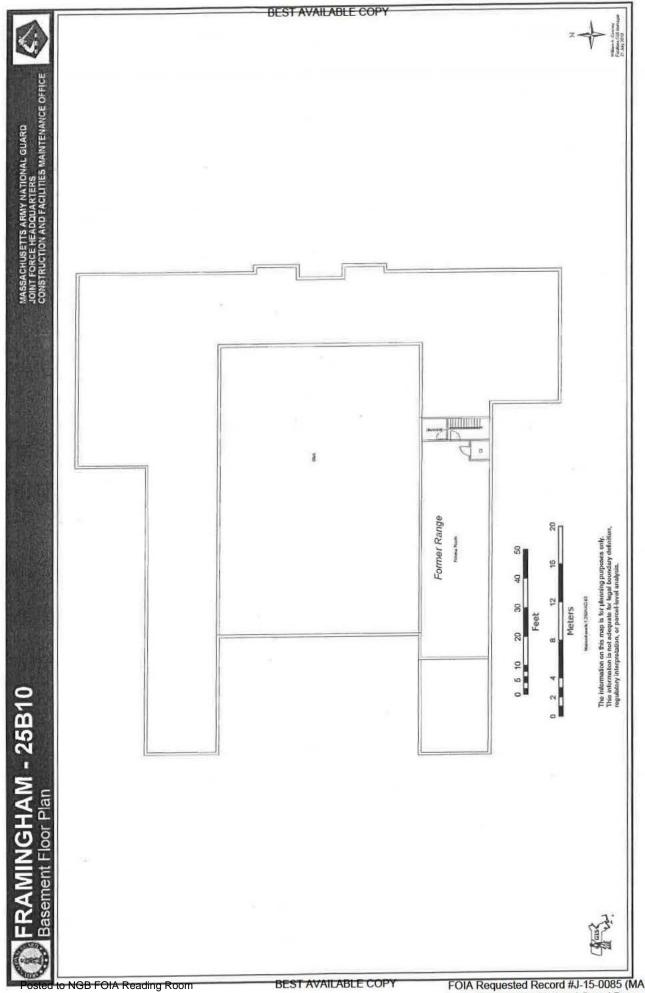
Standard for General Industry: 29 CFR 1910

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

## APPENDIX A

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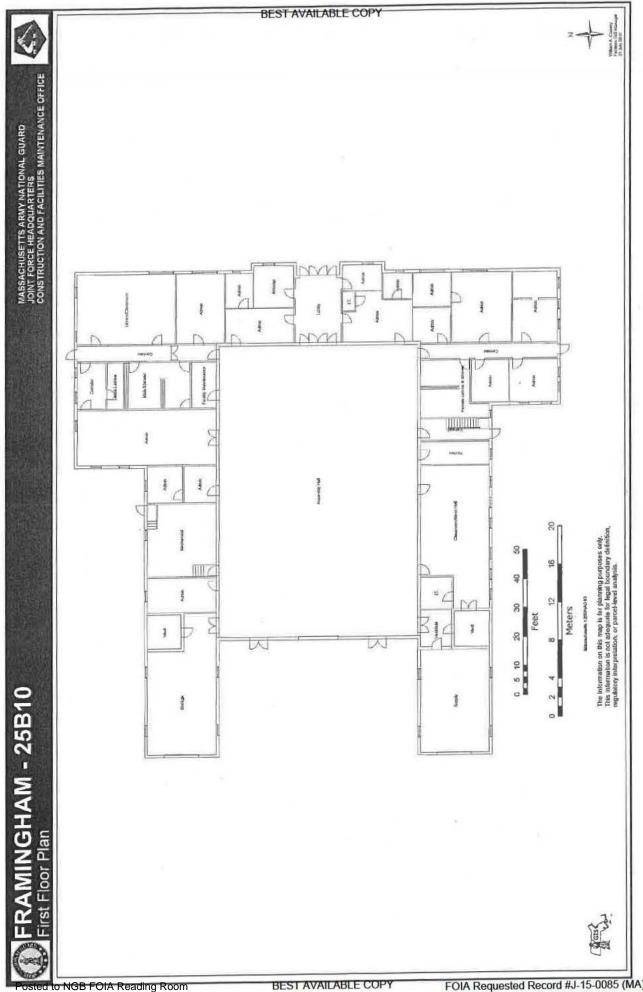
## SHOP DRAWING



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May, 2018

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#### APPENDIX B

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#### PERSONNEL LIST

## **151 RSG PHONE EXTENTIONS**

| MSG7275SFC7258SSG72831SG7834SSG7833SSG7832 |
|--|
|--|

### APPENDIX C

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#### ANALYTICAL RESULTS

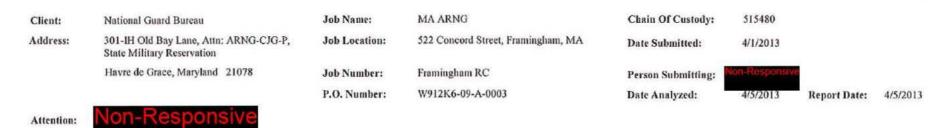
## AMA Analytical Services, Inc.

A Specialized Environmental Laboratory

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#### **CERTIFICATE OF ANALYSIS**





#### Summary of Atomic Absorption Analysis for Lead

Page 1 of 2

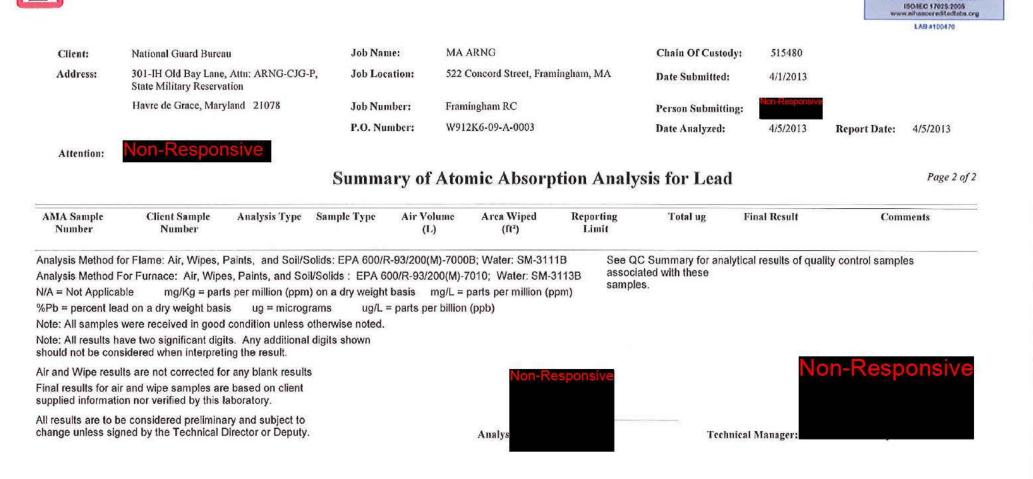
| AMA Sample<br>Number | Client Sample<br>Number   | Analysis Type | Sample Type | Air Volume<br>(L) | Area Wiped<br>(ft²) |                        | oorting<br>Jimit | Total ug | Final Res | ult    | Comments |
|----------------------|---------------------------|---------------|-------------|-------------------|---------------------|------------------------|------------------|----------|-----------|--------|----------|
| 13049850             | Framingham RC-<br>Wipe-01 | Flame         | Wipe        | ****              | 0.108               | 110                    | ug/ft²           | <12      | <110      | ug/ft² |          |
| 13049851             | Framingham RC-<br>Wipe-02 | Flame         | Wipe        | ****              | 0.108               | 110                    | ug/ft²           | 76       | 710       | ug/ft² |          |
| 13049852             | Framingham RC-<br>Wipe-03 | Flame         | Wipe        | ****              | 0.108               | 110 ug/ft <sup>2</sup> |                  | <12      | <110      | ug/ft² |          |
| 13049853             | Framingham RC-<br>Wipe-04 | Flame         | Wipe        | ****              | 0.108               | 110                    | ug/ft²           | <12      | <110      | ug/ft² |          |
| 13049854             | Framingham RC-<br>Wipe-05 | Flame         | Wipe        | ****              | 0.108               | 110                    | ug/ft²           | <12      | <110      | ug/ft² |          |
| 13049855             | Framingham RC-<br>Wipe-06 | Flame         | Wipe        | ****              | 0.108               | 110                    | ug/ft²           | 15       | 140       | ug/ft² |          |
| 13049856             | Framingham RC-<br>Wipe-07 | Flame         | Wipe        | ****              | 0.108               | 110                    | ug/fl²           | 41       | 380       | ug/ft² |          |
| 13049857             | Framingham RC-<br>Wipc-08 | Flame         | Wipe        | ****              | 0.108               | 110                    | ug/ft²           | <12      | <110      | ug/ft² |          |
| 13049858             | Framingham RC-<br>Wipc-09 | Flame         | Wipe        | ****              | 0.108               | 110                    | ug/ft²           | 53       | 500       | ug/ft² |          |
| 13049859             | Framingham RC-<br>Wipc-10 | Flame         | Wipe        | ***               | 0.108               | 110                    | ug/ft²           | 48       | 450       | ug/ft² |          |
| 13049860             | Framingham RC-<br>Wipe-FB | Flame         | Wipe Blank  | ****              | N/A                 | 12                     | ug               |          | <12       | ug     |          |

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

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AIHA LAP, LLC ACCREDITED LABORATORY

NDUSTRIAL HYGIENE, ENVIRONMENTAL LEAD & ENVIRONMENTAL MICROBIOLOGY

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| *  |                   | BEST A                                | VAILABLE C                            |                   | 19               | *  |   |                            |  |
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| RMA Analytical Services, Inc.  |                   | 3                                     | , oniting .                           |                   |                  | (PI                                      | 159202<br>case Refer To This  | 210 REV. 6.0               |  |
| AIHA (#100470) NVLAP (#101143-0) NY EI<br>4475 Forbes Blvd. • Lanham, MD 20706<br>(301) 459-2640 • (800) 346-0961 • Fax (301)  |                   | CHAI                                  |                                       | CUST              | 999-00804 - 1099 | 6  | mber For Inquires)  |                            |  |
|  |                   |                                       | Submitta<br>1. Job N                  | l Information     | A ABN            | G  | Decharded   | /                          | lofa   |
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| 4. Address 3: Havre de Grace, Maryland 21  | 078               | ······                                | _ 4, Conta                            |                   | n_R              | ach                                      | onsive  |                            |  |
| 5. Phone #: (410) 942-0273 Fa  | x #: (410) 942-   | 0254                                  | _ 5. Subir                            |                   |                  | copt                                     |   |                            |  |
| · · · · · · · · · · · · · · · · · · ·  | Reporting         | Information (Re                       | sults will be p                       | rovid             |                  | ny reasone): *                           | VINOVIE NO  | n-Respons                  | sive.  |
| AFTER HOURS (must be pre-scheduled)  |                   | NORM                                  | AL BUSINESS                           | HOURS             |                  |  | and the second se | RT TOT                     |  |
| Dimmediate Date Due:   | D Immediate       | J3 Day                                |                                       | Results R         | equired By Noo   |  | on-Responsive   | With Report                | 16   |
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| Comments:  | 2 Day             | 4 Date Due:_                          | 110113                                | Made to A         | ecomodata)       | U Ver                                    |   | ous.army.mil               |  |
| and the second   |                   |                                       |                                       |                   |                  |  |   |                            |  |
| Asbestos Análysis<br><u>PCM Air</u> – Please Indicate Filter Type:   |                   | Balk<br>JELAP 198.4/Cha               |                                       |                   |                  |  |   |                            |  |
| UNIOSH 7400 (OTY)  |                   | NY State PLM/1                        |                                       |                   |                  | Ph Dust Win                              | e (wine type (1103)   |                            | TO   |
| O Fiberelass (OTY)   | ĩ                 | Residual Ash                          | (OT                                   | Y)                |                  | UPD Air                                  | (OTY)   |                            |  |
| TEM Air - Please Indicate Filter Type:   |                   | Dust a                                |                                       |                   |                  | UPb Soil/Solid                           | (QTY)   |                            |  |
| QTY)   |                   | J Qual. (pres/abs)                    | Vacuum/Dust                           | (QT               | n -              | D Drinking Wa                            | (QTY)<br>tter CIPb(QTY) CI  | C                          | 10790  |
| U Other (specify)(QT)  | n - '             | Quan. (s/area) Vi<br>Quan. (s/area)Du | www.D5755-92                          | ·(OT              | QIY)             | Waste Water                              | OPh(QTY) OC   |                            |  |
| PLM Bulk 9   |                   | Water                                 | Ist 1.45400-59                        | (Q1)              | 0.061210         | UPb Fumace (                             | Media )   | (OTY)                      |  |
| PLM Bulk<br>AEPA 600 Visual Estimate(QTY)<br>DEPA Point Count(QTY)   |                   | Qual. (pres/abs).                     | (                                     | QTY)              | 1                | Alexit Alexity is                        | 14.4  |                            |  |
| ONV State Frighte 108 1 (OTV)  | (                 | ELAP 198.2/EP                         | A 100.2                               | (OTY)             |                  | Collection A                             | pparatus for Spore Trapsi   | Air Samples:               |  |
| LIGray Reduction FLAP 198.6 (OTY   |                   | EPA 100.1                             | (QTY)                                 |                   | <u></u>          | Collection M                             |   | aface Vacuura Dust         | (QTY)  |
| Other (specify)(Q1   | 11                | All samples rece                      | ived in good con                      | dition unless oth | erwise nated.    | Surface Swo                              | b (OTY) C Cu  | turable ID Genus (Media    | ) (OTY   |
| MISC<br>Q Vermiculite  |                   | (TEM Water sampl                      | es°C) ·                               | <i>E</i>          |                  | Q Surface Tap                            | (QTY) CICM  | turable ID Species (Media, | (QT  |
| Asbestos Soil PLM_(Qual) PLM_(Quan) PLM/TEM_(Qua   | e) PLM/TEM_(Quas) |                                       |                                       |                   |                  | Other (Specify.                          | )(QTY)  | • • • • •                  |  |
| SAMPLE INFORMATION   |                   |                                       | INALYSIS                              | . 9               | MATRI            | 1  | CLI   | ENT CONTACT                |  |
| CLIENT ID SAMPLELOCATION/  | VOLUME W          | REA [ ] A                             |                                       | 12 5              | 5 698            |  | 1   | ATORY STAFF ONL            | 10   |
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| ×   | 0   | BES  |   | ABLE CO  |                                      |                           |                                 |        |  | 2                                 | 20  |                         |
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| failing/Billing Information:         Client Nume:       National Guard Bureau         Address 1:       301-iH Old Bay Lane         Address 2:       Atin: NGB-AVN-SI, State Millip         Address 3:       Havre de Grace, Maryland, 21         Phone #:       (410) 942-0273  | ary Reservation<br>1078<br>ax #: (410) 942-02 | <u>،</u><br>254  | 1.<br>2.<br>3.<br>4.<br>5.  | hmittal In<br>Job Natii<br>Job Lóca<br>Job #: _]<br>Contact I<br>Subinitte | e:<br>1721<br>Parso<br>d By          | 522<br>Nani               | <b>N</b> -                      | Re     | esp  | ons                               | MONUM, MY   | y 2 of                  |
| AFTER HOURS (must be pre-scheduled)   | Reporting In                                  |  |   | iff be prov  |                                      |                           | · ·                             | my rea | nnle):   | -> pnon                           | REPORTION   |                         |
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| abientos Analysis         CMAig - Piense Indicate Filter Type:         J NIOSH 7400(QTY)         D Fiberglass(QTY)         EMAir - Piense Indicate Filter Type:         J AHERA(QTY)         U AHERA(QTY)         J NIOSH 7402(QTY)         U Other (specify)(QTY)         U Other (specify)(QTY)         D EPA Point Count(QTY)         D EPA Point Count(QTY)         D NY State Friable 198.1(QTY)         U Other (specify)(QTY)         U Other (specify |   | ELAP 198,4/C<br>NY State PLM<br>Residual Ash_<br>Usi<br>Qual. (pres/abj<br>Quan. (s/area)<br>Quan. (s/area)<br>(atex<br>Qual. (pres/abj<br>ELAP 198,2/E<br>EPA 100.1<br>All samples re<br>EM Water sam | /TEM<br>) Vacuum/D<br>Vacuum/D<br>Dust D649<br>)<br>PA 100.2<br>ceived in g | (QTY)<br>Dust  | QTY)<br>(<br>(<br>(QTY)<br>on soless | (QTY)<br>QTY)<br>otherwis | )                               |        | o Soll/Solid<br>o TCLP<br>inking We<br>inking We | I(QTY)                            | QTY   | (QTY)<br>(QTY)<br>(QTY) |
|   | ATE CATERS) ARI                               |  |   | 1 1 2  |                                      | XX                        |                                 | ŘĚ     | TAPE TO A  | (I<br>Date/Time;                  | ABORATORY STAFF ONLY<br>Contact:                                | 0<br>Ву:                |
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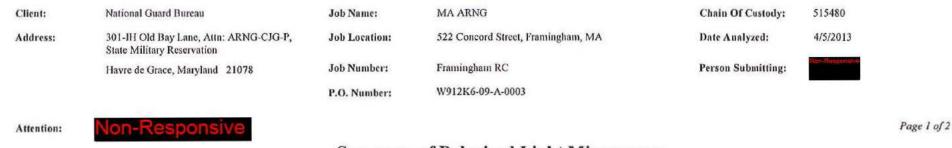
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#### Summary of Polarized Light Microscopy

| AMA Sample<br>Number | Client<br>Sample #       | Total<br>Asbestos | Chrysofile<br>Percent | Amosite<br>Percent | Crocidolite<br>Percent | Asbestos | Percent | Organic<br>Percent |    |         | Sample<br>Type | Sample<br>Color | Homogeneity | Analyst<br>ID | Comments |
|----------------------|--------------------------|-------------------|-----------------------|--------------------|------------------------|----------|---------|--------------------|----|---------|----------------|-----------------|-------------|---------------|----------|
| 13049861             | Framingham<br>RC-PLM-01A | NAD               |                       |                    |                        |          | <br>TR  |                    |    | <br>100 | СР             | Gray            | Homogeneous | sw            |          |
| 13049862             | Framingham<br>RC-PLM-01B | NAD               |                       | ••                 | -                      |          | <br>TR  |                    | •• | <br>100 | CP             | Gray            | Homogeneous | SW            |          |
| 13049863             | Framingham<br>RC-PLM-01C | NAD               |                       |                    |                        |          | <br>TR  | -                  |    | <br>100 | CP             | Gray            | Homogeneous | SW            |          |

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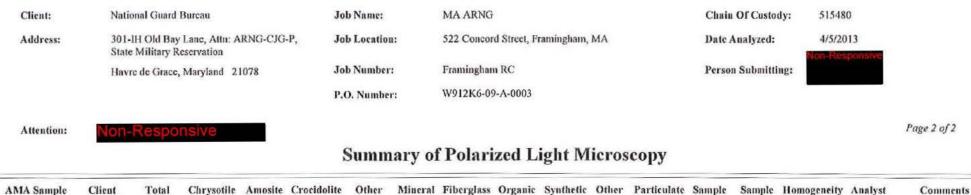
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| AMA Sample | Client   | Total    | Chrysotile | Amosite | Crocidolite | Other   | Mineral         | Fiberglass | Organic | Synthetic | Other   | Particulate | Sample | Sample | Homogeneity | Analyst | Comments |
|------------|----------|----------|------------|---------|-------------|---------|-----------------|------------|---------|-----------|---------|-------------|--------|--------|-------------|---------|----------|
| Number     | Sample # | Asbestos | Percent    | Percent | Percent     |         | Wool<br>Percent |            | Percent | Percent   | Percent | Percent     | Туре   | Color  |             | ID      |          |
|            |          |          |            |         |             | rercent | reicent         |            |         |           |         |             |        |        |             |         |          |

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

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

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

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

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

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

Technical Director

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|   | 14 <sup>11</sup> |   |                                   |                               |  |                                     |   | S.2.)  |                 |
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| (301) 459-2640 • (800) 346-0961 • Fax (301)   | 459-2643         | 1000000000  |                                   | 2000 - 2004 - 2004<br>2       |  |                                     | с а <u>а</u>  |  |                 |
| Mailing/Billing Information:<br>1. Client Name: <u>National Guard Bureau</u>  |                  |   | Submitt<br>1. Job 1               | al Informatio                 | MA ARI   | G                                   | AL COMPANY  | pylo   | ofa             |
| 2. Address I: 301-IH Old Bay Lane   |                  |   | 2. Job 1                          | Volume T                      | Manalin Re   | UN U SILE                           | et, Framingh  | am, myt  |                 |
| 3. Address 2:Attn: NGB-AVN-SI, State Milit  |                  |   | 3. JOB                            | T TAIM                        | NUPTIALM INS                                       |                                     |   |  |                 |
| 4. Address 3: <u>Havre de Grace, Maryland 2</u><br>5. Phone #: <u>(410) 942-0273</u> Fé   | 10/8             | 0254  | 4. Con                            | act ret                       | on-t   | <b>tes</b>                          | ponsi   |  |                 |
| 5. Phone #: (410) 542-0215  | Reporting        | Information (F  | Results will be                   | providences                   |  |                                     | · prone:  | Ion-Responsiv  | e               |
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| Connens   |                  |   |                                   |                               |  | O Ve                                |   | us.army.mil  |                 |
| Ashestos Analysis   |                  | Bulk  |                                   | Second and                    | 1  | ALL ALL Y                           |   |  |                 |
| PCM Air – Please Indicate Filter Type:<br>UNIOSH 7400(QTY)<br>D Fiberglass(QTY)<br>TEM Air – Please Indicate Filter Type:                                 | c<br>L           | J ELAP 198.4/Cl<br>J NY State PLM<br>J Residual Ash_<br>Dust            | hatfield<br>/TEM(Q1               | (QTY)<br>(QTY)<br>(Y)         |  | Pb Air_                             | Wipe (wipe type And)<br>(Wipe (wipe type And)<br>(QTX)<br>Solid(QT  | <u>к, II (отк</u>  | <b>`</b> }      |
| QTY)  | το<br>10         | → Qual. (pres/abs<br>→ Quan. (s/area) <sup>1</sup><br>→ Quan. (s/area)E | Vacuum D5755-9                    | 5                             | (OTY)  | Drinkin                             | P(QTY)<br>g Water □ Pb(QTY)<br>Vater □ Pb(QTY) □  | QTY) As (QTY) As As  | (QTY)<br>_(OTY) |
| PLM Bull. 22 (QTY)<br>GEPA 600 - Visual Estimate 22 (QTY)<br>GEPA Point Count (QTY)<br>GEPA State Friable 198.1 (QTY)<br>GEPA Generation ELAP 198.6 (QTY) | TEM              | Water<br>Qual. (pres/abs<br>HELAP 198.2/El<br>HPA 100.1                 | )(<br>PA 100.2(                   | QTY)                          |  | Pb Fum<br>Collection                | ace (Media  | aps/Air Samples:   |                 |
| Q Other (specify)(QT<br>MISC<br>Q Vermiculite   |                  | a All samples rec<br>TEM Water samp                                     | ceived in good co                 |                               | otherwise noted.                                   | C Spore-7<br>C Surface<br>C Surface | Swob(QTY)   | l Surface Vacuum Dust<br>l Culurable ID Genus (Media<br>Culturable ID Species (Media |                 |
| Asbestos Soil PUL_Quit PLM_Quit PLM_Quit PLM_Quit PLM_Quit PLM_IQU SAMPLE INFORMATION   |                  | 1 - 1   | ANALYSIS                          |                               | MAY  | <b>N</b>                            |   | CLIENT CONTACT   |                 |
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### APPENDIX D

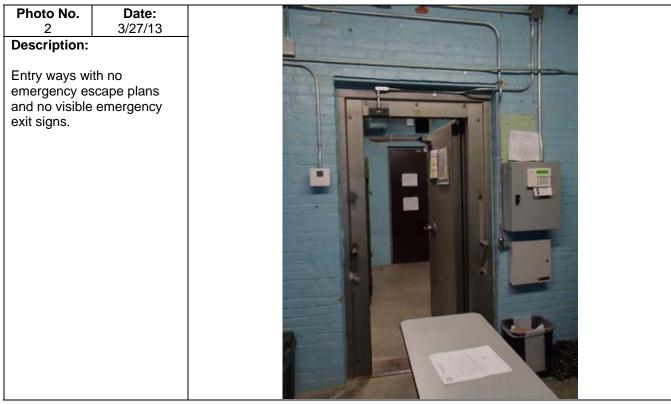
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#### PHOTOGRAPHIC LOG



## PHOTOGRAPHIC LOG

| Client Name:                                    |                         | Site Location:                  | Project No. |
|---|-------------------------|---------------------------------|-------------|
| MA ARNG- Fr                                     | amingham RC             | 522 Concord St., Framingham, MA | 39743799    |
| Photo No.<br>1                                  | <b>Date:</b><br>3/27/13 |                                 |             |
| Description:                                    |                         |                                 | 1           |
| Door to forme<br>Range, posted<br>contaminated. | d as lead-              |                                 |             |



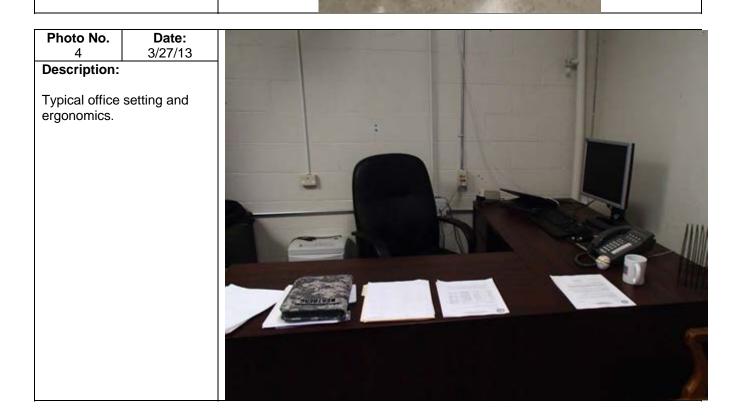
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3

## **PHOTOGRAPHIC LOG** Site Location: Project No. **Client Name:** MA ARNG- Framingham RC 522 Concord St., Framingham, MA 39743799 Photo No. Date: 3/27/13 **Description:** Fire extinguisher with no inspection tag and not mounted to the wall. ÷



#### Page 2 of 2 Posted to NGB FOIA Reading Room May, 2018

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#### APPENDIX E

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

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

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

# URS

#### **Prepared For:**

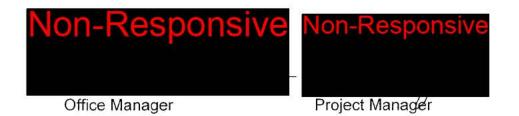
National Guard Bureau Army National Guard Region North Industrial Hygiene Office 301 – IH Old Bay Lane Havre De Grace, Maryland 21078

#### **Prepared By:**

URS Corporation 5 Industrial Way Salem, New Hampshire 03079

#### INDUSTRIAL HYGIENE SURVEY REPORT GARDNER ARMORY 323 WEST BROADWAY GARDNER, MASSACHUSETTS

April 2006 PN: 39741508



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#### FINDINGS AND RECOMMENDATIONS

| Findings                               | Recommendation                           | Risk<br>Assessment<br>Code |
|--|--|----------------------------|
|  |  |                            |
| On the day of the survey, the          | Increase lighting through task lighting  |                            |
| illuminance in office #1 was           | in office #1. While work is in progress, |                            |
| inadequate.                            | the administrative area shall be lighted | RAC 4                      |
|  | by at least the minimum lighting         |                            |
|  | intensities (ANSL/ IESNA RP-1-04)        | ·                          |
| Lead                                   |  | · · · !                    |
| Lead was detected in wipe              | Personnel trained in accordance with     |                            |
| samples collected from the             | the OSHA Lead Standard should            |                            |
| firing range in amounts greater        | clean the drill hall where lead was      | RAC 4                      |
| than 200 μg/ft²                        | detected in quantities of greater than   |                            |
|  | 200 micrograms per square foot           |                            |
| De effere e det constat de serve el la | (OSHA 29 CFR 1910.1025(h)(1))            |                            |
| Peeling paint was observed in          | Personnel trained in accordance with     |                            |
| the administrative area but            | the OSHA Lead Standard should            | RAC 4                      |
| was inaccessible to sampling           | stabilize peeling lead paint (OSHA 29    | KAU 4                      |
| and must be presumed to be lead-based. | CFR 1910.1025 (h)(1))                    |                            |
| Asbestos                               |  |                            |
| Damaged asbestos containing            | Repair or remove asbestos-containing     |                            |
| pipe insulation is located in the      | pipe insulation. Work should be          |                            |
| northwest corner of the drill          | completed by personnel trained in        | RAC 3                      |
| hail.                                  | accordance with federal regulations      |                            |
|  | (OSHA 29 CFR 1910.1001(k)(1))            |                            |
| Damaged asbestos containing            | Repair or remove asbestos-containing     |                            |
| boiler insulation is located in        | boiler insulation. Work should be        |                            |
| the bailer room.                       | completed by personnel trained in        | RAC 3                      |
|  | accordance with federal regulations      |                            |
|  | (OSHA 29 CFR 1910.1001(k)(1))            |                            |
| No site specific asbestos              | Develop a site specific asbestos         |                            |
| operations and maintenance             | operations and maintenance plan to       |                            |
| plan available.                        | manage asbestos-containing               | RAC 3                      |
|  | materials (OSHA 29 CFR                   |                            |
|  | 1910.1001(j))                            |                            |
|  |  |                            |
| No site specific hazard                | Develop a site specific hazard           |                            |
| communication plan available.          | communication plan to manege             | RAC 4                      |
|  | hazardous materials (OSHA 29 CFR         |                            |
|  | 1910.1200(e))                            |                            |

| Findings                         | Recommendation                        | Risk<br>Assessment |
|----------------------------------|---------------------------------------|--------------------|
|                                  |                                       | Code               |
| Mold                             |                                       |                    |
| Water damage was observed        | Determine and repair source of water, |                    |
| in the weight room and the drill | Replace water damaged building        |                    |
| hall. Mold growth could          | materials and implement a moisture    | RAC 4              |
| become an issue if left          | management program to provide         | RAC 4              |
| unattended.                      | direction for future water incursions |                    |
|                                  | (Best management practice)            |                    |

#### FINDINGS AND RECOMMENDATIONS (Continued)

#### 1.0 SUMMARY

At the request of the National Guard Bureau (NGB) Region North Industrial Hygiene Office, URS Corporation (URS) conducted an industrial hygiene survey at the Armory located at 323 West Broadway in Gardner, Massachusetts 01440. This report includes an executive summary, a description of the survey protocol, a discussion of the survey evaluation and findings and a list of conclusions and recommendations.

On February 12, 2005, Mr. Non-Responsive an industrial hygienist with URS, conducted a site visit to the Armory in Gardner, Massachusetts. The purpose of this site visit was to conduct an industrial hygiene survey, which included the collection of air samples, bulk samples, lighting measurements, and a review of site health and safety procedures. Mr. Non-Responsive of the Commonwealth of Massachusetts National Guard was Mr.

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

. . .

1. 1. 1

May, 2018

#### 2.0 ADMINISTRATIVE AREA

#### 2.1 Operation Description

The administrative area includes offices, storage areas, a kitchen, classroom and latrines. Asbestos-containing materials in the form of floor tile and pipe insulation were in good condition. URS' point of contact expressed no concerns regarding indoor air quality, ergonomics or lighting with regard to this building area.

Significant water damage was observed on the ceiling in the weight room (Photo # 0031) which may indicate the potential for mold growth.

#### 2.2 Chemical and Physical Agents Sampled

#### 2.2.1 Relative Humidity

Relative humidity levels were measured using a TSI Q-Track (Model 8551). Relative humidity on the day of the survey averaged 24.0%. This average reading was below the recommended maximum of 65% set by the American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. (ANSI / ASHRAE Standard 62.1-2004).

#### 2.2.2 Carbon Dioxide

On the day of the survey, carbon dioxide measurements averaged of 455 parts per million (ppm). Carbon dioxide levels were measured using a direct reading TSI Q-Track (Model 8551).

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

i.e.,

concentration of carbon dioxide increases, so do the background levels of other air contaminants.

ASHRAE (62.1-2004) recommends that levels of carbon dioxide be maintained below 700 ppm above background level. For instance, given a background level of 350 ppm on the day of the survey, the ASHRAE limit would be 1050 ppm.

#### 2.2.3 Carbon Monoxide

Carbon monoxide levels were also measured in the Readiness Center. Carbon monoxide concentrations remained at 0.0 parts per million (ppm) throughout the survey period. This measured level was below the ASHRAE guideline for indoor environments. Carbon monoxide was measured using a TSI Q-Track (Model 8551).

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

#### 2.2.4 Lighting

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

| Location  | Function              | Measured<br>Illuminance (foot<br>candles) | Recommended<br>Illuminance (foot<br>candles) |
|-----------|-----------------------|---|--|
| Classroom | Administrative Duties | 58  | 50   |
| Office #1 | Administrative Duties | 38  | 50   |

Table 2-1 Lighting Measurements and Recommended Lighting Requirements

On the day of the survey the illuminance in office #1 was inadequate.

### 2.2.5 Lead

Peeling paint was observed on the water-damaged plaster in the weight room. This paint was inaccessible and could not be sampled. Given the building construction date (1956) this paint must be presumed to be lead-based.

#### 2.3 Ventilation System Evaluation

Not applicable to this operation.

#### 2.4 Noise Measurements

Not applicable to this operation.

#### 2.5 Personal Protective Equipment

Not applicable to this operation.

#### 2.6 Interpretation of Results

<u>GENERAL</u>: In general, the administrative area was neat and orderly. The fire exits and extinguishers were marked and easily accessible.

<u>LIGHTING</u>: On the day of the survey, the illuminance in office #1 was inadequate. URS recommends increasing lighting in several of the administrative areas. While work is in progress the administrative area must be lighted by at least the minimum light intensities.

<u>LEAD:</u> Peeling paint in the weight room must be presumed lead-based given a pre-1978 construction date for the building. Once the source of the water incursion is corrected, this paint should be stabilized by a technician trained in accordance with OSHA's lead standard (29 CFR1910.1025). Alternately, the paint could be sampled and analyzed for lead content. If the paint is determined not to be lead-based then a general maintenance worker can stabilize the peeling paint.

MOLD: The water stains on the ceilings could lead to mold problems if not addressed. URS recommends that the source of the water be identified, repaired and that water damaged building materials be replaced.

May, 2018

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URS 5

### 3.0 FORMER FIRING RANGE

#### 3.1 Operation Description

The firing range has been dismantled and this building area is now primarily used for storage (Photos # 0023, 0024, and 0025).

#### 3.2 Chemical and Physical Agents Sampled

#### 3.2.1 Lead

Wipe testing for lead was conducted in the former firing range using ghost wipes, which meet ASTM E 1792 standards. The analytical report from AMA is contained in Appendix D. Table 3-1 below shows the results of the lead sampling.

 Table 3-1

 Levels of Lead Dust Found in the Former Firing Range

| Semple Location                      | URS Sample<br>Number | Area<br>Wiped<br>(ft <sup>2</sup> ) | Result<br>(µg/ft <sup>2</sup> ) | Maximum<br>Surface<br>Contamination<br>Level (µg/ft <sup>2</sup> ) |
|--------------------------------------|----------------------|-------------------------------------|---------------------------------|--|
| Former Firing Range-Bullet           | 0212B-04             | 1.000                               | 500                             | 200  |
| Former Firing Range-<br>North- Shelf | 0212B-04             | 1.000                               | 110                             | 200  |
| Blank                                | 0212B-09             | N/A                                 | <12                             | 200  |

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

Table 3-2 Level of Lead Found in the Air

| Sample Location     | URS Sample<br>Number | Air Volume<br>(L) | Result<br>(µg/m <sup>3</sup> ) | OSHA's<br>PEL(µg/m <sup>3</sup> ) |
|---------------------|----------------------|-------------------|--------------------------------|-----------------------------------|
| Former Firing Range | 02128-01             | 293               | <10                            | 50.0                              |
| Blank               | 0130-LA03            | 0                 | <3,0                           | 50.0                              |

On the day of the survey, the airborne lead dust level in the former firing range was found to be acceptable, below OSHA's permissible exposure limit (PEL) for lead (29)

CFR 1910.1025(c)) of 50.0  $\mu$ g/m<sup>3</sup> averaged over an 8-hour day. The analytical report from AMA is contained in Appendix D.

#### 3.3 Ventilation System Evaluation

Not applicable to this operation.

#### 3.4 Noise Measurements

Not applicable to this operation.

#### 3.5 Personal Protective Equipment

Not applicable to this operation.

#### 3.6 Interpretation of Results

<u>LEAD</u>: The dust wipe sample collected from the bullet trap of the former firing range contained lead greater than the maximum limit of 200 micrograms per square foot set by the National Guerd Bureeu Region North Industrial Hygiene Office (See Appendix G). URS recommends that the former firing range be cleaned by a technician trained in accordance with OSHA's lead standard (29 CFR 1910.1025). The NGB Region North Industrial Hygiene Office has prepared a memorandum titled "Recommendations for Surface Lead Dust in Armories" which is provided in Appendix G. Appendix H contains guidelines for the cleanup and rehabilitation of indoor firing ranges.

FOIA Requested Record #J-15-0085 (MA) Released by National Guard Bureau Page 1439 of 3473

#### 4.0 DRILL HALL

#### 4.1 Operation Description

The drill hall is used for assembling personnel and storing equipment. The walls are constructed of cinder-block with a wood parquet floor. Warping due to water incursion was observed on the wood floor (Photo # 0032). Visible mold was not observed in the water damaged area.

#### 4.2 Chemical and Physical Agents Sampled

#### 4.2.1 Lighting

Lighting in the drill hall was measured using a Sper Scientific Ltd. Light Meter (Model 840020C). Table 4-1 below shows lighting measurements and the recommended lighting requirement (ANSI / IESNA RP –1-04 American National Standard Practice for Office Lighting)

Table 4-1 Lighting Measurements and Recommended Lighting Requirements

| Location            | Function          | Measured<br>Illuminance<br>(foot<br>candles) | Recommended<br>Illuminance (foot<br>candles) |
|---------------------|-------------------|--|--|
| Drill Hall – Center | Assembly, Storage | 47   | 30   |

On the day of the survey the illuminance in the drill hall was adequate.

#### 4.2.2 Lead

Wipe testing for lead dust was conducted in the drill hall using ghost wipes, which meet ASTM E 1792 standards. The analytical report from AMA is contained in Appendix D. Table 4-2 below shows the results of the lead sampling.

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URS

| Sample Location                      | URS Sample<br>Number | Area Wiped<br>(fl <sup>2</sup> ) | Result<br>(µg/ft <sup>2</sup> ) | Maximum Safe<br>Surface<br>Contamination<br>Level (µg/ft <sup>2</sup> ) |
|--------------------------------------|----------------------|----------------------------------|---------------------------------|---|
| Drill Hall – North<br>Center – Floor | 0212B-06             | 1.000                            | 110                             | 200   |
| Drill Hall – Center -<br>Floor       | 0212B-07             | 1.000                            | 13                              | 200   |
| Drill Hall - South -Floor            | 0212B-08             | 1.000                            | 14                              | 200   |
| Blank                                | 0212B-09             | N/A                              | <12                             | 200   |

Table 4-2 Levels of Lead Dust Found in the Drill Hall

One air sample for lead dust was collected in the drill hall. Table 4-3 below shows the result of this air sample.

Table 4-3 Level of Lead Found in the Air

| Sample Location | URS Sample Number | Air Volume<br>(L) | Result<br>(µg/m <sup>3</sup> ) | OSHA's<br>PEL(µg/m³) |
|-----------------|-------------------|-------------------|--------------------------------|----------------------|
| Drill Hall      | 0212B-02          | 290               | <10                            | 50.0                 |
| Blank           | 0212B-03          | 0                 | <3.0                           | 50.0                 |

On the day of the survey, the airborne lead dust level in the drill hall was found to be acceptable, below OSHA's permissible exposure limit (PEL) for lead (29 CFR 1910.1025(c)) of 50.0  $\mu$ g/m<sup>3</sup> averaged over an 8-hour day.

### 4.2.3 Asbestos

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

#### Table 4-4 Sample Results of Suspect ACM

| Sample Location                | Material Sampled | URS Sample<br>Number | Total<br>Asbestos<br>(%) |
|--------------------------------|------------------|----------------------|--------------------------|
| Drill Hall Northwest<br>Corner | Pipe insulation  | 0212B-20A            | 30                       |
| Drill Hall Northwest<br>Corner | Pipe insulation  | 0212B-20B            | 5                        |
| Drill Hall Northwest<br>Corner | Pipe insulation  | 0212B-20C            | 20                       |

NAD = "No Asbestos Detected"

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

#### 4.3 Ventilation System Evaluation

Not applicable to this operation.

#### 4.4 Noise Measurements

Not applicable to this operation.

### 4.5 Personal Protective Equipment

Not applicable to this operation.

### 4.6 Interpretation of Results

May, 2018

LIGHTING: On the day of the survey the illuminance in the drill hall was adequate.

<u>LEAD:</u> Analysis of dust wipe samples collected in the drill hall indicated that lead levels are below the allowable limit of 200 micrograms per square foot set by the National Guard Bureau Region North Industrial Hygiene Office (See Appendix G).

<u>ASBESTOS:</u> Approximately ten linear feet of damaged asbestos-containing pipe insulation is located in the northwest corner of the drill hall. URS recommends that the material is either removed or repaired by a Commonwealth of Massachusetts licensed Asbestos Abatement Contractor.

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#### 5.0 BOILER ROOM

#### 5.1 Operation Description

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

#### 5.2 Chemical and Physical Agents Sampled

#### 5.2.1 Asbestos

Bulk samples were collected from damaged suspect asbestos-containing boiler insulation (Photo 0030) in this area for a determination of asbestos content. Analytical procedures were performed in accordance with the U.S. Environmental Protection Agency (EPA) Recommended Method for the Determination of Asbestos in Bulk Samples by Polarized Light Microscopy and Dispersion Staining (PLM/DS)(EPA-600/M4-82-020. EPA-600/R-93-116). Table 5-2 below presents the results of the sample analysis.

| Sample Location | Material Sampled  | URS Sample<br>Number | Total<br>Asbestos<br>(%) |
|-----------------|-------------------|----------------------|--------------------------|
| Boiler Room     | Boiler Insulation | 0212B-19A            | 10                       |
| Boiler Room     | Boiler Insulation | 0212B-19B            | 20                       |
| Boiler Room     | Boiler Insulation | 0212B-19C            | 25                       |

Table 5-2 Sample Results of Suspect ACM

NAD = "No Asbestos Detected"

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

#### 5.3 Ventilation System Evaluation

Not applicable to this operation.

#### 5.4 Noise Measurements

Not applicable to this operation.

#### 5.5 Personal Protective Equipment

Not applicable to this operation.

#### 5.6 Interpretation of Results

<u>ASBESTOS:</u> Samples of the boiler insulation where found to contain asbestos in a concentration greater than one percent. Approximately thirty square feet of boiler insulation has become significantly damaged (Photo # 0030). It is recommended that the insulation be removed or repaired by a Commonwealth of Massachusetts licensed Asbestos Abatement Contractor.

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#### 6.0 SAFETY AND INDUSTRIAL HYGIENE PROGRAMS

#### 6.1 Confined Spaces

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

#### 6.2 Hearing Conservation

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

#### 6.3 Respiratory Protection

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

#### 6.4 Hazard Communication

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

#### 6.5 Personal Protective Equipment

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

#### 7.0 REFERENCES

American National Standards Institute

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

American Society of Heating Refrigerating and Air-Conditioning Engineers

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

Department of the Army

Ergonomics Program Pamphlet 40-21 (15 August 2003)

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

Department of Defense

DoD Hearing Conservation Program Standard 6055.12 April 1996

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

U. S. Environmental Protection Agency

Asbestos Hazard Emergency Response Act (40 CFR Part 763)

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

U. S. Housing and Urban Development

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

U. S. Occupational Safety and Health Administration

Standard for General Industry: 29 CFR 1910

#### APPENDIX A

#### ARMORY DRAWING

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#### EVACUATON PLAN

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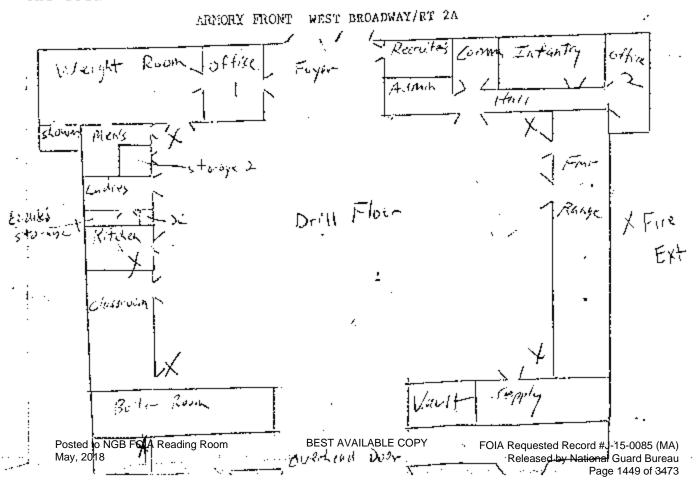
#### Company B(<sup>2</sup>) lst Battalion 181st Infantry Massachusetts Army National Quard 323 West Broadway, Gardner, MA 01440-3105

l. The Armory Evacuation Plan is designed to facilitate the evacuation of troops from the Armory, West Broadway/Gardner, Massachusetts, in the event of an enemy attack, fire, or other disorder.

2. This plan will be posted in all rooms of the Armory. Unit commanders will, at least once a year, hold an "Evacuation Drill" to insure that all members are familiar with the proper exits and designated assembly areas.

3. This plan will be reviewed by the Safety Officer at least once during each quarter, or more often if needed, to insure its being kept up to date.

4. After each evacuation of the Armory, Unit Commanders will immediatly have a roll call to insure that all troops have been evacuated. The building will not be re-entered until all safety factors have been taken into consideration. Fire fighting must be under control of authorized personnel of the unit or by unit officers. Periodic checks will be made to insure that all company personnel are familiar with the locations of the fire extinguishers. The local FIRE DEPARTMENT PHONE NUMBER IS: 911



APPENDIX B

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PERSONNEL LIST

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APPENDIX C

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HAZARDOUS MATERIALS LIST

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| 03267 365 (1993) (1   |              | PRODUCT NAME        | MSW <sup>III</sup>      | CAGE # <sup>IM</sup> | PROCESS | 5   | (a)UD       | HO(10) | ROP(11)   |
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FOIA Requested Record #J-15-0085 (MA) Released by National Guard Bureau Page 1453 of 3473

APPENDIX D

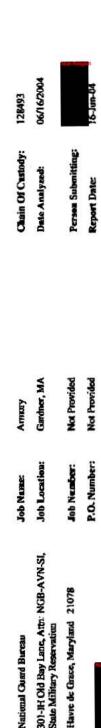
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#### ANALYTICAL RESULTS

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Summary of Atomic Absorption Analysis for Lead

Page I of I

| 1000  | AMA Sample<br>Namber         | Clicat Sample<br>Number | Analysis Type                             | Sample Type  | Aár Volume<br>(L)              | Area Wiped<br>(fr) | dan<br>A | parting.<br>Limit | Σ. | Final Result | 4      | Comments |  |
|-------|------------------------------|-------------------------|---|--|--------------------------------|--------------------|----------|-------------------|----|--------------|--------|----------|--|
| II BE | 0451565                      | 021B-04                 | Flame                                     | Wipe   | I                              | 1,000              | 12.00    | ug/ff             |    | 80           | -US/Bo |          |  |
| SI    | 0451566                      | 021B-05                 | Flame                                     | Wrpe   | i                              | 1.000              | 12.00    | ug/ff             |    | 011          | zU/₫¤  |          |  |
| AV    | 0451567                      | 021B-06                 | Flame                                     | Wripe  | I                              | 1.000              | 12.00    | allfan            |    | 110          | zU/Bn  |          |  |
| AIL   | 0451568                      | 0218-07                 | Flame                                     | Wipe   | i                              | 1.000              | 12.00    | -ti),Bin          |    | E            | "Bu    |          |  |
| AB    | 0451569                      | 021B-08                 | Flame                                     | Wipe   | ļ                              | 1.000              | 12.00    | ug/R <sup>2</sup> |    | Ŧ            | ug/fr  |          |  |
| LE    | 0451570                      | 0218-09                 | Flame                                     | Wripe: Blank   | ļ                              | NVA                | 12.00    | 3                 | v  | 2            | ân     |          |  |
| CO    | 0451571                      | 0218-01                 | Flame                                     | ĄĢ   | 293                            | NIA                | 10.24    | 'm'Bu             | v  | 10           | ug/m3  |          |  |
| PY    | 0451572                      | 0218-02                 | Flame                                     | Air  | 290                            | NIA                | 10.34    | 'm/Bn             | v  | 10           | em/gu  |          |  |
|       | 0451573                      | 0218-03                 | Flame                                     | Air Biank  | 0                              | NIA                | 3.00     | 'm/an             | v  | •            | 84     |          |  |
| •     | unalysis Method for F        | Flame: Air, Wipe        | s, Paints, and Soli/St                    | Analysis Method for Flame: Air, Wipes, Paints, and Sold'Solids: EPA 600/R-93/200/MJ-7420; Water: SM-3111B  | 100(M)-7420; Wale              | r: SM-3111B        |          |                   |    |              |        |          |  |
| •     | unalysis Method For          | Fumace: Air, W          | lipes, Paints, and Soil                   | Analysis Method For Furnace: Air, Wipes, Paints, and Sol/Solids : EPA 600R-93/200(M)-7421; Water: SM-3113B | 93/200(M)-7421; V              | Water: SM-3113B    |          |                   |    |              |        |          |  |
| PO    | AIA = Not Applicable         |                         | mg/Kg = parts per million (ppm) by weight |  | mg/L = parts per million (ppm) | (ud                |          |                   |    |              |        |          |  |
| 1     | KPb = percent lead by weight |                         | ug = micrograms                           | up/L = parts per billion (ppb)   | (pdd)                          | . 1001             |          |                   |    |              |        |          |  |

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| FD / T     | lytical Services, Inc.<br>iolized Environmental Laboratory           | CERTIF        | ICATE OF ANALYSIS |                    |            | NY ELAP     |
|------------|--|---------------|-------------------|--------------------|------------|-------------|
| Client:    | National Guard Burcau  | Job Name:     | Armory            | Chain Of Custody:  | 128493     | AIHA        |
| Address:   | 301-TH Old Bay Lanc, Attn: NGB-AVN-SI,<br>State Military Reservation | Job Location: | Gardner, MA       | Date Analyzed:     | 06/16/2004 |             |
|            | Havre de Grace, Maryland 21078                                       | Job Number:   | Not Provided      | Person Submitting: |            |             |
|            |  | P.O. Number:  | Not Provided      |                    |            |             |
| Attention: |  |               |                   |                    | <i>.</i>   | Page I of I |

#### Summary of Polarized Light Microscopy

|                      |                    |                   |                       |                    |                        |                              |                            |                       |                    | <br>             |                        |                 |               |          |
|----------------------|--------------------|-------------------|-----------------------|--------------------|------------------------|------------------------------|----------------------------|-----------------------|--------------------|------------------|------------------------|-----------------|---------------|----------|
| AMA Sample<br>Number | Client<br>Sample # | Total<br>Asbestos | Chrysotile<br>Percent | Amusite<br>Percent | Crocidolite<br>Percent | Other<br>Asbestos<br>Percent | Mineral<br>Wool<br>Percent | Fiherglass<br>Percent | Organic<br>Percent | Other<br>Percent | Particulate<br>Percent | Sample<br>Color | Analyst<br>ID | Comments |
| 0451574              | 0212B-19 A         | 10                | 10                    |                    |                        |                              | TR                         |                       |                    | <br>             | 90                     | Gray            | СК            |          |
| 0451575              | 0212B-19 B         | 20                | 20                    | -                  | -                      |                              |                            | -                     |                    | <br>             | 80                     | Gray            | СК            |          |
| 0451576              | 0212B-19 C         | 25                | 25                    |                    | -                      |                              | -                          | -                     |                    | <br>             | 75                     | Gray            | CK            |          |
| 0451577              | 0212B-20 A         | 30                | 30                    |                    | -                      |                              | 20052                      |                       | 30                 | <br>             | 40                     | Off-White       | CK.           |          |
| 0451578              | 0212B-20 B         | 5                 |                       | 3                  | 2                      |                              |                            | **                    |                    | <br>             | 95                     | Off-White       | CK            |          |
| 0451579              | 0212B-20 C         | 20                | 2                     | 18                 |                        |                              |                            |                       |                    | <br>             | 80                     | Off-White       | CK            |          |
|                      |                    |                   |                       |                    |                        |                              |                            |                       |                    |                  |                        |                 |               |          |

applies only to polarized light microscopy of bulk samples and transmission electron microscopy of AHERA air samples. This report must not be used to claim, and does not imply product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government. All rights reserved. AMA Analytical Services, Inc.

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#### APPENDIX E

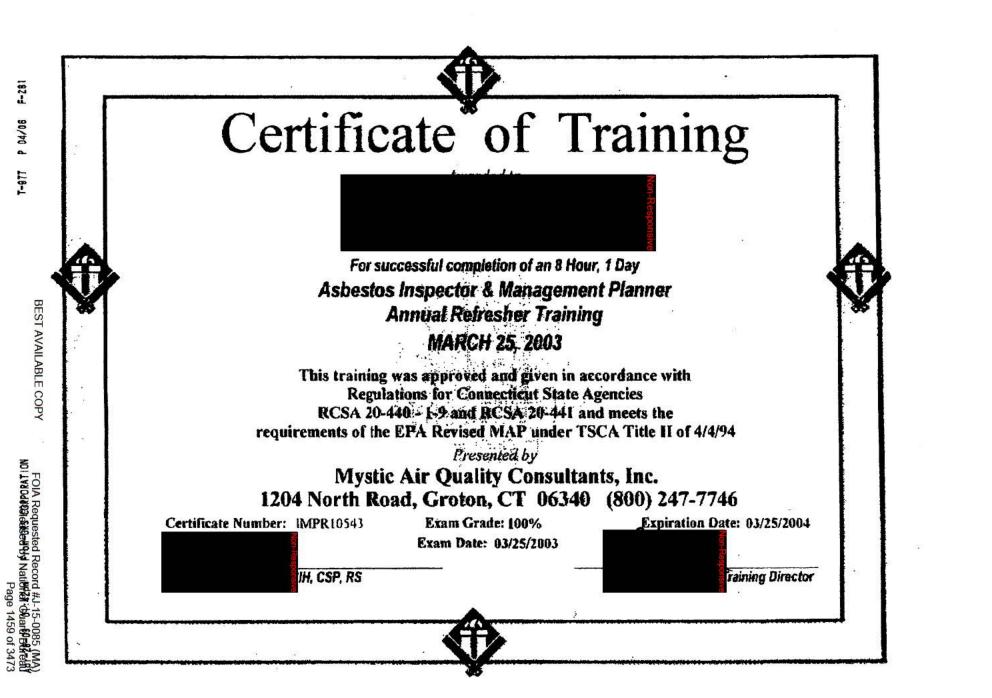
#### TRAINING CERTIFICATES



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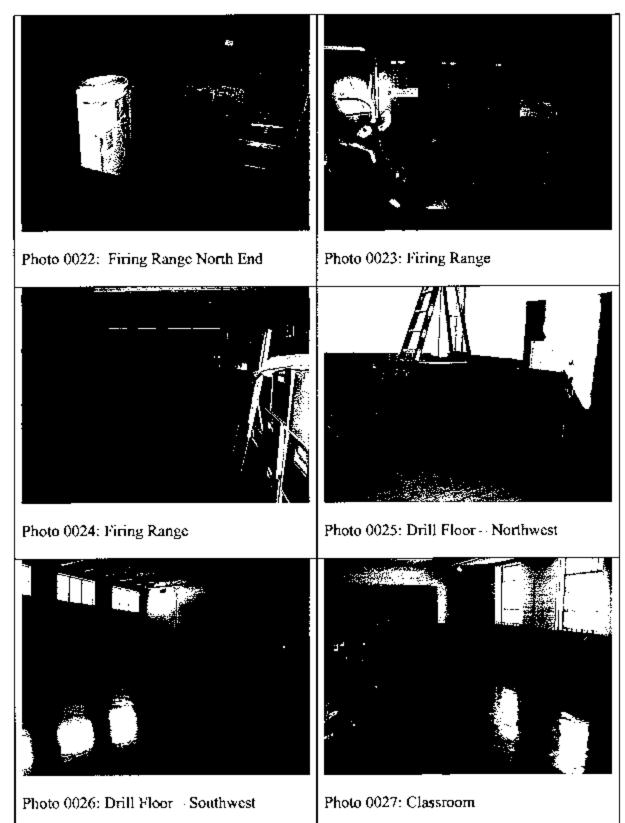
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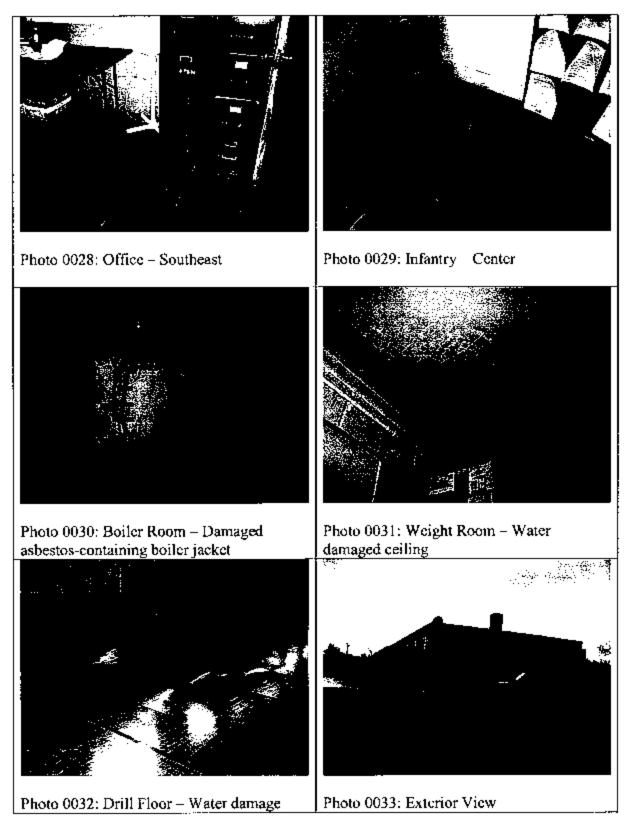


APPENDIX F

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PHOTOGRAPHS





#### APPENDIX G

#### RECOMMENDATIONS FOR SURFACE LEAD DUST IN ARMORIES

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Subject: Recommendations for Surface Lead Dust in Armories

1. In armories that do not contain childcare facilities, the National Guard Bureau (NGB) Region North Industrial Hygiene Office recommends cleaning the areas in which sample results are greater than 200 micrograms per square foot ( $\mu$ g/ft<sup>2</sup>). 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/ft<sup>2</sup>) and windowsills (250 µg/ft<sup>2</sup>) in residential dwellings and child occupied facilities. A child occupied facility is defined as a building, or portion of a building, constructed prior to 1978, visited regularly by the same child, 6 years of age or under, on at least two different days within any week (Sunday through Saturday period), provided that each day's visit lasts at least 3 hours and the combined weekly visit lasts at least 6 hours, and the combined annual visits last at least 60 hours. Most of the wipe samples in armories were collected in undisturbed areas and therefore, results are worst case scenarios and do not correlate to these standards.

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

c. OSHA used to cite a level of 200  $\mu$ g/ft<sup>2</sup> 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<sup>2</sup> is a safe surface contamination level. They have also applied these standards as the decontamination levels for surfaces in administrative offices.

e. It should be noted that levels above these recommendations do not necessarily mean there is a significant hazard to workers who are following good cleaning and hygienic practices since there is no correlation between wipe and air samples. Rather, we recommend these levels as a precautionary measure.

2. The NGB Occupational Health Branch is developing guidance for armories that are used as childcare facilities. All states will receive this guidance when it is completed. In the interim, we recommend the following actions:

a. Clean all areas that will be accessible to children to the EPA dust-lead standard for children 6 years of age or under (40  $\mu$ g/ft<sup>2</sup> on floors and 250  $\mu$ g/ft<sup>2</sup> 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/m<sup>3</sup> averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead dust in this building.

#### APPENDIX H

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POLICY AND RESPONSIBILITIES FOR INSPECTION, EVALUATION AND OPERATION OF ARMY NATIONAL GUARD INDOOR FIRING RANGES (NATIONAL GUARD REGULATION 385-15 30 DECEMBER 2002)

#### NGB-AVS-SG SUBJECT: All States (Log Number P01-0075) Army National Guard (ARNG) Safety and Occupational Health Program -- POLICY AND RESPONSIBILITIES FOR INSPECTION, EVALUATION AND OPERATION OF ARMY NATIONAL GUARO INDOOR FIRING RANGES

#### ADDENDUM

#### GUIDELINES FOR IFR REHABILITATION, CONVERSION, AND CLEANING

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Purpose

1. This addendum establishes policy and procedures for rehabilitation, conversion, and cleaning of ARNG indoor firing ranges.

#### 2. References

Related publications are listed below.

a. DODI 6055.1 (Department of Defense Instruction, Occupational Safety and Health (OSH) Program).

- b. AR 11-34 (The Army Respiratory Protection Program).
- c AR 40-5 (Proventive Medicine)

 NGR 385-15 Policy, Responsibilities, and Procedures for Inspection, Evaluation, and Operation of ARNG (ndoor Firing Ranges)

e. 29 Code of Pederal Regulations (CFR), Part 1910, Occupational Safety and Health Standards

1 OSHA Technical Manual, Edition VII.

q. DH5W NIOSH 76-130 (Lead Exposure and Design Considerations for Indoor Firing Ranges).

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3. Explanation of Abbreviations and Terms

Abbreviations and special terms used in this publication are listed in the glossary.

#### 4. Policy and Procedures

Conversion of Ranges. Indoor firing ranges can be safely rehabilitated or converted for other uses, such as a storage area, kitchen, or office space, provided the following –

a. Previously active ranges must be thoroughly decontaminated and cleaned to acceptable levels.

b. The level of cleanliness is to be determined by sampling. The Occupational Safety and Health Administration's (OSHA) Technical Manual, <sup>5th</sup> Edition, provides guidance on the methods and techniques needed to collect wipe samples (Appendix A).

(1) Wipe samples must be collected and analyzed prior to and after cleaning.

(2) Post-cleaning surface wipe sample results must be less than or equal to 200 micrograms per square feet (ug/sq ft). The sampling strategy, which is the amount and location of wipe samples to be collected, is provided in Appendix B. Methods for interpreting the sample results are contained in Appendix C and D.

 Equipment/Items proviously stored in the range must be decontaminated and cleaned to acceptable levels.

(1) Samples must be collected from equipment/items stored in the range. Sample selection is critical, because the number of items stored and length of storage differs from range to range. The amount and location of the samples, should be representative of the areas where lead dust is most likely to accumulate. The more samples collected, the better the statistical comparison of the results.

(2) Samples must be collected from the smooth surfaces of the equipment/items, in so much as possible. Results of samples collected from a rough surface will be inaccurate due to the minimal surface contact of the media. Further, the likelihood of tearing the media filter is greater on rough surfaces.

(3) Samples should also be collected on items stored the longest period of time, and which have not been disturbed. Items stored closest to the bullet trap and firing line are likely to have higher concentrations of lead dust. Methods for interpreting the sample results are contained in Appendix C and D.

#### 5. Goal

To ensure every indoor firing range is free of lead dust, and to reduce the number of unsafe ARNG indoor firing ranges.

#### 6. Background

The Environmental Protection Agency (EPA) identifies lead as a highly toxic metal. Elemental lead is indestructible, and common in the environment. Lead can enter the body by inhalation (breathing) or ingestion (eating). In addition, lead is a cumulative poison. It accumulates in the blood, bones, and organs, including the kidnoys, brain and liver. Effects include nervous and reproductive system disorders, delays in neurological and physical development, cognitive and behavioral changes, and hypertension. Symptoms include loss of appetite, difficulty sleeping, irritability, fatigue, headache, and inability to concentrate. It can stay in the bones for decades. Worker awareness and training are important to ensure that employees can recognize the symptoms of exposure and get prompt medical attention.

#### 7. Wipe Sample Media

a. OSHA Technical Manual provides the necessary guidance on the technique needed to collect wipe samples (Appendix A). Only distilled or deionized water will be used to saturate dry sample media. At teast one field blank filter must be submitted with each sample sheet. The field blank must be from the same tot, and labeled as a blank on the sample sheet. Appendix E identifies how and where to obtain sample media. Use the following guidance for determining media acceptability

(1) Acceptable Media consists of -

(a) Ghost Wipes ™ (PREFERRED METHOD) - Pre moistened

(b) Thirty-seven (37) millimeters (mm) mixed cellulose ester (MCE) filters, with or without the cassettes.

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(2) Unacceptable Media consists of but is not limited to-

(a) Cotton balls

(b) Baby wipes or wet wipes

b. Documentation of Sample Collection. A Surface Wipe Sample Sheet must be completed and submitted with samples to your supporting laboratory. A copy of this form is located in Appendix G. Refer to Appendix A on how to collect wipe samples.

8. Wipe Sampling Protocol

See Appandix A.

#### Ranges Cleaning Instructions.

a. Written procedures, such as a scope of work, or Standing Operating Procedure (SOP) that complies with all federal, state and local regulations must be established prior to decontamination operations. The range ventilation system will be in operation during range cleaning to ensure that a negative pressure environment is maintained. In the absence of mechanical ventilation system, all doors and windows will be sealed to eliminate fugitive emissions. A High Efficiency Particulate Air (HEPA) filtered vacuum system is the preferred method of cleanup followed by wet wiping of the range. The HEPA vacuum is designed to collect loose surface lead dust particles.

b. Any general purpose cleaning solution can be used. However, Spic and Span <sup>th</sup> has been found to be an effective cleaning solution by other Army organizations. Mix new solutions of cleaning solution frequency. Wet wiping will require dual containers of water; one container for wetting the applicator (mops, rags, sponge, etc.) and the other container for rinsing the applicator after the dust has been wiped from the surfaces. When placed in containers, wastewater should be left to evaporate.

C. PROPERLY DISPOSE OF ALL HAZARDOUS WASTE. DO NOT PLACE LEAD CONTAMINATED WASTE INTO THE SEWER SYSTEM OR ONTO THE GROUND.

d. Mop-heads, sponges and rags will be discarded as hazardous waste following cleanup.

e. Wet cleaning by a high-pressure system is prohibited, as this method may embed the lead into the substratum and generate large quantities of unwanted hazardous waste.

f. Dry sweeping is not permitted.

g. All surface areas of the range must be cleaned. Do not remove the coating on smooth painted surfaces that are properly sealed.

 the Wood floors should receive a cost of deck enamel or urethane; concrete floors should be scaled with deck enamel and linoleum or tile floors should be waxed.

i. A progression of cleaning from top to bottom and from behind the steel backstop to the firing line should be used. After removing the sand, if applicable, and the steel backstop, areas in front of and behind the bullet trap along with the steel backstop plate(s) should be cleaned. Next, clean the ceiling, lights, baffles, retrieval system, heating system(s), and ventilation duct(s). Acoustical material should be vacuumed and removed rather than painted over.

j. A Toxic Characteristic Leaching Procedures (TCLP) test for lead only may need to be performed on the acoustical material. A TCLP test will determine if the material is classified as "hazardous" and can be disposed of in a sanitary landfill. Contact your State Environmental Office for assistance before arranging for this taboratory testing. The floor should be the fast surface cleaned, starting at the bullet trap and ending behind the firing line.

k. After wet wiping all surfaces, permit the area to dry. Vacuum all surface areas until no dust or residue can be seen using the REPA.

I. A thorough visual inspection to detect dust should be made following cleanup and prior to collecting post surface wipe samples.

m. As a variety of conditions exist in ranges, unique situation may arise and specific written guidance from your Regional Industrial Hygiene Office may be required.

#### 10. Cleaning Stored Contaminated Equipment

a. Equipment contaminated (sample result is higher than 200 micrograms/sq fl) with lead dust must be decontaminated before it is removed from the range.

