a. Drums shall be properly labeled to identify contents In-Accordance With (IAW) Federal, State and local regulatory guidance.
b. Disposal of containerized waste shall be coordinated IAW State hazardous waste program requirements.
c. The Environmental Office shall coordinate removal and disposal of all containerized hazardous waste through established waste streams.

Post-Cleanup Precautionary Measures:

1. Thoroughly wash hands with soap and water.
2. Rinse off rubber boots with soap and water, capturing wastewater for collection into established waste stream. If personnel choose to use over shoes for protection, dispose of overshoes into waste stream. NOTE: This recommendation is for initial clean up activities and PPE requirements may be reduced after it has been determined non-hazardous levels have been achieved.
3. Wash BDU's or personal clothing separately from children's clothes.

NOTE: No eating, drinking or cosmetics allowed during cleanup procedures (these may be allowed after washing of hands/face and done outside of cleanup area)

NOTE: Avoid blowing, shaking or like actions which could potentially disperses lead dust. Dry sweeping, dusting, wiping or blowing with compressed air shall not be permitted

Initial Cleanup:

1. Use a vacuum cleaner equipped with a HEPA exhaust filter. HEPA vacuum all surfaces in the room (ceiling, walls trim, and floors). Start with the ceiling and work down, moving toward the entry door. **Completely clean each room before moving on**.

2. Prepare water and detergent for the wipe down phase, according to manufactures recommendations.

3. Wet wipe, with cotton rags or sponge, any horizontal, diagonal or vertical surfaces up six (6) feet from floor surfaces using hot water and "Spic-n-Span" or an equivalent product.

    a. Rinse out cleaning cloths thoroughly and frequently.
    b. Change out cleaning water as necessary.

NOTE: **If walls to be cleaned show signs of deterioration, e.g., chipping or crumbling paint, in which wiping, scrubbing, or disrupting might potentially increase or spread contamination, then this portion of the clean up should be avoided**.

4. Now prepare water and detergent (e.g. Spic N Span, Mr. Clean, Pine Sol) for the mopping phase, according to manufactures recommendations, which should be found on the products label for general clean up.

    a. Change out water frequently (when water appears dirty)
    b. Rinse out mop heads frequently to prevent contamination of dirty water.

5. Cover entire drill floor surface with above prescribed water and detergent.

6. Final rinse should be with clean water only - -after mop heads have been cleaned.

Recommended Follow-up Housekeeping Practices *after Clearance sampling of cleaned area is performed by certified personnel:*

1. Floor cleaning and dusting should be accomplished using the wet method described in Initial Armory Cleanup SOP.

Note: Only exception to these wet cleaning procedures would be the use of a chemically treated dust floor mop. This can be used for follow-up armory cleaning by sweeping of large particles of dirt and paper.

    a. Pre-treated (chemically treated) dust floor mop will limit dust particles from being disbursed into the surround atmosphere.

b. If treated dust mop is used - -Do Not Shake Mop head - - have mop head laundered after use. **Always keep used dust mop heads in sealed double plastic bags when stored at armory/facility**. Shaking of mop head could release unwanted contaminants into surrounding atmosphere.

2. Frequency of Cleanup- Armories will vary, according to usage and how often they should be cleaned. The following general cleaning schedule is provided:

   a. Only full-time technicians and traditional soldiers using facility during the month. (***Cleaned Monthly***)

   b. Occasional activities taking place during the month, e.g., 1-2 classes or volleyball games, etc. (***Cleaned 2x's Monthly***)

   c. Used regularly by soldiers or outside agencies/personnel. (***Cleaned Regularly - -at least Weekly***)

NOTE: Armories with adjoining Indoor Firing Ranges (IFR) should be cleaned more than weekly, again depending on use of Armory and IFR.

NOTE: Clearance sampling/testing is to be accomplished by certified personnel after these cleanup procedures are followed. If the area is an average Armory, occupied by adults only, for which you are cleaning and **is not a Converted IFR space**, you may continue to utilize the Armory space before the officials re-test this space. Please notify your Safety and/or Occupational Health personnel of the completion of this cleaning regime and they will notify the proper officials of the sampling/testing requirements needed.

If work is contracted out, a third party should do the clearance sampling.

Young children and females who are pregnant, there should be posted signs on all facilities, warning of the potential danger of exposure to lead dust.

SOP FOR ARMORY CLEANUP

1. General.

1.1 Objective.

1.1.1. The purpose of this SOP (Standard Operating Procedure) is once a lead dust hazard has been identified and excess exists, how to lower the level of lead dust to afford a safe building, which is clean enough for all personnel exposed to this potential hazard.

1.2 Description of An Armory.

1.2.1 Armories provide a space for units to support and train soldiers.

1.2.2 The facility is utilized by Army National Guard (ARNG) family members, usually in a recreational or festive setting. This may include all members and all ages of a given family.

1.2.3 The Armory can be used for community activities, which may include all age levels.

1.3 Responsibilities.

1.3.1 It is the ARNG specialty branches, e.g., Industrial Hygiene (IH), Occupational Health & Safety's, responsibility to notify occupants of any known health risk within their facility.

1.3.2 It is the building managers responsibility to warn any users of this facility about potential hazards by, e.g., verbal, written or warning signs.

1.3.3 The ultimate responsibility falls back on the TAG of each state.

2. Background.

2.1 IH Investigation.

2.1.1 The IH community found unexpectedly high levels of lead dust during a normal IH investigation (survey) in an armory that had an Indoor Firing Range (IFR) within it. Wipe samples were taken in another armory without an IFR, only to find that this armory had higher than expected levels of lead dust, also.

2.1.2 Each ARNG Regional Industrial Hygienist has planned to survey all their armories spearheaded by the Midwest regional office, to determine the magnitude of these findings.

2.1.3 About 2/3rds of the armories tested so far, did not have "a clean bill of health". Now the IH community will attempt to discern where the contamination is coming from and also, give guidance on how to deal with these contaminant.

2.1.4 Air sampling of the armories tested have shown very low levels of lead dust in the breathing area. Dust wipe samples have varied in quantities present but have exceeded the EPA's floor standard and the ARNG IFR guidelines.

3. Relevant Standards and Guidelines.

3.1 Airborne Lead.

3.1.1 The Occupational Safety and Health Administrations (OSHA) Permissible Exposure Level (PEL) for airborne lead is **50 micrograms per cubic meter** (ug/m3), averaged over an 8-hour work shift. The OSHA action level is 30 ug/m3.

3.2 Blood Lead Level (BLL).

3.2.1 OSHA requires that personnel who are exposed to airborne lead above the PEL be offered medical surveillance that includes blood lead level monitoring. Personnel with total **BLL above 50** micrograms per deciliter (ug/dl) of blood are required to be removed from occupational lead exposures until the BLL drops back to 40.

3.2.2 Women who may become pregnant who are exposed to lead should consult with their physician. Fetal and newborn BLLs are similar to those of

clothing should be washed separately from their families, if they have young children at home. Personnel should wash their hands after performing this operation to assure lead contaminants are not ingested.

6.2.1.2 Frequent changing out of the water used is vital. Disposal of this hazardous waste water and rags/mop heads, Personal Protective Equipment (PPE), etc., should be coordinated with your Environmental office.

6.2.2 Clean all ductwork where lead was found. EPA has a protocol specifically for replacing or cleaning lead in dust form in HVAC systems. EPA Office of Pollution Prevention and Toxics, "*Reducing Lead Hazards When Remodeling Your Home*" www.epa.gov/opptintr/lead/rrpamph.pdf.

6.2.3 Continue to enforce good housekeeping and hygiene practices. These measures make good sense to minimize exposures to any toxic chemicals in the workplace.

6.2.4 Provide lead awareness training to the general workforce and any occupants of your facility.

NOTE: **Before you start any new procedures or practices be aware of the local city and state regulations in your area.**

10 Oct 14

ARMY NATIONAL GUARD
INDUSTRIAL HYGIENE – SOUTHWEST

Guam • Hawaii • California • Oregon • Washington • Nevada • Arizona • Idaho • Utah • Wyoming • Montana • New Mexico • Nebraska

Industrial Hygiene Site Assistance Visit

Price Armory

584 East 600 North Street
Price, UT 84501

10510 Superfortress Avenue, Suite C, Mather, CA 95655 (916) 854-1494

Industrial Hygiene Southwest's mission is to ensure all military personnel and military leadership is provided the specialized technical expertise, consultation and assistance to ensure all military operations and processes are conducted in a healthy manner

10510 Superfortress Avenue, Suite C, Mather, CA 95655 (916) 854-1494

DEPARTMENT OF THE ARMY AND AIRFORCE
NATIONAL GUARD BUREAU
INDUSTRIAL HYGIENE SOUTHWEST
10510 Superfortress Ave, Ste. C
Mather, CA 95655

ARNG-CSG-P

19 OCT 2014

MEMORANDUM THR Non-Responsive 12953 Minuteman Dr., ATTN: Deputy State Surgeon, Draper, UT 84020

FOR Commander, Price Armory 584 East 600 North Street, Price, UT 84501

SUBJECT: Executive Summary for Industrial Hygiene Site Assistance Visit (IHSAV) for Price Armory 584 East 600 North Street, Price, UT on 01 OCT 2014

1. References. See survey report.

2. General.

a. At the request of the NGB Industrial Hygiene, Southwest (IHSW) Region, an Industrial Hygiene Site Assistance Visit and cursory review of safety related items and programs was conducted at the Price Armory 584 East 600 North Street, Price, UT on 01 OCT 2014.

b. The findings and recommendations in this Executive Summary are controlling and supersede all recommendations in the Industrial Hygiene (IH) report (reference Attachment II). However, IHSW concurs with the observations and findings within the attached IH report.

c. Risk Assessment Codes (RAC) provided in this report have been derived from two sources: Deriving Risk Assessment Codes (RAC's) for Health Hazards (Ref: DOD Instruction 6055.1) and AR 385-10, The Army Safety Program.

d. Use of trademark names in the attached report, or this Executive Summary, does not imply Army National Guard endorsement of any product.

3. Findings. See survey report.

4. Commendable.

a. The facility was generally clean and orderly and personnel were helpful during this IHSAV.

5. Observations / Recommendations.

NOTE: This section provides conclusions and recommendations for the findings and observations made within the attached contractors report. The paragraphs are numbered to correspond to the sections where they were first noted. (i.e., paragraph 2.1a represents the 2.1a located within the contractors report.

a. Thorough cleaning of armory should be accomplished and especially in identified areas with higher lead dust accumulation identified during this SAV. Utilize Armory Cleanup SOP accompanying this report

for clean-up, especially after weapons cleaning episodes to help prevent migration of this heavy metal. (para. 3.1) **(RAC 4)**

b. Conduct a facility survey to identify Asbestos Containing Material (ACM) within the facility and develop ACM Management Plan. Conduct awareness training to all personnel who occupy the facility regarding the finding s and the ACM Management Plan. The survey may have been completed, however, at the time of this assistance visit awareness training, ACM identification, or an ACM Management Plan was not available. (para. 3.2) **(RAC 3)**

6. Violation Correction Log.

a. IHSW has provided a Violation Correction Log derived from the observations from this visit. IHSW recommends the following:

(1) Commander(s) assign an Action OIC/NCOIC, Suspense Date for completion, and Estimated Cost(s) to ensure item completion and corrective status is briefed during quarterly (or monthly) Safety Meetings/Councils until resolved.

(2) Corrective measures should be implemented and accomplished at the lowest levels possible. Hazards and Corrective Measures that cannot be corrected at the facility level, and require assistance from higher headquarters or from the state level, should be elevated to the Quarterly State/BN Safety Council Meeting for resolution.

(3) Recommend a representative from the facility attend all quarterly/monthly meetings to ensure the appropriate emphasis and corrective actions are followed for hazard resolution and abatement of the observations made during this visit.

(4) Retain entries of the items corrected, or closed, for future reference. This may be accomplished by posting completed items within the Corrected Hazard Sheet portion of the Excel Violation Correction Log Workbook we've provided.

(5) The preferred method to document and track identified hazards for resolution is for their entry into the Reserve Component Automation System – Safety and Occupational Health **(RCAS-SOH)** Program.

b. IHSW recommends further program refinement through written documentation for standardized guidance to the personnel performing the processes. Conducting Hazard Assessments consistent with 29 Code of Federal Regulations (CFR) 1910.132, General Requirements for Personal Protective Equipment and AR 40-5, Preventive Medicine, would provide this continued program refinement.

7. Hazard Assessment/Job Safety Analysis (JSA).

a. Documenting the Hazard Assessments provides a method to obtain initial and periodic review from the Industrial Hygiene, Occupational Health and Safety Professions located at the JFHQ/HQ/state level.

b. The Hazard Assessments should be used as written training materials for the new, transfer and unit personnel working under the auspice of the facility.

ARNG-CSG-P

SUBJECT: Executive Summary for Industrial Hygiene Site Assistance Visit (IHSAV) for Price Armory 584 East 600 North Street, Price, UT on 01 OCT 2014

c. IHSW recommends facility supervisory staff and facility personnel conduct initial Hazard Assessments outlined in AR 40-5, Army Preventive Medicine (Section V) and 29 CFR 1910.132 and submit for review and obtain approval from the state Industrial Hygiene, Occupational Health and Safety Professions.

d. We have provided an appendix with Hazard Assessments (HA) examples of some of this facilities operations. Additional operations can utilize this format to design HA not observed during this IHSAV.

e. An integral and important factor of the Hazard Assessment/JSA process is for the review and guidance from qualified Safety, Occupational Health and Industrial Hygiene professions located at the higher headquarters level or state level. For this reason, the Hazard Assessments (to include all pertinent and supporting documents) should be completed by the facility personnel and forward to the Utah Army National Guard Industrial Hygiene, Occupational Health and Safety Office for final review and approval (signature).

f. Job Safety Analysis (JSA's)/Hazard Assessments.

NOTE: The Hazard Assessments can be used for monthly meetings to brief/train, and document large group training events and activities.

8. IHSW recommends the **Senior Unit Commander of this Facility and any Co-Tenant Organizations or Units, review and provide assistance with implementation of these recommendations.** This will educate the chain of command and allow the unit or co-tenant organizations to take any necessary precautions or actions required by them and their personnel.

9. To assist you with execution of your responsibilities in correcting the observations noted, we encourage you to consult with the State Safety Manager, Occupational Health Manager and Industrial Hygiene professions located and/or authorized within the State Safety and Occupational Health Office.

10. For additional information please contact the NGB-IHSW office at (916) 854-1491 or via email at Non-Responsive

Non-Responsive

NGB, IHSW, CIV
Regional Industrial
Hygiene Manager

Industrial Hygiene Southwest

Violation Inventory Log

LOG OF SCHEDULE OF CORRECTIVE ACTION - COMPLIANCE WITH SAFETY AND HEALTH STANDARDS

PRICE ARMORY,UTAH 84501

CONTROL NUMBER CLOSED [X]	HAZARD DESCRIPTION	SITE	RAC	CORRECTIVE ACTIONS (Abatement Plan)	SUSPENSE DATE	ACTION OIC/NCOIC	Estimated Cost(s)	DATE CORRECTED	REFERENCES
UTPA-10012014-3.1		Armory	4	Upgrade housekeeping practices throughout this facility to help prevent migration of lead dust. Utilize Armory Clean-up SOP in future cleaning episodes.					Occupational Safety and Health Administration (OSHA) standard for lead; 1910.1025 (h)(1)
UTPA-10012014-3.5	Armory hasn't converted to new SDS format	Armory	4	Update all MSDS for the facility with the new SDS format by Jun 2016					29 CFR 1910.1200

Reference DA FORM 4754
VER: 15 OCT 2009

ARMORY

CLEANUP & FOLLOW-UP HOUSEKEEPING RECOMMENDATIONS

Materials Needed:

1. Cloth Mop head (s) & Mop head holder(s) with handle.
2. Mop bucket (s) with wringer.
3. Clean cotton rags and sponges.
4. Disposable gloves
5. Large barrel (55 gal.) to store wastewater in after changing out of dirty scrub water. Waste water containers.
6. Disposable overshoes or rubber boots. Personnel conducting cleaning operations should not take clothes, boots, etc., home for laundering.
7. HEPA vacuum
8. Six (6) mill plastic bags to dispose of waste.
9. Detergent with surfactant, e.g., Spic-N-Span, Mr. Clean, etc.

Disposal of Waste Water and Cleaning Materials:

1. *NOTE*: Consult with Local Army National Guard Environmental Office prior to taking any collection, disposal or wiping activities commence. Each state and territory may have additional regulatory guidance on collection, storage and disposal of wastewater.

2. Mop heads should be disposed of after initial cleanup, unless otherwise advised by Environmental office personnel. Note: thorough cleaning of mop heads may be sufficient enough to reuse on future Armory cleanups but check with local Environmental Office.

3. Disposable gloves should be treated as hazardous waste.

4. Soiled cotton rags should be treated as hazardous waste.

5. Wash water contaminated with Lead can be collected and allowed to slowly evaporate leaving Lead deposits/sludge that may be collected in plastic containers, placed in metal drums, and stored for future delivery to an authorized hazardous waste disposal site.

3. Wet wipe, with cotton rags or sponge, any horizontal, diagonal or vertical surfaces up six (6) feet from floor surfaces using hot water and "Spic-n-Span" or an equivalent product.

    a. Rinse out cleaning cloths thoroughly and frequently.
    b. Change out cleaning water as necessary.

NOTE: **If walls to be cleaned show signs of deterioration, e.g., chipping or crumbling paint, in which wiping, scrubbing, or disrupting might potentially increase or spread contamination, then this portion of the clean up should be avoided**.

4. Now prepare water and detergent (e.g. Spic N Span, Mr. Clean, Pine Sol) for the mopping phase, according to manufactures recommendations, which should be found on the products label for general clean up.

    a. Change out water frequently (when water appears dirty)
    b. Rinse out mop heads frequently to prevent contamination of dirty water.

5. Cover entire drill floor surface with above prescribed water and detergent.

6. Final rinse should be with clean water only - -after mop heads have been cleaned.

Recommended Follow-up Housekeeping Practices *after Clearance sampling of cleaned area is performed by certified personnel:*

1. Floor cleaning and dusting should be accomplished using the wet method described in Initial Armory Cleanup SOP.

Note: Only exception to these wet cleaning procedures would be the use of a chemically treated dust floor mop. This can be used for follow-up armory cleaning by sweeping of large particles of dirt and paper.

    a. Pre-treated (chemically treated) dust floor mop will limit dust particles from being disbursed into the surround atmosphere.

b. If treated dust mop is used - -Do Not Shake Mop head - - have mop head laundered after use. **Always keep used dust mop heads in sealed double plastic bags when stored at armory/facility**. Shaking of mop head could release unwanted contaminants into surrounding atmosphere.

2. Frequency of Cleanup- Armories will vary, according to usage and how often they should be cleaned. The following general cleaning schedule is provided:

   a. Only full-time technicians and traditional soldiers using facility during the month. (***Cleaned Monthly***)

   b. Occasional activities taking place during the month, e.g., 1-2 classes or volleyball games, etc. (***Cleaned 2x's Monthly***)

   c. Used regularly by soldiers or outside agencies/personnel. (***Cleaned Regularly - -at least Weekly***)

NOTE: Armories with adjoining Indoor Firing Ranges (IFR) should be cleaned more than weekly, again depending on use of Armory and IFR.

NOTE: Clearance sampling/testing is to be accomplished by certified personnel after these cleanup procedures are followed. If the area is an average Armory, occupied by adults only, for which you are cleaning and **is not a Converted IFR space**, you may continue to utilize the Armory space before the officials re-test this space. Please notify your Safety and/or Occupational Health personnel of the completion of this cleaning regime and they will notify the proper officials of the sampling/testing requirements needed.

If work is contracted out, a third party should do the clearance sampling.

Young children and females who are pregnant, there should be posted signs on all facilities, warning of the potential danger of exposure to lead dust.

INDUSTRIAL HYGIENE ASSISTANCE VISIT
PRICE ARMORY
PRICE, UTAH

1.0. Introduction and Background

1.1. This report summarizes the results of the Industrial Hygiene (IH) Survey conducted at the Price Armory in Price, UT on October 1, 2014. The Army National Guard of Industrial Hygiene Southwest Regional Manager (ARNG-IHSW) requested Aloha World to visit the Price Armory to evaluate ventilation, lighting, noise, and verify vehicle and hazardous materials inventories. The IH Survey also included an interview with Non-Responsive regarding industrial hygiene, OSHA training compliance, personnel Federal Employees Compensation Act (FECA) claims, as well as safety standards in the work area. Finally, the IH Assessment included the development of employee profiles as baseline administrative occupational health records for employees. Non-Responsive from Aloha World completed this survey.

1.2. The following sections will provide details on how the IH Survey was conducted. A drawing showing the facility layout and sampling locations is included as **Attachment E**. The most stringent OSHA, ARNG, Corps of Engineers (COE), American National Standards Institute (ANSI), American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) and Design Guide standards in effect at the time of the survey were used to assess the workplace.

1.3. The Price Armory supports the 624th Engineers. The Armory has three full time guard members (**Appendix F**) and approximately seventy five guardsmen and women on drill weekend. This armory was constructed in 1965 and was renovated in 2011. The armory has offices used for administrative purposes and also contains a drill floor, arms room, supply room, classroom and storage. Storage use to be a maintenance bay but was recently renovated and made into storage.

There is a Converted Indoor Firing Range (CIFR) in this facility. The Indoor Firing Range was converted into office space and a storage room. The office space has glued down carpet, therefore I was unable to obtain wipe samples in all areas.

Vehicle maintenance is no longer done at this armory.

2.0. Survey Procedures

2.1. Lead wipe samples were collected on dusty horizontal floor surfaces in the facility including but not limited to the drill hall floor, CIFR and in the basement/storage area. "Ghost Wipe" brand wipes was used with a 16 square inch template. The wipes used conform to American Standards for Testing Materials E1792-96A, *Standard Specification for Wipe Sampling Materials for Lead in Surface Dust*. The collected wipe samples were placed in clean, labeled centrifuge tubes. Samples were submitted to Reservoir Environmental Services, Inc for analysis via Flame Atomic Absorption, USEPA Method SW846 3050B. Laboratory results are listed in micrograms of lead per square foot (µg/ft2). Copies of the raw analytical data are presented in **Appendix E.**

A visual inspection of materials utilized in this 1965 constructed building was performed. All accessible areas of the facility were visually inspected to identify suspect asbestos-containing materials (ACM).

Illumination measurements were taken in several areas of the armory using an ExTech Light Meter, Model EA 31. Measurements in the office and classroom areas were taken at typical work locations, such as the tops of desks and near computer workstations.

Exhaust ventilation was not measured on the industrial kitchen hood.

Equipment Used

Type	Model Number	Serial Number	Calibration Date
VelociCalc	8386A	54110581	March, 2014

Type	Model Number	Serial Number	Calibration Date
Extech Light Meter	EA31	Z301903	September 2013

3.0. Findings and Recommendations

Lead wipe sampling- Analytical results from the lead wipe sampling obtained from the armory are found in Table 3.1.A. A graphical and written representation of sampling locations can be found in ***Appendix E*** along with analytical reports. Photographs were taken of each sample point and are presented in ***Appendix C***. There are currently no standards that dictate what a safe level of lead is from a wipe sample. Lead sampling results can be compared to the protocol outlined in the U.S. Department of Housing and Urban Development's (HUD's) *Guidelines For*

The Evaluation And Control Of Lead-Based Paint Hazards In Housing, June 1997. HUD currently recommends an exposure limit of 40 ug/ft^2. This guideline was established to prevent lead exposure to children in domestic homes, along with females who are pregnant. Areas that have levels that exceed 40 ug/ft^2 should be thoroughly cleaned and employees that may come into contact with those areas should be properly trained in the hazards of lead exposure.

Lead Wipe
Table 3.1.A.

Sample ID	*AREA*	*Photo #*	*Result ug/ft2*
100114-1	Control	NA	BDL
100114-2	North drill hall	2	BDL
100114-3	Center drill hall	3	BDL
100114-4	South drill hall	4	BDL
100114-5	West drill hall	5	BDL
100114-6	East drill hall	6	BDL
100114-7	North CFR	7	BDL
100114-8	Northeast CFR	8	BDL
100114-9	Southeast CFR	9	BDL
100114-10	West CFR	10	BDL
100114-11	Maintenance bay	11	56.8

BDL= Below Detection Limits **ug/ ft2= Micrograms per Square Foot**

NOTE: Please continue the cleaning of working environment throughout the armory, especially in the CIFR storage area and the maintenance bay. Please utilize the attached SOP and general information paper provided for cleaning procedures.

Recommendation: Dry sweeping should be restricted in areas where accumulations of dust are present to prevent toxic metals on surfaces from becoming airborne. The cleaning of loose material from horizontal surfaces should be conducted with HEPA (High Efficiency Particulate Air) vacuums and/or wet mopping. Any area that exceeds 40 ug/ft 2 should be thoroughly decontaminated.

3.2. **Asbestos Survey-** Non-Responsive was asked during this survey about the presence of asbestos and he advised all asbestos was removed 2005 and has since been tested for ACM.

All accessible areas of the facility were visually inspected to identify suspect ACM. All accessible surfaces, structures, and mechanical systems within these areas were examined and all suspected ACM was inspected to determine friability. No bulk samples were taken during this survey period.

Asbestos is regulated as a hazardous air pollutant by the Environmental Protection Agency (EPA) under the authority of the Clean Air Act. The asbestos regulations are included in the National Emissions Standards for Hazardous Air Pollutants (NESHAPS) and are referenced as 40 CFR 61, Subpart M.

ACM is defined by the EPA, as any material containing greater than one percent of asbestos. ACMs are categorized as being either friable or non-friable. Friable ACMs are those materials that can be easily crumbled, pulverized, or otherwise broken up using hand or finger pressure when dry, and are materials considered more likely to produce airborne asbestos fibers. Non-friable ACMs are materials that do not meet the above test, and are considered less likely to produce airborne asbestos fibers. Non-friable ACMs are further categorized into Category I non-friable ACM (packing's, gaskets, resilient floor coverings, and asphalt roofing products) and Category II non-friable ACM (materials not included in Category I).