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b. Equipment located near the bullet trap and firing line should be cleaned first and then removed. The cleaning method depends on the size of the equipment and the material it is comprised of, i.e. metal, wood, concrete, porus, non-porus, smooth or rough finish etc. However, either HEPA vacuum or the wet wipe method will be used. Refer to paragraph 9 for additional guidance.

c. Every attempt should be made to clean and reclaim items since disposing of equipment, as hazardous waste is costly and wasteful. Only as a last resort will the item be discarded as hazardous waste. Porous items, such as office partitions and carpet that were present during firing should be considered grossly contaminated and be discarded unless analysis proves otherwise. Consult your State Environmental Office for the proper hazardous waste disposal methods.

#### 11. Contaminated Sand and Lead Waste

Consult your State Environmental Office for specific disposal guidance to ensure compliance with local laws and regulations.

#### 12. Medical Surveillance

a. A pre-placement modical examination is required for all individuals involved with range cleanup operations. Consult 29 CFR 1910.1025 for additional information on medical surveillance requirements. A medical examination must include—

- (1) A detailed work and medical history
- (2) A thorough physical examination
- (3) A respirator use evaluation
- (4) A blood pressure measurement
- (5) Blood sample analysis to include:
  - (a) A baseline blood lead level
  - (b) A complete blood count (CBC)
  - (c) Blood urea nitrogen (BUN)
- (6) Serum creatinine
- (7) Zinc protoporphyrin
- (8) A routine urine analysis
- (9) Recordkeeping

b. Air Monitoring. Worker breathing zone (BZ) air samples must be collected to ensure personnal are not overexposed to airborne load during the cleanup phase. Representative air samples will be collected on all personnel involved in the cleanup operation. These exposure levels will be used to evaluate work practices and personal protective equipment. Within five (5) working days after receipt of monitoring results, each employee will be notified in writing of the air sampling results. Contact your Regional Industrial Hygiene Office for additional Information pertaining to air sampling.

#### 13, Worker Education

OSHA 29 CFR 1910.1025 requires that workers who are potentially exposed to any lead lovel shall be informed of the content of Appendix A and B of this standard. A training program must be instituted for all individuals who are subject to exposure to lead at or above the action level or for whom the possibility of skin or eye tritations exists. The training program shall be repeated for personnel currently involved in range cleanup operations, at least annually, this training must be documented on DD Form 1556 or DD Form 1556-1 and filed permanently in the employee's Official Personnel File (OPF) or the soldier's Official Military Personnel File (OMPF). As a minimum, complete blocks 1, 2, 3, 7, 8, 11, 12, 13, 17, 18, 24, 33 and 36 of DD Form 1556. Place the following statement in block 18, "Do not destroy, retain this record for the duration of employment/service plus 30 years." The employer will assure that each employee is informed of the following:

- a. The content of the standard and its appendices.
- b. The specific nature of operations that could result in exposure to lead above the action level.
- c. The purpose, proper selection, filting, use and limitations of respirators.
- d. The purpose and a description of medical surveillance program.
- e. Ealing and drinking are prohibited in lead conteminated areas.
- f. Smoking and smoking materials will not be permitted in contaminated areas.

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g. Employees must wash their hands and other exposed skin whenever they leave the work area.

h. The engineering controls and work practices associated with the Individual's job assignment.

i. The contents of any compliance plan in effect.

#### 14, Personal Protective Equipment

For housekeeping and rehabilitation the employer shall select respirators from among those approved for protection against lead dust, fume, and mist by the National Institute for Occupational Safety and Health (NIOSH). The employer shall institute a respiratory protection program in accordance with 29 CFR 1910.134. As a minimum, personnel conducting the decontamination of the range will be provided with the following personal protective equipment.

a. Employees ongaged in range rehabilitation and/or range conversion, the employer shall provide at no cost to the employee, and assure that the employee uses appropriate protective work clothing and equipment such as, but not limited to:

(1) Protective coverails with hood and shoe covers or disposable Tyvek ™ full body suit.

(2) Disposable rubber gloves; and disposable shoe coverlets (If necessary).

(3) Full-face air purifying respirator with P-100 cartridges.

b. The employer shall provide the clothing required in a clean and dry condition at least daily to employees engaged in the conversion of indoor firing ranges.

c. The employer shall provide for the cleaning, laundering, or disposal of used or contaminated protective clothing and equipment.

d. The employer shall assure that all protective clothing is removed at the completion of a work shift only in areas designated for that purpose (Change Areas or Change Rooms).

e. The employer will ensure that contaminated protective clothing that is to be cleaned, faundered, or disposed of, is placed in a closed container in the change area that seals sufficiently enough to prevent dispersion of lead dust.

f. The employer will further inform in writing any person who cleans or launders protective clothing or equipment of the potentially harmful effects of exposure to lead.

#### 15. Housekeeping

This chapter applies to all active indoor ranges classified as "safe" for use. To keep the range operating property and to keep possible hazards to a minimum, a routine housekeeping/ maintenance program is essential.

a. The employer must establish a housekeeping program sufficient to maintain all surfaces as free as practicable of accumulations of lead dust. To this end the range will be clean at the conclusion of each firing day.

b. The range ventilation system will be in operation during all cleaning operations, to ensure a negative pressure environment is maintained.

c. Ranges will be cleaned by using the wet method or vacuuming. A HEPA (High Efficiency Particulate Alr) filtered vacuum system is the preferred method of meeting this requirement. The use of compressed air to clean floors is absolutely prohibited. If the wet method is utilized the floor should be equipped with a floor drain, and collection system. When there is no collection system, the water can be allowed to slowly evaporate leaving lead deposits/sludge. The deposits/sludge can then be collected, placed in metal drums, and stored for future delivery to an authorized hazardous waste disposal site. Drums must be tabeled to identify contents, in accordance with the hazardous waste program.

d. A NIOSH approved respirator (P-100) for protection against fead dust, fume, and mist will be worn at all times while cleaning.

e. When cleaning start behind the firing line (orward, cleaning the floor and horizontal surfaces.

#### 16. Maintenance

The following are the minimum maintenance requirements, which must be performed quarterly by the range custodian, or by a person designated by the facility commander.

a. Inspect the ventilation system for condition of belts to ensure that they are not frayed or slipping.

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b. Evaluate static pressure and compare to the baseline static pressure reading. Any changes will be reported through the safety manager to the Regional Industrial Hygienist.

c. Inspect Louvers, if applicable, to ensure they are opening fully.

d. Inspect the bullet trap for pitting or other damage and for sharp edges on vanistian blind type bullet traps.

e. Bullet Trap. The bullet trap will be cleaned every 480 hours of operation at a minimum, or when the trap is three quarters full.

f. The range ventilation system will be operational during all builtet trap cleaning procedures.

g. All personnel involved in cleaning of the bullet trap will wear a NIOSH approved rospirator, and proper personal protective equipment.

h. All debris from the bullet trap will be collected, package and turned in, in accordance with guidance from the environmental office.

#### 17, Range Rehabilitation.

This chapter applies to all indoor firing ranges that have been identified as candidates for rehabilitation. This chapter further provides guidance for cleaning and/or sampling that might be required prior to the start of rehabilitation.

a. The portion(s) of the range to under go rehabilitation must be sampled to determine the level of tead contamination. Wipe samples will be taken per the established sampling protocol. See Appendix A.

b. All personnel involved in range rehabilitation will wear a NIOSH approved respirator (P-100), and proper personal protective equipment as prescribed in paragraph 14 above.

c. Prior to start of rehabilitation the environmental office must be notified to determine the disposition of lead containing debris.

#### 18. Conversion of Indoor Ranges

Prior to the start of decontamination, employers must ensure that all procedures to be used comply with Federal, State, and local regulations. To ensure that all fead contamination is removed the following procedure is established.

a. All ranges slated for conversion will be inspected and evaluated.

b. All equipment stored in the range, if applicable, prior to the start of decontamination must be sampled, decontaminated, re-sampled and removed or turned in as lead contaminated material. See paragraph 10 above.

c. All acoustical tiles and/or sound proofing material (if applicable) must be removed and turned in as lead contaminated material through the environmental office.

d. The backstop, bullet trap, target retrieval system and firing line stations must be removed and turned in as lead containing material through the environmental office.

e. Light fixtures and ventilation system grills must be removed and decontaminated.

f. Ventilation system ducts need to be decontaminated or removed and replaced.

g. The exhaust tans and/or the complete ventilation air-handling unit (if applicable) must be decontaminated or removed.

 Cover all openings of any component previously decontaminated prior to start of interior decontamination of the firing range.

#### 19. Devlation

Deviations from this guidance will require a written exception to policy from your Regional Industrial Hygiene Office. Questions and/or comments regarding this subject should be directed to your Regional Industrial Hygiene Office or Chief, National Guard Bureau, Atin: NG8-AVS-S, 111 South George Mason Drive, Arlington, VA 22204 1382.

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#### APPENDIX A GENERAL PROCEDURES FOR COLLECTING WIPE SAMPLES

A-1 If multiple samples are to be collected at the work site, prepare a rough sketch of the area(s) or room(s), which are to be wipe sampled.

A-2 A new set of clean, impervious gloves should be used for each sample to avoid contamination of the media by previous samples and to prevent contact with the substance.

A-3 (1) If using Ghost Wipes™, tear open the individually sealed package. Remove the moistened wipe. Unfold the wipe.

(2) If using a dry media such as MCE or Whatman<sup>™</sup> filter, moisten the filter with distilled or deionized water prior to sampling.

A-4 Place a 10 cm by 10 cm template on the area to be wiped.

A-5 Apply uniform firm pressure while wiping the area inside the template.

A-6 To insure that all portions of the partitioned area are wiped, start at the outside edge and progress toward the center making progress toward the center making concentric squares decreasing in size.

A-7 After collecting a sample, fold the filter or wipe inward and place into a container and number it. Note the number at the sample location on the sketch.

A-8 At least one blank filter treated in the same fashion but without wiping, should be submitted to the laboratory.

#### APPENDIX B

#### SAMPLING STRATEGY FOR COLLECTION OF WIPE SAMPLES

B-1 Prior to cleaning the ranges, the three samples must be collected and analyzed for total lead dust on each surface, i.e., floor, ceiling, backstop, and wall to include the plenum wall, if applicable. In addition, a total of 3 samples should be collected from areas which have been least disturbed by airflow. Established walkways should be avoided.

B-2 Samples should be staggered to different areas of the range. A grid system should be utilized. Each range surface areas should be divided evenly into 3 by 3 sections. Samples should not be collected on all one section of a wall or end of the building.

#### APPENDIX C

#### INTERPRETATION OF SAMPLE RESULTS (PRIOR TO CLEANING)

C-1 200 micrograms/sq ft or LESS

If all sample results are 200-micrograms/sq ft or less, the range can be converted and/or used for any purpose.

C-2 BETWEEN 201 and 200,000 micrograms/sq ft

Range must be decontaminated. Continued with clearing instructions listed in paragraph 9 Sample results will be used to establish a baseline.

C-3 Over 206,000 micrograms/sq ft

Your sample media may not be capable of collecting additional lead dust and results that are above 200,000 micrograms/so ft, and should be considered suspect.

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#### APPENDIX C (Continued)

C-4 High sample results may exist due to personnel walking or moving equipment/vehicles over the range surface causing the lead dust to be "ground" into the substratum. For examples, a maintenance activity may have oversprayed paint or splited solvents onto the surface Regional Industrial Hygiene Office for specific guidance.

#### APPENDIX D

#### INTERPRETATION OF SAMPLE RESULTS (AFTER CLEANING)

D-1 200 micrograms/sq. ft or less

If all sample results are less than 200 micrograms/sq ft, the range can be converted and/or used for any purpose after a coat of lead-free latex paint is applied.

#### APPENDIX E

#### RECOMMENDED SAMPLE MEDIA AND CONTAINERS

E-1 The following is a fist of vandors, which supply the media and containers necessary to collect air and lead surface wipe samples. The information is provided to assist in obtaining the proper media and containers. Alternative vendors are available and may be utilized, if known. Contact your Regional Industrial Hyglene Office for additional assistance or clarification.

E-2 Pre-loaded 3 piece cassette with mixed cellulose ester (MCE) fitter and pad, 37 millimotor (mm), pore size 0.8 microns, breathing zone (BZ) and general area (GA) air samples.

Order From Catalog Number

- a. Millipore Corp. MAWP-037-A0 Ashdy Road Bedford, MA 01730 617-275-9200 800-225-1380
- b. Gelman Sciencos 64678 (GN-4) 600 South Wagner Rd Ann Arbor, MI 48106 313-665-0651 800-521-1520
- c. Supelco. Inc. 2-3368M
   Supelco Park
   Bellofonte, PA 16823
   800-247-6628
   800-359-3041

E-3.37 rtm MCE Filter with pad, no cassette included, for lead surface wipe samples.

Order From Catalog Number

 a. Supeleo Inc. 2-3381iM Supeleo Park Belfofonte, PA 16823 NGB-AVS-SG SUBJECT: All States (Log Number P01-0075) Army National Guard (ARNG) Safety and Occupational Health Program – POLICY AND RESPONSIBILITIES FOR INSPECTION, EVALUATION AND OPERATION OF ARMY NATIONAL GUARD INDOOR FIRING RANGES

#### APPENDIX & (Continued)

800-247-6828 800-359-3041

b. Millipore Corp. AAWP-037-00
 Ashdy Road
 Bedford, MA 01730
 617-275-9200
 800-225-1380

c, SKC, Inc. 225-5
 334 Valloy View Rd.
 Eighty Four, PA 15330
 412-941-9701
 800-752-8472

# E-5. Glass container (25 milliliter) for collection and shipment of media.

Order From Catalog Number

a. Pierce Chemical Co. 13219 (screw cap)
 P.O. Box 117
 Rockford, IL 61305
 815-968-0747
 800-874-3723

 Altech Associates, Ioc. 95321 (screw cap) Applied Science Labs 2051 Waukegan Rd Ceerfield, IL 60015 312-948 8600

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#### APPENDIX E (Continued)

800-255-8324

E-6. Ghost Wipes™.

#### Order From Catalog Number

Environmental Express SC4200 490 Wando Park Bivd. MI. Pleasani, SC 29464 1-800-343-5319

E-7. Ghost Wipe™ Containers

Order From Catalog Number

Environmental Express SC499 490 Wando Park Blvd. Mt. Pleasant, SC 29464 1-800-343-5319

E-8. Plastic ziptock bags can be obtained through the Army logistics system. Many sizes are available, Contact your supporting logistics branch for assistance.

E-9. Distilled water can be purchased at larger grocery stores, usually by the gallon, at a cost of approximately \$1.25. Deionized water can be obtained at local and state water labs or a hospital

#### APPENDIX F EXAMPLES OF COMPUTATION OF LEAD LEVELS FROM WIPE SAMPLE RESULTS

Sample results will be returned in the form of micrograms. The results must be converted to micrograms per square foot. This can be accomplished by following the examples listed below:

| 75 <u>ug</u>        | - 92 | <u>29 cm²</u> |                  |
|---------------------|------|---------------|------------------|
| 100 cm <sup>2</sup> |      | 1 sq ft       |                  |
|                     |      |               |                  |
| 75 x 929            | =    | 69675         | = 698.75ug/sq.ft |
| 100                 |      | 100           |                  |

ug - Microgram

Cm2 - Centimeters squared

Sq ft - Square foot

#### NGB-AVS-SG SUBJECT: All States (Log Number P01-0075) Army National Guard (ARNG) Safety and Occupational Realth Program – POLICY AND RESPONSIBILITIES FOR INSPECTION, EVALUATION AND OPERATION OF ARMY NATIONAL GUARD INDOOR FIRING RANGES

| leturn Address    |             |         | Point of Conta | ct (name & phone #)  |
|-------------------|-------------|---------|----------------|----------------------|
|                   |             |         | Samples Collee | nted By              |
| ampled Facility   |             | City    | State          | Location (bldg/area) |
| escription of Ope | ration      |         | Date Collected | Date Shipped         |
| nalysis Desired   |             |         |                |                      |
| ampling Data      |             | ·       |                |                      |
| ab Use Only       | Sample #    | Results |                | Remarks              |
|                   |             |         |                |                      |
|                   |             |         |                |                      |
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#### APPENDIX G SURFACE WIPE SAMPLING SHEET

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#### NGB-AVS-SG SUBJECT: All States (Log Number P01-0075) Army National Guard (ARNG) Safety and Occupational Health Program ~ POLICY AND RESPONSIBILITIES FOR INSPECTION, EVALUATION AND OPERATION OF ARMY NATIONAL GUARD INDOOR FIRING RANGES

#### APPENDIX H AIR SAMPLING SHEET Industrial Hygiene Air Sample Sheet Point of Contact (name/phone #) Samples Collected By Location (bidg/area) State City **Description of Operation** Method of Collection **Hrs/Day** Persons Exposed

| No.                                   |            | 1                |                         | I             |      |
|---------------------------------------|------------|------------------|-------------------------|---------------|------|
| Pump No.                              |            |                  |                         |               | B    |
| Time On                               |            |                  |                         |               | L    |
| Time Off                              |            |                  |                         | 1 1           | A    |
| Total Time<br>(min)                   |            |                  |                         | <u>₹</u>      | N    |
| Flow Rate<br>(LPM)                    |            |                  |                         |               | ĸ    |
| Volume<br>(iltors)                    |            |                  |                         |               |      |
| GA/BZ                                 |            |                  |                         |               |      |
| Employee<br>Name/ID                   |            |                  |                         |               |      |
| Laboratory<br>No.                     |            |                  |                         |               |      |
| Calibration I                         | nformation |                  |                         |               |      |
|                                       | Calibrat   | tion (LPM)       | Rotameter Soffing       |               | Dale |
| Pump No.                              | Pro-Use    | Post-Use         |                         |               |      |
|                                       |            | · <b></b>        | <b>├</b> ··· - <b>_</b> | _ <u> </u> ·• |      |
|                                       |            |                  |                         |               |      |
| · · · · · · · · · · · · · · · · · · · |            |                  |                         |               |      |
|                                       |            | <u>.</u>         | - · ·                   | ·             |      |
|                                       |            |                  |                         |               |      |
|                                       | · _        |                  |                         |               |      |
| <u> </u>                              |            | <u> </u>         |                         |               |      |
|                                       |            | :                |                         | ·             |      |
| Name of Calibra                       | ator       | Calibration Date | Pump Manufacturer       |               |      |
| Cominants to L                        | ab         |                  |                         |               |      |

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Return Address

Sampled Facility

Analysis Desired Sampling Data 

NGB-AVS-SG SUBJECT: All States (Log Number P01-0075) Army National Guard (ARNG) Safety and Occupational Health Program -- POLICY AND RESPONSIBILITIES FOR INSPECTION, EVALUATION AND OPERATION OF ARMY NATIONAL GUARD INDOOR FIRING RANGES

> APPENDIX I ABBREVIATIONS AND TERMS

Section I Abbreviations

ARNG Army National Guard

BUN Blood urea nitrogen

**9Z** Breathing zone

**CBC** Complete blood count

CFR Code of Federal Regulations

*cm* Centimeter

DHEW Department of Health, Education and Welfare

EPA Environmental Protection Agency

**GA** . General area

OMPF Official Military Personnel File

OPF Official Personnel File

OSHA Occupational Safety and Health Administration

TCLP Toxic Characteristic Leaching Procedures

ug/sq\_ft Micrograms per square foot

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#### NGB-AVS-SG SUBJECT: All States (Log Number P01-0075) Army National Guard (ARNG) Safety and Occupational Health Program -- POLICY AND RESPONSIBILITIES FOR INSPECTION, EVALUATION AND OPERATION OF ARMY NATIONAL GUARD INDOOR FIRING RANGES

#### APPENDIX I (Continued)

#### Section II Terms

#### HEPA

Refers to high efficiency particulate air filter systems capable of capturing up to 99.97 percent of particles 0.3 microns in size or larger.

#### Leed~Contaminated Range

It is assumed that all indoor ranges, which have been fired in, are lead-contaminated.

#### Wipe Sample

The terms wipe, swipe, or smear samples are use synonymously to describe the techniques utilized for assessing lead surface contamination.

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## **Industrial Hygiene Survey**

Massachusetts Army National Guard (MA ARNG)

Prepared For: NGB ARNG- Region North IH Office

Survey Location:

Gardner Readiness Center 323 West Broadway Gardner, MA 01440-3105

Prepared By: Aria Environmental, Inc. (AEI) PO Box 286 Woodbine, MD 21797

Survey Date: July 26, 2010 Report Date: September 16, 2010

AEI Project #: J10-513 3a MA Gardner RC

#### Non-Responsiv

Industrial Hygienist



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- Appendix D IAQ and Lighting Survey Log Sheets

#### **Executive Summary**

Aria Environmental, Inc. (AEI) was contracted to perform an industrial hygiene evaluation for the Readiness Center located at 323 West Broadway, Gardner, MA, 01440-3105. Non-Responsive performed the evaluation on July 26, 2010. The point of contact for the facility was Staff Sergeant The purpose of the evaluation was to identify and measure the existence and extent of potentially hazardous operations or conditions at Army National Guard (ARNG) facilities. The survey included: (1) evaluations of operations including operation description, ventilation system evaluations, noise dosimetry if appropriate, lighting surveys, hazard control evaluations and any additional information pertinent to the operations; (2) an evaluation of the physical condition of the facility and personnel concerns including visual inspections for peeling potentially lead-based paint, damaged suspect asbestos-containing materials, water damage or mold problems; indoor air quality concerns; and housekeeping practices; and (3) photographs of the exterior and interior of the readiness center. The results of the evaluation indicated the following:

**Noise Hazards:** No noise-generating activities were taking place on the day of the survey. Due to the nature of the tasks performed onsite, no activities requiring noise monitoring are anticipated to occur at the RC.

Lead in Air Samples: Results of collected air samples were below regulatory limits for lead (50  $\mu$ g/m<sup>3</sup>).

Paint Chip and Wipe Samples for Lead Contamination: Five of six wipe samples collected from the former firing range were above the National Guard criteria for lead contamination (200  $\mu$ g/ft<sup>2</sup>). Samples ranged from 1.7 to 195 times the National Guard criteria. Lead was identified in the remaining ductwork, exhaust fan, on top of the light fixture, on stored footlockers and on the floor of the range. All collected paint chip samples were below the percentage that defines lead-based paint.

**Visual Inspection for Damaged Asbestos-Containing Materials:** Minor damage on the boiler breeching and a damaged TSI pipe fitting leading from the boiler were observed in the Mechanical Room. Bulk samples collected of the materials indicated one of the samples contained asbestos at greater than one percent (1%). The TSI pipe fitting leading from the boiler contained 80% Chrysotile asbestos.

Visual Inspection for Water Damage and Mold Growth: There was some evidence of light water damage in the corner of the Supply Room. The area was not wet at the time of the survey and no mold growth was observed at the facility.

**Visual Inspection for Housekeeping Concerns:** A visual inspection was performed to assess the state of housekeeping in the facility. The housekeeping was good. All areas were clean and tidy.

**Lighting:** The evaluation indicated that there are some illumination deficiencies in several areas of the facility. Additionally, office and one storage room (Rooms 9 and 10 on the attached drawing) had lights that were not functioning on the day of the survey. The illumination measurements indoors ranged from a low of 0.8 foot candles (fc) to a high of 80 fc.

**Indoor Air Quality:** Temperatures and relative humidity measurements were all acceptable on the day of monitoring. However, indoor conditions are directly related to outdoor conditions due to the lack of air conditioning in most of the facility. Indoor levels of  $CO_2$  ranged from 346 to 1072

parts per million (ppm) and outdoor  $CO_2$  levels were approximately 350 ppm during the monitored period.  $CO_2$  measurements were below the guideline in all areas, except the front office of the building. Elevated  $CO_2$  levels in the front office were most likely the result of overcrowding in the room at the time of the survey. Due to an ongoing meeting, there were eight (8) individuals in the room at the time of the survey. Indoor levels of CO ranged from 0 to 0.7 ppm; therefore, concentrations are below occupational exposure limits, ASHRAE and the NAAQS-recommended CO concentrations.

#### 1 Introduction

Aria Environmental, Inc. (AEI) was contracted to perform an industrial hygiene evaluation for the Massachusetts Army National Guard (MA ARNG) Readiness Center located at 323 West Broadway, Gardner, MA, 01440-3105. Non-Responsive performed the evaluation on July 26, 2010. The point of contact for the facility was Staff Sergeant Non-Responsive. The purpose of the evaluation was to identify and measure the existence and extent of potentially hazardous operations or conditions at Army National Guard (ARNG) facilities.

The Gardner Readiness Center is staffed with 2 fulltime National Guard administrative personnel. The operations conducted at the facility include supply and administrative duties. A diagram of the building layout is provided in Appendix A. All sampling sheets and laboratory certificates of analysis are provided in Appendix B. Selected photographs taken during the evaluation are provided in Appendix C. Indoor air quality and lighting survey measurement log sheets are provided in Appendix D. Lists of all references used during the evaluation are included in the main body of the report.

#### 2 Evaluation Methods

The industrial hygiene survey of the Gardner Readiness Center consisted of visual inspections, interviews with employees and sampling plan development in order to achieve the following: (1) evaluations of operations including operation description, sampling for lead in air or on surfaces if appropriate, ventilation system evaluations, noise measurements if appropriate, lighting surveys, hazard control evaluations and any additional information pertinent to the operations; (2) an evaluation of the physical condition of the facility and personnel concerns including visual inspections for peeling potentially lead-based paint, damaged suspect asbestos-containing materials, water damage or mold problems; indoor air quality concerns; and housekeeping practices; and (3) a building layout and photographic documentation of the interior of the facility.

The National Guard Bureau (NGB) Region North IH Office provided all industrial hygiene equipment for air sampling (equipment and media), ventilation, lighting, noise and IAQ survey instruments and paid for laboratory analytical fees. Laboratories were chosen or approved by

#### 3 Operations

Operations conducted at the Gardner facility consists exclusively of supply and administrative duties. No maintenance of vehicles, painting of equipment or other physical tasks are performed at the facility. Ground maintenance and upkeep of the building are the responsibility of the state employed Armorer and not part of the duties of National Guard personnel.

#### 4 Noise Hazards

No noise-generating activities were taking place on the day of the survey. Due to the nature of the tasks performed onsite, no activities requiring noise monitoring are anticipated to occur at the RC.

## 5 Hazard Controls

#### Ventilation Systems

Heat is supplied to the facility through a boiler located in the boiler room and overhead heaters in the drill hall. The boiler certificate for the Gardner was expired and is not up to date. Any air conditioning provided to the building is through window air conditioning units. No local ventilation systems were present at the facility.

#### 6 Physical Condition of the Facility and Personnel Concerns

An evaluation of the physical condition of the facility and personnel concerns was performed including visual inspections for peeling potentially lead-based paint, damaged suspect asbestos-containing materials, water damage or mold problems; indoor air quality concerns; and housekeeping practices. Lighting and indoor air quality measurements were taken in all areas of the facility as well.

#### Lead in Air Samples

To determine if any airborne contamination of lead existed in the facility, personal air sampling for lead was conducted in on two National Guard members and analyzed by AMA for atomic absorption spectrophotometry (AAS) following the analytical method ASTM D3335-85A. Results are given in Table 1 and certificates of analysis are included in Appendix B.

| Air Sample # | Sample Location               | Result (µg/m³)* |
|--------------|-------------------------------|-----------------|
| GAR-01       | Staff Sergeant Non-Responsive | <10             |
| GAR-02       | Sergeant Major                | <10             |

## Table 1 – Results of Lead in Air Sampling for the MA ARNG

\*The OSHA PEL for Lead in Air is 50  $\mu$ g/m<sup>3</sup>.

### Paint Chip and Dust Wipe Samples for Lead Contamination

To determine if any cross contamination of lead from any source into areas of the facility existed, wipe samples were collected using ghost wipes and 10cm x 10cm templates. Wipe samples for surface dust were collected in 17 locations. The Environmental Protection Agency (EPA) and the Commonwealth of Massachusetts limits for lead in dust are 40 micrograms per square foot  $(\mu g/ft^2)$  on floors, 250  $\mu g/ft^2$  on window sills, and 400  $\mu g/ft^2$  in window troughs. These limits apply to pre-1978 Army facilities only if children under 6 years of age occupy them for 60 or more hours per year. The NGB Region North Industrial Hygiene Office concurs with the US Army Center for Health Promotion and Preventive Medicine (USACHPPM) recommended maximum level for adult exposures of 200 µg/ft<sup>2</sup> on floors and frequently contacted surfaces, which is more stringent for window sills than the EPA/State standards. Dust wipe samples were submitted to Aerosol Monitoring and Analysis Analytical Services, Inc. (AMA) for atomic absorption spectrophotometry (AAS) following the analytical method ASTM D3335-85A. Five of six samples collected from the former firing range, now used but not converted to storage, were above the National Guard criteria for lead contamination (200 µg/ft<sup>2</sup>). Samples ranged from 1.7 to 195 times the National Guard criteria. Lead was identified in the remaining ductwork, exhaust fan, on top of the light fixture, on stored footlockers and on the floor of the range. Results are given in Table 2 and certificates of analysis are included in Appendix B.

| Table 2- Results of Dust Wipe Sampling for MA ARNG |
|--|
| Gardner Readiness Center on July 26, 2010.         |

| Wipe Sample # | Sample Location   | Result (µg/ft²)* |
|---------------|---|------------------|
| GAR-PB-01     | Kitchen, On Serving Table   | <110             |
| GAR-PB-02     | Office 13, From Vent  | <110             |
| GAR-PB-03     | Assembly Hall, Walking Mat Against Wall<br>by Room 19                 | <110             |
| GAR-PB-04     | Assembly Hall, Middle of Floor  | <110             |
| GAR-PB-05     | Assembly Hall, On Top of Vending<br>Machine                           | <110             |
| GAR-PB-06     | Room 3, Former Indoor Firing Range,<br>Inside Duct                    | 39,000           |
| GAR-PB-07     | Room 3, Former Indoor Firing Range,<br>Bullet Trap                    | 190              |
| GAR-PB-08     | Room 3, Former Indoor Firing Range,<br>From Exhaust Fan in Ceiling    | 6,200            |
| GAR-PB-09     | Room 3, Former Indoor Firing Range,<br>Light Fixture                  | 640              |
| GAR-PB-10     | Room 3, Former Indoor Firing Range,<br>From Top of Stored Footlockers | 770              |
| GAR-PB-11     | Room 3, Former Indoor Firing Range,<br>Middle of Floor                | 340              |
| GAR-PB-12     | Assembly Hall Floor Immediately Outside<br>Former Range (Room 3)      | <110             |
| GAR-PB-13     | Room 11, Top of Locker  | <110             |
| GAR-PB-14     | Entry Foyer, From Vent  | <110             |
| GAR-PB-15     | Room 14, Window Sill  | 200              |
| GAR-PB-16     | Room 19, Mess Hall Table Top  | <110             |
| GAR-PB-17     | Room 21, Middle of Floor  | <110             |

\*The US Army CHPPM recommends a maximum level for adult exposures of 200 µg/ft<sup>2</sup> lead on floors

A visual inspection was performed to determine if there were any areas of peeling paint at the facility that could pose a lead exposure hazard. Peeling paint was observed over the door in the Men's Room; therefore, one paint chip was collected. The paint chip sample was collected following operational protocols set forth in HUD's Guidelines for the Evaluation and Control of Lead-Based Paint Hazard in Housing (1995). The paint chip sample was submitted to Aerosol Monitoring and Analysis Analytical Services, Inc. (AMA) of Lanham, MD for analysis. The analyses were performed using Flame Atomic Absorption Spectrophotometry (AAS) following the analytical method SW 846 7420. AMA is accredited for the analysis of paint chip samples through the AIHA Proficiency Testing Program (#100470). In the Commonwealth of Massachusetts, paint is considered to be lead-based if it contains more than 0.5 % lead by weight. All paint chip samples were below regulatory limits of 0.5% lead by weight. Results are given in Table 3 and certificates of analysis are included in Appendix B.

#### Table 3 – Results of Paint Chip Sampling for MA ARNG Gardner Readiness Center on July 26, 2010.

| Paint Chip<br>Sample # | Sample Location             | Result (% by wt )* |
|------------------------|-----------------------------|--------------------|
| GAR-LBP-01             | Flaking Paint in Men's Room | 0.034              |

\*Paint is considered lead-based if it is > 0.5% by weight.

#### Visual Inspection for Damaged Asbestos-Containing Materials

A visual inspection was performed to determine if there were any suspect asbestos-containing material and its condition. Minor damage on the boiler breeching and a damaged TSI pipe fitting leading from the boiler were observed in the Mechanical Room. Bulk samples of both materials were collected. Samples were submitted to AMA Analytical Services, Inc. of Lanham, MD 20706 (NIST-NVLAP Accreditation No. 101143-0) for analysis by Polarized Light Microscopy (PLM) using EPA method 600/R-93/116. The EPA defines an asbestos-containing material as one percent (1%) or more asbestos by visual estimation. One of the samples contained asbestos at greater than one percent (1%). The TSI pipe fitting leading from the boiler contained 80% Chrysotile asbestos Results are given in Table 4 and certificates of analysis are included in Appendix B.

#### Table 4 – Results of Asbestos Sampling for the MA ARNG RC Gardner, MA on July 26, 2010.

| Bulk Sample # | Sample Location                  | Result (%)     |
|---------------|----------------------------------|----------------|
| GAR-ASB-01    | Boiler Breeching                 | ND             |
| GAR-ASB-02    | Damaged Elbow in Mechanical Room | 80% Chrysotile |

#### Visual Inspection for Water Damage and Mold Growth

A visual inspection was performed to determine if there was any water damage or visible mold growth at the facility. There was some evidence of light water damage in the corner of the Supply Room. The area was not wet at the time of the survey and no visible mold growth was observed at the facility.

#### Visual Inspection for Housekeeping Concerns

A visual inspection was performed to assess the state of housekeeping in the facility. The housekeeping was good. All areas were clean and tidy.

#### Lighting

Illumination levels were measured using a Cal-Light 400L, calibrated on July 30, 2009, and compared to minimum lighting requirements for various facilities and functions based on the following references: American National Standards Institute/Illumination Engineering Society of North America (ANSI/IESNA) Standard RP-1-04 (Office Lighting) and ANSI/IESNA Standard RP-7-01 (Lighting Industrial Facilities).

A lighting survey was performed in all areas within the RC. The evaluation indicated that there are some illumination deficiencies in several areas of the facility(Rooms 5, 8, 14, and 20 on the attached drawing). Additionally, office and one storage room (Rooms 9 and 10 on the attached drawing) had lights that were not functioning on the day of the survey. The illumination measurements indoors ranged from a low of 0.8 foot candles (fc) to a high of 80 fc.

The complete results of the evaluation are presented in Appendix D, including whether the results met minimum requirements for illumination. Additional illumination can be achieved by replacing burned-out lamps, cleaning fixtures, relocating detailed work to more illuminated areas, using supplemental task lighting, and opening doors or windows to provide more natural lighting.

#### Indoor Air Quality (IAQ)

Indoor air quality measurements (i.e., temperature, relative humidity, carbon dioxide and carbon monoxide) were taken using a TSI Q-Trak Plus Model 7565X, factory calibrated in September 2009. Temperature, relative humidity and carbon dioxide (CO<sub>2</sub>) measurements were compared to the recommended levels established by the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE). Carbon monoxide (CO) concentrations were compared to the ACGIH Threshold Limit Value (TLV) for CO and the Environmental Protection Agency's (EPA's) National Ambient Air Quality Standard (NAAQS) for CO.

Industry guidelines or standards for seasonal temperature and humidity ranges for thermal comfort are established by ASHRAE standard 55-2004. These ranges are presented in Table 5. The U.S. EPA also recommends maintaining relative humidity below 60% and ideally between 30 and 50% to prevent mold growth. Complete results are provided in Appendix G with the lighting survey measurements.

| Relative<br>Humidity | Winter<br>Temperature | Summer<br>Temperature |
|----------------------|-----------------------|-----------------------|
| 30%                  | 68.5°F - 76.0°F       | 74.0°F – 80°F         |
| 40%                  | 68.5°F – 75.5°F       | 73.5°F - 79.5°F       |
| 50%                  | 68.5°F - 74.5°F       | 73.0°F - 79.0°F       |
| 60%                  | 68.0°F - 74.0°F       | 72.5°F - 78.0°F       |

#### Table 5 - Acceptable Ranges of Temperature and Relative Humidity in Summer and Winter<sup>a</sup>

<sup>a</sup>adapted from ASHRAE Standard 55-2004

#### Temperature and Relative Humidity

Indoor temperature and relative humidity (Rh) measurements in the facility ranged from 75.6 to 77.9° F and 43.6 to 62.4% Rh. Outdoor temperature and humidity measurements were 76.1° F and 48.5% on the day of monitoring. Temperatures and relative humidity measurements were all acceptable on the day of monitoring. However, indoor conditions are directly related to outdoor conditions due to the lack of air conditioning in most of the facility.

#### Carbon Dioxide (CO2) and Carbon Monoxide (CO)

Carbon dioxide and carbon monoxide measurements are used to assess ventilation system performance. The exhaled breath of building occupants is the main indoor source of carbon dioxide; therefore, the build up of  $CO_2$  indicates inadequate ventilation. The concentration of concern for carbon dioxide is set by ASHRAE standard 62.1 – 2007 as 700 ppm above outdoor concentrations. Indoor levels of  $CO_2$  ranged from 346 to 1072 parts per million (ppm) and outdoor  $CO_2$  levels were approximately 350 ppm during the monitored period.  $CO_2$  measurements were below the guideline in all areas, except the front office of the building. Elevated  $CO_2$  levels in the front office were most likely the result of overcrowding in the room at the time of the survey. Due to an ongoing meeting, there were eight (8) individuals in the room at the time of the survey.

Carbon monoxide is a byproduct of incomplete combustion. Indoor concentrations indicate contamination caused by improperly vented or malfunctioning boilers, furnaces or stoves or from vehicle exhaust entering the building from garages, loading docks, nearby roads or parking lots. The concentration of interest set by ASHRAE standard 62.1-2007 and the National Ambient Air Quality Standards (NAAQS) for carbon monoxide is an 8 hour average of 9 ppm. The ACGIH TLV for CO is 25 ppm. Indoor levels of CO ranged from 0 to 0.7 ppm; therefore, concentrations are below occupational exposure limits, ASHRAE and the NAAQS-recommended CO concentrations.

#### 7 Conclusions

The results of the evaluation indicated no concerns with the following at the facility: contamination of clean air sources, peeling lead-based paints, noise hazards, indoor air quality, visible mold and housekeeping. The results of the evaluation indicated industrial hygiene concerns in the following areas: cross contamination from the former firing range, the presence of damaged suspect asbestos-containing materials, and lighting. Overall, Chicopee Readiness Center has few industrial hygiene issues, and programs are in place to protect, inform and train employees.

#### 8 Limitations

This report has been prepared for the exclusive use of the U.S. Army National Guard (USARNG) and/or their agents. This service has been performed in accordance with generally accepted industrial hygiene and environmental practices. No other warranty, expressed or implied, is made. Our conclusions and recommendations are based, in part, upon information provided to us by others and our site observations. We have not verified the completeness or accuracy of the information provided to us by others, unless otherwise noted. Our observations and recommendations readily visible at the site at the time of our site visit, and upon current industry standards.

By virtue of providing the services described in this report, the preparer does not assume the responsibility of the person(s) in charge of the site, or otherwise undertake responsibility for reporting to any local, state, or federal public agencies any conditions at the site that my present a potential danger to public health, safety, or the environment. It is the Client's responsibility to notify the appropriate local, state, or federal public agencies as required by law, or otherwise to disclose, in a timely manner, any information that may be necessary to prevent any danger to public health, safety, or the environment. Under this scope of services, the preparer assumes no responsibility regarding response actions initiated as a result of these findings. Response actions are the sole responsibility of the Client and should be conducted in accordance with local, sate, and/or federal requirements, and should be performed by appropriately licensed personnel as warranted.

### 9 References

- 1. Title 29, Code of Federal Regulations (CFR), Part 1910, Occupational Safety and Health Administration, current edition.
- 2. Title 24, Code of Federal Regulations (CFR), Part 35, Subpart B, Sections 35.110, Definitions of Lead-Based Paint, Housing and Urban Development, U.S. Department of Housing.
- 3. Department of Defense Instruction (DODI) 6055.1, Department of Defense Occupational Safety and Health (OSH) Program, August 19, 1998.

- 4. Army Regulation (AR) 40-5, Medical Service, Preventive Medicine, May 25, 2007.
- 5. Army Regulation (AR) 385-10, The Army Safety Program, August 23, 2007.
- 6. Department of the Army Pamphlet (DA PAM) 40-501, Medical Service, Hearing Conservation Program, December 15, 1998.
- 7. Department of the Army Pamphlet (DA PAM) 40-503, Medical Service, Industrial Hygiene Program, October 30, 2000.
- 8. Technical Manual (TM) 5-810-1, Mechanical Design, Heating, Ventilation, and Air Conditioning, June 1991.
- 9. Threshold Limit Values (TLVs) and Biological Exposure Indices (BEIs), American Conference of Governmental Industrial Hygienists (ACGIH), current edition.
- 10. RP-1-2004 (Office Lighting) and RP-7-2001 (Industrial Lighting), Illuminating Engineering Society of North America (IESNA)/ANSI.
- 11. The American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE), Standard 62.1-2007, "Ventilation for Acceptable Indoor Air Quality" and Standard 55-2004, "Thermal Environmental Conditions for Human Occupancy".
- 12. NIOSH website: <a href="http://www.cdc.gov/niosh/">http://www.cdc.gov/niosh/</a>
- 13. OSHA website: <u>http://www.osha.gov/</u>.
- 14. Army CHPPM website: http://chppm-www.apgea.army.mil/.
- 15. EPA website: <u>http://www.epa.gov</u>.

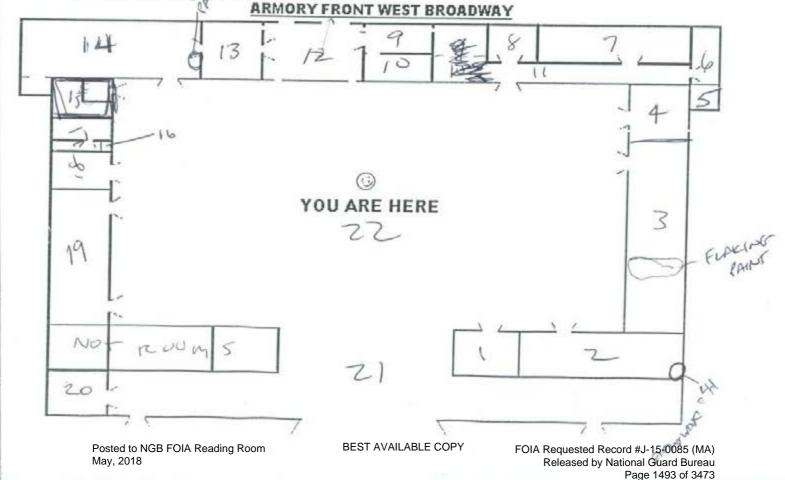
Appendix A Building Layout

#### EVACUATION PLAN BEST AVAILABLE COPY

## <u>COMPANY B</u> <u>1<sup>ST</sup> BATTALION 181<sup>ST</sup> INFANTRY</u> <u>MASSACHUSETTS ARMY NATIONAL GUARD</u> <u>323 WEST BROADWAY, GARDNER, MA.01440-3105</u>

- The Armory Evacuation Plan is designed to facilitate the evacuation of troops from the Armory, West Broadway Gardner, Massachusetts, in the event of an enemy attack, fire, or other disorder.
- 2. This plan will be posted in all rooms of the Armory. Unit commanders will, at least once a year, hold an "Evacuation Drill" to insure that all members are familiar with the proper exits and designated assembly areas.
- This plan will be reviewed by the State Officer at least once during each quarter, or more often as if needed, to insure its being kept up to date.
- 4. After each evacuation of the Armory, Unit Commanders will immediately have a roll call to insure that all troops have been evacuated. The building will not be re-entered until all safety factors have been taken into consideration. Fire fighting must be under control of authorized personnel of the unit or by unit officers. Periodic checks will be made to insure that all company personnel are familiar with the locations of the fire extinguishers.





Appendix B Certificates of Analysis for Air, Dust Wipe and Bulk Samples

## AMA Analytical Services, Inc.

A Specialized Environmental Laboratory

BEST AVAILABLE COPY

## **CERTIFICATE OF ANALYSIS**



#### Client: National Guard Bureau Job Name: Gardner Armory Chain Of Custody: 508469 301-IH Old Bay Lane, Attn: NGB-AVN-SI, Job Location: Gardner, MA 8/6/2010 Address: Date Analyzed: State Military Reservation Job Number: Not Provided Person Submitting: Havre de Grace, Maryland 21078 W912K6-09-A-0003 P.O. Number: Page 1 of 1 Attention:

## Summary of Polarized Light Microscopy

| MA Sample<br>Number | Client<br>Sample # | Total<br>Asbestos | Chrysotile<br>Percent | Amosite<br>Percent | Asbestos |    | Percent |   | 1000 C | Particulate<br>Percent | Sample<br>Color | Homogeneity | Analyst<br>ID | Comments |
|---------------------|--------------------|-------------------|-----------------------|--------------------|----------|----|---------|---|--------|------------------------|-----------------|-------------|---------------|----------|
| 1066553             | GAR-ASB-01         | NAD               |                       |                    | <br>     | 35 |         | 5 |        | <br>60                 | Multi           | Layered     | sw            |          |
| 1066554             | GAR-ASB-02         | 80                | 20                    | 60                 | <br>     |    |         |   |        | <br>20                 | Multi           | Layered     | SW            |          |

The following footnotes only apply to those samples which the total asbestos result is flagged with a note number.

1 TEM RECOMMENDATION - Please note, due to resolution limitations with optical microscopy and/or interference from matrix components of this sample, results which are reported via PLM as negative or trace (<1%) for asbestos may contain a significant quantity of asbestos. It is recommended that the additional analytical technique of TEM be used to check for asbestos fibers below the resolution limits of optical microscopy.

2 MATRIX REDUCTION RECOMMENDATION - Please note, due to interference from the matrix components of this sample, results which are reported via PLM as negative or trace (<1%) for asbestos may contain a significant quantity of asbestos which is obscured from view. It is recommended that the additional preparation technique of gravimetric reduction be performed on this sample to minimize the obscuring effects of matrix components, followed by reanalysis by PLM and/or TEM.</p>

Analysis Method - EPA/600/R-93/116 dated July 1993

NAD = "No Asbestos Detected" TR = "Trace equals less than 1% of this component"

Uncertainty: For samples containing asbestos in range of 1-10% the CV is 0.43, 11-35% CV=0.55, >35 CV=0.23

All results are to be considered preliminary and subject to change unless signed by the Technical Director or Deputy. Technical Director



This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public, and these Laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from us. Sample types, locations, and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information. Residual sample material will be discarded in accordance with the appropriate regulatory guidelines, unless otherwise requested by the client. NVLAP accreditation applies only to polarized light microscopy of bulk samples and transmission electron microscopy of AHERA air samples. This report must not be used to claim, and does not imply product certification, approval, or endorsement by NY ELAP, NVLAP, NIST, or any agency of the Federal Government. All rights reserved. AMA Analytical Services, Inc.

Posted to NGB FOIA Reading Room An AIHA (#100470), NVLAP (101 best available correction of the second #J-15-0085 (MA) May, 2018 4475 Forbes Blvd. · Lanham, MD, 20706 · (301) 459-2640 · Toll Free (800) 346-0961 · Fax (301) 459-2643 Released by National Guard Bureau Page 1495 of 3473

|  |                 |   | BEST AV  | AILAB   | LE COP   | Υ <b>Υ</b>                 |                       |        |        |  |   |  |   |
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| AMA Analytical Services, Inc.<br>Focused on Results www.amalab.com<br>AIHA (#100470) NVLAP (#101143-0) NY H<br>4475 Forbes Blvd. • Lanham, MD 20706<br>(301) 459-2640 • (800) 346-0961 • Fax (301  |                 | CH  | AIN      | OF  | r CU   | JST                        | OI                    | DY     |        |  | (Please Refer To This<br>Number For Inquires) |  | 469                                     |
| Mailing/Billing Information:<br>1. Client Name: <u>National Guard Bureau</u>   |                 |   |          | 1. 300  | tal Infor<br>Name: _                                     |                            | GAR                   |        |        |  | NURY  | pro  | ·<br>                                   |
| Address 1: <u>301-IH Old Bay Lane</u> Address 2: <u>Atto: NGB-AVN-SI, State Mili</u>   | Basan milan     |   |          | <u>en 1879</u> 8  | Location #:  |                            |                       |        |        |  |   |  |   |
| 4. Address 3: <u>Havre de Grace, Maryland</u>  |                 |   |          | 3. 300<br>4. Cor  | #:   | NL                         |                       |        | De     | ael  | ponsiv  | A Non-Response   | ve                                      |
| 5. Phone #: (410) 942-0273 F   | ax #: (410) 942 | 0254  |          | 5. Sub  | mitted b   |                            |                       |        |        |  | 001131  |  |   |
|  |                 | Information   | (Results | will he   | provide  |                            |                       |        |        |  |   |  |   |
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| <ol> <li>Address 2: <u>Attn: N</u></li> <li>Address 3: <u>Havre</u></li> <li>Phone #: <u>(410) 942</u></li> </ol>   | de Grace Mazulan   |   | 79 Reserva                      | 100  |   |                          | 3.<br>1  | 100                 | #:             | oreco  |          |               |        |        | 0   | 0  | aonei  | VC Non-Res   | ponsive   |   |
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| Asbestos Analysis   |  |   |                                 | TEM Bulk   |   |                          |          |                     |                |        |          | -             | ,      | Metals | _   |  |  |  |   |   |
| PCM Air – Please Indicate Fi<br>INTOSH 7400<br>Fiberglass<br>TEM Air – Please Indicate Fi<br>AHERA<br>Other (specify<br>PLM Bulk<br>EPA 600 – Visual Esti<br>EPA 600 – Visual Esti<br>EPA Point Count<br>NY State Friable 198,<br>Grav, Reduction ELA<br>Other (specify<br>MISC<br>Vermiculite<br>Asbestos Soil PIM(0<br>Sr | (QTY)<br>(QTY)<br>(Iter Type;<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>1<br>(QTY)<br>1<br>(QTY)<br>1<br>(QTY)<br>1<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QT | (QTY)<br>.(QTY)<br>(Quil) I<br>(Quil) I | UM/TEM(Q<br>VOLUME<br>(LITTERS) | U ELA<br>NY<br>Resi<br>TEM Dust<br>Qua<br>Qua<br>Qua<br>Qua<br>EEA<br>Witer<br>Call<br>(TEM<br>(TEM)<br>221) | State P<br>idual A:<br>I. (press<br>n. (s/ann<br>I. (press<br>I. (press<br>I. (press<br>I. (press<br>I. (press<br>I. (press<br>Water s<br>Water s | 4/Chat6i<br>LM/TEM<br>sh | 1        | (Q<br>Dust          | (QTY)<br>(QTY) | QTY)   | (QTY)    | TY)<br>wise n | oted.  |        | Pb Pai<br>Pb Das<br>Pb Air<br>Pb Soi<br>Pb TC<br>Drinki<br>Waste<br>Pb Fur<br>Analy<br>Collect<br>Collect<br>Collect<br>Spore-<br>Surfac<br>Surfac<br>Other (S) | nt Chin<br>at Wip<br>USolid<br>LPng Wa<br>Water<br>nace (<br>sis<br>ion Ap<br>ion M<br>Trep<br>e Swale<br>e Tape<br>recify | (QTY)    (QTY)    (QTY)    (QTY)     ler □ Pb(QTY) □     Pb(QTY) □     Media  paratus for Spore Traj edia    (QTY) □ 0    (QTY)    (QTY)    (QTY) □ 0    (QTY)    (QT | )<br>Cu(QTY)<br>Cu(QTY)<br>)<br>ps/Air Samples:<br>(<br>Surface Vacuum I<br>Culturable ID Genus<br>(<br>Sulturable ID Genus<br>LIENT CONTAC<br>(<br>RATORY STAF) | ) $\Box$ As(Q<br>$\Box$ As(Q<br>QTY)<br>Dust(Q<br>Media)<br>(Media)<br>CT<br>CT<br>CONLY) | TY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY) |
| GAR- 78-14  |  |   | 1                               | 1  | ['  |                          |          | 1                   |                |        |          | ŀ             |        |        |   |  |  |  |   |   |
| GAR - PB-15   |  |   |                                 |  |   |                          |          | T                   |                |        |          |               |        |        |   |  |  |  |   |   |
| CAR- 93-16  |  |   |                                 |  |   |                          |          |                     |                |        |          |               |        |        |   |  |  |  |   |   |
| GAR-PB17  |  |   |                                 |  |   |                          | -        |                     |                |        |          | L             | 1      |        | 1   |  | Date/Time:   | Contact:   | By:   |   |
| GAR -LBP-OI   |  |   |                                 |  |   |                          | -        | V                   | _              |        | ¥        | -             |        |        |   |  |  |  |   |   |
| 6AR-AS3-01  |  | -                                       | 1                               |  |   |                          | ×        | -                   |                |        | Y        | _             |        |        |   |  |  |  |   | _                                       |
| GAR - A53-02  |  |   | 1                               |  |   |                          | 5        | _                   |                | _      | ×        |               |        |        | _   |  |  |  |   |   |
| GAR-01  | <u> </u>   |   |                                 |  | -   |                          | <u>_</u> | 4                   |                | 7      |          | -             |        |        |   |  | Date/Time:   | Contact:   | By:   |   |
| GAR-02  |  |   | 1                               |  |   |                          | -        | 7                   |                | ×      |          |               |        |        |   |  | Later Inde.  | contact.   | Uy.   |   |
| GIVE OL   |  |   |                                 |  |   |                          |          | 1-                  |                | A      |          |               |        |        |   |  |  | Non-Re   | espon   | sive                                    |
| LABORATORY<br>STAFF ONLY:<br>Posted to NGB FOIA Rea<br>May, 2018  | 1. Date/fime RCV<br>2. Date/fime Anai<br>ding Resense Reporte<br>4. Comments:  | where w                                 | Non                             | Res  |   | nsiv                     |          | :<br>By (Pi<br>AVAI |                |        | 0        | r             |        |        | 2   | 2  | spc  | ons  |   | 9                                       |

## AMA Analytical Services, Inc.

National Guard Bureau

State Military Reservation Havre de Grace, Maryland 21078

A Specialized Environmental Laboratory

301-IH Old Bay Lane, Attn: NGB-AVN-SI,

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Gardner Armory

Gardner, MA

Not Provided

W912K6-09-A-0003

Job Name:

Job Location:

Job Number:

P.O. Number:

## CERTIFICATE OF ANALYSIS



Page 1 of 2

Attention:

Client:

Address:

#### Summary of Atomic Absorption Analysis for Lead

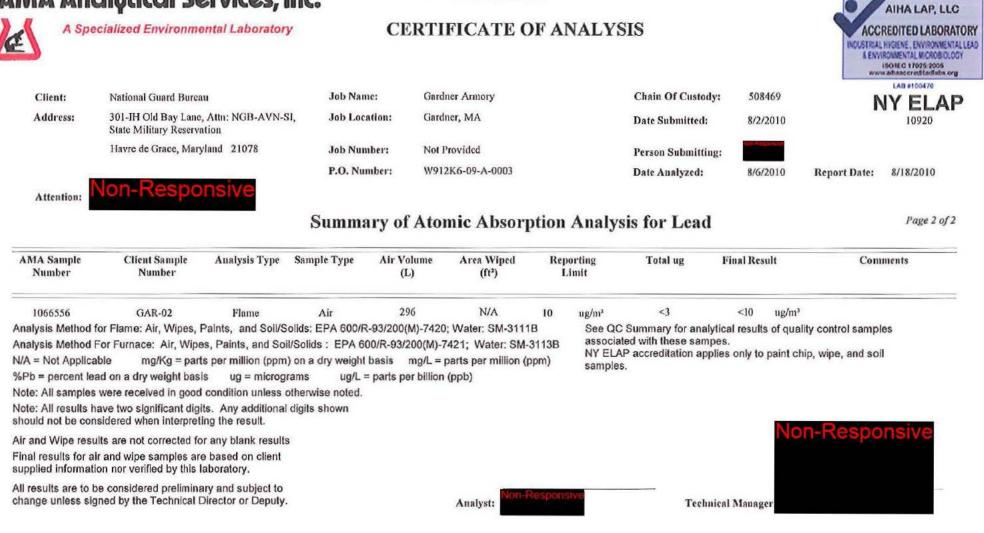
| AMA Sample<br>Number | Client Sample<br>Number | Analysis Type | Sample Type | Air Volume<br>(L) | Area Wiped<br>(ft <sup>2</sup> ) |        | orting<br>lmit | Total ug | Final Res | ult                | Comments |
|----------------------|-------------------------|---------------|-------------|-------------------|----------------------------------|--------|----------------|----------|-----------|--------------------|----------|
| 1066535              | GAR-Pb-01               | Flame         | Wipe        | ****              | 0.108                            | 110    | ug/ft²         | <12      | <110      | ug/ft²             |          |
| 1066536              | GAR-Pb-02               | Flame         | Wipe        | ****              | 0.108                            | 110    | ug/ft²         | <12      | <110      | ug/ft²             |          |
| 1066537              | GAR-Pb-03               | Flame         | Wipe        | ****              | 0.108                            | 110    | ug/ft²         | <12      | <110      | ug/ft²             |          |
| 1066538              | GAR-Pb-04               | Flame         | Wipe        | ****              | 0.108                            | 110    | ug/ft²         | <12      | <110      | ug/ft²             |          |
| 1066539              | GAR-Pb-05               | Flame         | Wipe        | ****              | 0.108                            | 110    | ug/ft²         | <12      | <110      | ug/fl²             |          |
| 1066540              | GAR-Pb-06               | Flame         | Wipe        | ****              | 0.108                            | 110    | ug/ft²         | 4200     | 39000     | ug/ft²             |          |
| 1066541              | GAR-Pb-07               | Flame         | Wipe        | ****              | 0.108                            | 110    | ug/ft²         | 20       | 190       | ug/fi²             |          |
| 1066542              | GAR-Pb-08               | Flame         | Wipe        | ****              | 0.108                            | 110    | ug/fl²         | 670      | 6200      | ug/ft²             |          |
| 1066543              | GAR-Pb-09               | Flame         | Wipe        | ****              | 0.108                            | 110    | ug/ft²         | 69       | 640       | ug/fl²             |          |
| 1066544              | GAR-Pb-10               | Flame         | Wipe        | ****              | 0.108                            | 110    | ug/ft²         | 83       | 770       | ug/ft <sup>2</sup> |          |
| 1066545              | GAR-Pb-11               | Flame         | Wipe        | ****              | 0.108                            | 110    | ug/ft²         | 37       | 340       | ug/ft²             |          |
| 1066546              | GAR-Pb-12               | Flame         | Wipe        | ****              | 0.108                            | 110    | ug/ft²         | <12      | <110      | ug/fl²             |          |
| 1066547              | GAR-Pb-13               | Flame         | Wipe        | ****              | 0.108                            | 110    | ug/ft²         | <12      | <110      | ug/ft²             |          |
| 1066548              | GAR-Pb-14               | Flame         | Wipe        | ****              | 0.108                            | 110    | ug/ft²         | <12      | <110      | ug/ft²             |          |
| 1066549              | GAR-Pb-15               | Flame         | Wipe        | ****              | 0.108                            | 110    | ug/fl²         | 22       | 200       | ug/fl <sup>2</sup> |          |
| 1066550              | GAR-Pb-16               | Flame         | Wipe        | ****              | 0.108                            | 110    | ug/ft²         | <12      | <110      | ug/ft²             |          |
| 1066551              | GAR-Pb-17               | Flame         | Wipe        | ****              | 0.108                            | 110    | ug/ft2         | <12      | <110      | ug/ft²             |          |
| 1066552              | GAR-LBP-01              | Flame         | Paint Chip  | ****              | N/A                              | 0.0086 | %Pb            |          | 0.034     | %Pb                |          |
| 1066555              | GAR-01                  | Flame         | Air         | 295               | N/A                              | 10     | ug/m³          | <3       | <10       | ug/m³              |          |

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public, and these Laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from us. Sample types, locations, and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information. Residual sample material will be discarded in accordance with the appropriate regulatory guidelines, unless otherwise requested by the client. NVLAP accreditation applies only to polarized light microscopy of bulk samples and transmission electron microscopy of AHERA air samples. This report must not be used to claim, and does not imply product certification, approval, or endorsement by NY ELAP, AIHA, NVLAP, NIST, or any agency of the Federal Government. All rights reserved. AMA Analytical Services, Inc.

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|  |   |                     |  |           |               |                     | BEST                  |         |            | BLE (   |          |          |       |         |              |                     |        | 159202  | 210 REV. 6   | 5.08        |              |
|--|---|---------------------|--|-----------|---------------|---------------------|-----------------------|---------|------------|---------|----------|----------|-------|---------|--------------|---------------------|--------|---|--|-------------|--------------|
| AIHA (#100470)<br>4475 Forbes Blvd   | tical Services, I<br>hts www.amalab.o<br>NVLAP (#101143-0)<br>L • Lanham, MD 2070<br>(800) 346-0961 • Fax | NY EL<br>6          |  |           | l             | СН                  | AI                    | N (     | OF         | ۲C      | US       | STO      | DI    | ЭY      | t.           |                     |        | ease Refer To This<br>mber For Inquires)  | 508  | 469         |              |
| Mailing/Billing Inform   |   |                     |  |           |               |                     |                       |         |            | 222.22  | form     |          |       |         | -            | ٨                   |        |   | PVO  | -           |              |
| <ol> <li>Client Name: <u>Nation</u></li> <li>Address 1: <u>301</u>.</li> </ol> |   |                     |  |           |               |                     |                       |         |            | Nam     |          |          |       | DAVE    |              |                     |        | 124   | <b>4</b>   |             |              |
|  | NGB-AVN-SI, State   |                     |  | eenvatio  |               |                     |                       |         | Job        |         | tion:    |          | 2116  | 2121    |              |                     |        | 4. WA12K6.09.   | A-0003   |             |              |
|  | e de Grace, Marylar   |                     |  |           |               |                     |                       |         |            | itact 1 | Per      |          |       |         |              | 00                  |        |   |  | nsive       | -            |
| . Phone #: (410).94  |   |                     | x #:                                   | (410) 94  | 2-025         | 14                  |                       | . 5.    |            | mitte   |          |          |       |         |              |                     |        | onsiv   |  |             |              |
|  |   |                     |  | Reportin  | g Info        |                     |                       |         |            |         |          |          |       |         |              |                     | -      |   |  |             |              |
|  | ist be pre-scheduled)   |                     | n                                      | Immediate | si.           | Q 31                | NORMA                 | LBUS    | SINES      |         |          |          | a 12  |         |              |                     | nclude | REP<br>COC/Field Data Shee  | ORT TO:  | -           |              |
| Immediate Date Duc:<br>24 Hours Time Duc                                       |   |                     | 1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1. | Next Day  |               | 50                  | Day +                 | In      | 110        |         |          | ults Rec |       |         |              | N E                 | m      | on-Responsiv  | 10   |             |              |
| omments:   |   |                     | u                                      | 2 Day     |               | Date                | Day + C               | 14      | ĮΟ         |         |          | ie to Ac |       |         |              |                     |        | on-response   | Ous.army.mil   |             | -            |
| shestos Analysis   |   |                     |  |           |               |                     |                       | -       |            |         |          |          |       |         | Mail         |                     | -      |   | A startiy and  |             | -            |
| CM Air - Please Indicate   | Filter Type:  |                     |  | TE        |               |                     | 8.4/Chatl             | lield   |            |         | OTY      |          |       |         | 2            | is Analy<br>FPb Pai | nt Chi |   | )  |             |              |
| Fiberglass   | (QTY)   |                     |  |           | DN.           | Y State             | PLM/TE                | M       |            |         |          |          |       |         | D.           | Pb Du               | st Wip | e (wipe type CHO  | <u>sr) 17</u>  | (QTY)       |              |
| M Air - Please Indicate  | Filter Type:  |                     |  | TE        | U Re<br>M Dus |                     | Ash                   |         | _(Q        | TY)     |          |          |       |         | 2            | Pb Air<br>Pb Soi    | VSolid | 2(QTY)<br>(QTY)   |  |             |              |
| AHERA  |   |                     |  |           | UQ            | al. (pre            | s/abs) Va             |         |            |         |          |          |       |         | C            | PP TC               | LP     | (QTY)   |  |             |              |
| Gritosh 7402   |   | _(QTY               | 0                                      |           | QQ            | uan. (s/a           | irea) Vac<br>irea)Dus | uum D   | 5755-      | 95      |          | (Q       | TY)   |         | L<br>L       | Drinki<br>Waste     | ng Wal | ter 🗆 Pb(QTY) 4<br>🗆 Pb(QTY) 🔾  |  | As(QTY)     |              |
| MBulk<br>ARPA 600 - Visual E   | stimute 2- (  | OTY                 |  | TE        | M Wat         |                     | iici)ous              | LAPHON  | P-99       |         |          | JQIT)    |       |         | Ļ            | Pb Fu               | mace ( | Media   | (QTY   |             |              |
| DEPA Point Count_  | (QTY)   |                     |  |           | Q             | al. (pre            | s/abs)                | 100.0   |            | (QTY    |          | 5        |       |         | Fung         | al Analy<br>Collect |        | paratus for Spore Traj  | Air Somnles  |             |              |
| NY State Friable 19<br>Oray, Reduction EL                                      |   | )<br>(QTY)          | 0                                      | 6         |               | AP 198<br>PA 100, 1 | 8.2/EPA               | 100.2   | (OT)       | 0       | _(QT)    | r)       |       |         |              | Collec              | tion M | edia  |  | _           |              |
| Other (specify  IISC Vermiculite   |   | _(QTY               | 0                                      | EM (One   |               | l sample            | es receiv<br>samples  | ed in g |            | · · · · | vn unles | ss other | wiser | ioted.  |              | Surfac              | e Swal | (QTY) | Surface Vacuum Dust<br>Calturable ID Genus (Media<br>Juiturable ID Species (Media  | a ) (O      | (TT)<br>(TT) |
|  | SAMPLE INFORMAT   | 0.0 200303          | 0 1100                                 | TTa(Assi  |               |                     | 41                    | ALYS    | IS         | 12      |          |          |       | ATR     | 4.102        |                     | ,,_    |   | LIENT CONTACT  |             |              |
| CLIENT ID  | SAMPLE LOCATION   | naman<br>maani      |  |           | WIPE          | 18                  | 18                    | 3       | 640        | 010     | 13       | 13       | 15    | 162     |              | 3/ 3ª               | HAB    | 1   |  | 11 10       |              |
| NUMBER   | CALDNER   |                     | 414                                    |           | NQ            | in the              | 1.4                   |         | V          |         | 1        | <u> </u> | ×     | / H CO  | 1 90         | 1 F                 | 5      |   | Contact JR   |             |              |
| AR- 78-62  | Creating of -   | 1                   | 11-0-                                  |           | A .           | -                   |                       |         | F          |         |          |          | F     |         | +            | +                   |        | Augustine: -//  | are: 294.5   | T L CM      | -            |
| AV2-73-03  |   |                     | -                                      |           | 1             | 1                   |                       |         | +          |         | -        |          | +     |         | $\mathbf{t}$ | 1-                  |        |   | - GAR-52   | - promo     | -9'          |
| ANL-93-04  |   |                     | -                                      |           | 1             | -                   | -                     |         |            | -       |          |          | +     |         |              | -                   |        | alto alternat   | A REAL PROPERTY AND ADDRESS OF A REAL PROPERTY AND ADDRESS OF A REAL PROPERTY ADDRESS OF A REAL PROPER | n-Res       | ponsi        |
| AR 73-05   |   | 11                  |  |           |               |                     | -                     |         | 1          |         |          |          |       |         | 1            |                     |        | Date/Time:  | Contac   |             |              |
| An -PB -Ola  |   | $\uparrow \uparrow$ |  |           |               |                     |                       |         | T          |         |          |          |       | <b></b> |              |                     |        |   |  |             | 1            |
| SAN 78-07  |   | TT                  |  |           |               |                     |                       |         |            |         |          |          |       |         |              |                     |        |   |  |             | 1            |
| An-73-08   |   |                     |  |           |               |                     |                       |         |            |         |          |          |       |         |              |                     |        |   |  |             |              |
| GAN-98-09  |   |                     |  |           |               |                     |                       |         | Γ          |         |          |          |       |         |              |                     |        | Date/Time;  | Contact:   | By:         | ]            |
| 3AN PB -10   |   |                     |  |           | 1             |                     |                       |         |            |         |          |          |       |         |              |                     |        |   |  |             |              |
| SAN2-PB  | V/  | 1                   |  |           | 1             |                     |                       |         | Ji         |         |          |          |       |         |              |                     |        |   |  | oit         |              |
| SAN 78-12  |   | V                   | 4                                      | 3         | Y             | the state           | 1/200                 |         | 4          | 6       | HC       | 1        | 5     |         |              |                     |        | Res   |  |             |              |
| LABORATORY   | 1. Date/Time RC   |                     | 0                                      | 10        | -/4           | ž                   | all                   | Via     | : <u> </u> | K.      | 4-       | Ļіву     | (Pris |         |              |                     | -      |   | T  |             |              |
| STAFF ONLY:  | 2. Date/Time And  | lyzed:              | 0.4                                    |           | hun           |                     |                       |         | By (P      |         | . 6      | 2.026    | T     |         |              |                     |        |   |  |             |              |
| ed to NGB FOIA Rea   | 3. Results Report   | ed 10:              | er                                     | and g     | 2041          |                     | PEC                   | TAV     |            | BIE     | COP      | 1110     | 1     |         |              |                     |        |   |  |             |              |
| eu to INGE FUIA Rea  | aungar comments:  | _                   |  |           |               |                     | DES                   | AVA     | AILA       | DLE     | UUP      |          |       |         | -            |                     |        | Deleas  | ad by National C   | uard Duroou | -            |

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| AIHA (#100470) 1   | ical Services, In<br>ts www.amalab.cr                                | YYELAP (     | (0920)     | C            | H        | AIN                     | ¢        | 0) 247-2024<br>F <b>CT</b> | IS'     | TC     | )D       | Y       |        |            | 18920<br>lease Refer To<br>imber For Inqu | This F                 | 210 REV 6                                   | a<br>A |
|--|--|--------------|------------|--------------|----------|-------------------------|----------|----------------------------|---------|--------|----------|---------|--------|------------|---|------------------------|---|--------|
|  | <ul> <li>Lanham, MD 20706</li> <li>(800) 346-0961 • Fax (</li> </ul> |              | 643        | C            |          |                         |          | U                          |         |        |          | -       |        |            |   |                        | A   | n      |
| Mailing/Billing Informa  | ation:   |              |            |              |          | 5                       | lubrait  | tal Infor                  | mati    | on:    |          |         |        |            |   |                        | Ye  | 40     |
| 1. Client Name: Natio  | nal Guard Bureau   |              |            |              |          |                         |          | Name:                      |         |        |          | un      |        |            | vory                                      |                        |   |        |
| 2. Address 1:301-  |  |              |            |              |          |                         |          | Location                   | -       | 6      | AR       | Daver   | -1     | mA         |   |                        |   |        |
| 3. Address 2:Attn:   | NGB-AVN-SI, State  | Military Re  | servation  |              | <u> </u> | ŝ                       | . Job    | #:                         | -       |        |          |         |        |            | 000                                       | civ                    |   |        |
| <ol> <li>Address 2: <u>Attn:</u></li> <li>Address 3: <u>Havre</u></li> <li>Phone 4: (410) 94;</li> </ol>   | i de Grace, Marylan  | d 21078      | (110) 0.40 | DOF 1        |          |                         | . Coi    | ntact Pers                 | on      |        |          | n-F     | KE     | 95         |   | <b>21</b> V            | 42-0273                                     |        |
| 5. Phone #: (410) 94   | 2-02/3   | Fax #:       | (410) 942- | 0254         |          | (Desalts                | . Sut    | omitted b                  | y:      |        |          |         |        |            |   |                        |   |        |
| AFTER HOURS (mu  |  |              | Reporting  | ntorn        | Dation   | ORMAL B                 | will be  | provide                    | a a     |        |          |         | -      | -          |   | REPORT                 |   |        |
| Immediate Date Due:  |  |              | Immediate  | ī            | 3 D      |                         | , Dirita |                            |         | Pon    | irad 1   | By Noon | 8      | Include    | COC/Field Data                            | Sheets with            |   |        |
| 24 Hours Time Duet.  |  |              | Next Day   |              | 3 5 Da   |                         |          | - (                        | Every   | Atten  | ipt Wi   | ll Be   | 8      | Email      | on-Respon                                 | nsive                  | - Ifen Linning                              |        |
| Comments:  |  | -   u        | 2 Day      | ļ            | Date D   | uc:                     |          | N                          | Andet   | to Acc | omod     | ate)    |        | Fax:       |   |                        | is.army.mil                                 |        |
| Asbestos Analysis  |  | -            | TT1/       | n            |          |                         |          |                            |         | -      |          | Mata    | ls Ana |            |   | -                      |   |        |
| PCM Air - Please Indicate I  | Filter Type:   |              |            | Bulk<br>JELA | P 198.4  | /Chatfield              | 1.000    |                            | (Y)     |        |          | ξ       | D Pb P | aint Chi   | P   | (QTY)                  |   |        |
| UNIOSH 7400  | (QTY)  |              | Ę          | INYS         | state PI | h                       |          | (QT                        | Ð       |        |          | L.      | PDD    | Just Wir   | e (wipe type                              |                        | )(  | QTY)   |
| TEM Air - Please Indicate I  | Filter Type:   |              | 1EM        |              | lual As  | h                       | (Q       | (TY)                       |         |        |          |         | J Pb S | oil/Solid  | (QTY)                                     | OTY                    |   |        |
| AHERA  | (QTY)  |              | 1          | J Qual       | . (pres/ | abs) Vacuus             | /Dust_   |                            | ((      | QTY)   |          | C,      | РЬТ    | CLP_       | (QT                                       | Y)                     | 1.12  |        |
| Control of the contro |  | (QTY)        | ç          | Quan         | . (slare | a) Vacuum<br>a)Dust D64 | D5755-   | .95                        |         | _(Q1   | Y) .     | (<br>(  | Drin   | king Water | ter Q Pb(Q                                | TY) Cu,                | (QTY) 🗆 A<br>(QTY) 🖸 As                     | us((   |
| PLM Bulk   |  | TID          | TEM        | Voter        | . (s/are | a)Dust Do4              | 80-99_   |                            | _((     | QIY)   |          | ĩ       | Pb F   | umace (    | Media                                     | )                      | (QTY)                                       | Q      |
| EPA 600 - Visual Es  | timate(QTY)  | (IY)         | 3          | Onal         | (pres/   | abs)                    |          | (QTY)                      |         |        |          |         | alAna  | alysis     |   |                        |   |        |
| NY State Friable 19  | 8.1(QTY)<br>AP 198.6(  | OTIO         |            | LEDA         | P 198.2  | /EPA 100.2              | (07      |                            | (YTY)   |        |          |         | Colle  | ection A   | pparatus for Spor                         | e Traps/Air            | Samples:                                    |        |
| Other (specify   | AP 198.0(  | (QTT)        |            | -            |          |                         |          | 25                         |         |        |          |         | ) Spor | e-Trap_    | (OTY)                                     | Q Surfac               | e Vocuum Dust                               | (0     |
| MISC   |  |              |            |              |          | received in<br>imples   |          |                            | nicss ( | otherw | 150 10   |         | Surf   | ace Swa    | b(QTY)                                    | Cultural<br>D Cultural | ble ID Geaus (Media<br>de ID Species (Media |        |
| C Vermiculite  | (Qual) PLM(Quan) PLM/TEM   | (Quel) PLM/I | <u> </u>   |              |          |                         |          |                            |         |        |          | - 2     | Other  | (Specify_  | (QTY)                                     | Chicita                | at the above the                            | a      |
|  | SAMPLE INFORMAT  | ION          |            |              | 2        | ANAL                    | (SIS-    |                            | 19      |        | M        | ATRIX   |        |            | W10                                       | CLIEN                  | T CONTACT                                   |        |
| CLIENT ID<br>NUMBER  | SAMPLE LOCATION/   | DATE a       | LUME W     | IPE<br>EA    | 百        | 18/3                    | 60       | 151                        | 5/      | 3      | Less .   | ATRIX   |        | HAN N      | 1   |                        | ORY STAFF ON                                |        |
| GAR-DB-13  | GAMONEL  | 7/2/10       |            | 000          |          |                         | TX       | 1-1-                       | 5       | -      | V        |         | 10     | 1-2        | Date/Time:                                | LADUICAN               | Contact:                                    | By:    |
| GAR- PB-14   | Gillianor  | 1-6100       |            | <u>e-</u>    | 4        |                         | 1º       |                            | -       | -      | 21       |         | +-     | +          | Dates Inne.                               |                        | Contact.                                    | Dy.    |
| GAL - 23-15  |  |              | -++        |              |          |                         | ++       |                            | -       |        |          |         | +      | 1-         |   |                        |   |        |
| CAR- PB-16   |  |              |            | -            | -        |                         | ++       |                            |         | -      | H        |         | +      | +          |   |                        |   |        |
| OAR-PB17   |  |              |            |              | -        |                         | ++       |                            | +       |        | Ħ        |         | -      |            | Date/Time:                                |                        | Contact:                                    | By:    |
| GAR - UBP-01   |  | ++           | -+->       |              |          |                         | 11       |                            | 1       | -      | 1        |         | +      |            | Dater Time:                               |                        | Contact.                                    | Dy:    |
| 6A12 - ASB-01  |  |              |            |              | -        | ×                       | 1        |                            | -       | 4      | -1       |         | 1      | +          |   |                        |   |        |
| GAR - ASB-02   |  | +-+          |            |              |          | 12                      | _        |                            |         | ¥1     | -        |         | +      | +          |   |                        |   |        |
| GAR-01   |  |              |            | 1            |          |                         | 4        |                            | ×       |        | -        |         | 1-     |            | Date/Time:                                |                        | Contact:                                    | By:    |
| GAR-02   |  | 1            |            | -            |          |                         | 4        |                            | 2       | -+     |          |         | +      | -          | Dater Hine:                               |                        |   |        |
| CONTE -O Le  |  | ++           |            |              | -        |                         | ++-      | 1-17                       | -       | -      | -        |         | 1-     | +          |   | No                     | n-Resp                                      | ons    |
|  | <u> </u>   | ++           |            |              |          |                         | 1        | +                          | +       | -+     | -        |         | -      | 1-         |   |                        |   |        |
|  | 1. Date/Time RCV   | / <u>n</u> . | 7          | 7            | 6        |                         | ia:      | I - ele                    | -1-     | _By (  | Printh   |         | 1      | _          |   |                        |   |        |
| LABORATORY   |  |              |            | -            |          | @`                      |          | rint):                     |         | _0) (  | a tunt): |         |        |            | Sign:                                     |                        |   |        |
| Laboratoni   | 2, Date/Time Anal  | 1170/1*      |            |              |          |                         |          |                            |         |        |          |         |        |            |   |                        |   |        |

Appendix C Photo Documentation

# Gardner RC



## Front Entry





## Storage Area, Former Firing Range



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Workout Area FOIA Requested Record #J-15-0085 (MA) Released by National Guard Bureau Page 1503 of 3473

May, 2018

Flaking Paint on Ceiling

# Gardner RC



## Damaged Ceiling



Posted to NGB FOIA Reading Room May, 2018



Kitchen

Vault



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FOIA Requested Record #J-15-0085 (MA) Released by National Guard Bureau Page 1504 of 3473

# Gardner RC



## Flammable Cabinet





Boiler Room



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Damaged TSI FOIA Requested Record #J-15-0085 (MA) Released by National Guard Bureau Page 1505 of 3473

# Gardner RC



Drill Hall

Appendix D IAQ and Lighting Survey Log Sheets

| State                | MA                  |                  | Gardner        | IAQ Light     |                             |        |                   |  |             |   |                  |                              |              |   |
|----------------------|---------------------|------------------|----------------|---------------|-----------------------------|--------|-------------------|--|-------------|---|------------------|------------------------------|--------------|---|
| Date                 | 7/26/2010           | Inspector        | Non-Responsive | Instrument    |                             |        |                   | Q-TRAK 7   | 565-        | х   |                  | Instrument                   |              | CAL-LIGHT 400                           |
| Facility Description | Readiness Ctr       |                  |                | Serial Numb   | er                          |        | 7565X0839017      |  |             |   |                  | Serial Numbe                 | K070277      |   |
| Weather Conditions   |                     |                  |                | Last Calibrat |                             |        | Sep-0             | 8  |             |   | Last Calibration |                              | 30-Jul-09    |   |
| Location             | Function            | No.<br>Occupants | Time           | Temp. (°F)    | Exceeded                    | RH (%) | Exceeded          | CO <sub>2</sub> (ppm)  | Exceeded    | CO (ppm)  | Exceeded         | Illuminance<br>(fc)          | Insufficient | Illuminance<br>Reference<br>Values (fc) |
| 1                    | Vault               | 0                | 12:03 PM       | 77.2          |                             | 50.6   |                   | 406  |             | 0.4   |                  | 62.4                         |              | 10                                      |
| 2                    | Office/Supply       | 1                | 12:04 PM       | 76.5          |                             | 56.2   |                   | 366  |             | 0.2   |                  | 58.7                         |              | 50                                      |
| 3                    | Storage             | 0                | 12:08 PM       | 76.5          |                             | 62.4   | х                 | 370  |             | 0.5   |                  | 12.2                         |              | 5-30                                    |
| 4                    | Storage             | 0                | 12:12 PM       | 76.0          |                             | 58.3   |                   | 550  |             | 0.0   |                  | 34.2                         |              | 5-30                                    |
| 5                    | Ammo Vault          | 0                | 12:13 PM       | 76.0          |                             | 58.3   |                   | 512  |             | 0.1   |                  | 9.6                          | х            | 10                                      |
| 6                    | Office              | 0                | 12:14 PM       | 75.9          |                             | 52.1   |                   | 416  |             | 0.3   |                  | 65.0                         |              | 50                                      |
| 7                    | Office              | 0                | 12:15 PM       | 75.9          |                             | 55.1   |                   | 392  |             | 0.1   |                  | 60.8                         |              | 50                                      |
| 8                    | Office              | 1                | 12:26 PM       | 76.1          |                             | 53.0   |                   | 430  |             | 0.7   |                  | 49.2                         | х            | 50                                      |
| 9                    | Office              | 0                | 12:17 PM       | 75.7          |                             | 52.9   |                   | 390  |             | 0.6   |                  | 25.1*                        | x            | 50                                      |
| 10                   | Storage             | 0                | 12:18 PM       | 75.6          |                             | 53.6   |                   | 410  |             | 0.0   |                  | 0.8*                         | x            | 5-30                                    |
| 11                   | Hall                | 0                | 12:25 PM       | 76.0          |                             | 51.4   |                   | 414  |             | 0.5   |                  | 7.2                          |              | 5                                       |
| 12                   | Entry Foyer         | 0                | 12:29 PM       | 76.2          |                             | 49.6   |                   | 617  |             | 0.1   |                  | 13.3                         |              | 10                                      |
| 13                   | Front Office        | 8                | 12:31 PM       | 76.5          |                             | 48.9   |                   | 1072   | х           | 0.4   |                  | 80.0                         |              | 50                                      |
| 14                   | Weight Room/ Locker | 0                | 12:34 PM       | 76.0          |                             | 48.6   |                   | 420  |             | 0.5   |                  | 18.6                         | х            | 30                                      |
| 15                   | Men's Room          | 0                | 12:40 PM       | 75.8          |                             | 54.3   |                   | 490  |             | 0.3   |                  | 18.6                         |              | 5                                       |
| 16                   | Janitor Closet      | 0                | 12:40 PM       | 75.6          |                             | 54.1   |                   | 358  |             | 0.1   |                  | 13.1                         |              | 5                                       |
| 17                   | Ladie's Room        | 0                | 12:41 PM       | 77.2          |                             | 52.8   |                   | 501  |             | 0.2   |                  | 18.6                         |              | 5                                       |
| 18                   | Kitchen             | 0                | 12:42 PM       | 77.4          |                             | 46.0   |                   | 368  |             | 0.2   |                  | 53.1                         |              | 50                                      |
| Notes:               |                     |                  |                | 40<br>50      | Hum<br>)%<br>)%<br>)%<br>)% | nidity | 68.<br>68.<br>68. | nter Temp.<br>.5°F-76.0°F<br>.5°F-75.5°F<br>.5°F-74.5°F<br>.0°F-74.0°F | 7<br>7<br>7 | ummer Tem<br>4.0°F-80.0°<br>3.5°F-79.5°<br>3.0°F-79.0°<br>2.5°F-78.0° | F<br>F<br>F      | *Natural Ligh<br>Do Not Work |              | ly, House Lights                        |

| State                | MA              | City                 | Gardner        | IAQ                        |                                  |        |                   |  |             |   |             | Light            |              |                                      |  |
|----------------------|-----------------|----------------------|----------------|----------------------------|----------------------------------|--------|-------------------|--|-------------|---|-------------|------------------|--------------|--------------------------------------|--|
| Date                 | 7/26/2010       | Inspector            | Non-Responsive | Instrument                 |                                  |        |                   | Q-TRAK 75  | 65-X        |   |             | Instrument       |              | CAL-LIGHT 400                        |  |
| Facility Description | Readiness Ctr   |                      |                | Serial Number 7565X0839017 |                                  |        |                   | Serial Number  |             | K070277   |             |                  |              |                                      |  |
| Weather Conditions   |                 |                      |                | Last Calibra               | Last Calibration                 |        |                   |  |             |   |             | Last Calibration |              | 30-Jul-09                            |  |
| Location             | Function        | No.<br>Occupant<br>s | Time           | Temp. (°F)                 | Exceeded                         | RH (%) | Exceeded          | CO <sub>2</sub> (ppm)  | Exceeded    | CO (ppm)  | Exceeded    | Illuminance (fc) | Insufficient | Illuminance<br>Reference Values (fc) |  |
| 19                   | Mess Hall       | 0                    | 12:45 PM       | 77.9                       |                                  | 46.0   |                   | 388  |             | 0.3   |             | 72.5             |              | 10                                   |  |
| 20                   | Mechanical Room | 0                    | 12:47 PM       | 76.2                       |                                  | 49.2   |                   | 335  |             | 0.2   |             | 8.1              | Х            | 30                                   |  |
| 21                   | Assembly Entry  | 0                    | 12:49 PM       | 75.8                       |                                  | 43.6   |                   | 346  |             | 0.2   |             | 31.7             |              | 10                                   |  |
| 22                   | Assembly Hall   | 0                    | 12:51 PM       | 76.1                       |                                  | 45.5   |                   | 356  |             | 0.3   |             | 48.5             |              | 30-50                                |  |
|                      |                 |                      |                |                            |                                  |        |                   |  |             |   |             |                  |              |                                      |  |
|                      |                 |                      |                |                            |                                  |        | -                 |  |             |   |             |                  |              |                                      |  |
| Notes:               | 1               | 1                    |                | 4                          | e Hi<br>30%<br>40%<br>50%<br>60% |        | 68.<br>68.<br>68. | nter Temp.<br>5°F-76.0°F<br>5°F-75.5°F<br>5°F-74.5°F<br>0°F-74.0°F | 7<br>7<br>7 | ummer Tem<br>4.0°F-80.0°<br>3.5°F-79.5°<br>3.0°F-79.0°<br>2.5°F-78.0° | F<br>F<br>F |                  |              | 1                                    |  |



#### Prepared For:

National Guard Bureau Army National Guard Region North Industrial Hygiene Office 301 – IH Old Bay Lane Havre De Grace, Maryland 21078

#### Prepared By:

URS Corporation 5 Industrial Way Salem, New Hampshire 03079

#### INDUSTRIAL HYGIENE SURVEY REPORT MASSACHUSETTS NATIONAL GUARD READINESS CENTER 323 WEST BROADWAY GARDNER, MA 01440

July 11, 2013 PN: 39743799



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|            | ARMORIES                                 |

#### FINDINGS AND RECOMMENDATIONS MASSACHUSETTS NATIONAL GUARD READINESS CENTER 323 WEST BROADWAY, GARDNER, MA

| Findings  | Recommendations  | Risk<br>Assessment<br>Code (RAC) |
|---|--|----------------------------------|
| Lighting  |  |                                  |
| On the day of the survey, the illuminance was inadequate in several locations tested.   | Increase lighting in the work areas.<br>While work is in progress, these<br>areas must be lighted by at least the<br>minimum lighting intensities (ANSI /<br>IESNA RP-1-04).   | RAC 4                            |
| Ergonomics  |  |                                  |
| Computer workstations in the<br>Administrative Areas were<br>observed with un-adjustable<br>chairs, arm rests and<br>keyboards  | Ergonomic issues with regard to the desks and chairs should be corrected by fitting the workplace to the worker (Department of the Army Pamphlet 40-21, Chapter 4, Page 7, Section 4-3).   | RAC 3                            |
| Water Intrusion   |  |                                  |
| Evidence of water intrusion was<br>noted in the area of a roof drain<br>in the Supply Room.   | The source of the water intrusion<br>should be identified and repaired.<br>The water-stained materials should<br>be repaired or replaced (ACGIH –<br>Guidelines for the Assessment of<br>Bio-aerosols in the Indoor<br>Environment). | RAC 3                            |
| Former Indoor Firing Range  |  |                                  |
| The former Indoor Firing Range<br>has been posted as unsafe due<br>to lead contamination;<br>however, a closed door to the<br>area does not adequately<br>restrict access.  | Personnel trained in accordance with<br>the OSHA Lead Standard should<br>clean the areas where elevated lead<br>dust levels were identified (OSHA 29<br>CFR 1910.1025(h)(1)).  | RAC 3                            |
| Since the former indoor firing<br>range is contaminated with lead<br>and several wipe samples in<br>other building areas were found<br>to contain elevated lead levels,<br>an assessment should be<br>made as to whether respiratory<br>protection and other PPE<br>should be worn when entering<br>the former Indoor Firing Range. | A respirator shall be provided for<br>each employee when such<br>equipment is necessary to protect the<br>health of the employee. (29 CFR<br>1910.134 (a)(2)).   | RAC 3                            |

| Findings  | Recommendations   | Risk<br>Assessment<br>Code (RAC) |
|---|---|----------------------------------|
| Lead  |   |                                  |
| Three of the 10 lead wipe<br>samples indicated elevated<br>lead levels.   | Personnel trained in accordance with<br>the OSHA Lead Standard should<br>clean the areas where elevated lead<br>dust levels were identified (OSHA 29<br>CFR 1910.1025(h)(1)).             | RAC 3                            |
| Emergency Exits   |   |                                  |
| Emergency exit signs and<br>escape plans were not visible<br>from all areas of the facility or<br>illuminated.  | Emergency exits should be properly illuminated (29 CFR 1910.37 (q)(6)).   | RAC 3                            |
| Asbestos  |   |                                  |
| Presumed asbestos-containing<br>floor tiles and associated<br>mastic were observed<br>throughout the facility; an<br>Asbestos Operations and<br>Maintenance Program was not<br>available on-Site. | An asbestos operations and<br>maintenance program should be<br>developed to include labeling and<br>training with regard to both confirmed<br>and presumed ACM. (29 CFR<br>1910.1001 (j)) | RAC 4                            |
| <b>Personal Protective Equipmen</b>   | t   |                                  |
| Hazard assessments have not<br>been conducted to determine<br>whether personal protective<br>equipment is required.   | The workplace shall be assessed to determine if hazards are present to determine the need for PPE. (29 CFR 1910.132 (d)(1)).  | RAC 4                            |
| Temperature   |   |                                  |
| The average temperature in the<br>Readiness Center on the day of<br>URS' site visit was slightly<br>below the recommended range.  | Temperature should be maintained<br>within the range stated in the<br>ASHRAE standard. (55-2010)  |                                  |

#### 1.0 SUMMARY

At the request of the National Guard Bureau (NGB) Region North Industrial Hygiene Office, URS Corporation (URS) conducted an industrial hygiene survey at the Readiness Center in Gardner, Massachusetts.

URS representative, Ms. **Non-Responsive**, conducted the Industrial Hygiene Survey on May 30, 2013. The scope of work included an overall assessment of the facility as it relates to industrial hygiene and included a walkthrough of the facility, collection of photographs, and when required, measurements for illumination (light), area and personal air sampling, and noise monitoring.

The Gardner Readiness Center is a single-story brick building, consisting of offices, a classroom/mess hall, a supply area, gender separate bathrooms, storage rooms, a kitchen, an Assembly Hall and a former Indoor Firing Range. A layout of the Readiness Center is provided in Appendix A.

<u>GENERAL</u>: Evidence of water intrusion was observed in the area of the roof drain in the Supply Room. The former Indoor Firing Range is posted as unsafe due to lead contamination, however the door does not lock to restrict access.

<u>LIGHTING</u>: Lighting in the Readiness Center was found to be inadequate in seven of the areas measured. Areas noted within the report as having inadequate lighting require upgrading by either increasing the general lighting or through the use of task lighting. While work is in progress, work areas must be lighted by at least the minimum light intensities.

<u>LEAD</u>: Three of ten wipe samples collected in the Readiness Center were found to contain lead in a concentration above the recommended limit set by the NGB, Region North IH Office.

Since the former indoor firing range is accessible to staff, a hazard assessment should be conducted to determine good hygiene practices to be followed when entering the former firing range. <u>ASBESTOS</u>: Presumed asbestos-containing floor tiles and associated mastic were identified during this survey, however no Asbestos Operations and Maintenance Program was found on site. Until suspect materials have been sampled and determined not to contain asbestos, they must be presumed to be asbestos-containing and managed accordingly.

<u>ERGONOMICS</u>: Many of the work stations had ergonomic issues which require attention. Computer workstations were assessed during the walkthrough for ergonomic issues. The computer workstations in the facility did not meet the current Occupational Safety and Health Administration (OSHA) ergonomic recommendations. The chairs armrests, keyboards, and monitors were not adjustable. All workstations in the facility should be adjusted and monitored. The ergonomic issues with regard to the workstations and chairs need to be corrected by fitting the workplace to the worker.

<u>NOISE</u>: Personal noise monitoring in the Readiness Center determined that noise levels were below the OSHA permissible exposure limit (PEL) and Department of Defense Instruction (DoDI) Hearing Conservation Standard (6055.12 3 December 2010) on the day of URS' site visit.

## 2.0 SUPPLY / TRAINING AREA

## 2.1 Operation Description

This Readiness Center is primarily used for weekend training drills and conducting administrative functions. The building includes offices, a classroom/mess hall, a supply area, gender separate bathrooms, storage rooms, a kitchen, an Assembly Hall and a former Indoor Firing Range. The indoor firing range is currently used for storage and, although the door is kept closed, access is not prohibited. The former Indoor Firing Range has not been decontaminated.

The Readiness Center was found to be neat and organized at the time of URS' site visit.

## 2.2 Chemical and Physical Agents Sampled

## 2.2.1 Carbon Dioxide

On the day of the survey, carbon dioxide measurements were made in the Readiness Center. Interior carbon dioxide concentrations were found to be between 448 and 579 parts per million (ppm). Carbon dioxide levels were measured using a direct-reading TSI Q-Trak (Model 8551).

Carbon dioxide is a normal constituent of the atmosphere and ranges from about 250 to 450 ppm. The major source of excess carbon dioxide in the indoor environment is human respiration. Other sources can include open-flame heaters, fermentation processes, and motor vehicles. Carbon dioxide itself is not normally a cause of indoor air quality problems but is typically used as an indicator of the adequacy of fresh air intake. As the concentration of carbon dioxide increases, so do the background levels of other air contaminants.

To minimize air quality complaints, the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) has proposed that the carbon dioxide concentration within an occupied workspace be maintained below 700 ppm above ambient outside levels. For example, on the day of the survey, the outside carbon dioxide level was measured at 447 ppm. Therefore ASHRAE (Standard 62.1-2010) would recommend that interior carbon dioxide concentrations be maintained at or below

1,147 ppm. Using the ASHRAE guideline, the readings at the subject site were found to be below the suggested indoor to outdoor differential concentration.

# 2.2.2 Carbon Monoxide

The carbon monoxide concentration in the Readiness Center was measured between 0.0 ppm and 0.6 ppm on the day of the survey. ASHRAE recommends that average carbon monoxide concentrations not exceed 9 ppm. Typical average concentrations found in commercial buildings range from 0 to 6 ppm. The measured levels were below the ASHRAE guideline for indoor environments. Carbon monoxide was measured using a TSI Q-Trak Plus (Model 8554).

Key sources of carbon monoxide within indoor environments include internal combustion engines, motor vehicle and forklift exhaust, tobacco smoke, space heaters, and improperly adjusted oil or gas burners.

# 2.2.3 Relative Humidity

The average relative humidity within the Readiness Center measured with the Q-Trak Plus was 65.5%, which was slightly above the guideline of less than 65% recommended by ASHRAE.

# 2.2.4 Temperature

Temperature should be maintained within the thermal comfort envelope suggested in ASHRAE Standard 55-2010. This standard on thermal environments specifies conditions in which 80% or more of building occupants should find the thermal environment acceptable. ASHRAE 55-2010 suggests temperatures of 68 to 75 degrees Fahrenheit (°F), during winter months, for people in typical seasonal clothing during light sedentary activity. For summer, the temperature should be in the range of 73 to 79 °F.

The average temperature inside the Readiness Center was, 67.6 °F, which was slightly below the guideline of 68 to 75 °F recommended by ASHRAE for thermal comfort. URS received several complaints regarding cool indoor air temperature during this survey.

# 2.2.5 Lighting

Lighting in the Readiness Center was measured using a cal-Light 400 Light Meter. Table 2-1 below shows lighting measurements in foot candles (FC) and the recommended lighting requirements (Illuminating Engineering Society of North America (IESNA) RP-7-01).

| Location  | Function      | Measured<br>Illuminance<br>in Foot<br>Candles<br>(FC) | Recommended<br>Minimum<br>Illuminance in<br>Foot Candles<br>(FC) |
|---|---------------|---|--|
| Classroom, table adjacent to chalk board                | Admin         | 115.7   | 50   |
| Recruiter's Office, desk-                               | Admin         | 10.1  | 50   |
| Recruiter's Office, desk-                               | Admin         | 30.3  | 50   |
| Office, desk-   | Admin         | 63.9  | 50   |
| Office, training computer workstation                   | Admin         | 38.8  | 50   |
| Office, desk- vacant                                    | Admin         | 50.3  | 50   |
| CMR Office, desk  | Admin         | 69.2  | 50   |
| 1 <sup>st</sup> Platoon's Office, desk                  | Admin         | 61.5  | 50   |
| 1 <sup>st</sup> Platoon's Office, desk-                 | Admin         | 58.0  | <mark>50</mark>  |
| 1 <sup>st</sup> Platoon's Office, maintenance<br>desk   | Admin         | 55.2  | <mark>50</mark>  |
| Bravo Company Office, desk- 1 <sup>st</sup><br>Sergeant | Admin         | 81.4  | 50   |
| Office, desk, adjacent to board                         | Admin         | 75.6  | 50   |
| Office, desk, adjacent to board, east window            | Admin         | 77.0  | 50   |
| Corridor west   | Hall          | 9.8   | 5  |
| Corridor east   | Hall          | 8.9   | 5  |
| NBC Office, desk  | Admin         | 32.1  | 50   |
| Assembly Hall   | Hall          | 65.8  | 5  |
| Assembly Hall   | Hall          | 57.2  | 5  |
| Supply Room, desk-                                      | Admin         | 37.3  | 50   |
| Supply Room, desk adjacent to<br>window                 | Admin         | 17.1  | 50   |
| Supply Room, north side                                 | Storage       | 6.1   | 30   |
| Kitchen, adjacent to stove and sink                     | Break<br>Room | 54.9  | 50   |

Table 2-1Lighting Measurements and Recommended Lighting Requirements

| Location                                   | Function | Measured<br>Illuminance<br>in Foot<br>Candles<br>(FC) | Recommended<br>Minimum<br>Illuminance in<br>Foot Candles<br>(FC) |
|--|----------|---|--|
| Classroom, desk adjacent to kitchen window | Admin    | 78.4  | 50   |

On the day of the survey, the illuminance in the Readiness Center was determined to be inadequate in seven of the office/administrative locations.

## 2.2.6 Lead

Wipe testing for lead dust was conducted in the Readiness Center using ghost wipes, which meet ASTM E 1792 standards. The analytical report from AMA Analytical Services, Inc. (AMA) is contained in Appendix C. Table 2-2 below shows the results of the lead wipe testing.

| Sample Location  | URS<br>Sample<br>Number | Area<br>Wiped<br>in<br>Square<br>Feet<br>(ft <sup>2</sup> ) | Result in<br>Micrograms/<br>Square foot<br>(µg/ft <sup>2</sup> ) | Maximum<br>Surface<br>Contamination<br>Level in<br>Micrograms/<br>Square Foot<br>(μg/ft <sup>2</sup> ) |
|--|-------------------------|---|--|--|
| Office- definition of the computer training desk, top of computer            | Gardner RC<br>W-01      | 0.108   | <110   | 200  |
| 1 <sup>st</sup> Platoon's Office, under<br>corner desk adjacent to<br>window | Gardner RC<br>W-02      | 0.108   | <110   | 200  |
| Recruiting Office, adjacent to<br>bookshelf and copier                       | Gardner RC<br>W-03      | 0.108   | <110   | 200  |
| West Corner Office, top of<br>locker adjacent to north<br>window             | Gardner RC<br>W-04      | 0.108   | <110   | 200  |
| Women's latrine  | Gardner RC<br>W-05      | 0.108   | <110   | 200  |
| Supply Room, floor, adjacent to shelving unit                                | Gardner RC<br>W-06      | 0.108   | 22,000   | 200  |

 Table 2-2

 Levels of Lead Dust Found in the Readiness Center

| Sample Location  | URS<br>Sample<br>Number | Area<br>Wiped<br>in<br>Square<br>Feet<br>(ft <sup>2</sup> ) | Result in<br>Micrograms/<br>Square foot<br>(µg/ft <sup>2</sup> ) | Maximum<br>Surface<br>Contamination<br>Level in<br>Micrograms/<br>Square Foot<br>(μg/ft <sup>2</sup> ) |
|--|-------------------------|---|--|--|
| Former Indoor Firing Range,<br>doorway, floor                        | Gardner RC<br>W-07      | 0.108   | 160  | 200  |
| PT Room, southern corner, floor adjacent to work area                | Gardner RC<br>W-08      | 0.108   | 860  | 200  |
| Classroom, north corner, top<br>of locker adjacent to chalk<br>board | Gardner RC<br>W-09      | 0.108   | 620  | 200  |
| Assembly Hall, adjacent to<br>loading area and electrical<br>box     | Gardner RC<br>W-10      | 0.108   | 140  | 200  |

Three of the ten surface dust level measurements were found to contain lead at a level above the NGB recommended level, based on the OSHA clarification letter which states "as free as practicable" of lead contamination as specified under OSHA 29 CFR 1926.62. Wipe samples could not be collected in the former Indoor Firing Range since access was restricted.

No areas of peeling paint were identified for sample collection during this survey.

# 2.2.7 Asbestos

Presumed asbestos-containing floor tiles and associated mastic were identified during this survey. Until suspect materials have been sampled and determined not to contain asbestos, they must be presumed to be asbestos-containing and managed accordingly.

# 2.3 Ventilation System Evaluation

The facility, not designed for vehicle maintenance, contains a ventilation system that is limited to localized personal ventilation (i.e. room fans, window air conditioning units) within the majority of rooms, and main negative draw fans in the Assembly Hall.

# 2.4 Noise Measurements

Personal noise dosimetry was conducted within the administrative office area. Noise exposures were measured using a data-logging Spark 703+ Noise Dosimeter. Personal noise dosimetry results indicated that, on the day of the survey, workers were not exposed to noise levels above the DoDI Hearing Conservation Standard (6055.12 3 December 2010) of 85 decibels, A scale (dBA)/8-hour day. Table 2-5 indicates the individual monitored, the tasks performed and noise exposures.

Table 2-5 Noise Dosimetry Data

| Location       | Task           | Sample<br>Duration in<br>Minutes | Monitoring<br>Result TWA<br>(dBA)* | Hearing<br>Protection |
|----------------|----------------|----------------------------------|------------------------------------|-----------------------|
| Non-Responsive | Administrative | 375                              | 65.6                               | N/A                   |

\* The calculated 8-hour, time-weighted average (TWA) noise exposure in dBA. The OSHA PEL for noise exposure is 90 dBA. DoDI has established an employee exposure level of 85 dBA for requirement of a hearing conservation program.

## 2.5 Personal Protective Equipment

Personal protective equipment was orderly and readily available to employees in the Readiness Center. Personal protective equipment included safety glasses, ear plugs and nitrile gloves. On the day of URS' site visit, no personal protective equipment was observed in use.

# 3.0 SAFETY AND INDUSTRIAL HYGIENE PROGRAMS

# 3.1 Confined Spaces

A written confined spaces program is not applicable to this facility.

# 3.2 Hearing Conservation

A written hearing conservation program was identified on site. A review of normal site activities determined that no operations were identified that would warrant hearing protection. Based on area noise dosimetry results and a review of normal site operations, a hearing conservation program is not required for this site.

# 3.3 Respiratory Protection

A site-specific written program regarding Respiratory Protection was not identified on site. No operations were observed by URS that would require the use of respiratory protection. If workers are allowed access to the former indoor firing range, good hygiene practices should be followed.

## 3.4 Hazard Communication

A site-specific hazard communication program was identified on site. A hazard communication program is required for this site.

Material safety data sheets, a site map, and list of full time personnel were readily available on the day of the survey.

# 3.5 Personal Protective Equipment

A written personal protective equipment program was not identified on site. A hazard assessment should be conducted to determine whether personal protective equipment is required for activities typically undertaken at the Readiness Center.

# 3.6 Asbestos Operations and Maintenance Program

A written asbestos operations and maintenance program was not identified on site.

# 3.7 Safety

The door to the former Indoor Firing Range does not lock to secure access to the contaminated area. Not all emergency exit signs were properly illuminated throughout the facility.

## 4.0 REFERENCES

American Conference of Governmental Industrial Hygienists

Industrial Ventilation: A Manual of Recommended Practice, 27<sup>th</sup> Edition, 2010

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U. S. Department of Housing and Urban Development

Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing (1995, 1997, 2012)

U. S. Occupational Safety and Health Administration

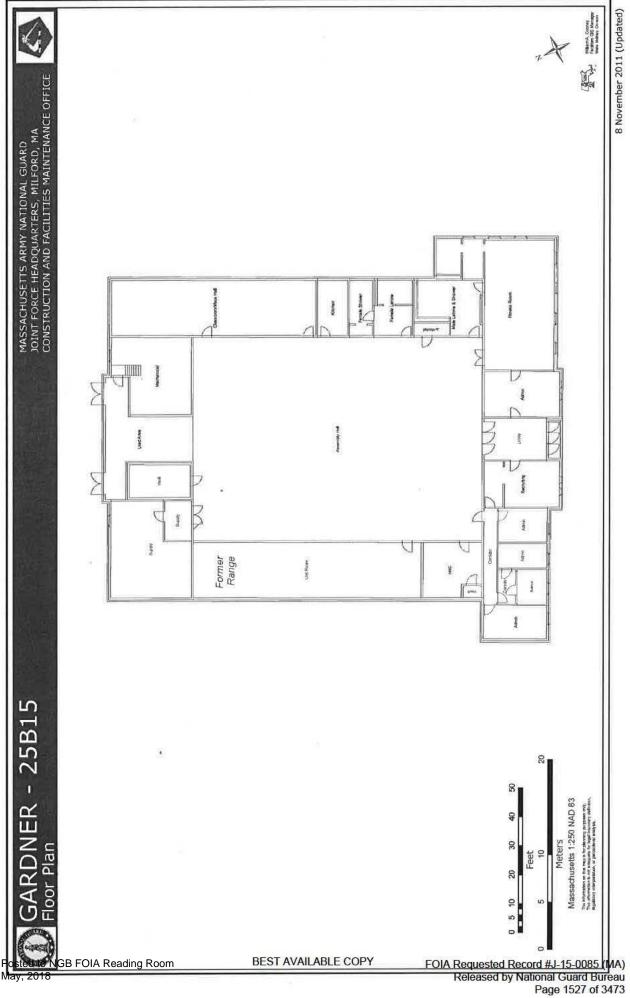
Standard for General Industry: 29 CFR 1910

OSHA Clarification Letter – Clarification of "as free as practicable" of lead contamination under 29 CFR 1926.62, 13 January 2003.

# APPENDIX A

BEST AVAILABLE COPY

# SHOP DRAWING



**BEST AVAILABLE COPY** 

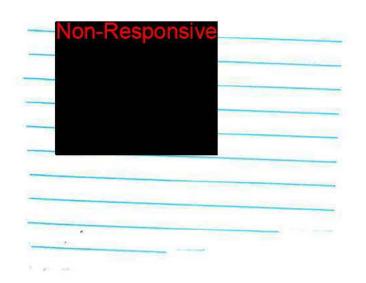
# APPENDIX B

BEST AVAILABLE COPY

# PERSONNEL LIST

#### **BEST AVAILABLE COPY**

FOIA Requested Record #J-15-0085 (MA) Released by National Guard Bureau Page 1529 of 3473



# APPENDIX C

BEST AVAILABLE COPY

# ANALYTICAL RESULTS

# AMA Analytical Services, Inc.

Æ

A Specialized Environmental Laboratory

#### **BEST AVAILABLE COPY**

# **CERTIFICATE OF ANALYSIS**

AIHA LAP, LLC ACCREDITED LABORATORY INCUSTRIAL HYGENE, ENVIRONMENTAL LEAD & ENVIRONMENTAL MICROBIOLOGY ISONEC 17025-2005 WWW adhascerediteditable org

| Client:  | National Guard Bureau  | Job Name:     | MA ARNG          | Chain Of Custody:  | 516024                           |  |
|----------|--|---------------|------------------|--------------------|----------------------------------|--|
| Address: | 301-IH Old Bay Lane, Attn: ARNG-CJG-P,<br>State Military Reservation | Job Location: | Gardner RC       | Date Submitted:    | 6/3/2013                         |  |
|          | Havre de Grace, Maryland 21078                                       | Job Number:   | 37943799.00016   | Person Submitting: | Non-Responsive                   |  |
|          |  | P.O. Number:  | W912K6-09-A-0003 | Date Analyzed:     | 6/10/2013 Report Date: 6/10/2013 |  |

Attention:

#### Summary of Atomic Absorption Analysis for Lead

Page 1 of 2

| AMA Sample<br>Number | Client Sample<br>Number | Analysis Type | Sample Type | Air Volume<br>(L) | Area Wiped<br>(ft²) |     | oorting<br>Limit | Total ug | Final Res | ult    | Comments |
|----------------------|-------------------------|---------------|-------------|-------------------|---------------------|-----|------------------|----------|-----------|--------|----------|
| 13067140             | RC Gardener W-01        | Flame         | Wipe        | ****              | 0.108               | 110 | ug/ft²           | <12      | <110      | ug/fl² |          |
| 13067141             | RC Gardener W-02        | Flame         | Wipe        | ****              | 0.108               | 110 | ug/ft²           | <12      | <110      | ug/ft² |          |
| 13067142             | RC Gardener W-03        | Flame         | Wipe        | ****              | 0.108               | 110 | ug/fl²           | <12      | <110      | ug/ft² |          |
| 13067143             | RC Gardener W-04        | Flame         | Wipe        | ****              | 0.108               | 110 | ug/ft²           | <12      | <110      | ug/ft² |          |
| 13067144             | RC Gardener W-05        | Flame         | Wipe        | ****              | 0.108               | 110 | ug/ſl²           | <12      | <110      | ug/ft² |          |
| 13067145             | RC Gardener W-06        | Flame         | Wipe        | ****              | 0.108               | 110 | ug/ft²           | 2400     | 22000     | ug/ft² |          |
| 13067146             | RC Gardener W-07        | Flame         | Wipe        | ****              | 0.108               | 110 | ug/ft²           | 18       | 160       | ug/ft² |          |
| 13067147             | RC Gardener W-08        | Flame         | Wipe        | ****              | 0.108               | 110 | ug/ft²           | 93       | 860       | ug/fl² |          |
| 13067148             | RC Gardener W-09        | Flame         | Wipe        | ****              | 0.108               | 110 | ug/ft²           | 67       | 620       | ug/ft² |          |
| 13067149             | RC Gardener W-10        | Flame         | Wipe        | ****              | 0.108               | 110 | ug/ft²           | 15       | 140       | ug/fl² |          |
| 13067150             | RC Gardener TB-W        | Flame         | Wipe Blank  | ****              | N/A                 | 12  | ug               |          | <12       | ug     |          |

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public, and these Laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from us. Sample types, locations, and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information. Residual sample material will be discarded in accordance with the appropriate regulatory guidelines, unless otherwise requested by the client. This report must not be used to claim, and does not imply product certification, approval, or endorsement by NY ELAP, AIHA, or any agency of the Federal Government. All rights reserved. AMA Analytical Services, Inc.

#### An AIHA (#100470) and NY ELAP (#10920) Accredited Laboratory

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| AIHA (#100470)<br>4475 Forbes Blvd                                  |  | ab.com<br>-0) NY ELAP (10<br>)706   | a  | CHA  |  | of 247-2024   | STOI  | DY       |  |  | 119202<br>ase Refer To Thi<br>aber For Inquires  | 210 REV   | ••• - A  |
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| sbeatos Analysis  |  |   | TEM Bulk   |  |  |   |   | 1910     | AN A   |  |  | do.di my.min  |  |
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| U Other (specify  |  | _(QTY)<br>TY)<br>_(QTY)<br>_(QTY)<br>TEM_(Qol) PLMTEN<br>ANY VOL<br>NV VOL<br>DATE (LIT<br>S <sup>7</sup> ≫/13  | Qual<br><u>IEM Water</u><br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual   | n. (s/area)Du<br>I. (pres/abs)_<br>P 198.2/EP/<br>100.1<br>amples rece<br>Water sample | 100.2(QT)<br>ived in good or<br>s°C)     | (QTY)<br>(QT<br>(QT<br>(QT<br>(QT<br>(QT)<br>(QT)<br>(QT)<br>(QT)<br>(Q | (QTY) (Y) ess otherwise $r$   | noted.   | U Waste<br>U Pb Fu<br>Gallec<br>Collec<br>Collec<br>O Spore<br>Surfac<br>O Surfac                | Water Commace (M<br>mace (M<br>tion App<br>tion Med<br>Trap<br>te Swab<br>re Tape<br>pecify  | Pb(QTY) C           edia           oratus for Spore Traina          (QTY)          (QTY)          (QTY)          (QTY)          (QTY)  | CLIENT CONTACT<br>ORATORY STAFF OI  | IS(QTY)<br>Y)<br>t(QTY)<br>ia)(QTY<br>dia1(QT)   |
| U Other (specify  |  | _(QTY)<br>TY)<br>_(QTY)<br>_(QTY)<br>TEM_(Qal) FLMTEN<br>(ATTYON<br>NV VOL<br>VOL<br>VOL<br>VOL<br>VOL<br>1/30/13   | $\begin{array}{c} \Box \ Qual} \\ \hline \Box \ Water \\ \Box \ Qual \\ \Box \ HLA \\ \Box $   | n. (s/area)Du<br>I. (pres/abs)_<br>P 198.2/EP/<br>100.1<br>amples rece<br>Water sample | 100.2(QT)<br>ived in good or<br>s°C)     | (QTY)<br>(QT<br>(QT<br>(QT<br>(QT<br>(QT)<br>(QT)<br>(QT)<br>(QT)<br>(Q | _(QTY)<br>TY)<br>ess otherwise s  |          | U Waste<br>U Pb Fu<br>Gallec<br>Collec<br>Collec<br>O Spore<br>Surfac<br>O Surfac                | Water Commace (M<br>mace (M<br>tion App<br>tion Med<br>Trap<br>te Swab<br>re Tape<br>pecify  | Pb(QTY) C           edia           aratus for Spore Tr.           lia          (QTY) C  | CLIENT CONTACT<br>ORATORY STAFF O   | (QTY)<br>()<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)   |
| U Other (specify  | السمند (QTY)<br>stimate (QTY)<br>8.1 (QAP 198.6)<br>(Qal) PLM (Qan) PLM<br>(Qan) PLM<br>(Qan) PLM<br>SAMPLE LOCATIO<br>IDENTIFICATION<br>(Lo-07<br>(Lo-07)<br>(Lo-07)  | _(QTY)<br>TY)<br>_(QTY)<br>_(QTY)<br>TEM_(Qal) PLMTEN<br>(ATTYON<br>NV VOL<br>1<br>S/30/13<br>S/30/13<br>S/30/13  | Qual<br>IEM Water<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Qual<br>Q   | n. (s/area)Du<br>I. (pres/abs)_<br>P 198.2/EP/<br>100.1<br>amples rece<br>Water sample | 100.2(QT)<br>ived in good or<br>s°C)     | (QTY)<br>(QT<br>(QT<br>(QT<br>(QT<br>(QT)<br>(QT)<br>(QT)<br>(QT)<br>(Q | _(QTY)<br>TY)<br>ess otherwise <i>s</i><br><i>x</i><br><i>y</i><br><i>y</i><br><i>y</i><br><i>y</i><br><i>y</i><br><i>y</i> |          | U Waste<br>U Pb Fu<br>gat And<br>Collec<br>Collec<br>O Spore<br>Surfac<br>O Surfac<br>O Other (S | Water Comace (M<br>mace (M<br>tion App<br>tion Med<br>Trap<br>te Swab<br>re Tape<br>pecify   | Pb(QTY) C           edia           aratus for Spore Tr.           lia          (QTY) C  | CLIENT CONTACT<br>ORATORY STAFF O   | (QTY)<br>()<br>(QTY)<br>(QTY)<br>()<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)   |
| U Other (specify  | ی     (QTY)     (QAP 198.6(QAP 198.6)      (Qal) PLM(Qan) PLM     (Qan) PLM     SAMPLE LOCATIO     LOCATIO     LOCATION     Location | _(QTY)<br>TY)<br>_(QTY)<br>_(QTY)<br>TEM_(Qal) PLMTEN<br>(ATTON<br>NV VOL<br>NV VOL<br>NV VOL<br>NV VOL<br>S/20/13<br>S/20/13<br>S/20/13  | Qual     IEM Water     Qual     Qual     Qual     Qual     QEPA     Qual     QEPA     Qual     QEPA     Qual     QEPA     Qual     Qual     QEPA     Qual     Qu  | n. (s/area)Du<br>I. (pres/abs)<br>P 198 2/EP/<br>100.1<br>amples rece<br>Water sample  | 100.2(QT)<br>ived in good or<br>s°C)     | (QTY)<br>(QT<br>(QT<br>(QT<br>(QT<br>(QT)<br>(QT)<br>(QT)<br>(QT)<br>(Q | _(QTY)<br>TY)<br>ess otherwise r  |          | U Waste<br>U Pb Fu<br>gat And<br>Collec<br>Collec<br>O Spore<br>Surfac<br>O Surfac<br>O Other (S | Water Compace (M<br>tion App<br>tion App<br>tion Med<br>- Trap<br>e Swab-<br>pecify<br>/ S   | IPb(QTY) C         edia  | Cu(QTY) □ A<br>.)(QTY)<br>aps/Air Samples:<br>I Surface Vacuum Dusi<br>I Cultarable ID Genus (Med<br>Cultarable ID Species (Med<br>CLIENT CONTACT<br>ORATORY STAFF O)<br>Contuct:   | (QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY) |
| U Other (specify  |  | _(QTY)<br>TY)<br>_(QTY)<br>_(QTY)<br>TEM_(Qal) PLMTEN<br>(ATTON<br>NV VOL<br>NV VOL<br>S/20/13<br>S/20/13<br>S/20/13<br>S/20/13   | C Qual     IEM Water     Qual   | n. (s/area)Du<br>I. (pres/abs)<br>P 198 2/EP/<br>100.1<br>amples rece<br>Water sample  | 100.2(QT)<br>ived in good or<br>s°C)     | (QTY)<br>(QT<br>(QT<br>(QT<br>(QT<br>(QT)<br>(QT)<br>(QT)<br>(QT)<br>(Q | _(QTY)<br>TY)<br>ess otherwise <i>s</i><br><i>x</i><br><i>y</i><br><i>y</i><br><i>y</i><br><i>y</i><br><i>y</i><br><i>y</i> |          | U Waste<br>U Pb Fu<br>gat And<br>Collec<br>Collec<br>O Spore<br>Surfac<br>O Surfac<br>O Other (S | Water Compace (M<br>tion App<br>tion App<br>tion Med<br>- Trap<br>e Swab-<br>pecify<br>/ S   | Pb(QTY) C           edia           aratus for Spore Tr.           lia          (QTY) C  | CLIENT CONTACT<br>ORATORY STAFF O   | (QTY)<br>()<br>(QTY)<br>(QTY)<br>()<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)   |
| U Other (specify  | ی     (QTY)     (QAP 198.6(QAP 198.6)      (Qal) PLM(Qan) PLM     (Qan) PLM     SAMPLE LOCATIO     LOCATIO     LOCATION     Location | _(QTY)<br>TY)<br>_(QTY)<br>_(QTY)<br>TEM_(Qal) PLMTEN<br>(ATTON<br>NV VOL<br>NV VOL<br>NV VOL<br>NV VOL<br>S/20/13<br>S/20/13<br>S/20/13  | $UME WIPE  IOC_{1}n^{2} IOC_{1}n^{2} IOC_{1}n^{2} IOC_{1}n^{2}$  | n. (s/area)Du<br>I. (pres/abs)<br>P 198 2/EP/<br>100.1<br>amples rece<br>Water sample  | 100.2(QT)<br>ived in good or<br>s°C)     | (QTY)<br>(QT<br>(QT<br>(QT<br>(QT<br>(QT)<br>(QT)<br>(QT)<br>(QT)<br>(Q | $(QTY)$ TY) ess otherwise $x$ $\frac{y_{LDR}}{y_{LR}}$ $x$                              |          | U Waste<br>U Pb Fu<br>gat And<br>Collec<br>Collec<br>O Spore<br>Surfac<br>O Surfac<br>O Other (S | Water Compace (M<br>tion App<br>tion App<br>tion Med<br>- Trap<br>e Swab-<br>pecify<br>/ S   | IPb(QTY) C         edia  | Cu(QTY) □ A<br>.)(QTY)<br>aps/Air Samples:<br>I Surface Vacuum Dusi<br>I Culturable ID Genus (Med<br>Culturable ID Species (Med<br>CLIENT CONTACT<br>ORATORY STAFF O)<br>Contuct:   | (QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY) |
| U Other (specify  | )  | (QTY)<br>TY)<br>(QTY)<br>(QTY)<br>(QTY)<br>$TEM_{Qolt} PLM/TEM$<br>(Qolt PLM/TEM)<br>(Qolt PLM/TEM) | C Qual<br>IEM Water<br>Qual<br>C Qual<br>C ELA<br>Q EPA<br>VALLS<br>(TEM V<br>ALLS<br>(TEM V<br>AREA<br>/OO cm <sup>2</sup><br>/OO cm <sup>2</sup><br>/OO cm <sup>2</sup><br>/OO cm <sup>2</sup><br>/OO cm <sup>2</sup><br>/OO cm <sup>2</sup><br>/OO cm <sup>2</sup>  | n. (s/area)Du<br>I. (pres/abs)<br>P 198 2/EP/<br>100.1<br>amples rece<br>Water sample  | 100.2(QT)<br>ived in good or<br>s°C)     | (QTY)<br>(QT<br>(QT<br>(QT<br>(QT<br>(QT)<br>(QT)<br>(QT)<br>(QT)<br>(Q | _(QTY)<br>TY)<br>ess otherwise a  |          | U Waste<br>U Pb Fu<br>gat And<br>Collec<br>Collec<br>O Spore<br>Surfac<br>O Surfac<br>O Other (S | Water Compace (M<br>tion App<br>tion App<br>tion Med<br>- Trap<br>e Swab-<br>pecify<br>/ S   | IPb(QTY) C         edia  | Cu(QTY) □ A<br>.)(QTY)<br>aps/Air Samples:<br>I Surface Vacuum Dusi<br>I Culturable ID Genus (Med<br>Culturable ID Species (Med<br>CLIENT CONTACT<br>ORATORY STAFF O)<br>Contuct:   | (QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY) |
| U Other (specify  | )  | (QTY)<br>TY)<br>(QTY)<br>(QTY)<br>(QTY)<br>$TEM_IQal) FLMTEN (QTY)TEM_IQal) FLMTEN (QTY)(QTY)TEM_IQal) FLMTEN (QTY)$  | $UME WIPE  IOC_{1}n^{2} IOC_{1}n^{2} IOC_{1}n^{2} IOC_{1}n^{2}$  | n. (s/area)Du<br>I. (pres/abs)<br>P 198 2/EP/<br>100.1<br>amples rece<br>Water sample  | 100.2(QT)<br>ived in good or<br>s°C)     | (QTY)<br>(QT<br>(QT<br>(QT<br>(QT<br>(QT)<br>(QT)<br>(QT)<br>(QT)<br>(Q | (QTY) $ry$ $ry$ $ry$ $ry$ $ry$ $ry$ $ry$ $ry$   |          | U Waste<br>U Pb Fu<br>gat And<br>Collec<br>Collec<br>O Spore<br>Surfac<br>O Surfac<br>O Other (S | Water Commace (M   | IPb(QTY) C         edia  | Cu(QTY) □ A .)(QTY) aps/Air Samples: l Surface Vacuum Dusi Culturable ID Genus (Med Culturable ID Species (Med | IS(QTY)<br>Y)<br>I(QTY)<br>Ia)(QTY)<br>Ia)(QTY)<br>Ia)(QTY)<br>By:<br><br>By:<br>  |
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# APPENDIX D

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# PHOTOGRAPHIC LOG



# PHOTOGRAPHIC LOG

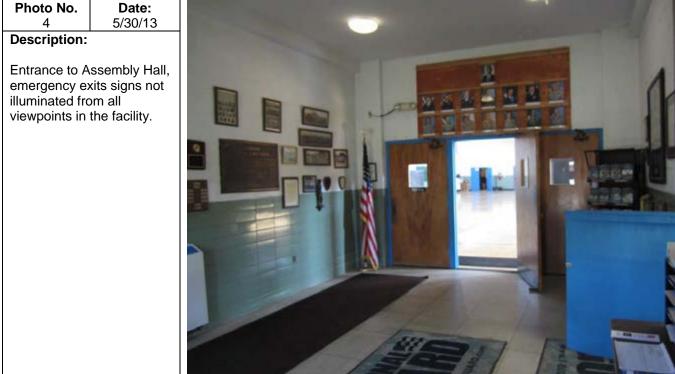
| <b>Client Name:</b>  |                      | Site Location:                 | Project No. |
|--|----------------------|--------------------------------|-------------|
| MA ARNG- G   | ardner RC            | 323 West Broadway, Gardner, MA | 39743799    |
| Photo No.<br>1   | <b>Date:</b> 5/30/13 |                                |             |
| Description:<br>Evidence of w<br>in the area of<br>in the Supply | the roof drain       |                                |             |
|  |                      |                                |             |

| Photo No.<br>2                                 | <b>Date:</b> 5/30/13 |  |
|--|----------------------|--|
| Description:                                   |                      |  |
| Door to forme<br>Firing Range<br>have a padloo | that did not         |  |

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# APPENDIX E

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# **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/ft<sup>2</sup>). If a special function will be held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function. This guidance is based on professional judgment, risk assessments, adaptation of Occupational Safety and Health Administration (OSHA) guidance, and feasibility of cleaning to a certain level.
  - a. Environmental Protection Agency (EPA) standards (40 Code of Federal Regulations (CFR) 745.227(h)(3)) are not directly applicable because they are criteria for dust-lead hazards developed for floors (40  $\mu$ g/ft<sup>2</sup>) and windowsills (250  $\mu$ g/ft<sup>2</sup>) in residential dwellings and child occupied facilities. A child occupied facility is defined as a building, or portion of a building, constructed prior to 1978, visited regularly by the same child, 6 years of age or under, on at least two different days within any week (Sunday through Saturday period), provided that each day's visit lasts at least 3 hours and the combined weekly visit lasts at least 6 hours, and the combined annual visits last at least 60 hours. Most of the wipe samples in armories were collected in undisturbed areas and therefore, results are worst case scenarios and do not correlate to these standards.
  - b. OSHA has no specific requirement for work area surfaces. The lead standard (29 CFR 1910.1025(h)) states that all surfaces shall be maintained as free as practicable of accumulations of lead dust. In workplaces where lead dust is generated, surface levels may be much higher, but personnel exposures can be controlled by limiting airborne lead levels and following good cleanup and hygienic practices.
  - c. OSHA used to cite a level of 200  $\mu$ g/ft<sup>2</sup> 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<sup>2</sup> is a safe surface contamination level. They have also applied these standards as the decontamination levels for surfaces in administrative offices.
  - e. It should be noted that levels above these recommendations do not necessarily mean there is a significant hazard to workers who are following good cleaning and hygienic practices since there is no

correlation between wipe and air samples. Rather, we recommend these levels as a precautionary measure.

- 2. The NGB Occupational Health Branch is developing guidance for armories that are used as childcare facilities. All states will receive this guidance when it is completed. In the interim, we recommend the following actions:
  - a. Clean all areas that will be accessible to children to the EPA dust-lead standard for children 6 years of age or under (40  $\mu$ g/ft<sup>2</sup> on floors and 250  $\mu$ g/ft<sup>2</sup> on windowsills).
  - b. Refer to the local authorities' regulations since they can be more stringent than federal regulations.
  - c. Post signs in the area to inform people of the presence of lead dust and its effects.
  - d. If soldiers clean weapons in the facility change the policy so that they cannot clean their weapons in the facility, or if they are allowed to clean their weapons indoors, they must clean the area by wet wiping and mopping the area when they are done.
  - e. If the paint is peeling, contact the state Environmental Office to test for lead content and provide recommendations.
- 3. Air samples collected on individuals in the armory were well below OSHA's permissible exposure limit for lead (29 CFR 1910.1025(c)) of 0.05 milligrams per cubic meter (mg/m<sup>3</sup>) averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead dust in this building.

#### **Prepared For:**

National Guard Bureau Army National Guard Region North Industrial Hygiene Office 301 – IH Old Bay Lane Havre De Grace, Maryland 21078

Prepared By:

URS Corporation 5 Industrial Way Salem, New Hampshire 03079

INDUSTRIAL HYGIENE SURVEY REPORT GREENFIELD ARMORY 71 HOPE STREET GREENFIELD, MASSACHUSETTS



Office Manager



September 2005 PN: 39741508

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# FINDINGS AND RECOMMENDATIONS

| Findings  | Recommendation   | Risk<br>Assessment<br>Code |
|---|--|----------------------------|
| Lighting h Average and a loss   |  |                            |
| On the day of the survey, the illuminance in the administrative area was inadequate in over half of all offices.          | Increase lighting in the administrative<br>areas. While work is in progress, the<br>administrative area shall be lighted by at<br>least the minimum lighting intensities<br>(ANSI / IESNA RP-1-04)                                     | RAC 4                      |
| Lead  |  |                            |
| Lead was detected in wipe<br>samples collected throughout the<br>armory in amounts greater than<br>200 µg/ft <sup>2</sup> | Personnel trained in accordance with<br>the OSHA Lead Standard should<br>clean the former firing range where<br>lead was detected in quantities of<br>greater than 200 micrograms per<br>square foot (OSHA 29 CFR<br>1910.1025 (h)(1)) | RAC 4                      |
| Asbestos  |  |                            |
| A site-specific asbestos<br>operations and maintenance plan<br>was not available.   | Develop a site specific asbestos<br>operations and maintenance plan to<br>manage asbestos-containing<br>materials (OSHA 29 CFR<br>1910.1001(j))  | RAC 3                      |
| Hazard Communication  | 1749 (A.Y. 1997)   |                            |
| No site specific hazard<br>communication plan available.  | Develop a site specific hazard<br>communication plan to manage<br>hazardous materials (OSHA 29 CFR<br>1910.1200(e))  | RAC 4                      |
| INCOLOR REPORTS OF CONTRACTOR   |  |                            |
| Evidence of water incursions<br>throughout building that may<br>promote growth of mold.                                   | Repair leaks in roof and institute a<br>moisture management plan to inform<br>employees of best practice in handling<br>water incursions (Best management<br>practice)   | RAC 4                      |

#### 1.0 SUMMARY

At the request of the National Guard Bureau Region North Industrial Hygiene Office (NGB), URS Corporation (URS) conducted an industrial hygiene survey at the Armory located at 71 Hope Street in Greenfield, Massachusetts 01301. This report includes an executive summary, a description of the survey protocol, a discussion of the survey evaluation and findings and a list of conclusions and recommendations.

On February 3, 2004, Mr. Non-Responsive an industrial hygienist with URS, conducted a site visit to the Armory in Greenfield, Massachusetts. The purpose of this site visit was to conduct an industrial hygiene survey, which included the collection of air samples, bulk samples, lighting measurements, and a review of site health and safety procedures. Mr. Non-Responsive of the State of Massachusetts was Mr. Non-Responsive site contact for this survey.

A shop layout drawing of the facility, which shows the locations where measurements were made during this survey, is contained in Appendix A.

1

#### 2.0 ADMINISTRATIVE AREA

#### 2.1 Operation Description

This building area contains multiple offices located throughout the building with desks and computer workstations. Asbestos-containing floor tile located throughout this area is in good condition. Mr. Non-Responsive did observe a few areas on the second floor where there was evidence of water incursions (Photo # 0028)

#### 2.2 Chemical and Physical Agents Sampled

#### 2.2.1 Relative Humidity

Relative humidity levels were measured using a TSI Q-Track (Model 8551) directreading instrument. Relative humidity on the day of the survey averaged 26.2%. This average reading is below the recommended range of 30.0% to 60.0% set by the American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. (ANSI / ASHRAE Standard 55-2004).

#### 2.2.2 Carbon Dioxide

On the day of the survey, carbon dioxide measurements were made at various locations throughout the Readiness Center. Carbon dioxide concentrations ranged from 600 to 1058 parts per million (ppm), with an average of 751 ppm. Carbon dioxide levels were measured using a direct-reading TSI Q-Track (Model 8551).

Carbon dioxide is a normal constituent of the atmosphere and ranges from about 250 to 450 ppm. The major source of excess carbon dioxide in the indoor environment is people. Other sources can include open-flame heaters, fermentation processes, and motor vehicles. Carbon dioxide itself is not normally a cause of indoor air quality problems because concentrations must exceed 5,000 to 10,000 ppm before health effects such as headache, drowsiness, and increased respiration are noted. Typically, carbon dioxide is used as an indicator of the adequacy of fresh air intake. As the concentration of carbon dioxide increases, so do the background levels of other air contaminants.

ASHRAE (ASHRAE 62.1-2004) recommends that levels of carbon dioxide be maintained below 700 ppm above background level. A background (exterior) reading was not collected on the day of the survey, however given the average interior carbon dioxide reading of 751 ppm the likelihood that the interior carbon dioxide concentration would exceed the exterior carbon dioxide concentration is remote.

URS 2

# 2.2.3 Carbon Monoxide

Carbon monoxide was also measured in the Administration Area. The average carbon monoxide concentration was 1.4 ppm. This average measured level was below the ASHRAE guideline for indoor environments (ASHRAE 62.1 – 2004). Carbon monoxide was measured using a TSI Q-Track (Model 8551).

Key sources of carbon monoxide within indoor environments include internal combustion engines, motor vehicle and forklift exhaust, tobacco smoke, space heaters, and improperly adjusted oil or gas burners. Health effects from exposure to elevated concentrations of carbon monoxide may include fatigue, impairment of visual acuity, irregular heartbeat, headache, nausea, and confusion. ASHRAE recommends that average carbon monoxide concentrations not exceed 9 ppm. Typical average concentrations found in commercial buildings range from 0 to 6 ppm.

# 2.2.4 Lighting

Lighting in the administrative area was measured using a Sper Scientific Ltd. Light Meter (Model 840020C). Table 2-1 below shows lighting measurements and the recommended lighting requirement ANSI / IESNA RP –1-04 American National Standard Practice for Office Lighting.

|                   |                       | Measured    | Recommended  |
|-------------------|-----------------------|-------------|--------------|
| Location          | Function 🚕 😞          | Illuminance | Minimum      |
|                   |                       | candles     | foot candles |
| Main Office       | Administrative Duties | 98 / 9,1    | 500 / 50     |
| Foyer             | Hail                  | 266 / 24.7  | 30/3         |
| Company Locker    | Change Area           | 228/21.1    | 300/30       |
| Room              | _                     |             |              |
| Basement Corridor | Hall                  | 520 / 48.3  | 30/3         |
| Admin Room        | Administrative Duties | 298/27.7    | 500 / 50     |

 Table 2-1

 Lighting Measurements and Recommended Lighting Requirements

On the day of the survey the illuminance in the administrative area was inadequate in several office spaces.