Limitations and Exclusions of Findings

This asbestos survey and assessment was performed using procedures and a level of diligence typically exercised by professional performing similar services. However, asbestos-containing material (ACM) can be present in a structure, but not identified using ordinary investigative procedures.

No asbestos survey can completely eliminate uncertainty regarding the presence of ACM. The level of diligence and investigative procedures are intended to reduce, but not eliminate, potential uncertainty regarding the presence of ACM.

The only way to tell if an object contains asbestos by looking at it is if the material is labeled. Otherwise, you should have it sampled and analyzed by a qualified professional. Until you receive the results, treat the material as if it contains asbestos. Samples should be extracted only by qualified professionals. If improperly done, extracting samples can be more hazardous than leaving the material undisturbed.

Recommendation: Conduct a facility survey to identify Asbestos Containing Material (ACM) within the facility and develop ACM Management Plan. Conduct awareness training to all personnel who occupy the facility regarding the finding s and the ACM Management Plan. The survey may have been completed, however, at the time of this assistance visit awareness training, ACM identification, or an ACM Management Plan was not available. 29 CFR 1910.1001

3.3 **Indoor air quality and HVAC Systems-** The armory is heated and cooled through a central air system. This system was replaced in 2011. The DCFM, state of Utah, maintains the HVAC system.

Building air temperature, within this facility, was in the comfort range for the occupants during this survey period. The day of the survey it was 58 degrees Fahrenheit outside. Inside air temperature is recommended to be between 68-75 degrees Fahrenheit and the relative humidity is to range from 30-60%. The indoor temperature was 70-72 degrees Fahrenheit. Humidity levels above 60 percent can result in proliferation of bacteria and fungi, while levels below 30 percent can cause dry eyes, skin, and mucous membranes. There were no signs of water leakage. However, there was leaking in the roof. It was fixed in 2012 and no signs of water leakage have been noted since.

3.4. **Exhaust and Ventilation Systems-** The Price Armory does not have a maintenance bay.

Air flow was not measured in the industrial kitchen. We were unable to find the switch to turn the hood on. No one was available that was familiar with the kitchen. Association Standard 96, Section 8.2.1.1, requires exhaust fan ducts used in commercial cooking equipment to have a duct velocity of not less than 500 fpm.

3.5. **Hazard Communication & Hazardous Materials Use and Storage-** All Hazmat and POL's are stored and maintained in a flammable locker located in the basement. Initial HazCom and annual training is kept on file for employees. Chemicals for equipment maintenance and janitorial uses are maintained at the facility in minimal quantities. A copy of this list can be found in **Appendix G**. The SDS file is still listed as MSDS since the Globally Harmonized System (GHS) Classification of Labeling Chemicals has just taken effect this year and the documents are still MSDS documents.

Small quantities of cleaning products, utilized by the workers, were located in the janitors' closet. Arms custodians, for cleaning purposes, should be utilizing user and environmental friendly products, while the more harmful products should be properly disposed of. A well-ventilated area should be utilized when using any solvent products, along with the appropriate Personal Protective Equipment (PPE) as designated on the MSDS information sheets. The MSDS was very well organized and products were easily found by looking at the table of contents.

Recommendation: Update all MSDS for the facility with the new SDS format by June 2016 CFR 1910.120.

3.6. **Physical Safety and Condition of Facility-** A physical walk through of the facility was conducted. Overall, housekeeping was found to be in above average condition. Electrical breaker boxes were properly labeled and accessible.

The fire extinguishers within this facility are part of the fire suppression available and should be tested annually and inspected monthly. NFPA 10, 27-3.4.1 addresses alarm systems and 29 CFR 1910.157 addresses inspection requirements for fire extinguishers. Annual inspections should be accomplished by a qualified organization, e.g., fire department, and checked and documented monthly by the facilities personnel. The fire extinguishers were found to be up to date on annual and monthly inspections.

3.7. **Sound Level Survey-** A noise survey was not conducted in the Price Armory. No noise hazards were noted in the facility.

3.8. **Illumination Survey-** Illumination levels that were measured throughout the armory office and classroom areas can be found on the floor plan in ***Appendix D***. The numbers represent the illumination level in foot-candles (FC). In general, the measurements were taken at task surface level, such as on desks. Measurements not taken on a desk were taken at waist level.

Illumination measurements were compared with recommendations made by the Industrial Engineering Society (IES)/American National Standards Institute (ANSI) RP7-1991. In general, IES recommends a range of **50 to 100 foot-candles** as the minimum lighting requirements for performance of visual tasks of medium contrast or small size, such as would typically occur in an office area.

Based on these criteria, the general lighting appears to be adequate in all of the office spaces and classroom. Inadequate light levels may place strain on the eyes and cause headaches or vision problems. With an aging work force in place, task lighting can help reduce the vision problems associated with inadequate lighting.

3.9. **Safety Policies, Training, and Record Keeping** – All safety classes are taken at other facilities.

4.0 Industrial Hygienist Certification and Project Limitations

All Industrial Hygiene Assessment techniques and tests used in the Industrial Hygiene survey of the Army National Guard Armories were reviewed by Non-Responsive Industrial Hygiene Southwest, National Guard Bureau at (916) 854-1492.

This Project was performed using, as a minimum, practices consistent with standards acceptable within the industry at this time, and a level of diligence typically exercised by industrial hygiene and environmental consultants performing similar services.
The procedures used in this investigation attempt to establish a balance between the competing goals of limiting investigative and reporting costs and time, and reducing the uncertainty about unknown conditions. Therefore, because the findings of this report were derived from the scope, costs, time, and other limitations, the conclusions should not be construed as a guarantee that all environmental or occupational hazards have been identified and fully evaluated. Where sample collection and testing have been performed, Aloha World's professional opinions are based in part on the interpretation of data from discrete sampling locations that may not represent conditions at non-sampled locations. Aloha World assumes no responsibility for omissions or errors resulting from inaccurate information or data provided by sources outside of Aloha World, or from omissions or errors in public records.

Furthermore, it is emphasized that the final decision on how much risk to accept always remains with the client since Aloha World is not in a position to fully understand all of the client's needs. Clients with a greater aversion to risk may want to take additional actions while others, with less aversion to risk, may want to take no further action.

5.0 Technical Assistance

For technical assistance regarding information found in this report or the performed survey, please contact Non-Responsive of the Southwest Regional Industrial Hygiene Office-(916) 854 1492. Contact the State Safety, State Industrial Hygiene and Occupational Health Office and/or the Regional Industrial Hygienist should any of the operations change, or should the personnel become incapable of following the previous recommendations and subsequent recommendations that are needed.

Non-Responsive
Aloha World Environmental

Appendix C

Photograph Log

Photo Log

Photo #1 – Price Armory

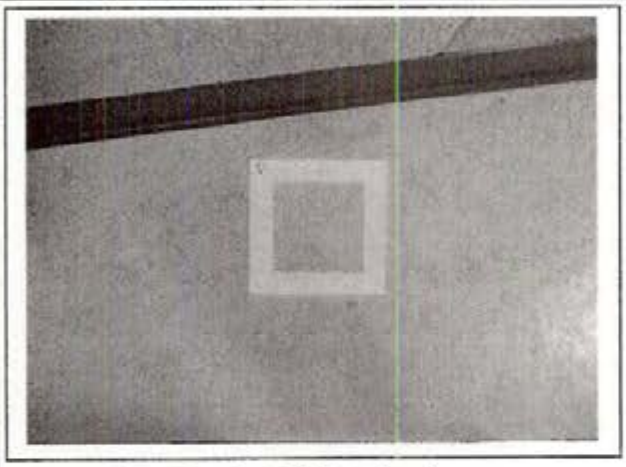


Photo #2- North drill hall wipe

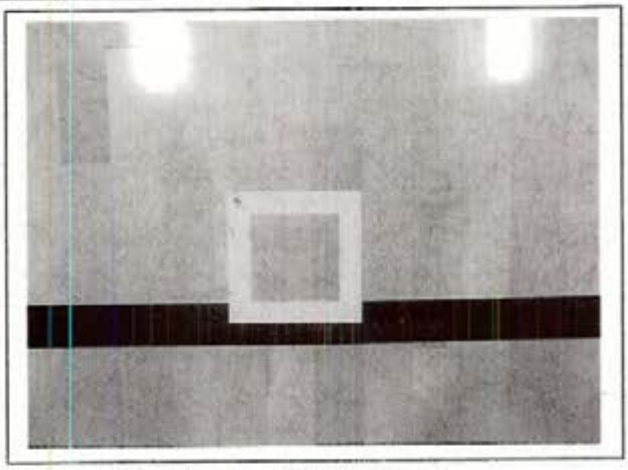


Photo #3- Center drill hall wipe

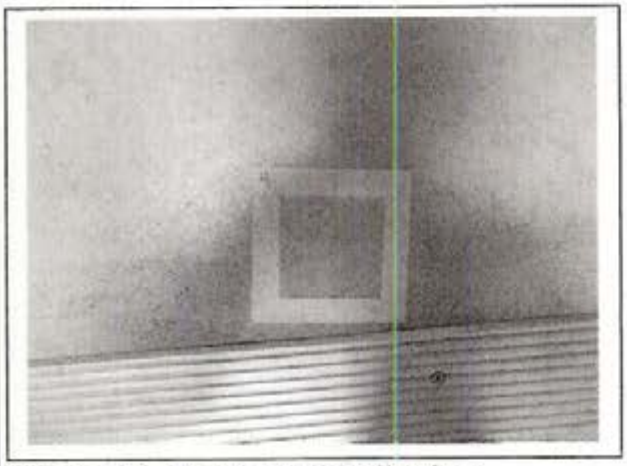


Photo #4- South drill hall wipe

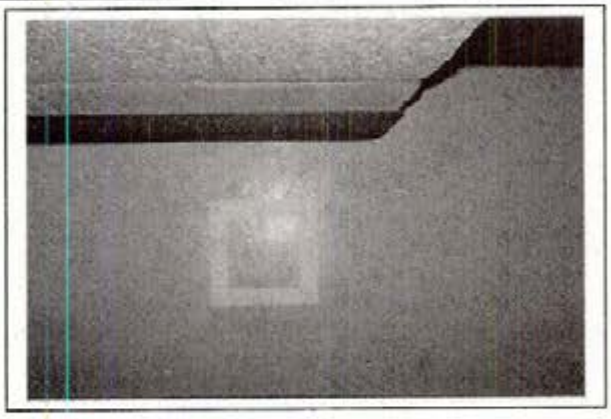


Photo #5 –West drill hall wipe

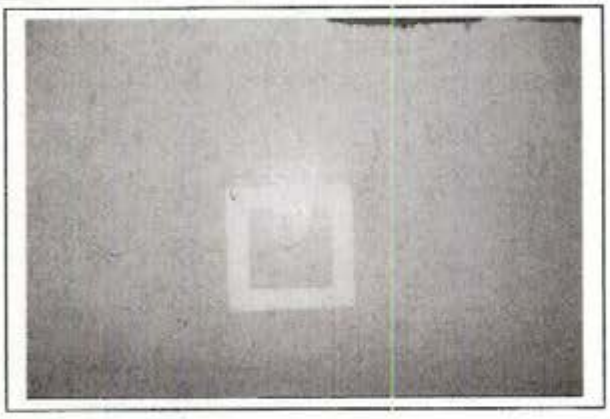


Photo #6 – East drill hall wipe

Photo Log

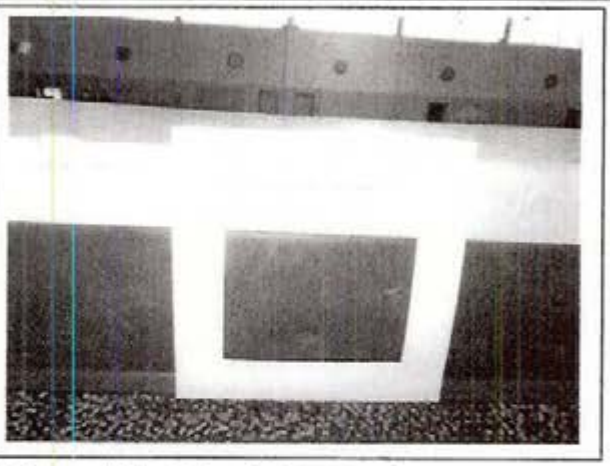


Photo #7 – North CIFR wipe

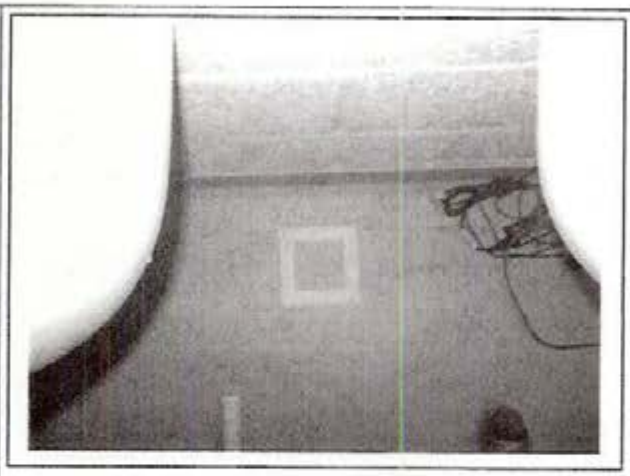


Photo #8- Northeast CIFR wipe

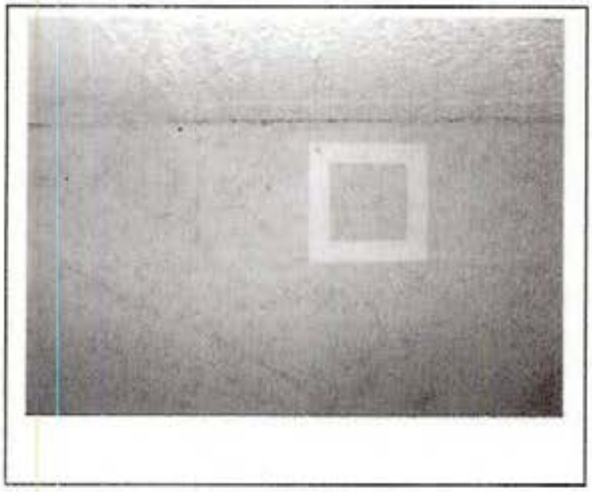


Photo #9 – Southeast CIFR wipe

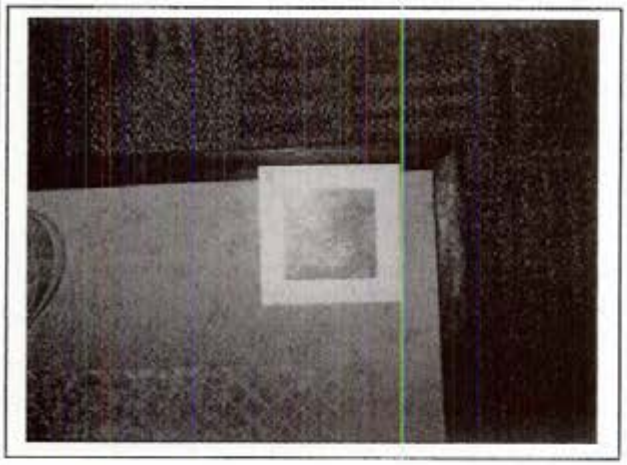


Photo #10 – West CIFR wipe

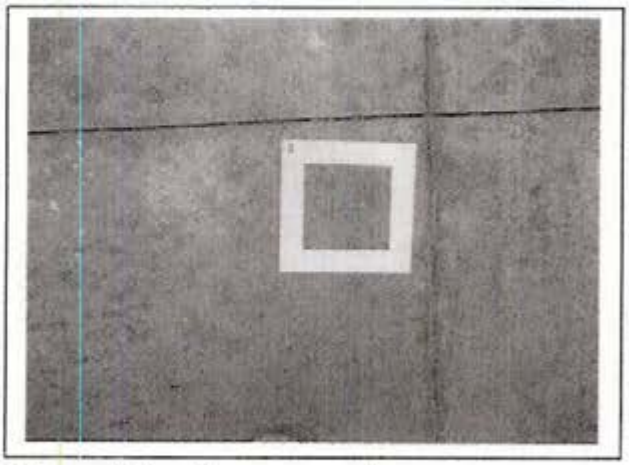


Photo #11 –Basement wipe

Photo #12 –Maintenance bay/storage

Photo Log

Photo #13 – Eye wash

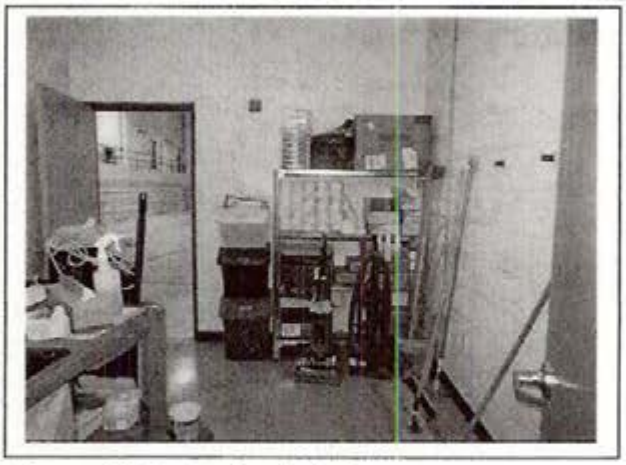


Photo #14- Janitorial closet

Photo #15- CIFR

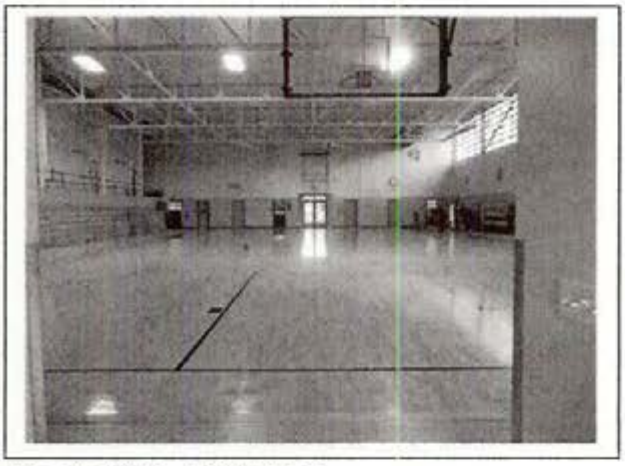
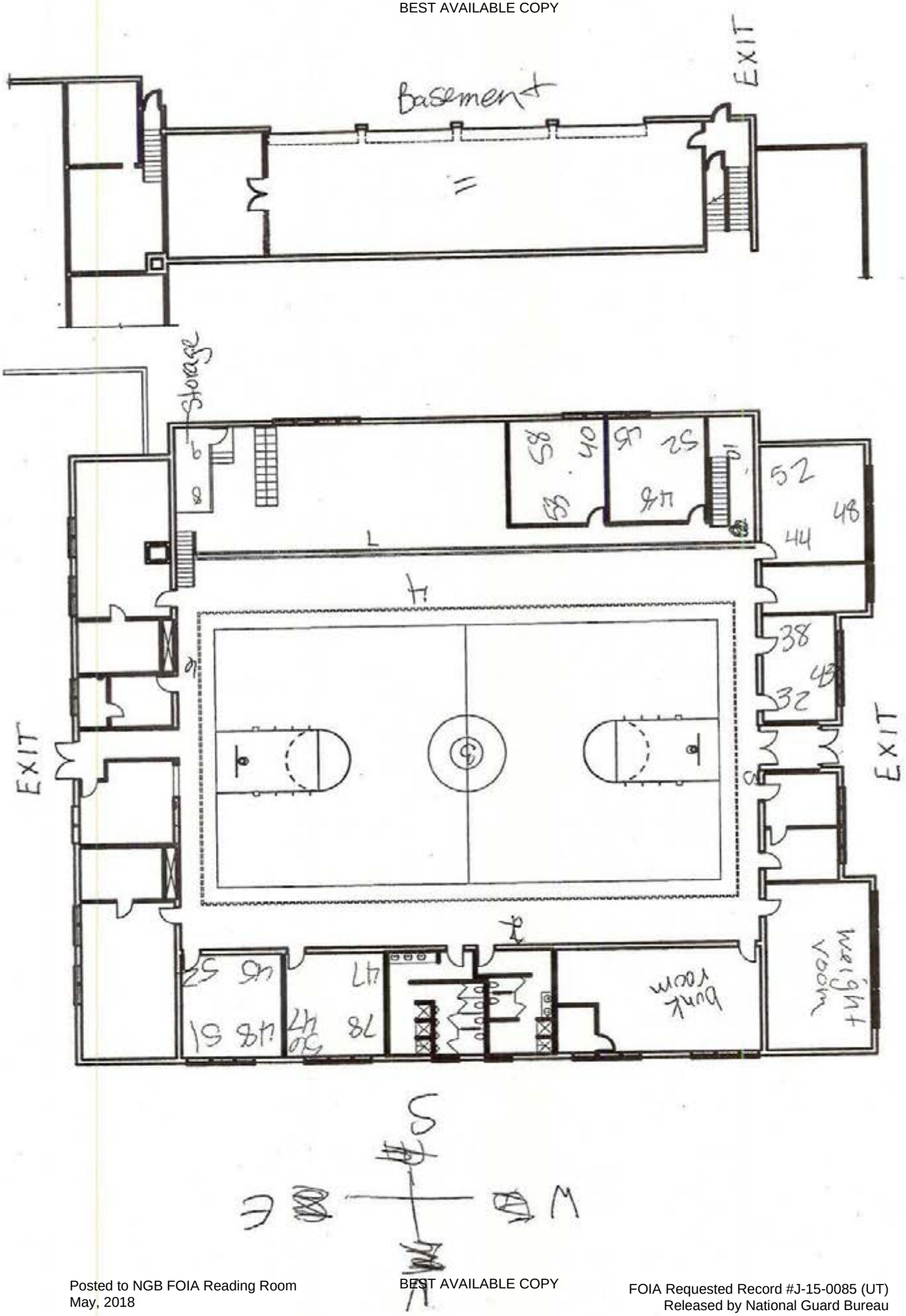


Photo #16- Drill Hall

Appendix D

Floor Plan/Illumination Survey

Aloha World



Appendix E

Laboratory Analysis Reports
Sample Location & Log

Aloha World

RESERVOIRS ENVIRONMENTAL, INC.