## 2.2.5 Lead

Wipe testing for lead was conducted in the administrative area using ghost wipes, which meet ASTM E 1792 standards. The analytical report from AMA Analytical Services, Inc.

(AMA) is contained in Appendix D. Table 2-2 below shows the results of the lead sampling.

| Sample Location          | URS Sampla<br>Number | Area<br>Wiped | )(µg/ff <sup>2</sup> ) | Maximum Safe<br>Surface<br>Contamination<br>Level (µg/ft <sup>2</sup> ) |
|--------------------------|----------------------|---------------|------------------------|---|
| Company Locker Room      | 0203-04              | 1.0           | 210                    | 200   |
| PLT SGT Room             | 0203-05              | 1.0           | 260                    | 200   |
| Mortar Room              | 0203-06              | 1.0           | 310                    | 200   |
| 1 <sup>st</sup> SGT Room | 0203-07              | 1.0           | 46                     | 200   |
| Foyer Lobby              | 0203-08              | 1.0           | 43                     | 200   |
| Garage                   | 0203-19              | 1.0           | 530                    | 200   |
| Basement Corridor        | 0203-20              | 1.0           | <14                    | 200   |
| Blank                    | 0203-21              | N/A           | <14                    | 200   |

 Table 2-2

 Levels of Lead Dust Found in the Administrative Area

# 2.3 Ventilation System Evaluation

Not applicable to this operation.

## 2.4 Noise measurements

Not applicable to this operation.

# 2.5 Personal Protective Equipment

Not applicable to this operation.

# 2.6 Interpretation of Results

GENERAL: In general, the administrative area was neat and orderly.

<u>LIGHTING</u>: On the day of the survey, the illuminance in the administrative area was inadequate in some office spaces. URS recommends increasing lighting in the administrative areas through task lighting. While work is in progress, the administrative area should be lighted by at least the minimum light intensities.

<u>LEAD:</u> The four of the six surfaces tested in this area for lead were found to contain lead above the allowable limits set by the National Guard Bureau (See Appendix F) and should be cleaned by properly trained technicians. The NGB has prepared a

memorandum titled "Recommendations for Surface Lead Dust in Armories" which is provided in Appendix G.

<u>MOLD:</u> There is evidence of water incursions including water stains on the ceilings that could lead to mold problems if not addressed.

May, 2018

# 3.0 FORMER FIRING RANGE

# 3.1 Operation Description

The firing range has been dismantled and this building area is now primarily used for storage and an exercise room.

# 3.2 Chemical and Physical Agents Sampled

# 3.2.1 Lead

Wipe testing for lead was conducted in the former firing range using ghost wipes, which meet ASTM E 1792 standards. The analytical report from AMA is contained in Appendix D. Table 3-1 below shows the results of the lead sampling.

| Sample Location                       | URS Sample<br>Number | Area<br>Wiped<br>(ft <sup>2</sup> ) | , Result<br>(μg/ft²) | Maximum Safe<br>Surface<br>Contamination<br>Level (µg/ft <sup>2</sup> ) |
|---------------------------------------|----------------------|-------------------------------------|----------------------|---|
| Former Firing Range-<br>North         | 0203-14              | 1.000                               | 4700                 | 200   |
| Former Firing Range-Near<br>Divider   | 0203-15              | 1.000                               | 440                  | 200   |
| Former Firing Range-<br>Exercise Room | 0203-16              | 1.000                               | 78                   | 200   |
| Former Firing Range-<br>South         | 0203-17              | 1.000                               | 200                  | 200   |
| Blank                                 | 0203-21              | N/A                                 | <14                  | 200   |

 Table 3-1

 Levels of Lead Dust Found in the Former Firing Range

One air sample for lead dust was also collected in the former firing range. Table 3-2 below shows the result of this air sample.

## Table 3-2 Level of Lead Found in the Air

| Sample Location     | URS Sample<br>Number | Air Volume | Resulf<br>(µg/m <sup>3</sup> ) | OSHA's<br>PEL(µg/m <sup>3</sup> ) |
|---------------------|----------------------|------------|--------------------------------|-----------------------------------|
| Former Firing Range | 0203-02              | 245        | <12                            | 50.0                              |
| Blank               | 0205-LÁÖ3            | 0          | <3.0                           | 50.0                              |

On the day of the survey, the airborne lead dust level in the former firing range was found to be acceptable, below OSHA's permissible exposure limit (PEL) for lead (29

CFR 1910.1025(c)) of 50.0  $\mu$ g/m<sup>3</sup> averaged over an 8-hour day. The analytical report from AMA is contained in Appendix D.

# 3.3 Ventilation System Evaluation

Not applicable to this operation.

## 3.4 Noise Measurements

Not applicable to this operation.

# 3.5 Personal Protective Equipment

Not applicable to this operation.

# 3.6 Interpretation of Results

<u>LEAD</u>: Three of the four surface wipe samples collected in the former firing range were found to contain lead dust levels which exceeded the maximum limit set by the National Guard Bureau (See Appendix F). URS recommends that an appropriately licensed lead contractor clean the former firing range. The NGB has prepared a memorandum titled "Recommendations for Surface Lead Dust in Armories" which is provided in Appendix G.

May, 2018

URS

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## 4.0 DRILL HALL

#### 4.1 Operation Description

The drill hall is used for assembling personnel and storing equipment. The walls are constructed of cinder block with a wood floor.

#### 4.2 Chemical and Physical Agents Sampled

## 4.2.1 Lead

May, 2018

Wipe testing for lead dust was conducted in the drill hall using ghost wipes, which meet ASTM E 1792 standards. The analytical report from AMA is contained in Appendix D. Table 4-1 below shows the results of the lead sampling.

| Sample Location        | URS Sample<br>Number | Area Wiped<br>(ft*) | Result<br>(µg/ft <sup>2</sup> ) | Maximum Safe<br>Surface<br>Contamination<br>Level (µg/ft <sup>2</sup> ) |
|------------------------|----------------------|---------------------|---------------------------------|---|
| Drill Hall - Floor -   | 0203-09              | 1.000               | 430                             | 200   |
| Southwest              |                      |                     |                                 |   |
| Drill Hall - Floor -   | 0203-10              | 1.000               | 150                             | 200   |
| Northwest              |                      |                     |                                 |   |
| Drill Hall - Northeast | 0203-11              | 1.000               | 83                              | 200   |
| Drill Half – Southeast | 0203-12              | 1.000               | 150                             | 200   |
| Drill Hall - Stage     | 0203-13              |                     | 81                              | 200   |
| Blank                  | 0203-21              | N/A                 | <14                             | 200   |

Table 4-1 Levels of Lead Dust Found in the Drill Hall

One air sample for lead dust was collected in the drill hall. Table 4-2 below shows the result of this air sample.

#### Table 4-2 Level of Lead Found in the Air

| Sample Location | URS Sample Number 😒 | Air Volumé<br>⟨Ľ) | Result<br>(µg/m³) | OSHA's<br>PEL(µg/m <sup>3</sup> ) |
|-----------------|---------------------|-------------------|-------------------|-----------------------------------|
| Drill Hall      | 0203-01             | 224               | <13               | 50.0                              |
| Blank           | 0205-LA03           | 0                 | <3.0              | 50.0                              |

On the day of the survey, the airborne lead dust level in the drill hall was found to be acceptable, below OSHA's permissible exposure limit (PEL) for lead (29 CFR 1910.1025(c)) of 50.0  $\mu$ g/m<sup>3</sup> averaged over an 8-hour day.

Two paint chip samples were collected in the drill hall where paint was peeling and sent to AMA for analysis. The samples were found to contain lead in a concentration below the U.S. Housing and Urban Development (HUD) Lead-Based Paint Guidelines. Levels of lead greater than 0.5% by weight are referred to as "lead-containing" (Section 1017 of the Residential Lead-Based Paint Hazard Reduction Act of 1992 (also referred to as Title X)). Table 4-3 below shows the results of the lead paint testing.

Table 4-3 Levels of Lead in Paint Found in the Drill Hall

| Sample Location | URS Sample King | Reporting Limit<br>(% by Weight) | Final Result<br>(% by Weight) |
|-----------------|-----------------|----------------------------------|-------------------------------|
| Drill Hall      | 0203-22         | 0.01                             | 0.04                          |
| Drill Hall      | 0203-23         | 0.01                             | 0.093                         |
| Drill Hall      | 0205-LPC07      | 0.01                             | 0.22                          |

The analytical report from AMA is contained in Appendix D.

# 4.3 Ventilation System Evaluation

Not applicable to this operation.

# 4.4 Noise Measurements

Not applicable to this operation.

# 4.5 Personal Protective Equipment

Not applicable to this operation.

# 4.6 Interpretation of Results

<u>LEAD</u>: One of the five surface wipe samples collected in the drill hall was found to contain a lead dust level which exceeded the maximum limit set by the NGB (See Appendix F). URS recommends that an appropriately licensed lead contractor clean the drill hall. The NGB has prepared a memorandum titled "Recommendations for Surface Lead Dust in Armories" which is provided in Appendix G.

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# 5.0 BOILER ROOM / BASEMENT AREA

# 5.1 Operation Description

The boiler room is a mechanical space constructed of cinder block walls with a concrete floor, containing a furnace and associated piping.

# 5.2 Chemical and Physical Agents Sampled

# 5.2.1 Lead

Wipe testing for lead dust was conducted in the boiler room using ghost wipes, which meet ASTM E 1792 standards. The analytical report from AMA is contained in Appendix D. Table 5-1 below shows the results of the lead sampling.

| Sample Location     | URS Sample<br>Number | Area Wiped<br>(ft <sup>2</sup> ) | Result<br>(µg/fi²) | Maximum Safe<br>Surface<br>Contamination<br>Level (µg/ft <sup>2</sup> ) |
|---------------------|----------------------|----------------------------------|--------------------|---|
| Boiler Room –Locker | 0203-18              | 1.000                            | 300                | 200   |
| Blank               | 0203-21              | N/A                              | <14                | 200   |

Table 5-1 Level of Lead Dust Found in the Boiler Room

# 5.3 Ventilation System Evaluation

Not applicable to this operation.

## 5.4 Noise Measurements

Not applicable to this operation.

# 5.5 Personal Protective Equipment

Not applicable to this operation.

# 5.6 Interpretation of Results

<u>LEAD:</u> The wipe sample collected in the boiler room was found to contain a lead dust level which exceeded the maximum limit set by the National Guard Bureau URS.

recommends that an appropriately licensed lead contractor clean the drill hall. The NGB has prepared a memorandum titled "Recommendations for Surface Lead Dust in Armories" which is provided in Appendix G.

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# 6.0 SAFETY AND INDUSTRIAL HYGIENE PROGRAMS

# 6.1 Confined Spaces

No safety program was found regarding confined spaces. No training records were found on site. A confined spaces program is not required for this site.

# 6.2 Hearing Conservation

No safety program was found regarding hearing conservation. No training records were found on site. A hearing conservation program is not required for this site.

## 6.3 Respiratory Protection

No safety program was found regarding respiratory protection. No training records were found on site. A respiratory protection program is not required for this site.

## 6.4 Hazard Communication

No program was found regarding hazard communication. No training records were found on site. A site-specific hazard communication program is required for this site and should include communication of hazards to employees, management of material safety data sheets, chemical labeling and spill protection.

# 6.5 Personal Protective Equipment

No safety program was found regarding personal protective equipment. No training records were found on site. A personal protective equipment program is not required for this site.

# 7.0 REFERENCES

American National Standards Institute

ANSI/ESNA RP-1-04: American National Standard Practice for Office Lighting

American Society of Heating Refrigerating and Air-Conditioning Engineers

ANSI/ASHRAE Standard 55-2004: Thermal Environmental Conditions for Human Occupancy

ANSI/ASHRAE Standard 62.1-2004: Ventilation for Acceptable Indoor Air Quality

Army Corps of Engineers

Safety and Health Requirements Manual EM 385-1-1 November 2003

Department of the Army

Ergonomics Program Pamphlet 40-21 (15 August 2003)

Policy and Responsibilities for Inspection, Evaluation and Operation of Army National Guard Indoor Firing Ranges (National Guard Regulation 385-15 30 December 2002)

Department of Defense

DoD Hearing Conservation Program Standard 6055.12 April 1996

Creating an Ideal Workstation: A Step-by-Step Guide

U. S. Environmental Protection Agency

Asbestos Hazard Emergency Response Act (40 CFR Part 763)

National Emissions Standards for Hazardous Pollutants (40 CFR Part 61)

U.S. Housing and Urban Development

Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing (1995, 1997)

U. S. Occupational Safety and Health Administration

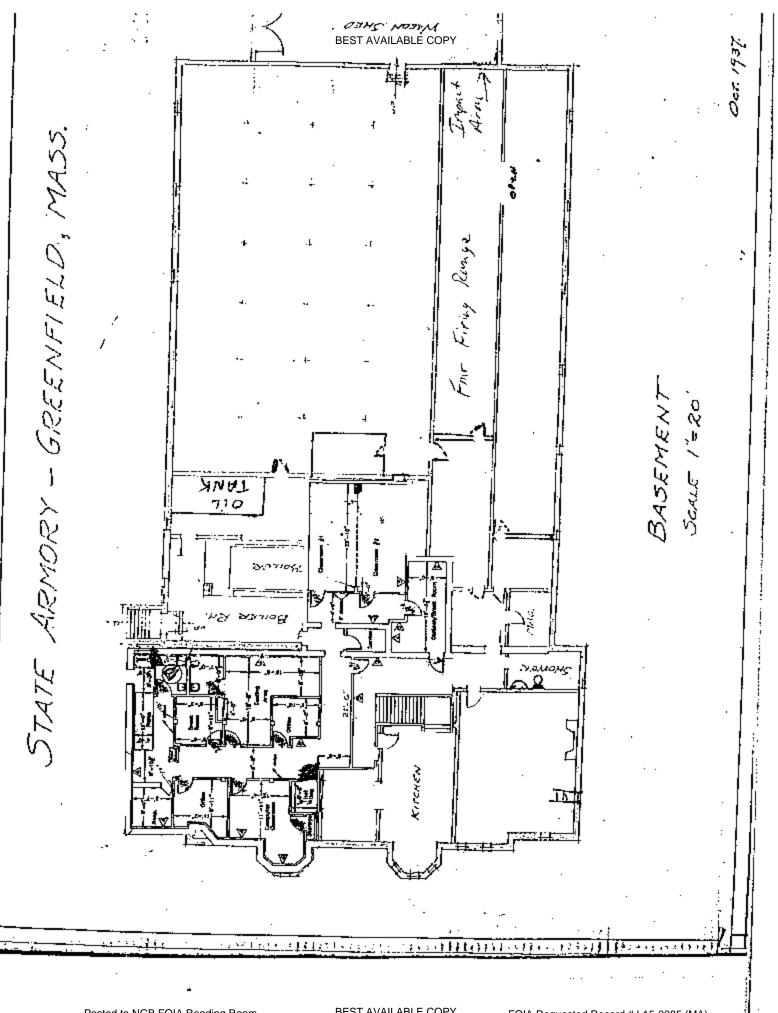
Standard for General Industry: 29 CFR 1910

APPENDIX A

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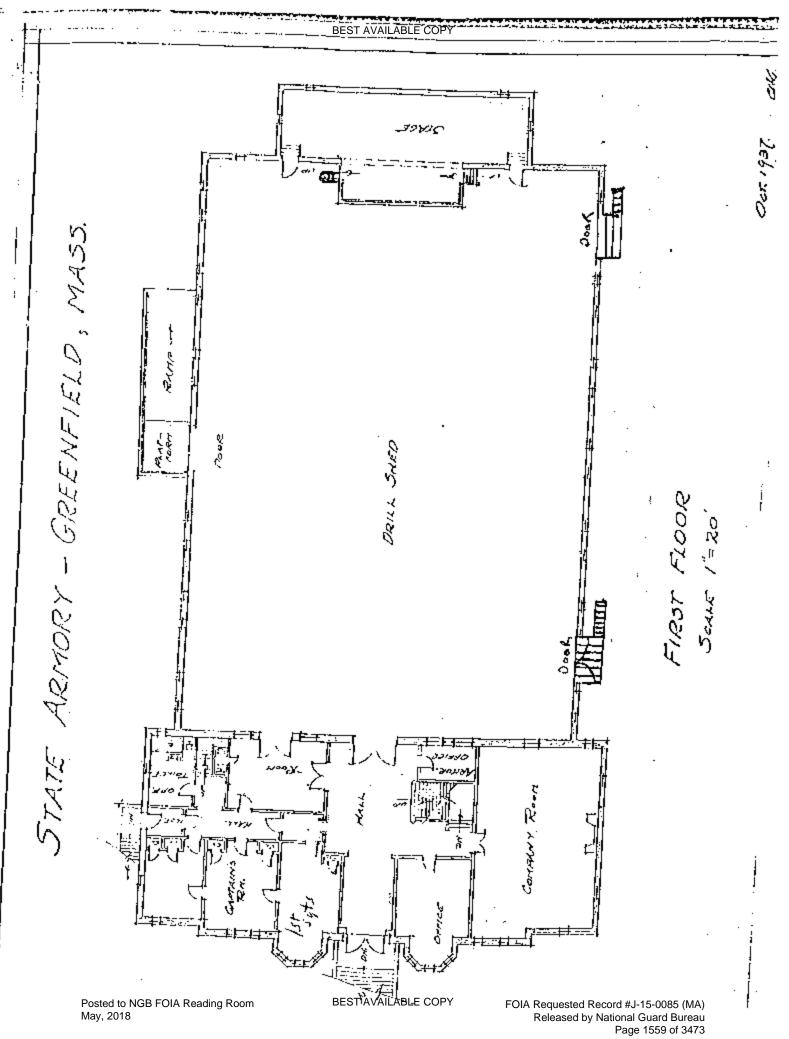
SHOP DRAWING

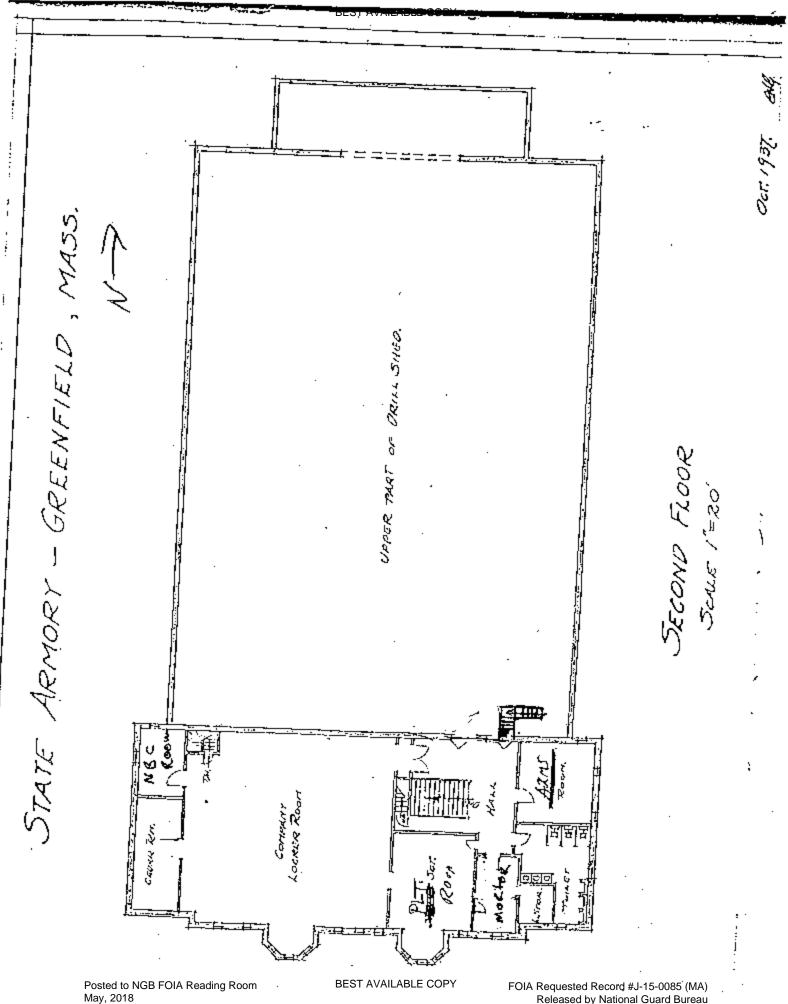


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# APPENDIX B

# PERSONNEL LIST

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APPENDIX C

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HAZARDOUS MATERIALS LIST

AN FAMILY AN FIRST MASSACHUSETTS NATIONAL GUARD E E CARACTER CONTRACTOR FAMILY SERVICES PROGRAM 4 CONTAMENS THINNHER -) GAL To parl CARB clamer I can 6 Homoson WATER SER Ty Gol Statin Fluid Z CAU h/9 Cans-Gold spra Paint 1 Containen ld oz. CA-5 (a GAL CAN sprie L ٥ Can JANSITVE ADACSIVE C Ans 0.15 . Finish Stain & Gloss 2.5 GAS. lD. DASED ርሑኔ 64 В Er. Class . LATTER HOUSE PAIN Phenomen Inscontinge -- 5 cms 12 m. 54. HEROSOL 132 CANS 1202 GA. LOCAE 77 1) Cleaning Composes Rifle Borce -(CAW Ø, GAL. 2) Rubber à Gasker Senen -@ 3 6t\*{ 1 cm 32 67. 6.5. PATCHNG SEALANST 2 CAWS 2 12 METHYL Alcohol -Sottles -7 EACH, 0, 1 QT Charlose Lighton flood 35 CANS EA. و د ډې 20T OIL -WEAPONS 9 cms I DINT. Resin Minder MRTHAL Alcohol - 7 bottles Ø ĘÆ, DIWI WATTER' DEPLACING COMPOUND ð Como C 16 17 84. MOTOR OIL 100-40 101 bottle @ -Flup 1.5 BRAKE Constr FURL Coloman Stovens 1-800.352-4452 EXT, 2118

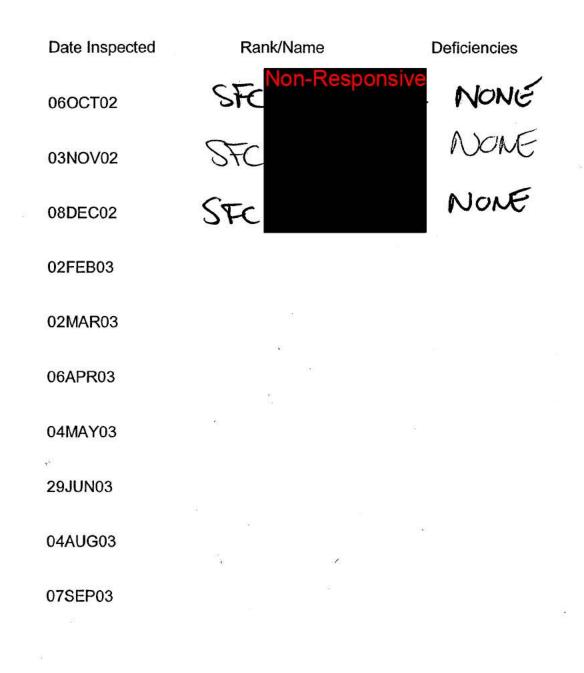
1

| Date Inspected | R R R        | Responsive<br>Deficiencies |
|----------------|--------------|----------------------------|
| 21OCT01        | SF           | NONE                       |
| 04OCT01        | SF           | None                       |
| 09DEC01        | SFC          | NONE                       |
| 06JAN02        | SFC          | NONE                       |
| 03FEB02        | STC          | NONE                       |
| 03MAR02        | SFC          | NONE                       |
| 07APR02        | SFC          | NONE                       |
| 05MAY02        | SFC          | NOME                       |
| 29JUN02        | SFC          | NONE                       |
| 14JUL02        | SFC          | NONE                       |
| 04AUG02        | SFC          | NonE                       |
| 11 AUGUS       | SFC +        | SCRE                       |
| 10             | т.<br>1<br>1 |                            |

# Hazardous Material Locker Inspection List TY02

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# Hazardous Material Locker Inspection List TY03



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# APPENDIX D

# ANALYTICAL RESULTS

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| M | and and the same of the second second | lytical Services, Inc.<br>cielized Ravironmental Laboratory          |               | TIFICATE OF ANALYSIS |                    |            | RIVIA<br>Ny El<br>Aiha |
|---|---------------------------------------|--|---------------|----------------------|--------------------|------------|------------------------|
|   | Client:                               | National Guard Bureau  | Job Name:     | Amory                | Chain Of Custody:  | 128465     |                        |
|   | Address:                              | 301-IH Old Bay Lune, Attn: NGB-AVN-SI,<br>State Military Reservation | Job Location: | Greenfield, MA       | Date Analyzed:     | 06/11/2004 |                        |
|   |                                       | Havre de Grace, Maryland 21078                                       | Job Number:   | Not Provided         | Person Submitting: |            |                        |
|   |                                       |  | P.O. Number:  | BPA #W912K6-04-A0002 | Report Date:       | 11-Jun-04  |                        |
|   | Attention:                            |  |               |                      |                    |            | Page 1 of 2            |

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# Summary of Atomic Absorption Analysis for Lead

|                     | AMA Sample<br>Number   | Client Sample<br>Number                           | Analysis Type   | Sample Type                                   | Air Volume<br>(L)  | Arca Wiped<br>(ft <sup>2</sup> )   |  | orting   | F                                       | inal Res                           | ult   | Comments   |
|---------------------|--|---|---|---|--|--|--|--|---|------------------------------------|---|--|
| 1000                |  |   |   | · · · · · · · · · · · · · · · · · · ·         | ****   | 1 000  |  |  |   |                                    |   | ······································   |
| BEST AVAILABLE COPY | 0448813  | 0203-04   | Flame   | Wipe  | ****   | 1.000  | 14.00  | uy/ft²   |   | 210                                | ug/flª  |  |
| ST                  | 0448814  | 0203-05   | Flame   | Wipe  |  | 1.000  | 14.00  | ug/ft²   |   | 260                                | ug/fl²  |  |
| AVI                 | 0448815  | 0203-06   | Flame   | Wipc  | ****   | 1.000  | 14.00  | ug/ft*   |   | 310                                | ug/ft*  |  |
| AILA                | 0448816  | 0203-07   | Flame   | Wipc  | ****   | 1.000  | 14.00  | ug/ft <sup>2</sup>                                   |   | 46                                 | ug/ft*  |  |
| AB                  | 0448817  | 0203-08   | Flame   | Wipc  | ****   | 1.000  | 14.00  | ug/ft²   |   | 43                                 | ug/ft²  |  |
| LE                  | 0448818  | 0203-09   | Flame   | Wipe  | ****   | 1.000  | 14.00  | ug/ft²   |   | 430                                | ug/ft²  |  |
| 8                   | 0448819  | 0203-10   | Flame   | Wipc  | ****   | 1.000  | 14.00  | ug/ft <sup>2</sup>                                   |   | 150                                | ug/ft²  |  |
| Add                 | 0448820  | 0203-11   | Flame   | Wipc  | ****   | 1.000  | 14.00  | ug/ft²   |   | 83                                 | ug/ft*  |  |
| с<br>П              | 0448821  | 0203-12   | Flame   | Wipc  | ****   | 1.000  | 14.00  | ug/ft²   |   | 150                                | ug/ft²  |  |
| 4                   | 0448822  | 0203-13   | Flame   | Wipe  |  | 1.000  | 14.00  | ug/ft²   |   | 81                                 | ug/fl <sup>2</sup>  |  |
| F                   | 0448823  | 0203-14   | Flame   | Wipe  | ****   | 1.000  | 14.00  | ug/ft²   |   | 4700                               | ug/ft²  |  |
| FO                  | 0448824  | 0203-15   | Flame   | Wipe  | ****   | 1.000  | 14.00  | ug/ftª   |   | 440                                | ug/ft²  |  |
| MA                  | 0448825  | 0203-16   | Flame   | Wipe  | ****   | 1.000  | 14.00  | ug/fl²   |   | 78                                 | ug/ft <sup>z</sup>  |  |
| Re                  | 0448826  | 0203-17   | Flame   | Wipe  | ****   | 1.000  | 14.00  | ug/ft²   |   | 200                                | ug/ft <sup>2</sup>  |  |
| que                 | 0448827  | 0203-18   | Flame   | Wipe  | ****   | 1.000  | 14.00  | ug/ft²   |   | 300                                | ug/ft²  |  |
| sed                 | 0448828  | 0203-19   | Flame   | Wipe  | ****   | 1.000  | 14.00  | ug/ft*   |   | 530                                | ug/ft²  |  |
| by dR               | 0448829  | 0203-20   | Flame   | Wipe  | ****   | 1.000  | 14.00  | ug/ft*   | <                                       | 14                                 | ug/ft <sup>a</sup>  |  |
| Na                  | 0448830  | 0203-21   | Flame   | Wipe Blank                                    | ****   | N/A  | 14.00  | ug   | <                                       | 14                                 | ug  |  |
| ion a               | 0448831  | 0203-22   | Flame   | Paint Chip                                    |  | N/A  | 0.01   | %РЬ  |   | 0.04                               | %РЪ   |  |
| 自共                  | 0448832  | 0203-23   | Flame   | Paint Chip                                    | ****   | N/A  | 0.01   | %Pb  |   | 0.093                              | %Pb   |  |
| Sureau              | m us. Sample types, loc<br>pility for the accuracy a<br>plies only to polarized is | ations and collection p<br>and completeness of th | protocols are based up<br>is information. Reside<br>samples and transmi | on the information pu<br>al sample material w | and upon the condit<br>ovided by the person<br>ill be discarded in a | ion that it is not to be u<br>as submitting them an<br>ecordance with the ap | ised, in whole<br>id, unless col<br>propriate re | e or in part, in<br>lected by pers<br>gulatory guide | any adver<br>sonnel of t<br>elines, unl | tising or<br>hese Lab<br>ess other | publicity math<br>oratories, we e<br>wise requested<br>product certif | ats, the public and these Laboratori<br>er without prior written authorizati<br>expressly disclaim any knowledge a<br>d by the client. NVLAP Accreditati<br>fication, approval, or endorsement<br>reserved. AMA Analytical Services, J |

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## AMA Analytical Services, Inc. CERTIFICATE OF ANALYSIS N A Spocialized Environmental Leberatory ė

| Client:  | National Guard Bureau  | Job Name:     | ∧rmory               | Chain Of Custody:  | 128465     |
|----------|--|---------------|----------------------|--------------------|------------|
| Address: | 301-IH Old Bay Lane, Attn: NGB-AVN-SI,<br>State Military Reservation | Job Location: | Greenfield, MA       | Date Analyzed:     | 06/11/2004 |
|          | Havre de Grace, Maryland 21078                                       | Job Number:   | Not Provided         | Person Submitting: |            |
|          |  | P.O. Number:  | BPA #W912K6-04-A0002 | Report Date:       | 11-Jun-04  |

Page 2 of 2

NY ELAP

AIHA

# Summary of Atomic Absorption Analysis for Lead

| AMA Sample<br>Number | Client Sample<br>Number | Analysis Type | Sample Type | Air Volume<br>(L) | Area Wiped<br>(fi <sup>2</sup> ) |           | orting<br>imit | F | inal Res | ult   | Comments |
|----------------------|-------------------------|---------------|-------------|-------------------|----------------------------------|-----------|----------------|---|----------|-------|----------|
| 0448833              | 0203-24                 | Flame         | Wipe Blank  |                   | N/A                              | <br>14.00 | <br>ug         | < | 14       | ug    |          |
| 0448834              | 0203-03                 | Flame         | Air Blank   | 0                 | N/A                              | 3.00      | ug/m³          | < | 3        | ug    | 4        |
| 0448835              | 0203-01                 | Flame         | Air         | 224               | N/A                              | 13.39     | ug/m³          | < | 13       | ug/m² |          |
| 0448836              | 0203-02                 | Flame         | Air         | 245               | N/A                              | 12.24     | ug/m³          | < | 12       | ug/m² |          |

Analysis Method For Furnace: Air, Wipes, Paints, and Soil/Solids : EPA 600/R-93/200(M)-7421; Water: SM-3113B

mg/Kg = parts per million (ppm) by weight mg/L = parts per million (ppm) N/A = Not Applicable

ug = micrograms ug/L = parts per billion (ppb) %Pb = percent lead by weight

Note: All results have two significant digits. Any additional digits shown should not be considered when interpreting the result.

Analyst

**Technical Manager:** 



This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition 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 of 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 of the securacy 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 Cliability for the accuracy and completeness of this information. Residual sample material will be discarded in accordance with the appropriate regulatory guidelines, unless otherwise requested by the client. NVLAP Accreditation applies only to polarized light microscopy of bulk samples and transmission electron microscopy of AHERA air samples. This report must not be used to claim, and does not imply product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government. All rights reserved, AMA Analytical Services, Inc.

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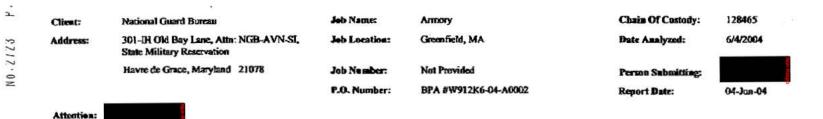
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AMA Analytical

Attention:



Page 1 of 1

### Summary of Atomic Absorption Analysis for Lead

| AMA Sample<br>Number | Client Sample<br>Number | Analysis Type | Sample Type | Air Volume<br>(L) | Area Wiped<br>(if?) |       | orting<br>Jadit | I | Final Res | <b>u</b> lt | Comments   |
|----------------------|-------------------------|---------------|-------------|-------------------|---------------------|-------|-----------------|---|-----------|-------------|--|
| R 0448831            | 0203-22                 | Flame         | Paint Chip  | ****              | N/A                 | 0.01  | %Рь             |   | 0.04      | %Pb         | And a second |
| 0448832              | 0203-23                 | Flame         | Paint Chip  | ****              | N/A                 | 0.01  | %Pb             |   | 0.093     | %Рь         |  |
| 0448834              | 0203-03                 | Flame         | Air Blank   | 0                 | N/A                 | 3.00  | vg/m³           | < | 3         | ug          |  |
| 0448835              | 0203-01                 | Flame         | Air         | 224               | N/A                 | 13.39 | ug/m'           | < | 13        | ug/m²       |  |
| 0448836              | 0203-02                 | Flame         | Air         | 245               | N/A                 | 12.24 | ug/m            | < | 12        | ug/m²       |  |

Algalysis Method for Flame: Air, Wipes, Paints, and Soil/Solids: EPA 600/R-93/200(M)-7420; Water: SM-31118

Adalysis Method For Furnace: Air, Wipes, Paints, and Soil/Solids : EPA 600/R-93/200(M)-7421; Water: SM-3113B

N/A = Not Applicable mg/Kg = parts per million (ppm) by weight mg/L = parts per million (ppm)

%Pb = percent lead by weight ug = micrograms ug/L = parts per billion (ppb)

Note: All results have two significant digits. Any additional digits shown should not be considered when interpreting the result.



Technical Manager:

-

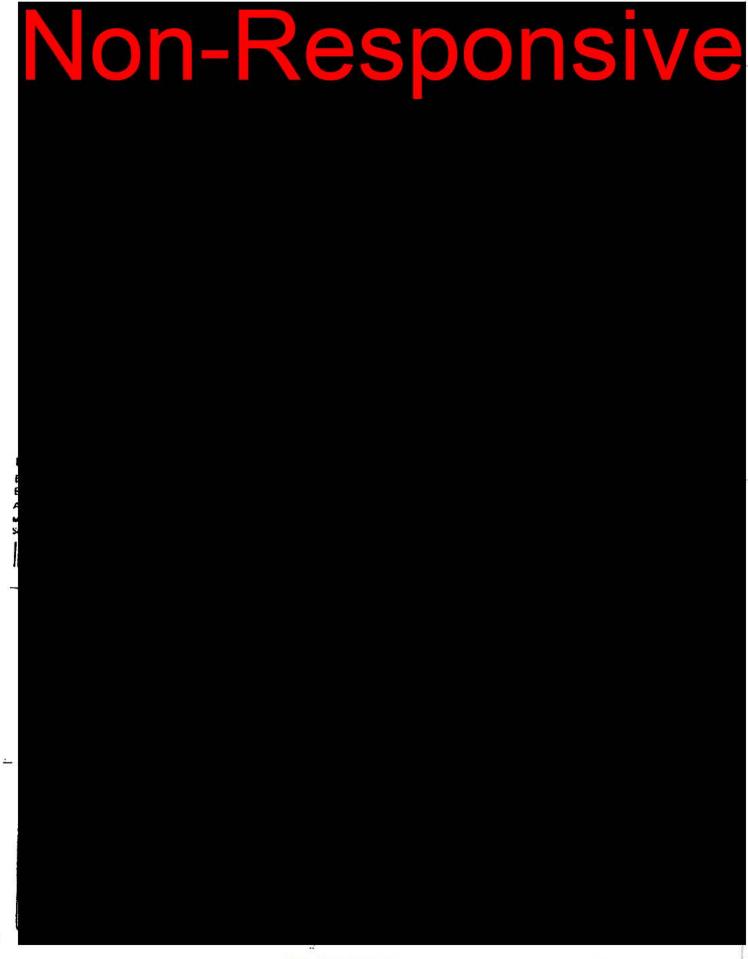
# APPENDIX E

# TRAINING CERTIFICATES

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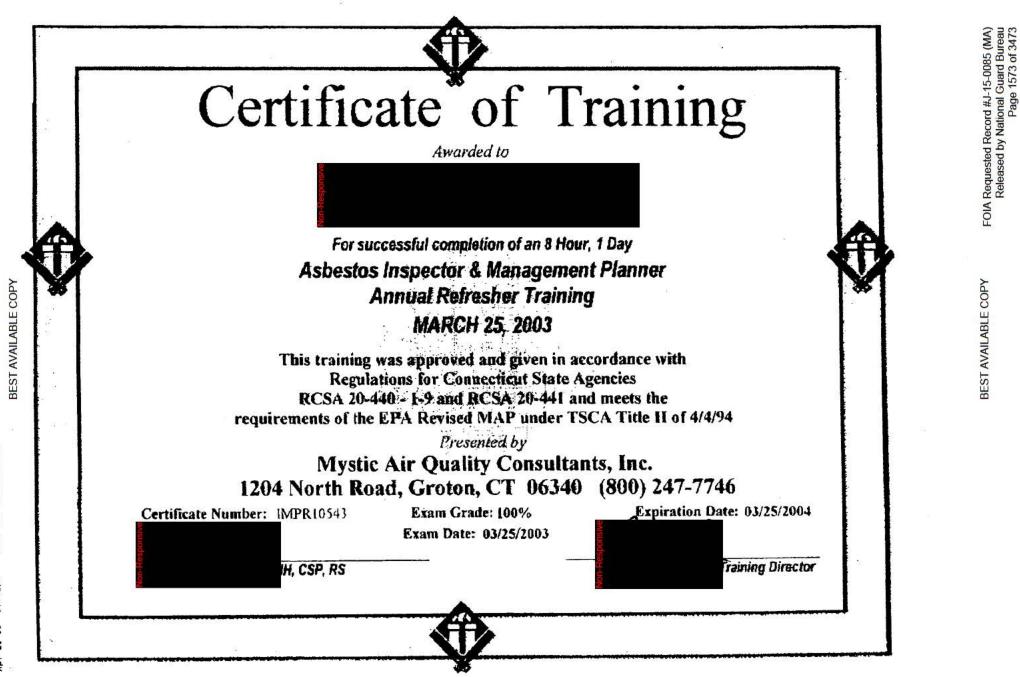


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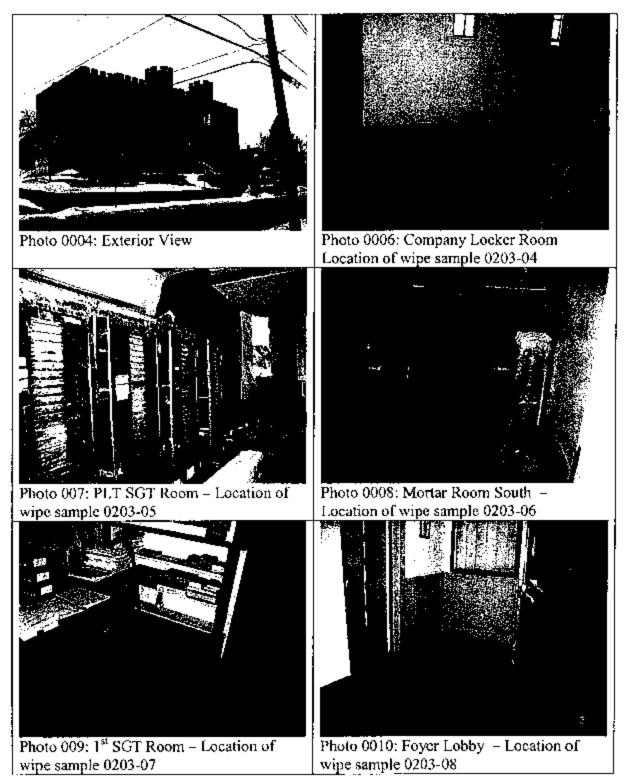
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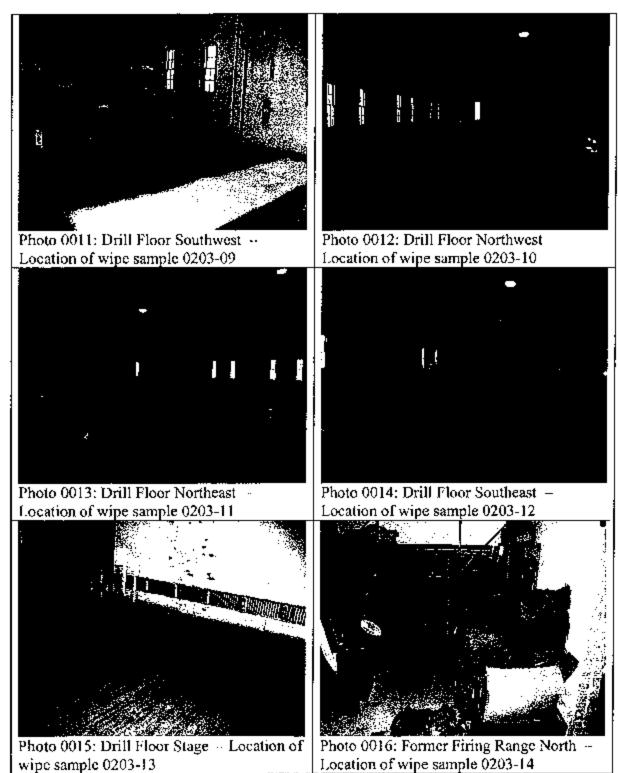
APPENDIX F

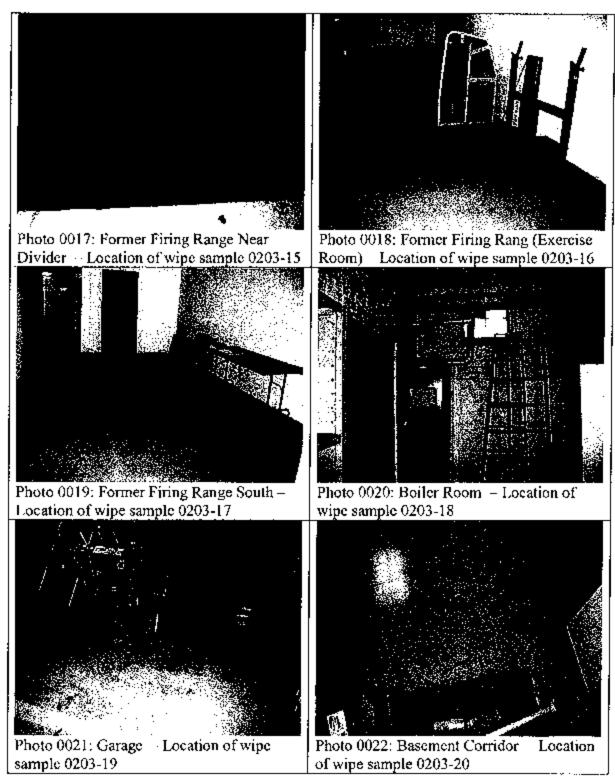
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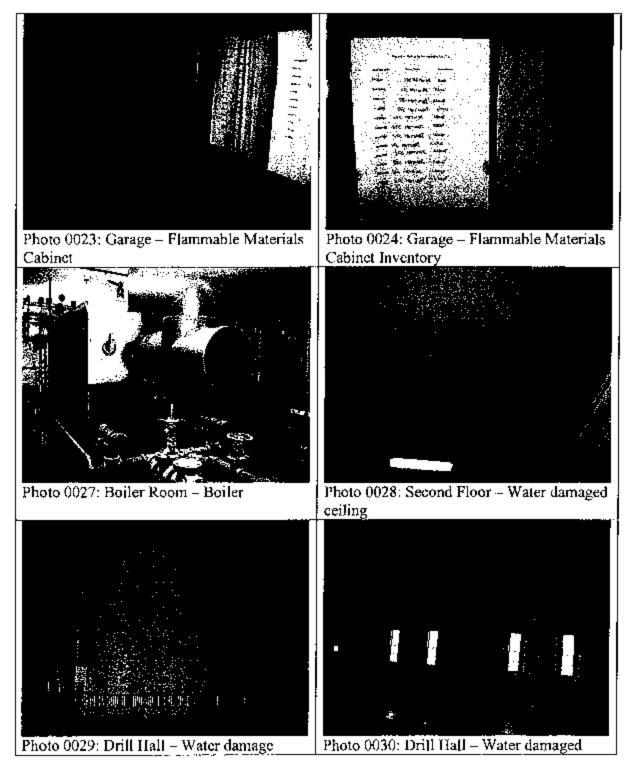
PHOTOGRAPHS

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APPENDIX G

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# **RECOMMENDATIONS FOR SURFACE LEAD DUST IN ARMORIES**

Subject: Recommendations for Surface Lead Dust in Armories

1. In armories that do not contain childcare facilities, the National Guard Bureau (NGB) Region North Industrial Hygiene Office recommends cleaning the areas in which sample results are greater than 200 micrograms per square foot ( $\mu$ g/ft<sup>2</sup>). 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/ft<sup>2</sup>) and windowsills (250 µg/ft<sup>2</sup>) in residential dwellings and child occupied facilities. A child occupied facility is defined as a building, or portion of a building, constructed prior to 1978, visited regularly by the same child, 6 years of age or under, on at least two different days within any week (Sunday through Saturday period), provided that each day's visit lasts at least 3 hours and the combined weekly visit lasts at least 6 hours, and the combined annual visits last at least 60 hours. Most of the wipe samples in armories were collected in undisturbed areas and therefore, results are worst case scenarios and do not correlate to these standards.

b. OSHA has no specific requirement for work area surfaces. The lead standard (29 CFR 1910.1025(h)) states that all surfaces shall be maintained as free as practicable of accumulations of lead dust. In workplaces where lead dust is generated, surface levels may be much higher, but personnel exposures can be controlled by limiting airborne lead levels and following good cleanup and hygienic practices.

c. OSHA used to cite a level of 200  $\mu$ g/ft<sup>2</sup> 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<sup>2</sup> is a safe surface contamination level. They have also applied these standards as the decontamination levels for surfaces in administrative offices.

e. It should be noted that levels above these recommendations do not necessarily mean there is a significant hazard to workers who are following good cleaning and hygienic practices since there is no correlation between wipe and air samples. Rather, we recommend these levels as a precautionary measure.

2. The NGB Occupational Health Branch is developing guidance for armories that are used as childcare facilities. All states will receive this guidance when it is completed. In the interim, we recommend the following actions:

a. Clean all areas that will be accessible to children to the EPA dust-lead standard for children 6 years of age or under (40  $\mu$ g/fl<sup>2</sup> on floors and 250  $\mu$ g/ft<sup>2</sup> 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/m<sup>3</sup> averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead dust in this building.

# **Industrial Hygiene Survey**

Massachusetts Army National Guard (MA ARNG)

Prepared For: NGB ARNG- Region North IH Office

Survey Location:

Greenfield Readiness Center 71 Hope Street Greenfield, MA 01301-3516

Prepared By: Aria Environmental, Inc. (AEI) PO Box 286 Woodbine, MD 21797

Survey Date: July 29, 2010 Report Date: September 16, 2010

AEI Project #: J10-513 3a MA Greenfield RC

#### Non-Responsiv

Industrial Hygienist



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- Table 3 Results of Asbestos Sampling for the MA ARNG RC Greenfield Readiness Center on July 29, 2010.
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- Appendix A Building Layout
- Appendix B Certificates of Analysis for Air, Dust Wipe and Bulk Samples
- Appendix C Photo Documentation
- Appendix D IAQ and Lighting Survey Log Sheets

## **Executive Summary**

Aria Environmental, Inc. (AEI) was contracted to perform an industrial hygiene evaluation for the Readiness Center located at 71 Hope Street, Greenfield, MA, 01301-3516 Non-Responsive performed the evaluation on July 29, 2010. The point of contact for the facility was SGT The purpose of the evaluation was to identify and measure the existence and extent of potentially hazardous operations or conditions at Army National Guard (ARNG) facilities. The survey included: (1) evaluations of operations including operation description, ventilation system evaluations, noise dosimetry if appropriate, lighting surveys, hazard control evaluations and any additional information pertinent to the operations; (2) an evaluation of the physical condition of the facility and personnel concerns including materials, water damage or mold problems; indoor air quality concerns; and housekeeping practices; and (3) photographs of the exterior and interior of the readiness center. The results of the evaluation indicated the following:

**Noise Hazards:** No noise-generating activities were taking place on the day of the survey. Due to the nature of the tasks performed onsite, no activities requiring noise monitoring are anticipated to occur at the RC.

Lead in Air Samples: Results of collected air samples were below regulatory limits for lead. (50  $\mu$ g/m<sup>3</sup>).

Paint Chip and Wipe Samples for Lead Contamination: Three of six wipe samples collected from the former firing range were above the National Guard criteria for lead contamination (200  $\mu$ g/ft<sup>2</sup>). Samples ranged from 1.8 to 21 times the National Guard criteria. Lead was identified on the overhead exhaust fan, on top of the light fixture, on stored footlockers and on the floor of the range. Additionally, the wipe sample taken from the floor immediately outside the former firing range was above National Guard criteria. One sample from the radiator in a basement storage room and one sample collected from the top of the flammable cabinet located in the basement were reported as 690 and 450  $\mu$ g/ft<sup>2</sup> respectively.

Peeling paint was identified on the bullet trap remaining in the old firing range. Paint chip samples were collected from the peeling paint on the bullet trap. The lead content of the paint chip sample was less than 0.5% by weight and is not considered lead-based paint.

**Visual Inspection for Damaged Asbestos-Containing Materials:** No damaged suspect asbestoscontaining materials were observed at the Greenfield Readiness Center.

**Visual Inspection for Water Damage and Mold Growth:** A visual inspection was performed to determine if there was any water damage or visible mold growth at the facility. Standing water was present in the basement storage rooms. Water has been infiltrating the storage space for some time and standing water pools along the exterior wall. Although the exact source of the water is unknown and was not readily apparent, National Guard personnel have indicated they believe it is a result of water seepage through exterior foundation walls.

**Visual Inspection for Housekeeping Concerns:** A visual inspection was performed to assess the state of housekeeping in the facility. The housekeeping was good. All areas were clean and tidy.

**Lighting:** The evaluation indicated that there are some illumination deficiencies in the: quarters, stage, classroom, kitchen, garage and boiler room. The illumination measurements indoors ranged from a low of 1.3 foot candles (fc) to a high of 141.1 fc.

**Indoor Air Quality:** Temperatures and relative humidity measurements were outside the acceptable range in most of the facility. These results are not unexpected due to outdoor conditions on the day of the survey and the lack of air conditioning in most of the facility. Those areas with window air conditioning units were within acceptable ranges. Indoor levels of CO<sub>2</sub> ranged from 306 to 798 parts per million (ppm) and outdoor CO<sub>2</sub> levels were approximately 421 ppm during the monitored period. CO<sub>2</sub> measurements were below the guideline in all areas, indicating adequate fresh air exchange. Carbon dioxide levels in areas over the guideline were 1.14 times or less than the established guidelines. Indoor levels of CO ranged from 0 to 0.1 ppm; therefore, concentrations are below occupational exposure limits, ASHRAE and the NAAQS-recommended CO concentrations.

## 1 Introduction

Aria Environmental, Inc. (AEI) was contracted to perform an industrial hygiene evaluation for the Massachusetts Army National Guard (MA ARNG) Readiness Center located at 71 Hope Street, Greenfield, MA 01301-3516. Non-Responsive performed the evaluation on July 29, 2010. The point of contact for the facility was SGT . The purpose of the evaluation was to identify and measure the existence and extent of potentially hazardous operations or conditions at Army National Guard (ARNG) facilities.

The Greenfield Readiness Center is staffed with 3 administrative personnel. The operations conducted at the facility include supply and administrative duties. A diagram of the building layout is provided in Appendix A. All sampling sheets and laboratory certificates of analysis are provided in Appendix B. Selected photographs taken during the evaluation are provided in Appendix C. Indoor air quality and lighting survey measurement log sheets are provided in Appendix D. Lists of all references used during the evaluation are included in the main body of the report.

## 2 Evaluation Methods

The industrial hygiene survey of the Greenfield Readiness Center consisted of visual inspections, interviews with employees, and sampling plan development in order to achieve the following: (1) evaluations of operations including operation description, sampling for lead in air or on surfaces if appropriate, ventilation system evaluations, noise measurements if appropriate, lighting surveys, hazard control evaluations and any additional information pertinent to the operations; (2) an evaluation of the physical condition of the facility and personnel concerns including visual inspections for peeling potentially lead-based paint, damaged suspect asbestos-containing materials, water damage or mold problems; indoor air quality concerns; and housekeeping practices; and (3) a building layout and photographic documentation of the interior of the facility.

The National Guard Bureau (NGB) Region North IH Office provided all industrial hygiene equipment for air sampling (equipment and media), ventilation, lighting, noise and IAQ survey instruments and paid for laboratory analytical fees. Laboratories were chosen or approved by the NGB IH office.

## 3 Operations

Operations conducted at the Greenfield facility consists exclusively of supply and administrative duties. No maintenance of vehicles, painting of equipment or other physical tasks are performed at the facility. Ground maintenance and upkeep of the building are the responsibility of the state employed Armorer and not part of the duties of National Guard personnel.

## 4 Noise Hazards

No noise-generating activities were taking place on the day of the survey. Due to the nature of the tasks performed onsite, no activities requiring noise monitoring are anticipated to occur at the RC.

# 5 Hazard Controls

## Ventilation Systems

Heat is supplied to the facility through a boiler located in the boiler room and overhead heaters in the drill hall. The boiler certificate for the Greenfield facility is expired and is not up to date. Personnel indicated the new boiler certification was in the mail. Any air conditioning provided to the building is through window air conditioning units. No local ventilation systems were present at the facility.

## 6 Physical Condition of the Facility and Personnel Concerns

An evaluation of the physical condition of the facility and personnel concerns was performed including visual inspections for water damage or mold problems; potential ergonomic problems; and housekeeping practices. Lighting and indoor air quality measurements were taken in all areas of the facility as well.

## Lead in Air Samples

To determine if any airborne contamination of lead existed in the facility, air sampling for lead was conducted in two offices in the facility and analyzed by AMA for atomic absorption spectrophotometry (AAS) following the analytical method ASTM D3335-85A. Results are given in Table 1 and certificates of analysis are included in Appendix B.

| Air Sample # | Sample Location  | Result (µg/m³) |  |  |
|--------------|------------------|----------------|--|--|
| GRE-01       | Room 10, On Desk | <3.3           |  |  |
| GRE-02       | Room 13, On Desk | <3.3           |  |  |

#### Table 1 – Results of Lead in Air Sampling for the MA ARNG Greenfield Readiness Center on July 29, 2010.

\*The OSHA PEL for Lead in Air is  $50 \,\mu\text{g/m}^3$ .

## Paint Chip and Dust Wipe Samples for Lead Contamination

To determine if any cross contamination of lead from any source into areas of the facility existed, wipe samples were collected using ghost wipes and 10cm x 10cm templates. Wipe samples for surface dust were collected in 19 locations. The Environmental Protection Agency (EPA) and the Commonwealth of Massachusetts limits for lead in dust are 40 micrograms per square foot  $(\mu g/ft^2)$  on floors, 250  $\mu g/ft^2$  on window sills, and 400  $\mu g/ft^2$  in window troughs. These limits apply to pre-1978 Army facilities only if children under 6 years of age occupy them for 60 or more hours per year. The NGB Region North Industrial Hygiene Office concurs with the US Army Center for Health Promotion and Preventive Medicine (USACHPPM) recommended maximum level for adult exposures of 200 µg/ft<sup>2</sup> on floors and frequently contacted surfaces, which is more stringent for window sills than the EPA/State standards. Dust wipe samples were submitted to Aerosol Monitoring and Analysis Analytical Services, Inc. (AMA) for atomic absorption spectrophotometry (AAS) following the analytical method ASTM D3335-85A. Three of six samples collected from the former firing range, now used but not converted to storage, were above the National Guard criteria for lead contamination (200 µg/ft<sup>2</sup>). Samples ranged from 1.8 to 21 times the National Guard criteria. Lead was identified on the overhead exhaust fan, on top of the light fixture, on stored footlockers and on the floor of the range. Additionally the wipe sample taken from the floor immediately outside the former firing range was also above National Guard criteria. One sample from the radiator in a basement storage room and one sample collect4ed from the top of the flammable cabinet located in the basement were reported as 690 and 450

 $\mu$ g/ft<sup>2</sup> respectively. Results are given in Table 2 and certificates of analysis are included in Appendix B.

| Greenfield Readiness Center on July 29, 2010. |   |                                    |  |  |  |  |
|---|---|------------------------------------|--|--|--|--|
| Vipe Sample #                                 | Sample Location   | Result (µg/ft²)*                   |  |  |  |  |
| GRE-PB-01                                     | Room 27, Former Indoor Firing Range,<br>Bullet Trap     | 180                                |  |  |  |  |
| GRE-PB-02                                     | Room 27, Former Indoor Firing Range,<br>Light Fixture   | 370                                |  |  |  |  |
| GRE-PB-03                                     | Room 27, Former Indoor Firing Range,<br>Foot Locker     | 1,100                              |  |  |  |  |
| GRE-PB-04                                     | Room 27, Former Indoor Firing Range,<br>Floor           | 4,200                              |  |  |  |  |
| GRE-PB-05                                     | Room 27, Former Indoor Firing Range,<br>Overhead Heater | <110                               |  |  |  |  |
| GRE-PB-06                                     | Immediately at Side Door of Room 27                     | 540                                |  |  |  |  |
| GRE-PB-07                                     | Kitchen, From Prep Table                                | <110                               |  |  |  |  |
| GRE-PB-08                                     | Room 10, Radiator                                       | 690                                |  |  |  |  |
| GRE-PB-09                                     | Assembly Hall, Middle of Floor                          | <110                               |  |  |  |  |
| GRE-PB-10                                     | Assembly Hall, Stage                                    | <110                               |  |  |  |  |
| GRE-PB-11                                     | Assembly Hall, Table Along Exterior Wall                | 120                                |  |  |  |  |
| GRE-PB-12                                     | Room 26, On Top of Flammable Cabinet                    | 450                                |  |  |  |  |
| GRE-PB-13                                     | Room 19, From Shelving Unit                             | <110                               |  |  |  |  |
| GRE-PB-14                                     | Room 20, From Mantle                                    | <110                               |  |  |  |  |
| GRE-PB-15                                     | Room 14, On Top of File Cabinet                         | <110                               |  |  |  |  |
| GRE-PB-16                                     | Room 17, Middle of Floor                                | <110                               |  |  |  |  |
| GRE-PB-17                                     | Room 15, Desk Top                                       | <110                               |  |  |  |  |
| GRE-PB-18                                     | Room 3, From Bar Top                                    | <110                               |  |  |  |  |
| GRE-PB-19                                     | Room 6, Top of Steps                                    | <110                               |  |  |  |  |
| Sector Sector Party and                       |   | 3 (16)/40/CC (17) (160/16/CC) (17) |  |  |  |  |

#### Table 2 – Results of Dust Wipe Sampling for MA ARNG Greenfield Readiness Center on July 29, 2010.

\*The US Army CHPPM recommends a maximum level for adult exposures of 200 µg/ft<sup>2</sup> lead on floors

A visual inspection was performed to determine if there were any areas of peeling paint at the facility that could pose a lead exposure hazard. Peeling paint was identified on the bullet rap remaining in the old firing range. Paint chip samples were collected from the peeling paint on the bullet trap. Samples were submitted to Aerosol Monitoring and Analysis Analytical Services, Inc. (AMA) for atomic absorption spectrophotometry (AAS) following the analytical method ASTM D3335-85A. In Massachusetts, paint is considered to be lead-based if it contains more than 0.5 % lead by weight. The lead content of the paint chip samples was less than 0.5% by

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weight and is not considered lead-based paint. Results are given in Table 3 and certificates of analysis are included in Appendix B.

#### Table 3 – Results of Paint Chip Sampling for MA ARNG Greenfield Readiness Center on July 29, 2010.

| Paint Chip<br>Sample # | Sample Location              | Result (% by wt )* |
|------------------------|------------------------------|--------------------|
| GRE-LBP-01             | Peeling Paint on Bullet Trap | 0.47               |

\*Paint is considered lead-based if it is > 0.5% by weight.

#### Visual Inspection for Damaged Suspect Asbestos-Containing Materials

A visual inspection was performed to determine if there were any suspect asbestos-containing material and its condition. The EPA defines an asbestos-containing material as one percent (1%) or more asbestos by visual estimation. No damaged suspect asbestos-containing materials were observed at the Greenfield Readiness Center.

#### Visual Inspection for Water Damage and Mold Growth

A visual inspection was performed to determine if there was any water damage or visible mold growth at the facility. Standing water was present in the basement storage rooms. Water has been infiltrating the storage space for some time and standing water pools along the exterior wall. Although the exact source of the water is unknown and was not readily apparent, National Guard personnel have indicated they believe it is a result of water seepage through exterior foundation walls.

#### Visual Inspection for Housekeeping Concerns

A visual inspection was performed to assess the state of housekeeping in the facility. The housekeeping was good. All areas were clean and tidy.

#### Lighting

Illumination levels were measured using a Cal-Light 400L, calibrated on July 30, 2009, and compared to minimum lighting requirements for various facilities and functions based on the following references: American National Standards Institute/Illumination Engineering Society of North America (ANSI/IESNA) Standard RP-1-04 (Office Lighting) and ANSI/IESNA Standard RP-7-01 (Lighting Industrial Facilities).

A lighting survey was performed in all areas within the readiness center. The evaluation indicated that there are some illumination deficiencies in the: quarters, stage, classroom, kitchen, garage and boiler room. The illumination measurements indoors ranged from a low of 1.3 foot candles (fc) to a high of 141.1 fc. The complete results of the evaluation are presented in Appendix D, including whether the results met minimum requirements for illumination. Additional illumination can be achieved by replacing burned-out lamps, cleaning fixtures, relocating detailed work to more illuminated areas, using supplemental task lighting, and opening doors or windows to provide more natural lighting.

#### Indoor Air Quality (IAQ)

Indoor air quality measurements (i.e., temperature, relative humidity, carbon dioxide and carbon monoxide) were taken using a factory calibrated TSI Q-Trak Plus Model 7565X. Temperature, relative humidity and carbon dioxide (CO<sub>2</sub>) measurements were compared to the recommended levels established by the American Society of Heating, Refrigerating and Air-

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Conditioning Engineers (ASHRAE). Carbon monoxide (CO) concentrations were compared to the ACGIH Threshold Limit Value (TLV) for CO and the Environmental Protection Agency's (EPA's) National Ambient Air Quality Standard (NAAQS) for CO.

Industry guidelines or standards for seasonal temperature and humidity ranges for thermal comfort are established by ASHRAE standard 55-2004. These ranges are presented in Table 4. The U.S. EPA also recommends maintaining relative humidity below 60% and ideally between 30 and 50% to prevent mold growth. Complete results are provided in Appendix G with the lighting survey measurements.

| Relative<br>Humidity | Winter<br>Temperature | Summer<br>Temperature |  |  |  |  |  |
|----------------------|-----------------------|-----------------------|--|--|--|--|--|
| 30%                  | 68.5°F - 76.0°F       | 74.0°F – 80°F         |  |  |  |  |  |
| 40%                  | 68.5°F – 75.5°F       | 73.5°F – 79.5°F       |  |  |  |  |  |
| 50%                  | 68.5°F - 74.5°F       | 73.0°F - 79.0°F       |  |  |  |  |  |
| 60%                  | 68.0°F - 74.0°F       | 72.5°F - 78.0°F       |  |  |  |  |  |

#### Table 4 - Acceptable Ranges of Temperature and Relative Humidity in Summer and Winter<sup>a</sup>

adapted from ASHRAE Standard 55-2004

#### Temperature and Relative Humidity

Indoor temperature and relative humidity (Rh) measurements in the facility ranged from 76.4 to 87.0° F and 42.5 to 61.1% Rh. Outdoor temperature and humidity measurements were 86.5° F and 42.5% on the day of monitoring. Temperatures and relative humidity measurements were outside the acceptable range in most of the facility. These results are not unexpected due to outdoor conditions on the day of the survey and the lack of air conditioning in most of the facility. Those areas with window air conditioning units were within acceptable ranges.

#### Carbon Dioxide (CO2) and Carbon Monoxide (CO)

Carbon dioxide and carbon monoxide measurements are used to assess ventilation system performance. The exhaled breath of building occupants is the main indoor source of carbon dioxide; therefore, the build up of  $CO_2$  indicates inadequate ventilation. The concentration of concern for carbon dioxide is set by ASHRAE standard 62.1 - 2007 as 700 ppm above outdoor concentrations. Indoor levels of  $CO_2$  ranged from 306 to 798 parts per million (ppm) and outdoor  $CO_2$  levels were approximately 421 ppm during the monitored period.  $CO_2$  measurements were below the guideline in all areas, indicating adequate fresh air exchange.

Carbon monoxide is a byproduct of incomplete combustion. Indoor concentrations indicate contamination caused by improperly vented or malfunctioning boilers, furnaces or stoves or from vehicle exhaust entering the building from garages, loading docks, nearby roads or parking lots. The concentration of interest set by ASHRAE standard 62.1-2007 and the National Ambient Air Quality Standards (NAAQS) for carbon monoxide is an 8 hour average of 9 ppm. The ACGIH TLV for CO is 25 ppm. Indoor levels of CO ranged from 0 to 0.1 ppm; therefore, concentrations are below occupational exposure limits, ASHRAE and the NAAQS-recommended CO concentrations.

#### 7 Conclusions

The results of the evaluation indicated no concerns with the following at the facility: contamination of clean air sources, the presence of damaged suspect asbestos-containing materials, peeling potentially lead-based paints, noise hazards, visible mold and housekeeping.

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The results of the evaluation indicated industrial hygiene concerns in the following areas: cross contamination from the former firing range, indoor air quality, water intrusion and lighting. Overall, Greenfield Readiness Center has few industrial hygiene issues, and programs are in place to protect, inform and train employees.

#### 8 Limitations

This report has been prepared for the exclusive use of the U.S. Army National Guard (USARNG) and/or their agents. This service has been performed in accordance with generally accepted industrial hygiene and environmental practices. No other warranty, expressed or implied, is made. Our conclusions and recommendations are based, in part, upon information provided to us by others and our site observations. We have not verified the completeness or accuracy of the information provided to us by others, unless otherwise noted. Our observations and recommendations readily visible at the site at the time of our site visit, and upon current industry standards.

By virtue of providing the services described in this report, the preparer does not assume the responsibility of the person(s) in charge of the site, or otherwise undertake responsibility for reporting to any local, state, or federal public agencies any conditions at the site that my present a potential danger to public health, safety, or the environment. It is the Client's responsibility to notify the appropriate local, state, or federal public agencies as required by law, or otherwise to disclose, in a timely manner, any information that may be necessary to prevent any danger to public health, safety, or the environment. Under this scope of services, the preparer assumes no responsibility regarding response actions initiated as a result of these findings. Response actions are the sole responsibility of the Client and should be conducted in accordance with local, sate, and/or federal requirements, and should be performed by appropriately licensed personnel as warranted.

#### 9 References

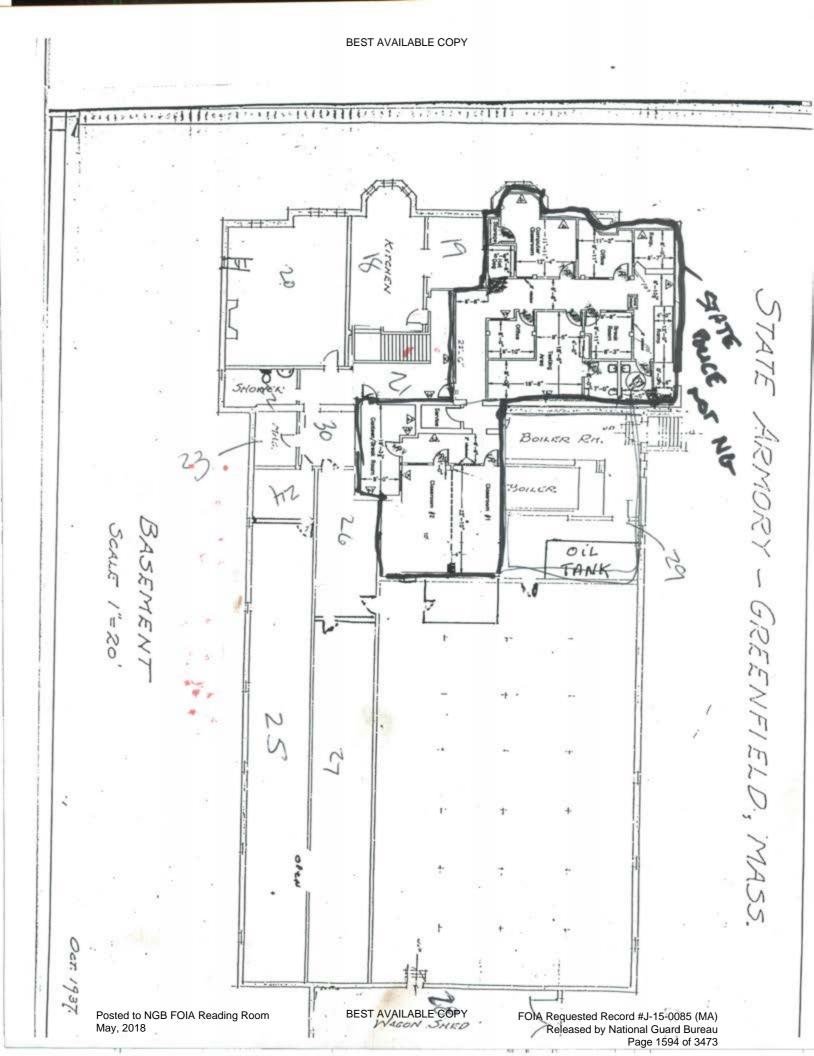
- 1. Title 29, Code of Federal Regulations (CFR), Part 1910, Occupational Safety and Health Administration, current edition.
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- 6. Department of the Army Pamphlet (DA PAM) 40-501, Medical Service, Hearing Conservation Program, December 15, 1998.
- 7. Department of the Army Pamphlet (DA PAM) 40-503, Medical Service, Industrial Hygiene Program, October 30, 2000.
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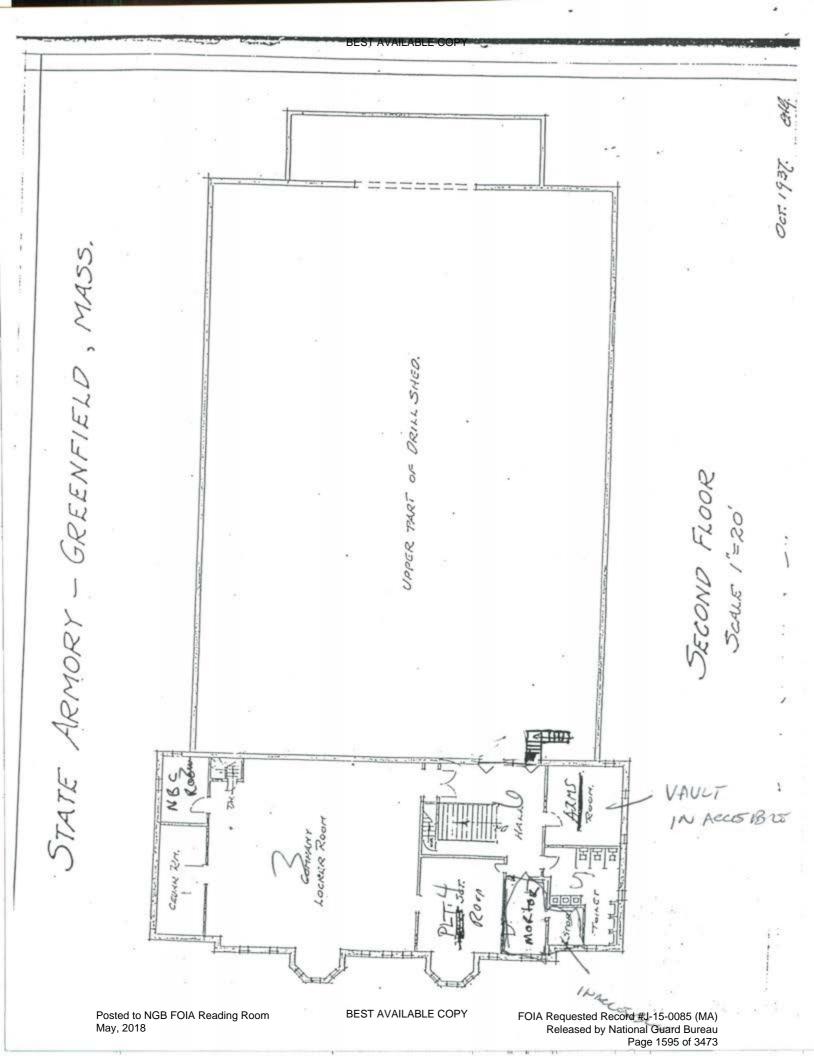
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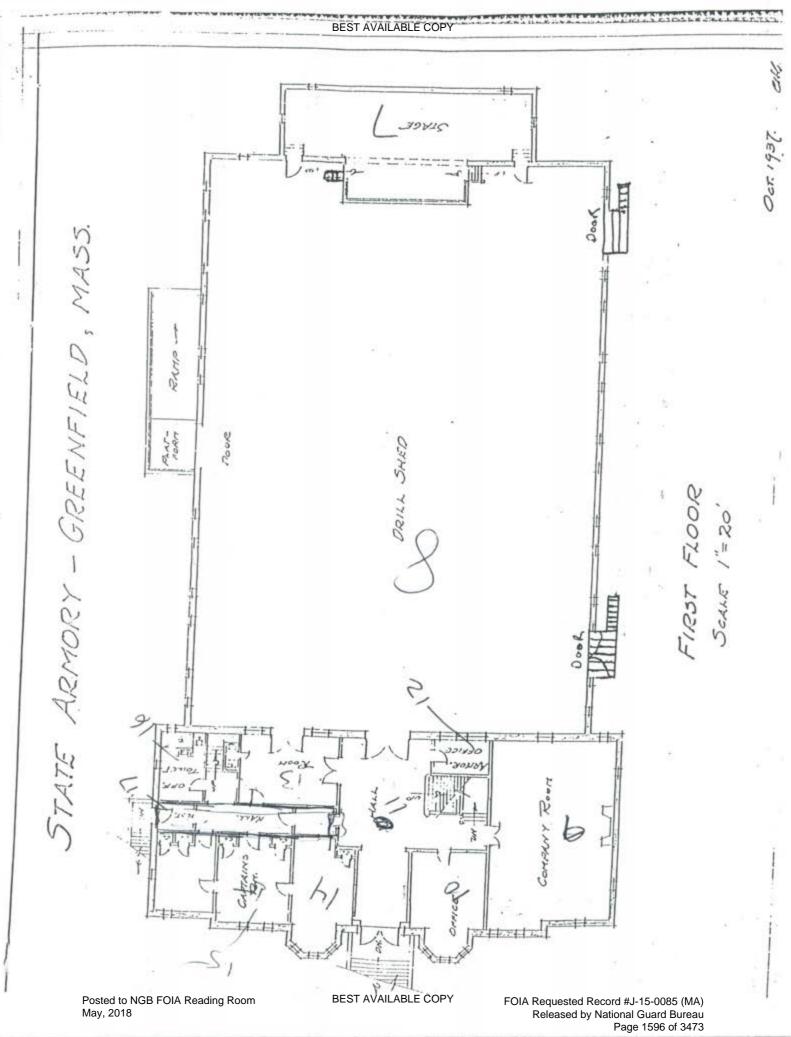
#### Industrial Hygiene Survey Report Massachusetts Army National Guard (MA ARNG) Greenfield Readiness Center

- 10. RP-1-2004 (Office Lighting) and RP-7-2001 (Industrial Lighting), Illuminating Engineering Society of North America (IESNA)/ANSI.
- 11. The American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE), Standard 62.1-2007, "Ventilation for Acceptable Indoor Air Quality" and Standard 55-2004, "Thermal Environmental Conditions for Human Occupancy".
- 12. NIOSH website: http://www.cdc.gov/niosh/
- 13. OSHA website: http://www.osha.gov/.
- 14. Army CHPPM website: http://chppm-www.apgea.army.mil/.
- 15. EPA website: <u>http://www.epa.gov</u>.

Appendix A Building Layout







Appendix B Certificates of Analysis for Air, Dust Wipe and Bulk Samples

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A Specialized Environmental Laboratory

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#### CERTIFICATE OF ANALYSIS

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Page 1 of 2

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#### Summary of Atomic Absorption Analysis for Lead

Sample Type Air Volume Area Wiped Reporting Total ug **Final Result** Comments Client Sample Analysis Type **AMA Sample** Number (L) (ft²) Limit Number <3 GRE-01 906 N/A 3.3 ug/m3 <3.3 ug/m<sup>3</sup> 1066224 Flame Air N/A <3 <3.3 GRE-02 909 3.3 ug/m3 ug/m<sup>3</sup> 1066225 Flame Air \*\*\*\* 0.108 ug/fl2 19 180 ug/ft2 1066226 GRE-Pb-01 Flame Wipe 110 \*\*\*\* 0.108 40 370 ug/ft2 Wipe 110 ug/ft2 1066227 GRE-Pb-02 Flame \*\*\*\* 0.108 120 ug/ft2 GRE-Pb-03 Wipe 110 ug/ft2 1100 1066228 Flame \*\*\*\* GRE-Pb-04 Wipe 0.108 110 ug/ft2 460 4200 ug/ft2 1066229 Flame \*\*\*\* 0.108 <12 <110 ug/ft2 GRE-Pb-05 110 ug/ft2 1066230 Flame Wipe \*\*\*\* 0.108 ug/ft² 58 540 ug/ft2 1066231 GRE-Pb-06 Flame Wipe 110 \*\*\*\* 0.108 <12 ug/ft2 110 ug/ft2 <110 1066232 GRE-Pb-07 Flame Wipe \*\*\*\* ug/ft² 0.108 GRE-Pb-08 Wipe 110 ug/fl<sup>2</sup> 74 690 1066233 Flame \*\*\*\* 0.108 110 ug/ft2 <12 <110 ug/fl<sup>2</sup> 1066234 GRE-Pb-09 Flame Wipe \*\*\*\* 0.108 <12 <110 ug/ft2 Wipe 110 ug/ft2 1066235 GRE-Pb-10 Flame \*\*\*\* 0.108 13 120 ug/ft2 1066236 GRE-Pb-11 Flame Wipe 110 ug/fl2 \*\*\*\* 49 450 ug/fl<sup>2</sup> GRE-Pb-12 Wipe 0.108 110 ug/ft2 1066237 Flame \*\*\*\* 0.108 <12 <110 ug/fl2 Wipe 110 ug/fl2 1066238 GRE-Pb-13 Flame \*\*\*\* 1066239 GRE-Pb-14 Wipe 0.108 110 ug/ft<sup>2</sup> <12 <110 ug/ft2 Flame \*\*\*\* 0.108 <12 <110 ug/ft2 1066240 GRE-Pb-15 Flame Wipe 110 ug/ft2 \*\*\*\* 0.108 <12 <110 ug/ft2 1066241 GRE-Pb-16 Flame Wipe 110 ug/ft² \*\*\*\* 0.108 <12 <110 ug/ft2 GRE-Pb-17 Flame Wipe 110 ug/ft² 1066242

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public, and these Laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from us. Sample types, locations, and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information. Residual sample material will be discarded in accordance with the appropriate regulatory guidelines, unless otherwise requested by the client. NVLAP accreditation applies only to polarized light microscopy of bulk samples and transmission electron microscopy of AHERA air samples. This report must not be used to claim, and does not imply product certification, approval, or endorsement by NY ELAP, AIHA, NVLAP, NIST, or any agency of the Federal Government. All rights reserved. AMA Analytical Services, Inc.

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## CERTIFICATE OF ANALYSIS

|            |  |               |                  |                    |                | ISO.NEC 17025-2005<br>www.aihaaccreditediabis.org |
|------------|--|---------------|------------------|--------------------|----------------|---|
| Client:    | National Guard Bureau  | Job Name:     | Greenfield Amory | Chain Of Custody:  | 508459         | NY ELAP   |
| Address:   | 301-IH Old Bay Lane, Attn: NGB-AVN-SI,<br>State Military Reservation | Job Location: | Greenfield, MA   | Date Submitted:    | 8/2/2010       | 10920   |
|            | Havre de Grace, Maryland 21078                                       | Job Number:   | Not Provided     | Person Submitting: | Non-Henpenbrow |   |
|            |  | P.O. Number:  | W912K6-09-A-0003 | Date Analyzed:     | 8/9/2010       | Report Date: 8/9/2010                             |
| Attention: | Non-Responsive   |               |                  |                    |                |   |

#### Summary of Atomic Absorption Analysis for Lead

Page 2 of 2

AIHA LAP. LLC

ACCREDITED LABORATOR INDUSTRIAL HYGIENE, ENVIRONMENTAL LEAD & ENVIRONMENTAL MICROBIOLOGY

| 1066243       GRE-Pb-18       Flame       Wipe       ****       0.108       110       ug/ft²       <12       <110       ug/ft²         1066244       GRE-Pb-19       Flame       Wipe       ****       0.108       110       ug/ft²       <12       <110       ug/ft²         1066245       GRE-LBP-01       Flame       Paint Chip       ****       N/A       0.011       %Pb       0.47       %Pb         Analysis Method for Flame: Air, Wipes, Paints, and Soil/Solids: EPA 600/R-93/200(M)-7420; Water: SM-3111B       See QC Summary for analytical results of quality control samples associated with these sampes.       NY ELAP accreditation applies only to paint chip, wipe, and soil         N/A = Not Applicable       mg/Kg = parts per million (ppm) on a dry weight basis       mg/L = parts per billion (ppb)       NY ELAP accreditation applies only to paint chip, wipe, and soil samples.         %Pb = percent lead on a dry weight basis       ug = micrograms       ug/L = parts per billion (ppb)       NY ELAP accreditation applies only to paint chip, wipe, and soil samples.         Note: All results have two significant digits. Any additional digits shown should not be considered when interpreting the result.       Analysis shown       Non-Responsive  | AMA Sample<br>Number  | Client Sample<br>Number   | Analysis Type                   | Sample Type | Air Volume<br>(L)   | Area Wiped<br>(ft²)   | A     | oorting<br>Jimit | Total ug | Final Result |                 | Comments        |
|--|---|---|---------------------------------|-------------|---|---|-------|------------------|----------|--------------|-----------------|-----------------|
| 1060244       CREPTORIS       Frame       Write       0.105       110       upril       012       010       upril         1066245       GRE-LBP-01       Flame       Paint Chip       ****       N/A       0.011       %Pb       0.47       %Pb         Analysis Method for Flame: Air, Wipes, Paints, and Soil/Solids: EPA 600/R-93/200(M)-7420; Water: SM-3111B       See QC Summary for analytical results of quality control samples associated with these sampes.       NY ELAP accreditation applies only to paint chip, wipe, and soil         M/A = Not Applicable       mg/Kg = parts per million (ppm) on a dry weight basis       mg/L = parts per million (ppm)       NY ELAP accreditation applies only to paint chip, wipe, and soil         Mote: All results have two significant digits. Any additional digits shown       Mote Postocol       Mote Postocol  | 1066243   | GRE-Pb-18   | Flame                           | Wipe        | ****  | 0.108   | 110   | ug/ft²           | <12      | <110         | ug/ft²          |                 |
| Analysis Method for Flame: Air, Wipes, Paints, and Soil/Solids: EPA 600/R-93/200(M)-7420; Water: SM-3111B<br>Analysis Method For Furnace: Air, Wipes, Paints, and Soil/Solids: EPA 600/R-93/200(M)-7421; Water: SM-3111B<br>Analysis Method For Furnace: Air, Wipes, Paints, and Soil/Solids: EPA 600/R-93/200(M)-7421; Water: SM-3113B<br>Analysis Method For Furnace: Air, Wipes, Paints, and Soil/Solids: EPA 600/R-93/200(M)-7421; Water: SM-3113B<br>Analysis Method For Furnace: Air, Wipes, Paints, and Soil/Solids: EPA 600/R-93/200(M)-7421; Water: SM-3113B<br>Analysis Method For Furnace: Air, Wipes, Paints, and Soil/Solids: EPA 600/R-93/200(M)-7421; Water: SM-3113B<br>Analysis Method For Furnace: Air, Wipes, Paints, and Soil/Solids: EPA 600/R-93/200(M)-7421; Water: SM-3113B<br>Analysis Method For Furnace: Air, Wipes, Paints, and Soil/Solids: EPA 600/R-93/200(M)-7421; Water: SM-3113B<br>Analysis Method For Furnace: Air, Wipes, Paints, and Soil/Solids: EPA 600/R-93/200(M)-7421; Water: SM-3113B<br>Analysis Method For Furnace: Air, Wipes, Paints, and Soil/Solids: EPA 600/R-93/200(M)-7421; Water: SM-3113B<br>Analysis Method For Furnace: Air, Wipes, Paints, and Soil/Solids: EPA 600/R-93/200(M)-7421; Water: SM-3113B<br>Analysis Method For Furnace: Air, Wipes, Paints, and Soil/Solids: EPA 600/R-93/200(M)-7421; Water: SM-3113B<br>Analysis Method For Furnace: Air, Wipes, Paints, and Soil/Solids: EPA 600/R-93/200(M)-7421; Water: SM-3113B<br>Analysis Method For Furnace: Air, Wipes, Paints, and Soil/Solids: EPA 600/R-93/200(M)-7421; Water: SM-3113B<br>Analysis Method For Furnace: Air, Wipes, Paints, and Soil/Solids: EPA 600/R-93/200(M)-7421; Water: SM-3113B<br>Analysis Method For Furnace: Air, Wipes, Paints, and Soil/Solids: EPA 600/R-93/200(M)-7421; Water: SM-3113B<br>Analysis Method For Furnace: Air, Wipes, Paints, and Soil/Solids: EPA 600/R-93/200(M)-7421; Water: SM-3113B<br>Analysis Method For Furnace: Air, Wipes, Paints, and Soil/Solids: EPA 600/R-93/200(M)-7420; Water: SM-3113B<br>Analysis Method For Furnace: Air, Wipes, Paints, and Soil/Solids: EPA 600/R-93/200(M)-7420; Water: SM-31 | 1066244   | GRE-Pb-19   | Flame                           | Wipe        | ****  | 0.108   | 110   | ug/ft²           | <12      | <110         | ug/ft2          |                 |
| Analysis Method for Flame: Air, Wipes, Paints, and Soil/Solids: EPA 600/R-93/200(M)-7420; Water: SM-3111B<br>Analysis Method For Furnace: Air, Wipes, Paints, and Soil/Solids : EPA 600/R-93/200(M)-7421; Water: SM-3113B<br>N/A = Not Applicable mg/Kg = parts per million (ppm) on a dry weight basis mg/L = parts per million (ppm)<br>%Pb = percent lead on a dry weight basis ug = micrograms ug/L = parts per billion (ppb)<br>Note: All samples were received in good condition unless otherwise noted.<br>Note: All results have two significant digits. Any additional digits shown   | 1066245   | GRE-LBP-01  | Flame                           | Paint Chip  | ****  | N/A   | 0.011 | %Pb              |          | 0.47         | %Pb             |                 |
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All results are to be considered preliminary and subject to change unless signed by the Technical Director or Deputy. Analyst:

**Technical Manager:** 

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public, and these Laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from us. Sample types, locations, and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information. Residual sample material will be discarded in accordance with the appropriate regulatory guidelines, unless otherwise requested by the client. NVLAP accreditation applies only to polarized light microscopy of bulk samples and transmission electron microscopy of AHERA air samples. This report must not be used to claim, and does not imply product certification, approval, or endorsement by NY ELAP, AIHA, NYLAP, NIST, or any agency of the Federal Government. All rights reserved. AMA Analytical Services, Inc.

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| Immediate Date Due: 24 Hours Time Due: Comments:   |   |                                   | Immed<br>Next D<br>2 Day      |       | 42  | 3 Day<br>2 Day +<br>atc Duc:  |   |             |  | Resu<br>(Eve)<br>Mad | ry A the                  | mnt V | VIII RA |        | E<br>L   | Include<br>Ema<br>Fax:<br>Vert   | COC/Field Data  | ISIVE a  | th Report<br>us.army.mil<br>us.army.mil |             |
| Asbestos Analysis  |   |                                   |                               | TEM   | Dull  |   |   |             |  |                      |                           | -     | 1       | Metal  | ls Anal  |  |   |  |   |             |
| PCM Air – Please Indicate Fil<br>INIOSH 7400<br>Fiberglass<br>Fiberglass<br>AHERA<br>Other (specify<br>EPA 600 – Visual Estir<br>EPA 600 – Visual Estir<br>EPA 600 – Visual Estir<br>EPA Point Count<br>NY State Friable 198.1<br>Grav. Reduction ELAF<br>Other (specify<br>Other (specify<br>Vermiculite<br>Asbestos Soil PLM(Qu<br>SA<br>CLIENT ID S | (QTY)<br>(QTY)<br>ter Type:<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)         | QTY)<br>(QTY)<br>_(Qael) PL<br>ON | M/TEM(Q<br>VOLUME<br>(LITERS) |       | ELAP<br>NY Sta<br>Residu<br>Quat<br>Quat<br>Quan<br>Quan<br>Quan<br>Quan<br>ELAP<br>EPA<br>EPA<br>C<br>All san<br>EM Wa | 198.4/Cha<br>te PLM/I<br>al Ash<br>pres/abs)<br>s/area) Va<br>s/area) Du<br>pres/abs)<br>198.2/EPA<br>0.1<br>ples recei<br>ter sample<br>Er<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E_ | EM<br>Vacuum E<br>st D648<br>100.2<br>ved in g<br>s<br>NALY | (Q<br>/Dust | 95<br>(QTY)<br>(QTY)<br>(QTY)<br>onditio | QTY)                 | .(QTY<br>(Q<br>(QTY)<br>) | TY)   |         |        | Pb Pa<br>Pb D<br>Pb A<br>Pb So<br>Pb To<br>Drini<br>Wast<br>Pb To<br>Drini<br>Wast<br>Pb To<br>Drini<br>Wast<br>Pb To<br>Drini<br>Wast<br>Pb To<br>Drini<br>Wast<br>Pb To<br>Drini<br>Wast<br>Surfa<br>Surfa | int Chi<br>ust Wip<br>ir<br>bil/Solic<br>CLP<br>king Wa<br>e Water<br>ornace (<br>lysls<br>ction Ap<br>ction M<br>c-Trap<br>cc Swal<br>cc Tape | Pb(QTY) Media pparatus for Spore (edia(QTY) b(QTY) b(QTY)(QTY)(QTY) / | QTY)<br>()<br>TY) □ Cu<br>() □ Cu<br>() □ Cu<br>() □ Cu<br>() □ Cu<br>() □ Cultur<br>CLIES | .)                                      | (QTY)       |
| 625-01   |   | 29/10                             | 906,2                         |       |   |   |   | ×           |  | X                    | AI                        | ·S    | cur     | D      | k (  | Pass   | Bale June:  |  | Contact:                                | By:         |
| 625-02-  | 7   |                                   | 9:5.5                         |       |   |   |   |             |  | 4                    | De                        | m     | all     | d.     |  |  |   | 241  |   |             |
| GRE-PB-ct  |   |                                   |                               | 10xx  | com   |   |   |             |  |                      |                           | ×     | 0       |        |  |  |   | ay   |   |             |
| HE-PB-02   |   |                                   |                               | ,     |   |   |   |             |  |                      |                           | 1     | SA      | ma     | 1.4  | 010  | 79  | 210  |   |             |
| SRE-PB-03  | t   |                                   |                               |       |   |   |   |             |  |                      |                           |       | P       | 110    | I.   | 1  | Date/Time:  |  | Contact:                                | By:         |
| SRE-PB - CAY   |   |                                   |                               |       |   |   |   | T           |  |                      |                           |       | U       | pe     | tu   | bes  |   |  |   |             |
| AR-PB-05   |   |                                   |                               |       |   |   |   |             |  |                      |                           |       | 0.0     | 1      | 1  | h  |   |  |   |             |
| ng-PB-04   |   |                                   |                               |       |   |   |   |             |  |                      |                           | T     | Un      | ne     | NE   | a  |   |  |   |             |
| 328-93-07  |   |                                   |                               |       |   |   |   |             |  |                      |                           |       |         |        |  |  | Date/Time:  |  | Contact:                                | By:         |
| GRR-HB-05  |   |                                   |                               |       | 1   |   |   |             |  |                      |                           | 1     |         |        | 1  |  |   |  | >                                       | -           |
| GRE-98-09  |   |                                   |                               | -+    |   |   |   |             |  |                      | 2                         | T     |         |        |  |  | DA  |  | OD                                      | onu         |
| Gue 93-70  |   | a                                 | 0                             |       | 12  | 10  | 5   | d           | -  | C                    | 1                         | V     |         |        |  | -  |   |  | on                                      |             |
| LABORATORY   | 1. Date/Time RCVI   |                                   | 210                           | 2     | 10  | _dl   | Via   | a:          | cd                                       | D                    | By                        | (Prin |         |        |  | -  |   |  |   |             |
| CTI DE ONUV  | 2. Date/Time Analy  |                                   | /_                            |       | /   | @   |   | By (P       | rint):                                   | 1                    | _                         | _     |         |        |  |  |   |  |   |             |
| osted to NGB FOIA Read   | ding Results Reported<br>4. Comments:   | To:                               | -                             |       |   | B   | EST /   | WAIL        | ABM                                      | COF                  | γ                         |       | Date:   |        | _/.  |  |   |  | ed Record #JI                           | 45-0085 (MA |

Page 1600 of 3473

|   |   | BEST   | AVAILABLE<br>OWI (410) 247-20   |  |  |   | 15920                               | 2 210 REV   | 6.08  |
|---|---|--|---|--|--|---|-------------------------------------|---|---|
| AMA Analytical Services, Inc.<br>Focused on Results www.analab.com<br>AIHA (#100470) NVLAP (#101143-0) NY E1<br>4475 Forbes Blvd. • Lanbam, MD 20706<br>(301) 459-2640 • (800) 346-0961 • Fax (301)   | U.  | HAIN   |   |  |  |   | (Please Refer To<br>Number For Inqu |   | 542-  |
| Mailing/Billing Information:  |   | \$   | Submittal Inf<br>1. Job Name  | ormation:                                | ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ | 500 /   | 12.404 4                            |   |   |
| Client Name: <u>National Guard Bureau</u> Address I: <u>301-IH Old Bay Lane</u>   |   |  | <ol> <li>Job Name:</li> <li>2. Job Locati</li> </ol>                        | 12/2                                     | Cuel                                   | 2 PIRD  | RANDRY                              | - here  |   |
| 3. Address 2: Attn: NGB-AVN-SI, State Milita  | The second se   |  | 3. Job #:   |  | Cherce                                 |   | P.O. #: W912K6                      | 09.4.0002   |   |
|   |   |  |   |  |  |   |                                     | Non-Respon  | sive  |
| 4. Address 3:         Havre de Grace, Maryland         21           5. Phone #:         (410) 942-0273         Fac  | x #: (410) 942-0254   |  | 5. Submitted  | by                                       | )n-                                    | Res   | bons                                | ive   |   |
|   | Reporting Inform  | ation (Results   | will be provid  | ded                                      |  |   |                                     |   |   |
| AFTER HOURS (must be pre-scheduled)   |   | NORMAL B   | USINESS HOL   | IRS                                      |  |   |                                     | REPORT TO:  |   |
| Immediate Date Duc: 24 Hours Time Due: Comments:  | Q Next Day Q  | 3 Day<br>5 Day +<br>ate Due:   |   | Results Rec<br>(EveryAtter<br>Made to Ac | not Will Be                            | oon SU Incl<br>SU Em<br>U Fax   |                                     | Sheets with Report<br>SIVC<br>@us.army.mil<br>@us.army.mil  |   |
| Asbestos Analysis   |   |  |   |  |  | Metals Analysi  | 1                                   | a ds.drifty.titl  |   |
| PCM Air – Please Indicate Filter Type:         UNIOSH 7400(QTY)         Fiberglass      (QTY)         HAHERA      (QTY)         AHERA      (QTY)         Other (specify)(QTY)      (QTY)         Department      (QTY)         Uniter (specify)(QTY)      (QTY)         Department      (QTY)         Determine      (QTY)         Other (specify | NY Sta<br>Reside<br>TEM Dust<br>Qual. (<br>Qual. (<br>PLAP<br>All san<br>(TEM Water<br>VOLUME WIPE<br><u>AIESA</u><br>AREA | 198.4/Chatfield_<br>tte PLM/TEM<br>al Ash<br>pres/abs) Vacuum<br>(s/area) Vacuum<br>(s/area)Dust D64<br>pres/abs)<br>198.2/EPA 100.2<br>0.1<br>ples received in<br>ter samples<br>ANAIX  | (QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>good condition<br>(C) | TY)<br>(QTY)<br>(QTY)<br>(QTY)           | vise noted.                            | Pb Paint     Pb Dast     Pb Dast     Pb Air_     Pb SoiUS     Pb TCLL     Drinking     Waste W     Po Furna Fongal Analysi     Collectio     Collectio     Spore-Tr     Surface S     Surface S | Chip                                | QTY)<br>()<br>TY) Cu(QTY) A<br>() Cu(QTY) ()<br>() Cu(QT | As(QTY)<br>is(QTY)<br>Y)<br>t(QTY)<br>ia)(QT)<br>dia)(QT) |
| 62E - 78-12   |   |  | +++   |  | f -                                    |   |                                     |   |   |
| G2E - 78 - 13   |   |  | $H \rightarrow H$   | +  | <b>_</b>                               |   |                                     |   |   |
| GRE - FB-14   |   |  | $\parallel \mid \mid \mid \mid$   |  | A-I                                    |   |                                     |   |   |
| GRE-PR-15   |   |  | $\mathbb{H}$  |  |  |   | Date/Time:                          | Contact:  | By:   |
| GRE-PB-16   |   | -+   | ╫─┼   |  | <u>}</u>                               |   |                                     |   |   |
| 61-E-P8+17  |   |  | ╫╌┼   |  | $\left  \right $                       |   | _                                   | and the second se   |   |
| GRE-PB-12   |   |  | +++   |  | ++                                     |   |                                     |   |   |
| 6-28-78-19  |   |  | ┼┟╷┼╴┼  |  | N                                      |   | Date/Time:                          | Non Po  | sponsive  |
| CRE-LIP-W   |   |  |   |  | ¥                                      |   |                                     | NOTEINE   | sponsive  |
|   |   |  | ×   |  |  |   |                                     |   |   |
|   |   |  |   |  |  |   |                                     |   |   |
| LABORATORY 1. Date/Time RCVD:   |   | and the second sec | ia:   | By                                       | (Print):                               |   |                                     | — <sup>s</sup>  |   |
| STAFF ONLY:<br>STAFF ONLY:<br>Posted: Staff ONLY:<br>Posted: Staff ONLY:<br>A Comments:<br>4 Comments:  | //  | @  | By (Priot):   |  |  |   | _ Sign:                             |   |   |
| 3. Results Reported To:   |   | DECT   | AVAILAB   | CODY                                     | Date:                                  | /_  |                                     | ane:  |   |

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Appendix C Photo Documentation BEST AVAILABLE COPY

# Greenfield RC



Storage Area, Former Firing Range





Standing Water

Kitchen



Storage Area Posted to NGB FOIA Reading Room May, 2018

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FOIA Requested Record #J-15-0085 (MA) Released by National Guard Bureau Page 1603 of 3473 BEST AVAILABLE COPY

# Greenfield RC



## Drill Hall





Office



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FOIA Requested Record #J-15-0085 (MA) Released by National Guard Bureau Page 1604 of 3473 Appendix D IAQ and Lighting Survey Log Sheets

|               |   | Greenfield  |   | AQ   |  |   |   |   |   |  |   |  |  |
|---------------|---|---|---|--|--|---|---|---|---|--|---|--|--|
| 7/29/2010     | Inspector   | Non-Responsive  | Instrument  | nstrument Q-TRAK 7565-X  |  |   |   |   |   |  | Instrument  | CAL-LIGHT 400  |  |
| Readiness Ctr |   |   | Serial Numbe  | er   | 7565X0839017   |   |   |   |   |  | Serial Numbe  | K070277  |  |
|               |   |   | Last Calibrat   | ion  |  |   | Sep-0   | 8   |   | Last Calibrati   | 30-Jul-09   |  |  |
| Function      | No.<br>Occupants  | Time  | Temp. (°F)  | Exceeded   | RH (%)   | Exceeded  | CO <sub>2</sub> (ppm)   | Exceeded  | CO (ppm)  | Exceeded   | Illuminance<br>(fc)   | Insufficient   | Illuminance<br>Reference<br>Value (fc)   |
| Storage       | 0   |   | 83.8  | х  | 54.4   | х   | 402   |   | 0.0   |  | 33.3  |  | 5-30   |
| Storage       | 0   |   | 83.8  | х  | 54.4   | х   | 306   |   | 0.0   |  | 34.4  |  | 5-30   |
| Empty Room    | 0   |   | 84.4  | х  | 60.5   | х   | 463   |   | 0.0   |  | 122.2   |  | 5-30   |
| Quarters      | 0   |   | 84.8  | х  | 51.8   | х   | 465   |   | 0.0   |  | 24.7  | х  | 5  |
| Toilet        | 0   |   | 87.0  | х  | 43.4   | х   | 668   |   | 0.0   |  | 33.0  |  | 5  |
| Hall          | 0   |   | 86.4  | х  | 42.5   | х   | 391   |   | 0.0   |  | 20.4  |  | 5  |
| Stage         | 0   |   | 84.1  | х  | 51.0   | х   | 391   |   | 0.0   |  | 7.1   | х  | 30-50  |
| Assembly Hall | 0   |   | 82.8  | х  | 51.9   | х   | 445   |   | 0.0   |  | 26.5  | х  | 30-50  |
| Classroom     | 0   |   | 83.9  | х  | 49.9   | х   | 459   |   | 0.0   |  | 38.4  | x  | 50   |
| Office        | 0   |   | 83.3  | х  | 49.6   | х   | 514   |   | 0.0   |  | 67.7  |  | 50   |
| Entry/Hall    | 0   |   | 83.4  | х  | 48.7   | х   | 378   |   | 0.1   |  | 44.6  |  | 10   |
| Office        | 0   |   | 83.7  | х  | 48.0   | х   | 378   |   | 0.0   |  | 54.8  |  | 50   |
| Office        | 0   |   | 83.5  | х  | 50.5   | х   | 417   |   | 0.0   |  | 122.7   |  | 50   |
| Office        | 0   |   | 83.6  | х  | 46.5   | х   | 356   |   | 0.0   |  | 101.7   |  | 50   |
| Office        | 0   |   | 83.1  | х  | 46.8   | х   | 348   |   | 0.0   |  | 71.7  |  | 50   |
| Toilet        | 0   |   | 84.0  | х  | 49.5   | х   | 372   |   | 0.0   |  | 16.8  |  | 5  |
| Hall          | 0   |   | 83.5  | х  | 47.2   | х   | 428   |   | 0.0   |  | 65.6  |  | 5  |
| Kitchen       | 0   |   | 82.3  | х  | 49.1   | х   | 570   |   | 0.0   |  | 24.2  | х  | 50   |
|               |   |   | 30<br>40<br>50  | )%<br>)%<br>)%   | nidity   | 68.<br>68.<br>68.   | .5°F-76.0°F<br>.5°F-75.5°F<br>.5°F-74.5°F   | 7<br>7<br>7   | 4.0°F-80.0°<br>3.5°F-79.5°<br>3.0°F-79.0°   | F<br>F<br>F  |   |  |  |
|               | Readiness Ctr         Function         Storage         Storage         Empty Room         Quarters         Toilet         Hall         Stage         Assembly Hall         Classroom         Office         Office         Office         Office         Office         Office         Hall | Readiness CtrReadiness CtrFunctionNo.<br>OccupantsStorage0Storage0Empty Room0Quarters0Mail0Gasembly Hall0Classroom0Office0Office0Office0Office0Office0Office0Office0Office0Office0Office0Hall0Office0Office0Office0Hall0Office0< | Readiness CtrNo.<br>OccupantsTimeStorage0Storage0Storage0Empty Room0Quarters0Mail0Hall0Stage0Classroom0Office0Office0Office0Office0Office0Office0Office0Office0Office0Office0Office0Office0Office0Hall0Office0Hall0Office0Hall0Office0Hall0 | Readiness Ctr         Serial Numb           Function         No.<br>Occupants         Time         Temp. (°F)           Storage         0         83.8           Empty Room         0         84.4           Quarters         0         84.8           Toilet         0         86.4           Stage         0         84.1           Assembly Hall         0         82.8           Classroom         0         83.3           Entry/Hall         0         83.4           Office         0         83.7           Office         0         83.7           Office         0         83.5           Office         0         83.5           Office         0         83.6           Office         0         83.5           Office         0         83.5           Office         0         83.5           Mice         0         83.5           Office         0         83.5           Office         0         83.5           Office         0         83.5           Kitchen         0         82.3 | Readiness Ctr         Serial Number           Last Calibration         Last Calibration           Function         Occupants         Time         Temp. (°F)         Image           Storage         0         83.8         X           Storage         0         83.8         X           Guarters         0         84.4         X           Quarters         0         84.8         X           Toilet         0         86.4         X           Stage         0         83.9         X           Glassroom         0         83.9         X           Office         0         83.3         X           Office         0         83.3         X           Office         0         83.9         X           Office         0         83.3         X           Office         0         83.3         X           Office         0         83.7         X           Office         0         83.7         X           Office         0         83.6         X           Office         0         83.6         X           Office         0         83.1 | Readiness Ctr         Serial Number           Function         No.<br>Occupants         Time         Temp. (°F)         No.<br>No.<br>Occupants         Temp. (°F)         No.<br>No.<br>Temp. (°F)         No.<br>No.<br>No.<br>Occupants         Time         Temp. (°F)         No.<br>No.<br>No.<br>No.<br>No.<br>Cuastroage         No.<br>Occupants         Temp. (°F)         No.<br>No.<br>No.<br>No.<br>No.<br>No.<br>No.<br>No.<br>No.<br>No. | Readiness Ctr         Serial Number           Last Calibration         Last Calibration           Function         Occupants         Time           Storage         0         83.8         X           Storage         0         83.8         X           Storage         0         83.8         X           Storage         0         83.8         X           Empty Room         0         84.4         X           Quarters         0         84.8         X         51.8           Y         Y         43.4         X         51.8         X           Toilet         0         87.0         X         43.4         X           Hall         0         86.4         X         42.5         X           Stage         0         84.1         X         51.0         X           Assembly Hall         0         82.8         X         51.9         X           Office         0         83.3         X         49.9         X           Office         0         83.7         X         48.0         X           Office         0         83.5         X         50.5 <t< td=""><td>Readiness Ctr         Serial Number         7565X083           Last Calibration         Sep-0           Keadiness Ctr         No.<br/>Occupants         Time         Temp. (°F)         No.<br/>W         RH (%)         CO<sub>2</sub> (ppm)           Storage         0         83.8         X         54.4         X         402           Storage         0         83.8         X         54.4         X         306           Empty Room         0         84.4         X         60.5         X         463           Quarters         0         84.8         X         51.8         X         465           Toilet         0         87.0         X         43.4         X         668           Hall         0         86.4         X         42.5         X         391           Assembly Hall         0         83.3         X         49.6         X         514           Entry/Hall         0         83.4         X         48.7         X         378           Office         0         83.7         X         48.0         X         378           Office         0         83.6         X         46.5         X         356</td></t<> <td>Readiness Ctr         Serial Number         7565X083901           Last Calibration         Sep-08           Function         Occupants         Time           Temp. (°F)         X         RH (%)         X         CO2 (ppm)         X           Storage         0         83.8         X         54.4         X         402           Storage         0         83.8         X         54.4         X         402           Storage         0         83.8         X         54.4         X         402           Quarters         0         84.4         X         60.5         X         463           Quarters         0         87.0         X         43.4         X         668           Hall         0         86.4         X         42.5         X         391         1           Stage         0         83.3         X         49.9         X         459         1           Office         0         83.3         X         49.6         X         514         1           Entry/Hall         0         83.7         X         48.0         X         378         1         1           <td< td=""><td>Readiness Ctr         Serial Number         7565X0839017           Last Calibration         Sep-08           Function         Occupants         Time         Temp. (°F)         W         CO2(ppm)         CO(ppm)           Storage         0         83.8         X         54.4         X         402         0.0           Storage         0         83.8         X         54.4         X         402         0.0           Storage         0         83.8         X         54.4         X         402         0.0           Quarters         0         84.4         X         60.5         X         463         0.0           Quarters         0         84.8         X         51.8         X         4665         0.0           Toilet         0         87.0         X         43.4         X         6668         0.0           Hall         0         82.8         X         51.9         X         445         0.0           Classroom         0         83.3         X         49.9         X         459         0.0           Office         0         83.7         X         48.0         X         378         <td< td=""><td>Readiness Ctr         Serial Number         7565X0839017           Last Calibration         Sep-08           Function         Occupants         Time         Temp. (°F)         Temp. (°F)         Temp. (°C)         Temp. (°C)</td><td>Readiness Ctr         Serial Number         7565X0839017         Serial Number           Function         No.<br/>Occupants         Time         Temp. (°F)         No.<br/>W         RH (%)         No.<br/>W         CO2 (ppm)         No.<br/>W         CO (ppm)         No.<br/>No.<br/>W         CO (ppm)         No.<br/>No.<br/>No.<br/>No.<br/>No.<br/>No.<br/>No.<br/>No.<br/>No.<br/>No.</td><td>Readiness Ctr         Serial Number         7565X0839017         Serial Number           Last Calibration         Sep-08         Last Calibration         Sep-08         Last Calibration           Function         Occupants         Time         Temp. (°F)         B         CO (ppm)         B         CO (ppm)         B         B         B         B         CO (ppm)         B         CO (ppm)         B         A         A         A         A         A         A         A         A         A         A         A         A         A         A         A</td></td<></td></td<></td> | Readiness Ctr         Serial Number         7565X083           Last Calibration         Sep-0           Keadiness Ctr         No.<br>Occupants         Time         Temp. (°F)         No.<br>W         RH (%)         CO <sub>2</sub> (ppm)           Storage         0         83.8         X         54.4         X         402           Storage         0         83.8         X         54.4         X         306           Empty Room         0         84.4         X         60.5         X         463           Quarters         0         84.8         X         51.8         X         465           Toilet         0         87.0         X         43.4         X         668           Hall         0         86.4         X         42.5         X         391           Assembly Hall         0         83.3         X         49.6         X         514           Entry/Hall         0         83.4         X         48.7         X         378           Office         0         83.7         X         48.0         X         378           Office         0         83.6         X         46.5         X         356 | Readiness Ctr         Serial Number         7565X083901           Last Calibration         Sep-08           Function         Occupants         Time           Temp. (°F)         X         RH (%)         X         CO2 (ppm)         X           Storage         0         83.8         X         54.4         X         402           Storage         0         83.8         X         54.4         X         402           Storage         0         83.8         X         54.4         X         402           Quarters         0         84.4         X         60.5         X         463           Quarters         0         87.0         X         43.4         X         668           Hall         0         86.4         X         42.5         X         391         1           Stage         0         83.3         X         49.9         X         459         1           Office         0         83.3         X         49.6         X         514         1           Entry/Hall         0         83.7         X         48.0         X         378         1         1 <td< td=""><td>Readiness Ctr         Serial Number         7565X0839017           Last Calibration         Sep-08           Function         Occupants         Time         Temp. (°F)         W         CO2(ppm)         CO(ppm)           Storage         0         83.8         X         54.4         X         402         0.0           Storage         0         83.8         X         54.4         X         402         0.0           Storage         0         83.8         X         54.4         X         402         0.0           Quarters         0         84.4         X         60.5         X         463         0.0           Quarters         0         84.8         X         51.8         X         4665         0.0           Toilet         0         87.0         X         43.4         X         6668         0.0           Hall         0         82.8         X         51.9         X         445         0.0           Classroom         0         83.3         X         49.9         X         459         0.0           Office         0         83.7         X         48.0         X         378         <td< td=""><td>Readiness Ctr         Serial Number         7565X0839017           Last Calibration         Sep-08           Function         Occupants         Time         Temp. (°F)         Temp. (°F)         Temp. (°C)         Temp. (°C)</td><td>Readiness Ctr         Serial Number         7565X0839017         Serial Number           Function         No.<br/>Occupants         Time         Temp. (°F)         No.<br/>W         RH (%)         No.<br/>W         CO2 (ppm)         No.<br/>W         CO (ppm)         No.<br/>No.<br/>W         CO (ppm)         No.<br/>No.<br/>No.<br/>No.<br/>No.<br/>No.<br/>No.<br/>No.<br/>No.<br/>No.</td><td>Readiness Ctr         Serial Number         7565X0839017         Serial Number           Last Calibration         Sep-08         Last Calibration         Sep-08         Last Calibration           Function         Occupants         Time         Temp. (°F)         B         CO (ppm)         B         CO (ppm)         B         B         B         B         CO (ppm)         B         CO (ppm)         B         A         A         A         A         A         A         A         A         A         A         A         A         A         A         A</td></td<></td></td<> | Readiness Ctr         Serial Number         7565X0839017           Last Calibration         Sep-08           Function         Occupants         Time         Temp. (°F)         W         CO2(ppm)         CO(ppm)           Storage         0         83.8         X         54.4         X         402         0.0           Storage         0         83.8         X         54.4         X         402         0.0           Storage         0         83.8         X         54.4         X         402         0.0           Quarters         0         84.4         X         60.5         X         463         0.0           Quarters         0         84.8         X         51.8         X         4665         0.0           Toilet         0         87.0         X         43.4         X         6668         0.0           Hall         0         82.8         X         51.9         X         445         0.0           Classroom         0         83.3         X         49.9         X         459         0.0           Office         0         83.7         X         48.0         X         378 <td< td=""><td>Readiness Ctr         Serial Number         7565X0839017           Last Calibration         Sep-08           Function         Occupants         Time         Temp. 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(°F)         B         CO (ppm)         B         CO (ppm)         B         B         B         B         CO (ppm)         B         CO (ppm)         B         A         A         A         A         A         A         A         A         A         A         A         A         A         A         A</td></td<> | Readiness Ctr         Serial Number         7565X0839017           Last Calibration         Sep-08           Function         Occupants         Time         Temp. (°F)         Temp. (°F)         Temp. (°C)         Temp. (°C) | Readiness Ctr         Serial Number         7565X0839017         Serial Number           Function         No.<br>Occupants         Time         Temp. (°F)         No.<br>W         RH (%)         No.<br>W         CO2 (ppm)         No.<br>W         CO (ppm)         No.<br>No.<br>W         CO (ppm)         No.<br>No.<br>No.<br>No.<br>No.<br>No.<br>No.<br>No.<br>No.<br>No. | Readiness Ctr         Serial Number         7565X0839017         Serial Number           Last Calibration         Sep-08         Last Calibration         Sep-08         Last Calibration           Function         Occupants         Time         Temp. (°F)         B         CO (ppm)         B         CO (ppm)         B         B         B         B         CO (ppm)         B         CO (ppm)         B         A         A         A         A         A         A         A         A         A         A         A         A         A         A         A |

| National Guard Industrial Hygiene Survey For Indo | or Air Quality and Light Level |
|---|--------------------------------|
|---|--------------------------------|

| State                | MA             | City                 | Greenfield     |                            |          |        |          |   |          |   |               | Light            |              |  |
|----------------------|----------------|----------------------|----------------|----------------------------|----------|--------|----------|---|----------|---|---------------|------------------|--------------|--|
| Date                 | 7/29/2010      | Inspector            | Non-Responsive | Instrument                 |          |        |          | Q-TRAK 75                                 | 65->     | <                                       |               | Instrument       |              | CAL-LIGHT 400                          |
| Facility Description | Readiness Ct   | r                    |                | Serial Number 7565X0839017 |          |        |          |   |          |   | Serial Number | K070277          |              |  |
| Weather Conditions   |                |                      |                | Last Calibra               |          |        |          | Sep-08                                    |          |   |               | Last Calibration | 30-Jul-09    |  |
| Location             | Function       | No.<br>Occupant<br>s | Time           | Temp. (°F)                 | Exceeded | RH (%) | Exceeded | CO <sub>2</sub> (ppm)                     | Exceeded | CO (ppm)                                | Exceeded      | Illuminance (fc) | Insufficient | Illuminance<br>Reference<br>Value (fc) |
| 19                   | Pantry         | 0                    |                | 81.7                       | Х        | 48.2   | Х        | 629                                       |          | 0.0                                     |               | 16.8             |              | 5                                      |
| 20                   | Office/Storage | 0                    |                | 80.5                       | Х        | 54.0   | Х        | 603                                       |          | 0.0                                     |               | 33.7             |              | 30-50                                  |
| 21                   | Hall           | 0                    |                | 79.7                       | Х        | 61.8   | X        | 664                                       |          | 0.0                                     |               | 38.0             |              | 5                                      |
| 22                   | Bath/Shower    | 0                    |                | 81.2                       | Х        | 52.3   | Х        | 598                                       |          | 0.0                                     |               | 141.1            |              | 5                                      |
| 23                   | Storage        | 0                    |                | 80.2                       | Х        | 53.0   | Х        | 597                                       |          | 0.0                                     |               | 22.3             |              | 5-30                                   |
| 24                   | Entry          | 0                    |                | 78.1                       | Х        | 61.1   | Х        | 617                                       |          | 0.0                                     |               | 26.2             |              | 10                                     |
| 25                   | Storage        | 0                    |                | 78.1                       | Х        | 61.1   | Х        | 607                                       |          | 0.0                                     |               | 22.4             |              | 5-30                                   |
| 26                   | Storage        | 0                    |                | 76.5                       | Х        | 60.3   | Х        | 798                                       |          | 0.1                                     |               | 23.4             |              | 5-30                                   |
| 27                   | Storage        | 0                    |                | 76.5                       | Χ        | 60.3   | Х        | 798                                       |          | 0.0                                     |               | 24.8             |              | 5-30                                   |
| 28                   | Garage         | 0                    |                | 76.9                       | Χ        | 60.1   | Х        | 584                                       |          | 0.0                                     |               | 1.3              | Х            | 5                                      |
| 29                   | Boiler Room    | 0                    |                | 77.0                       |          | 48.7   |          | 734                                       |          | 0.0                                     |               | 5.4              | Х            | 30                                     |
| 30                   | Storage        | 0                    |                | 76.4                       | X        | 60.3   | X        | 592                                       |          | 0.0                                     |               | 113.7            |              | 5-30                                   |
|                      |                |                      |                |                            |          |        |          |   | _        |   |               |                  |              |  |
|                      |                |                      |                |                            |          |        |          |   |          |   |               |                  |              |  |
| Notes:               | 1              | 1                    | 1              | 4                          | 0%<br>0% |        | 68<br>68 | inter Temp.<br>.5°F-76.0°F<br>.5°F-75.5°F | 7<br>7   | ummer Tem<br>4.0°F-80.0°<br>3.5°F-79.5° | F<br>F        |                  | <u> </u>     |  |
|                      |                |                      |                |                            | 0%<br>0% |        |          | .5°F-74.5°F<br>.0°F-74.0°F                |          | <u>3.0°F-79.0°</u><br>2.5°F-78.0°       |               |                  |              |  |



#### Prepared For:

National Guard Bureau Army National Guard Region North Industrial Hygiene Office 301 – IH Old Bay Lane Havre De Grace, Maryland 21078

#### Prepared By:

URS Corporation 5 Industrial Way Salem, New Hampshire 03079

#### INDUSTRIAL HYGIENE SURVEY REPORT MASSACHUSETTS NATIONAL GUARD READINESS CENTER 71 HOPE STREET GREENFIELD, MA 01301

July 11, 2013 PN: 39743799



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## APPENDICES

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#### FINDINGS AND RECOMMENDATIONS MASSACHUSETTS NATIONAL GUARD READINESS CENTER 71 HOPE STREET, GREENFIELD, MA

| Findings  | Recommendations  | Risk<br>Assessment<br>Code (RAC) |  |
|---|--|----------------------------------|--|
| Lighting  |  |                                  |  |
| On the day of the survey, the illuminance was inadequate in several locations tested.   | Increase lighting in the work areas.<br>While work is in progress, these<br>areas must be lighted by at least the<br>minimum lighting intensities (ANSI /<br>IESNA RP-1-04).   | RAC 4                            |  |
| Ergonomics  |  |                                  |  |
| Computer workstations in the<br>Administrative Areas were<br>observed with un-adjustable<br>chairs, arm rests and<br>keyboards.                                 | Ergonomic issues with regard to the desks and chairs should be corrected by fitting the workplace to the worker (Department of the Army Pamphlet 40-21, Chapter 4, Page 7, Section 4-3).   | RAC 3                            |  |
| Water Intrusion   | E  |                                  |  |
| Evidence of water intrusion was<br>noted on the ceiling on the<br>second floor.   | The source of the water intrusion<br>should be identified and repaired.<br>The water-stained materials should<br>be repaired or replaced (ACGIH –<br>Guidelines for the Assessment of<br>Bio-aerosols in the Indoor<br>Environment). | RAC 3                            |  |
| Lead  |  |                                  |  |
| Five of the 10 lead wipe<br>samples indicated elevated<br>lead levels.  | Personnel trained in accordance with<br>the OSHA Lead Standard should<br>clean the areas where elevated lead<br>dust levels were identified (OSHA 29<br>CFR 1910.1025(h)(1)).  | RAC 3                            |  |
| Emergency Exits   |  |                                  |  |
| Emergency exit signs and<br>escape plans were not visible<br>from all areas of the facility or<br>illuminated.  | Emergency exits should be properly illuminated (29 CFR 1910.37 (q)(6)).  | RAC 3                            |  |
| Asbestos  |  |                                  |  |
| Asbestos-containing floor tiles<br>and associated mastic were<br>identified; an Asbestos<br>Operation and Maintenance<br>Program was not available on-<br>Site. | Develop a site-specific asbestos<br>operations and maintenance program<br>for management of asbestos-<br>containing materials in place as<br>required by OSHA 29 CFR<br>1910.1001(j)(2).   | RAC 4                            |  |

| Findings  | Recommendations  | Risk<br>Assessment<br>Code (RAC) |  |  |
|---|--|----------------------------------|--|--|
| PPE   |  |                                  |  |  |
| Hazard assessments have not<br>been conducted to determine<br>whether personal protective<br>equipment is required.   | Conduct a hazard assessment of site<br>operations to determine what types of<br>PPE are required for each type of<br>work (29 CFR 1910.132(d)(1)). | RAC 4                            |  |  |
| Former Indoor Firing Range  |  |                                  |  |  |
| Since the former indoor firing<br>range is contaminated with lead<br>and several wipe samples were<br>found to contain elevated lead<br>levels, good hygiene practices<br>should be used when entering<br>this building area. | Good hygiene practices shall be<br>employed when entering building<br>areas where lead dust may become<br>airborne (29 CFR 1910.1025 (i)(1)).      | RAC 3                            |  |  |
| Former Indoor Firing Range  |  |                                  |  |  |
| Ladders were not properly secured and stored.   | Ladders not in use shall be properly<br>stored in a vertical position fastened<br>to walls (29 CFR 1910.25 (c)(2)(i)).                             | RAC 4                            |  |  |
| Hazard Communication  |  |                                  |  |  |
| No written hazard<br>communication program was<br>identified on site.   | Employers shall develop, implement<br>and maintain a written hazard<br>communication program (29 CFR<br>1910.1200 (e)(1)).                         | RAC 3                            |  |  |

#### 1.0 SUMMARY

At the request of the National Guard Bureau (NGB) Region North Industrial Hygiene Office, URS Corporation (URS) conducted an industrial hygiene survey at the Readiness Center in Greenfield, Massachusetts.

URS representative, Mr. Non-Responsive, conducted the Industrial Hygiene Survey on May 20, 2013. The scope of work included an overall assessment of the facility as it relates to industrial hygiene and included a walkthrough of the facility, collection of photographs, and when required, measurements for illumination (light), area and personal air sampling, and noise mapping.

The Greenfield Readiness Center is a two-story brick building, consisting of offices, classrooms, a supply area, a kitchen, storage areas, PT room, gender separate bathrooms, an Assembly Hall and a former Indoor Firing Range. A layout of the Readiness Center is provided in Appendix A. The former Indoor Firing Range is currently used for storage.

<u>GENERAL</u>: Illuminated emergency exit signs were not observed throughout the facility. Emergency escape plans were not posted throughout the facility. Ladders were not properly secured and stored. Evidence of water intrusion was observed on the ceiling of the second floor.

<u>LIGHTING</u>: Lighting in the Readiness Center was found to be inadequate in several of the areas measured. Areas noted within the report as having inadequate lighting require upgrading by either increasing the general lighting or through the use of task lighting. While work is in progress work areas must be lighted by at least the minimum light intensities.

<u>LEAD</u>: Five of the ten wipe samples collected in the Readiness Center were found to contain lead in a concentration above the recommended limit set by the NGB, Region North IH Office.

<u>ASBESTOS</u>: Damaged asbestos-containing floor tiles and associated mastic were identified during this survey; however no Asbestos Operations and Maintenance Program was available on site.

<u>ERGONOMICS</u>: Many of the work stations had ergonomic issues which require attention. Computer workstations were assessed during the walkthrough for ergonomic issues. The computer workstations in the facility did not meet the current Occupational Safety and Health Administration (OSHA) ergonomic recommendations. The chair armrests, keyboards, and monitors were not adjustable. All workstations in the facility should be adjusted and monitored. The ergonomic issues with regard to the workstations and chairs need to be corrected by fitting the workplace to the worker.

<u>NOISE</u>: Noise monitoring in the Readiness Center determined that noise levels were below the OSHA permissible exposure limit (PEL) and Department of Defense Instruction (DoDI) Hearing Conservation Standard (6055.12 3 December 2010) on the day of URS' site visit.

## 2.0 SUPPLY / TRAINING AREA

#### 2.1 Operation Description

This Readiness Center is primarily used for weekend training drills and conducting administrative functions. The building includes offices, classrooms, a supply area, kitchen, storage areas, PT room, gender separate bathrooms, an Assembly Hall and a former Indoor Firing Range.

The Readiness Center was found to be neat and organized at the time of URS' site visit.

#### 2.2 Chemical and Physical Agents Sampled

#### 2.2.1 Carbon Dioxide

On the day of the survey, carbon dioxide measurements were made in the Readiness Center. Interior carbon dioxide concentrations were found to be between 447 and 533 parts per million (ppm). Carbon dioxide levels were measured using a direct-reading TSI Q-Trak (Model 8551).

Carbon dioxide is a normal constituent of the atmosphere and ranges from about 250 to 450 ppm. The major source of excess carbon dioxide in the indoor environment is human respiration. Other sources can include open-flame heaters, fermentation processes, and motor vehicles. Carbon dioxide itself is not normally a cause of indoor air quality problems but is typically used as an indicator of the adequacy of fresh air intake. As the concentration of carbon dioxide increases, so do the background levels of other air contaminants.

To minimize air quality complaints, the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) has proposed that the carbon dioxide concentration within an occupied workspace be maintained below 700 ppm above ambient outside levels. For example, on the day of the survey, the outside carbon dioxide level was measured at 479 ppm. Therefore ASHRAE (Standard 62.1-2010) would recommend that interior carbon dioxide concentrations be maintained at or below 1,179 ppm. Using the ASHRAE guideline, the readings at the subject site were found to be below the suggested indoor to outdoor differential concentration.

#### 2.2.2 Carbon Monoxide

The carbon monoxide concentrations in the Readiness Center were measured between 0.2 ppm and 0.7 ppm on the day of the survey. ASHRAE recommends that average carbon monoxide concentrations not exceed 9 ppm. Typical average concentrations found in commercial buildings range from 0 to 6 ppm. The measured levels were below the ASHRAE guideline for indoor environments. Carbon monoxide was measured using a TSI Q-Trak Plus (Model 8554).

Key sources of carbon monoxide within indoor environments include internal combustion engines, motor vehicle and forklift exhaust, tobacco smoke, space heaters, and improperly adjusted oil or gas burners.

#### 2.2.3 Relative Humidity

The average relative humidity within the Readiness Center measured with the Q-Trak Plus was 46.7%, which was within the guideline of less than 65% recommended by ASHRAE.

#### 2.2.4 Temperature

Temperature should be maintained within the thermal comfort envelope suggested in ASHRAE Standard 55-2010. This standard on thermal environments specifies conditions in which 80% or more of building occupants should find the thermal environment acceptable. ASHRAE 55-2010 suggests temperatures of 68 to 75 degrees Fahrenheit (°F), during winter months, for people in typical seasonal clothing during light sedentary activity. For summer, the temperature should be in the range of 73 to 79 °F.

The average temperature inside the Readiness Center was, 69.1 °F, which was within the guideline of 68 to 75 °F recommended by ASHRAE for thermal comfort. Complaints regarding elevated indoor temperature during summer months were received by URS during this survey, although the measured temperature was within the recommended range

## 2.2.5 Lighting

Lighting in the Readiness Center was measured using a cal-Light 400 Light Meter. Table 2-1 below shows lighting measurements in foot candles (FC) and the recommended lighting requirements (Illuminating Engineering Society of North America (IESNA) RP-7-01).

| Location                                   | Function   | Measured<br>Illuminance<br>in Foot<br>Candles<br>(FC) | Recommended<br>Minimum<br>Illuminance in<br>Foot Candles<br>(FC) |
|--|------------|---|--|
| First Sergeant Office, desk                | Admin      | 56.5  | 50   |
| Company Commander Office, desk             | Admin      | 99.3  | 50   |
| B104 Office, desk                          | Admin      | 38.2  | 50   |
| 1 <sup>st</sup> Floor, Classroom, table    | Admin      | 26.4  | 50   |
| Main Hall, desk                            | Admin      | 10.0  | 50   |
| 2 <sup>nd</sup> Floor, Office, vacant desk | Admin      | 25.3  | 50   |
| Drill Shed                                 | Hall       | 29.0  | 5  |
| 1 <sup>st</sup> Floor, restroom            | Break Room | 27.9  | 10   |
| Basement, kitchen                          | Break Room | 25.7  | 10   |
| Basement, Supply Room                      | Storage    | 4.1   | 30   |
| Rear Stairwell                             | Hall       | 13.4  | 5  |
| Main Stairwell                             | Hall       | 24.3  | 5  |
| First Sergeant Office, desk                | Admin      | 105.0   | 50   |

 Table 2-1

 Lighting Measurements and Recommended Lighting Requirements

On the day of the survey, the illuminance in the Readiness Center was determined to be inadequate in five of the locations surveyed.

## 2.2.6 Lead

Wipe testing for lead dust was conducted in the Readiness Center using ghost wipes, which meet ASTM E 1792 standards. The analytical report from AMA Analytical Services, Inc. (AMA) is contained in Appendix C. Table 2-2 below shows the results of the lead wipe testing.

| Sample Location  | URS Sample<br>Number  | Area<br>Wiped<br>in<br>Square<br>Feet<br>(ft <sup>2</sup> ) | Result in<br>Micrograms/<br>Square Foot<br>(µg/ft <sup>2</sup> ) | Maximum<br>Surface<br>Contamination<br>Level in<br>Micrograms/<br>Square Foot<br>(μg/ft <sup>2</sup> ) |
|--|-----------------------|---|--|--|
| Basement, former Indoor<br>Firing Range, end, metal<br>shelf | Greenfield RC<br>W-01 | 0.108   | 380  | 200  |
| Basement, corridor, top of flammable cabinet                 | Greenfield RC<br>W-02 | 0.108   | 1,000  | 200  |
| Basement, former Indoor<br>Firing Range, floor at<br>storage | Greenfield RC<br>W-03 | 0.108   | 620  | 200  |
| Basement, kitchen, metal shelf                               | Greenfield RC<br>W-04 | 0.108   | 200  | 200  |
| Stairwell landing,<br>basement to first floor                | Greenfield RC<br>W-05 | 0.108   | 370  | 200  |
| 1 <sup>st</sup> floor, First Sergeant<br>office              | Greenfield RC<br>W-06 | 0.108   | <110   | 200  |
| 1 <sup>st</sup> Floor, classroom, glass countertop           | Greenfield RC<br>W-07 | 0.108   | <110   | 200  |
| 1 <sup>st</sup> Floor, Company<br>Commander office           | Greenfield RC<br>W-08 | 0.108   | <110   | 200  |
| 1 <sup>st</sup> Floor, Drill Shed, stage<br>floor            | Greenfield RC<br>W-09 | 0.108   | <110   | 200  |
| 1 <sup>st</sup> Floor, Drill Shed, table                     | Greenfield RC<br>W-10 | 0.108   | <110   | 200  |

Table 2-2 Levels of Lead Dust Found in the Readiness Center

Five of the ten surface dust level measurements were found to contain lead at a level above the NGB recommended level, based on the OSHA clarification letter which states "as free as practicable" of lead contamination as specified under OSHA 29 CFR 1926.62.

Two paint chip samples were collected from areas of peeling paint in the facility and were analyzed for lead content. The analytical report from AMA is contained in Appendix C.

According to the U.S. Department of Housing and Urban Development (HUD), paint is considered to be lead-based if the quantity of lead is greater than 0.5% by weight. OSHA has not established a minimum percentage of lead to be defined as lead-based paint therefore, paint with lead in any amount above the analytical detection limit is considered to be lead-based under these regulations. The results of URS' lead paint testing are contained in Table 2-3.

Table 2-3 Lead Content in Painted Surfaces

| Paint Location               | Lead<br>Concentration<br>(Percent Weight) | HUD Lead-Based<br>Quantity<br>(Percent Weight) |
|------------------------------|---|--|
| White paint, Drill Shed wall | 0.031                                     | 0.5  |
| White paint, Drill Shed wall | 0.089                                     | 0.5  |

On the day of the survey, neither of the paint chip samples were found to have a lead content above the HUD criteria for determination of paint as lead-based.

#### 2.2.7 Asbestos

URS collected a total of two samples from damaged suspect asbestos-containing material (ACM) in the administrative areas for a determination of asbestos content. Analytical procedures were performed in accordance with the U.S. Environmental Protection Agency (EPA) recommended method for the determination of asbestos in bulk samples by polarized light microscopy with dispersion staining (EPA-600/M4-82-020). Table 2-4 below shows the results of the asbestos sampling.

 Table 2-4

 Asbestos Bulk Sample Results – Basement

| Sample Location                                   | Sample        | URS Sample    | Result         |  |
|---|---------------|---------------|----------------|--|
|   | Description   | Number        | Total Asbestos |  |
| 1 <sup>st</sup> Floor, Commander/ 1 <sup>st</sup> | Red 9x9 Floor | Greenfield RC | 3% Chrysotile  |  |
| Sergeant Offices                                  | Tile          | PLM-01-02     |                |  |

The EPA states that any material with an asbestos content greater than 1% must be treated as ACM (EPA, Title 40 CFR Part 763.87 (c)(2)). The analytical report from AMA is contained in Appendix C.

## 2.3 Ventilation System Evaluation

The facility, not designed for vehicle maintenance, contains a ventilation system that is limited to localized personal ventilation (i.e. room fans, window air conditioning units) within the majority of rooms, and main negative draw fans in the Assembly Hall.

#### 2.4 Noise Measurements

Area noise dosimetry was conducted within the administrative office area. Noise exposures were measured using a data-logging Spark 703+ Noise Dosimeter. Area noise dosimetry results indicated that, on the day of the survey, workers were not exposed to noise levels above the DoDI Hearing Conservation Standard (6055.12 3 December 2010) of 85 decibels, A scale (dBA)/8-hour day. Table 2-5 indicates the individual monitored, the tasks performed and noise exposures.