5801 Logan St., Suite 100
Denver CO 80216

TABLE ANALYSIS: LEAD BY WIPE SAMPLING

RES Job Number:	**RES 302220-1**
Client:	**Aloha World**
Client Project Number / P.O.:	**100114**
Client Project Description:	**Price Armory**
Date Samples Received:	**October 4, 2014**
Analysis Type:	**USEPA SW846 3050B / AA (7420)**
Turnaround:	**3-5 Day**
Date Samples Analyzed:	**October 10, 2014**

Client ID Number	Lab ID Number	Sample Area (sq.ft.)	LEAD (µg)	Reporting Limit (µg/ft^2)	LEAD CONCENTRATION (µg/ft^2)
100114-1	EM 1270382	0.11	BRL	56.8	BRL
100114-2	EM 1270383	0.11	BRL	56.8	BRL
100114-3	EM 1270384	0.11	BRL	56.8	BRL
100114-4	EM 1270385	0.11	BRL	56.8	BRL
100114-5	EM 1270386	0.11	BRL	59.1	BRL
100114-6	EM 1270387	0.11	BRL	56.8	BRL
100114-7	EM 1270388	0.11	BRL	61.4	BRL
100114-8	EM 1270389	0.11	BRL	56.8	BRL
100114-9	EM 1270390	0.11	BRL	56.8	BRL
100114-10	EM 1270391	0.11	BRL	56.8	BRL
100114-11	EM 1270392	0.11	6.3	56.8	56.8

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

*** Unless otherwise noted all quality control samples performed within specifications established by the laboratory.**

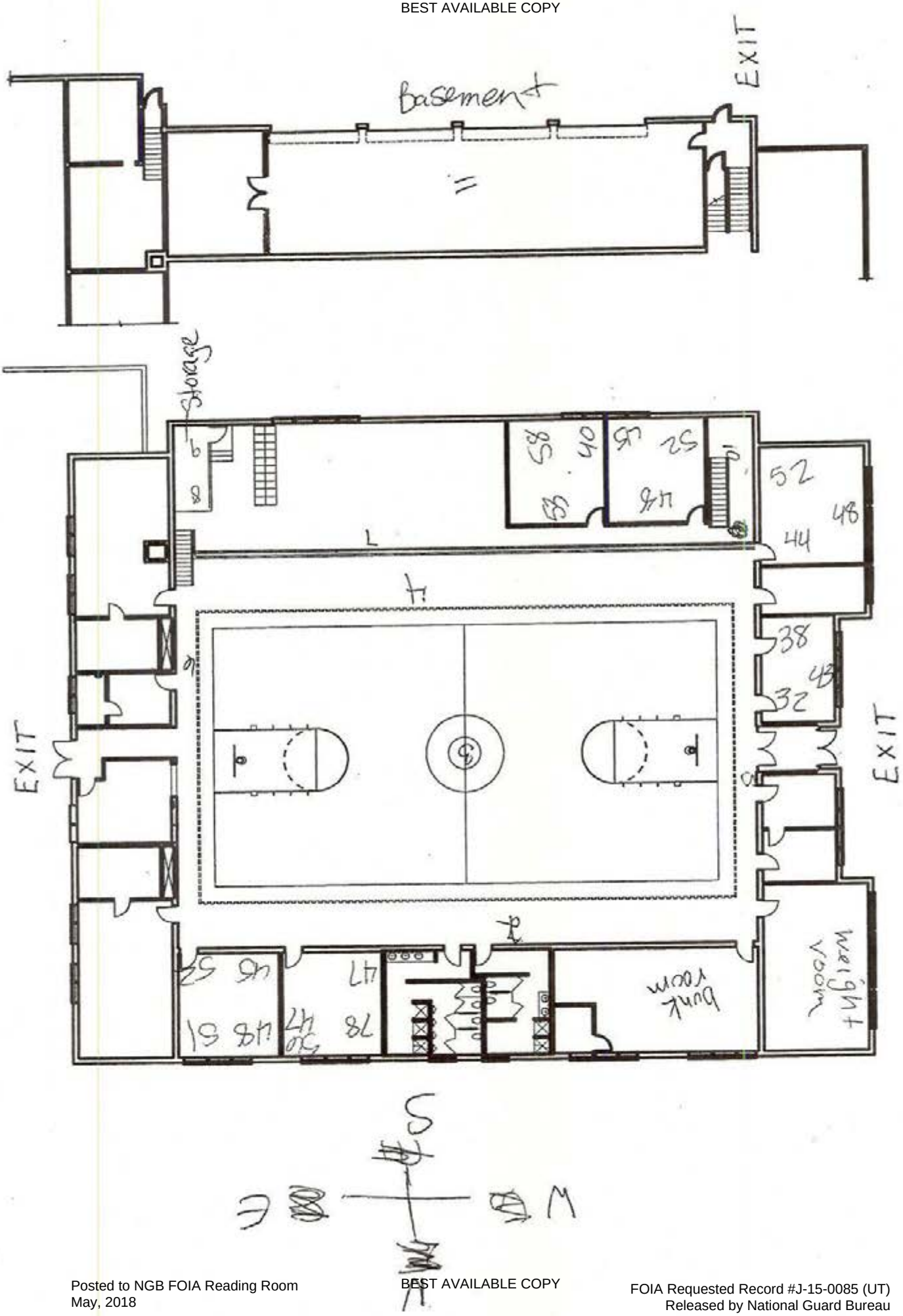
Non-Responsive

BRL = Below Reporting Limit

Data QA__

P: 303-964-1986
F: 303-477-4275

5801 Logan Street, Suite 100 Denver, CO 80216



Appendix F

Full-Time Personnel Listing

PRICE ARMORY FULL TIME ROSTER

Appendix G

ARNG Survey Checklist

Aloha World

Army National Guard Armory Survey
(To Be Included In Report)

Five **lead wipe** samples collected from drill floor (take samples from dusty horizontal floor surfaces)	✓
Are any **weapons cleaned** in the facility, if yes where are they cleaned?	✓
Additional lead **wipe** samples taken from 25% of the rest of the building - -**(on floor areas only)**	✓
Is there **a converted indoor firing range**? If so collect additional wipe samples IAW the SOW.	yes
Is there any peeling **paint**? Take bulk sample if able.	none
Are there any signs of water damage or **mold**?	no - A/C leaked - fixed
Any suspected **ACM**? Where and what condition is it in. Bulk sample if able.	2005
Quality of housekeeping	good
HVAC maintenance plan in place?	DFCM - state maint.
Overall condition of HVAC system	great
Obtained **CO2, Temp, RH** monitoring	yes
HAZMAT inventory on hand (make copies for the report), **MSDS** available for all materials.	veh. maint - little
HAZMAT storage, Condition of lockers, if outside storage building is used is it ventilated and does it meet OSHA standards.	good

bottom - radiant A/C

Fire alarm in working condition - -not usually in place in older armories	yes - all new
Fire extinguishers in place and properly identified and mounted	yes
Evidence of **monthly fire extinguisher inspections**	yes
Annual fire extinguisher inspections tags current	yes
Are **eye wash stations** available in areas where hazardous materials are used and are they inspected weekly (inspections must be documented)	yes - no
Egress routes accessible and properly marked - -noted on Fire Evacuation Plan	yes
Training programs in place; Hazcom, Respiratory Protection, Confined Spaces, Hearing conservation, PPE (if applicable)	Hazcom, hearing, resp
Any Photo labs	no
Any hazardous **noise** sources	Veh maint - tools
Light levels checked throughout building	✓
Breaker panels properly labeled with no exposed wiring	yes
Check **building occupancy** 1. How many military personnel, how many civilian personnel 2. What types of units occupy facility, i.e. Administrative, Maintenance, etc.?	3 Full 75 drill weekend
Any **civilian activities** in armory (cub scouts, classes, day care, parties etc)	yes
Obtain two **lead air samples**	On IHSW Request Only

Evaluate Kitchen Stove Hood Flow if Present IAW NFPA Standard 96.	unable
Collect Source Noise Measurements of Kitchen Appliances and Document Using DD 2214	n/a
Conduct a safety walkthrough of entire facility document any safety deficiencies found.	✓
Take photos of outside of **building**, all **sample points** and any **pertinent hazards** or concerns.	✓
Name of Armory, **POC, phone #, address** and **organizations** in Armory **(Add Checklist to Report)**	Price Armory 584 E 600 N Price, UT 84501 **(Add Checklist to Report)**

Appendix H

Chemical List

Aloha World

ITEM NUMBER	QTY	DESCRIPTION	NSN	LOCATION
A1	0	ANTI-FREEZE ETH GLY	6850-00181-7933	
A2	2	DENATURED ALCOHOL	6810-00-543-7415	SHOP
A3	2	ATF DEXTRON II	9150-00-698-3282	SHOP
A4	0	LOCTITE THREAD LOCK	3030-00-999-6313	
A5	1	BLUE SILICON (RTV)		SHOP
A6	2	METHYL ALCOHOL	6810-00-275-6010	STORAGE
A7	1	ANTI-FREEZE COOLANT	6850-01-383-4068	SHOP
A8	0	AIR DUSTER	7930-01-398-2473	
B1	0	BATTERY TERMINAL PROT.	6850-00-F03-2663	
B2	0	SPRAY-BUFF COMPOUND	2640-00-138-8324	
C1	13	CLP	9150-01-054-6453	SHOP
C2	0	BLEACH		
C3	1	DUST MOPP TREATMENT		SUPPLY ROOM
C4	1	VELVA-SHEEN DUST MOPP		SUPPLY ROOM
C5	0	MAGIC CLEANER		
C6	2	MARKER BOARD CLEANER	6850-00-118-0859	SUPPLY ROOM
C7	30	SCOURING POWDER	7930-00-721-8592	SUPPLY ROOM
C8	3	SBEHOLD FURN.POLISH		SUPPLY ROOM
C9	1	PINE OIL	6840-00-584-3129	SUPPLY ROOM
C10	0	DRY-COTE GYM CLEANER	7930-00-N069503	
C11	8	URINAL BLOCKS	6840-00-246-6438	SUPPLY ROOM
C12	7	GP DEODERANT AROSOL	6840-00-721-6055	SHOP
C13	2	SIMPLE GREEN ALL PURP.	7930-01-342-5315	SUPPLY ROOM
C14	1	SIMPLE GREEN HAND CLEANER		SUPPLY ROOM
C15	1	HY-DO 4-10 BRIGHTNER		SUPPLY ROOM
C16	1	HEAVY DUTY STRIPPER	00-F04-8054	SUPPLY ROOM
C17	3	GYM FLOOR CLEANER	00-N06-9503	SUPPLY ROOM
C18	8	GLASS CLEANER	08-2583-6	SUPPLY ROOM
C19	3	NEUTRAL CLEANER CONCENTRATE	06-2097-1	SUPPLY ROOM
C20	3	BATHROOM CLEANER	06-1683-9	SUPPLY ROOM
C21	5	QUAT DISINFECTANT CLEANER	17-9553-3	SUPPLY ROOM

C22	1	SPEED STRIPPER CONCENTRATE	11-9287-1	SUPPLY ROOM
C23	8	GENERAL PURPOSE CLEANER	06-2098-9	SUPPLY ROOM
C24	1	INDUSTRIAL DEGREASER	16-4731-2	SUPPLY ROOM
C25	1	TILE, GROUT AND BOWL CLEANER	09-5355-4	SUPPLY ROOM
C26	0	RING MASTER	7930-01-367-0999	
C27	1	SCOTCHGARD 18 FLOOR FINISH	24-7200-9	SUPPLY ROOM
C28	1	FOOD SERVICE DEGREASER	08-2576-0	SUPPLY ROOM
C29	2	FOAM ANTIBACTERIAL HANDWASH	8520-01-556-2576	SUPPLY ROOM
C30	1	LYSOL DISINFECTANT	6840-01-065-3662	SUPPLY ROOM
C31	1	CONCRETE TREATMENT		SHOP
C32	1	STAINLESS STEEL POLISH	7930-00N029283	SUPPLY ROOM
C33	1	WAXIE FIBERCARE	7930-00N078278	SUPPLY ROOM
C34	1	HEAVY DUTY MULTI, SURFACE CLEANER	23-4717-7	SUPPLY ROOM
C35	5	INDUSTRIAL DEGREASER, TOUGH GUY		SUPPLY ROOM
C36	4	LIQUID DEFOAMER, CORE		SUPPLY ROOM
D1	0	DIESEL FUEL	9140-00-286-5294	
D2	0	ALL PURPOSE ABSORBENT	7930-00-269-1272	
E1		DIELECTRIC SOLVENT	6850-01-371-8048	SHOP
F1	1	GASOLINE CAN	9130-00-1303-0050	SHOP
F2	1	CHAIN SAW FUEL CAN		SHOP
G1	0	LUBRIPLATE	9150-01-109-8726	
G2	0	MOBILE GREASE	9150-00-935-585	
G3	0	DETERGENT, GENERAL PURPOSE	7930-00-926-5280	
G4	0	PETROLEUM LABRICATING GREASE		
G5	0	AEROSHELL GREASE	9150-01-262-3358	
G6	0	GLYCOL ETHER DM	6850-01-377-5074	
G7	1	GREASE, AUTO AND ARTILLERY	9150-00-190-0905	STORAGE
G8	7	RED MULTI PURPOSE GREASE		SHOP
G9	2	ELMERS INTERIOR WOOD GLUE		SHOP
G10	1	GREASE AIRCRAFT	9150-01-378-0744	STORAGE

O1	4	BAR AND CHAIN LUBRICANT	20-151-05-02	SHOP
O2	1	BRAKE FLUID, SILICONE	9150-01-103-9455	SHOP
O3	2	ENGINE OIL	0781-319-8016	SHOP
O4	1	LUBRICATING OIL, GEAR MULTI.	9150-01-035-5390	STORAGE
O5	2	LUBRICATING OIL, ENGINE 15W 40	01-438-6082	STORAGE
P1	2	GLOSS RED PAINT	8010-01-331-6109	SHOP
P2	0	GLOSS WHITE PAINT	8010-03-331-6105	
P3	5	GLOSS BLUE PAINT	8010-01-331-6119	SHOP
P4	4	GLOSS ORANGE PAINT	191591	SHOP
P5	64	AEROSOL ENAMEL ALL COLORS	8010-01-331-6105	SHOP
P6	15	PLUS LATEX PAINT		SHOP
P7	38	PROPANE	8010-00N040193	SHOP
P8	2	INTERIOR LATEX SATIN PAINT	8010-00F005702	SHOP
P9	1	PAINT THINNER		SHOP
P10	5	ACRYLIC PAINT		SHOP
P11	2	EXPOXY FLOOR COATING PAINT		SHOP
P12	1	EXPOXY FLOOR COATING HARDENER		SHOP
P13	1	PORCH AND FLOOR ENAMEL GLOSS		SHOP
P14	4	ALKYD COATING INDUSTRIAL ENAMEL		SHOP
S1	2	MICRELL LOTION SOAP	8520-01-490-7967	SUPPLY ROOM
S2	1	SIMPLE GREEN ALL PURPOSE CLEANER	7930-01-342-5315	SHOP
S3	4	STARTING FLUID	00-470-6768	SHOP
S4	0	PURELL LOTION SOAP	00-F05-3856	
S5	0	DOUBLE PLAY HAND CLEANER	00-N02-1702	
S6	0	SAFETY SOLVENT	00-N02-0168	
S7	0	PURELL HAND SANITIZER		
S8	4	DISH WASHING COMPOUND	7930-01-490-7282	SUPPLY ROOM
S9	2	CLOROX WIPES		SUPPLY ROOM
S10	0	EXPO WIPES		
T1	2	TIRE MOUNTING COMPOUND	00-N08-3089	STORAGE

T2	2	PORTABLE TOILET DEODORANT		STORAGE
W1	3	DISTILED WATER	00-356-4936	STORAGE
W2	4	WINDSHIELD CLEANER CON.	6850-00-926-2275	SHOP
W3	8	WD-40	8030-01-439-0681	SHOP
W4	1	WEED BE GONE	01-377-7110	SHOP
W5	1	WOOD FINISH	8010-00N068269	SHOP
W6	2	BOILER WATER TREATMENT		STORAGE

Appendix I

Recommendations

RECOMMENDATIONS

1.Occupational Safety and Health Administration (OSHA) standard for lead; 1910.1025 (h) (1) require that all surfaces shall be maintained as free as practicable of accumulations of lead. Dry sweeping should be restricted in areas where accumulations of dust are present to prevent toxic metals on surfaces from becoming airborne. The cleaning of loose material from horizontal surfaces should be conducted with HEPA (High Efficiency Particulate Air) vacuums and/or wet mopping. Any area that exceeds 40 ug/ ft2 should be thoroughly decontaminated.

2. Update all MSDS for the facility with the new SDS format by June 2016 CFR 1910.120.

Industrial Hygiene Southwest

Violation Inventory Log

LOG OF SCHEDULE OF CORRECTIVE ACTION - COMPLIANCE WITH SAFETY AND HEALTH STANDARDS

PRICE ARMORY,UTAH 84501

CONTROL NUMBER CLOSED [X]	HAZARD DESCRIPTION	SITE	RAC	CORRECTIVE ACTIONS (Abatement Plan)	SUSPENSE DATE	ACTION OIC/NCOIC	Estimated Cost(s)	DATE CORRECTED	REFERENCES
UTPA-10012014-3.1	Lead levels exceded the minimun requirements.	Armory	4	Upgrade housekeeping practices throughout this facility to help prevent migration of lead dust. Utilize Armory Clean-up SOP in future cleaning episodes.					Occupational Safety and Health Administration (OSHA) standard for lead; 1910.1025 (h)(1)
UTPA-10012014-3.5	The SDS file is still listed as MSDS since the Globally Harmonized System (GHS) Classification of Labeling Chemicals has just taken effect this year and the documents are still MSDS documents.	Armory	4	Update all MSDS for the facility with the new SDS format by June 2016					(CFR 1910.120)

Oct 2014

ARMY NATIONAL GUARD
INDUSTRIAL HYGIENE – SOUTHWEST

Guam • Hawaii • California • Oregon • Washington • Nevada • Arizona • Idaho • Utah • Wyoming • Montana • New Mexico • Nebraska

Industrial Hygiene Site Assistance Visit

Price Armory-Converted Indoor Firing Range (CIFR)

584 East 600 North Street
Price, UT 84501

10510 Superfortress Avenue, Suite C, Mather, CA 95655 (916) 854-1494

DEPARTMENT OF THE ARMY AND AIRFORCE
NATIONAL GUARD BUREAU
INDUSTRIAL HYGIENE SOUTHWEST
10510 Superfortress Ave, Ste. C
Mather, CA 95655

ARNG-CSG-P

19 OCT 2014

MEMORANDUM THRU Non-Responsive 12953 Minuteman Dr., Draper, UT 84020

FOR Commander, Price Armory Indoor Firing Range (IFR) 584 East 600 North Street, Price, UT 84501

SUBJECT: Executive Summary for Industrial Hygiene Site Assistance Visit (IHSAV) for Price Armory Indoor Firing Range (IFR) 584 East 600 North Street, Price, UT on 01 OCT 2014

1. **References**. See survey report.

2. **General.**

a. At the request of the NGB Industrial Hygiene, Southwest (IHSW) Region, an Industrial Hygiene Site Assistance Visit and cursory review of safety related items and programs was conducted at the Price Armory Indoor Firing Range (IFR) 584 East 600 North Street, Price, UT on 01 OCT 2014.

b. The findings and recommendations in this Executive Summary are controlling and supersede all recommendations in the Industrial Hygiene (IH) report (reference Attachment II). However, IHSW concurs with the observations and findings within the attached IH report.

c. Risk Assessment Codes (RAC) provided in this report have been derived from two sources: Deriving Risk Assessment Codes (RAC's) for Health Hazards (Ref: DOD Instruction 6055.1) and AR 385-10, The Army Safety Program.

d. Use of trademark names in the attached report, or this Executive Summary, does not imply Army National Guard endorsement of any product.

3. **Findings.** See survey report.

4. **Commendable.**

a. The facility was generally clean and orderly and personnel were helpful during this IHSAV.

5. **Observations / Recommendations.**

NOTE: This section provides conclusions and recommendations for the findings and observations made within the attached contractors report. The paragraphs are numbered to correspond to the sections where they were first noted. (i.e., paragraph 2.1a represents the 2.1a located within the contractors report.

a. Thorough cleaning of armory should be accomplished and especially in identified areas with higher lead dust accumulation identified during this IHSAV. Utilize Armory Cleanup SOP accompanying this report for clean-up, especially after weapons cleaning episodes to help prevent migration of this heavy

metal. (para. 3.1) **(RAC 4)**

6. Violation Correction Log.

a. IHSW has provided a Violation Correction Log derived from the observations from this visit. IHSW recommends the following:

(1) Commander(s) assign an Action OIC/NCOIC, Suspense Date for completion, and Estimated Cost(s) to ensure item completion and corrective status is briefed during quarterly (or monthly) Safety Meetings/Councils until resolved.

(2) Corrective measures should be implemented and accomplished at the lowest levels possible. Hazards and Corrective Measures that cannot be corrected at the facility level, and require assistance from higher headquarters or from the state level, should be elevated to the Quarterly State/BN Safety Council Meeting for resolution.

(3) Recommend a representative from the facility attend all quarterly/monthly meetings to ensure the appropriate emphasis and corrective actions are followed for hazard resolution and abatement of the observations made during this visit.

(4) Retain entries of the items corrected, or closed, for future reference. This may be accomplished by posting completed items within the Corrected Hazard Sheet portion of the Excel Violation Correction Log Workbook we've provided.

(5) The preferred method to document and track identified hazards for resolution is for their entry into the Reserve Component Automation System – Safety and Occupational Health (**RCAS-SOH)** Program.

b. IHSW recommends further program refinement through written documentation for standardized guidance to the personnel performing the processes. Conducting Hazard Assessments consistent with 29 Code of Federal Regulations (CFR) 1910.132, General Requirements for Personal Protective Equipment and AR 40-5, Preventive Medicine, would provide this continued program refinement.

7. Hazard Assessment/Job Safety Analysis (JSA).

a. Documenting the Hazard Assessments provides a method to obtain initial and periodic review from the Industrial Hygiene, Occupational Health and Safety Professions located at the JFHQ/HQ/state level.

b. The Hazard Assessments should be used as written training materials for the new, transfer and unit personnel working under the auspice of the facility.

c. IHSW recommends facility supervisory staff and facility personnel conduct initial Hazard Assessments outlined in AR 40-5, Army Preventive Medicine (Section V) and 29 CFR 1910.132 and submit for review and obtain approval from the state Industrial Hygiene, Occupational Health and Safety Professions.

d. We have provided an appendix with Hazard Assessments (HA) examples of some of this facilities operations. Additional operations can utilize this format to design HA not observed during this IHSAV.

ARNG-CSG-P

SUBJECT: Executive Summary for Industrial Hygiene Site Assistance Visit (IHSAV) for Price Armory Indoor Firing Range (IFR) 584 East 600 North Street, Price, UT on 01 OCT 2014

e. An integral and important factor of the Hazard Assessment/JSA process is for the review and guidance from qualified Safety, Occupational Health and Industrial Hygiene professions located at the higher headquarters level or state level. For this reason, the Hazard Assessments (to include all pertinent and supporting documents) should be completed by the facility personnel and forward to the Utah Army National Guard Industrial Hygiene, Occupational Health and Safety Office for final review and approval (signature).

f. Job Safety Analysis (JSA's)/Hazard Assessments.

NOTE: The Hazard Assessments can be used for monthly meetings to brief/train, and document large group training events and activities.

8. IHSW recommends the **Senior Unit Commander of this Facility and any Co-Tenant Organizations or Units, review and provide assistance with implementation of these recommendations.** This will educate the chain of command and allow the unit or co-tenant organizations to take any necessary precautions or actions required by them and their personnel.

9. To assist you with execution of your responsibilities in correcting the observations noted, we encourage you to consult with the State Safety Manager, Occupational Health Manager and Industrial Hygiene professions located and/or authorized within the State Safety and Occupational Health Office.

10. For additional information please contact the NGB-IHSW office at (916) 854-1491 or via email at Non-Responsive Non-Responsive

NGB, IHSW, CIV
Regional Industrial
Hygiene Manager

Industrial Hygiene Southwest

Violation Inventory Log

LOG OF SCHEDULE OF CORRECTIVE ACTION - COMPLIANCE WITH SAFETY AND HEALTH STANDARDS

PRICE ARMORY CIFR,UTAH 84501

CONTROL NUMBER CLOSED [X]	HAZARD DESCRIPTION	SITE	RAC	CORRECTIVE ACTIONS (Abatement Plan)	SUSPENSE DATE	ACTION OIC/NCOIC	Estimated Cost(s)	DATE CORRECTED	REFERENCES
UTPA-10012014-3.1	Lead levels exceded the minimun requirements.	Armory	4	Upgrade housekeeping practices throughout this facility to help prevent migration of lead dust. Thoroughly clean areas identified above 40 ug/gt2. Utilize Armory Clean-up SOP in future cleaning episodes.					Occupational Safety and Health Administration (OSHA) standard for lead; 1910.1025 (h)(1)

Indoor Firing Range

Decontamination and Cleaning Protocol

(Periodic Cleaning and Conversion)

1. Ensuring that all procedures listed below comply with all federal, state, and local regulation. Consult with the Regional Industrial Hygiene Office and the States Environmental Office for future guidance.
2. **Ventilation System**

   The range ventilation system must be in operation during all cleaning activities. If no ventilation system is available all doors and windows must keep sealed to prevent contamination of other areas.
3. **Materials**

   I. A High Efficiency Particulate Air (HEPA) filtered vacuum system is the preferred method of cleanup. If a HEPA vacuum cannot be obtained a wet method, detailed below, should be utilized. **A high-pressured water system or dry sweeping may not be used.**

   II. A cleaning solution containing detergent and water is recommended. New solutions of detergent and water should be mixed frequently.

   III. Two containers should be used; one for wetting the applicator (rags, sponge, mop) and the other for rinsing once the dust has been wiped from the surfaces.

IV. Acoustical material should be vacuumed and removed instead of being painted over. A toxic Characteristic Leaching Procedure (TCLP) test may be used for acoustical material to determine if the material needs to be classified as hazardous and disposed of according lt. The Environmental Office should be contacted regarding this testing.

V. The floor should be the last surface cleaned starting at the bullet trap and ending behind the firing line, to include the plenum area. Concrete floors should be sealed with deck enamel, or lead paint sealant.

VI. All walls should be painted, preferably with a lead sealant paint, which will help prevent any leaching of lead after covering.

VII. Following the wet cleaning of the area and after all surfaces have been allowed to dry thoroughly, a HEPA vacuum should be used on all surfaces, until no dust or residue can be seen. A thorough inspection to detect surface lead dust should be made following cleanup.

VIII. The Regional Industrial Hygiene Office should be contacted for clearance sampling and to approve the range for converted use.

5. Decontamination of Stored Items

I. All stored items must be decontaminated before removing from the range, stored equipment next to the bullet trap and firing line should be decontaminated first.

II. A HEPA vacuum or wet cleaning method should be used. Every attempt should be made to clean the item before disposing as hazardous waste to reduce cost and waste.

III. Porous items such as canvas tents or other fabrics may be laundered at companies, which specialize in industrial laundry services. Office partitions and carpeting present during firing should be considered grossly contaminated and disposed of as hazardous waste. Consult the Environmental Office before removing and disposing of items.

6. Medical Surveillance

A pre-placement medical examination is required for all individuals involved with range cleanup operations.

7. Air Monitoring

Worker breathing zone air samples must be collected during range cleanup to ensure that workers are not overexposed and to evaluate clean-up procedures.

8. Hazard Training

A training program must be instituted for all individuals who are subject to exposure to lead at or above the action levels, or for whom the possibility of skin or eye irritations exits. This training should be provided for all personal currently involved in range cleanup operations, at least annually. As required by 29 CFR 1910.1025(l)

ARMORY

CLEANUP & FOLLOW-UP HOUSEKEEPING RECOMMENDATIONS

Materials Needed:

1. Cloth Mop head (s) & Mop head holder(s) with handle.
2. Mop bucket (s) with wringer.
3. Clean cotton rags and sponges.
4. Disposable gloves
5. Large barrel (55 gal.) to store wastewater in after changing out of dirty scrub water. Waste water containers.
6. Disposable overshoes or rubber boots. Personnel conducting cleaning operations should not take clothes, boots, etc., home for laundering.
7. HEPA vacuum
8. Six (6) mill plastic bags to dispose of waste.
9. Detergent with surfactant, e.g., Spic-N-Span, Mr. Clean, etc.

Disposal of Waste Water and Cleaning Materials:

1. *NOTE*: Consult with Local Army National Guard Environmental Office prior to taking any collection, disposal or wiping activities commence. Each state and territory may have additional regulatory guidance on collection, storage and disposal of wastewater.

2. Mop heads should be disposed of after initial cleanup, unless otherwise advised by Environmental office personnel. Note: thorough cleaning of mop heads may be sufficient enough to reuse on future Armory cleanups but check with local Environmental Office.

3. Disposable gloves should be treated as hazardous waste.

4. Soiled cotton rags should be treated as hazardous waste.

5. Wash water contaminated with Lead can be collected and allowed to slowly evaporate leaving Lead deposits/sludge that may be collected in plastic containers, placed in metal drums, and stored for future delivery to an authorized hazardous waste disposal site.

a. Drums shall be properly labeled to identify contents In-Accordance With (IAW) Federal, State and local regulatory guidance.
b. Disposal of containerized waste shall be coordinated IAW State hazardous waste program requirements.
c. The Environmental Office shall coordinate removal and disposal of all containerized hazardous waste through established waste streams.