Table 2-5 Noise Dosimetry Data

| Location                         | Task           | Sample<br>Duration in<br>Minutes | Monitoring<br>Result TWA<br>(dBA)* | Hearing<br>Protection |
|----------------------------------|----------------|----------------------------------|------------------------------------|-----------------------|
| Office <sup>Non-Responsive</sup> | Administrative | 360                              | 71.6                               | N/A                   |

\* The calculated 8-hour, time-weighted average (TWA) noise exposure in dBA. The OSHA PEL for noise exposure is 90 dBA. DoDI has established an employee exposure level of 85 dBA for requirement of a hearing conservation program.

## 2.5 Personal Protective Equipment

Personal protective equipment was orderly and readily available to employees in the Readiness Center. Personal protective equipment included safety glasses, ear plugs and nitrile gloves. Personal protective equipment was not observed in use during URS' site visit.

## 3.0 SAFETY AND INDUSTRIAL HYGIENE PROGRAMS

#### 3.1 Confined Spaces

A written confined spaces program is not required for this site.

## 3.2 Hearing Conservation

A written hearing conservation program was not identified on site. A review of normal site activities determined that no operations were identified that would warrant hearing protection. Based on area noise dosimetry results, a hearing conservation program is not required for this site.

## 3.3 Respiratory Protection

A site-specific written program regarding Respiratory Protection was not identified on site and is not required for this facility

## 3.4 Hazard Communication

A site-specific hazard communication program was not identified on site.

Material safety data sheets, a site map, and list of full time personnel were readily available on the day of the survey.

## 3.5 Personal Protective Equipment

A written personal protective equipment program was not identified on site. A hazard assessment should be conducted to determine whether personal protective equipment is required for activities typically undertaken at the Readiness Center.

## 3.6 Asbestos Operations and Maintenance Program

A written asbestos operations and maintenance program was not identified on site.

## 3.7 Safety

Ladders were not properly secured and stored. Illuminated emergency exit signs and emergency escape plans were not properly posted throughout the facility. Evidence of water intrusion was observed throughout ceilings on the second floor.

#### 4.0 REFERENCES

American Conference of Governmental Industrial Hygienists

Industrial Ventilation: A Manual of Recommended Practice, 27<sup>th</sup> Edition, 2010

Guidelines for the Assessment of Bio-aerosols in the Indoor Environment, 1989

American National Standards Institute

American National Standards Institute/Illuminating Engineering Society of North America (ANSI/IESNA) RP-1-04: American National Standard Practice for Office Lighting

ANSI/IESNA RP-7-01: Recommended Practice for Lighting Industrial Facilities

American Society of Heating, Refrigerating and Air-Conditioning Engineers

ANSI/ASHRAE Standard 62.1-2010: Ventilation for Acceptable Indoor Air Quality

ANSI/ASHRAE Standard 55-2010: Thermal Environmental Conditions for Human Occupancy.

Department of the Army

DA PAM 40-21, Ergonomics Program, 15 August 2003

Unified Facilities Criteria, Heating, Ventilating and Air Conditioning, 3-520-05, 14 April 2008

DA PAM 40-501, Hearing Conservation Program, 10 December 1998.

AR 385-10, The Army Safety Program, 23 August 2007; RAR Issue Date: 4 October 2011

National Guard Pamphlet 420-15, Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges, 3 November 2006

Department of Defense

DoDI 6055.12, Hearing Conservation, 3 December 2010

Creating the Ideal Computer Workstation: A Step-by-Step Guide, June 2000

National Institute for Occupational Safety and Health

Current Intelligence Bulletin 50: Carcinogenic Effects of Exposure to Diesel Exhaust, August 1988

U. S. Environmental Protection Agency

Asbestos Hazard Emergency Response Act (40 CFR Part 763)

National Emissions Standards for Hazardous Pollutants (40 CFR Part 61)

U. S. Department of Housing and Urban Development

Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing (1995, 1997, 2012)

U. S. Occupational Safety and Health Administration

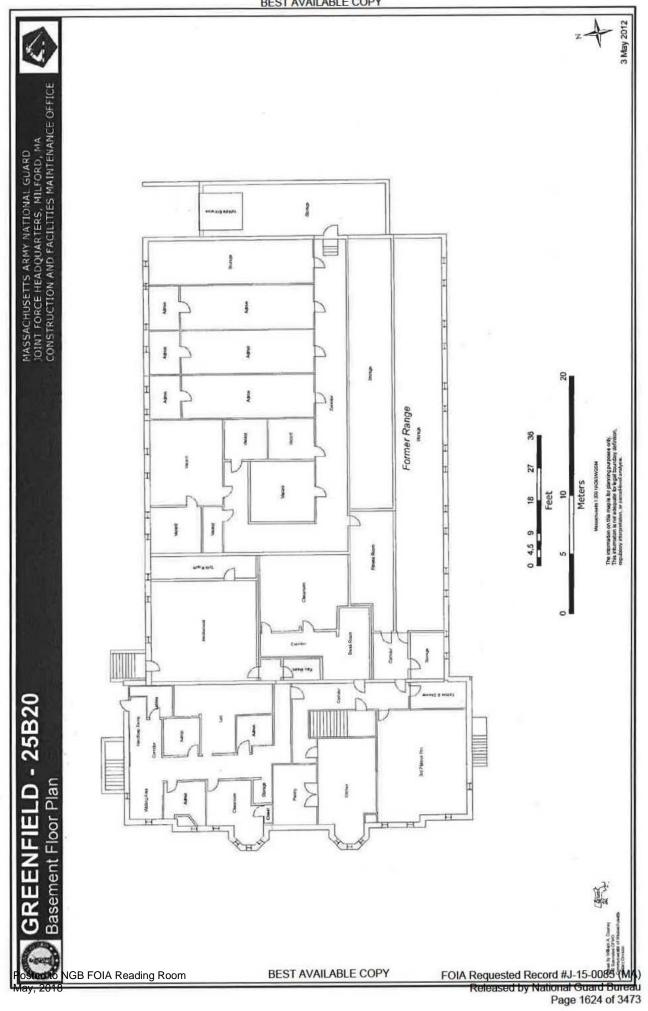
Standard for General Industry: 29 CFR 1910

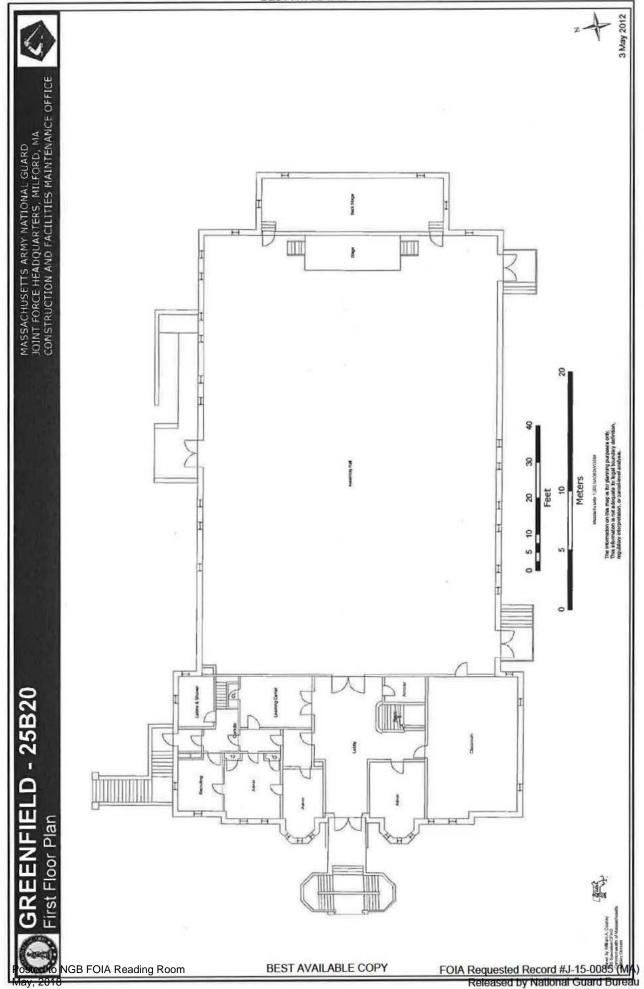
OSHA Clarification Letter – Clarification of "as free as practicable" of lead contamination under 29 CFR 1926.62, 13 January 2003.

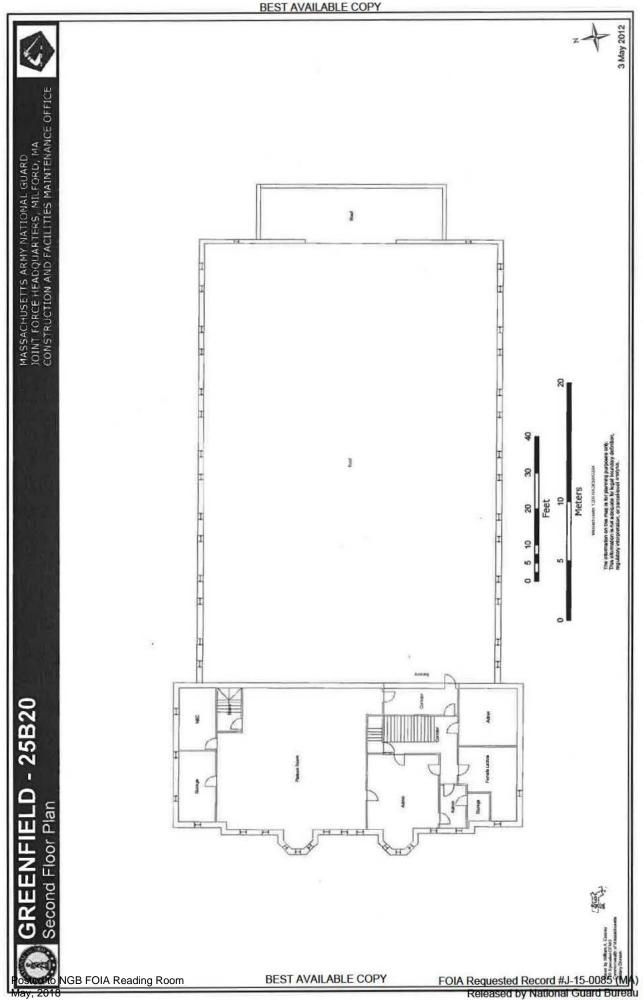
## APPENDIX A

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## SHOP DRAWING







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#### APPENDIX B

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#### PERSONNEL LIST

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List of Personal

# Non-Responsive

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#### APPENDIX C

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#### ANALYTICAL RESULTS

# AMA Analytical Services, Inc.

Attention:

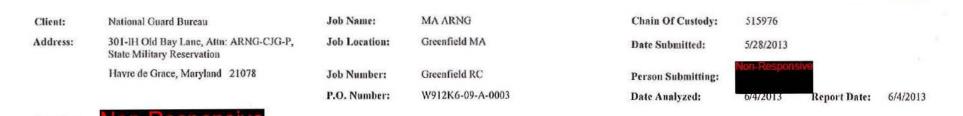
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#### CERTIFICATE OF ANALYSIS

#### AIHA LAP, LLC ACCREDITED LABORATORY INDUSTRIAL HYGIENE, ENVIRONMENTAL LEAD & ENVIRONMENTAL MICROBIOLOGY ISONEC 17025-2005

LAB #105470



#### Summary of Atomic Absorption Analysis for Lead

Page 1 of 2

| AMA Sample<br>Number | Client Sample<br>Number  | Analysis Type | Sample Type | Air Volume<br>(L) | Area Wiped<br>(ft²) |        | orting<br>imit | Total ug | Final Res | ult    | Comments |
|----------------------|--------------------------|---------------|-------------|-------------------|---------------------|--------|----------------|----------|-----------|--------|----------|
| 13065700             | Greenfield RC W-01       | Flame         | Wipe        | ****              | 0.108               | 110    | ug/ft²         | 41       | 380       | ug/ft² |          |
| 13065701             | Greenfield RC W-02       | Flame         | Wipe        | ****              | 0.108               | 110    | ug/ft²         | 110      | 1000      | ug/ft² |          |
| 13065702             | Greenfield RC W-03       | Flame         | Wipe        | ****              | 0.108               | 110    | ug/fl²         | 67       | 620       | ug/ft² |          |
| 13065703             | Greenfield RC W-04       | Flame         | Wipe        | ****              | 0.108               | 110    | ug/ft²         | 21       | 200       | ug/ft² |          |
| 13065704             | Greenfield RC W-05       | Flame         | Wipe        | ****              | 0.108               | 110    | ug/ft²         | 39       | 370       | ug/ft² |          |
| 13065705             | Greenfield RC W-06       | Flame         | Wipe        | ****              | 0.108               | 110    | ug/ft²         | <12      | <110      | ug/fl² |          |
| 13065706             | Greenfield RC W-07       | Flame         | Wipe        | ****              | 0.108               | 110    | ug/ft²         | <12      | <110      | ug/fl² |          |
| 13065707             | Greenfield RC W-08       | Flame         | Wipe        | ****              | 0.108               | 110    | ug/ft²         | <12      | <110      | ug/fl² |          |
| 13065708             | Greenfield RC W-09       | Flame         | Wipe        | ****              | 0.108               | 110    | ug/ft²         | <12      | <110      | ug/fl² |          |
| 13065709             | Greenfield RC W-10       | Flame         | Wipe        | ****              | 0.108               | 110    | ug/ft²         | <12      | <110      | ug/ft² |          |
| 13065710             | Greenfield RC LBP-<br>01 | Flame         | Paint Chip  | ****              | N/A                 | 0.0077 | %Pb            |          | 0.031     | %РЬ    |          |
| 13065711             | Greenfield RC LBP-<br>02 | Flame         | Paint Chip  | ****              | N/A                 | 0.0072 | %Pb            |          | 0.089     | %Pb    |          |
| 13065714             | Greenfield RC TB-W       | Flame         | Wipe Blank  | ****              | N/A                 | 12     | ug             |          | <12       | ug     |          |

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public, and these Laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from us. Sample types, locations, and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information. Residual sample material will be discarded in accordance with the appropriate regulatory guidelines, unless otherwise requested by the client. This report must not be used to claim, and does not imply product certification, approval, or endorsement by NY ELAP, AIHA, or any agency of the Federal Government. All rights reserved. AMA Analytical Services, Inc.

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| Address:  | 301-IH Old Bay Lane, Attn: ARNG-CJG-F<br>State Military Reservation   | , Job Location:   | Greenfield MA   |                                 | Date Submitted:                                 | 5/28/2013           |                    |             |
|   | Havre de Grace, Maryland 21078  | Job Number:   | Greenfield RC   |                                 | Person Submitting                               | Non-Responsive      |                    |             |
|   |   | P.O. Number:  | W912K6-09-A-0003  |                                 | Date Analyzed:                                  | 6/4/2013            | Report Date:       | 6/4/2013    |
| Attention:  | Non-Responsive  |   |   |                                 |   |                     |                    |             |
|   |   | Summary   | of Atomic Absor   | rption Analy                    | sis for Lead                                    |                     |                    | Page 2 of 2 |
| AMA Sample<br>Number  | Client Sample Analysis Type<br>Number   | Sample Type Air   | r Volume Area Wiped<br>(L) (ft²)  | Reporting<br>Limit              | Total ug  | Final Result        | Com                | ments       |
|   |   |   |   |                                 |   |                     |                    |             |
| Analysis Method I<br>N/A = Not Applica<br>%Pb = percent lea<br>Note: All samples  | ad on a dry weight basis ug = microgra<br>were received in good condition unless o  | /Solids : EPA 600/R-<br>on a dry weight basis<br>ams ug/L = part<br>therwise noted.                 | 93/200(M)-7010; Water: SI   | M-3113B assoc                   | C Summary for analyt<br>iated with these<br>es. | ical results of qua | lity control sampl | es          |
| Analysis Method I<br>N/A = Not Applica<br>%Pb = percent lea<br>Note: All samples<br>Note: All results h   | For Furnace: Air, Wipes, Paints, and Soil<br>ble mg/Kg = parts per million (ppm)<br>ad on a dry weight basis ug = microgra  | /Solids : EPA 600/R-<br>on a dry weight basis<br>ams ug/L = part<br>therwise noted.                 | 93/200(M)-7010; Water: Sl<br>s mg/L = parts per million                         | M-3113B assoc                   | iated with these                                |                     |                    |             |
| Analysis Method I<br>N/A = Not Applica<br>%Pb = percent lea<br>Note: All samples<br>Note: All results h<br>should not be con  | For Furnace: Air, Wipes, Paints, and Soil<br>ble mg/Kg = parts per million (ppm)<br>ad on a dry weight basis ug = microgra<br>were received in good condition unless o<br>ave two significant digits. Any additional  | /Solids : EPA 600/R-<br>on a dry weight basis<br>ams ug/L = part<br>therwise noted.<br>digits shown | 93/200(M)-7010; Water: Sl<br>s mg/L = parts per million<br>is per billion (ppb) | M-3113B assoc                   | iated with these<br>es.                         |                     | lity control sampl |             |
| Analysis Method I<br>N/A = Not Applica<br>%Pb = percent lea<br>Note: All samples<br>Note: All results h<br>should not be con<br>Air and Wipe resu<br>Final results for ai | For Furnace: Air, Wipes, Paints, and Soil<br>ble mg/Kg = parts per million (ppm)<br>ad on a dry weight basis ug = microgra<br>were received in good condition unless o<br>ave two significant digits. Any additional<br>sidered when interpreting the result. | /Solids : EPA 600/R-<br>on a dry weight basis<br>ams ug/L = part<br>therwise noted.<br>digits shown | 93/200(M)-7010; Water: Sl<br>s mg/L = parts per million<br>is per billion (ppb) | M-3113B assoc<br>sampl<br>(ppm) | iated with these<br>es.                         |                     |                    |             |

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| sbestos Analysis         M Air - Please Indicate Filter Type:         U NIOSH 7400(QTY)         B Fiberglass(QTY)         MAir - Please Indicate Filter Type:         U AHERA(QTY)         U NIOSH 7402(QTY)         U Other (specify)         QEPA 600 - Visual Estimate(QTY)         U Per A point Count(QTY)         U Grav. Reduction ELAP 198.6(QTY)         U Grav. Reduction ELAP 198.6(QTY)         U Other (specify)(QTY)         U Other (specify)(QTY)         U Grav. Reduction ELAP 198.6(QTY)         U Other (specify)(QTY)         U Other (specify)(QTY) |                                    | LAP 198.4/Chatfield<br>Y State PLM/THM<br>esidual Ash<br>St<br>wal. (pres/abs) Vacuum<br>wan. (s/area) Vacuum<br>wan. (s/area)Dust D64   | (QTY)<br>v/Dust<br>D5735-95<br>80-99<br>(QTY)<br>(QTY)<br>good condition | 2TY)<br>(QTY)<br>(QTY)<br>_(QTY)                    | n Cu                      | D Pb Air<br>J Pb Soll/Soll<br>Pb TCLP<br>D Dinking Wi<br>D Waste Water<br>J Pb Furnace 1<br>at Analysis<br>Collection A<br>Collection M<br>J Spore-Trap_<br>J Surface Swa<br>J Surface Tapi | (QTY) QSurf                                | u(QTY) [] As(QTY) [] As(QTY)<br>(QTY)<br>ir Samples: | (QTY)<br>(QTY)<br>(QTY)               |
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| LARORATORY  | 526/1                              |  |  | By (P   |                           |   | Respo                                      | onsiv  |                                       |
| 2. Date/Time Analyzed:<br>ed to NUE FOXA Reading Reported To<br>201(EUSTODY)<br>4. Comments:  | 6 (M3)                             | BEST AV  |  | COPY  | _Date:                    |   | Sign:FOIA Request                          | ed Record #J-15<br>d-by National I@ti<br>Page 16     | 0085 (MA)<br>and Bureau<br>32 of 3473 |

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| Asbestos Analysis         PCM_Air_Please Indicate Filter Type:         UNIOSH 7400(QTY)         Fiberglass(QTY)         Heras(QTY)         UNIOSH 7402(QTY)         NIOSH 7402(QTY)         UNIOSH 7402(QTY)         UNIOSH 7402(QTY)         UOther (specify)(QTY)         UOther (specify)(QTY)         UPTM Bulk         EPA 690 - Visual Estimate(QTY)         UPTM State Friable 198.1(QTY)         UPTY State Friable 198.1(QTY)         UPTY State Friable 198.1(QTY)         UPTS Control ELAP 198.6(QTY)         UPTS SAMPLE SONAL PLACED 1000000000000000000000000000000000000 |  | Qual. (pres/abi<br>Quan. (s/area)<br>Quan. (s/area)<br>Water<br>Qual. (pres/abi<br>HLAP 198.2/E<br>HPA 100.1<br>All samples re<br>TEM Water sam | VIEM(<br>s) Vacuum/Dust<br>Vacuum D5755<br>Dust D6480-99<br>s)<br>PA 100.2(Q1<br>ceived in good of<br>ples^C)<br><b>;(I)VACINES</b> | (QTY)<br>-95<br>-(QTY)<br>(QTY)<br>(QTY)<br>condition unle | _(QTY<br>(Q<br>_(QTY<br>(QTY) | )<br>)                               |                    | Pb Dust Wi<br>Pb Air<br>Pb Soil/Soil<br>Pb TCLP<br>Drinking W<br>Waste Wate<br>Pb Furnace<br>Values<br>Collection 1<br>Collection 1<br>Spore-Trap<br>Surface Sw<br>Surface Top | (QTY) QSur<br>ab(QTY) QCub<br>(QTY) QCub<br>(QTY) QCub<br>(QTY) QCub<br>(QTY) QCub<br>(QTY) QCub | Cu(QTY) C) A<br>(QTY) C) A<br>(QTY)<br>Air Samples:<br>face Vacuum Dust<br>trable D Genus (Medi<br>arable D Species (Medi<br>ENT CONTACT | As(QTY)<br>s(QTY)<br>)<br>(QTY)<br>a(QTY)<br>a(QTY) |
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## AMA Analytical Services, Inc.

A Specialized Environmental Laboratory

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#### CERTIFICATE OF ANALYSIS



| Client:    | National Guard Bureau  | Job Name:     | MA ARNG          | Chain Of Custody:  | 515976         |
|------------|--|---------------|------------------|--------------------|----------------|
| Address:   | 301-IH Old Bay Lane, Attn: ARNG-CJG-P,<br>State Military Reservation | Job Location: | Greenfield MA    | Date Analyzed:     | 6/4/2013       |
|            | Havre de Grace, Maryland 21078                                       | Job Number:   | Greenfield RC    | Person Submitting: | Non-Responsive |
|            |  | P.O. Number:  | W912K6-09-A-0003 |                    |                |
| Attention: | Non-Responsive   |               |                  |                    | Page 1 of 1    |

#### Summary of Polarized Light Microscopy

| AMA Sample<br>Number | Client<br>Sample #      | Total<br>Asbestos | Chrysotile<br>Percent | Amosite<br>Percent | Crocidolite<br>Percent | Other<br>Asbestos<br>Percent | Wool | Percent |      |   | Particulate<br>Percent | Sample<br>Type | Sample<br>Color | Homogeneity | Analyst<br>ID | Comments |
|----------------------|-------------------------|-------------------|-----------------------|--------------------|------------------------|------------------------------|------|---------|------|---|------------------------|----------------|-----------------|-------------|---------------|----------|
| 13065712             | Greenfield RC<br>PLM-01 | 3                 | 3                     |                    |                        |                              |      | (       | <br> | - | 97                     | FT             | Red             | Homogeneous | SW            |          |
| 13065713             | Greenfield RC<br>PLM-02 | 3                 | 3                     |                    |                        |                              |      |         | <br> |   | 97                     | FT             | Red             | Homogeneous | SW            |          |

The following footnotes only apply to those samples which the total asbestos result is flagged with a note number.

1 TEM RECOMMENDATION - Please note, due to resolution limitations with optical microscopy and/or interference from matrix components of this sample, results which are reported via PLM as negative or trace (<1%) for asbestos may contain a significant quantity of asbestos. It is recommended that the additional analytical technique of TEM be used to check for asbestos fibers below the resolution limits of optical microscopy.

MATRIX REDUCTION RECOMMENDATION - Please note, due to interference from the matrix components of this sample, results which are reported via PLM as negative or trace (<1%) for asbestos may 2 contain a significant quantity of asbestos which is obscured from view. It is recommended that the additional preparation technique of gravimetric reduction be performed on this sample to minimize the obscuring effects of matrix components, followed by reanalysis by PLM and/or TEM.

Analysis Method - EPA/600/R-93/116 dated July 1993

TR = "Trace equals less than 1% of this component" NAD = "No Asbestos Detected" Uncertainty: For samples containing asbestos in range of 1-10% the CV is 0.43, 11-35% CV=0.55, >35 CV=0.23 All results are to be considered preliminary and subject to change unless signed by the Technical Director or Deputy. **Technical Director** Analyst(s)

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public, and these Laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from us. Sample types, locations, and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information. Residual sample material will be discarded in accordance with the appropriate regulatory guidelines, unless otherwise requested by the client. NVLAP accreditation applies only to polarized light microscopy of bulk samples and transmission electron microscopy of AHERA air samples. This report must not be used to claim, and does not imply product certification, approval, or endorsement by NVLAP or any agency of the Federal Government. All rights reserved. AMA Analytical Services, Inc.

#### NVLAP (101143-0) Accredited Laboratory

Posted to NGB FOIA Reading Room. H475 Forbes Blvd, + Lanham, MD, 20706 + (301) 459-2640 + Toll Free (800) 346-0961 + Fax (301) 459-2643 Requested Record #J-15-0085 (MA) Released by National Guard Bureau May, 2018

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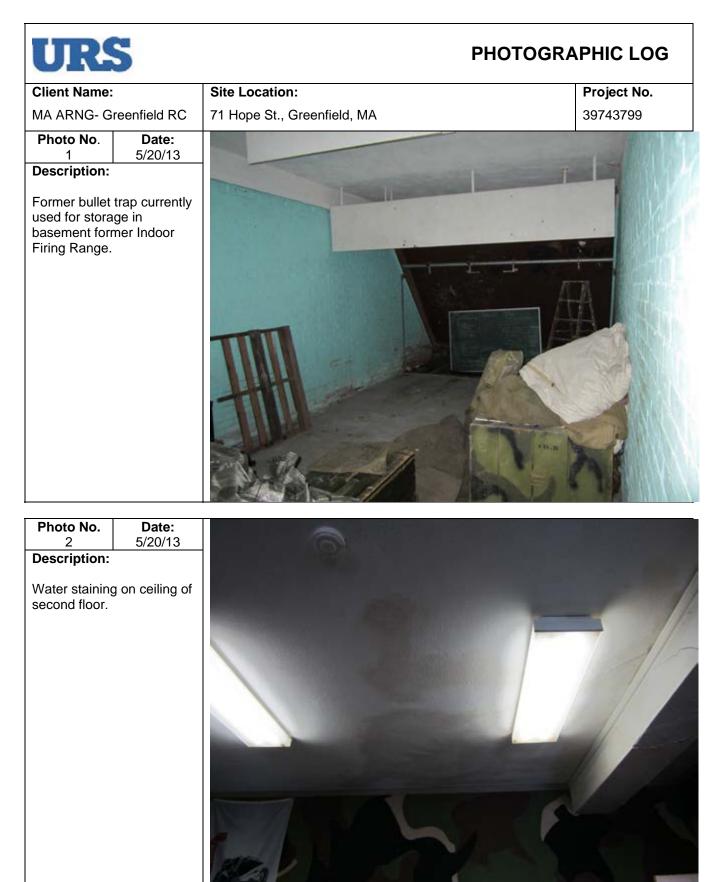
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| AMA Analytical Services, Inc.<br>Focused on Results www.amalab.com<br>AIHA (#100470) NVLAP (#101143-0) NY EI<br>4475 Forbes Blvd. • Lanham, MD 20706<br>(301) 459-2640 • (800) 346-0961 • Fax (301)  | 459-2643   | OF CUSTO   | DY Nu   | case Refer To This<br>mber For Inquires)               | 515976  |
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| Groenfield RC 169 11-09  |  | × · · · ·  |   | Date/Time: C   | ontact: By:   |
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| Focused on Results www.amalab.com<br>AIHA (#100470) NVLAP (#101143-0) NY EI<br>4475 Forbes Blvd. • Lanbarn, MD 20706<br>(301) 459-2640 • (800) 346-0961 • Fax (301) |                       | C                | H        | AIP      |        | •      | 1000    |        | 1999 B. (1992) | 585157       |       |         |                 | 12020           | lease Refer To This<br>imber For Inquires) | SIS                         | 976       |
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| Stestos Auslysis<br>MAir – Please Indicate Filter Type:   | 1                     | EM Bulk          |          |          |        |        |         |        |                |              | -1    | Q       | Pb Pai          | nt Chi          | p(QTY)                                     |                             |           |
| UNIOSH 7400(QTY)  |                       | C NY S<br>Resid  | State PI | LM/TEN   | 4      | IOT    | _(Q)    | (Y)    |                |              |       | u<br>0  | Pb Du<br>Pb Air | st Wip          | e (wipe type(QTY)                          |                             | QTY)      |
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| QTY)  |                       | Qual             |          |          |        |        |         |        |                | <sup>w</sup> |       | a       | Pb TC<br>Drink  | LP              | ter DPb(QTY)                               | Cu (OTY)DA                  | s (OTY)   |
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| D EPA 600 – Visual Estimate(QTY)  | 1                     | HM Water<br>Qual | Incort   | (sha)    |        | 11     | TV1     |        |                |              |       |         | Pb Fu<br>Anit   | mace (          | Media)                                     | (QTY)                       |           |
| EPA Point Count(QTY)     NY State Friable 198.1(QTY)  |                       | QELA             | P 198.3  | VEPA I   | 0.2    |        | (       | (QTY)  |                |              |       |         | Collec          | tion A          | oparatus for Spore Trap                    | /Air Samples:               |           |
| Grav. Reduction ELAP 198.6(QTY)   |                       | Q EPA            |          |          |        |        | -       |        |                |              |       |         |                 |                 | edia(QTY) QIS                              | urface Vacuum Dust_         | (OTY)     |
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| reenfrell RC LBROI LBP-015/4  |                       | -                |          |          |        | ×      | _       | _      | -              | _            |       |         |                 |                 | Date/Time:                                 | Contact:                    | Βγ:       |
| reconfield RC LBP OA LBP-025/20   | 115 -                 |                  | -        | -        | -      | K      | -       |        |                | _            |       | -       | -               | -               |  |                             |           |
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| LABORATORY<br>STAFF ONLY:<br>ed to NGB FOIA Reading Roomlts Reported To:<br>20(8USTODY)<br>4. Comments:   |                       |                  | @        | _@       | _Via:  | 2000   |         |        | _By (          | Print):      |       | -       |                 |                 | Sign:                                      | Sign:                       |           |

## APPENDIX D

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### PHOTOGRAPHIC LOG



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**PHOTOGRAPHIC LOG** Project No. **Client Name:** Site Location: MA ARNG- Greenfield RC 71 Hope St., Greenfield, MA 39743799 Photo No. Date: 5/20/13 3 **Description:** Improperly stored ladder in the Drill Hall.



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Released by National Guard Bureau Page 1639 of 3473

#### APPENDIX E

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#### **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/ft<sup>2</sup>). If a special function will be held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function. This guidance is based on professional judgment, risk assessments, adaptation of Occupational Safety and Health Administration (OSHA) guidance, and feasibility of cleaning to a certain level.
  - a. Environmental Protection Agency (EPA) standards (40 Code of Federal Regulations (CFR) 745.227(h)(3)) are not directly applicable because they are criteria for dust-lead hazards developed for floors (40  $\mu$ g/ft<sup>2</sup>) and windowsills (250  $\mu$ g/ft<sup>2</sup>) in residential dwellings and child occupied facilities. A child occupied facility is defined as a building, or portion of a building, constructed prior to 1978, visited regularly by the same child, 6 years of age or under, on at least two different days within any week (Sunday through Saturday period), provided that each day's visit lasts at least 3 hours and the combined weekly visit lasts at least 6 hours, and the combined annual visits last at least 60 hours. Most of the wipe samples in armories were collected in undisturbed areas and therefore, results are worst case scenarios and do not correlate to these standards.
  - b. OSHA has no specific requirement for work area surfaces. The lead standard (29 CFR 1910.1025(h)) states that all surfaces shall be maintained as free as practicable of accumulations of lead dust. In workplaces where lead dust is generated, surface levels may be much higher, but personnel exposures can be controlled by limiting airborne lead levels and following good cleanup and hygienic practices.
  - c. OSHA used to cite a level of 200  $\mu$ g/ft<sup>2</sup> 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<sup>2</sup> is a safe surface contamination level. They have also applied these standards as the decontamination levels for surfaces in administrative offices.
  - e. It should be noted that levels above these recommendations do not necessarily mean there is a significant hazard to workers who are following good cleaning and hygienic practices since there is no

correlation between wipe and air samples. Rather, we recommend these levels as a precautionary measure.

- 2. The NGB Occupational Health Branch is developing guidance for armories that are used as childcare facilities. All states will receive this guidance when it is completed. In the interim, we recommend the following actions:
  - a. Clean all areas that will be accessible to children to the EPA dust-lead standard for children 6 years of age or under (40  $\mu$ g/ft<sup>2</sup> on floors and 250  $\mu$ g/ft<sup>2</sup> on windowsills).
  - b. Refer to the local authorities' regulations since they can be more stringent than federal regulations.
  - c. Post signs in the area to inform people of the presence of lead dust and its effects.
  - d. If soldiers clean weapons in the facility change the policy so that they cannot clean their weapons in the facility, or if they are allowed to clean their weapons indoors, they must clean the area by wet wiping and mopping the area when they are done.
  - e. If the paint is peeling, contact the state Environmental Office to test for lead content and provide recommendations.
- 3. Air samples collected on individuals in the armory were well below OSHA's permissible exposure limit for lead (29 CFR 1910.1025(c)) of 0.05 milligrams per cubic meter (mg/m<sup>3</sup>) averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead dust in this building.

#### **Prepared For:**

National Guard Bureau Army National Guard Region North Industrial Hygiene Office 301 – IH Old Bay Lane Havre De Grace, Maryland 21078

#### Prepared By:

URS Corporation 5 Industrial Way Salem, New Hampshire 03079

FINAL INDUSTRIAL HYGIENE SURVEY REPORT HINGHAM READINESS CENTER 96 CENTRAL STREET HINGHAM, MASSACHUSETTS

April 2006 PN: 39741508



Office Manager



**Project Manager** 

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#### FINDINGS AND RECOMMENDATIONS

| Findings<br>Ergonomic  | Recommendation  | Risk<br>Assessment<br>Code |
|--|---|----------------------------|
| Computer workstations were<br>observed with fixed chairs,<br>armrests, keyboards and<br>monitors.  | Ergonomic issues with the desks and<br>chairs should be corrected by fitting<br>the workplace to the worker (DoD,<br>OSHA General Duty)   | RAC 3                      |
| Lighting<br>On the day of the survey, the<br>illuminance in the<br>administrative area was<br>inadequate in half of all offices.   | Increase lighting in the administrative<br>areas. While work is in progress, the<br>administrative area shall be lighted<br>by at least the minimum lighting<br>intensities (ANSI / IESNA RP-1-04)                                    | RAC 4                      |
| Lead was detected in wipe<br>samples collected from the<br>firing range in amounts greater<br>than 200 µg/ft <sup>2</sup>  | Personnel trained in accordance with<br>the OSHA Lead Standard should<br>clean the former firing range where<br>lead was detected in quantities of<br>greater than 200 micrograms per<br>square foot (OSHA 29 CFR<br>1910.1025(h)(1)) | RAC 4                      |
| Peeling lead-based paint was<br>present in storage room #3,<br>room #16 and in the drill hall.   | Personnel trained in accordance with<br>the OSHA Lead Standard should<br>stabilize peeling lead paint (OSHA 29<br>CFR 1910.1025(h)(1))  | RAC 4                      |
| Asbestos   |   |                            |
| Damaged floor tile containing<br>greater than 1% asbestos was<br>present in room #14. Exposed<br>pipe and pipefitting insulation<br>was present in room #6, boiler<br>room #5, area #9 and in the<br>drill hall. | Remove and replace damaged<br>asbestos-containing floor tile. Work<br>should be completed by personnel<br>trained in accordance with federal<br>regulations (OSHA 29 CFR<br>1910.1001(k)(1))  | RAC 3                      |
| No site specific asbestos<br>operations and maintenance<br>plan available.   | Develop a site specific asbestos<br>operations and maintenance plan to<br>manage asbestos-containing<br>materials (OSHA 29 CFR<br>1910.1001(j))   | RAC 3                      |
| Hazard Communication   |   |                            |
| No site specific hazard communication plan available.  | Develop a site specific hazard<br>communication plan to manage<br>hazardous materials (OSHA 29 CFR<br>1910.1200(e))   | RAC 4                      |

## FINDINGS AND RECOMMENDATIONS (Continued)

| Findings   | Recommendation   | Risk<br>Assessment<br>Code   |
|--|--|--|
| Machinery and Machine Guard                                  | All and a second   |  |
| The grinding wheel in area #9<br>was missing a safety guard. | Abrasive wheels shall be used only<br>on machines provided with safety<br>guards (OSHA 29 CFR<br>1910.215(a)(2))   | RAC 3  |
| Walking-Working Surfaces                                     |  | $e_{ij} = e_{ij} e_{ij} e_{ij} = e_{ij} e_{$ |
| There was a hole in the floor of the boiler room.            | Covers and/or guardraits shall be<br>provided to protect personnel from<br>the hazards of open pits, tanks, vats,<br>ditches, etc. (OSHA 29CFR<br>1910.23(a)(8))   | RAC 3  |
| Mold   | e i dise transfire dependence et   | 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1   |
| Watermarks and visible mold growth were observed throughout. | Determine and repair source of<br>water, Replace water damaged<br>building materials and implement a<br>moisture management program to<br>provide direction for future water<br>incursions (Best management<br>practice) | RAC 4  |

#### 1.0 SUMMARY

At the request of the National Guard Bureau (NGB) Region North Industrial Hygiene office, URS Corporation (URS) conducted an industrial hygiene survey at the Readiness Center located at 96 Central Street in Hingham, Massachusetts. This report includes an executive summary, a description of the survey protocol, a discussion of the survey evaluation and findings and a list of conclusions and recommendations.

On February 18, 2004, Mr an industrial hygienist with URS, conducted a site visit to the Readiness Center in Hingham, Massachusetts. The purpose of this site visit was to conduct an industrial hygiene survey, which included the collection of air samples, bulk samples, lighting measurements, and a review of site health and safety Von-Responsive of the State of Massachusetts was Mr. Mr. procedures. site contact for this survey.

A shop layout drawing of the facility, which shows the locations where measurements were made during this survey, is contained in Appendix A.

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#### 2.0 ADMINISTRATIVE AREA

#### 2.1 Operation Description

This building area contains multiple offices located throughout the building with desks and computer workstations. Computer workstations were assessed during the walkthrough for ergonomic issues. Computer workstation chairs could not be adjusted for height, the armrests were in a fixed position and keyboards in office # 15 could not be adjusted (Photo # 3821). Computer monitors could not be adjusted for different individuals working at the work stations. If more than one person is using a work station, then proper adjustments need to be made to accommodate each person.

Watermarks were observed on the ceiling in hallway #15 (Photo # 3820). Watermarks with mold growth were found in the kitchen #2 (Photo # 3809) and in room # 10 (Photo # 3816). There was some water damage to the ceiling in the locker room # 28 (Photo # 3830).

#### 2.2 Chemical and Physical Agents Sampled

#### 2.2.1 Relative Humidity

Relative humidity levels were measured using a TSI Q-Track (Model 8551). Relative humidity on the day of the survey ranged from 22.3 - 26.0% with an average of 24.2% on the 1<sup>st</sup> floor. The 2<sup>nd</sup> floor ranged from 21.5 - 22.4% with an average of 22.0%. The basement level ranged from 21.6 - 24.9% with an average of 22.9%. These readings were below the recommended range of 30.0% and 60.0% set by the American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. (ANSI / ASHRAE Standard 55-2004).

#### 2.2.2 Carbon Dioxide

On the day of the survey, carbon dioxide measurements were made at various locations throughout the Readiness Center. Carbon dioxide concentrations on the 1<sup>st</sup> floor ranged from 383 to 475 parts per million (ppm), with an average of 392 ppm. The 2<sup>nd</sup> floor ranged from 460 to 472 ppm, with an average of 466 ppm. The basement level

FOIA Requested Record #J-15-0085 (MA) Released by National Guard Bureau Page 1649 of 3473 ranged from 411 to 433 ppm, with an average of 416 ppm. Carbon dioxide levels were measured using a direct reading TSI Q-Track (Model 8551).

Carbon dioxide is a normal constituent of the atmosphere and ranges from about 250 to 450 ppm. The major source of excess carbon dioxide in the indoor environment is people. Qther sources can include open-flame heaters, fermentation processes, and motor vehicles. Carbon dioxide itself is not normally a cause of indoor air quality problems because concentrations must exceed 5,000 to 10,000 ppm before health effects such as headache, drowsiness, and increased respiration are noted. Typically, carbon dioxide is used as an indicator of the adequacy of fresh air intake. As the concentration of carbon dioxide increases, so do the background levels of other air contaminants. ASHRAE recommends that levels of carbon dioxide be maintained below 700 ppm above background level. Given a background level of 425 ppm on the day of the survey, the ASHRAE limit would be approximately 1125 ppm.

#### 2.2.3 Carbon Monoxide

Carbon monoxide was also measured in the Readiness Center. The carbon monoxide concentration remained at 0 parts per million (ppm) throughout the survey period. The measured levels were below the ASHRAE guideline for indoor environments. Carbon monoxide was measured using a TSI Q-Track (Model 8551).

Key sources of carbon monoxide within indoor environments include internal combustion engines, motor vehicle and forklift exhaust, tobacco smoke, space heaters, and improperly adjusted oil or gas burners. Health effects from exposure to elevated concentrations of carbon monoxide may include fatigue, impairment of visual acuity, irregular heartbeat, headache, nausea, and confusion. ASHRAE recommends that average carbon monoxide concentrations not exceed 9 ppm. Typical average concentrations found in commercial buildings range from 0 to 6 ppm.

#### 2.2.4 Lighting

Lighting in the administrative area was measured using a Sper Scientific Ltd. Light Meter (Model 840020C). Table 2-1 below shows lighting measurements and the recommended lighting requirement ANSI / IESNA RP –1-04 American National Standard Practice for Office Lighting).

| Location     | Function              | Measured<br>Illuminance<br>(lux) | Recommended<br>Illuminance (lux) |
|--------------|-----------------------|----------------------------------|----------------------------------|
| Office # 15  | Administrative Duties | 286                              | 500                              |
| Office # 16  | Administrative Duties | 199                              | 500                              |
| Office # 17  | Administrative Duties | 195                              | 500                              |
| Office # 18  | Administrative Duties | 166                              | 500                              |
| Office # 27  | Administrative Duties | 130                              | 500                              |
| Office # 29  | Administrative Duties | 139                              | 500                              |
| Office # 30  | Administrative Duties | 036                              | 500                              |
| Hallway # 1  | Accessway             | 088                              | 30                               |
| Hallway # 19 | Accessway             | 112                              | 30                               |

 Table 2-1

 Lighting Measurements and Recommended Lighting Requirements

On the day of the survey the illuminance in the administrative area was inadequate in all offices.

#### 2.2.5 Lead

Paint chips were collected where paint was peeling and sent to AMA Analytical Services, Inc. (AMA) for analysis. Two samples were found to contain lead in a concentration above the allowable limit of the U.S. Housing and Urban Development (HUD) Lead-Based Paint Guidelines. Levels of lead greater than 0.5% by weight are referred to as "lead-containing" (Section 1017 of the Residential Lead-Based Paint Hazard Reduction Act of 1992 (also referred to as Title X)). Table 2-2 below shows the results of the lead paint testing.

Table 2-2 Levels of Lead in Paint Found in the Administrative Area

| Sample Location | URS Sample<br>Number | Reporting Limit<br>(% by Weight) | Final Result<br>(% by Weight) |
|-----------------|----------------------|----------------------------------|-------------------------------|
| Storage #3      | 0218-LPC01           | 0.01                             | 0.88                          |
| Mess Hall #4    | 0218-LPC02           | 0.01                             | 0.051                         |

| Sample Location | URS Sample<br>Number | Reporting Limit<br>(% by Weight) | Final Result<br>(% by Weight) |
|-----------------|----------------------|----------------------------------|-------------------------------|
| Mess Hall #4    | 0218-LPC03           | 0.01                             | < 0.0091                      |
| Mess Hall #4    | 0218-LPC04           | 0.01                             | 0.19                          |
| Kitchen #2      | 0218-LPC05           | 0.01                             | 0.34                          |
| Room #10        | 0218-LPC06           | 0.01                             | 0.043                         |
| Room #10        | 0218-LPC07           | 0.01                             | <0.008                        |
| Room #16        | 0218-LPC08           | 0.01                             | 1.4                           |
| Locker Room #28 | 0218-LPC10           | 0.01                             | 0.35                          |

# Table 2-2 (Cont) Levels of Lead in Paint Found in the Administrative Area

The analytical report from AMA is contained in Appendix D.

Wipe testing for lead dust was conducted in the administrative area using ghost wipes, which meet ASTM E 1792 standards. The analytical report from AMA is contained in Appendix D. Table 2-3 below shows the results of the lead sampling.

| Levels of | Levels of Lead Dust Found in the Administrative Area |  |   |         |  |
|-----------|--|--|---|---------|--|
|           |  |  | : | Maximum |  |

Table 2-3

| Sample Location                                  | URS Sample<br>Number | Area Wiped<br>(ft <sup>2</sup> ) | Result<br>(µg/ft <sup>2</sup> ) | Maximum Safe<br>Surface<br>Contamination<br>Level (µg/ft <sup>2</sup> ) |
|--|----------------------|----------------------------------|---------------------------------|---|
| Hallway #19 – Top of<br>the Coca Cola<br>Machine | 0218-LW03            | 0.111                            | 610                             | 200   |
| Office #15 – Top of a<br>Book Case               | 0218-LW04            | 0.111                            | 49                              | 200   |
| Office #17 ~ Top of a<br>Book Case               | 0218-LW05            | 0.111                            | 31                              | 200   |
| Blank  | 0218-LWBlank         | N/A                              | 0.62                            | 200   |

### 2.2.6 Asbestos

Pipe insulation, 9"x9" floor tile and cove base mastic were determined to contain asbestos in a previous survey conducted by ATC Associates of Woburn, Massachusetts in June of 1999

#### 2.3 Ventilation System Evaluation

Not applicable to this operation.

#### 2.4 Noise Measurements

Not applicable to this operation.

#### 2.5 Personal Protective Equipment

Not applicable to this operation.

#### 2.6 Interpretation of Results

GENERAL: In general, the administrative area was neat and orderly.

<u>LIGHTING</u>: On the day of the survey, the illuminance in the administrative area was inadequate in all offices.

<u>LEAD:</u> One of the three surface wipes that were tested in the administrative area for lead, was found to contain lead in a quantity greater than 200 micrograms per square foot. URS recommends that an appropriately licensed lead contractor clean the areas with high lead dust levels. The NGB Region North Industrial Hygiene Office has prepared a memorandum titled "Recommendations for Surface Lead Dust in Armories" which is provided in Appendix G.

The light blue paint chip sample from storage room #3 (Photo # 3805) and the brown paint chip sample from room #16 (Photo # 3823) were found to contain lead above the HUD Guideline for lead-based paint. It is recommended that the peeling lead paint be stabilized to prevent further spread of lead dust.

<u>ASBESTOS</u>: Broken 9"x9" floor tile was found throughout room #14 (Photo # 3822). This material was determined to contain asbestos in a previous survey conducted by ATC Associates of Woburn, Massachusetts in June of 1999.

----

#### 3.0 FORMER FIRING RANGE

#### 3.1 Operation Description

The firing range has been dismantled and this building area is now primarily used for storage.

#### 3.2 Chemical and Physical Agents Sampled

#### 3.2.1 Lead

Wipe testing for lead was conducted in the former firing range using ghost wipes, which meet ASTM E 1792 standards. The analytical report from AMA is contained in Appendix D. Table 3-1 below shows the results of the lead sampling.

| Sample Location                           | URS Sample<br>Number | Area<br>Wiped<br>(ft <sup>2</sup> ) | Result<br>(µg/ft²) | Maximum Safe<br>Surface<br>Contamination<br>Level (µg/ft <sup>2</sup> ) |
|---|----------------------|-------------------------------------|--------------------|---|
| Former Firing Range-Top<br>of Light Guard | 0218-LW06            | 0.111                               | 78,000             | 200   |
| Former Firing Range-Top<br>of Light Guard | 0218-LW07            | 0.111                               | 100,000            | 200   |
| Former Firing Range-Floor-<br>Rear        | 0218-LW08            | 0.111                               | 8,500              | 200   |
| Former Firing Range-Floor-<br>Center      | 0218-LW09            | 0.111                               | 3,100              | 200   |
| Former Firing Range-Floor-<br>Front       | 0218-LW10            | 0.111                               | 2,700              | 200   |
| Blank                                     | 0218-<br>LWBlank     | N/A                                 | 0.62               | 200   |

Table 3-1Levels of Lead Dust Found in the Former Firing Range

One air sample for lead dust was also collected in the former firing range. Table 3-2 below shows the result of this air sample.

- -----

| Sample Location     | URS Sample<br>Number | Air Volume<br>(L) | Result<br>(µg/m <sup>3</sup> ) | OSHA's<br>PEL(µg/m <sup>3</sup> ) |
|---------------------|----------------------|-------------------|--------------------------------|-----------------------------------|
| Former Firing Range | 0218-LA02            | 900               | <3.3                           | 50.0                              |
| Biank               | 0218-LA03            | 0                 | <3.0                           | 50.0                              |

Table 3-2 Levels of Lead Found in the Air

On the day of the survey, the airborne lead dust level in the former firing range was found to be acceptable, below OSHA's permissible exposure limit (PEL) for lead (29 CFR 1910.1025(c)) of 50.0  $\mu$ g/m<sup>3</sup> averaged over an 8-hour day. The analytical report from AMA is contained in Appendix D.

#### 3.3 Ventilation System Evaluation

Not applicable to this operation.

#### 3.4 Noise Measurements

Not applicable to this operation.

#### 3.5 Personal Protective Equipment

Not applicable to this operation.

#### 3.6 Interpretation of Results

<u>LEAD</u>: The five surface wipe samples collected in the former firing range were found to contain lead dust levels above the maximum limit set by the National Guard Bureau. The NGB Region North Industrial Hygiene Office has prepared a memorandum titled "Recommendations for Surface Lead Dust in Armories" which is provided in Appendix G. Guidelines for the cleaning and rehabilitation of indoor firing ranges is provided in Appendix H.

#### 4.0 DRILL HALL

#### 4.1 Operation Description

The drill hall is a 6,600 square foot area with about a 30-foot high ceiling used for assembling personnel and storing equipment. The walls are constructed of brick with a wood floor.

The asbestos-containing pipe insulation in this area is in poor condition (Photo # 3824). URS recommends removing the insulation before further deterioration occurs. This work should be performed by a properly trained, licensed technician.

Watermarks were discovered in the drill hall on the ceiling (Photo # 3826). URS was told by the on-site escort that the roof was new and the watermarks had been there prior to the installation of the new roof. URS recommends frequent visual inspections by for any new water stains or mold growth.

#### 4.2 Chemical and Physical Agents Sempled

#### 4.2.1 Lead

Wipe testing for lead dust was conducted in the drill hall using ghost wipes, which meet ASTM E 1792 standards. The analytical report from AMA is contained in Appendix D. Table 4-1 below shows the results of the lead sampling.

| Sample Location                    | URS Sample<br>Number | Area Wiped<br>(ft <sup>2</sup> ) | Result<br>(µg/ft²) | Maximum Safe<br>Surface<br>Contamination<br>Level (µg/ft <sup>2</sup> ) |
|------------------------------------|----------------------|----------------------------------|--------------------|---|
| Drill Hall # 22 – Floor –<br>Rear  | 0218-LW01            | 0.111                            | 130                | 200   |
| Drill Hall # 22 – Floor –<br>Front | 0218-LW02            | 0.111                            | 100                | 200   |
| Blank                              | 0218-<br>LWBlank     | N/A                              | <12                | 200   |

Table 4-1 Levels of Lead Dust Found in the Drill Hail

One air sample for lead dust was collected in the drill hall. Table 4-2 below shows the result of this air sample.

| Sample Location | URS Sample Number | Air Volume<br>(L) | Result<br>(µg/m³) | OSHA's<br>PEL(µg/m³) |
|-----------------|-------------------|-------------------|-------------------|----------------------|
| Drill Hall      | 0218-LA01         | 864               | <3.5              | 50.0                 |
| Blank           | 0218-LA03         | 0                 | <3.0              | 50.0                 |

#### Table 4-2 Levels of Lead Found in the Air

On the day of the survey, the airborne lead dust level in the drill hall was found to be acceptable, below OSHA's permissible exposure limit (PEL) for lead (29 CFR 1910.1025(c)) of 50.0  $\mu$ g/m<sup>3</sup> averaged over an 8-hour day.

A Paint chip was collected where paint was peeling and sent to AMA for analysis. The sample was found to contain lead in a concentration within the allowable limits of the U.S. Housing and Urban Development (HUD) Lead-Based Paint Guidelines. Levels of lead greater than 0.5% by weight are referred to as "lead-containing" (Section 1017 of the Residential Lead-Based Paint Hazard Reduction Act of 1992 (also referred to as Title X)). Table 4-3 below shows the results of the lead paint testing.

Table 4-3 Levels of Lead in Paint Found in the Drill Hall

| Sample Location | URS Sample | Reporting Limit | Final Result  |
|-----------------|------------|-----------------|---------------|
|                 | Number     | (% by Weight)   | (% by Weight) |
| Drill Hall # 22 | 0218-LPC09 | 0.01            | 0.2           |

The analytical report from AMA is contained in Appendix D.

#### 4.3 Ventilation System Evaluation

Not applicable to this operation.

#### 4.4 Noise Measurements

Not applicable to this operation.

#### 4.5 Personal Protective Equipment

Not applicable to this operation.

#### 4.6 Interpretation of Results

<u>LEAD</u>: The air and paint chip samples collected in the drill hall for lead were found to be within allowable limits and require no further action at this time. The NGB has prepared a memorandum titled "Recommendations for Surface Lead Dust in Armories" which is provided in Appendix G.

--

#### 5.0 BOILER ROOM

#### 5.1 Operation Description

The boiler room is a mechanical space constructed of cinder block walls with a concrete floor, containing a furnace and associated piping.

#### 5.2 Chemical and Physical Agents Sampled

#### 5.2.1 Asbestos

An air sample was collected in the boiler room to determine the airborne fiber count in this building area. The air sample was collected according to guidelines set forth in the National Institute for Occupational Safety and Health (NIOSH) Manual of Analytical Methods, Method 7400. AMA, using Phase Contrast Microscopy (PCM) in accordance with the NIOSH Method 7400, analyzed the air sample. Table 5-1 below shows the result of the air sample.

| Location Of<br>Sample Taken | URS Sample<br>Number | Volume<br>(Liters) | Results:<br>Fibers Per Cubic<br>Centimeter |
|-----------------------------|----------------------|--------------------|--|
| Boiler Room # 5             | 0218-AA01            | 2618               | 0.009                                      |
| Blank 1                     | 0218-AA02            | 0                  | *****                                      |
| Blank 2                     | 0218-AA03            | 0                  | ******                                     |

Table 5-1 Airborne Fiber Level in the Boiler Room

The result of the air sample was found to be below the analytical detection limit as defined in the NIOSH 7400 method.

#### 5.3 Ventilation System Evaluation

Not applicable to this operation.

#### 5.4 Noise Measurements

Not applicable to this operation.



#### 5.5 Personal Protective Equipment

Not applicable to this operation.

#### 5.6 Interpretation of Results

<u>ASBESTOS:</u> The aircell pipe and pipe fitting insulation in the boiler room (Photo # 3812), room #6 (Photo # 3811) and area #9 (Photo # 3819) was exposed at the time of this survey. URS recommends that a properly trained and licensed technician remove the exposed insulation.

<u>WALKING-WORKING SURFACES</u>: There was a hole in the floor of the boiler room that is a hazard to anyone walking in the room (Photo # 3813). URS recommends filling in the hole to make it level with the existing floor.

<u>MACHINERY AND MACHINE GUARDING:</u> There was a grinding wheel in area #9 that did not have a safety guard (Photo # 3818). A safety guard is required if this grinding wheel is to be used.

# 6.0 SAFETY AND INDUSTRIAL HYGIENE PROGRAMS

# 6.1 Confined Spaces

No safety program was found regarding confined spaces. No training records were found on site. A confined spaces program is not required for this site.

# 6.2 Hearing Conservation

No safety program was found regarding hearing conservation. No training records were found on site. A hearing conservation program is not required for this site.

# 6.3 Respiratory Protection

No safety program was found regarding respiratory protection. No training records were found on site. A respiratory protection program is not required for this site.

# 6.4 Hazard Communication

No program was found regarding hazard communication. No training records were found on site. A site-specific hazard communication program is required for this site and should include communication of hazards to employees, management of material safety data sheets, chemical labeling and spill protection.

# 6.5 Personal Protective Equipment

No safety program was found regarding personal protective equipment. No training records were found on site. A personal protective equipment program is not required for this site.



# 7.0 REFERENCES

American National Standards Institute

ANSI/ESNA RP-1-04: American National Standard Practice for Office Lighting

American Society of Heating Refrigerating and Air-Conditioning Engineers

ANSI/ASHRAE Standard 62-2001: Ventilation for Acceptable Indoor Air Quality

Army Corps of Engineers

Safety and Health Requirements Manual EM 385-1-1 November 2003

Department of the Army

Ergonomics Program Pamphlet 40-21 (15 August 2003)

Policy and Responsibilities For Inspection, Evaluation and Operation of Army National Guard Indoor Firing Ranges (National Guard Regulation 385-15 30 December 2002)

Department of Defense

DoD Hearing Conservation Program Standard 6055.12 April 1996

Creating an Ideal Workstation: A Step-by-Step Guide

U. S. Environmental Protection Agency

Asbestos Hazard Emergency Response Act (40 CFR Part 763)

National Emissions Standards for Hazardous Pollutants (40 CFR Part 61)

U. S. Housing and Urban Development

Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing (1995, 1997)

U. S. Occupational Safety and Health Administration

Standard for General Industry: 29 CFR 1910

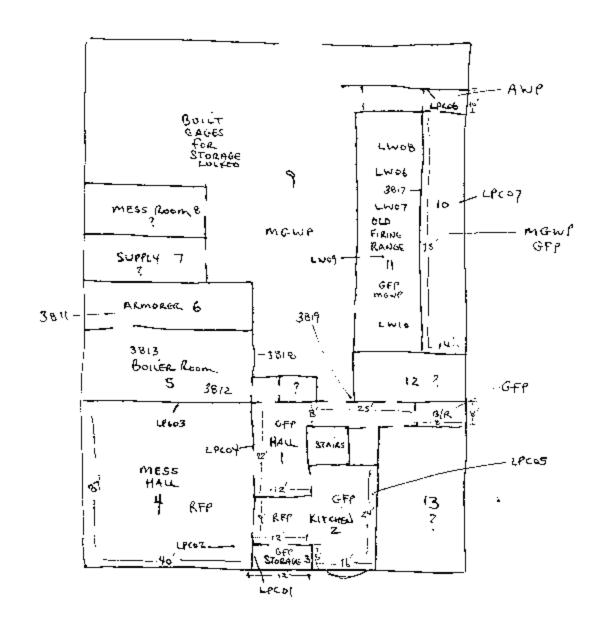
# APPENDIX A

BEST AVAILABLE COPY

# SHOP DRAWING

| URS         | BEST AVAILABLE COPY | HINGHAM, MA |
|-------------|---------------------|-------------|
| Job         | Project No.         | Sheet of    |
| Description | Computed by         | Date        |
|             | Checked by          | Dale        |
|             |                     | Reference   |

BASEMENT.

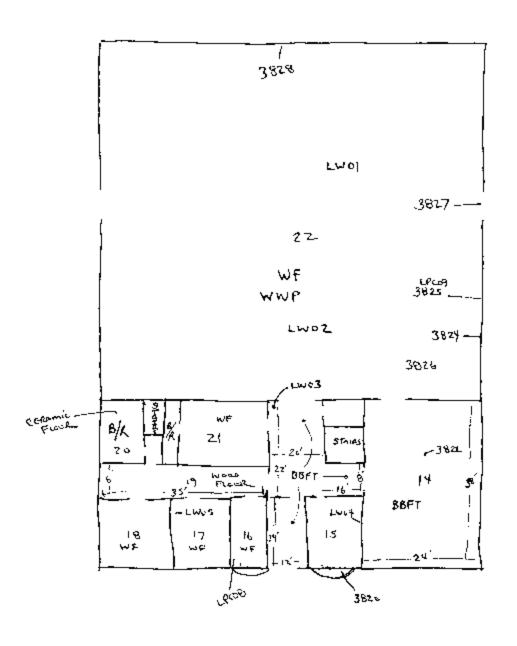




RFP = RED FLOOR PAINT GFP - GRAY " " AWP = AQUA WALL PAINT MGWP = MINT GREEN" "

| URS         | BEST AVAILABLE COPY | HINGHAM, MA |
|-------------|---------------------|-------------|
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| Description | Computed by         | Date        |
|             | Checked by          | Date        |
|             |                     | Reference   |

IST FLOOR



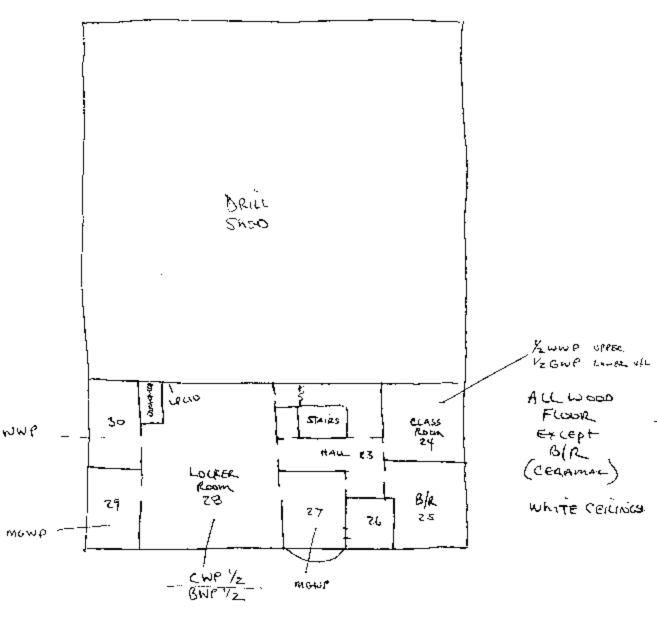
BBFT = BROWN/BLACK FLOOR THE (929)

WF = WOOD FLOOR\_

WWP = White WALL PAINT.

| URS         | BEST AVAILABLE COPY | HINGHAM, MA |
|-------------|---------------------|-------------|
| Job dot     | Project No.         | Sheet of    |
| Description | Computed by         | Date        |
|             | Checked by          | Date        |
|             |                     | Reference   |

2ND FLOOR



C = CREAM WP Be BROWN "

# APPENDIX B

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# PERSONNEL LIST

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# PERSONEL LIST HINGHAM ARMORY

| Name            | Rank            |
|-----------------|-----------------|
| Non-Responsive  | CIV – Armorer   |
| No Staff on sit | e Unit Deployed |
|                 |                 |
|                 |                 |

APPENDIX Ç

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HAZARDOUS MATERIALS LIST

NO CHEMICAL INVENTORY AVAILABLE

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APPENDIX D

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# ANALYTICAL RESULTS

|   |   |    |     |     |     | -    |        |      |  |
|---|---|----|-----|-----|-----|------|--------|------|--|
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Electron & Ontical Microscopy Services

**CERTIFICATE OF ANALYSIS** 

| Client:  | National Guard Bureau  | Job Name:     | Army National Guard           | Chain Of Custody:  | 123112 |
|----------|--|---------------|-------------------------------|--------------------|--------|
|          |  |               |                               |                    |        |
| Address: | 301-IH Old Bay Lane, Attn: NGB-AVN-SI,<br>State Military Reservation | Job Location: | 96 Central Street Hingham, MA | Date Analyzed:     | 3/2/04 |
|          | Havre de Grace, Maryland 21078                                       | Job Number:   | 42056-012-211                 | Person Submitting: |        |
|          |  | P.O. Number:  | Not Provided                  |                    |        |
|          |  |               |                               |                    |        |

# Summary of Phase Contrast Microscopy

**AMA Sample** Fibers Per Cubic **Client Sample** Volume Sampled **Fibers Per** Analyst I.D. Sample Type Comments Number Millimeter Centimeter Number (Liters) Squared 0427571 0218 AA 01 CK 2618 59.2 N/P 0.009 0218 AA 02 ..... ..... 0427572 0 CK BLK 0427573 0218 AA 03 ..... CK 0 < 7.0 BLK 2 fiber(s) per 100 fields

\* The Reporting Limit for AMA Laboratory is 7.0 fibers per square millimeter of filter. The reporting limit for the air concentration of fibers (f/cc) is dependent on the sampled air volume. Fibers counts were determined by the methods described in NIOSH Analytical Method 7400, 'Fibers' (Revision 3, Issue 2, 8/15/94). All personnel samples were analyzed following the OSHA Reference Method.

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition apparently identical or similar products. As a mutual protection to clients, the public and these Laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from us. Sample types, locations and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information. Residual sample material will be discarded in accordance with the appropriate regulatory guidelines, unless otherwise requested by the client. NVLAP Accreditation applies only to polarized light microscopy of hulk samples and transmission electron microscopy of AHERA air samples.

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Attention:

Page 1 of 1

| AMA Analytical Services, Inc | AMA | Analy | utical | Services | Inc. |
|------------------------------|-----|-------|--------|----------|------|
|------------------------------|-----|-------|--------|----------|------|

Electron & Optical Microscopy Services

# CERTIFICATE OF ANALYSIS

| Client:  | National Guard Bureau  | Job Name:     | Army National Guard           | Chain Of Custody:  | 123112    |
|----------|--|---------------|-------------------------------|--------------------|-----------|
| Address: | 301-IH Old Bay Lane, Attn: NGB-AVN-SI,<br>State Military Reservation | Job Location: | 96 Central Street Hingham, MA | Date Analyzed:     | 3/2/2004  |
|          | Havre de Grace, Maryland 21078                                       | Job Number:   | 42056-012-211                 | Person Submitting: |           |
|          |  | P.O. Number:  | Not Provided                  | Report Date:       | 04-Mar-04 |

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---FOIA Requested Record #J-15-0085 (MA) Released by National Guard Bureau Page 1673 of 3473

## Page 1 of 2

NVLAQ NY ELAP AIHA

# Summary of Atomic Absorption Analysis for Lead

| MA Sample<br>Number | Client Sample<br>Number | Analysis Type | Sample Type | Air Volume<br>(L) | Arca Wiped<br>(ft <sup>2</sup> ) |        | orting<br>imit     | 1 | Final Resu | lt                 | Comments                               |
|---------------------|-------------------------|---------------|-------------|-------------------|----------------------------------|--------|--------------------|---|------------|--------------------|--|
| 0427547             | 0218 LA 01              | Flame         | Air         | 864               | N/A                              | 3.47   | ug/m'              | < | 3.5        | ug/m'              | ······································ |
| 0427548             | 0218 LA 02              | Flame         | Air         | 900               | N/A                              | 3.33   | ug/m'              | < | 3.3        | ug/m³              |  |
| 0427549             | 0218 LA 03              | Flame         | Air Blank   | 0                 | N/A                              | 3.00   | ug/m³              | < | 3          | ug                 |  |
| 0427550             | 0218 LPC 01             | Flame         | Paint Chip  | ****              | N/A                              | 0.01   | %РЬ                |   | 0.88       | %Pb                |  |
| 0427551             | 0218 LPC 02             | Flame         | Paint Chip  | ****              | N/A                              | 0.01   | %Pb                |   | 0.051      | %РЪ                |  |
| 0427552             | 0218 LPC 03             | Flame         | Paint Chip  | ****              | N/A                              | 0.01   | %РЪ                | < | 0.0091     | %Рь                |  |
| 0427553             | 0218 LPC 04             | Flame         | Paint Chip  | ****              | N/A                              | 0.01   | %Pb                |   | 0.19       | %Pb                |  |
| 0427554             | 0218 LPC 05             | Flame         | Paint Chip  | ****              | N/A                              | 0.01   | %РЪ                |   | 0.34       | %Pb                |  |
| 0427555             | 0218 LPC 06             | Flame         | Paint Chip  | ****              | N/A                              | 0.01   | %РЬ                |   | 0.043      | %Pb                |  |
| 0427556             | 0218 I.PC 07            | Flame         | Paint Chip  | ****              | N/A                              | 0.01   | %РЬ                | < | 0.008      | %Pb                |  |
| 0427557             | 0218 LPC 08             | Flame         | Paint Chip  | ****              | N/A                              | 0.01   | %РЬ                |   | 1.4        | %Pb                |  |
| 0427558             | 0218 LPC 09             | Flame         | Paint Chip  | ****              | N/A                              | 0.01   | %РЬ                |   | 0.2        | %Pb                |  |
| 0427559             | 0218 LPC 10             | Flame         | Paint Chip  | ****              | N/A                              | 0.01   | %Pb                |   | 0.35       | %Pb                |  |
| 0427560             | 0218 LW 01              | Furnace       | Wipe        | ****              | 0.111                            | 67.51  | ug/ft²             |   | 130        | ug/ft²             |  |
| 0427561             | 0218 LW 02              | Furnace       | Wipe        | ****              | 0.111                            | 33.75  | ug/ft²             |   | 100        | ug/ft²             |  |
| 0427562             | 0218 LW 03              | Flame         | Wipe        | ****              | 0.111                            | 108.01 | ug/ft <sup>2</sup> |   | 610        | ug/ft²             |  |
| 0427563             | 0218 LW 04              | Furnace       | Wipe        | ****              | 0.111                            | 13.50  | ug/ft²             |   | 49         | ug/ft²             |  |
| 0427564             | 0218 LW 05              | Furnace       | Wipe        | ****              | 0.111                            | 6.75   | ug/ft²             |   | 31         | ug/ft <sup>2</sup> |  |
| 0427565             | 0218 LW 06              | Flame         | Wipe        | ****              | 0.111                            | 108.01 | ug/ft²             |   | 78000      | ug/ft²             |  |
| 0427566             | 0218 LW 07              | Flame         | Wipe        | ****              | 0.111                            | 108.01 | ug/ft²             |   | 100000     | ug/ft <sup>2</sup> |  |

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition apparently identical or similar products. As a mutual protection to clients, the public and these Laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from us. Sample types, locations and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information. Residual sample material will be discarded in accordance with the appropriate regulatory guidelines, unless otherwise requested by the client. NVLAP Accreditation applies only to polarized light microscopy of bulk samples and transmission electron microscopy of AHERA air samples.

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May, 2018

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| MA AM    | nalytical Services, Inc.   |               |                               |                    |           | qalvn       |
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| E KI     | cetron & Optical Microscopy Services                                 | CER           | TIFICATE OF ANALYSIS          |                    |           | NY ELAP     |
| <u> </u> |  |               |                               |                    |           | AIHA        |
| Client:  | National Guard Bureau  | Job Name:     | Army National Guard           | Chain Of Custody:  | 123112    |             |
| Address: | 301-IH Old Bay Lane, Attn: NGB-AVN-SI,<br>State Military Reservation | Job Location: | 96 Central Street Hingham, MA | Date Analyzed:     | 3/2/2004  |             |
|          | Havre de Grace, Maryland 21078                                       | Job Number:   | 42056-012-211                 | Person Submitting: |           |             |
|          |  | P.O. Number:  | Not Provided                  | Report Date:       | 04-Mar-04 |             |
| Attentio | n:   |               |                               |                    |           | Page 2 of 2 |

# Summary of Atomic Absorption Analysis for Lead

| AMA Sample<br>Number | Client Sample<br>Number               | Analysis Type | Sample Type | Alr Volume<br>(L) | Area Wiped<br>(ît <sup>z</sup> ) |        | orting<br>İmit | Final Res | ult    | Comments |      |
|----------------------|---------------------------------------|---------------|-------------|-------------------|----------------------------------|--------|----------------|-----------|--------|----------|------|
|                      | · · · · · · · · · · · · · · · · · · · |               |             |                   |                                  |        |                |           |        | <br>     | <br> |
| 0427567              | 0218 I.W 08                           | Flame         | Wipe        | ****              | 0.111                            | 108.01 | ug/ft²         | 8500      | ug/fl² |          |      |
| 0427568              | 0218 LW 09                            | Flame         | Wipe        | ****              | 0.111                            | 108.01 | ug/fl²         | 3100      | ug/ft² |          |      |
| 0427569              | 0218 LW 10                            | Flame         | Wipe        | ****              | 0.111                            | 108.01 | ug/ft²         | 2700      | ug/ft² |          |      |
| 0427570              | 0218 LW BLANK 1                       | Furnace       | Wipe Blank  | ****              | N/A                              | 0.30   | ug             | 0.62      | ug     |          |      |

Analys

Analysis Method for France, Air, Yipes, France, and Sourosous, Er A Gover-Solzouw/Prizz, Yrate, Silves 1110

Analysis Method For Furnace: Air, Wipes, Paints, and Soil/Solids : EPA 600/R-93/200(M)-7421; Water: SM-3113B

N/A = Not Applicable mg/Kg = parts per million (ppm) by weight mg/L = parts per million (ppm) %Pb = percent lead by weight ug = micrograms ug/L = parts per billion (ppb)

Note: All results have two significant digits. Any additional digits shown should not be considered when interpreting the result.

Chnical Manager

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This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition apparently identical or similar products. As a mutual protection to clients, the public and these Laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from us. Sample types, locations and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information. Residual sample material will be discarded in accordance with the appropriate regulatory guidelines, unless otherwise requested by the client. NVLAP Accreditation applies only to polarized light microscopy of bulk samples and transmission electron microscopy of AHERA air samples.

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# APPENDIX E

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# TRAINING CERTIFICATES

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|                                      | INSTITUTE FOR<br>NMENTAL EDUCATIO   |                                       |
|--------------------------------------|---|---------------------------------------|
|                                      | 6 Upton Drive, Wilmington, MA 01887<br>(978) 658-5272   | 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 |
| IEE                                  | This is to certify that   | IEE                                   |
| has complete                         | ed the requisite training, and has passed an exa<br>for reaccreditation as:                               | imination                             |
|                                      | Asbestos Inspector Refresher  |                                       |
| pursuant t                           | to Title II of the Toxic Substance Control Act, 15 U.S.   | C. 2646                               |
|                                      | April 11, 2003<br>Course Dates  |                                       |
| April 11, 2003<br>Examination Date   | <u>Course Location</u><br>Institute for Environmental Education<br>16 Upton Drive<br>Wilmington, MA 01887 | April 10, 2004<br>Expiration Date     |
| 03518010625349<br>Certificate Number | *   | President/Director of Training        |
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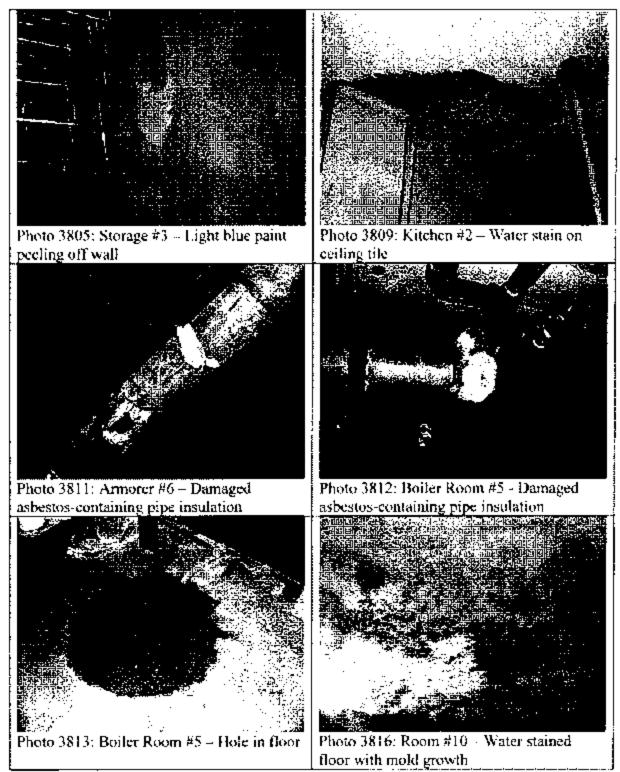
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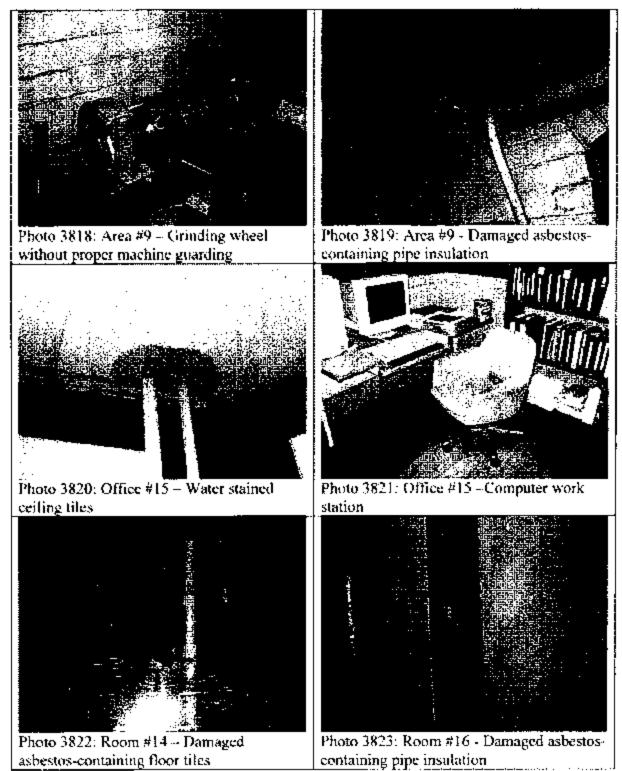
FOIA Requested Record #J-15-0085 (MA) Released by National Guard Bureau Page 1677 of 3473

# APPENDIX F

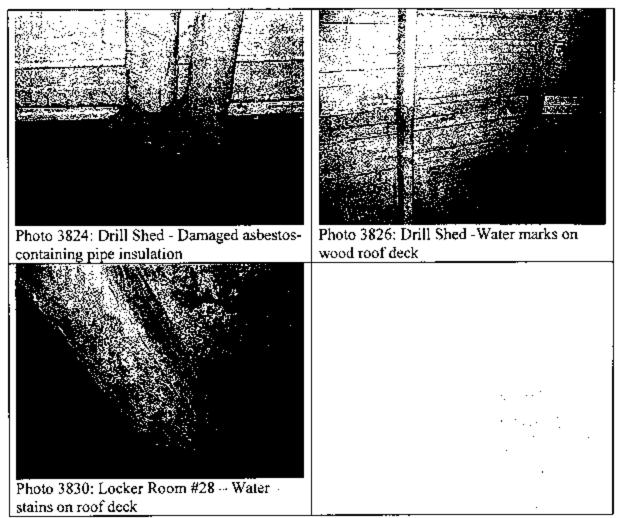
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# PHOTOGRAPHS





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APPENDIX G

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# **RECOMMENDATIONS FOR SURFACE LEAD DUST IN ARMORIES**

Subject: Recommendations for Surface Lead Dust in Armories

1. In armories that do not contain childcare facilities, the National Guard Bureau (NGB) Region North Industrial Hygiene Office recommends cleaning the areas in which sample results are greater than 200 micrograms per square foot ( $\mu$ g/ft<sup>2</sup>). If a special function will be held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function. This guidance is based on professional judgment, risk assessments, adaptation of Occupational Safety and Health Administration (OSHA) guidance, and feasibility of cleaning to a certain level.

a. Environmental Protection Agency (EPA) standards (40 Code of Federal Regulations (CFR) 745.227(h)(3)) are not directly applicable because they are criteria for dust-lead hazards developed for floors (40  $\mu$ g/ft<sup>2</sup>) and windowsills (250  $\mu$ g/ft<sup>2</sup>) 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 surfeces. The lead standard (29 CFR 1910.1025(h)) states that all surfaces shall be maintained as free as practiceble of accumulations of lead dust. In workplaces where lead dust is generated, surface levels may be much higher, but personnel exposures can be controlled by limiting airborne lead levels and following good cleanup and hygienic practices.

c. OSHA used to cite a level of 200  $\mu$ g/ft<sup>2</sup> 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<sup>2</sup> is a safe surface contamination level. They have also applied these standards as the decontamination levels for surfaces in administrative offices.

e. It should be noted that levels above these recommendations do not necessarily mean there is a significant hazard to workers who are following good cleaning and hygienic practices since there is no correlation between wipe and air samples. Rather, we recommend these levels as a precautionary measure. 2. The NGB Occupational Health Branch is developing guidance for armories that are used as childcare facilities. All states will receive this guidance when it is completed. In the interim, we recommend the following actions:

a. Clean all areas that will be accessible to children to the EPA dust-lead standard for children 6 years of age or under (40  $\mu$ g/ft<sup>2</sup> on floors and 250  $\mu$ g/ft<sup>2</sup> 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/m<sup>3</sup> averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead dust in this building.

# APPENDIX H

# POLICY AND RESPONSIBILITIES FOR INSPECTION, EVALUATION AND OPERATION OF ARMY NATIONAL GUARD INDOOR FIRING RANGES (NATIONAL GUARD REGULATION 385-15 30 DECEMBER 2002)

## NGB-AV9-SG SUBJECT: All States (Log Number P01-0075) Army National Guard (ARNG) Safety and Occupational Health Program – POLICY AND RESPONSIBILITIES FOR INSPECTION, EVALUATION AND OPERATION OF ARMY NATIONAL GUARD INDOOR FIRING RANGES

#### ADDENDUM

## GUIDELINES FOR IFR REHABILITATION, CONVERSION, AND CLEANING

#### CONTENTS (Listed by paragraph number)

Paragraph

| Purpose<br>References<br>Explanation of Abbreviations and Terms<br>Policy and Procedures<br>Goal<br>Background<br>Wipe Sample Media<br>Wipe Sample Media<br>Wipe Sampling Protocol<br>Range Cleaning Instructions<br>Cleaning Stored Contaminated Equipment<br>Contaminated Sand and Lead Waste<br>Medical Surveillance<br>Worker Education<br>Personal Protection Equipment<br>Housekeeping<br>Maintenance<br>Range Rehabilitation | 1<br>2<br>3<br>4<br>5<br>6<br>7<br>8<br>9<br>10<br>11<br>72<br>13<br>14<br>15<br>16<br>17 |
|---|---|
| Range Rehabilitation<br>Conversion of Indoor Firing Ranges  |   |
| Devlation   | 19  |

#### Appendices

Appendix A - General Procedures for Collecting Wipe Samples

Appendix B - Sampling Strategy for Collection of Wipe Samples

Appendix C - Interpretation of Sample Results (Prior to Cleaning)

Appendix D - Interpretation of Sample Results (After Cleaning)

Appendix E - Recommended Sample Media and Containers

Appendix F - Examples of Computation of Load Levels from Wipe Sample Results

Appendix G - Surface Wipe Sample Sheet

Appendix H - Air Sampling Sheet

Appendix I - Glossary

#### Purpose

1. This addendum establishes policy and procedures for rehabilitation, conversion, and cleaning of ARNG indoor firing ranges.

## 2. References

Related publications are listed below.

- a. DODI 6055.1 (Department of Defense Instruction, Occupational Safety and Health (OSH) Program),
- 6 AR 11-34 (The Army Respiratory Protection Program).
- c. AR 40-5 (Preventive Medicine).

d. NGR 385-15 Policy, Responsibilities, and Procedures for Inspection, Evaluation, and Operation of ARNG Indoor Firing Ranges).

- e. 29 Code of Federal Regulations (CFR), Part 1910, Occupational Safety and Health Standards.
- f. OSHA Technical Manual, Edition VII.
- g. DHEW NIOSH 76-130 (Lead Exposure and Design Considerations for Indoor Firing Ranges).

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# SUBJECT: All States (Log Number P01-0075) Army National Guard (ARNG) Safety and Occupational Health Program -- POLICY AND RESPONSIBILITIES FOR INSPECTION, EVALUATION AND OPERATION OF ARMY NATIONAL GUARD INDOOR FIRING RANGES

Explanation of Abbreviations and Terms.

Abbreviations and special terms used in this publication are listed in the glossary.

#### Policy and Procedures.

Conversion of Ranges. Indoor firing ranges can be safely rehabilitated or converted for other uses, such as a storage area, kitchen, or office space, provided the following --

a. Previously active ranges must be thoroughly decontaminated and cleaned to acceptable levels.

b. The level of cleanliness is to be determined by sampling. The Occupational Safety and Health Administration's (OSHA) Technical Manual, <sup>Sh</sup> Edition, provides guidance on the methods and techniques needed to collect wipe samples (Appendix A).

(1) Wipo samples must be collected and analyzed prior to and after cleaning.

(2) Post-cleaning surface wipe sample results must be less than or equal to 200 micrograms per square feet (up/sq ft). The sampling strategy, which is the amount and location of wipe samples to be collected, is provided in Appendix B. Methods for interpreting the sample results are contained in Appendix C and D.

c. Equipment/Items previously stored in the range must be decontaminated and cleaned to accoptable levels.

(1) Samples must be collected from equipment/items stored in the range. Sample selection is critical, because the number of items stored and length of storage differs from range to range. The amount and focation of the samples, should be representative of the areas where lead dust is most likely to accumulate. The more samples collected, the better the statistical comparison of the results.

(2) Samples must be collected from the smooth surfaces of the equipment/items, in so much as possible. Results of samples collected from a rough surface will be inaccurate due to the minimal surface contact of the media. Further, the likelihood of tearing the media filter is greater on rough surfaces.

(3) Samples should also be collected on items stored the longest period of time, and which have not been disturbed. Items stored closest to the bullet trap and firing line are likely to have higher concentrations of lead dust. Methods for interpreting the sample results are contained in Appendix C and D.

#### 5. Goal

To ensure every indoor firing range is free of lead dust, and to reduce the number of unsafe ARNG indoor firing ranges.

#### Background

The Environmental Protection Agency (EPA) identifies lead as a highly toxic metal. Elemental lead is indestructible, and common in the environment. Lead can enter the body by inhalation (breathing) or ingestion (eating). In addition, lead is a cumulative poison. It accumulates in the blood, bones, and organs, including the kidneys, brain and liver. Effects include nervous and reproductive system disorders, delays in neurological and physical development, cognitive and behavioral changes, and hypertension. Symptoms include loss of appetite, difficulty slooping, irritability, fatigue, headache, and inability to concentrate. It can stay in the bones for decades. Worker awareness and training are important to ensure that employees can recognize the symptoms of exposure and get prompt medical attention.

#### 7. Wipe Sample Media

a. OSHA Technical Manual provides the necessary guidance on the technique needed to collect wipe samples (Appendix A). Only distilled or deionized water will be used to saturate dry sample media. At least one field blank filter must be submitted with each sample sheet. The field blank must be from the same tot, and labeled as a blank on the sample sheet. Appendix E Identifies how and where to obtain sample media. Use the following guidance for determining media acceptability.

(1) Acceptable Media consists of -

(a) Ghost Wipes ™ (PREFERRED METHOD)- Pre-moistened

(b) Thirty-seven (37) millimeters (mm) mixed callulose ester (MCE) filters, with or without the cassettes.

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## SUBJECT: All States (Log Number P01-0075) Army National Guard (ARNG) Safety and Occupational Health Program -- POLICY AND RESPONSIBILITIES FOR INSPECTION, EVALUATION AND OPERATION OF ARMY NATIONAL GUARD INOOOR FIRING RANGES

(2) Unacceptable Media consists of but is not fimited to—

(a) Cotton balls

(b) Baby wipes or wet wipes

b. Documentation of Sample Collection. A Surface Wipe Sample Sheet must be completed and submitted with samples to your supporting laboratory. A copy of this form is located in Appendix G. Refer to Appendix A on how to collect wipe samples.

8. Wipe Sampling Protocol See Appendix A.

#### 9. Ranges Cleaning Instructions

a. Written procedures, such as a scope of work, or Standing Operating Procedure (SOP) that complies with all federal, state and local regulations must be established prior to decontamination operations. The range ventilation system will be in operation during range cleaning to ensure that a negative pressure environment is maintained. In the absence of mechanical vontilation system, all doors and windows will be seated to eliminate fugitive emissions. A High Efficiency Particulate Air (HEPA) filtered vacuum system is the preferred method of cleanup followed by wet wiping of the range. The HEPA vacuum is designed to collect loose surface lead dust particles.

b. Any general purpose cleaning solution can be used. However, Spic and Span™ has been found to be an effective cleaning solution by other Army organizations. Mix new solutions of cleaning solution frequency. Wet wiping will require dual containers of water; one container for wetting the applicator (mops, rags, sponge, etc.) and the other container for rinsing the applicator after the dust has been wiped from the surfaces. When placed in containers, wastewater should be left to evaporate.

 PROPERLY DISPOSE OF ALL HAZARDOUS WASTE. DO NOT PLACE LEAD CONTAMINATED WASTE INTO THE SEWER SYSTEM OR ONTO THE GROUND.

d. Mop-heads, sponges and rags will be discarded as hazardous waste following cleanup.

 Wel cleaning by a high-pressure system is prohibited, as this method may embed the lead into the substratum and generate large quantities of unwanted hazardous wasto.

f. Dry sweeping is not permitted.

g. All surface areas of the range must be cleaned. Do not remove the coating on smooth painted surfaces that are properly scaled.

h. Wood floors should receive a coat of deck enamel or urethane; concrete floors should be sealed with deck enamel and lineleum or tile floors should be waxed.

i. A progression of cleaning from top to bottom and from behind the steel backstop to the firing line should be used. After removing the sand, if applicable, and the steel backstop, areas in front of and behind the bullet trap along with the steel backstop plate(s) should be cleaned. Next, clean the ceiling, lights, baffles, retrieval system, heating system(s), and ventilation duct(s). Acoustical material should be vacuamed and removed rather than painted over.

j. A Toxic Characteristic Leaching Procedures (TCLP) test for lead only may need to be performed on the acoustical material. A TCLP test will determine if the material is classified as "hazardous" and can be disposed of in a sanitary fandfill. Contact your State Environmental Office for assistance before arranging for this taboratory testing. The floor should be the last surface cleaned, starting at the bullet trap and ending behind the firing time.

k. After wet wiping all surfaces, permit the area to dry. Vacuum all surface areas until no dust or residue can be seen using the HEPA.

 A thorough visual inspection to detect dust should be made following cleanup and prior to collecting post surface wipe samples.

m. As a variety of conditions exist in ranges, unique situation may arise and specific written guidance.
 from your Regional Industrial Hygiene Office may be required.

#### 1D Cleaning Stored Contaminated Equipment

 a. Equipment contaminated (sample result is higher than 200 micrograms/sq ft) with lead dust must be decontaminated before it is removed from the range.

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b. Equipment located near the bullet trap and firing line should be cleaned first and then removed. The cleaning method depends on the size of the equipment and the material it is comprised of, i.e. metal, wood, concrete, porus, non-porus, smooth or rough finish etc. However, either HEPA vacuum or the wet wipe method will be used. Refer to paragraph 9 for additional guidance.

c. Every attempt should be made to clean and reclaim items since disposing of equipment, as hazardous waste is costly and wasteful. Only as a tast resort will the item be discarded as hazardous waste. Porous items, such as office partillons and carpet that were present during firing should be considered grossly contaminated and be discarded unless analysis proves otherwise. Consult your State Environmental Office for the proper hazardous waste disposal methods.

#### Contaminated Sand and Lead Waste

Consult your State Environmental Office for specific disposal guidance to ensure compliance with local laws and regulations.

## 12. Medical Surveillance

a. A pre-placement medical examination is required for all individuals involved with range cleanup operations. Consult 29 CFR 1910.1025 for additional information on medical surveillance requirements. A medical examination must include.....

- (1) A detailed work and medical history
- (2) A thorough physical examination
- (3) A respirator use evaluation
- (4) A blood pressure measurement
- (5) Blood sample analysis to include:
  - (a) A baseline blood lead level
  - (b) A complete blood count (CBC)
  - (c) Blood ures nitragen (BUN)
- (6) Serum creatinine
- (7) Zinc protoporphyrin
- (8) A routine urine analysis
- (9) Recordkeeping

b. Air Monitoring. Worker broathing zone (82) air samples must be collected to ensure personnel are not overexposed to airborne lead during the cleanup phase. Representative air samples will be collected on all personnel involved in the cleanup operation. These exposure levels will be used to evaluate work practices and personal protoctive equipment. Within five (5) working days after receipt of monitoring results, each employee will be notified in writing of the air sampling results. Contact your Regional Industrial Hygiene Office for additional information pertaining to air sampling.

#### 13. Worker Education

OSHA 29 CFR 1910.1025 requires that workers who are potentially exposed to any lead level shall be informed of the content of Appendix A and B of this standard. A training program must be instituted for all individuals who are subject to exposure to lead at or above the action level or for whom the possibility of skin or eye irritations exists. The training program shall be repeated for personnel currently involved in range cleanup operations, at least annually, this training must be documented on DD Form 1556 or DD Form 1556-1 and filed permanently in the employee's Official Personnel File (OPF) or the soldier's Official Military Personnel File (OMPF). As a minimum, complete blocks 1, 2, 3, 7, 8, 11, 12, 13, 17, 18, 24, 33 and 36 of DD Form 1556. Place the following statement in block 18, "Do not destroy, retain this record for the duration of employment/service plus 30 years." The employer will assure that each employee is informed of the following:

- a. The content of the standard and its appendices.
- b. The specific nature of operations that could result in exposure to lead above the action level.
- c. The purpose, proper selection, fitting, use and limitations of respirators.
- d. The purpose and a description of medical surveillance program
- e. Eating and drinking are prohibited in lead contaminated areas.
- Smoking and smoking materials will not be permitted in contaminated areas.

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g. Employees must wash their hands and other exposed skin whenever they leave the work area.

h. The engineering controls and work practices associated with the individual's job assignment.

The contents of any compliance plan in effect.

#### 14. Personal Protective Equipment

For housekeeping and rehabilitation the employer shall select respirators from among those approved for protection against lead dust, fume, and mist by the National Institute for Occupational Safety and Health (NIOSH). The employer shall institute a respiratory protection program in accordance with 29 CFR 1910.134. As a minimum, personnel conducting the decontamination of the range will be provided with the following personal protective equipment.

a. Employees engaged in range rehabilitation and/or range conversion, the employer shall provide at no cost to the employee, and assure that the employee uses appropriate protective work clothing and equipment such as, but not limited to:

(1) Protective coveralls with hood and shoe covers or disposable Tyvek ™ full body suit.

(2) Disposable rubber gloves; and disposable shoe coverlets (If necessary).

(3) Full-face air purifying respirator with P-100 cartridges.

**b.** The employer shall provide the clothing required in a clean and dry condition at least daily to employees engaged in the conversion of indoor firing ranges.

c. The employer shall provide for the cleaning, laundering, or disposal of used or contaminated protective clothing and equipment.

d. The employer shall assure that all protective clothing is removed at the completion of a work shift only in areas designated for that purpose (Change Areas or Change Rooms).

c. The employer will ensure that contaminated protective clothing that is to be cleaned, laundered, or disposed of, is placed in a closed container in the change area that seals sufficiently enough to prevent dispersion of lead dust.

f. The employer will further inform in writing any person who cleans or launders protective clothing or equipment of the potentially harmful effects of exposure to lead.

#### 15. Housekeeping

This chapter applies to all active indoor ranges classified as "safe" for use. To keep the range operating property and to keep possible hazards to a minimum, a routine housekeeping/ maintenance program is essential.

a. The employer must establish a housekeeping program sufficient to maintain all surfaces as free as practicable of accumulations of lead dust. To this end the range will be clean at the conclusion of each firing day.

b. The range ventilation system will be in operation during all cleaning operations, to ensure a negative pressure environment is maintained.

c. Ranges will be cleaned by using the wet method or vacuuming. A HEPA (High Efficiency Particulate Atr) filtered vacuum system is the preferred method of meeting this requirement. The use of compressed air to clean floors is absolutely prohibited. If the wet method is utilized the floor should be equipped with a floor drain, and collection system. When there is no collection system, the water can be allowed to slowly evaporate leaving lead deposits/sludge. The deposits/sludge can then be collected, placed in metal drums, and stored for future delivery to an authorized hazardous waste disposal site. Drums must be labeled to identify contents, in accordance with the hazardous waste program.

d. A NIOSH approved respirator (P-100) for protection against lead dust, (ume, and mist will be worn at all times while cleaning.

o. When cleaning start behind the firing line forward, cleaning the floor and horizontal surfaces.

#### 16. Maintenance

The following are the minimum maintenance requirements, which must be performed quarterly by the range custodian, or by a person designated by the facility commander.

 Inspect the ventilation system fan for condition of bolts to ensure that they are not frayed or slipping.

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b. Evaluate static prossure and compare to the baseline static pressure reading. Any changes will be reported through the safety manager to the Regional Industrial Hygienist.

c. Inspect Louvers, if applicable, to ensure they are opening fully.

d. Inspect the bullet trap for pitting or other damage and for sharp edges on venetian blind type bullet traps.

e. Butlet Trap. The bullet trap will be cleaned every 480 hours of operation at a minimum, or when the trap is three guarters full.

f. The range ventilation system will be operational during all bullet trap cleaning procedures.

g. All personnel involved in cleaning of the bullet trap will wear a NIOSH approved respirator, and proper personal protective equipment.

h. All debris from the bullet trap will be collected, package and turned in, in accordance with guidance from the environmental office.

17. Range Rehabilitation.

This chapter applies to all indoor firing ranges that have been identified as candidates for rehabilitation. This chapter further provides guidance for cleaning and/or sampling that might be required prior to the start of rehabilitation.

a. The portion(s) of the range to under go rehabilitation must be sampled to determine the level of lead contamination. Wipe samples will be taken per the established sampling protocol. See Appandix A.

b. All personnel involved in range rehabilitation will wear a NIOSH approved respirator (P-100), and proper personal protective equipment as prescribed in paragraph 14 above.

 Prior to start of rehabilitation the environmental office must be notified to determine the disposition of lead containing debris.

#### Conversion of Indoor Ranges.

Prior to the start of decontamination, employers must ensure that all procedures to be used comply with Federal, State, and local regulations. To ensure that all lead contamination is removed the following procedure is established.

a. All ranges slated for conversion will be inspected and evaluated.

b. All equipment stored in the range, if applicable, prior to the start of decontamination must be sampled, decontaminated, re-sampled and removed or turned in as lead contaminated material. See paragraph 10 above.

c. All acoustical tiles and/or sound proofing material (if applicable) must be removed and turned in as lead contaminated material through the environmental office.

d. The backstop, build trap, target retrieval system and firing line stations must be removed and turned in as lead containing material through the environmental office.

e. Light fixtures and ventilation system grills must be removed and deconlaminated.

f. Ventilation system ducts need to be decontaminated or removed and replaced.

g. The exhaust fans and/or the complete ventilation air-handling unit (if applicable) must be decontaminated or removed.

 h. Cover all openings of any component previously decontaminated prior to start of interior decontamination of the firing range.

#### 19. Deviation

Deviations from this guidance will require a written exception to policy from your Regional Industrial Hygiene Office. Questions and/or comments regarding this subject should be directed to your Regional Industrial Hygiene Office or Chief, National Guard Bureau, Attn: NGB-AVS-S, 111 South George Mason Drive. Atlington, VA 22204-1382

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## APPENDIX A GENERAL PROCEDURES FOR COLLECTING WIPE SAMPLES

A-1 If multiple samples are to be collected at the work site, prepare a rough sketch of the area(s) or room(s), which are to be wipe sampled.

A-2 A new set of clean, impervious gloves should be used for each sample to avoid contamination of the media by previous samples and to provent contact with the substance.

A-3 (1) If using Ghost Wipes <sup>ixx</sup>, tear open the individually sealed package. Remove the moistened wipe.

(2) If using a dry modia such as MCE or Whatman™ fifter, moisten the filter with distilled or doionized water prior to sampling.

A-4 Place a 10 cm by 10 cm template on the area to be wiped.

A-5 Apply uniform firm pressure while wiping the area inside the template.

A-6 To insure that all portions of the partitioned area are wiped, start at the outside edge and progress toward the center making progress toward the center making concentric squares decreasing in size.

A-7 After collecting a sample, fold the filter or wipe inward and place into a container and number it. Note the number at the sample location on the sketch.

A-8 At least one blank filter treated in the same fashion but without wiping, should be submitted to the laboratory.

## APPENDIX B

## SAMPLING STRATEGY FOR COLLECTION OF WIPE SAMPLES

B-1 Prior to cleaning the ranges, the three samples must be collected and analyzed for total lead dust on each surface, i.e., floor, ceiling, backstop, and wall to include the plenum wall, if applicable. In addition, a total of 3 samples should be collected from areas which have been least disturbed by alrilow. Established walkways should be avoided.

B-2 Samples should be staggered to different areas of the range. A grid system should be utilized. Each range surface areas should be divided evenly into 3 by 3 sections. Samples should not be collected on all one section of a wail or end of the building.

#### APPENDIX C

## INTERPRETATION OF SAMPLE RESULTS (PRIOR TO CLEANING)

C-1 200 micrograms/sq ft or LESS

If all sample results are 200-micrograms/sq ft or less, the range can be converted abd/or used for any purpose.

C-28ETWEEN 201 and 200,000 micrograms/sq ft

Range must be decontaminated. Continued with cleaning instructions listed in paragraph 9 Sample results will be used to establish a baseline

#### C-3 Over 200,000 micrograms/sq ft

Your sample media may not be capable of collecting additional lead dust and results that are above 200,000 microorams/sq ft, and should be considered suspect

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## APPENDIX C (Continued)

C-4 High sample results may exist due to personnel walking or moving equipment/vehicles over the range surface causing the lead dust to be "ground" into the substratum. For examples, a maintenance activity may have oversprayed paint or spilled solvents onto the surface Regional Industrial Hygiene Office for specific guidance.

## APPENDIX D

#### INTERPRETATION OF SAMPLE RESULTS (AFTER CLEANING)

D-1 200 micrograms/sq. ft or less

If all sample results are less than 200 micrograms/sq ft, the range can be converted and/or used for any purpose after a coat of lead-free latex paint is applied.

#### APPENDIX E

#### RECOMMENDED SAMPLE MEDIA AND CONTAINERS

E-1 The following is a list of vendors, which supply the media and containers necessary to collect air and lead surface wips samples. The information is provided to assist in obtaining the proper media and containers. Alternativo vendors are available and may be utilized, if known. Contact your Regional Industrial Hyglene Office for additional assistance or clarification.

E-2 Pre-loaded 3 piece cassette with mixed cellulose ester (MCE) filter and pad, 37 millimeter (mm), pore size 0.8 microns, breathing zone (BZ) and general area (GA) air samples.

- Order From Catalog Number
- a. Millipore Corp. MAWP-037-A0 Ashdy Road Bedford, MA 01730 617-275-9200 800-225-1380
- b. Gelman Sciences 64678 (GN-4) 600 South Wagner Rd Ann Arbor, MI 48106 313-605-0651 800-521-1520
- c. Supelco. Inc. 2-3368M
   Supelco Park
   Bellefonte, PA 16823
   800-247-6628
   800-359-3041

E-3.37 mm MCE Filter with pad, no cassette included, for lead surface wipe samples

## Order From Catalog Number

 a Supelco Inc. 2-3381IM Supelco Park Bellefonte, PA 16823 NGB-AVS-SG SUBJECT: All States (Log Number P01-0075) Army National Guard (ARNG) Safety and Occupational Health Program – POLICY AND RESPONSIBILITIES FOR INSPECTION, EVALUATION AND OPERATION OF ARMY NATIONAL GUARD INOOOR FIRING RANGES

## APPENDIX E (Continued)

800-247-6628 600-359-3041

- b. Millipore Corp. AAWP-037-00 Ashdy Road Bedford, MA 01730 617-275-9200 800-225-1380
- c. SKC, Inc. 225-5
   334 Valley View Rd.
   Eighty Four, PA 15330
   412-941-9701
   800-752-8472

# 

E-5. Gtass container (25 milliliter) for collection and shipment of media.

## Order From Catalog Number

- a. Pierce Chemical Co. 13219 (screw cap)
   P.O. Box 117
   Rockford, IL 61105
   815-968-0747
   800-874-3723
- Altech Associates, Inc. 95321 (screw cap) Applied Science Labs 2051 Wackegan Rd. Deerfield, IL 60015 312–948-8600

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## APPENDIX E (Continued)

800-255-8324

E-6, Ghost Wipes™.

#### Order From Calalog Number

Environmental Express SC4200 490 Wando Park Blvd, Mt. Pleasant, SC 29464 1-800-340-5319

E-7. Ghost Wipe™ Containers

Order From Catalog Number

Environmental Express SC499 490 Wando Park Blvd. Mt. Pleasant, SC 29464 1-800-343-5319

E-8. Plastic zlplock bags can be obtained through the Army logistics system. Many sizes are available. Contact your supporting logistics branch for assistance.

E-9. Distilled water can be purchased at larger grocery stores, usually by the gallon, at a cost of approximately \$1.25. Defonized water can be obtained at local and state water labs or a hospital.

## APPENDIX F EXAMPLES OF COMPUTATION OF LEAD LEVELS FROM WIPE SAMPLE RESULTS

Sampte results will be returned in the form of micrograms. The results must be converted to micrograms per square foot. This can be accomplished by following the examples listed below:

| <u>75 ug _</u>      | <u>97</u> | <u>29 cm*</u> |   |                |
|---------------------|-----------|---------------|---|----------------|
| 100 cm <sup>2</sup> |           | 1 sq ft       |   |                |
|                     |           |               |   |                |
| <u>75 x 929</u>     | =         | 69675         | Ħ | 696.75vg/sq ft |
| 100                 |           | 100           |   | •              |

ug – Microgram

Cm2 - Centimoters squared

Sq ft - Square foot

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|                                       | · · · · · · · · |                                       |                            |   |  |  |  |
|---------------------------------------|-----------------|---------------------------------------|----------------------------|---|--|--|--|
|                                       | Industrial      | Hygiene Surf                          | -                          | -   |  |  |  |
| Return Address                        |                 | +.                                    | Point of Coi               | itact (neme & phone #)  |  |  |  |
| Return Address                        |                 |                                       |                            | ······  |  |  |  |
|                                       |                 |                                       | Samples Co                 | llected By  |  |  |  |
| Sampled Facility City                 |                 |                                       | State Location (bldg/area) |   |  |  |  |
|                                       |                 |                                       | 1                          |   |  |  |  |
| Description of O                      | peration        | Date Collect                          | ed Date Shipped            |   |  |  |  |
| Analysis Desired                      | ·····           |                                       |                            |   |  |  |  |
| Analysts Dosiroc                      | 1               |                                       |                            |   |  |  |  |
| Sampling Data                         |                 |                                       |                            | ·····   |  |  |  |
| Lab Use Only                          | Sample #        | Results                               |                            | Remarks   |  |  |  |
|                                       | Campion.        |                                       |                            |   |  |  |  |
|                                       |                 |                                       |                            | · |  |  |  |
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# APPENDIX G

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#### NGB-AVS-SG

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## APPENDIX H AIR SAMPLING SHEET

|                     |                  | Industrial F                            | łyę       | jiene Ai  | r Sar          | nple Sheet      | t     |             |
|---------------------|------------------|---|-----------|-----------|----------------|-----------------|-------|-------------|
| Return Add          | ress             |   |           |           |                | t (name/phone   |       |             |
|                     |                  |   |           | Samples   | Collec         | ted By          | ,     | • · · ·     |
| Sampled Fa          | cility           | City                                    |           | State     | Loca           | tion (bldg/area | )     |             |
| Description of      | of Operation     | Persons Expose                          | . (.<br>d | Hrs/Day   |                | lethod of Colle | ction |             |
| Analysis Do         | stred            |   |           | -         |                |                 |       |             |
| Sampling D          | ala              |   |           |           |                |                 |       |             |
| Sample<br>No.       |                  |   |           |           |                |                 |       |             |
| Pomp No.            |                  |   |           |           |                |                 |       | В           |
| Time On             |                  |   |           |           |                |                 |       | L           |
| Time Off            |                  |   |           |           |                |                 |       | A           |
| Total Time<br>(min) |                  |   |           |           |                |                 |       | N           |
| Flow Rate<br>(LPM)  |                  |   | ĺ         | i         |                |                 |       | к           |
| Volume<br>(fiters)  |                  |   |           |           |                |                 |       |             |
| GA/BZ               |                  |   | 1         |           |                |                 |       |             |
| Employee            |                  |   |           |           |                |                 |       |             |
| Laboratory<br>No.   |                  |   |           | -         |                |                 |       |             |
| Calibration I       | nformation       |   |           |           |                |                 |       |             |
| Pump No.            | Calls<br>Pre-Uso | Post-Usu                                |           | Rotamotea | sotting        |                 | Date  |             |
|                     |                  |   |           |           |                |                 |       |             |
|                     |                  | - · · · · · · · · · · · · · · · · · · · | + -       |           |                |                 | ·     | <del></del> |
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| ł                   |                  |   |           |           |                |                 |       |             |
| ì                   |                  | ·                                       |           |           |                |                 |       |             |
| Name of Calibra     | alor             | Calibration Date                        | [         | Pump Man  | ofacture       | r               |       |             |
| Comments to L       | ab .             | <u> </u>                                |           | J         |                |                 |       |             |

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APPENDIX I ABBREVIATIONS AND TERMS

## Section I Abbreviations

ARNG Army National Guard

BUN Blood urea nitrogen

**BZ** Breathing zone

CBC Complete blood count

CFR Code of Federal Regulations

**cm** Centimeter

DHEW Department of Health, Education and Welfare

**EPA** Environmental Protection Agency

**GA** .General area

**OMPF** Official Military Personnel File

OPF Official Personnol File

**OSHA** Occupational Safety and Health Administration

**TCLP** Toxic Characteristic Leaching Procedures

ug/sq\_ft Micrograms per square foot

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## APPENDIX (Continued)

#### Section II Terms

### HEPA

Refers to high efficiency particulate air filter systems capable of capturing up to 99.97 percent of particles 0.3 microns in size or larger.

#### Lead-Contaminated Range

It is assumed that all indoor ranges, which have been fired in, are lead-contaminated.

#### Wipe Sample

The terms wipe, swipe, or smear samples are use synonymously to describe the techniques utilized for assessing lead surface contamination.

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# **Industrial Hygiene Survey**

Massachusetts Army National Guard (MA ARNG)

Prepared For: NGB ARNG – Region North IH Office

Survey Location:

## Hingham Readiness Center 96 Central Street Hingham, MA 02043-2517

Prepared By: Aria Environmental, Inc. (AEI) PO Box 286 Woodbine, MD 21797

Survey Date: August 19, 2010 Report Date: September 30, 2010

AEI Project #: J10-515 3d MA Hingham RC

Non-Responsive

Industrial Hygienist



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- Appendix D IAQ and Lighting Survey Log Sheets

## **Executive Summary**

Aria Environmental, Inc. (AEI) was contracted to perform an industrial hygiene evaluation for the Readiness Center located at 96 Central Street, Hingham, MA 02043-2517. Non-Responsive performed the evaluation on August 19, 2010. The point of contact for the facility was Specialist Non-Responsive The purpose of the evaluation was to identify and measure the existence and extent of potentially hazardous operations or conditions at Army National Guard (ARNG) facilities. The survey included: (1) evaluations of operations including operation description, ventilation system evaluations, noise dosimetry if appropriate, lighting surveys, hazard control evaluations and any additional information pertinent to the operations; (2) an evaluation of the physical condition of the facility and personnel concerns including materials, water damage or mold problems; indoor air quality concerns; and housekeeping practices; and (3) photographs of the exterior and interior of the readiness center. The results of the evaluation indicated the following:

**Noise Hazards:** No noise-generating activities were taking place on the day of the survey. Due to the nature of the tasks performed onsite, no activities requiring noise monitoring are anticipated to occur at the RC.

**Lead in Air Samples:** Lead in air samples to determine if any airborne contamination of lead existed in the facility were not collected at the Hingham Readiness Center due to sample pump malfunction.

**Paint Chip and Wipe Samples for Lead Contamination:** Two wipe samples collected from the top of a flammable cabinet and from the top of a locker were above the National Guard criteria for lead contamination (200  $\mu$ g/ft<sup>2</sup>). Samples ranged from 1.05 to 1.1 times the National Guard criteria. It should be noted that the former firing range located in the basement of the facility was not accessible at the time of the survey. All paint chip samples were below regulatory limits of 0.5% lead by weight except for the yellow paint in room 18 (0.78%). Peeling paint was observed over the majority of the second floor and in one room (room 13 on the drawing) on the first floor where extensive water damage has occurred.

Visual Inspection for Damaged Asbestos-Containing Materials: Damaged plaster that may contain asbestos were observed in one room (room 13 on the drawing) on the first floor where extensive water damage has occurred. The EPA defines an asbestos-containing material as one percent (1%) or more asbestos by visual estimation. The plaster was reported to contain no asbestos.

**Visual Inspection for Water Damage and Mold Growth:** A visual inspection was performed to determine if there was any water damage or visible mold growth at the facility. Extensive water damage was observed in one room (room 13 on the drawing) on the first floor. Water intrusion was reportedly from an old water leak in the roof which has been repaired. The ceiling of the room had collapsed due to the water damage and a determination of whether mold was present was not feasible.

**Visual Inspection for Housekeeping Concerns:** A visual inspection was performed to assess the state of housekeeping in the facility. The housekeeping was good. All areas were clean and tidy except where mold was observed.

**Lighting:** The evaluation indicated that there are some illumination deficiencies in several areas of the facility. The illumination measurements indoors ranged from a low of 4.4 foot candles (fc) to a high of 101.7 fc.

**Indoor Air Quality:** Temperatures and relative humidity measurements were outside the acceptable range in approximately one third of the facility. These results are not unexpected due to outdoor conditions on the day of the survey and the lack of air conditioning in most of the facility. Indoor levels of CO<sub>2</sub> ranged from 359 to 712 parts per million (ppm) and outdoor CO<sub>2</sub> levels were approximately 345 ppm during the monitored period. CO<sub>2</sub> measurements were below the guideline in all areas, indicating adequate fresh air exchange. Indoor levels of CO ranged from 0.1 to 4.7 ppm; therefore, concentrations are below occupational exposure limits, ASHRAE and the NAAQS-recommended CO concentrations.

## 1 Introduction

Aria Environmental, Inc. (AEI) was contracted to perform an industrial hygiene evaluation for the Massachusetts Army National Guard (MA ARNG) Readiness Center located at 96 Central Street, Hingham, MA 02043-2517 Non-Responsive performed the evaluation on August 19, 2010. The point of contact for the facility was Specialist Non-Responsive. The purpose of the evaluation was to identify and measure the existence and extent of potentially hazardous operations or conditions at Army National Guard (ARNG) facilities.

The Hingham Readiness Center is staffed with 3 administrative personnel. The operations conducted at the facility include supply and administrative duties. A diagram of the building layout is provided in Appendix A. All sampling sheets and laboratory certificates of analysis are provided in Appendix B. Selected photographs taken during the evaluation are provided in Appendix C. Indoor air quality and lighting survey measurement log sheets are provided in Appendix D. Lists of all references used during the evaluation are included in the main body of the report.

## 2 Evaluation Methods

The industrial hygiene survey of the Hingham Readiness Center consisted of visual inspections, interviews with employees and sampling plan development in order to achieve the following: (1) evaluations of operations including operation description, sampling for lead in air or on surfaces if appropriate, ventilation system evaluations, noise measurements if appropriate, lighting surveys, hazard control evaluations and any additional information pertinent to the operations; (2) an evaluation of the physical condition of the facility and personnel concerns including visual inspections for peeling potentially lead-based paint, damaged suspect asbestos-containing materials, water damage or mold problems; indoor air quality concerns; and housekeeping practices; and (3) a building layout and photographic documentation of the interior of the facility.

The National Guard Bureau (NGB) Region North IH Office provided all industrial hygiene equipment for air sampling (equipment and media), ventilation, lighting, noise and IAQ survey instruments and paid for laboratory analytical fees. Laboratories were chosen or approved by the NGB IH office.

## **3** Operations

Operations conducted at the Hingham facility consists exclusively of supply and administrative duties. No maintenance of vehicles, painting of equipment or other physical tasks are performed at the facility. Ground maintenance and upkeep of the building are the responsibility of the state employed Armorer and not part of the duties of National Guard personnel.

## 4 Noise Hazards

No noise-generating activities were taking place on the day of the survey. Due to the nature of the tasks performed onsite, no activities requiring noise monitoring are anticipated to occur at the RC.

## 5 Hazard Controls

## **Ventilation Systems**

Heat is supplied to the facility through a boiler located in the boiler room and overhead heaters in the drill hall. The boiler certificate for the Hingham facility expired in 1994 and is not up to date. Any air conditioning provided to the building is through window air conditioning units. No local ventilation systems were present at the facility.

## 6 Physical Condition of the Facility and Personnel Concerns

An evaluation of the physical condition of the facility and personnel concerns was performed including visual inspections for peeling potentially lead-based paint, damaged suspect asbestos-containing materials, water damage or mold problems; indoor air quality concerns; and housekeeping practices. Lighting and indoor air quality measurements were taken in all areas of the facility as well.

## Lead in Air Samples

Lead in air samples to determine if any airborne contamination of lead existed in the facility were not collected at the Hingham Readiness Center due to sample pump malfunction.

## Paint Chip and Dust Wipe Samples for Lead Contamination

To determine if any cross contamination of lead from any source into areas of the facility existed, wipe samples were collected using ghost wipes and 10cm x 10cm templates. Wipe samples for surface dust were collected in 13 locations. The Environmental Protection Agency (EPA) and the Commonwealth of Massachusetts limits for lead in dust are 40 micrograms per square foot ( $\mu g/ft^2$ ) on floors, 250  $\mu g/ft^2$  on window sills, and 400  $\mu g/ft^2$  in window troughs. These limits apply to pre-1978 Army facilities only if children under 6 years of age occupy them for 60 or more hours per year. The NGB Region North Industrial Hygiene Office concurs with the US Army Center for Health Promotion and Preventive Medicine (USACHPPM) recommended maximum level for adult exposures of 200 µg/ft<sup>2</sup> on floors and frequently contacted surfaces, which is more stringent for window sills than the EPA/State standards. Dust wipe samples were submitted to Aerosol Monitoring and Analysis Analytical Services, Inc. (AMA) for atomic absorption spectrophotometry (AAS) following the analytical method ASTM D3335-85A. Two samples collected from the top of a flammable cabinet and from the top of a locker were above the National Guard criteria for lead contamination (200 µg/ft<sup>2</sup>). Samples ranged from 1.05 to 1.1 times the National Guard criteria. The history of the former indoor firing range was not known by current Readiness Center employees, and the range was inaccessible at the time of the survey. All indoor firing ranges must be properly converted and/or maintained in accordance with NG PAM 420-15 Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges. These procedures include worker education, range cleaning instructions, cleaning stored contaminated equipment, management of contaminated sand and lead waste, range rehabilitation and conversion of indoor firing ranges. Results are given in Table 1 and certificates of analysis are included in Appendix B.

| Wipe Sample # | Sample Location                           | Result (µg/ft²)* |
|---------------|---|------------------|
| HIN-PB-01     | Room 2, Radiator Cover                    | 150              |
| HIN-PB-02     | Room 22 Kitchen, Prep Table               | <110             |
| HIN-PB-03     | Drill Hall, Bench by Door                 | <110             |
| HIN-PB-04     | Drill Hall, Middle of Floor               | <110             |
| HIN-PB-05     | Drill Hall, Center Stage                  | <110             |
| HIN-PB-06     | Room 4, Top of File Cabinet               | <110             |
| HIN-PB-07     | Room 6, Desktop                           | <110             |
| HIN-PB-08     | Room 8, Storage Room on Desk              | <110             |
| HIN-PB-09     | Room 1, Top of Refrigerator               | <110             |
| HIN-PB-10     | Room 29, From Top of Flammable<br>Cabinet | 210              |
| HIN-PB-11     | Room 23, From Stored Mess Table Seat      | <110             |
| HIN-PB-12     | Room 18, Top of Locker                    | 220              |
| HIN-PB-13     | Room 29, Middle of Floor                  | 180              |

## Table 1 – Results of Dust Wipe Sampling for MA ARNG Hingham Readiness Center on August 19, 2010.

\*The US Army CHPPM recommends a maximum level for adult exposures of 200 µg/ft<sup>2</sup> lead on floors

A visual inspection was performed to determine if there were any areas of peeling paint at the facility that could pose a lead exposure hazard. Peeling paint was observed over the majority of the second floor and in one room (room 13 on the drawing) on the first floor where extensive water damage has occurred. The paint chip samples were collected following operational protocols set forth in HUD's *Guidelines for the Evaluation and Control of Lead-Based Paint Hazard in Housing (1995)*. The paint chip samples were submitted to Aerosol Monitoring and Analysis Analytical Services, Inc. (AMA) of Lanham, MD for analysis. The analyses were performed using Flame Atomic Absorption Spectrophotometry (AAS) following the analytical method SW 846 7420. AMA is accredited for the analysis of paint chip samples through the AIHA Proficiency Testing Program (#100470). In the Commonwealth of Massachusetts, paint is considered to be lead-based if it contains more than 0.5 % lead by weight. All paint chip samples were below regulatory limits of 0.5% lead by weight except for the yellow paint in Room 18 (0.78%). Results are given in Table 2 and certificates of analysis are included in Appendix B.

| Paint Chip<br>Sample # | Sample Location  | Result (% by wt )* |
|------------------------|--|--------------------|
| HIN-LBP-01             | White Ceiling Paint, From Stair Leading to<br>Basement | 0.055              |
| HIN-LBP-02             | White Hallway Wall Paint, Room 15                      | 0.38               |
| HIN-LBP-03             | Yellow Wall Paint, Room 18                             | 0.78               |
| HIN-LBP-04             | Green Wall Paint, Room 13                              | 0.026              |

## Table 2 – Results of Paint Chip Sampling for MA ARNGHingham Readiness Center on August 19, 2010.

\*Paint is considered lead-based if it is > 0.5% by weight.

## Visual Inspection for Damaged Asbestos-Containing Materials

A visual inspection was performed to determine if there were any suspect asbestos-containing material and its condition. Damaged plaster that may contain asbestos was observed in one room (room 13 on the drawing) on the first floor where extensive water damage has occurred. Bulk samples of pipe fittings were collected. Samples were submitted to AMA Analytical Services, Inc. of Lanham, MD 20706 (NIST-NVLAP Accreditation No. 101143-0) for analysis by Polarized Light Microscopy (PLM) using EPA method 600/R-93/116. The EPA defines an asbestos-containing material as one percent (1%) or more asbestos by visual estimation. The plaster was reported to contain no asbestos. Results are given in Table 4 and certificates of analysis are included in Appendix B.

## Table 3 – Results of Asbestos Sampling for the MA ARNG RC Hingham, MA on August 19, 2010.

| Bulk | k Sample # | Sample Location                                  | Result (%)* |
|------|------------|--|-------------|
| н    | IN-ASB-01  | Plaster from Wall and Ceiling Debris,<br>Room 13 | NAD**       |

\*The EPA defines an asbestos-containing material as one percent (1%) or more asbestos by visual estimation. \*\*NAD – No Asbestos Detected.

## Visual Inspection for Water Damage and Mold Growth

A visual inspection was performed to determine if there was any water damage or visible mold growth at the facility. Extensive water damage was observed in one room (room 13 on the drawing) on the first floor. Water intrusion was reportedly from an old water leak in the roof which has been repaired. The plaster ceiling of the room had collapsed due to the water damage and a determination of whether mold was present was not feasible.

## Visual Inspection for Housekeeping Concerns

A visual inspection was performed to assess the state of housekeeping in the facility. The housekeeping was good. All areas were clean and tidy.

## Lighting

Illumination levels were measured using a Cal-Light 400L, calibrated on July 30, 2010, and compared to minimum lighting requirements for various facilities and functions based on the following references: American National Standards Institute/Illumination Engineering Society of North America (ANSI/IESNA) Standard RP-1-04 (Office Lighting) and ANSI/IESNA Standard RP-7-01 (Lighting Industrial Facilities).

A lighting survey was performed in all areas within the readiness center. The evaluation indicated that there are some illumination deficiencies in several areas of the facility. The illumination measurements indoors ranged from a low of 4.4 foot candles (fc) to a high of 101.7 fc. The complete results of the evaluation are presented in Appendix D, including whether the results met minimum requirements for illumination. Additional illumination can be achieved by replacing burned-out lamps, cleaning fixtures, relocating detailed work to more illuminated areas, using supplemental task lighting, and opening doors or windows to provide more natural lighting.

## Indoor Air Quality (IAQ)

Indoor air quality measurements (i.e., temperature, relative humidity, carbon dioxide and carbon monoxide) were taken using a TSI Q-Trak Plus Model 8554, factory calibrated in March 2010. Temperature, relative humidity and carbon dioxide (CO<sub>2</sub>) measurements were compared to the recommended levels established by the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE). Carbon monoxide (CO) concentrations were compared to the ACGIH Threshold Limit Value (TLV) for CO and the Environmental Protection Agency's (EPA's) National Ambient Air Quality Standard (NAAQS) for CO.

Industry guidelines or standards for seasonal temperature and humidity ranges for thermal comfort are established by ASHRAE standard 55-2004. These ranges are presented in Table 4. The U.S. EPA also recommends maintaining relative humidity below 60% and ideally between 30 and 50% to prevent mold growth. Complete results are provided in Appendix G with the lighting survey measurements.

| Kelulive n | unnung in summer c |                 |
|------------|--------------------|-----------------|
| Relative   | Winter             | Summer          |
| Humidity   | Temperature        | Temperature     |
| 30%        | 68.5°F – 76.0°F    | 74.0°F – 80°F   |
| 40%        | 68.5°F – 75.5°F    | 73.5°F – 79.5°F |
| 50%        | 68.5°F – 74.5°F    | 73.0°F – 79.0°F |
| 60%        | 68.0°F – 74.0°F    | 72.5°F – 78.0°F |
| adapted    | from ASHRAE Stand  | $ard 55_2001$   |

## Table 4 - Acceptable Ranaes of Temperature and Relative Humidity in Summer and Wintera

adapted from ASHRAE Standard 55-2004

## **Temperature and Relative Humidity**

Indoor temperature and relative humidity (Rh) measurements in the facility ranged from 73.9 to 80.2° F and 54.3 to 66.8% Rh. Outdoor temperature and humidity measurements were 78.5° F and 58.4% on the day of monitoring. Temperatures and relative humidity measurements were outside the acceptable range in approximately one third of the facility. These results are not unexpected due to outdoor conditions on the day of the survey and the lack of air conditioning in most of the facility.

## Carbon Dioxide (CO<sub>2</sub>) and Carbon Monoxide (CO)

Carbon dioxide and carbon monoxide measurements are used to assess ventilation system performance. The exhaled breath of building occupants is the main indoor source of carbon dioxide; therefore, the build up of CO<sub>2</sub> indicates inadequate ventilation. The concentration of concern for carbon dioxide is set by ASHRAE standard 62.1 - 2007 as 700 ppm above outdoor concentrations. Indoor levels of CO<sub>2</sub> ranged from 359 to 712 parts per million (ppm) and

outdoor CO<sub>2</sub> levels were approximately 345 ppm during the monitored period. CO<sub>2</sub> measurements were below the guideline in all areas, indicating adequate fresh air exchange.

Carbon monoxide is a byproduct of incomplete combustion. Indoor concentrations indicate contamination caused by improperly vented or malfunctioning boilers, furnaces or stoves or from vehicle exhaust entering the building from garages, loading docks, nearby roads or parking lots. The concentration of interest set by ASHRAE standard 62.1-2007 and the National Ambient Air Quality Standards (NAAQS) for carbon monoxide is an 8 hour average of 9 ppm. The ACGIH TLV for CO is 25 ppm. Indoor levels of CO ranged from 0.1 to 4.7 ppm; therefore, concentrations are below occupational exposure limits, ASHRAE and the NAAQS-recommended CO concentrations.

## 7 Conclusions

The results of the evaluation indicated no concerns with the following at the facility: contamination of clean air sources, the presence of damaged suspect asbestos-containing materials, peeling lead-based paints, noise hazards, visible mold and housekeeping. The results of the evaluation indicated industrial hygiene concerns in the following areas: cross contamination of lead dust, indoor air quality, water intrusion and lighting. Overall, Hingham Readiness Center has few industrial hygiene issues, and programs are in place to protect, inform and train employees.

## 8 Limitations

This report has been prepared for the exclusive use of the U.S. Army National Guard (USARNG) and/or their agents. This service has been performed in accordance with generally accepted industrial hygiene and environmental practices. No other warranty, expressed or implied, is made. Our conclusions and recommendations are based, in part, upon information provided to us by others and our site observations. We have not verified the completeness or accuracy of the information provided to us by others, unless otherwise noted. Our observations and recommendations readily visible at the site at the time of our site visit, and upon current industry standards.

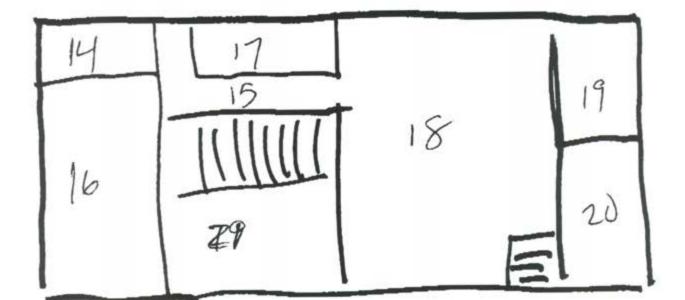
By virtue of providing the services described in this report, the preparer does not assume the responsibility of the person(s) in charge of the site, or otherwise undertake responsibility for reporting to any local, state, or federal public agencies any conditions at the site that my present a potential danger to public health, safety, or the environment. It is the Client's responsibility to notify the appropriate local, state, or federal public agencies as required by law, or otherwise to disclose, in a timely manner, any information that may be necessary to prevent any danger to public health, safety, or the environment. Under this scope of services, the preparer assumes no responsibility regarding response actions initiated as a result of these findings. Response actions are the sole responsibility of the Client and should be conducted in accordance with local, state, and/or federal requirements, and should be performed by appropriately licensed personnel as warranted.

## 9 References

- 1. Title 29, Code of Federal Regulations (CFR), Part 1910, Occupational Safety and Health Administration, current edition.
- 2. Title 24, Code of Federal Regulations (CFR), Part 35, Subpart B, Sections 35.110, Definitions of Lead-Based Paint, Housing and Urban Development, U.S. Department of Housing.

- 3. Department of Defense Instruction (DODI) 6055.1, Department of Defense Occupational Safety and Health (OSH) Program, August 19, 1998.
- 4. Army Regulation (AR) 40-5, Medical Service, Preventive Medicine, May 25, 2007.
- 5. Army Regulation (AR) 385-10, The Army Safety Program, August 23, 2007.
- 6. Department of the Army Pamphlet (DA PAM) 40-501, Medical Service, Hearing Conservation Program, December 15, 1998.
- 7. Department of the Army Pamphlet (DA PAM) 40-503, Medical Service, Industrial Hygiene Program, October 30, 2000.
- 8. Technical Manual (TM) 5-810-1, Mechanical Design, Heating, Ventilation, and Air Conditioning, June 1991.
- 9. Threshold Limit Values (TLVs) and Biological Exposure Indices (BEIs), American Conference of Governmental Industrial Hygienists (ACGIH), current edition.
- 10. RP-1-2004 (Office Lighting) and RP-7-2001 (Industrial Lighting), Illuminating Engineering Society of North America (IESNA)/ANSI.
- 11. The American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE), Standard 62.1-2007, "Ventilation for Acceptable Indoor Air Quality" and Standard 55-2004, "Thermal Environmental Conditions for Human Occupancy".
- 12. NIOSH website: <a href="http://www.cdc.gov/niosh/">http://www.cdc.gov/niosh/</a>
- 13. OSHA website: <u>http://www.osha.gov/</u>.
- 14. Army CHPPM website: http://chppm-www.apgea.army.mil/.
- 15. EPA website: <u>http://www.epa.gov</u>.