Post-Cleanup Precautionary Measures:

1. Thoroughly wash hands with soap and water.
2. Rinse off rubber boots with soap and water, capturing wastewater for collection into established waste stream. If personnel choose to use over shoes for protection, dispose of overshoes into waste stream. NOTE: This recommendation is for initial clean up activities and PPE requirements may be reduced after it has been determined non-hazardous levels have been achieved.
3. Wash BDU's or personal clothing separately from children's clothes.

NOTE: No eating, drinking or cosmetics allowed during cleanup procedures (these may be allowed after washing of hands/face and done outside of cleanup area)

NOTE: Avoid blowing, shaking or like actions which could potentially disperses lead dust. Dry sweeping, dusting, wiping or blowing with compressed air shall not be permitted

Initial Armory Cleanup:

1. Use a vacuum cleaner equipped with a HEPA exhaust filter. HEPA vacuum all surfaces in the room (ceiling, walls trim, and floors). Start with the ceiling and work down, moving toward the entry door. **Completely clean each room before moving on**.

2. Prepare water and detergent for the wipe down phase, according to manufactures recommendations.

3. Wet wipe, with cotton rags or sponge, any horizontal, diagonal or vertical surfaces up six (6) feet from floor surfaces using hot water and "Spic-n-Span" or an equivalent product.

    a. Rinse out cleaning cloths thoroughly and frequently.
    b. Change out cleaning water as necessary.

NOTE: **If walls to be cleaned show signs of deterioration, e.g., chipping or crumbling paint, in which wiping, scrubbing, or disrupting might potentially increase or spread contamination, then this portion of the clean up should be avoided**.

4. Now prepare water and detergent (e.g. Spic N Span, Mr. Clean, Pine Sol) for the mopping phase, according to manufactures recommendations, which should be found on the products label for general clean up.

    a. Change out water frequently (when water appears dirty)
    b. Rinse out mop heads frequently to prevent contamination of dirty water.

5. Cover entire drill floor surface with above prescribed water and detergent.

6. Final rinse should be with clean water only - -after mop heads have been cleaned.

Recommended Follow-up Housekeeping Practices *after Clearance sampling of cleaned area is performed by certified personnel:*

1. Floor cleaning and dusting should be accomplished using the wet method described in Initial Armory Cleanup SOP.

Note: Only exception to these wet cleaning procedures would be the use of a chemically treated dust floor mop. This can be used for follow-up armory cleaning by sweeping of large particles of dirt and paper.

    a. Pre-treated (chemically treated) dust floor mop will limit dust particles from being disbursed into the surround atmosphere.

b. If treated dust mop is used - -Do Not Shake Mop head - - have mop head laundered after use. **Always keep used dust mop heads in sealed double plastic bags when stored at armory/facility**. Shaking of mop head could release unwanted contaminants into surrounding atmosphere.

2. Frequency of Cleanup- Armories will vary, according to usage and how often they should be cleaned. The following general cleaning schedule is provided:

   a. Only full-time technicians and traditional soldiers using facility during the month. (***Cleaned Monthly***)

   b. Occasional activities taking place during the month, e.g., 1-2 classes or volleyball games, etc. (***Cleaned 2x's Monthly***)

   c. Used regularly by soldiers or outside agencies/personnel. (***Cleaned Regularly - -at least Weekly***)

NOTE: Armories with adjoining Indoor Firing Ranges (IFR) should be cleaned more than weekly, again depending on use of Armory and IFR.

NOTE: Clearance sampling/testing is to be accomplished by certified personnel after these cleanup procedures are followed. If the area is an average Armory, occupied by adults only, for which you are cleaning and **is not a Converted IFR space**, you may continue to utilize the Armory space before the officials re-test this space. Please notify your Safety and/or Occupational Health personnel of the completion of this cleaning regime and they will notify the proper officials of the sampling/testing requirements needed.

If work is contracted out, a third party should do the clearance sampling.

Young children and females who are pregnant, there should be posted signs on all facilities, warning of the potential danger of exposure to lead dust.

UTAH ARMY NATIONAL GUARD

PRICE ARMORY

684 East 600 North St.
Price, UT 84501
(801) 309 5861

Submitted to:

Non-Responsive
National Guard Bureau
Southwest Region Industrial Hygiene Office
10510 Superfortress Avenue
Suite C
Mather, CA 95655

Table of Contents

INDUSTRIAL HYGIENE ASSISTANCE VISIT
PRICE ARMORY
PRICE, UTAH

1.0 Introduction and Background

1.1. This report summarizes the results of the Industrial Hygiene (IH) Site Assistant Visit (SAV) conducted at the Price Armory in Price, Utah on October 1, 2014. The Army National Guard Industrial Hygiene Southwest (ARNG-IHSW) requested Aloha World to visit the Price Armory to follow-up and evaluate potential high lead. This IH SAV also includes interviews with [redacted] regarding industrial hygiene issues as well as any change in operations in the work area that might affect the workers health and safety. [redacted] from Aloha World completed this survey.

1.2. The following sections will provide details on how the IH Survey was conducted. A drawing showing the facility layout and sampling locations is included as **Attachment D**. The most stringent OSHA, ARNG, Corps of Engineers (COE), American National Standards Institute (ANSI), American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) and Design Guide standards in effect at the time of the survey were used to assess the workplace.

1.3. The Price Armory has three full time guard members and seventy five guardsmen and women on drill weekend. This armory was constructed in the 1965. This armory has offices used for administrative purposes and also contains a drill floor, arms room, classrooms, industrial kitchen and storage. Maintenance service is not done at this site.

1.4 There is a Converted Indoor Firing Range (CIFR) in this facility. The ventilation system, firing lines, lighting and bullet stop have all been removed. The converted firing range is located upstairs and is now used as office space and storage. A majority of the area has glued down carpet. Therefore, I was unable to obtain wipe samples in most CIFR areas. The armory was

renovated in 2011. Lead samples were taken in the drill hall, CIFR storage area and in the basement. Lead wipe samples results could not be obtained from the time of conversion.

2.0 Survey Procedures and Equipment Used

Lead wipe samples were collected on dusty horizontal floor surfaces in the facility including but not limited to the drill floor and the CIFR area (vault, storage). "Ghost Wipe" brand wipes was used with a 16 square inch template. The wipes used conform to American Standards for Testing Materials E1792-96A, *Standard Specification for Wipe Sampling Materials for Lead in Surface Dust*. The collected wipe samples were placed in clean, labeled centrifuge tubes. Samples were submitted to Reservoir Environmental Services, Inc for analysis via Flame Atomic Absorption, USEPA Method SW846 3050B. Laboratory results are listed in micrograms of lead per square foot (µg/ft2). Copies of the raw analytical data are presented in **Appendix D**.

Samples were submitted to Reservoir Environmental Services, Inc, Denver, Colorado, for analysis via Flame Atomic Absorption.

3.0. Findings and Recommendations

3.1. **Lead wipe sampling-** Analytical results from the lead wipe sampling obtained from the armory are found in Table 3.1.A. A graphical and written representation of sampling locations can be found in ***Appendix D*** along with analytical reports. Photographs were taken of each sample point and are presented in ***Appendix C***. There are currently no standards that dictate what a safe level of lead is from a wipe sample. Lead sampling results can be compared to the protocol outlined in the U.S. Department of Housing and Urban Development's (HUD's) *Guidelines For The Evaluation And Control Of Lead-Based Paint Hazards In Housing,* June 1997. HUD currently recommends an exposure limit of 40 ug/ft^2. This guideline was established to prevent lead exposure to children in domestic homes, along with females who are pregnant. Areas that have levels that exceed 40 ug/ft^2 should be thoroughly cleaned and employees that may come into contact with those areas should be properly trained in the hazards of lead exposure

Table 3.1.A.
Lead Wipe

Sample ID	AREA	Photo #	Result ug/ft2
100114-1	Control	NA	BDL
100114-2	North drill hall	2	BDL
100114-3	Center drill hall	3	BDL
100114-4	South drill hall	4	BDL
100114-5	West drill hall	5	BDL
100114-6	East drill hall	6	BDL
100114-7	North CFR	7	BDL
100114-8	Northeast CFR	8	BDL
100114-9	Southeast CFR	9	BDL
100114-10	West CFR	10	BDL
100114-11	Maintenance bay	11	56.8

BDL= Below Detection Limits **ug/ ft2= Micrograms per Square Foot**

NOTE: Adequate continuous cleaning of working environment should be continued throughout the armory, especially in the CIFR storage area and maintenance bay. Please utilize the attached SOP and general information paper provided for cleaning procedures.

Recommendation: Dry sweeping should be restricted in areas where accumulations of dust are present to prevent toxic metals on surfaces from becoming airborne. The cleaning of loose material from horizontal surfaces should be conducted with HEPA (High Efficiency Particulate Air) vacuums and/or wet mopping. Any area that exceeds 40 ug/ft 2 should be thoroughly decontaminated.

3.2. **Operational Changes Noted-** None found.

3.3. **Physical Safety and Condition of Facility-** A physical walk through of the facility was conducted. Overall, housekeeping was found to be in above average condition. The Price Armory was renovated in 2011.

This 1965 building is of concrete block and brick construction. No water leakage was detected.

A fire evacuation plan was posted throughout the armory.

The fire extinguishers within this facility are part of the fire suppression available and should be tested annually and inspected monthly. NFPA 10, 27-3.4.1 addresses alarm systems and 29 CFR 1910.157 addresses inspection requirements for fire extinguishers. Annual inspections should be accomplished by a qualified organization, e.g., fire department, and checked and documented monthly by the facilities personnel. The fire extinguishers were found to be current on annual and monthly inspections. A fire alarm system is in place and per Non-Responsive Non-Responsive working order.

3.4. **Recurring Events:** We were unable to obtain any previous surveys for this armory.

4.0 Industrial Hygienist Certification/Project Limitations

All Industrial Hygiene Assessment techniques and tests used in the Industrial Hygiene survey of the Army National Guard Armories were reviewed by Non-Responsive Industrial Hygiene Southwest, National Guard Bureau at (916) 854-1492

This Project was performed using, as a minimum, practices consistent with standards acceptable within the industry at this time, and a level of diligence typically exercised by industrial hygiene and environmental consultants performing similar services.

The procedures used in this investigation attempt to establish a balance between the competing goals of limiting investigative and reporting costs and time, and reducing the uncertainty about unknown conditions. Therefore, because the findings of this report were derived from the scope, costs, time, and other limitations, the conclusions should not be construed as a guarantee that all environmental or occupational hazards have been identified and fully evaluated. Where sample collection and testing have been performed, Aloha World's professional opinions are based in part on the interpretation of data from discrete sampling locations that may not represent conditions at non-sampled locations. Aloha World assumes no responsibility for omissions or errors resulting from inaccurate information or data provided by sources outside of Aloha World, or from omissions or errors in public records.

Furthermore, it is emphasized that the final decision on how much risk to accept always remains with the client since Aloha World is not in a position to fully understand all of the client's needs. Clients with a greater aversion to risk may want to take additional actions while others, with less aversion to risk, may want to take no further action

5.0 Technical Assistance For technical assistance regarding information found in this report or the performed survey, please contact Non-Responsive of the Southwest Regional Industrial Hygiene Office, (916) 854-1491. Contact the State Safety, State Industrial Hygiene and Occupational Health Office and/or the Regional Industrial Hygienist should any of the operations change, or should the personnel become incapable of following the previous recommendations and subsequent recommendations are needed.

Non-Responsive
Aloha World

Appendix A

References

American Conference of Governmental Industrial Hygienists (ACGIH), Industrial Ventilation, A Manual of Recommended Practice, 23 Edition, 1998.

American Conference of Governmental Industrial Hygienists (ACGIH), Threshold Limit Values for Chemical Substances and Physical Agents and Biological Indices for 1998.

American National Standards Institute (ANSI)/Illuminating Engineering Society (IES), Industrial Lighting 1991.

American National Standards Institute, Z358. 1-1998. Emergency Eyewash and Shower Equipment 1998.

AR 40-5, Preventative Medicine, 15 October 1990.

AR 385-10, The Army Safety Program, 23 May 1988.

Corps of Engineers Guide Specification, CEGS-1585 1, Overhead vehicle tailpipe (and welding fume) Exhaust Systems, May 1984.

DA PAM 40-ERG, Ergonomics

DA PAM 40-501, Hearing Conservation, 27 August 1991.

National Safety Council, Fundamentals of Industrial Hygiene, 4~ edition, 1996.

NOR 385-10, Army National Guard Safety and Occupational Health Program, 29 December 1989.

TB MED 503, The Army Industrial Hygiene Program, February 1985.

TG022, US Army Environmental Hygiene Agency (USAEHA), Industrial Hygiene Evaluation Guide, October 1975

TG 141, US Army for Health Promotion and Preventive Medicine (USACHPPM) Industrial Hygiene Air Sampling Guide, Nov. 1997

Title 29, Code of Federal Regulations (CFR), 1998, revision Part 1910, Occupational Safety and Health Standards

Recommendations

1. Occupational Safety and Health Administration (OSHA) standard for lead; 1910.1025 (h) (1) require that all surfaces shall be maintained as free as practicable of accumulations of lead. Dry sweeping should be restricted in areas where accumulations of dust are present to prevent toxic metals on surfaces from becoming airborne. The cleaning of loose material from horizontal surfaces should be conducted with HEPA (High Efficiency Particulate Air) vacuums and/or wet mopping. Any area that exceeds 40 ug/ ft2 should be thoroughly decontaminated.

Aloha World

Appendix C

Photograph Log

Photo Log

Photo #1 – Price Armory

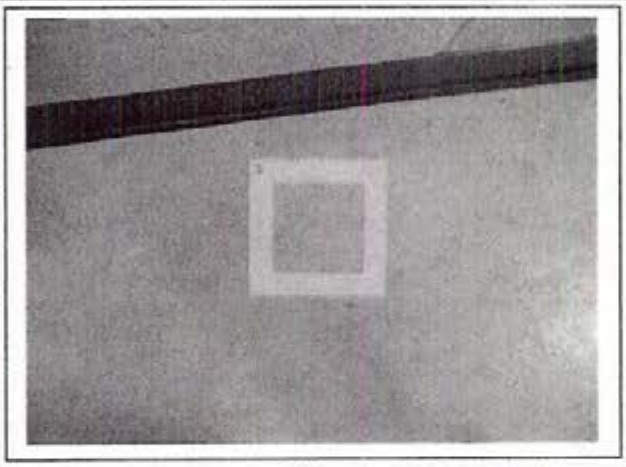


Photo #2- North drill hall wipe

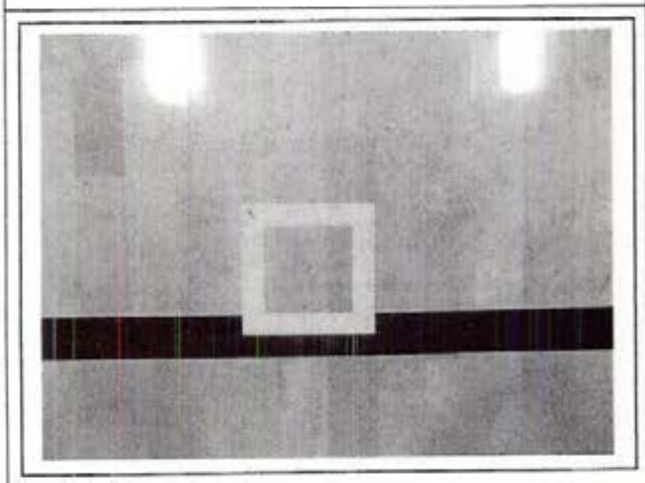


Photo #3- Center drill hall wipe

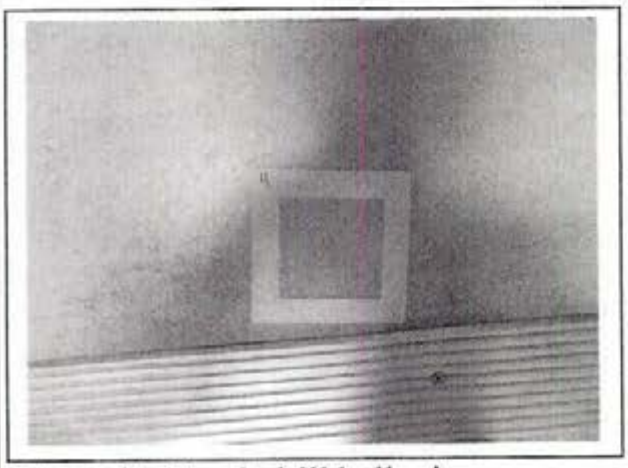


Photo #4- South drill hall wipe

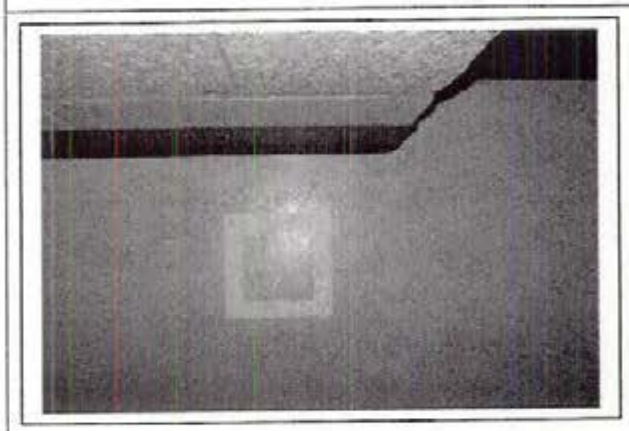


Photo #5 –West drill hall wipe

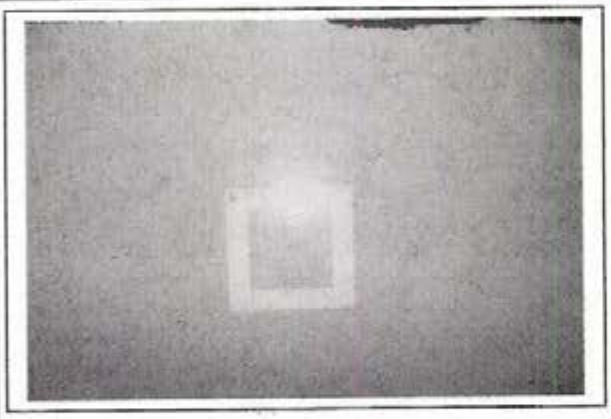


Photo #6 – East drill hall wipe

Photo Log

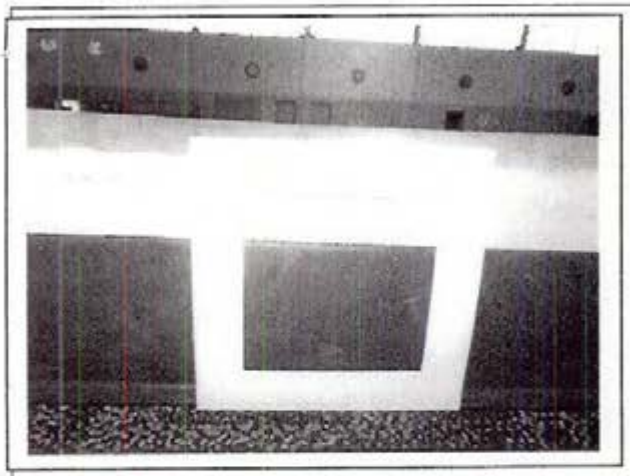


Photo #7 – North CIFR wipe

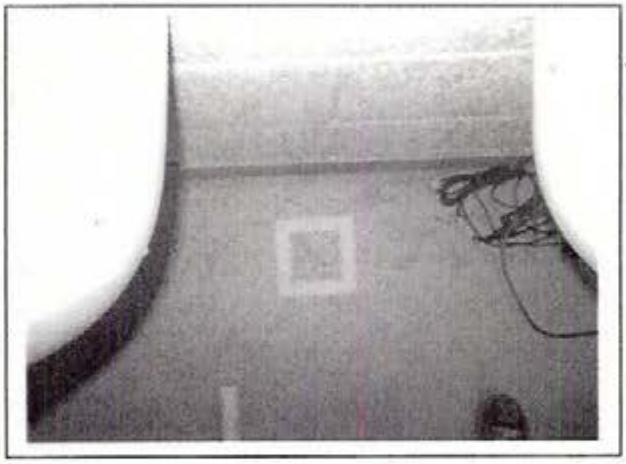


Photo #8- Northeast CIFR wipe

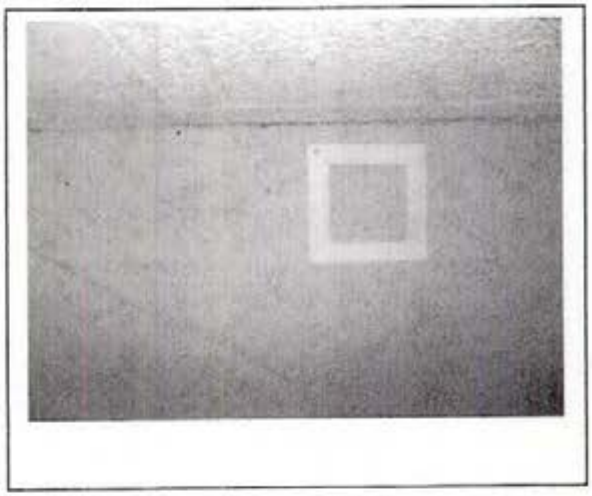


Photo #9 – Southeast CIFR wipe

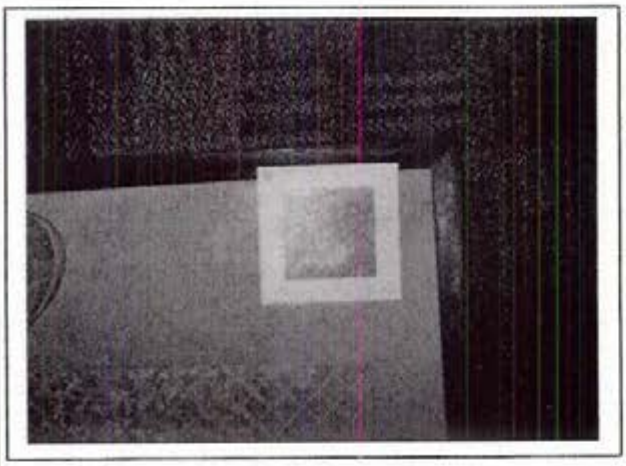


Photo #10 – West CIFR wipe

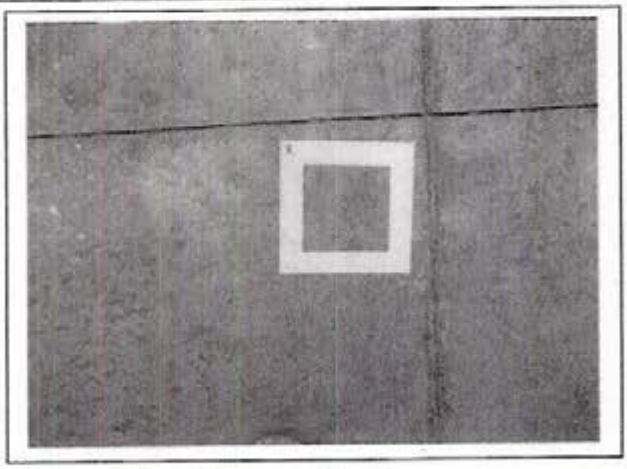


Photo #11 –Basement wipe

Photo #12 –Maintenance bay/storage

Photo Log

Photo #13 – Eye wash

Photo #14- Janitorial closet

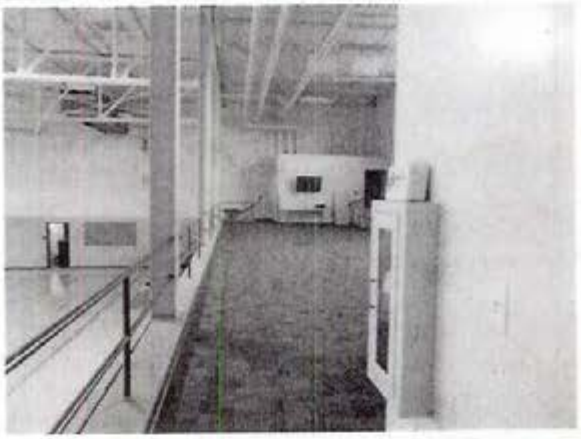
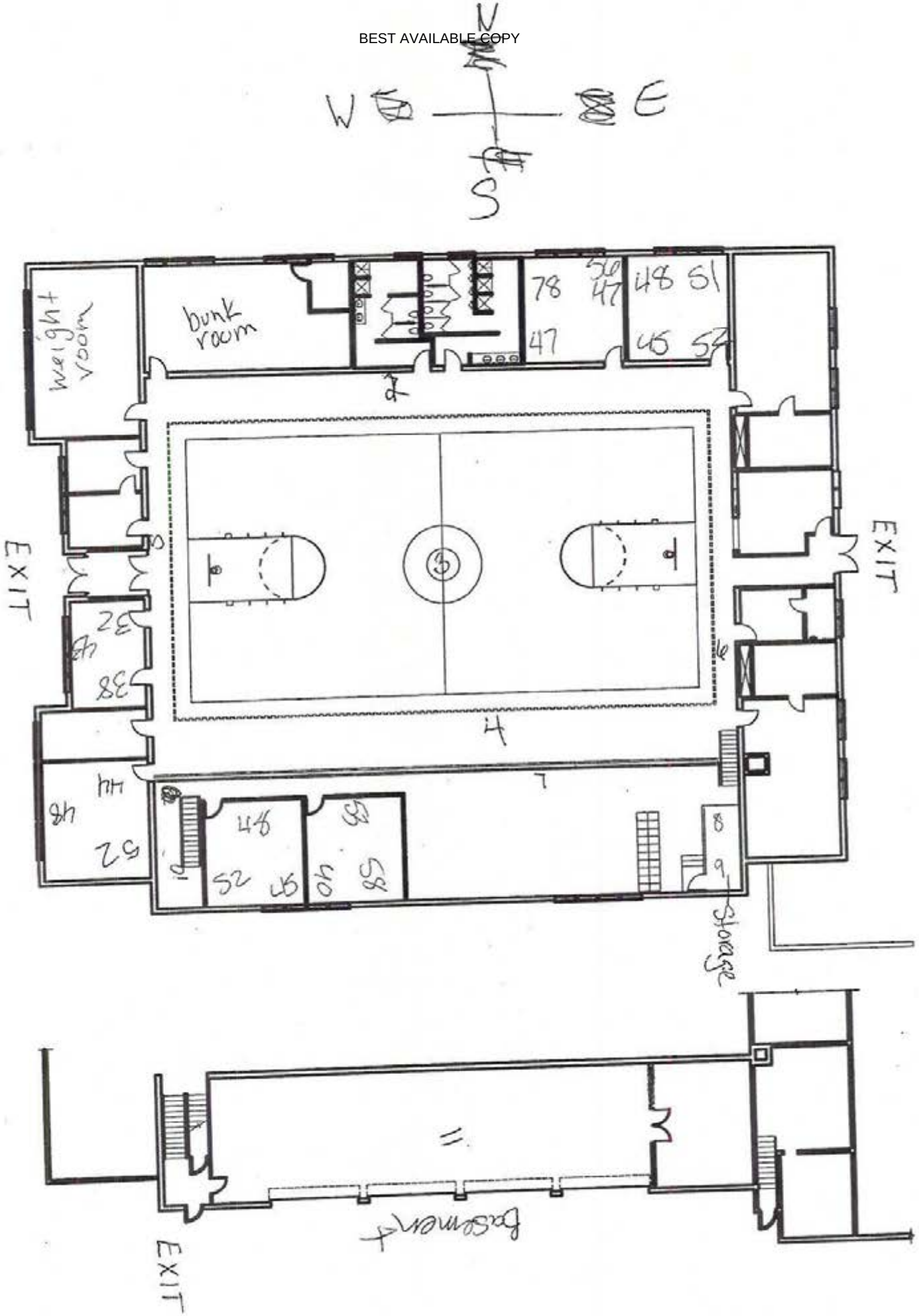


Photo #15- CIFR

Photo #16- Drill Hall

Appendix D

Laboratory Analysis Reports
Sample Location & Log



Appendix E

Violation Inventory Log

Industrial Hygiene Southwest

Violation Inventory Log

LOG OF SCHEDULE OF CORRECTIVE ACTION - COMPLIANCE WITH SAFETY AND HEALTH STANDARDS

PRICE ARMORY CIFR,UTAH 84501

CONTROL NUMBER CLOSED [X]	HAZARD DESCRIPTION	SITE	RAC	CORRECTIVE ACTIONS (Abatement Plan)	SUSPENSE DATE	ACTION OIC/NCOIC	Estimated Cost(s)	DATE CORRECTED	REFERENCES
UTPA-10012014-3.1	Lead levels exceded the minimun requirements.	Armory	4	Upgrade housekeeping practices throughout this facility to help prevent migration of lead dust. Thoroughly clean areas identified above 40 ug/gt2. Utilize Armory Clean-up SOP in future cleaning episodes.					Occupational Safety and Health Administration (OSHA) standard for lead; 1910.1025 (h)(1)

Reference DA FORM 4754
VER: 15 OCT 2009

30Sept 2014

ARMY NATIONAL GUARD
INDUSTRIAL HYGIENE – SOUTHWEST

Guam • Hawaii • California • Oregon • Washington • Nevada • Arizona • Idaho • Utah • Wyoming • Montana • New Mexico • Nebraska

Industrial Hygiene Site Assistance Visit

Richfield Armory
620 West 200 South
Richfield, UT 84701

10510 Superfortress Avenue, Suite C, Mather, CA 95655 (916) 854-1494

Industrial Hygiene Southwest's mission is to ensure all military personnel and military leadership is provided the specialized technical expertise, consultation and assistance to ensure all military operations and processes are conducted in a healthy manner

10510 Superfortress Avenue, Suite C, Mather, CA 95655 (916) 854-1494

DEPARTMENT OF THE ARMY AND AIRFORCE
NATIONAL GUARD BUREAU
INDUSTRIAL HYGIENE SOUTHWEST
10510 Superfortress Ave, Ste. C
Mather, CA 95655

19 OCT 2014

ARNG-CSG-P

MEMORANDUM THRU Non-Responsive 12953 Minuteman Dr., ATTN: Deputy State Surgeon, Draper, UT 84020

FOR Commander, Richfield Armory 620 West 200 South, Richfield, UT 84701

SUBJECT: Executive Summary for Industrial Hygiene Site Assistance Visit (IHSAV) for Richfield Armory 620 West 200 South, Richfield, UT on 30 SEP 2014

1. **References**. See survey report.

2. **General.**

a. At the request of the NGB Industrial Hygiene, Southwest (IHSW) Region, an Industrial Hygiene Site Assistance Visit and cursory review of safety related items and programs was conducted at the Richfield Armory 620 West 200 South, Richfield, UT on 30 SEP 2014

b. The findings and recommendations in this Executive Summary are controlling and supersede all recommendations in the Industrial Hygiene (IH) report (reference Attachment II). However, IHSW concurs with the observations and findings within the attached IH report.

c. Risk Assessment Codes (RAC) provided in this report have been derived from two sources: Deriving Risk Assessment Codes (RAC's) for Health Hazards (Ref: DOD Instruction 6055.1) and AR 385-10, The Army Safety Program.

d. Use of trademark names in the attached report, or this Executive Summary, does not imply Army National Guard endorsement of any product.

3. **Findings.** See survey report.

4. **Commendable.**

a. The facility was generally clean and orderly and personnel were helpful during this IHSAV.

5. **Observations / Recommendations.**

NOTE: This section provides conclusions and recommendations for the findings and observations made within the attached contractors report. The paragraphs are numbered to correspond to the sections where they were first noted. (i.e., paragraph 2.1a represents the 2.1a located within the contractors report.

a. Upgrade housekeeping practices throughout this facility to help prevent migration of lead dust. Utilize the Armory SOP in future cleaning episodes (para. 3.1) **(RAC 4)**

b. Conduct a facility survey to identify Asbestos Containing Material (ACM) within the facility and develop ACM Management Plan. Conduct awareness training to all personnel who occupy the facility regarding the finding s and the ACM Management Plan. The survey may have been completed, however, at the time of this assistance visit awareness training, ACM identification, or an ACM Management Plan was not available. (para. 3.2) **(RAC 3)**

c. Have the annual and monthly fire extinguisher inspections conducted and ensure extinguisher inspection tags are properly annotated. (para. 3.6) **(RAC 3)**

d. Increase illumination in identified areas to the necessary 50 foot candles. Replace unserviceable light bulbs, clean fixtures, paint walls a lighter color. Move detailed work to areas with greater illumination. It may be necessary to install supplemental lighting. Utilize task lighting, as needed. (para. 3.8) **(RAC 4)**

6. Violation Correction Log.

a. IHSW has provided a Violation Correction Log derived from the observations from this visit. IHSW recommends the following:

(1) Commander(s) assign an Action OIC/NCOIC, Suspense Date for completion, and Estimated Cost(s) to ensure item completion and corrective status is briefed during quarterly (or monthly) Safety Meetings/Councils until resolved.

(2) Corrective measures should be implemented and accomplished at the lowest levels possible. Hazards and Corrective Measures that cannot be corrected at the facility level, and require assistance from higher headquarters or from the state level, should be elevated to the Quarterly State/BN Safety Council Meeting for resolution.

(3) Recommend a representative from the facility attend all quarterly/monthly meetings to ensure the appropriate emphasis and corrective actions are followed for hazard resolution and abatement of the observations made during this visit.

(4) Retain entries of the items corrected, or closed, for future reference. This may be accomplished by posting completed items within the Corrected Hazard Sheet portion of the Excel Violation Correction Log Workbook we've provided.

(5) The preferred method to document and track identified hazards for resolution is for their entry into the Reserve Component Automation System – Safety and Occupational Health (**RCAS-SOH**) Program.

b. IHSW recommends further program refinement through written documentation for standardized guidance to the personnel performing the processes. Conducting Hazard Assessments consistent with 29 Code of Federal Regulations (CFR) 1910.132, General Requirements for Personal Protective Equipment and AR 40-5, Preventive Medicine, would provide this continued program refinement.

7. Hazard Assessment/Job Safety Analysis (JSA).

a. Documenting the Hazard Assessments provides a method to obtain initial and periodic review from the Industrial Hygiene, Occupational Health and Safety Professions located at the JFHQ/HQ/state level.

ARNG-CSG-P

SUBJECT: Executive Summary for Industrial Hygiene Site Assistance Visit (IHSAV) for Richfield Armory 620 West 200 South, Richfield, UT on 30 SEP 2014

b. The Hazard Assessments should be used as written training materials for the new, transfer and unit personnel working under the auspice of the facility.

c. IHSW recommends facility supervisory staff and facility personnel conduct initial Hazard Assessments outlined in AR 40-5, Army Preventive Medicine (Section V) and 29 CFR 1910.132 and submit for review and obtain approval from the state Industrial Hygiene, Occupational Health and Safety Professions.

d. We have provided an appendix with Hazard Assessments (HA) examples of some of this facilities operations. Additional operations can utilize this format to design HA not observed during this IHSAV.

e. An integral and important factor of the Hazard Assessment/JSA process is for the review and guidance from qualified Safety, Occupational Health and Industrial Hygiene professions located at the higher headquarters level or state level. For this reason, the Hazard Assessments (to include all pertinent and supporting documents) should be completed by the facility personnel and forward to the Utah Army National Guard Industrial Hygiene, Occupational Health and Safety Office for final review and approval (signature).

f. Job Safety Analysis (JSA's)/Hazard Assessments.

NOTE: The Hazard Assessments can be used for monthly meetings to brief/train, and document large group training events and activities.

8. IHSW recommends the **Senior Unit Commander of this Facility and any Co-Tenant Organizations or Units, review and provide assistance with implementation of these recommendations.** This will educate the chain of command and allow the unit or co-tenant organizations to take any necessary precautions or actions required by them and their personnel.

9. To assist you with execution of your responsibilities in correcting the observations noted, we encourage you to consult with the State Safety Manager, Occupational Health Manager and Industrial Hygiene professions located and/or authorized within the State Safety and Occupational Health Office.

10. For additional information please con[redacted] at (916) 854-1491 or via email at Non-Responsive

Non-Responsive

[redacted]

NGB, IHSW, CIV
Regional Industrial
Hygiene Manager

Industrial Hygiene Southwest

Violation Inventory Log

LOG OF SCHEDULE OF CORRECTIVE ACTION - COMPLIANCE WITH SAFETY AND HEALTH STANDARDS

RICHFIELD ARMORY,UTAH 84701

CONTROL NUMBER CLOSED [x]	HAZARD DESCRIPTION	SITE	RAC	CORRECTIVE ACTIONS (Abatement Plan)	SUSPENSE DATE	ACTION OIC/NCOIC	Estimated Cost(s)	DATE CORRECTED	REFERENCES
UTRA-09302014-3.1	Lead levels exceded the minimun requirements.	Armory	4	Upgrade housekeeping practices throughout this facility to help prevent migration of lead dust. Utilize Armory Clean-up SOP in future cleaning episodes.					Occupational Safety and Health Administration (OSHA) standard for lead; 1910.1025 (h)(1)
UTRA-09302014-3.2 ☐	There was no Asbestos Management plan in place.	Armory	3	Conduct a facility survey to identify Asbestos Containing Material (ACM) within the facility and develop ACM Management Plan. Conduct awareness training to all personnel who occupy the facility regarding the finding and the ACM Management Plan. The survey may have been completed, however, at the time of this assistance visit, awareness training, ACM identification, or an ACM Management Plan was not available.					29 CFR 1910.1001
UTRA-09302014-3.6	The Fire extinguishers were found to be behind on monthly inspections.	Armory	3	Properly inspect all fire extinguishers on a monthly basis. Document inspection on inspection tag on extinguisher.					29 CFR 1910.157(b)(1)].
UTRA-10012014-3.5	Armory hasn't converted to new SDS format	Armory	4	Update all MSDS for the facility with the new SDS format by Jun 2016					29 CFR 1910.1200

Industrial Hygiene Southwest

Violation Inventory Log

LOG OF SCHEDULE OF CORRECTIVE ACTION - COMPLIANCE WITH SAFETY AND HEALTH STANDARDS

RICHFIELD ARMORY,UTAH 84701

CONTROL NUMBER CLOSED [x]	HAZARD DESCRIPTION	SITE	RAC	CORRECTIVE ACTIONS (Abatement Plan)	SUSPENSE DATE	ACTION OIC/NCOIC	Estimated Cost(s)	DATE CORRECTED	REFERENCES
UTRA-09302014-3.6	The Fire extinguishers were found to be behind on monthly inspections.	Armory	3	Properly inspect all fire extinguishers on a monthly basis. Document inspection on inspection tag on extinguisher.					29 CFR 1910.157(b)(1)].
UTRA-09302014-3.8 [ ]	Levels were below recommended minimum standards in some areas of the facility.	Armory	4	Replacing burnt out luminaries, cleaning fixtures, cleaning windows, painting walls a lighter color, repositioning detailed work to higher illuminated areas, and using supplemental lighting would improve some areas. Utilize task lighting, as needed to help prevent eye strain in the work place.					DG 415-2 and Lighting Handbook, Illuminating Engineering Society (IES) of North America]

Indoor Firing Range

Decontamination and Cleaning Protocol

(Periodic Cleaning and Conversion)

1. Ensuring that all procedures listed below comply with all federal, state, and local regulation. Consult with the Regional Industrial Hygiene Office and the States Environmental Office for future guidance.
2. **Ventilation System**

   The range ventilation system must be in operation during all cleaning activities. If no ventilation system is available all doors and windows must keep sealed to prevent contamination of other areas.
3. **Materials**

   I. A High Efficiency Particulate Air (HEPA) filtered vacuum system is the preferred method of cleanup. If a HEPA vacuum cannot be obtained a wet method, detailed below, should be utilized. **A high-pressured water system or dry sweeping may not be used.**

   II. A cleaning solution containing detergent and water is recommended. New solutions of detergent and water should be mixed frequently.

   III. Two containers should be used; one for wetting the applicator (rags, sponge, mop) and the other for rinsing once the dust has been wiped from the surfaces.

IV. Wastewater in containers can be left to evaporate. Any waste left in the buckets and applicators should be disposed of as hazardous waste**. Consult the Environmental Office for appropriate disposal instructions**.

V. Personal responsible for decontamination of the range and stored items be provided with a full face air purifying respirator with a N100 filter or HEPA filter cartridge providing that all requirements for placing employees in respiratory protection have been met as detailed in 29 1910.134. Employees should be provided with protective coveralls with hood and shoe covers (i.e. Tyvex TM full body suite). If cotton coveralls are provided then the employer must provide for laundering of protective clothing. Protective clothing should not be taken home. Prior to leaving the area, personnel should thoroughly HEPA vacuum the clothing to prevent lead dust from leaving the area. Work and street clothing should not be stored together.

4. Order of Cleaning

I. A progression of cleaning form top to bottom and from behind the steel backstop to the firing line should be used. All surface areas in the range must be cleaned. Stored items must be decontaminated prior to removal.

II. After removing the sand/or the steel backstop, areas in front of and behind the bullet trap, along with the steel backstop plates should be cleaned.

III. The ceilings, lights, baffles, retrieval system, heating system, and ventilation ducts should be cleaned.

IV. Acoustical material should be vacuumed and removed instead of being painted over. A toxic Characteristic Leaching Procedure (TCLP) test may be used for acoustical material to determine if the material needs to be classified as hazardous and disposed of according lt. The Environmental Office should be contacted regarding this testing.

V. The floor should be the last surface cleaned starting at the bullet trap and ending behind the firing line, to include the plenum area. Concrete floors should be sealed with deck enamel, or lead paint sealant.

VI. All walls should be painted, preferably with a lead sealant paint, which will help prevent any leaching of lead after covering.

VII. Following the wet cleaning of the area and after all surfaces have been allowed to dry thoroughly, a HEPA vacuum should be used on all surfaces, until no dust or residue can be seen. A thorough inspection to detect surface lead dust should be made following cleanup.

VIII. The Regional Industrial Hygiene Office should be contacted for clearance sampling and to approve the range for converted use.

5. Decontamination of Stored Items

I. All stored items must be decontaminated before removing from the range, stored equipment next to the bullet trap and firing line should be decontaminated first.

II. A HEPA vacuum or wet cleaning method should be used. Every attempt should be made to clean the item before disposing as hazardous waste to reduce cost and waste.

III. Porous items such as canvas tents or other fabrics may be laundered at companies, which specialize in industrial laundry services. Office partitions and carpeting present during firing should be considered grossly contaminated and disposed of as hazardous waste. Consult the Environmental Office before removing and disposing of items.

6. Medical Surveillance

A pre-placement medical examination is required for all individuals involved with range cleanup operations.

7. Air Monitoring

Worker breathing zone air samples must be collected during range cleanup to ensure that workers are not overexposed and to evaluate clean-up procedures.

8. Hazard Training

A training program must be instituted for all individuals who are subject to exposure to lead at or above the action levels, or for whom the possibility of skin or eye irritations exits. This training should be provided for all personal currently involved in range cleanup operations, at least annually. As required by 29 CFR 1910.1025(l)

ARMORY

CLEANUP & FOLLOW-UP HOUSEKEEPING RECOMMENDATIONS

Materials Needed:

1. Cloth Mop head (s) & Mop head holder(s) with handle.
2. Mop bucket (s) with wringer.
3. Clean cotton rags and sponges.
4. Disposable gloves
5. Large barrel (55 gal.) to store wastewater in after changing out of dirty scrub water. Waste water containers.
6. Disposable overshoes or rubber boots. Personnel conducting cleaning operations should not take clothes, boots, etc., home for laundering.
7. HEPA vacuum
8. Six (6) mill plastic bags to dispose of waste.
9. Detergent with surfactant, e.g., Spic-N-Span, Mr. Clean, etc.

Disposal of Waste Water and Cleaning Materials:

1. *NOTE*: Consult with Local Army National Guard Environmental Office prior to taking any collection, disposal or wiping activities commence. Each state and territory may have additional regulatory guidance on collection, storage and disposal of wastewater.

2. Mop heads should be disposed of after initial cleanup, unless otherwise advised by Environmental office personnel. Note: thorough cleaning of mop heads may be sufficient enough to reuse on future Armory cleanups but check with local Environmental Office.

3. Disposable gloves should be treated as hazardous waste.

4. Soiled cotton rags should be treated as hazardous waste.

5. Wash water contaminated with Lead can be collected and allowed to slowly evaporate leaving Lead deposits/sludge that may be collected in plastic containers, placed in metal drums, and stored for future delivery to an authorized hazardous waste disposal site.

a. Drums shall be properly labeled to identify contents In-Accordance With (IAW) Federal, State and local regulatory guidance.
b. Disposal of containerized waste shall be coordinated IAW State hazardous waste program requirements.
c. The Environmental Office shall coordinate removal and disposal of all containerized hazardous waste through established waste streams.

Post-Cleanup Precautionary Measures:

1. Thoroughly wash hands with soap and water.
2. Rinse off rubber boots with soap and water, capturing wastewater for collection into established waste stream. If personnel choose to use over shoes for protection, dispose of overshoes into waste stream. NOTE: This recommendation is for initial clean up activities and PPE requirements may be reduced after it has been determined non-hazardous levels have been achieved.
3. Wash BDU's or personal clothing separately from children's clothes.

NOTE: No eating, drinking or cosmetics allowed during cleanup procedures (these may be allowed after washing of hands/face and done outside of cleanup area)

NOTE: Avoid blowing, shaking or like actions which could potentially disperses lead dust. Dry sweeping, dusting, wiping or blowing with compressed air shall not be permitted

Initial Armory Cleanup:

1. Use a vacuum cleaner equipped with a HEPA exhaust filter. HEPA vacuum all surfaces in the room (ceiling, walls trim, and floors). Start with the ceiling and work down, moving toward the entry door. **Completely clean each room before moving on**.

2. Prepare water and detergent for the wipe down phase, according to manufactures recommendations.

3. Wet wipe, with cotton rags or sponge, any horizontal, diagonal or vertical surfaces up six (6) feet from floor surfaces using hot water and "Spic-n-Span" or an equivalent product.

    a. Rinse out cleaning cloths thoroughly and frequently.
    b. Change out cleaning water as necessary.

NOTE: **If walls to be cleaned show signs of deterioration, e.g., chipping or crumbling paint, in which wiping, scrubbing, or disrupting might potentially increase or spread contamination, then this portion of the clean up should be avoided**.

4. Now prepare water and detergent (e.g. Spic N Span, Mr. Clean, Pine Sol) for the mopping phase, according to manufactures recommendations, which should be found on the products label for general clean up.

    a. Change out water frequently (when water appears dirty)
    b. Rinse out mop heads frequently to prevent contamination of dirty water.

5. Cover entire drill floor surface with above prescribed water and detergent.

6. Final rinse should be with clean water only - -after mop heads have been cleaned.

Recommended Follow-up Housekeeping Practices *after Clearance sampling of cleaned area is performed by certified personnel:*

1. Floor cleaning and dusting should be accomplished using the wet method described in Initial Armory Cleanup SOP.

Note: Only exception to these wet cleaning procedures would be the use of a chemically treated dust floor mop. This can be used for follow-up armory cleaning by sweeping of large particles of dirt and paper.

    a. Pre-treated (chemically treated) dust floor mop will limit dust particles from being disbursed into the surround atmosphere.

b. If treated dust mop is used - -Do Not Shake Mop head - - have mop head laundered after use. **Always keep used dust mop heads in sealed double plastic bags when stored at armory/facility**. Shaking of mop head could release unwanted contaminants into surrounding atmosphere.

2. Frequency of Cleanup- Armories will vary, according to usage and how often they should be cleaned. The following general cleaning schedule is provided:

   a. Only full-time technicians and traditional soldiers using facility during the month. (***Cleaned Monthly***)

   b. Occasional activities taking place during the month, e.g., 1-2 classes or volleyball games, etc. (***Cleaned 2x's Monthly***)

   c. Used regularly by soldiers or outside agencies/personnel. (***Cleaned Regularly - -at least Weekly***)

NOTE: Armories with adjoining Indoor Firing Ranges (IFR) should be cleaned more than weekly, again depending on use of Armory and IFR.

NOTE: Clearance sampling/testing is to be accomplished by certified personnel after these cleanup procedures are followed. If the area is an average Armory, occupied by adults only, for which you are cleaning and **is not a Converted IFR space**, you may continue to utilize the Armory space before the officials re-test this space. Please notify your Safety and/or Occupational Health personnel of the completion of this cleaning regime and they will notify the proper officials of the sampling/testing requirements needed.

If work is contracted out, a third party should do the clearance sampling.

Young children and females who are pregnant, there should be posted signs on all facilities, warning of the potential danger of exposure to lead dust.

UTAH ARMY NATIONAL GUARD

RICHFIELD ARMORY

620 West 200 South St.
Richfield, UT 84701
(435) 896 0257

Submitted to:

Non-Responsive
National Guard Bureau
Southwest Region Industrial Hygiene Office
10510 Superfortress Avenue
Suite C
Mather, CA 95655

There is a Converted Indoor Firing Range (CIFR) in this facility. The CIFR is now a storage area and weight room. Per Non-Responsive the Firing Range was never used as a firing range but was made into a maintenance area instantly. In 2011 renovations were made to the armory and the maintenance shop became a couple storage rooms and a weight room. Weapons are not cleaned in the armory.

Vehicle maintenance is done at FMS 5, directly next door.

2.0. Survey Procedures

2.1. Lead wipe samples were collected on dusty horizontal floor surfaces in the facility including but not limited to the drill floor, storage rooms and entrance to the weight room. "Ghost Wipe" brand wipes was used with a 16 square inch template. The wipes used conform to American Standards for Testing Materials E1792-96A, *Standard Specification for Wipe Sampling Materials for Lead in Surface Dust*. The collected wipe samples were placed in clean, labeled centrifuge tubes. Samples were submitted to Reservoir Environmental Services, Inc for analysis via Flame Atomic Absorption, USEPA Method SW846 3050B. Laboratory results are listed in micrograms of lead per square foot (µg/ft2). Copies of the raw analytical data are presented in **Appendix E.**

A visual inspection of materials utilized in this 1960's constructed building was performed. All accessible areas of the facility were visually inspected to identify suspect asbestos-containing materials (ACM).

Illumination measurements were taken in several areas of the armory using an ExTech Light Meter, Model EA 31. Measurements in the office and classroom areas were taken at typical work locations, such as the tops of desks and near computer workstations.

Exhaust ventilation was measured on the industrial kitchen hood.

Equipment Used

Type	Model Number	Serial Number	Calibration Date
VelociCalc	8386A	54110581	March, 2014

Type	Model Number	Serial Number	Calibration Date
Extech Light Meter	EA31	Z301903	September 2013

3.0. Findings and Recommendations

3.1. **Lead wipe sampling-** Analytical results from the lead wipe sampling obtained from the armory are found in Table 3.1.A. A graphical and written representation of sampling locations can be found in ***Appendix E*** along with analytical reports. Photographs were taken of each sample point and are presented in ***Appendix C***. There are currently no

INDUSTRIAL HYGIENE ASSISTANCE VISIT
RICHFIELD ARMORY
RICHFIELD, UTAH

1.0. Introduction and Background

1.1. This report summarizes the results of the Industrial Hygiene (IH) Survey conducted at the Richfield Armory in Richfield, UT on September 30, 2014. The Army National Guard of Industrial Hygiene Southwest Regional Manager (ARNG-IHSW) requested Aloha World to visit the Richfield Armory to evaluate ventilation, lighting, noise, and verify vehicle and hazardous materials inventories. The IH Survey also included an interview with Non-Responsive regarding industrial hygiene, OSHA training compliance, personnel Federal Employees Compensation Act (FECA) claims, as well as safety standards in the work area. Finally, the IH Assessment included the development of employee profiles as baseline administrative occupational health records for employees. Non-Responsive from Aloha World completed this survey.