Appendix A Building Layout



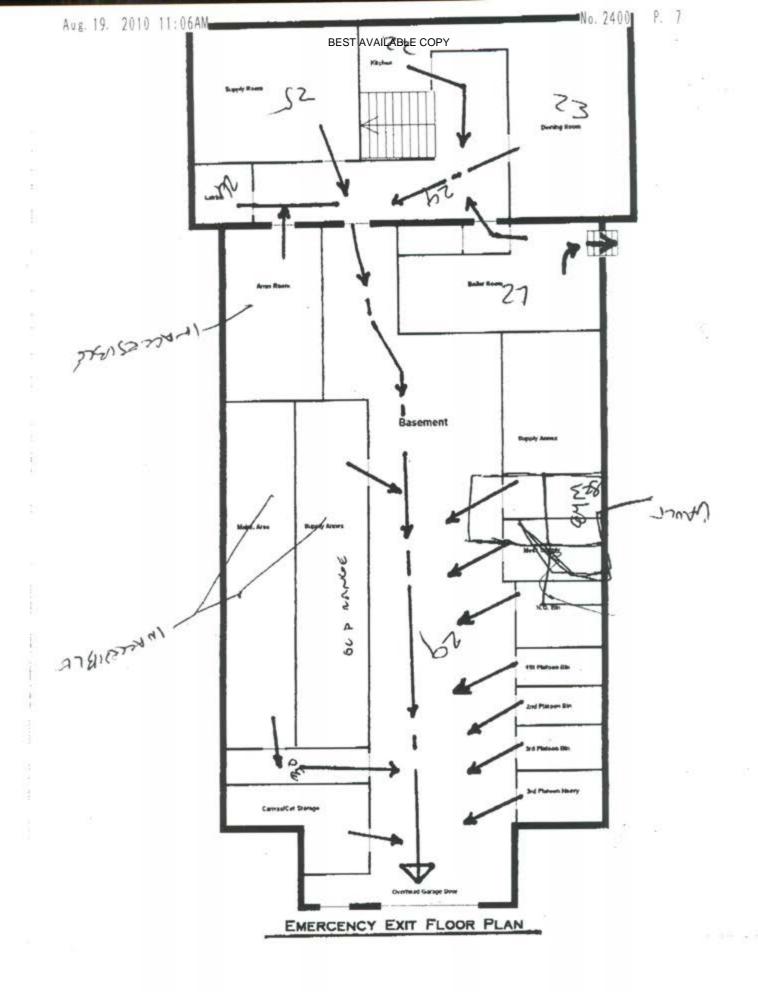
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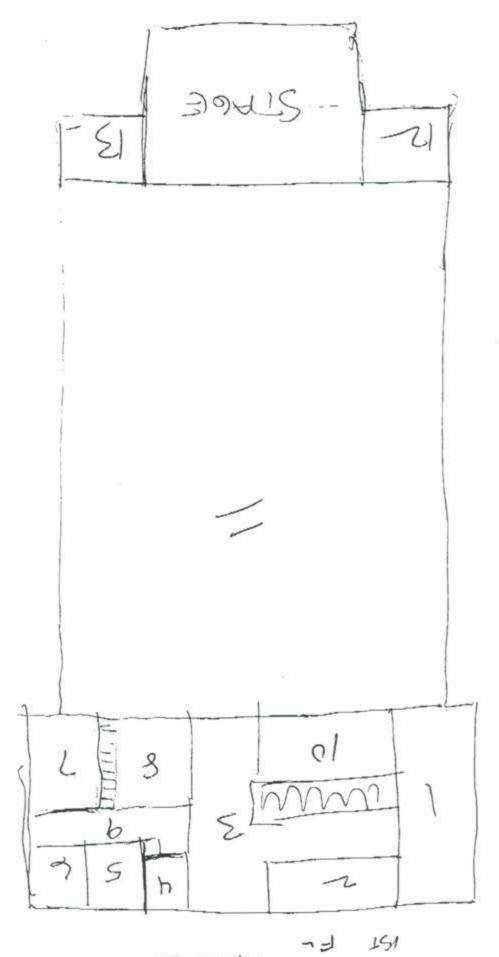
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FOIA Requested Record #J-15-0085 (MA) Released by National Guard Bureau Page 1715 of 3473 Appendix B Certificates of Analysis for Dust Wipe and Bulk Samples

## **AMA Analytical Services, Inc.**

Attention:

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| <b>E</b> <sup>A</sup> | Specialized Environmental Laboratory                                 | CI            | ERTIFICATE OF ANA        | ALYSIS             |              | ACCREDITED LABORATORY<br>INDUSTRIAL HYGENE, ENVIRONMENTAL LEAD<br>& ENVIRONMENTAL MICROBIOLOGY<br>ISONEG 17025-2005<br>www.aihabaccreditedhaba.org |
|-----------------------|--|---------------|--------------------------|--------------------|--------------|--|
| Client:               | National Guard Bureau  | Job Name:     | Hingham Readiness Center | Chain Of Custody:  | 508619       | NY ELAP  |
| Address:              | 301-IH Old Bay Lane, Attn: NGB-AVN-SI,<br>State Military Reservation | Job Location: | Hingham, MA              | Date Submitted:    | 8/23/2010    | 10920  |
|                       | Havre de Grace, Maryland 21078                                       | Job Number:   | Not Provided             | Person Submitting: | Non-Responsi | ive  |
|                       |  | P.O. Number:  | W912K6-09-A-0003         | Date Analyzed:     | 8/29/2010    | Report Date: 8/30/2010   |

## Summary of Atomic Absorption Analysis for Lead

Page 1 of 2

AIHA LAP, LLC

| AMA Sample<br>Number | Client Sample<br>Number | Analysis Type | Sample Type | Air Volume<br>(L) | Area Wiped<br>(ft²) |        | orting<br>imit | Total ug | Final Res | sult               | Comments |
|----------------------|-------------------------|---------------|-------------|-------------------|---------------------|--------|----------------|----------|-----------|--------------------|----------|
| 1073105              | HIN-PB-01               | Flame         | Wipe        | ****              | 0.108               | 110    | ug/ft²         | 17       | 150       | ug/ft²             |          |
| 1073106              | HIN-PB-02               | Flame         | Wipe        | ****              | 0.108               | 110    | ug/ft²         | <12      | <110      | ug/ft²             |          |
| 1073107              | HIN-PB-03               | Flame         | Wipe        | ****              | 0.108               | 110    | ug/fl²         | <12      | <110      | ug/ft²             |          |
| 1073108              | HIN-PB-04               | Flame         | Wipe        | ****              | 0.108               | 110    | ug/ft²         | <12      | <110      | ug/ft²             |          |
| 1073109              | HIN-PB-05               | Flame         | Wipe        | ****              | 0.108               | 110    | ug/ft²         | <12      | <110      | ug/ft <sup>2</sup> |          |
| 1073110              | HIN-PB-06               | Flame         | Wipe        | ****              | 0.108               | 110    | ug/ft²         | <12      | <110      | ug/ft <sup>2</sup> |          |
| 1073111              | HIN-PB-07               | Flame         | Wipe        | ****              | 0.108               | 110    | ug/ft²         | <12      | <110      | ug/ft²             |          |
| 1073112              | HIN-PB-08               | Flame         | Wipe        | ****              | 0.108               | 110    | ug/ft²         | <12      | <110      | ug/ft²             |          |
| 1073113              | HIN-PB-09               | Flame         | Wipe        | ****              | 0.108               | 110    | ug/ft²         | <12      | <110      | ug/ft²             |          |
| 1073114              | HIN-PB-10               | Flame         | Wipe        | ****              | 0.108               | 110    | ug/fl²         | 22       | 210       | ug/ft²             |          |
| 1073115              | HIN-PB-11               | Flame         | Wipe        | ****              | 0.108               | 110    | ug/ft²         | <12      | <110      | ug/ft²             |          |
| 1073116              | HIN-PB-12               | Flame         | Wipe        | ****              | 0.108               | 110    | ug/ft²         | 23       | 220       | ug/ft²             |          |
| 1073117              | HIN-PB-13               | Flame         | Wipe        | ****              | 0.108               | 110    | ug/ft²         | 20       | 180       | ug/fl²             |          |
| 1073118              | HIN-LBP-01              | Flame         | Paint Chip  | ****              | N/A                 | 0.0092 | %Pb            |          | 0.055     | %Pb                |          |
| 1073119              | HIN-LBP-02              | Flame         | Paint Chip  | ***               | N/A                 | 0.009  | %Pb            |          | 0.38      | %Pb                |          |
| 1073120              | HIN-LBP-03              | Flame         | Paint Chip  | ****              | N/A                 | 0.0077 | %Pb            |          | 0.78      | %Pb                |          |
| 1073121              | HIN-LBP-04              | Flame         | Paint Chip  | ****              | N/A                 | 0.01   | %Рь            |          | 0.026     | %Pb                |          |

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|   |                     |           |                      |                   | ÓY      | VI (410) 24 | 7-2024    |          |        |        |   |                   |        | 159202                                   | 210 REV.   | 3.06                     |
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| AMA Raalytical Services, Inc.<br>Focused on Results<br>AIHA (#100470) NVLAP (#101143-0) NY EL<br>4475 Forbes Blvd. • Lanham, MD 20706<br>(301) 459-2640 • (800) 346-0961 • Fax (301) 4  |                     | (         | CH                   | AI                | N (     | <b>DF</b>   | CUS       | STO      | OI     | )Y     |   |                   |        | ease Refer To This<br>mber For Inquires) | 508  | 61                       |
| ailing/Billing Information:   |                     |           |                      |                   | Su      | bmittal     | Inform    | tion:    |        |        |   |                   | 1000   |  |  | P-1                      |
| Client Name: National Guard Bureau  |                     |           |                      |                   |         | Job Na      |           |          |        |        |   |                   |        | EADINESS                                 | CENTER   | <u> </u>                 |
| Address 1: 301-IH Old Bay Lane  |                     |           |                      |                   |         | Job Lo      |           |          |        |        |   | m                 |        | <u>MA</u>                                |  |                          |
| Address 2:Attn: NGB-AVN-SI, State Milita  |                     |           |                      |                   |         | Job #:      |           |          |        |        |   |                   | 10     | onsi                                     | Non-Respons                                      | IVE                      |
| Address 3: Havre de Grace, Maryland 21  | 078                 | D 40 000  |                      |                   | 4.      | Contac      |           | N        |        | ]-     | N   | 85                |        | Donsi                                    | /e   | -                        |
| Phone #: (410) 942-0273 Fax   |                     | ting Info |                      |                   |         | Submit      |           |          |        |        |   |                   |        |  |  |                          |
| AFTER HOURS (must be pre-scheduled)   | Keput               | ting into |                      |                   |         | INESS H     |           |          |        | _      | _   |                   |        | DVD                                      | ORT TO:  |                          |
| Immediate Date Due:i  | C Immed             |           | Q30                  | ly                |         |             | D Res     | ilts Re- | mired  | By No  | 00  | W İn              |        |  | with Report                                      |                          |
| 24 Hours Time Due:  | □ Next D<br>□ 2 Day | ay        | S Da                 | 1y + 8            | 120     | 0110        | (Ev       | yAlte    | mpt W  | Ill Be | 1   | L En              |        |  | Bus.army.mil                                     | vino, c                  |
| omnionts:   | G Z Day             |           | Date D               | ue:               | 10-     | 11-         | - Ma      | k to A   | como   | date)  | 12  | Q Ve              |        |  | Dus.army.mi                                      |                          |
| bestos Analysis   |                     | TEM Bulk  |                      |                   |         |             |           |          |        | Ń      | Tetals  | Analys            | Ís     | 17                                       |  |                          |
| MAir – Please Indicate Filter Type:   |                     | U EL      | AP 198.4             | /Chatfi           | eld     |             | _(QTY)    |          |        |        |   | Ph Pain           | ( Chir | - 4- 19TY                                | )  |                          |
| G Fiberglass(QTY)   |                     |           | State Pl<br>idual As |                   |         | (OTY)       | (QTY)     |          |        |        | <b>T</b>  | Pb Air            | Wipe   | (wine type GHOS                          | -)_13_   | (QTY)                    |
| Air – Please Indicate Filter Type:<br>AHERA (QTY)   |                     | TEM Dust  |                      | 5 89 <del>7</del> |         | -           |           |          |        |        | u   | Pb Soil           | Solid  | (QTY)                                    | í,   |                          |
| Q NIOSH 7402 (QTY)  |                     | U Qui     | d. (pres/            | abs) Vac          | cuum/I  | Dust        |           | (QTY     | )      |        |   | Pb TCL<br>Drinkin | P      | (QTY)<br>er 🛛 Pb(QTY) [                  |  | м (от                    |
| General Context (Specify)(QTY)  | )                   |           | n. (s/arc            | a)Dust            | D6480   | -99         |           | (QTY)    |        |        | _ <b>Q</b> 1  | Waste V           | Veter  | Pb (OTY) CI                              | Cu (OTY) QAS                                     | (OTY                     |
| C EPA 600 Visual Estimate (OTV)   |                     | TEM Wate  |                      |                   |         |             | -         |          |        |        | L)<br>National  | Pb Furn<br>Analys | ace (1 | Media)                                   | (QTY   | )                        |
| EPA Point Count(QTY)     NY State Friable 198.1(QTY)  |                     |           |                      |                   |         | (Q1         |           | 3        | 7.5    |        | (   | Collecti          | on Ap  | paratus for Spore Trap                   | Air Samples:                                     |                          |
| Grav. Reduction ELAP 198.6(QTY)   |                     |           | 100.1_               |                   |         |             |           |          |        |        | (   | Collecti          | on Me  | sdia                                     |  | -                        |
| Coher (specify)(QTY)  | )                   | 4 All     | samples              | receive           | d in go | od condi    | tion unle | s other  | wise n | oted.  |   | Surface           | Swat   | (QTY) ():                                | Surface Vacuum Dust<br>Culturable ID Genus (Medi | (QT                      |
| C Vermiculite   |                     |           | Water sa             | mples_            |         | .°C)        |           |          |        |        | 0   | Surface           | Tape.  | (QTY) QC                                 | ulturable ID Species (Med                        | ia1                      |
| CLAshartor Call NUL (Out NUL Marsh Britter)   | PLM/TEM_(Q          | uza)      |                      | 1.2               |         |             |           |          |        |        |   | hher (Sp          | cily_  | (QTY)                                    |  |                          |
| Asbestos Soil PLM_(Qual) PLM_(Qual) PLM/TEM_(Qual)  |                     | WIPE      | 1 3                  | AN                | ALYS J  | 91.         | 9   ¥     | 13       | 15     | ATRI   | 1 22  | APE               | AB     | / <sup>Ci</sup>                          | LIENT CONTACT                                    |                          |
| SAMPLE INFORMATION  | VOLUME              |           | 1ĕ                   | 12                | FI      | 41          | 214       | 12       | 1 2    | 1 228  | <u><u>G</u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u></u> | E                 | n's    | (LABO                                    | RATORY STAFF ON                                  | LY)                      |
| SAMPLE INFORMATION<br>CLIENT ID SAMPLE LOCATION<br>NUMBER IDENTIFICATION DAT  | VOLUME<br>E altersi | AREA      | - Change             |                   |         | ~           | 17        |          |        |        |   |                   |        |  |  |                          |
| CLIENTID SAMPLE INFORMATION<br>NUMBER IDENTIFICATION DAT  | E ALTERSI           | AREA      | - Change             |                   |         |             |           |          |        |        |   |                   |        | Date/Time:                               | Contact;   | By:                      |
| CLIENTID SAMPLE INFORMATION<br>SAMPLE LOCATION<br>NUMBER DENTFICATION DAT   | E ALTERSI           | AREA      | - Change             |                   |         |             |           |          |        |        |   |                   |        | Date/Tunc:                               | Contact;   |                          |
| CLIENTID SAMPLE INFORMATION<br>SAMPLE LOCATION<br>IDENTIFICATION DAT  | E ALTERSI           | AREA      | - Change             |                   |         |             |           |          |        |        |   |                   |        | Date/Time:                               | Contact;   |                          |
| CLIENT ID<br>NUMBERSAMPLE INFORMATION<br>SAMPLE LOCATION<br>IDENTIFICATION<br>$DAT$ $N - Pib - 01$ $S / 61 / 1$ $N - Pib - 02$ $N - Pib - 03$ $N - Pib - 03$ $N - Pib - 03$   | E ALTERSI           | AREA      | - Change             |                   | _       |             |           |          |        |        |   |                   |        |  | Contact;   |                          |
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| CLIENTID<br>NUMBERSAMPLE INFORMATION<br>SAMPLE LOCATION<br>IDENTIFICATION<br>   |                     | AREA      | - Change             |                   |         |             |           |          |        |        |   |                   |        | Date/Time:                               | Contact:   | By:<br>By:<br>By:        |

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| AIHA (#100470) NVLAP (#10<br>4475 Forbes Blvd. • Lanbam, N<br>(301) 459-2640 • (800) 346-09  | 01143-0) NY<br>MD 20706   | YELAP   |                                       | C   | HA   | IN   | OF   | CUS                            | ГО                          | DY                |   |   | lease Refer To Th<br>umber For Inquire  | his<br>(s) 508   | 8619<br>p.2/2  |
|--|---|---|---------------------------------------|---|--|--|--|--------------------------------|-----------------------------|-------------------|---|---|---|--|--|
| ailing/Billing Information:<br>Client Name: <u>National Guard</u><br>Address 1: <u>301-IH Old Bay</u><br>Address 2: <u>Atin: NGB-AVN-</u><br>Address 3: <u>Havre de Grace</u> ,<br>Phone #: <u>(410) 942-0273</u><br>AFTER HOURS (munt be pre-schiede  | Lane<br>Si, State M<br>Maryland<br>Maryland   | <u>Ailitary F</u><br>21078<br>Fax #:_                           | (410) 9-<br>Reportin                  | on<br>42-0254<br>ng Inform  | ntion ()<br>NOP  | 1.<br>2.<br>3.<br>4.<br>5.<br>Results w                                  | Job N<br>Job L<br>Job #:<br>Conta<br>Subm<br>rill be p | ct Person<br>Itted by:         | A                           | - //<br><b>N-</b> | ing reas  | Sp  | onsi  | P.A. 0203  |  |
| Immediate Date Due:<br>24 Hours Time Due:<br>mments:   |   |   | l Immediat<br>Next Day<br>2 Day       | Ċ   | 3 Day<br>5 Day<br>Date Due   | +  | :*:  |                                | Amonini                     | WHIN D.           |   | Broald<br>Fax:<br>Verba   | COC/Field Data St<br>Ion-Respons  | UE@<br>@us.army.ml<br>@us.army.ml  |  |
| bestos Analysis<br><u>MAir</u> – Please Indicate Filter Type:<br>UNIOSH 7400(QTY)<br>D Fiberglass(QTY)<br><u>MAir</u> – Please Indicate Filter Type:   | n   |   | n                                     |   |  | hatlield<br>I/TEM  |  | (QTY)<br>(QTY)                 |                             | 1                 | ШРЬ I<br>ШРЬ /  | aint Chi<br>Dust Wip<br>Air   | (QTY)   |  | _(QTY)   |
| □ AHERA(QTY)<br>□ NIOSH 7402(QTY)<br>□ Other (specify)<br>□ EPA 600 - Visual Estimate<br>□ EPA Point Count(Q<br>□ NY State Friable 198.1<br>□ Grav. Reduction ELAP 198.6<br>□ Other (specify)<br>SC<br>□ Vermiculite<br>□ Asbestos Soil FIM(Qual) FIM(Qz<br>SAMPLE IN<br>CLIENT ID SAMPLELO  | (QT<br>(QTY)<br>(QTY)<br>(QTY)<br>(Q<br>(QTY)<br>(Q<br>(Q<br>(QTY)<br>(Q<br>(Q<br>(QTY)<br>(Q<br>(QTY)<br>(Q<br>(QTY)<br>(Q<br>(QTY)<br>(Q<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY) | Y)<br>PTY)<br>QTY)<br>JQadi FLM<br>DN<br>V                      | II<br>/TEMQuan<br>/OLUME              | Quan<br>Quan<br>EM Water<br>Qual<br>ELAN<br>EPA 1<br>All so<br>(TEM W                 | . (s/area)<br>. (s/area)<br>(pres/abs<br>2 (98.2/E<br>(00.1<br>imples re-<br>fater sam | Vacuum D<br>Dust D648<br>s)<br>PA 100.2<br>ceived in g<br>ples<br>ANALYS | 0-99(Q<br>(QTY)<br>(QTY)<br>good cond<br>^C)           | (TY)<br>(QTY)<br>Bition unless | _(QTY)<br>ITY)              | noted.            | Q Pb 1<br>Q Drin<br>Q Was<br>U Pb 1<br>Coll<br>Coll<br>Coll<br>Q Spo<br>Q Suri<br>Q Suri<br>Q Other | CLP<br>king Wa<br>te Water<br>Turnace (<br>alysis<br>ection Aj<br>ection M<br>re-Trap<br>ace Swal<br>ace Tape<br>(Specify | DPb(QTY)<br>Media<br>paratus for Spore 1<br>edia(QTY)<br>b(QTY)<br>(QTY)<br>(QTY)   |  | As(QTY)<br>Y)<br>dia(QTY)<br>dia(dia)(                                     |
| A HERA(QTY)     NIOSH 7402(QTY)     Other (specify))     Bulk     DEPA 600 - Visual Estimate(Q     DY State Friable 198.1(Q     NY State Friable 198.1(Q     Other (specify))     Grav. Reduction ELAP 198.6)     Other (specify)     SC     Vermiculite     Asbestos Soil PIM(Qail) PIM(Qail)     SAMPLE IN     CLIENT ID     SAMPLE ID     NUMBERIDENTIFIC   | (QT'<br>(QTY)<br>(QTY)<br>(Q'<br>(Q'<br>(Q'<br>(Q'<br>(Q'<br>(Q'<br>(Q'<br>(Q'<br>(Q'<br>(Q'  | Y)<br>(TY)<br>QTY)<br>(Qui) R.M<br>(Qui) R.M<br>DN<br>V<br>DATE | TI<br>ATEM (Quan<br>TOLUME<br>ALTERS) | Qual.<br>Quan<br>Quan<br>Quan<br>Qual.<br>Qual.<br>EAI<br>EPA 1<br>AII so<br>(TEM W   | . (s/area)<br>. (s/area)<br>(pres/abs<br>2 (98.2/E<br>(00.1<br>imples re-<br>fater sam | Vacuum D<br>Dust D648<br>s)<br>PA 100.2<br>ceived in g<br>ples           | 0-99(Q<br>(QTY)<br>(QTY)<br>good cond<br>^C)           | (<br>(<br>(QTY)                | _(QTY)<br>(TY)<br>atherwise | noted.<br>MATRI   | Q Pb 1<br>Q Drin<br>Q Was<br>U Pb 1<br>Coll<br>Coll<br>Coll<br>Q Spo<br>Q Suri<br>Q Suri<br>Q Other | CLP<br>king Wa<br>te Water<br>Turnace (<br>alysis<br>ection Aj<br>ection M<br>re-Trap<br>ace Swal<br>ace Tape<br>(Specify | (QTY)<br>ter Q Pb(QT<br>Q Pb(QTY)<br>Media<br>paratus for Spore 1<br>edia<br>(QTY)<br>b(QTY)<br>b(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)  | Y) Cu(QTY) C<br>Cu(QTY) C<br>Trops/Air Samples:<br>Cultarable ID Genus (Me<br>Cultarable ID Species (Me<br>CLIENT CONTACT<br>BORATORY STAFF O  | As(QTY)<br>Y)<br>dia(QTY)<br>dia)(<br>edia)(                               |
| □ AHERA(QTY)<br>□ NIOSH 7402(QTY)<br>□ Other (specify)<br>□ EPA 600 - Visual Estimate<br>□ EPA 600 - Visual Estimate<br>□ EPA Point Count(Q<br>□ NY State Friable 198.1<br>□ Grav. Reduction ELAP 198.6<br>□ Other (specify)<br>C Other (specify)<br>C Other (specify)<br>C Other (specify)<br>C Other (specify)<br>C Other (specify)<br>C Other (specify)<br>C Other (specify)<br>C Other (specify)<br>C Other (specify)<br>C Other (specify)<br>C Other (specify)<br>C Other (specify)<br>C Other (specify)<br>C Other (specify)<br>C Other (specify)<br>C Other (specify)<br>C Other (specify)<br>C Other (specify)<br>C Other (specify)<br>C Other (specify)<br>C Other (specify)<br>C Other (specify)<br>C Other (specify)<br>C Other (specify)<br>C Other (specify)<br>C Other (specify)<br>C Other (specify)<br>C Other (specify)<br>C Other (specify)<br>C Other (specify)<br>C Other (specify)<br>C Other (specify)<br>C Other (specify)<br>C Other (specify)<br>C Other (specify)<br>C Other (specify)<br>C Other (specify)<br>C Other (specify)<br>C Other (specify)<br>C Other (specify)<br>C Other (specify)<br>C Other (specify)<br>C Other (specify)<br>C Other (specify)<br>C Other (specify)<br>C Other (specify)<br>C Other (specify)<br>C Other (specify)<br>C Other (specify)<br>C Other (specify)<br>C Other (specify)<br>C Other (specify)<br>C Other (specify)<br>C Other (specify)<br>C Other (specify)<br>C Other (specify)<br>C Other (specify)<br>C Other (specify)<br>C Other (specify   | (QT'<br>(QTY)<br>(QTY)<br>(Q'<br>(Q'<br>(Q'<br>(Q'<br>(Q'<br>(Q'<br>(Q'<br>(Q'<br>(Q'<br>(Q'  | Y)<br>PTY)<br>QTY)<br>JQadi FLM<br>DN<br>V                      | TI<br>ATEM (Quan<br>TOLUME<br>ALTERS) | Qual<br>Quan<br>Quan<br>Quan<br>EM Water<br>Qual<br>ELAN<br>EPA 1<br>CAN so<br>(TEM W | . (s/area)<br>. (s/area)<br>(pres/abs<br>2 (98.2/E<br>(00.1<br>imples re-<br>fater sam | Vacuum D<br>Dust D648<br>s)<br>PA 100.2<br>ceived in g<br>ples<br>ANALYS | 0-99(Q<br>(QTY)<br>(QTY)<br>good cond<br>^C)           | (TY)<br>(QTY)<br>Bition unless | (QTY)<br>(TY)<br>therwise   | noted.<br>MATRI   | Q Pb 1<br>Q Drin<br>Q Was<br>U Pb 1<br>Coll<br>Coll<br>Coll<br>Q Spo<br>Q Suri<br>Q Suri<br>Q Other | CLP<br>king Wa<br>te Water<br>Turnace (<br>alysis<br>ection Aj<br>ection M<br>re-Trap<br>ace Swal<br>ace Tape<br>(Specify | (QTY)<br>ter □ Pb(QT<br>□ Pb(QTY)<br>Media<br>edia<br>(QTY)  <br>b(QTY)  <br>b(QTY)  <br>(QTY)   Y) Cu(QTY) C<br>Cu(QTY) C<br>you cu(QTY) C<br>Tops/Air Samples:<br>Culturble ID Genus (Me<br>Culturble ID Species (Me<br>CLIENT CONTACT  | As(QTY)<br>Y)<br>dia(QTY)<br>dia(  |
| □ AHERA(QTY)         □ NIOSH 7402(QTY)         □ Other (specify)         □ BPA 600 - Visual Estimate         □ EPA 600 - Visual Estimate         □ EPA Point Count(Q         □ NY State Friable 198.1         □ Grav. Reduction ELAP 198.6         □ Other (specify)         □ Other (specify  | (QT'<br>(QTY)<br>(QTY)<br>(Q'<br>(Q'<br>(Q'<br>(Q'<br>(Q'<br>(Q'<br>(Q'<br>(Q'<br>(Q'<br>(Q'  | Y)<br>(TY)<br>QTY)<br>(Qui) R.M<br>(Qui) R.M<br>DN<br>V<br>DATE | TI<br>ATEM (Quan<br>TOLUME<br>ALTERS) | Qual.<br>Quan<br>Quan<br>Quan<br>Qual.<br>Qual.<br>EAI<br>EPA 1<br>AII so<br>(TEM W   | . (s/area)<br>. (s/area)<br>(pres/abs<br>2 (98.2/E<br>(00.1<br>imples re-<br>fater sam | Vacuum D<br>Dust D648<br>s)<br>PA 100.2<br>ceived in g<br>ples<br>ANALYS | 0-99(Q<br>(QTY)<br>(QTY)<br>good cond<br>^C)           | (TY)<br>(QTY)<br>lition unless | _(QTY)<br>(TY)<br>atherwise | noted.<br>MATRI   | Q Pb 1<br>Q Drin<br>Q Was<br>U Pb 1<br>Coll<br>Coll<br>Coll<br>Q Spo<br>Q Suri<br>Q Suri<br>Q Other | CLP<br>king Wa<br>te Water<br>Turnace (<br>alysis<br>ection Aj<br>ection M<br>re-Trap<br>ace Swal<br>ace Tape<br>(Specify | (QTY)<br>ter Q Pb(QT<br>Q Pb(QTY)<br>Media<br>paratus for Spore 1<br>edia<br>(QTY)<br>b(QTY)<br>b(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)  | Y) Cu(QTY) C<br>Cu(QTY) C<br>Trops/Air Samples:<br>Cultarable ID Genus (Me<br>Cultarable ID Species (Me<br>CLIENT CONTACT<br>BORATORY STAFF O  | As(QTY)<br>Y)<br>dia(QTY)<br>dia)(<br>edia)(                               |
| AHERA (QTY)     NIOSH 7402 (QTY)     Other (specify)     Other (specify)     EPA 600 - Visual Estimate     EPA Point Count     GEVA 600 - Visual Estimate     EPA Point Count     GEVA 600 - Visual Estimate     EPA Point Count     GEVA 600 - Visual Estimate     EPA Point Count     GEVA 600 - Visual Estimate     EPA Point Count     GEVA 600 - Visual Estimate     EPA Point Count     GEVA 600 - Visual Estimate     EPA Point Count     GEVA 600 - Visual Estimate     EPA Point Count     GEVA 600 - Visual Estimate     GEVA 600 - Visual Estimate     EPA Point Count     GEVA 600 - Visual Estimate     GEVA 600 - Visual | (QT'<br>(QTY)<br>(QTY)<br>(Q'<br>(Q'<br>(Q'<br>(Q'<br>(Q'<br>(Q'<br>(Q'<br>(Q'<br>(Q'<br>(Q'  | Y)<br>(TY)<br>QTY)<br>(Qui) R.M<br>(Qui) R.M<br>DN<br>V<br>DATE | TI<br>ATEM (Quan<br>TOLUME<br>ALTERS) | Qual.<br>Quan<br>Quan<br>Quan<br>Qual.<br>Qual.<br>EAI<br>EPA 1<br>AII so<br>(TEM W   | . (s/area)<br>. (s/area)<br>(pres/abs<br>2 (98.2/E<br>(00.1<br>imples re-<br>fater sam | Vacuum D<br>Dust D648<br>s)<br>PA 100.2<br>ceived in g<br>ples<br>ANALYS | 0-99(Q<br>(QTY)<br>(QTY)<br>good cond<br>^C)           |                                | (QTY)<br>(TY)<br>therwise   | noted.<br>MATRI   | Q Pb 1<br>Q Drin<br>Q Was<br>U Pb 1<br>Coll<br>Coll<br>Coll<br>Q Spo<br>Q Suri<br>Q Suri<br>Q Other | CLP<br>king Wa<br>te Water<br>Turnace (<br>alysis<br>ection Aj<br>ection M<br>re-Trap<br>ace Swal<br>ace Tape<br>(Specify | (QTY)<br>ter Q Pb(QT<br>Q Pb(QTY)<br>Media<br>paratus for Spore 1<br>edia<br>(QTY)<br>b(QTY)<br>b(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)  | Y) Cu(QTY) C<br>Cu(QTY) C<br>Trops/Air Samples:<br>Cultarable ID Genus (Me<br>Cultarable ID Species (Me<br>CLIENT CONTACT<br>BORATORY STAFF O  | As(QTY)<br>Y)<br>dia(QTY)<br>dia)(<br>edia)(                               |
| □ AHERA(QTY)         □ NIOSH 7402(QTY)         □ Other (specify)         □ Other (specify)         □ EPA 600 - Visual Estimate(Q         □ EPA Point Count(Q         □ EPA Point Count(Q         □ NY State Friable 198.1)         □ Grav. Reduction ELAP 198.6)         □ Other (specify)         □ CLIENT ID         SAMPLE IO         NUMBER       IDENTIFIC         N - USP - 03         N - USP - 03  | (QT'<br>(QTY)<br>(QTY)<br>(Q'<br>(Q'<br>(Q'<br>(Q'<br>(Q'<br>(Q'<br>(Q'<br>(Q'<br>(Q'<br>(Q'  | Y)<br>(TY)<br>QTY)<br>(Qui) R.M<br>(Qui) R.M<br>DN<br>V<br>DATE | TI<br>ATEM (Quan<br>TOLUME<br>ALTERS) | Qual.<br>Quan<br>Quan<br>Quan<br>Qual.<br>Qual.<br>EAI<br>EPA 1<br>AII so<br>(TEM W   | . (s/area)<br>. (s/area)<br>(pres/abs<br>2 (98.2/E<br>(00.1<br>imples re-<br>fater sam | Vacuum D<br>Dust D648<br>s)<br>PA 100.2<br>ceived in g<br>ples<br>ANALYS | 0-99(Q<br>(QTY)<br>(QTY)<br>good cond<br>^C)           | (TY)<br>(QTY)<br>lition unless |                             | noted.<br>MATRI   | Q Pb 1<br>Q Drin<br>Q Was<br>U Pb 1<br>Coll<br>Coll<br>Coll<br>Q Spo<br>Q Suri<br>Q Suri<br>Q Other | CLP<br>king Wa<br>te Water<br>Turnace (<br>alysis<br>ection Aj<br>ection M<br>re-Trap<br>ace Swal<br>ace Tape<br>(Specify | (QTY)<br>ter Q Pb(QT<br>Q Pb(QTY)<br>Media<br>paratus for Spore 1<br>edia<br>(QTY)<br>b(QTY)<br>b(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)  | Y) Cu(QTY) C<br>Cu(QTY) C<br>Trops/Air Samples:<br>Cultarable ID Genus (Me<br>Cultarable ID Species (Me<br>CLIENT CONTACT<br>BORATORY STAFF O  | As(QTY)<br>Y)<br>dia(QTY)<br>dia)(<br>edia)(                               |
| $ \begin{array}{c c c c c c c c c c c c c c c c c c c $  | (QT'<br>(QTY)<br>(QTY)<br>(Q'<br>(Q'<br>(Q'<br>(Q'<br>(Q'<br>(Q'<br>(Q'<br>(Q'<br>(Q'<br>(Q'  | Y)<br>(TY)<br>QTY)<br>(Qui) R.M<br>(Qui) R.M<br>DN<br>V<br>DATE | TI<br>ATEM (Quan<br>TOLUME<br>ALTERS) | Qual.<br>Quan<br>Quan<br>Quan<br>Qual.<br>Qual.<br>EAI<br>EPA 1<br>AII so<br>(TEM W   | . (s/area)<br>. (s/area)<br>(pres/abs<br>2 (98.2/E<br>(00.1<br>imples re-<br>fater sam | Vacuum D<br>Dust D648<br>s)<br>PA 100.2<br>ceived in g<br>ples<br>ANALYS | 0-99(Q<br>(QTY)<br>(QTY)<br>good cond<br>^C)           | (TY)<br>(QTY)<br>Bition unless | (QTY)<br>(TY)<br>therwise   | noted.<br>MATRI   | Q Pb 1<br>Q Drin<br>Q Was<br>U Pb 1<br>Coll<br>Coll<br>Coll<br>Q Spo<br>Q Suri<br>Q Suri<br>Q Other | CLP<br>king Wa<br>te Water<br>Turnace (<br>alysis<br>ection Aj<br>ection M<br>re-Trap<br>ace Swal<br>ace Tape<br>(Specify | (QTY)<br>ter □ Pb(QT<br>□ Pb(QTY)<br>Media<br>paratus for Spore 1<br>edia<br>(QTY)<br>b(QTY)<br>b(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)  | Y) Cu(QTY) C<br>Cu(QTY) C<br>Traps/Air Samples:<br>Surface Vacuum Dus<br>Culturable ID Genus (Me<br>Culturable ID Species (Me<br>CLIENT CONTACT<br>BORATORY STAFF O<br>Contact:  | As(QTY)<br>Y)<br>dia(QTY)<br>dia)(<br>dia)(<br>NLY)<br>By:                 |
| $ \begin{array}{c c c c c c c c c c c c c c c c c c c $  | (QT'<br>(QTY)<br>(QTY)<br>(Q'<br>(Q'<br>(Q'<br>(Q'<br>(Q'<br>(Q'<br>(Q'<br>(Q'<br>(Q'<br>(Q'  | Y)<br>(TY)<br>QTY)<br>(Qui) R.M<br>(Qui) R.M<br>DN<br>V<br>DATE | TI<br>ATEM (Quan<br>TOLUME<br>ALTERS) | Qual.<br>Quan<br>Quan<br>Quan<br>Qual.<br>Qual.<br>EAI<br>EPA 1<br>AII so<br>(TEM W   | . (s/area)<br>. (s/area)<br>(pres/abs<br>2 (98.2/E<br>(00.1<br>imples re-<br>fater sam | Vacuum D<br>Dust D648<br>s)<br>PA 100.2<br>ceived in g<br>ples<br>ANALYS | 0-99(Q<br>(QTY)<br>(QTY)<br>good cond<br>^C)           | (TY)<br>(QTY)<br>Bition unless | (QTY)<br>(TY)<br>therwise   | noted.<br>MATRI   | Q Pb 1<br>Q Drin<br>Q Was<br>U Pb 1<br>Coll<br>Coll<br>Coll<br>Q Spo<br>Q Suri<br>Q Suri<br>Q Other | CLP<br>king Wa<br>te Water<br>Turnace (<br>alysis<br>ection Aj<br>ection M<br>re-Trap<br>ace Swal<br>ace Tape<br>(Specify | (QTY)<br>ter □ Pb(QT<br>□ Pb(QTY)<br>Media<br>paratus for Spore 1<br>edia<br>(QTY)<br>b(QTY)<br>b(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)  | Y) Cu(QTY) C<br>Cu(QTY) C<br>Traps/Air Samples:<br>Surface Vacuum Dus<br>Culturable ID Genus (Me<br>Culturable ID Species (Me<br>CLIENT CONTACT<br>BORATORY STAFF O<br>Contact:  | As(QTY)<br>Y)<br>dia(QTY)<br>dia)(<br>dia)(<br>NLY)<br>By:                 |
| □ AHERA(QTY)<br>□ NIOSH 7402(QTY)<br>□ Other (specify)<br>□ EPA 600 - Visual Estimate(Q<br>□ EPA 600 - Visual Estimate(Q<br>□ NY State Friable 198.1(Q<br>□ NY State Friable 198.1(Q<br>□ NY State Friable 198.6(Q<br>□ Other (specify)<br>SC<br>□ Other (specify)<br>SC<br>□ Vermiculite<br>□ Asbestos Soil PIM(Qual) PIM(Qual)<br>CLIENT ID<br>SAMPLE IO<br>NUMBER IDENTIFIC   | (QT'<br>(QTY)<br>(QTY)<br>(Q'<br>(Q'<br>(Q'<br>(Q'<br>(Q'<br>(Q'<br>(Q'<br>(Q'<br>(Q'<br>(Q'  | Y)<br>(TY)<br>QTY)<br>(Qui) R.M<br>(Qui) R.M<br>DN<br>V<br>DATE | TI<br>ATEM (Quan<br>TOLUME<br>ALTERS) | Qual.<br>Quan<br>Quan<br>Quan<br>Qual.<br>Qual.<br>EAI<br>EPA 1<br>AII so<br>(TEM W   | . (s/area)<br>. (s/area)<br>(pres/abs<br>2 (98.2/E<br>(00.1<br>imples re-<br>fater sam | Vacuum D<br>Dust D648<br>s)<br>PA 100.2<br>ceived in g<br>ples<br>ANALYS | 0-99(Q<br>(QTY)<br>(QTY)<br>good cond<br>(C)           | (TY)<br>(QTY)<br>Bition unless | (QTY)<br>(TY)<br>therwise   | noted.<br>MATRI   | Q Pb 1<br>Q Drin<br>Q Was<br>U Pb 1<br>Coll<br>Coll<br>Coll<br>Q Spo<br>Q Suri<br>Q Suri<br>Q Other | CLP<br>king Wa<br>te Water<br>Turnace (<br>alysis<br>ection Aj<br>ection M<br>re-Trap<br>ace Swal<br>ace Tape<br>(Specify | (QTY)<br>ter □ Pb(QT<br>□ Pb(QTY)<br>Media<br>paratus for Spore 1<br>edia<br>(QTY)<br>b(QTY)<br>b(QTY)<br>(QTY)<br>(QTY)<br>(QTY)<br>(QTY)  | Y) Cu(QTY) C<br>Cu(QTY) C<br>Traps/Air Samples:<br>Surface Vacuum Dus<br>Culturable ID Genus (Me<br>Culturable ID Species (Me<br>CLIENT CONTACT<br>BORATORY STAFF O<br>Contact:  | As(QTY)<br>Y)<br>dia(QTY)<br>dia)(<br>dia)(<br>NLY)<br>By:                 |
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4. Comments:

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## **AMA Analytical Services, Inc.**

A Specialized Environmental Laboratory

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## **CERTIFICATE OF ANALYSIS**





1073122 HIN-ASB-01 NAD -- -- -- -- -- -- 100 White Homogeneous SW White Plaster only was analyzed

The following footnotes only apply to those samples which the total asbestos result is flagged with a note number.

- 1 TEM RECOMMENDATION Please note, due to resolution limitations with optical microscopy and/or interference from matrix components of this sample, results which are reported via PLM as negative or trace (<1%) for asbestos may contain a significant quantity of asbestos. It is recommended that the additional analytical technique of TEM be used to check for asbestos fibers below the resolution limits of optical microscopy.
- 2 MATRIX REDUCTION RECOMMENDATION Please note, due to interference from the matrix components of this sample, results which are reported via PLM as negative or trace (<1%) for asbestos may contain a significant quantity of asbestos which is obscured from view. It is recommended that the additional preparation technique of gravimetric reduction be performed on this sample to minimize the obscuring effects of matrix components, followed by reanalysis by PLM and/or TEM.</p>

Analysis Method - EPA/600/R-93/116 dated July 1993

NAD = "No Asbestos Detected" TR = "Trace equals less than 1% of this component"

Uncertainty: For samples containing asbestos in range of 1-10% the CV is 0.43, 11-35% CV=0.55, >35 CV=0.23

All results are to be considered preliminary and subject to change unless signed by the Technical Director or Deputy.

**Technical Director** 





This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public, and these Laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from us. Sample types, locations, and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information. Residual sample material will be discarded in accordance with the appropriate regulatory guidelines, unless otherwise requested by the client. NVLAP accreditation applies only to polarized light microscopy of bulk samples and transmission electron microscopy of AHERA air samples. This report must not be used to claim, and does not imply product certification, approval, or endorsement by NY ELAP, NVLAP, NIST, or any agency of the Federal Government. All rights reserved. AMA Analytical Services, Inc.

Posted to NGB FOIA Reading Room May, 2018 An AIHA (#100470), NVLAP (101 BEST AVAILABLE COPY #10920) Accredited Laboratory FOIA Requested Record #J-15-0085 (MA) Forbes Bivd. · Lanham, MD, 20706 · (301) 459-2640 · Toll Free (800) 346-0961 · Fax (301) 459-2643 Released by National Guard Bureau Page 1721 of 3473

| AMA Analytical<br>Focused on Results<br>AIHA (#100470) NVLA<br>4475 Forbes Blvd. • Land | P (#101143-0) NY EL            | AP(10  | 920)    |          | C     | H/      | 4IP                 | N O     | F              | C                   | US       | T           | OE       | ŊY            |  |                 | (Pl<br>Nu       | ease Refer To This<br>mber For Inquires) | 5086                          | -<br>510 |
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| Address 3: Havre de G   |                                |        |         |          |       |         |                     |         |                |                     | rson     |             |          |               |  |                 |                 |  |                               |          |
| Phone #: (410) 942-0273   |                                |        |         |          |       |         |                     |         |                |                     | był.     |             |          |               |  | e               | 51              | onsi                                     |                               |          |
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| mmediate Date Due:  |                                | D Ini  | intedia |          |       | 3 Da    | y .                 |         |                |                     |          |             |          | By No         | on   | 図道              | icinda<br>Maria | n-Responsiv                              | MILLA ENVI                    | nd. in   |
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| estos Analysis  |                                |        | I       | EMB      |       |         |                     |         |                |                     |          |             |          | Ń             | Tetals   | Analy           | ā s             | L/                                       |                               |          |
| 1 Air – Please Indicate Filter Ty<br>UNIOSH 7400  | (OTY)                          |        |         |          |       |         | /Chatfie<br>M/TEM   |         |                |                     |          |             |          |               | な  | Pb Pai<br>Ph Du | at Chip         | (wipe type GHOS)                         | )<br>[]_ <b>/2</b> (0)        | TY)      |
| G Fiberglass(C  | QTY)                           |        |         | ŭ        | Resid | ual As  | h                   | ·       | (QT)           | 10                  | 11,      |             |          |               | -  | 10/10           | _               | (011)                                    |                               | ,        |
| GAHERA (O   | TY)                            |        | 1       | EMI      | Just  |         |                     |         |                |                     |          |             | 2        |               |  |                 | VSolid          | (QTY)                                    | Î.                            |          |
| Q NIOSH 7402  | (QTY)                          |        |         |          |       |         | abs) Vac<br>a) Vacu |         |                |                     |          |             |          |               |  |                 |                 |  |                               | (OTY)    |
| Grand Balk  |                                | )      |         | Q        | Quan. | (s/are  | a)Dust l            | D6480-  | 99             |                     |          | (QTY)       | )        |               | 0  | Waste           | Water           | DPb(QTY) D                               | Cu(OTY) Q As                  | (QTY)    |
| EPA 600 - Visual Estimate.  | (QTY)                          |        | I       | EMV      |       | land    | abs)                |         | 10             | NT-12               |          |             |          | -             |  | Pb Fur          |                 | Media)                                   | (QTY)                         |          |
| EPA Point Count   | (QTY)                          |        |         | ă        | ELAP  | 198.2   | EPA 10              | 10.2    |                | 211)                | QTY      | )           | 58       |               | (  | Collect         | tion Ap         | paratus for Spore Traj                   | s/Air Samples:                |          |
| Grav. Reduction ELAP 198  | .6(QTY)                        |        |         | D        | EPA I | 00.1_   |                     |         | QTY)           |                     | 10071043 | 5           |          |               |  | Collect         | tion M          | edia(OTY) 🖸 :                            | Surface Vacuum Dust           | (075)    |
| Other (specify  | _)(QTY                         | )      |         |          |       |         | receive             |         |                | dition              | unless   | s other     | wiser    | oted.         |  | Surfac          | e Swat          | (QTY)                                    | Culturable ID Genus (Media    |          |
| C Vermiculite   |                                |        |         | L        | EM W  | ater se | mples_              | -       | °C)            | 522                 | -        |             |          |               | a  | Surfac          | a Tape          | (QTY) Q(                                 | Culturable ID Species (Media_ |          |
| Asbestos Soil PLM_(Quel) PL   |                                | FLMIEN | (Qu     | 20)      |       |         | 120                 |         | 20             |                     |          |             |          | -             |  | Crister (9      | pecay_          | )(QTY)                                   |                               |          |
| CLIENTID SAM  | LE INFORMATION<br>PLE LOCATION | VOL    | UME     | WI       | PE /  | 13      | 131                 | SI /    | 9/             | 20                  | 1 5      | 13          | 15       | ATRI<br>1 E.E | 1 23   | 1 8             | SWAB            | / <sup>c</sup>                           | LIENT CONTACT                 |          |
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| N-93-01   | 8 19/1                         | 6      | 4       | D'NG     | ) en  |         | _                   |         |                | -                   |          | 1.1         |          |               |  | ·               | <u> </u>        | Date/Time:                               | Contact:                      | By:      |
| V-PB-02   |                                | -      | _       |          | _     |         |                     |         | -              | -                   | -        |             |          |               |  |                 |                 |  |                               |          |
| N-98-03   |                                | -      |         |          |       |         |                     |         | -              | -                   |          | <u></u>     |          |               | 4-1-1  | <u> </u>        |                 |  |                               |          |
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| N-173-06  |                                |        |         |          | -     |         |                     | -       |                |                     |          |             |          | -             |  |                 |                 |  |                               |          |
| N-78-07   |                                |        | ·       |          |       | -       |                     |         |                | -                   |          |             | _        |               | - 2  |                 |                 |  |                               |          |
| N-78-05   |                                |        | _       |          |       |         |                     |         | -              | _                   |          |             |          |               | -  |                 |                 |  |                               |          |
| N-73-09   |                                |        |         | 3 546    |       |         |                     |         | _              | _                   | 22       | int.        | 1.200    | e.            |  |                 | -               | Date/Time:                               | Contact:                      | By:      |
| N-93-10   |                                |        | _       |          | _     |         | -                   |         | -              |                     | _        |             |          |               |  |                 | -               |  |                               |          |
| N-PB-11   |                                | 4-     |         | _        | 1     |         |                     | _       | -              | _                   | _        | ŵ.          | <u> </u> | 1.            |  | 4.              | -               |  |                               |          |
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| W-FB-12   | Date/Time RCVD:                |        | 2       | 1 4      |       | _       | 101                 |         |                | 1                   |          |             |          |               |  | -               |                 |  | onsiv                         |          |

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#### BEST AVAILABLE COPY OWI (410) 247-2024 159202 210 REV. 6.08 **RMR Analytical Services, Inc.** www.umalab.com Focused on Results (Please Refer To This 508619 AIHA (#100470) NVLAP (#101143-0) NY ELAP (10920) Number For Inquires) CHAIN OF CUSTODY 4475 Forbes Blvd. . Lanham, MD 20706 (301) 459-2640 • (800) 346-0961 • Fax (301) 459-2643 Mailing/Billing Information: Submittal Information: 1. Client Name: National Guard Bureau 1. Job Name: 2. Address 1: 301-IH Old Bay Lane Job Location: 2. 3. Address 2: Attn: NGB-AVN-SI, State Military Reservation 3. Job #: esponsive 4. Address 3: Havre de Grace, Marviand 21078 Contact Perso 5. Phone #: (410) 942-0273 Pax #: (410) 942-0254 5. Submitted by Reporting Information (Results will be provided . our as recommently reasonie): NORMAL/BUSINESS HOURS AFTER HOURS (must be pre-scheduled) REPORT TO: Dinclude COC/Field Data Sheets with Report Immediate Date Due: C Immediate 3 Day C Results Required By Noon O Next Day O 5 Day + O Ema 24 Hours Time Due: . (EveryAttempt Will Be Qus.army.mil L2 Day LI Fax: Date Duc:. Comments: Made to Accomodate) C Verb Qus.army.mil Asbestos Analysis Metals Analysts TEM Bulk D Pb Paint Chip PCM Air -- Please Indicate Filter Type: LI ELAP 198.4/Chatfield, (OTY) (OTY) UNIOSH 7400\_ (OTY) Pb Dust Wipe (wipe type\_ QNY State PLM/TEM\_ (QTY) (OTY) G Fiberglass\_ (QTY) PbAir (OTY) L Residual Ash\_ (QTY) TEM Air - Please Indicate Filter Type: Pb Soil/Solid (QTY) TEM Dust AHERA\_ (OTY) Pb TCLP\_ (OTY) U Qual. (pres/abs) Vacuum/Dust\_ (QTY) Q NIOSH 7402. (OTY) Drinking Water DPb (QTY) Cu\_ Quan. (s/area) Vacuum D5755-95 (OTY) As (OTY) (OTY) (QTY) U Other (specify\_ Q Waste Water Q Pb (QTY) Cu\_\_\_(QTY) CAs\_\_\_ Quan. (s/area)Dust D6480-99 (QTY) (OTY) PLM Bulk DPb Furnace (Media TEM Water (OTY) EPA 600 -- Visual Estimate, (QTY) Fungal Analysis Qual. (pres/abs)\_ (YTO) EPA Point Count\_ (QTY) Collection Apparatus for Spore Trops/Air Samples:\_\_\_\_ ELAP 198.2/EPA 100.2\_ ONY State Friable 198.1 (QTY) (OTY) Collection Media DEPA 100.1\_ (QTY) Grav. Reduction ELAP 198.6 (QTY) G Spore-Trap\_\_\_\_(QTY) Surface Vacuum Dust (OTY) Other (specify\_ (QTY) All samples received in good condition unless otherwise noted. C Surface Swab\_\_\_\_ (QTY) Culturable ID Genus (Media, (OTY) MISC (TEM Water samples \_\_\_\_\_ -°C) CI Surface Tape\_\_\_\_(QTY) Culturable ID Species (Media, O Vermiculite (QTY) C) Other (Specify\_ C Asbestos Soil PLM\_(Qual) PLM\_(Quan) PLM/TEM\_(Qual) PLM/TEM\_(Quan) \_\_\_\_\_(OTY) MATRIX SAMPLE INFORMATION CLIENT CONTACT VOLUME WIPE CLIENTID SAMPLE LOCATION/ (LABORATORY STAFF ONLY) NUMBER IDENTIFICATION DATE (LITERS) AREA 819/10 HIN-98-13 10-6100 Date/Time: Contact: By: HIN -189-01 HIN -L38-02 HIN -LEPOS x HIN -(3P-04 Date/Time: Contact: By: HIN -458 - 3 Date/Time: Contact: By: 1. Date/Time RCVD: @ Via: eso LABORATORY 2. Date/Time Analyzed: By (Priz VAILA Posted TONGB POTA Reading Roams Reported To:

May, 2019STODY)

4. Comments:

Appendix C Photo Documentation

# Hingham RC



## Front Entry



Storage Areg in Basement Posted to NGB FOIA Reading Room May, 2018



Flaking Paint on Walls



BEST AVAILABLE COPY Flaking Paint on Ceiling FOIA Requested Record #J-15-0085 (MA) Released by National Guard Bureau Page 1725 of 3473

# Hingham RC



Damaged Plaster and Peeling Paint on Ceiling





Kitchen



Mess Holl Posted to NGB FOIA Reading Room May, 2018

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Boiler Room FOIA Requested Record #J-15-0085 (MA) Released by National Guard Bureau Page 1726 of 3473

# Hingham RC



**Basement Hallway** 



Flaking Paint and Damaged Plaster Appendix D IAQ and Lighting Survey Log Sheets

| National Guard Industrial Hygiene Survey For Indoor Air Quality and L |
|---|
|---|

| State                | MA                 |                  | Hingham          | IAQ                              |   |        |                   | .,   |                  |   |               | Light               |              |   |
|----------------------|--------------------|------------------|------------------|----------------------------------|---|--------|-------------------|--|------------------|---|---------------|---------------------|--------------|---|
| Date                 | 8/19/2010          | Inspector        | Non-Responsive   | Instrument                       | TSI Q-Trak Plus Model 8554 Instrument CAL-LIGHT 400 |        |                   |  |                  |   |               |                     |              |   |
| Facility Description | Readiness Ctr      |                  |                  | Serial Numb                      | erial Number  |        | 8554-02041015     |  |                  |   | Serial Number |                     | K070277      |   |
| Weather Conditions   | ner Conditions     |                  | Last Calibration |                                  | Mar-10  |        |                   |  | Last Calibration |   | 30-Jul-10     |                     |              |   |
| Location             | Function           | No.<br>Occupants | Time             | Temp. (°F)                       | Exceeded  | RH (%) | Exceeded          | CO <sub>2</sub> (ppm)  | Exceeded         | CO (ppm)  | Exceeded      | Illuminance<br>(fc) | Insufficient | Illuminance<br>Reference<br>Values (fc) |
| 1                    | Meeting Room       |                  |                  | 78.6                             |   | 59.4   |                   | 455  |                  | 0.7   |               | 63.8                |              | 50                                      |
| 2                    | Admin Office       |                  |                  | 78.6                             |   | 59.5   |                   | 485  |                  | 0.4   |               | 30.2                | х            | 50                                      |
| 3                    | Foyer              |                  |                  | 78.8                             |   | 59.1   |                   | 472  |                  | 0.3   |               | 59.5                |              | 10                                      |
| 4                    | Office             |                  |                  | 78.8                             |   | 58.3   |                   | 436  |                  | 0.2   |               | 63.3                |              | 50                                      |
| 5                    | Commander's Office |                  |                  | 78.8                             |   | 57.6   |                   | 404  |                  | 0.3   |               | 70.2                |              | 50                                      |
| 6                    | 1st SGT. Office    |                  |                  | 78.8                             |   | 57.3   |                   | 382  |                  | 0.8   |               | 21.3                | х            | 50                                      |
| 7                    | Women's Room       |                  |                  | 78.8                             |   | 57.4   |                   | 419  |                  | 0.6   |               | 40.0                |              | 5                                       |
| 8                    | Operational Range  |                  |                  | 78.6                             |   | 57.4   |                   | 421  |                  | 0.0   |               | 51.1                |              | 50                                      |
| 9                    | Hall               |                  |                  | 78.6                             |   | 57.0   |                   | 416  |                  | 0.5   |               | 19.4                |              | 5                                       |
| 10                   | Office             |                  |                  | 78.6                             |   | 57.6   |                   | 400  |                  | 0.5   |               | 70.0                |              | 50                                      |
| 11                   | Drill Hall         |                  |                  | 78.4                             |   | 58.3   |                   | 374  |                  | 0.5   |               | 4.4                 | x            | 10-50                                   |
| 12                   | Stage              |                  |                  | 79.0                             |   | 57.1   |                   | 360  |                  | 0.4   |               | 12.2                |              | 10-50                                   |
| 13                   | Stage              |                  |                  | 79.9                             | х   | 56.5   | х                 | 405  |                  | 0.4   |               | 28.6                |              | 10-50                                   |
| 14                   | Men's Room         |                  |                  | 80.1                             | х   | 56.8   | х                 | 398  |                  | 0.6   |               | 76.9                |              | 5                                       |
| 15                   | Hall               |                  |                  | 79.9                             | х   | 56.6   | х                 | 377  |                  | 0.4   |               | 25.2                |              | 5                                       |
| 16                   | Recruiter's Office |                  |                  | 79.2                             | х   | 58.3   | х                 | 438  |                  | 0.5   |               | 50.0                |              | 50                                      |
| 17                   | Office             |                  |                  | 79.9                             | х   | 58.5   | х                 | 439  |                  | 0.1   |               | 22.7                | х            | 50                                      |
| 18                   | Locker Room        |                  |                  | 80.1                             | x   | 56.8   | х                 | 419  |                  | 0.2   |               | 6.0                 | x            | 7                                       |
| Notes:               |                    |                  |                  | Relative<br>30<br>40<br>50<br>60 | 1%<br>1%<br>1%                                      | nidity | 68.<br>68.<br>68. | nter Temp.<br>5°F-76.0°F<br>5°F-75.5°F<br>5°F-74.5°F<br>0°F-74.0°F | 7<br>7<br>7      | ummer Tem<br>4.0°F-80.0°<br>3.5°F-79.5°<br>3.0°F-79.0°<br>2.5°F-78.0° | F<br>F<br>F   |                     |              |   |

| State                | Mational Guard Industrial Hygiene Survey For Indoor Air Quality and Light Leve       MA     City     IAQ |  |                  |               |                                    |                             |   |                       |          |                  |               |                     |               |   |
|----------------------|--|--|------------------|---------------|------------------------------------|-----------------------------|---|-----------------------|----------|------------------|---------------|---------------------|---------------|---|
| Date                 |  | Inspector                              | Non-Responsive   | Instrument    |                                    | т                           | TSI Q-Trak Plus Model 8554                                      |                       |          |                  | Instrument    |                     | CAL-LIGHT 400 |   |
| Facility Description | Readiness Ctr  |  |                  | Serial Number |                                    |                             | 8554-02041015   |                       |          |                  | Serial Number |                     | K070277       |   |
| Weather Conditions   | 1  |  | Last Calibration |               |                                    | Mar-10                      |   |                       |          | Last Calibration |               | 30-Jul-10           |               |   |
| Location             | Function   | No.<br>Occupants                       | Time             | Temp. (°F)    | Exceeded                           | RH (%)                      | Exceeded  | CO <sub>2</sub> (ppm) | Exceeded | CO (ppm)         | Exceeded      | Illuminance<br>(fc) | Insufficient  | Illuminance<br>Reference<br>Values (fc) |
| 19                   | Office   |  |                  | 80.2          | х                                  | 55.3                        | х   | 422                   |          | 0.5              |               | 25.4                | х             | 50                                      |
| 20                   | Office   |  |                  | 80.2          | х                                  | 54.3                        | х   | 359                   |          | 0.2              |               | 11.8                | х             | 50                                      |
| 21                   | 2nd Floor Landing  |  |                  | 80.2          | х                                  | 55.6                        | х   | 390                   |          | 0.5              |               | 101.7               |               | 5                                       |
| 22                   | Kitchen  |  |                  | 77.0          |                                    | 58.8                        |   | 386                   |          | 1.1              |               | 98.8                |               | 50                                      |
| 23                   | Mess Hall  |  |                  | 75.2          |                                    | 61.8                        |   | 367                   |          | 0.7              |               | 50.7                |               | 10                                      |
| 24                   | Basement Hall  |  |                  | 74.7          |                                    | 64.4                        |   | 393                   |          | 0.8              |               | 20.5                |               | 5                                       |
| 25                   | Supply Room  |  |                  | 74.3          |                                    | 65.5                        |   | 392                   |          | 0.2              |               | 15.3                |               | 10                                      |
| 26                   | Latrine  |  |                  | 73.9          |                                    | 65.9                        |   | 359                   |          | 0.5              |               | 38.1                |               | 5                                       |
| 27                   | Boiler Room  |  |                  | 73.9          |                                    | 66.4                        |   | 363                   |          | 0.3              |               | 18.7                | х             | 30                                      |
| 28                   | Gym  |  |                  | 77.5          |                                    | 66.8                        |   | 712                   |          | 4.7              |               | 44.0                |               | 30                                      |
| 29                   | Basement   |  |                  | 76.3          |                                    | 61.1                        |   | 428                   |          | 0.7              |               | 39.0                |               | 10                                      |
| 30                   | Basement Hall  |  |                  | 75.6          |                                    | 63.4                        |   | 421                   |          | 0.4              |               | 6.0                 |               | 5                                       |
|                      |  |  |                  |               |                                    |                             |   |                       |          |                  |               |                     |               |   |
|                      |  |  |                  |               |                                    |                             |   |                       |          |                  |               |                     |               |   |
|                      |  |  |                  |               |                                    |                             |   |                       |          |                  |               |                     |               |   |
| Notes:               |  | Relative Humidity<br>30%<br>40%<br>50% |                  | midity        | 68.5°F-76.0°F 7<br>68.5°F-75.5°F 7 |                             | Summer Temp.<br>74.0°F-80.0°F<br>73.5°F-79.5°F<br>73.0°F-79.0°F |                       |          |                  |               |                     |               |   |
|                      |  |  | 60%              |               |                                    | 68.0°F-74.0°F 72.5°F-78.0°F |   |                       |          |                  |               |                     |               |   |



## Prepared For:

National Guard Bureau Army National Guard Region North Industrial Hygiene Office 301 – IH Old Bay Lane Havre De Grace, Maryland 21078

## Prepared By:

URS Corporation 5 Industrial Way Salem, New Hampshire 03079

## INDUSTRIAL HYGIENE SURVEY REPORT MASSACHUSETTS NATIONAL GUARD READINESS CENTER 96 CENTRAL STREET HINGHAM, MA 02043

July 11, 2013 PN: 39743799





Director, Industrial Hygiene Services

Project Manager

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## FINDINGS AND RECOMMENDATIONS MASSACHUSETTS NATIONAL GUARD READINESS CENTER 96 CENTRAL ST., HINGHAM, MA

| Findings   | Recommendations  | Risk<br>Assessment<br>Code (RAC) |  |  |
|--|--|----------------------------------|--|--|
| Lighting   |  |                                  |  |  |
| On the day of the survey, the illuminance was inadequate in several locations tested.  | Increase lighting in the work areas.<br>While work is in progress, these areas<br>must be lighted by at least the<br>minimum lighting intensities (ANSI /<br>IESNA RP-1-04).   | RAC 4                            |  |  |
| Ergonomics   |  |                                  |  |  |
| Computer workstations in the<br>Administrative Areas were<br>observed with un-adjustable<br>chairs, arm rests and<br>keyboards   | Ergonomic issues with regard to the<br>desks and chairs should be corrected<br>by fitting the workplace to the worker<br>(Department of the Army Pamphlet 40-<br>21, Chapter 4, Page 7, Section 4-3).                              | RAC 3                            |  |  |
| Water Intrusion  |  |                                  |  |  |
| Water staining was observed<br>on ceiling tiles and on ceiling<br>throughout the facility. Water<br>damage in Drill Hall has led to<br>a warped wooden Drill Hall<br>floor.  | The source of the water intrusion<br>should be identified and repaired. The<br>water-stained materials should be<br>repaired or replaced (ACGIH –<br>Guidelines for the Assessment of Bio-<br>aerosols in the Indoor Environment). | RAC 3                            |  |  |
| Lead   |  |                                  |  |  |
| Eight of the 10 lead wipe<br>samples indicated elevated<br>lead levels. Two of four paint<br>chip samples indicated<br>elevated lead levels.   | Personnel trained in accordance with<br>the OSHA Lead Standard should clean<br>the areas where elevated lead dust<br>levels were identified (OSHA 29 CFR<br>1910.1025(h)(1)).  | RAC 3                            |  |  |
| Emergency Exits  |  |                                  |  |  |
| Emergency exit signs and<br>escape plans were not visible<br>from all areas of the facility or<br>illuminated.   | Emergency exits should be properly illuminated (29 CFR 1910.37 (q)(6)).  | RAC 3                            |  |  |
| Asbestos   |  |                                  |  |  |
| Presumed asbestos-<br>containing floor tiles and<br>associated mastic and pipe<br>insulation were observed<br>throughout the facility; an<br>Asbestos Operation and<br>Maintenance Program was<br>not available on-Site. | Develop a site-specific asbestos<br>operations and maintenance program<br>for management of asbestos-<br>containing materials in place as<br>required by OSHA 29 CFR<br>1910.1001(j)(2).   | RAC 4                            |  |  |

| Findings  | Recommendations   | Risk<br>Assessment<br>Code (RAC) |  |  |  |  |
|---|---|----------------------------------|--|--|--|--|
| PPE   |   |                                  |  |  |  |  |
| Hazard assessments have<br>not been conducted to<br>determine whether personal<br>protective equipment is<br>required | Conduct a hazard assessment of site<br>operations to determine what types of<br>PPE are required for each type of work<br>(29 CFR 1910.132(d)(1)).                        | RAC 4                            |  |  |  |  |
| Housekeeping  |   |                                  |  |  |  |  |
| Storage areas were found to<br>be somewhat unorganized at<br>the time of URS' site visit.                             | All places of employment,<br>passageways, storerooms and service<br>rooms shall be kept clean and orderly<br>and in a sanitary condition. (29 CFR<br>1910.22 (a)(1))      | RAC 3                            |  |  |  |  |
| Railings  |   |                                  |  |  |  |  |
| A stairway outside the boiler<br>room does not have a<br>standard railing.  | Every flight of stairs having four or<br>more risers shall be equipped with<br>standard stair railings. (29 CFR<br>1910.23 (d)(1)).                                       | RAC 3                            |  |  |  |  |
| Fire Extinguishers  |   |                                  |  |  |  |  |
| No evidence was found that<br>all fire extinguishers were<br>being inspected on a monthly<br>basis.                   | All fire extinguishers must be inspected<br>on a monthly basis to determine that<br>they are full and readily accessible.<br>(OSHA 29 CFR 1910.157(e)(2))                 | RAC 3                            |  |  |  |  |
| Flammable Storage   |   |                                  |  |  |  |  |
| Chemicals/ flammable<br>materials were observed<br>improperly stored in<br>Basement Boiler Room                       | Each container of hazardous chemicals<br>in the work place must be labeled with<br>the identity of the chemical and<br>appropriate hazard warnings (29 CFR<br>1910.1200). | RAC 3                            |  |  |  |  |

## 1.0 SUMMARY

At the request of the National Guard Bureau (NGB) Region North Industrial Hygiene Office, URS Corporation (URS) conducted an industrial hygiene survey at the Readiness Center in Hingham, Massachusetts.

URS representative, Mr. **Non-Responsive**, conducted the Industrial Hygiene Survey on May 2, 2013. The scope of work included an overall assessment of the facility as it relates to industrial hygiene and included a walkthrough of the facility, collection of photographs, and when required, measurements for illumination (light), area and personal air sampling, and noise mapping.

The Hingham Readiness Center is a two-story brick building, consisting of offices, classrooms, a supply area, a mess hall, gender separate bathrooms, locker storage rooms, storage rooms, a kitchen, an Assembly Hall and a former Indoor Firing Range. A layout of the Readiness Center is provided in Appendix A.

<u>GENERAL</u>: Moderate water staining was observed on ceiling tiles throughout the facility, including the 2<sup>nd</sup> floor classroom, locker room, break room/mess hall, and unit room. The basement former Indoor Firing Range is posted as unsafe due to lead contamination, but is missing the proper notice of closure. No evidence was found that all fire extinguishers were being inspected on a monthly basis. Illuminated emergency exit signs were not observed throughout the facility. Emergency escape plans were not posted throughout the facility. Walkways in storage areas were cluttered at the time of the survey. Chemicals/flammable materials were observed not properly stored in the Basement Boiler Room. The stairway from outside to the boiler room does not have handrails; planks used for bringing in supplies are unsafe.

<u>LIGHTING</u>: Lighting in the Readiness Center was found to be inadequate in several of the areas measured. Areas noted within the report as having inadequate lighting require upgrading by either increasing the general lighting or through the use of task lighting. While work is in progress work areas must be lighted by at least the minimum light intensities. <u>LEAD</u>: Eight of ten wipe samples collected in the Readiness Center were found to contain lead in a concentration above the recommended limit set by the NGB, Region North IH Office.

On the day of the survey, two of the paint chip samples were found to contain a level of lead above the HUD criteria for determination of paint as lead-based.

<u>ASBESTOS</u>: Presumed asbestos-containing floor tiles and associated mastic and pipe insulation were identified during this survey, however no Asbestos Operations and Maintenance Program was found on site. Until suspect materials have been sampled and determined not to contain asbestos, they must be presumed to be asbestoscontaining and managed accordingly.

<u>ERGONOMICS</u>: Many of the work stations had ergonomic issues which require attention. Computer workstations were assessed during the walkthrough for ergonomic issues. The computer workstations in the facility did not meet the current Occupational Safety and Health Administration (OSHA) ergonomic recommendations. The chair armrests, keyboards, and desks were not adjustable. All workstations in the facility should be adjusted and monitored. The ergonomic issues with regard to the workstations and chairs need to be corrected by fitting the workplace to the worker.

<u>NOISE</u>: Area noise monitoring levels in the Readiness Center determined that noise levels were below the OSHA permissible exposure limit (PEL) and Department of Defense Instruction (DoDI) Hearing Conservation Standard (6055.12 3 December 2010) on the day of URS' site visit.

## 2.0 SUPPLY / TRAINING AREA

## 2.1 Operation Description

This Readiness Center is primarily used for weekend training drills and conducting administrative functions. The building includes offices, classrooms, a supply area, gender separate bathrooms, locker storage rooms, storage rooms, a mess hall, a kitchen, an Assembly Hall and a former Indoor Firing Range.

The Readiness Center was found to be cluttered and unorganized at the time of URS' site visit.

## 2.2 Chemical and Physical Agents Sampled

## 2.2.1 Carbon Dioxide

On the day of the survey, carbon dioxide measurements were made in the Readiness Center. Interior carbon dioxide concentrations were found to be between 449 and 762 parts per million (ppm). Carbon dioxide levels were measured using a direct-reading TSI Q-Trak (Model 8551).

Carbon dioxide is a normal constituent of the atmosphere and ranges from about 250 to 450 ppm. The major source of excess carbon dioxide in the indoor environment is human respiration. Other sources can include open-flame heaters, fermentation processes, and motor vehicles. Carbon dioxide itself is not normally a cause of indoor air quality problems but is typically used as an indicator of the adequacy of fresh air intake. As the concentration of carbon dioxide increases, so do the background levels of other air contaminants.

To minimize air quality complaints, the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) has proposed that the carbon dioxide concentration within an occupied workspace be maintained below 700 ppm above ambient outside levels. For example, on the day of the survey, the outside carbon dioxide level was measured at 401 ppm. Therefore ASHRAE (Standard 62.1-2010) would recommend that interior carbon dioxide concentrations be maintained at or below