1.2. The following sections will provide details on how the IH Survey was conducted. A drawing showing the facility layout and sampling locations is included as **Attachment E**. The most stringent OSHA, ARNG, Corps of Engineers (COE), American National Standards Institute (ANSI), American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) and Design Guide standards in effect at the time of the survey were used to assess the workplace.

1.3. The Richfield Armory supports the Alpha Battery Co. The Armory has 3 full time guard members (**Appendix F**) and approximately 65 guardsmen and women on drill weekend. This armory was constructed in the early 1960's and was renovated in 2011. The armory has offices used for administrative purposes and also contains a drill floor, arms room, supply room, classroom and weight room.

standards that dictate what a safe level of lead is from a wipe sample. Lead sampling results can be compared to the protocol outlined in the U.S. Department of Housing and Urban Development's (HUD's) *Guidelines For The Evaluation And Control Of Lead-Based Paint Hazards In Housing,* June 1997. HUD currently recommends an exposure limit of 40 ug/ft^2. This guideline was established to prevent lead exposure to children in domestic homes, along with females who are pregnant. Areas that have levels that exceed 40 ug/ft^2 should be thoroughly cleaned and employees that may come into contact with those areas should be properly trained in the hazards of lead exposure.

Lead Wipe
Table 3.1.A.

Sample ID	*AREA*	*Photo #*	*Result ug/ft2*
092914-1	Control	NA	BDL
092914-2	North drill hall	2	BDL
092914-3	Center drill hall	3	BDL
092914-4	South drill hall	4	BDL
092914-5	West drill hall	5	BDL
092914-6	East drill hall	6	BDL
092914-7	North CFR	7	51.8
092914-8	Center CFR	8	BDL
092914-9	South CFR	9	BDL
092914-10	West CFR	10	BDL
092914-11	East CFR	11	BDL

BDL= Below Detection Limits **ug/ ft2= Micrograms per Square Foot**

NOTE: Please continue the cleaning of working environment throughout the armory, especially in weapons cleaning areas. Please utilize the attached SOP and general information paper provided for cleaning procedures.

Recommendation: Dry sweeping should be restricted in areas where accumulations of dust are present to prevent toxic metals on surfaces from becoming airborne. The cleaning of loose material from horizontal surfaces should be conducted with HEPA (High Efficiency Particulate Air) vacuums and/or wet mopping. Any area that exceeds 40 ug/ft 2 should be thoroughly decontaminated

3.2. **Asbestos Survey** Non-Responsive was asked during this survey about the presence of asbestos and he advised no asbestos has ever been found or suspected in the armory.

All accessible areas of the facility were visually inspected to identify suspect ACM. All accessible surfaces, structures, and mechanical systems within these areas were examined and all suspected ACM was inspected to determine friability. No bulk samples were taken during this survey period.

Asbestos is regulated as a hazardous air pollutant by the Environmental Protection Agency (EPA) under the authority of the Clean Air Act. The asbestos regulations are included in the National Emissions Standards for Hazardous Air Pollutants (NESHAPS) and are referenced as 40 CFR 61, Subpart M.

ACM is defined by the EPA, as any material containing greater than one percent of asbestos. ACMs are categorized as being either friable or non-friable. Friable ACMs are those materials that can be easily crumbled, pulverized, or otherwise broken up using hand or finger pressure when dry, and are materials considered more likely to produce airborne asbestos fibers. Non-friable ACMs are materials that do not meet the above test, and are considered less likely to produce airborne asbestos fibers. Non-friable ACMs are further categorized into Category I non-friable ACM (packing's, gaskets, resilient floor coverings, and asphalt roofing products) and Category II non-friable ACM (materials not included in Category I).

Limitations and Exclusions of Findings

This asbestos survey and assessment was performed using procedures and a level of diligence typically exercised by professional performing similar services. However, asbestos-containing material (ACM) can be present in a structure, but not identified using ordinary investigative procedures.

No asbestos survey can completely eliminate uncertainty regarding the presence of ACM. The level of diligence and investigative procedures are intended to reduce, but not eliminate, potential uncertainty regarding the presence of ACM.

The only way to tell if an object contains asbestos by looking at it is if the material is labeled. Otherwise, you should have it sampled and analyzed by a qualified professional. Until you receive the results, treat the material as if it contains asbestos. Samples should be extracted only by qualified professionals. If improperly done, extracting samples can be more hazardous than leaving the material undisturbed.

Recommendation: Conduct a facility survey to identify Asbestos Containing Material (ACM) within the facility and develop ACM Management Plan. Conduct awareness training to all personnel who occupy the facility regarding the finding s and the ACM Management Plan. The survey may have been completed, however, at the time of this assistance visit awareness training, ACM identification, or an ACM Management Plan was not available. 29 CFR 1910.1001

3.3. **Indoor air quality and HVAC Systems-** The armory is heated and cooled through a central air system that was replaced in 2011. The FMO maintains the HVAC system.

Building air temperature, within this facility, was in the comfort range for the occupants during this survey period. The day of the survey it was 58 degrees Fahrenheit outside. Inside air temperature is recommended to be between 68-75 degrees Fahrenheit and the relative humidity is to range from 30-60%. The indoor temperature was 72-75 degrees Fahrenheit. Humidity

levels above 60 percent can result in proliferation of bacteria and fungi, while levels below 30 percent can cause dry eyes, skin, and mucous membranes. There were no signs of water leakage.

3.4. **Exhaust and Ventilation Systems**- The Richfield Armory does not have a maintenance bay. All vehicle maintenance is done in FMS 5, located next door.

Air flow was measured in the industrial kitchen under the hood of the oven. Air flow was measured at 765 fpm. This kitchen exhaust duct meets the 2011 National Fire Protection Association Standard 96, Section 8.2.1.1, which requires exhaust fan ducts used in commercial cooking equipment to have a duct velocity of not less than 500 fpm.

3.5. **Hazard Communication & Hazardous Materials Use and Storage**- All Hazmat and POL's are stored and maintained at FMS 5 located next door to the armory. Initial HazCom and annual training is kept on file for employees. Chemicals for equipment maintenance and janitorial uses are maintained at the facility in minimal quantities. A copy of this list can be found in **Appendix H**. The SDS file is still listed as MSDS since the Globally Harmonized System (GHS) Classification of Labeling Chemicals has just taken effect this year and the documents are still MSDS documents.

Small quantities of cleaning products, utilized by the workers, were located in the janitors' closet. Arms custodians, for cleaning purposes, should be utilizing user and environmental friendly products, while the more harmful products should be properly disposed of. A well-ventilated area should be utilized when using any solvent products, along with the appropriate Personal Protective Equipment (PPE) as designated on the MSDS information sheets. The MSDS was updated and very well organized.

Recommendation: Update all MSDS for the facility with the new SDS format by June 2016 CFR 1910.120.

3.6. **Physical Safety and Condition of Facility**- A physical walk through of the facility was conducted. Overall, housekeeping was found to be in above average condition. Electrical breaker boxes were properly labeled and accessible.

This 1960's building is of concrete block and brick construction with a concrete roof over the drill hall, tar and rock composite on remaining roof area.

The fire extinguishers within this facility are part of the fire suppression available and should be tested annually and inspected monthly. NFPA 10, 27-3.4.1 addresses alarm systems and 29 CFR 1910.157 addresses inspection requirements for fire extinguishers. Annual inspections should be accomplished by a qualified organization, e.g., fire department, and checked and documented monthly by the facilities personnel. The fire extinguishers were found to be up to date on annual inspections but behind on monthly inspections.

Recommendation: The Fire extinguishers were found to be behind on monthly inspections. Properly inspect all fire extinguishers on an annual and monthly basis. [29 CFR 1910.157(b)(1)].

3.7. **Sound Level Survey-** A noise survey was not conducted in the Richfield Armory. No noise hazards were noted in the facility.

3.8. **Illumination Survey-** Illumination levels that were measured throughout the armory office and classroom areas can be found on the floor plan in ***Appendix D***. The numbers represent the illumination level in foot-candles (FC). In general, the measurements were taken at task surface level, such as on desks. Measurements not taken on a desk were taken at waist level.

Illumination measurements were compared with recommendations made by the Industrial Engineering Society (IES)/American National Standards Institute (ANSI) RP7-1991. In general, IES recommends a range of **50 to 100 foot-candles** as the minimum lighting requirements for performance of visual tasks of medium contrast or small size, such as would typically occur in an office area.

Based on these criteria, the general lighting appears to be inadequate in two of the office spaces. Inadequate light levels may place strain on the eyes and cause headaches or vision problems. With an aging work force in place, task lighting can help reduce the vision problems associated with inadequate lighting. Adequate lighting was found in the classroom and in the two offices.

Recommendation: Levels were below recommended minimum standards in most office spaces. Replacing burnt out luminaries, cleaning fixtures, cleaning windows, painting walls a lighter color, repositioning detailed work to higher illuminated areas, and using supplemental lighting would improve some areas. Utilize task lighting, as needed to help prevent eye strain in the work place. [DG 415-2 and Lighting Handbook, Illuminating Engineering Society (IES) of North America]

3.9. **Safety Policies, Training, and Record Keeping** – The following safety policies and procedures were found at this site:

All courses are taken at the FMS next door to the armory.

4.0 Industrial Hygienist Certification and Project Limitations

All Industrial Hygiene Assessment techniques and tests used in the Industrial Hygiene survey of the Army National Guard Armories were reviewed by Non-Responsive [redacted] Industrial Hygiene Southwest, National Guard Bureau at (916) 854-1492.

This Project was performed using, as a minimum, practices consistent with standards acceptable within the industry at this time, and a level of diligence typically exercised by industrial hygiene and environmental consultants performing similar services.

The procedures used in this investigation attempt to establish a balance between the competing goals of limiting investigative and reporting costs and time, and reducing the uncertainty about

unknown conditions. Therefore, because the findings of this report were derived from the scope, costs, time, and other limitations, the conclusions should not be construed as a guarantee that all environmental or occupational hazards have been identified and fully evaluated. Where sample collection and testing have been performed, Aloha World's professional opinions are based in part on the interpretation of data from discrete sampling locations that may not represent conditions at non-sampled locations. Aloha World assumes no responsibility for omissions or errors resulting from inaccurate information or data provided by sources outside of Aloha World, or from omissions or errors in public records.

Furthermore, it is emphasized that the final decision on how much risk to accept always remains with the client since Aloha World is not in a position to fully understand all of the client's needs. Clients with a greater aversion to risk may want to take additional actions while others, with less aversion to risk, may want to take no further action.

5.0 Technical Assistance

For technical assistance regarding information found in this report or the performed survey, please contact Non-Responsive of the Southwest Regional Industrial Hygiene Office-(916) 854 1492. Contact the State Safety, State Industrial Hygiene and Occupational Health Office and/or the Regional Industrial Hygienist should any of the operations change, or should the personnel become incapable of following the previous recommendations and subsequent recommendations that are needed.

Non-Responsive
Aloha World Environmental

Appendix A: References

American Conference of Governmental Industrial Hygienists (ACGIH), Industrial Ventilation, A Manual of Recommended Practice, 23 Edition, 1998.

American Conference of Governmental Industrial Hygienists (ACGIH), Threshold Limit Values for Chemical Substances and Physical Agents and Biological Indices for 1998.

American National Standards Institute (ANSI)/Illuminating Engineering Society (IES), Industrial Lighting 1991.

American National Standards Institute, Z358. 1-1998. Emergency Eyewash and Shower Equipment 1998.

AR 40-5, Preventative Medicine, 15 October 1990.

AR 385-10, The Army Safety Program, 23 May 1988.

Corps of Engineers Guide Specification, CEGS-1585 1, Overhead vehicle tailpipe (and welding fume) Exhaust Systems, May 1984.

DA PAM 40-ERG, Ergonomics

DA PAM 40-501, Hearing Conservation, 27 August 1991.

National Safety Council, Fundamentals of Industrial Hygiene, 4~ edition, 1996.

NOR 385-10, Army National Guard Safety and Occupational Health Program, 29 December 1989.

TB MED 503, The Army Industrial Hygiene Program, February 1985.

TG022, US Army Environmental Hygiene Agency (USAEHA), Industrial Hygiene Evaluation Guide, October 1975

TG 141, US Army for Health Promotion and Preventive Medicine (USACHPPM) Industrial Hygiene Air Sampling Guide, Nov. 1997

Title 29, Code of Federal Regulations (CFR), 1998, revision Part 1910, Occupational Safety and Health Standards

Title 29, Code of Federal Regulations (CFR), 1998, revision Part 1926, Construction Standards

Appendix B: Assessment Criteria

A. Ventilation Standards

Ventilation rates were compared to recommendations made in the ACGIH Industrial Ventilation Manual and Corps of Engineers specifications. See Appendix A for reference information.

B. Illumination Standards

Illumination measurements were compared with recommendations made by the Industrial Engineering Society (IES)/American National Standards Institute (ANSI) RP7-1991 Standard and MIL-STD1472E.

C. Noise

Noise measurements were taken and compared with OSHA Standard 29 CFR 1910.95 and Department of the Army Pamphlet 40-501.

D. Air Sampling

Personal air sampling, if conducted, was in compliance with applicable NIOSH Analytical Methods. Sampling results were compared to relevant Occupational Safety and Health Administration (OSHA) Permissible Exposure Limits (PEL), American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Values (TLV), or National Institute of Occupational Safety and Health (NIOSH) Recommended Exposure Limits (REL).

E. Risk Assessment Codes

Risk Assessment Codes (RACs) are included in this report to quantify the risk of particular operations to employees and to establish funding priorities for corrective actions. RACs are assigned with regard to hazard severity and mishap probability. The type, length, and route of exposure are taken into consideration, as are the medical effects that would occur with such exposures.

Appendix C

Photograph Log

Photo Log

Photo #1 – Richfield Armory

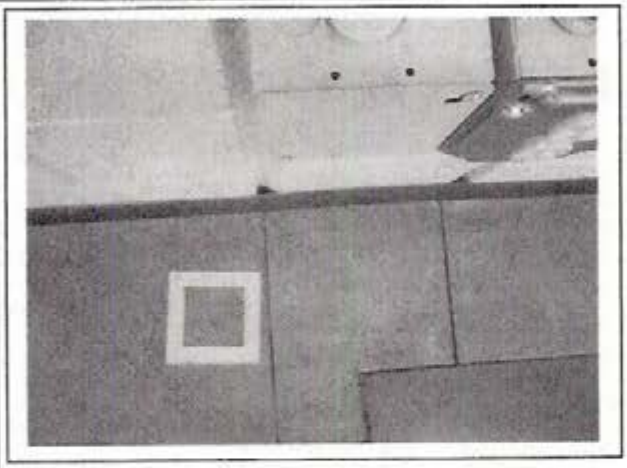


Photo #2- North drill hall wipe

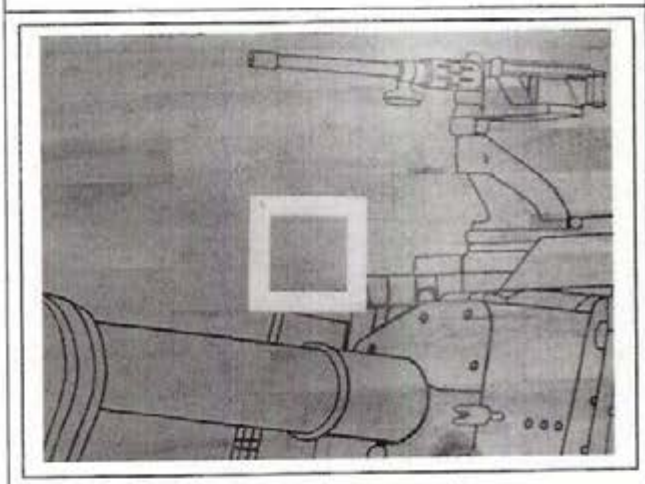


Photo #3- Center drill hall wipe

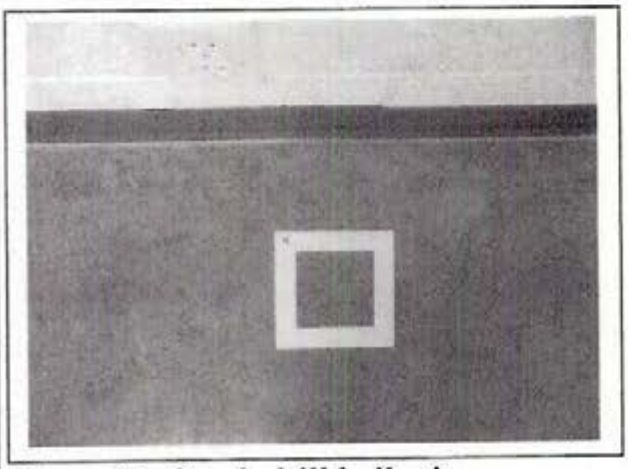


Photo #4- South drill hall wipe

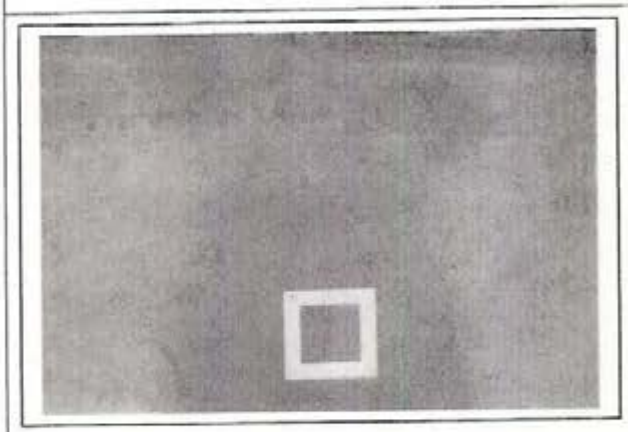


Photo #5 –West drill hall wipe

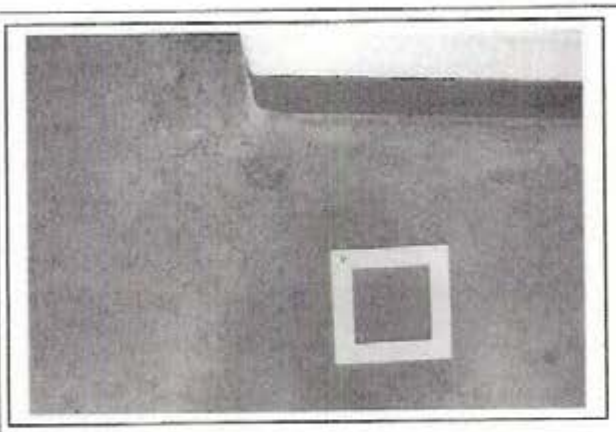


Photo #6 – East drill hall wipe

Photo Log

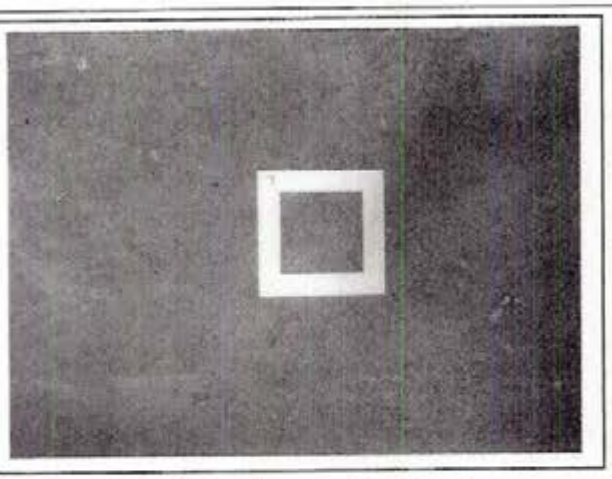


Photo #7 – Northwest CIFR wipe

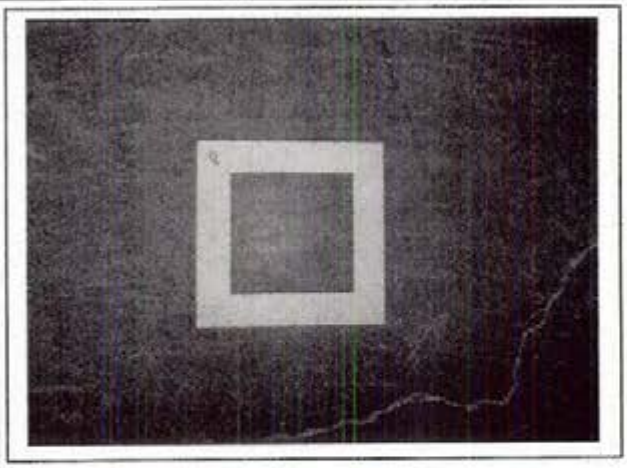


Photo #8- Center CIFR wipe

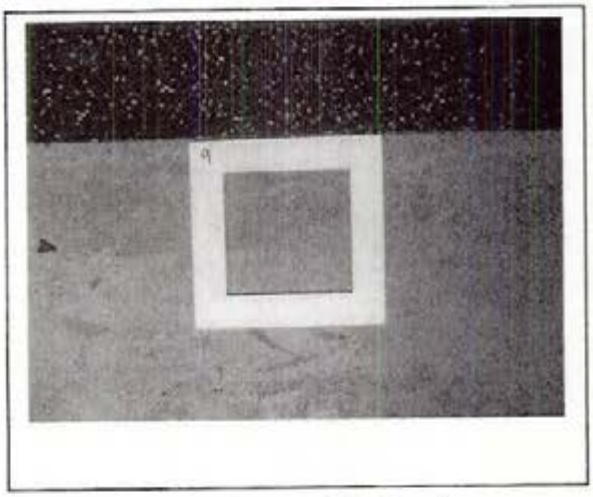


Photo #9 – Southeast CIFR wipe

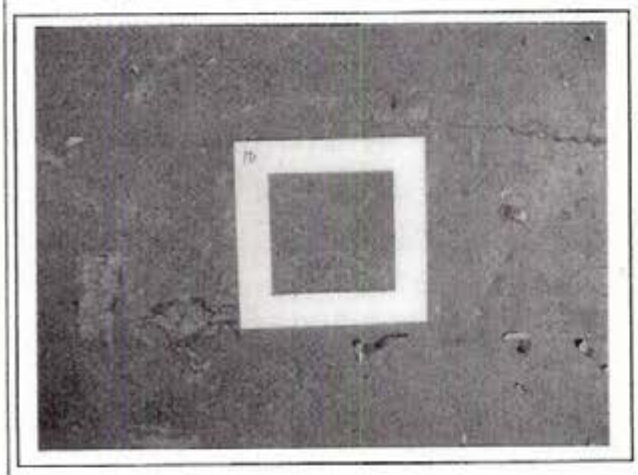


Photo #10 – West CIFR wipe

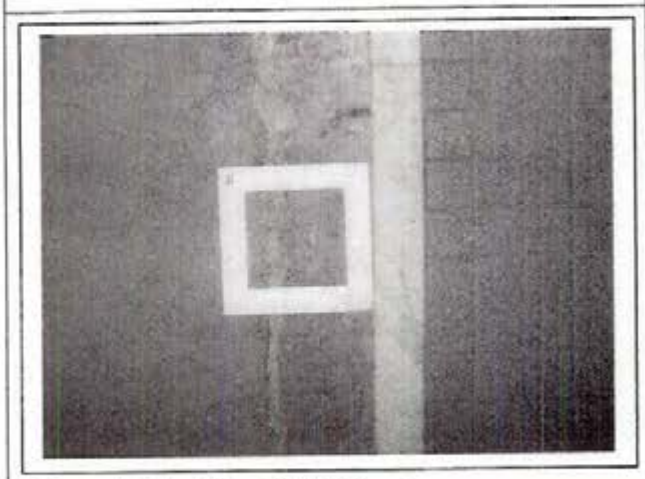


Photo #11 –East CIFR wipe

Photo #12 –Drill Hall/CIFR

Photo Log

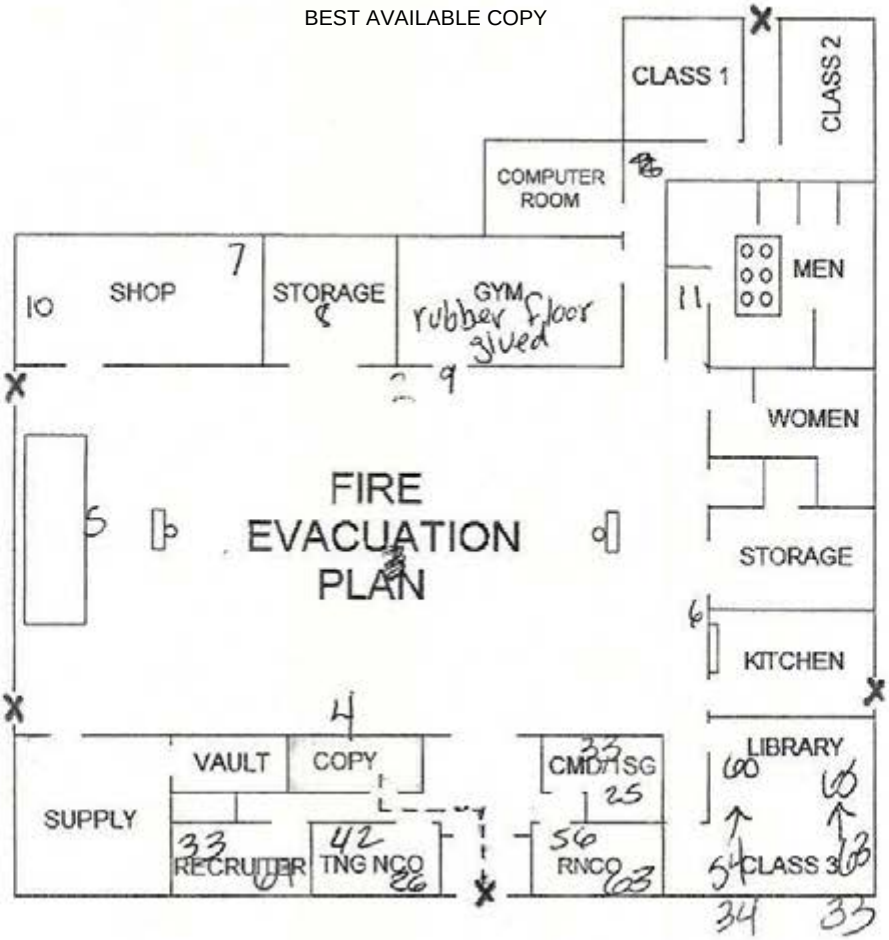
Photo #13-Janitorial closet

Photo #14-Weight room/CIFR

Photo #15-Kitchen

Appendix D

Floor Plan/Illumination Survey



Appendix E

Laboratory Analysis Reports
Sample Location & Log

RESERVOIRS ENVIRONMENTAL, INC.

5801 Logan St., Suite 100
Denver CO 80216

TABLE ANALYSIS: LEAD BY WIPE SAMPLING

RES Job Number:	**RES 302222-1**
Client:	**Aloha World**
Client Project Number / P.O.:	**092914**
Client Project Description:	**Richfield Armory**
Date Samples Received:	**October 4, 2014**
Analysis Type:	**USEPA SW846 3050B / AA (7420)**
Turnaround:	**3-5 Day**
Date Samples Analyzed:	**October 13, 2014**

Client ID Number	Lab ID Number	Sample Area (sq.ft.)	LEAD (µg)	Reporting Limit (µg/ft^2)	LEAD CONCENTRATION (µg/ft^2)
092914-1	EM 1270427	0.11	BRL	22.7	BRL
092914-2	EM 1270428	0.11	BRL	22.7	BRL
092914-3	EM 1270429	0.11	BRL	22.7	BRL
092914-4	EM 1270430	0.11	BRL	22.7	BRL
092914-5	EM 1270431	0.11	BRL	22.7	BRL
092914-6	EM 1270432	0.11	BRL	22.7	BRL
092914-7	EM 1270433	0.11	5.7	22.7	51.8
092914-8	EM 1270434	0.11	BRL	22.7	BRL
092914-9	EM 1270435	0.11	BRL	22.7	BRL
092914-10	EM 1270436	0.11	BRL	22.7	BRL
092914-11	EM 1270437	0.11	BRL	22.7	BRL

***Calculations Based On A 1 sq.ft. Sample Area Unless Otherwise Noted**
*** Unless otherwise noted all quality control samples performed within specifications established by the laboratory.**

Non-Responsive

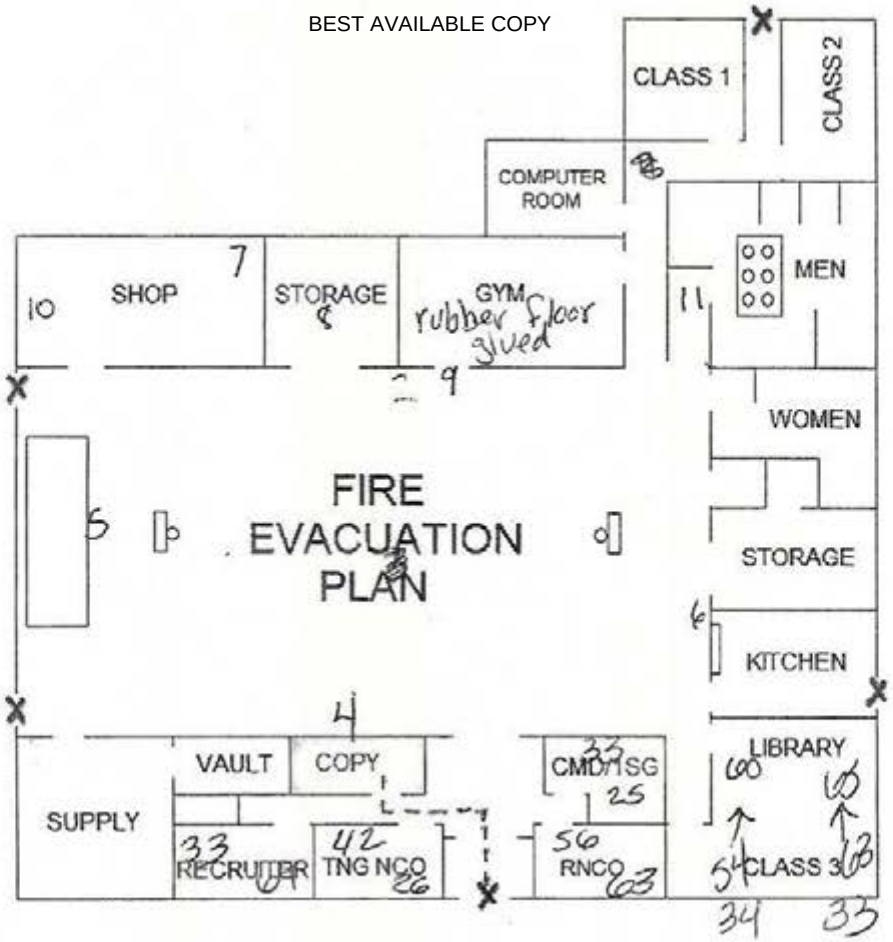
Data

BRL = Below Reporting Limit

P: 303-964-1986
F: 303-477-4275

5801 Logan Street, Suite 100 Denver, CO 80216

1-866-RESI-ENV
www.reilab.com



407 243 224 224
278
229
260 246
N
W E
S

Appendix F

Full-Time Personnel Listing

RICHFIELD ARMORY FULL TIME ROSTER

Appendix G

ARNG Survey Checklist

Army National Guard Armory Survey
(To Be Included In Report)

Five **lead wipe** samples collected from drill floor (take samples from dusty horizontal floor surfaces)	✓
Are any **weapons cleaned** in the facility, if yes where are they cleaned?	✓
Additional lead **wipe** samples taken from 25% of the rest of the building - -**(on floor areas only)**	✓
Is there **a converted indoor firing range**? If so collect additional wipe samples IAW the SOW.	yes - never used
Is there any peeling **paint**? Take bulk sample if able.	no
Are there any signs of water damage or **mold**?	none
Any suspected **ACM**? Where and what condition is it in. Bulk sample if able.	none found
Quality of housekeeping	good
HVAC maintenance plan in place?	FMO
Overall condition of HVAC system	heat & A/C central
Obtained **CO2, Temp, RH** monitoring	✓
HAZMAT inventory on hand (make copies for the report), **MSDS** available for all materials. copied	✓ FMS 5 - next door ↓
HAZMAT storage, Condition of lockers, if outside storage building is used is it ventilated and does it meet OSHA standards.	

Fire alarm in working condition - -not usually in place in older armories	yes
Fire extinguishers in place and properly identified and mounted	yes - storage
Evidence of **monthly fire extinguisher inspections**	no
Annual fire extinguisher inspections tags current	yes
Are **eye wash stations** available in areas where hazardous materials are used and are they inspected weekly (inspections must be documented)	none
Egress routes accessible and properly marked - -noted on Fire Evacuation Plan	yes
Training programs in place; Hazcom, Respiratory Protection, Confined Spaces, Hearing conservation, PPE (if applicable)	n/a
Any Photo labs	✓
Any hazardous **noise** sources	✓
Light levels checked throughout building	✓
Breaker panels properly labeled with no exposed wiring	good
Check **building occupancy** 1. How many military personnel, how many civilian personnel 2. What types of units occupy facility, i.e. Administrative, Maintenance, etc.?	
Any **civilian activities** in armory (cub scouts, classes, day care, parties etc)	yes
Obtain two **lead air samples**	On IHSW Request Only

Evaluate Kitchen Stove Hood Flow if Present IAW NFPA Standard 96.	yes
Collect Source Noise Measurements of Kitchen Appliances and Document Using DD 2214	n/a
Conduct a safety walkthrough of entire facility document any safety deficiencies found.	✓
Take photos of outside of **building**, all **sample points** and any **pertinent hazards** or concerns.	✓
Name of Armory, **POC, phone #, address** and **organizations** in Armory **(Add Checklist to Report)**	Richfield Armory 620 W 200 S Richfield, UT 84701 **(Add Checklist to Report)**

Appendix H

Chemical List

Aloha World

LETTER	ITEM	MSDS
#	3M GENERAL PURPOSE CLEANER	YES
A	AERO KROIL	YES
C	CAP COPRO SCOURING POWDER(CAPITAL SOAP PRODUCTS)	YES
	CLP	YES
D	DENATURED ALCOHOL	YES
	DEXTER HYSOL ADHESIVE FOIL PACK KIT	YES
F	FAMILY DOLLAR AMMONIA CLEAR	YES
G	GREAT VALUE DISINFECTANT SPRAY	YES
H	HERCULES CLOBBER	YES
K	KITCHEN MATE DISH WASHING DETERGENT	YES
M	MAJOR CALAMINE LOTION	YES
	MICRELL ANTIBACERIAL LOTION SOAP	YES
O	OFF UNSCENTED	YES
P	PAINT PENS	YES
	PINE-SOL	YES
	PLEDGE	YES
	PURELL HAND SANITIZER	YES
R	REEF SAFE SUNSCREEN LOTION	YES
	REFRESH AIR FRESHENER	YES
S	SAWYER CONTROLLED RELEASE	YES
	SCRUBS DISINFECTANT WIPES	YES
	SIMPLE GREEN HAND CLEANER	YES
	SKILCRAFT CLEAN ALL PUPOSE CLEANER	YES
	SKILCRAFT DRY ERASE CLEANER	YES
	SKILCRAFT GLASS CLEANER	YES
	SKILCRAFT JAWS DISINFECTANT CLEANER DEGREASER	YES
	SKILCRAFT JAWS GLASS AND HARD SURFACE CLEANER	YES
	SKILCRAFT JAWS TILE GROUT/ BATHROOM CLEANER	YES
	SKILCRAFT PINE OIL DISINFECTANT DETERGENT	YES
	SKILCRAFT POWER DUSTER	YES
	SKILCRAFT RED INDUSTRIAL ENAMEL PAINT	YES
	STEREX BABY POWDER	YES
	SUPER GLUE	YES
U	ULTRATHON INSECT REPELLENT 8	YES
W	WNDEX	YES
Z	ZEP 40	YES
	ZEP ICE MELT	YES

Appendix I

Recommendations

RECOMMENDATIONS

1. Occupational Safety and Health Administration (OSHA) standard for lead; 1910.1025 (h) (1) require that all surfaces shall be maintained as free as practicable of accumulations of lead. Dry sweeping should be restricted in areas where accumulations of dust are present to prevent toxic metals on surfaces from becoming airborne. The cleaning of loose material from horizontal surfaces should be conducted with HEPA (High Efficiency Particulate Air) vacuums and/or wet mopping. Any area that exceeds 40 ug/ ft2 should be thoroughly decontaminated

2. Conduct a facility survey to identify Asbestos Containing Material (ACM) within the facility and develop ACM Management Plan. Conduct awareness training to all personnel who occupy the facility regarding the finding s and the ACM Management Plan. The survey may have been completed, however, at the time of this assistance visit awareness training, ACM identification, or an ACM Management Plan was not available. 29 CFR 1910.1001.

3. Update all MSDS for the facility with the new SDS format by June 2016 CFR 1910.120.

4. The Fire extinguishers were found to be behind on monthly inspections. Properly inspect all fire extinguishers on an annual and monthly basis. [29 CFR 1910.157(b)(1)].

5. Levels were below recommended minimum standards in most office spaces. Replacing burnt out luminaries, cleaning fixtures, cleaning windows, painting walls a lighter color, repositioning detailed work to higher illuminated areas, and using supplemental lighting would improve some areas. Utilize task lighting, as needed to help prevent eye strain in the work place. [DG 415-2 and Lighting Handbook, Illuminating Engineering Society (IES) of North America]

Aloha World

RECOMMENDATIONS

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Appendix J

Violation Inventory Log

BEST AVAILABLE COPY

Industrial Hygiene Southwest

Violation Inventory Log

LOG OF SCHEDULE OF CORRECTIVE ACTION - COMPLIANCE WITH SAFETY AND HEALTH STANDARDS

RICHFIELD ARMORY,UTAH 84701

CONTROL NUMBER CLOSED [x]	HAZARD DESCRIPTION	SITE	RAC	CORRECTIVE ACTIONS (Abatement Plan)	SUSPENSE DATE	ACTION OIC/NCOIC	Estimated Cost(s)	DATE CORRECTED	REFERENCES
UTRA-09302014-3.1	Lead levels exceded the minimun requirements.	Armory	4	Upgrade housekeeping practices throughout this facility to help prevent migration of lead dust. Utilize Armory Clean-up SOP in future cleaning episodes.					Occupational Safety and Health Administration (OSHA) standard for lead; 1910.1025 (h)(1)
UTRA-09302014-3.2 ☐	There was no Asbestos Management plan in place.	Armory	3	Conduct a facility survey to identify Asbestos Containing Material (ACM) within the facility and develop ACM Management Plan. Conduct awareness training to all personnel who occupy the facility regarding the finding and the ACM Management Plan. The survey may have been completed, however, at the time of this assistance visit, awareness training, ACM identification, or an ACM Management Plan was not available.					29 CFR 1910.1001
UTRA-09302014-3.5	The SDS file is still listed as MSDS since the Globally Harmonized System (GHS) Classification of Labeling Chemicals has just taken effect this year and the documents are still MSDS documents.	Armory	4	Update all MSDS for the facility with the new SDS format by June 2016					(CFR 1910.120)

30Sept 14

ARMY NATIONAL GUARD
INDUSTRIAL HYGIENE – SOUTHWEST

Guam • Hawaii • California • Oregon • Washington • Nevada • Arizona • Idaho • Utah • Wyoming • Montana • New Mexico • Nebraska

Industrial Hygiene Site Assistance Visit

Richfield Armory-Converted Indoor Firing Range (CIFR)

620 West 200 South
Richfield, UT 84701

10510 Superfortress Avenue, Suite C, Mather, CA 95655 (916) 854-1494

DEPARTMENT OF THE ARMY AND AIRFORCE
NATIONAL GUARD BUREAU
INDUSTRIAL HYGIENE SOUTHWEST
10510 Superfortress Ave, Ste. C
Mather, CA 95655

19 OCT 2014

ARNG-CSG-P

MEMORANDUM THRU Non-Responsive 2953 Minuteman Dr., ATTN: Deputy State Surgeon, Draper, UT 84020

FOR Commander, Richfield Armory Indoor Firing Range (IFR) 620 West 200 South, Richfield, UT 84701

SUBJECT: Executive Summary for Industrial Hygiene Site Assistance Visit (IHSAV) for Richfield Armory Indoor Firing Range (IFR) 620 West 200 South, Richfield, UT on 30 SEP 2014

1. **References**. See survey report.

2. **General.**

a. At the request of the NGB Industrial Hygiene, Southwest (IHSW) Region, an Industrial Hygiene Site Assistance Visit and cursory review of safety related items and programs was conducted at the Richfield Armory Indoor Firing Range (IFR) 620 West 200 South, Richfield, UT on 30 SEP 2014

b. The findings and recommendations in this Executive Summary are controlling and supersede all recommendations in the Industrial Hygiene (IH) report (reference Attachment II). However, IHSW concurs with the observations and findings within the attached IH report.

c. Risk Assessment Codes (RAC) provided in this report have been derived from two sources: Deriving Risk Assessment Codes (RAC's) for Health Hazards (Ref: DOD Instruction 6055.1) and AR 385-10, The Army Safety Program.

d. Use of trademark names in the attached report, or this Executive Summary, does not imply Army National Guard endorsement of any product.

3. **Findings.** See survey report.

4. **Commendable.**

a. The facility was generally clean and orderly and personnel were helpful during this IHSAV.

5. **Observations / Recommendations.**

NOTE: This section provides conclusions and recommendations for the findings and observations made within the attached contractors report. The paragraphs are numbered to correspond to the sections where they were first noted. (i.e., paragraph 2.1a represents the 2.1a located within the contractors report.

a. Thorough cleaning of armory should be accomplished and especially in identified areas with higher lead dust accumulation identified during this IHSAV. Utilize Armory Cleanup SOP accompanying this

report for clean-up, especially after weapons cleaning episodes to help prevent migration of this heavy metal. (para. 3.1) **(RAC 4)**

b. Conduct annual and monthly inspection of the fire extinguishers and record on the tag attached to each fire extinguisher. (para. 7.4.1) **(RAC 3)**

6. Violation Correction Log.

a. IHSW has provided a Violation Correction Log derived from the observations from this visit. IHSW recommends the following:

(1) Commander(s) assign an Action OIC/NCOIC, Suspense Date for completion, and Estimated Cost(s) to ensure item completion and corrective status is briefed during quarterly (or monthly) Safety Meetings/Councils until resolved.

(2) Corrective measures should be implemented and accomplished at the lowest levels possible. Hazards and Corrective Measures that cannot be corrected at the facility level, and require assistance from higher headquarters or from the state level, should be elevated to the Quarterly State/BN Safety Council Meeting for resolution.

(3) Recommend a representative from the facility attend all quarterly/monthly meetings to ensure the appropriate emphasis and corrective actions are followed for hazard resolution and abatement of the observations made during this visit.

(4) Retain entries of the items corrected, or closed, for future reference. This may be accomplished by posting completed items within the Corrected Hazard Sheet portion of the Excel Violation Correction Log Workbook we've provided.

(5) The preferred method to document and track identified hazards for resolution is for their entry into the Reserve Component Automation System – Safety and Occupational Health **(RCAS-SOH)** Program.

b. IHSW recommends further program refinement through written documentation for standardized guidance to the personnel performing the processes. Conducting Hazard Assessments consistent with 29 Code of Federal Regulations (CFR) 1910.132, General Requirements for Personal Protective equipment and AR 40-5, Preventive Medicine, would provide this continued program refinement.

7. Hazard Assessment/Job Safety Analysis (JSA).

a. Documenting the Hazard Assessments provides a method to obtain initial and periodic review from the Industrial Hygiene, Occupational Health and Safety Professions located at the JFHQ/HQ/state level.

b. The Hazard Assessments should be used as written training materials for the new, transfer and unit personnel working under the auspice of the facility.

c. IHSW recommends facility supervisory staff and facility personnel conduct initial Hazard Assessments outlined in AR 40-5, Army Preventive Medicine (Section V) and 29 CFR 1910.132

and submit for review and obtain approval from the state Industrial Hygiene, Occupational Health and Safety Professions.

d. We have provided an appendix with Hazard Assessments (HA) examples of some of this facilities operations. Additional operations can utilize this format to design HA not observed during this IHSAV.

e. An integral and important factor of the Hazard Assessment/JSA process is for the review and guidance from qualified Safety, Occupational Health and Industrial Hygiene professions located at the higher headquarters level or state level. For this reason, the Hazard Assessments (to include all pertinent and supporting documents) should be completed by the facility personnel and forward to the Utah Army National Guard Industrial Hygiene, Occupational Health and Safety Office for final review and approval (signature).

f. Job Safety Analysis (JSA's)/Hazard Assessments.

NOTE: The Hazard Assessments can be used for monthly meetings to brief/train, and document large group training events and activities.

8. IHSW recommends the **Senior Unit Commander of this Facility and any Co-Tenant Organizations or Units, review and provide assistance with implementation of these recommendations.** This will educate the chain of command and allow the unit or co-tenant organizations to take any necessary precautions or actions required by them and their personnel.

9. To assist you with execution of your responsibilities in correcting the observations noted, we encourage you to consult with the State Safety Manager, Occupational Health Manager and Industrial Hygiene professions located and/or authorized within the State Safety and Occupational Health Office.

10. For additional information please contact the NGB-IHSW office at (916) 854-1491 or via email at Non-Responsive Non-Responsive

NGB, IHSW, CIV
Regional Industrial
Hygiene Manager

Indoor Firing Range

Decontamination and Cleaning Protocol

(Periodic Cleaning and Conversion)

1. Ensuring that all procedures listed below comply with all federal, state, and local regulation. Consult with the Regional Industrial Hygiene Office and the States Environmental Office for future guidance.
2. **Ventilation System**

   The range ventilation system must be in operation during all cleaning activities. If no ventilation system is available all doors and windows must keep sealed to prevent contamination of other areas.
3. **Materials**

   I. A High Efficiency Particulate Air (HEPA) filtered vacuum system is the preferred method of cleanup. If a HEPA vacuum cannot be obtained a wet method, detailed below, should be utilized. **A high-pressured water system or dry sweeping may not be used.**

   II. A cleaning solution containing detergent and water is recommended. New solutions of detergent and water should be mixed frequently.

   III. Two containers should be used; one for wetting the applicator (rags, sponge, mop) and the other for rinsing once the dust has been wiped from the surfaces.

IV. Wastewater in containers can be left to evaporate. Any waste left in the buckets and applicators should be disposed of as hazardous waste**. Consult the Environmental Office for appropriate disposal instructions**.

V. Personal responsible for decontamination of the range and stored items be provided with a full face air purifying respirator with a N100 filter or HEPA filter cartridge providing that all requirements for placing employees in respiratory protection have been met as detailed in 29 1910.134. Employees should be provided with protective coveralls with hood and shoe covers (i.e. Tyvex TM full body suite). If cotton coveralls are provided then the employer must provide for laundering of protective clothing. Protective clothing should not be taken home. Prior to leaving the area, personnel should thoroughly HEPA vacuum the clothing to prevent lead dust from leaving the area. Work and street clothing should not be stored together.

4. Order of Cleaning

I. A progression of cleaning form top to bottom and from behind the steel backstop to the firing line should be used. All surface areas in the range must be cleaned. Stored items must be decontaminated prior to removal.

II. After removing the sand/or the steel backstop, areas in front of and behind the bullet trap, along with the steel backstop plates should be cleaned.

III. The ceilings, lights, baffles, retrieval system, heating system, and ventilation ducts should be cleaned.

IV. Acoustical material should be vacuumed and removed instead of being painted over. A toxic Characteristic Leaching Procedure (TCLP) test may be used for acoustical material to determine if the material needs to be classified as hazardous and disposed of according lt. The Environmental Office should be contacted regarding this testing.

V. The floor should be the last surface cleaned starting at the bullet trap and ending behind the firing line, to include the plenum area. Concrete floors should be sealed with deck enamel, or lead paint sealant.

VI. All walls should be painted, preferably with a lead sealant paint, which will help prevent any leaching of lead after covering.

VII. Following the wet cleaning of the area and after all surfaces have been allowed to dry thoroughly, a HEPA vacuum should be used on all surfaces, until no dust or residue can be seen. A thorough inspection to detect surface lead dust should be made following cleanup.

VIII. The Regional Industrial Hygiene Office should be contacted for clearance sampling and to approve the range for converted use.

5. Decontamination of Stored Items

I. All stored items must be decontaminated before removing from the range, stored equipment next to the bullet trap and firing line should be decontaminated first.

ARMORY

CLEANUP & FOLLOW-UP HOUSEKEEPING RECOMMENDATIONS

Materials Needed:

1. Cloth Mop head (s) & Mop head holder(s) with handle.
2. Mop bucket (s) with wringer.
3. Clean cotton rags and sponges.
4. Disposable gloves
5. Large barrel (55 gal.) to store wastewater in after changing out of dirty scrub water. Waste water containers.
6. Disposable overshoes or rubber boots. Personnel conducting cleaning operations should not take clothes, boots, etc., home for laundering.
7. HEPA vacuum
8. Six (6) mill plastic bags to dispose of waste.
9. Detergent with surfactant, e.g., Spic-N-Span, Mr. Clean, etc.

Disposal of Waste Water and Cleaning Materials:

1. *NOTE*: Consult with Local Army National Guard Environmental Office prior to taking any collection, disposal or wiping activities commence. Each state and territory may have additional regulatory guidance on collection, storage and disposal of wastewater.

2. Mop heads should be disposed of after initial cleanup, unless otherwise advised by Environmental office personnel. Note: thorough cleaning of mop heads may be sufficient enough to reuse on future Armory cleanups but check with local Environmental Office.

3. Disposable gloves should be treated as hazardous waste.

4. Soiled cotton rags should be treated as hazardous waste.

5. Wash water contaminated with Lead can be collected and allowed to slowly evaporate leaving Lead deposits/sludge that may be collected in plastic containers, placed in metal drums, and stored for future delivery to an authorized hazardous waste disposal site.

a. Drums shall be properly labeled to identify contents In-Accordance With (IAW) Federal, State and local regulatory guidance.
b. Disposal of containerized waste shall be coordinated IAW State hazardous waste program requirements.
c. The Environmental Office shall coordinate removal and disposal of all containerized hazardous waste through established waste streams.

Post-Cleanup Precautionary Measures:

1. Thoroughly wash hands with soap and water.
2. Rinse off rubber boots with soap and water, capturing wastewater for collection into established waste stream. If personnel choose to use over shoes for protection, dispose of overshoes into waste stream. NOTE: This recommendation is for initial clean up activities and PPE requirements may be reduced after it has been determined non-hazardous levels have been achieved.
3. Wash BDU's or personal clothing separately from children's clothes.

NOTE: No eating, drinking or cosmetics allowed during cleanup procedures (these may be allowed after washing of hands/face and done outside of cleanup area)

NOTE: Avoid blowing, shaking or like actions which could potentially disperses lead dust. Dry sweeping, dusting, wiping or blowing with compressed air shall not be permitted

Initial Armory Cleanup:

1. Use a vacuum cleaner equipped with a HEPA exhaust filter. HEPA vacuum all surfaces in the room (ceiling, walls trim, and floors). Start with the ceiling and work down, moving toward the entry door. **Completely clean each room before moving on**.

2. Prepare water and detergent for the wipe down phase, according to manufactures recommendations.

3. Wet wipe, with cotton rags or sponge, any horizontal, diagonal or vertical surfaces up six (6) feet from floor surfaces using hot water and "Spic-n-Span" or an equivalent product.

    a. Rinse out cleaning cloths thoroughly and frequently.
    b. Change out cleaning water as necessary.

NOTE: **If walls to be cleaned show signs of deterioration, e.g., chipping or crumbling paint, in which wiping, scrubbing, or disrupting might potentially increase or spread contamination, then this portion of the clean up should be avoided**.

4. Now prepare water and detergent (e.g. Spic N Span, Mr. Clean, Pine Sol) for the mopping phase, according to manufactures recommendations, which should be found on the products label for general clean up.

    a. Change out water frequently (when water appears dirty)
    b. Rinse out mop heads frequently to prevent contamination of dirty water.

5. Cover entire drill floor surface with above prescribed water and detergent.

6. Final rinse should be with clean water only - -after mop heads have been cleaned.

Recommended Follow-up Housekeeping Practices *after Clearance sampling of cleaned area is performed by certified personnel:*

1. Floor cleaning and dusting should be accomplished using the wet method described in Initial Armory Cleanup SOP.

Note: Only exception to these wet cleaning procedures would be the use of a chemically treated dust floor mop. This can be used for follow-up armory cleaning by sweeping of large particles of dirt and paper.

    a. Pre-treated (chemically treated) dust floor mop will limit dust particles from being disbursed into the surround atmosphere.

b. If treated dust mop is used - -Do Not Shake Mop head - - have mop head laundered after use. **Always keep used dust mop heads in sealed double plastic bags when stored at armory/facility**. Shaking of mop head could release unwanted contaminants into surrounding atmosphere.

2. Frequency of Cleanup- Armories will vary, according to usage and how often they should be cleaned. The following general cleaning schedule is provided:

   a. Only full-time technicians and traditional soldiers using facility during the month. (***Cleaned Monthly***)

   b. Occasional activities taking place during the month, e.g., 1-2 classes or volleyball games, etc. (***Cleaned 2x's Monthly***)

   c. Used regularly by soldiers or outside agencies/personnel. (***Cleaned Regularly - -at least Weekly***)

NOTE: Armories with adjoining Indoor Firing Ranges (IFR) should be cleaned more than weekly, again depending on use of Armory and IFR.

NOTE: Clearance sampling/testing is to be accomplished by certified personnel after these cleanup procedures are followed. If the area is an average Armory, occupied by adults only, for which you are cleaning and **is not a Converted IFR space**, you may continue to utilize the Armory space before the officials re-test this space. Please notify your Safety and/or Occupational Health personnel of the completion of this cleaning regime and they will notify the proper officials of the sampling/testing requirements needed.

If work is contracted out, a third party should do the clearance sampling.

Young children and females who are pregnant, there should be posted signs on all facilities, warning of the potential danger of exposure to lead dust.

UTAH ARMY NATIONAL GUARD

RICHFIELD ARMORY

620 West 200 South St.
Richfield, UT 84701
(435) 896 4326

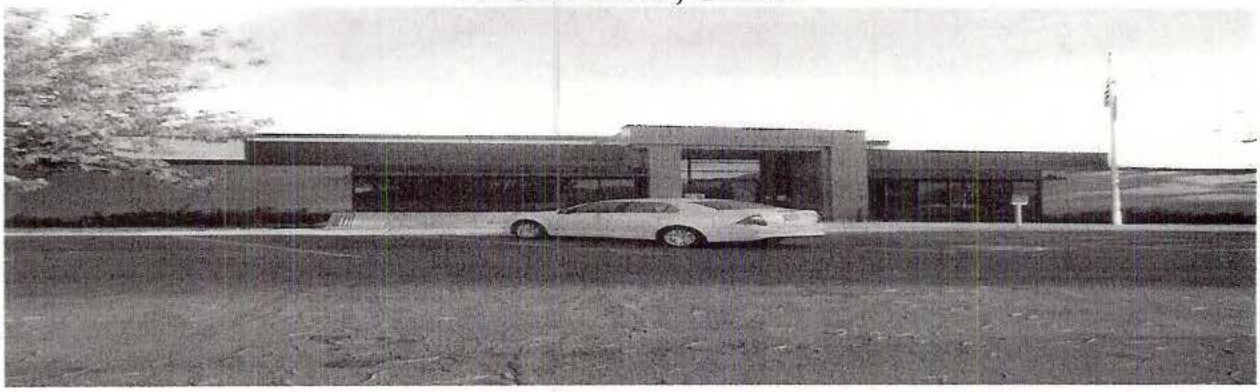
Submitted to:

Non-Responsive
National Guard Bureau
Southwest Region Industrial Hygiene Office
10510 Superfortress Avenue
Suite C
Mather, CA 95655

Table of Contents

Aloha World

INDUSTRIAL HYGIENE ASSISTANCE VISIT
RICHFIELD ARMORY
RICHFIELD, UTAH



1.0 Introduction and Background

1.1. This report summarizes the results of the Industrial Hygiene (IH) Site Assistant Visit (SAV) conducted at the Richfield Armory in Richfield, Utah on September 30, 2014. The Army National Guard Industrial Hygiene Southwest (ARNG-IHSW) requested Aloha World to visit the Richfield Armory to follow-up and evaluate potential high lead. This IH SAV also includes interviews with Non-Responsive regarding industrial hygiene issues as well as any change in operations in the work area that might affect the workers health and safety. Non-Responsive from Aloha World completed this survey.

1.2. The following sections will provide details on how the IH Survey was conducted. A drawing showing the facility layout and sampling locations is included as **Attachment D**. The most stringent OSHA, ARNG, Corps of Engineers (COE), American National Standards Institute (ANSI), American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) and Design Guide standards in effect at the time of the survey were used to assess the workplace.

1.3. The Richfield Armory has three full time guard members. This armory was constructed in the 1960's. This armory has offices used for administrative purposes and also contains a drill floor, arms room, classrooms, industrial kitchen and storage. Maintenance service is not done at this site. Maintenance is done in FMS 5, located adjacent to the armory.

1.4 There is a Converted Indoor Firing Range (CIFR) in this facility. The ventilation system, firing lines, lighting and bullet stop have all been removed. The firing range was never used but was instantly turned into a maintenance bay. During the armories renovations in 2011 the maintenance bay was removed. The area now consists of 2 storage rooms and a weight room. Lead samples were taken in the storage rooms and the entrance to the weight room. The weight room had glued down matting that was unable to be pulled up. I was unable to obtain a wipe

sample in the weight room. Lead wipe samples results could not be obtained from the time of conversion.

2.0 Survey Procedures and Equipment Used

Lead wipe samples were collected on dusty horizontal floor surfaces in the facility including but not limited to the drill floor and the CIFR area (the two storage rooms and the entrance to the weight room). "Ghost Wipe" brand wipes was used with a 16 square inch template. The wipes used conform to American Standards for Testing Materials E1792-96A, *Standard Specification for Wipe Sampling Materials for Lead in Surface Dust*. The collected wipe samples were placed in clean, labeled centrifuge tubes. Samples were submitted to Reservoir Environmental Services, Inc for analysis via Flame Atomic Absorption, USEPA Method SW846 3050B. Laboratory results are listed in micrograms of lead per square foot (µg/ft2). Copies of the raw analytical data are presented in **Appendix D**.

Samples were submitted to Reservoir Environmental Services, Inc, Denver, Colorado, for analysis via Flame Atomic Absorption.

3.0. Findings and Recommendations

3.1. **Lead wipe sampling-** Analytical results from the lead wipe sampling obtained from the armory are found in Table 3.1.A. A graphical and written representation of sampling locations can be found in ***Appendix D*** along with analytical reports. Photographs were taken of each sample point and are presented in ***Appendix C***. There are currently no standards that dictate what a safe level of lead is from a wipe sample. Lead sampling results can be compared to the protocol outlined in the U.S. Department of Housing and Urban Development's (HUD's) *Guidelines For The Evaluation And Control Of Lead-Based Paint Hazards In Housing*, June 1997. HUD currently recommends an exposure limit of 40 ug/ft^2. This guideline was established to prevent lead exposure to children in domestic homes, along with females who are pregnant. Areas that have levels that exceed 40 ug/ft^2 should be thoroughly cleaned and employees that may come into contact with those areas should be properly trained in the hazards of lead exposure

Table 3.1.A.
Lead Wipe

Sample ID	AREA	Photo #	Result ug/ft2
092914-1	Control	NA	BDL
092914-2	North drill hall	2	BDL
092914-3	Center drill hall	3	BDL
092914-4	South drill hall	4	BDL
092914-5	West drill hall	5	BDL
092914-6	East drill hall	6	BDL
092914-7	North CFR	7	51.8
092914-8	Center CFR	8	BDL
092914-9	South CFR	9	BDL
092914-10	West CFR	10	BDL
092914-11	East CFR	11	BDL

BDL= Below Detection Limits **ug/ ft2= Micrograms per Square Foot**

NOTE: Adequate continuous cleaning of working environment should be continued throughout the armory, especially in the CIFR and weapons cleaning areas. Please utilize the attached SOP and general information paper provided for cleaning procedures.

Recommendation: Dry sweeping should be restricted in areas where accumulations of dust are present to prevent toxic metals on surfaces from becoming airborne. The cleaning of loose material from horizontal surfaces should be conducted with HEPA (High Efficiency Particulate Air) vacuums and/or wet mopping. Any area that exceeds 40 ug/ft 2 should be thoroughly decontaminated.

3.2. **Operational Changes Noted-** None found.

3.3. **Physical Safety and Condition of Facility-** A physical walk through of the facility was conducted. Overall, housekeeping was found to be in above average condition. The Richfield Armory was renovated in 2011.

This 1960's building is of concrete block and brick construction. No water leakage was detected.

A fire evacuation plan was posted throughout the armory.

The fire extinguishers within this facility are part of the fire suppression available and should be tested annually and inspected monthly. NFPA 10, 27-3.4.1 addresses alarm systems and 29 CFR 1910.157 addresses inspection requirements for fire extinguishers. Annual inspections should be accomplished by a qualified organization, e.g., fire department, and checked and documented monthly by the facilities personnel. The fire extinguishers were found to be current on annual but behind on monthly inspections. A fire alarm system is in place and per Non-Responsive in working order.

Recommendation: The Fire extinguishers were found to be behind on annual and monthly inspections. Properly inspect all fire extinguishers on an annual and monthly basis. [29 CFR 1910.157(b)(1)].

3.4. **Recurring Events:** We were unable to obtain any previous surveys for this armory.

4.0 Industrial Hygienist Certification/Project Limitations

All Industrial Hygiene Assessment techniques and tests used in the Industrial Hygiene survey of the Army National Guard Armories were reviewed by Non-Responsive Industrial Hygiene Southwest, National Guard Bureau at (916) 854-1492

This Project was performed using, as a minimum, practices consistent with standards acceptable within the industry at this time, and a level of diligence typically exercised by industrial hygiene and environmental consultants performing similar services.

The procedures used in this investigation attempt to establish a balance between the competing goals of limiting investigative and reporting costs and time, and reducing the uncertainty about unknown conditions. Therefore, because the findings of this report were derived from the scope, costs, time, and other limitations, the conclusions should not be construed as a guarantee that all environmental or occupational hazards have been identified and fully evaluated. Where sample collection and testing have been performed, Aloha World's professional opinions are based in part on the interpretation of data from discrete sampling locations that may not represent conditions at non-sampled locations. Aloha World assumes no responsibility for omissions or errors resulting from inaccurate information or data provided by sources outside of Aloha World, or from omissions or errors in public records. Furthermore, it is emphasized that the final decision on how much risk to accept always remains with the client since Aloha World is not in a position to fully understand all of the client's needs. Clients with a greater aversion to risk may want to take additional actions while others, with less aversion to risk, may want to take no further action

5.0 Technical Assistance

For technical assistance regarding information found in this report or the performed survey, please contact Non-Responsive of the Southwest Regional Industrial Hygiene Office, (916) 854-1491. Contact the State Safety, State Industrial Hygiene and Occupational Health Office and/or

the Regional Industrial Hygienist should any of the operations change, or should the personnel become incapable of following the previous recommendations and subsequent recommendations are needed.

Non-Responsive

Aloha World

Aloha World

Appendix A
References

American Conference of Governmental Industrial Hygienists (ACGIH), Industrial Ventilation, A Manual of Recommended Practice, 23 Edition, 1998.

American Conference of Governmental Industrial Hygienists (ACGIH), Threshold Limit Values for Chemical Substances and Physical Agents and Biological Indices for 1998.

American National Standards Institute (ANSI)/Illuminating Engineering Society (IES), Industrial Lighting 1991.

American National Standards Institute, Z358. 1-1998. Emergency Eyewash and Shower Equipment 1998.

AR 40-5, Preventative Medicine, 15 October 1990.

AR 385-10, The Army Safety Program, 23 May 1988.

Corps of Engineers Guide Specification, CEGS-1585 1, Overhead vehicle tailpipe (and welding fume) Exhaust Systems, May 1984.

DA PAM 40-ERG, Ergonomics

DA PAM 40-501, Hearing Conservation, 27 August 1991.

National Safety Council, Fundamentals of Industrial Hygiene, 4~ edition, 1996.

NOR 385-10, Army National Guard Safety and Occupational Health Program, 29 December 1989.

TB MED 503, The Army Industrial Hygiene Program, February 1985.

TG022, US Army Environmental Hygiene Agency (USAEHA), Industrial Hygiene Evaluation Guide, October 1975

TG 141, US Army for Health Promotion and Preventive Medicine (USACHPPM) Industrial Hygiene Air Sampling Guide, Nov. 1997

Title 29, Code of Federal Regulations (CFR), 1998, revision Part 1910, Occupational Safety and Health Standards

Appendix B

Recommendations

Recommendations

1. Occupational Safety and Health Administration (OSHA) standard for lead; 1910.1025 (h) (1) require that all surfaces shall be maintained as free as practicable of accumulations of lead. Dry sweeping should be restricted in areas where accumulations of dust are present to prevent toxic metals on surfaces from becoming airborne. The cleaning of loose material from horizontal surfaces should be conducted with HEPA (High Efficiency Particulate Air) vacuums and/or wet mopping. Any area that exceeds 40 ug/ ft2 should be thoroughly decontaminated.

2. The Fire extinguishers were found to be behind on annual and monthly inspections. Properly inspect all fire extinguishers on an annual and monthly basis. [29 CFR 1910.157(b)(1)].

Appendix C

Photograph Log

Aloha World

Photo Log

Photo #1 – Richfield Armory

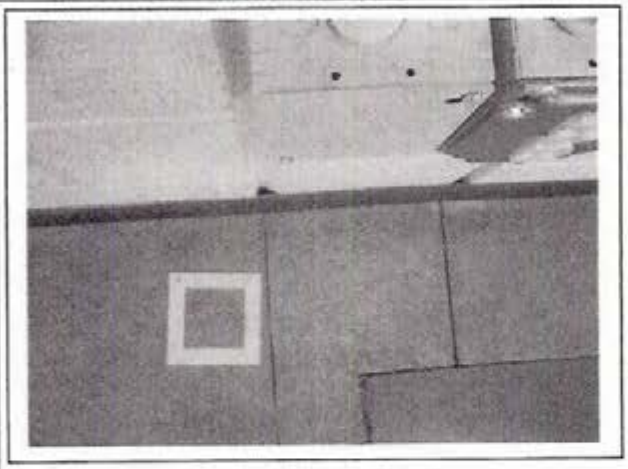


Photo #2- North drill hall wipe

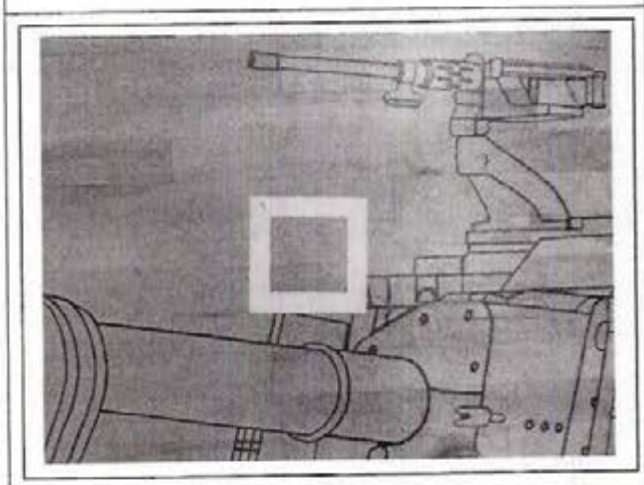


Photo #3- Center drill hall wipe

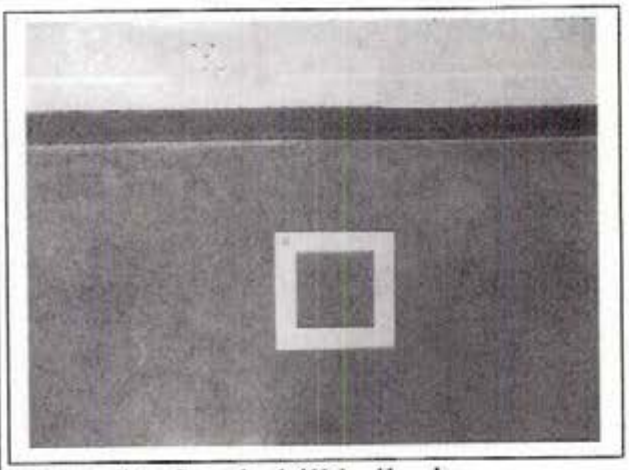


Photo #4- South drill hall wipe

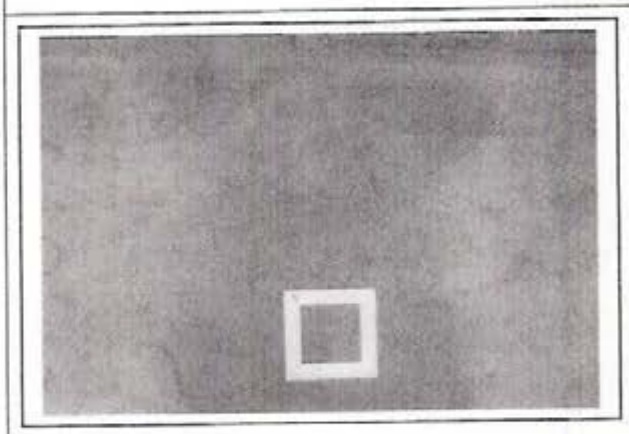


Photo #5 –West drill hall wipe

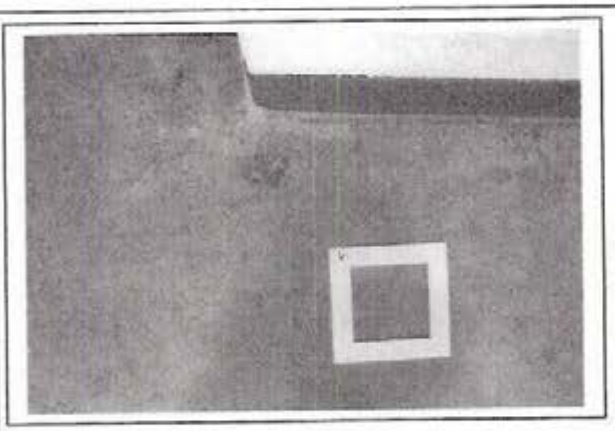


Photo #6 – East drill hall wipe

Photo Log

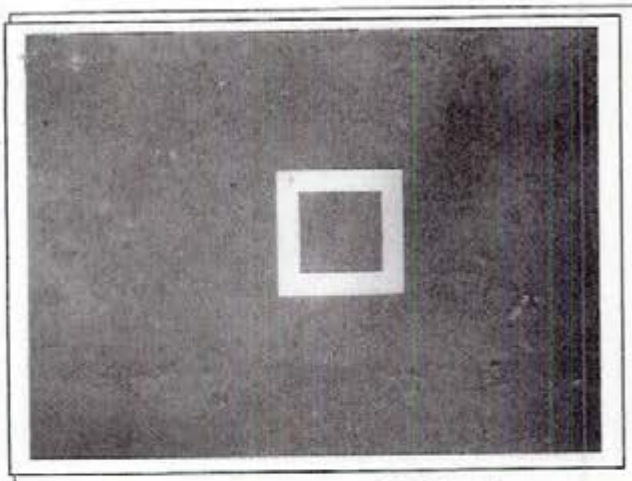


Photo #7 – Northwest CIFR wipe

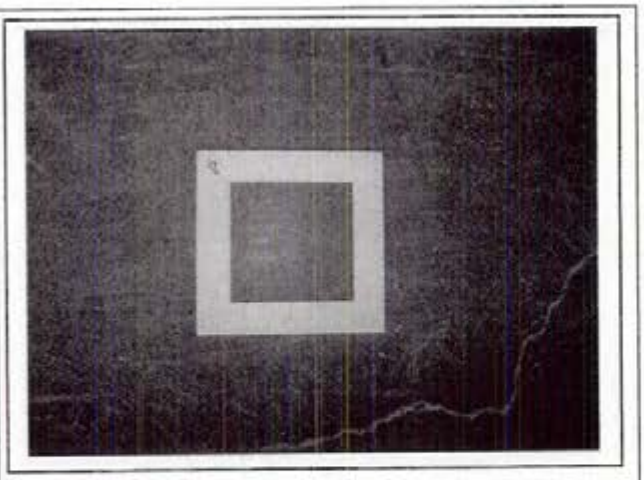


Photo #8- Center CIFR wipe

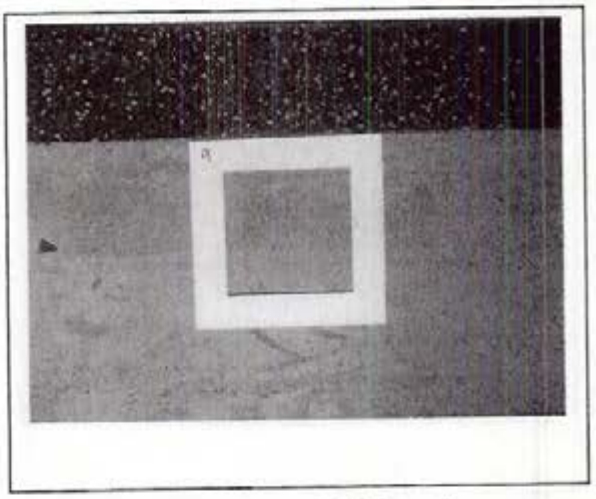


Photo #9 – Southeast CIFR wipe

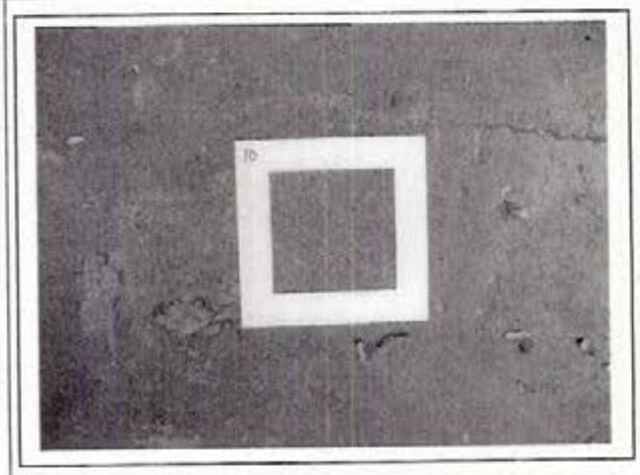


Photo #10 – West CIFR wipe

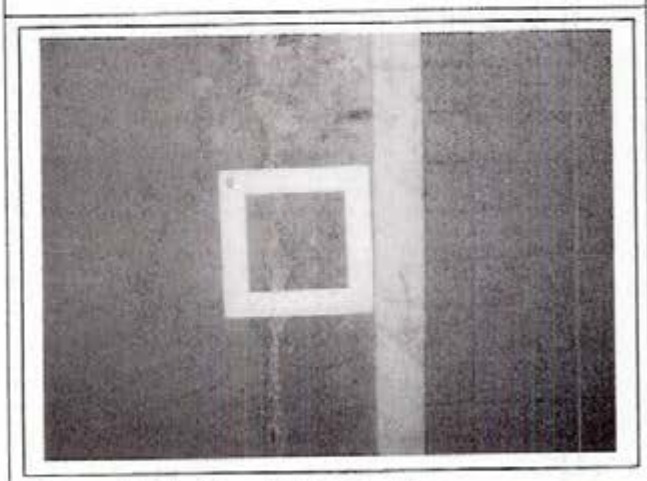


Photo #11 –East CIFR wipe

Photo #12 –Drill Hall/CIFR

Appendix D

Laboratory Analysis Reports
Sample Location & Log

Aloha World

RESERVOIRS ENVIRONMENTAL, INC.

5801 Logan St., Suite 100
Denver CO 80216

TABLE ANALYSIS: LEAD BY WIPE SAMPLING

RES Job Number:	**RES 302222-1**
Client:	**Aloha World**
Client Project Number / P.O.:	**092914**
Client Project Description:	**Richfield Armory**
Date Samples Received:	**October 4, 2014**
Analysis Type:	**USEPA SW846 3050B / AA (7420)**
Turnaround:	**3-5 Day**
Date Samples Analyzed:	**October 13, 2014**

Client ID Number	Lab ID Number	Sample Area (sq.ft.)	LEAD (µg)	Reporting Limit (µg/ft^2)	LEAD CONCENTRATION (µg/ft^2)
092914-1	EM 1270427	0.11	BRL	22.7	BRL
092914-2	EM 1270428	0.11	BRL	22.7	BRL
092914-3	EM 1270429	0.11	BRL	22.7	BRL
092914-4	EM 1270430	0.11	BRL	22.7	BRL
092914-5	EM 1270431	0.11	BRL	22.7	BRL
092914-6	EM 1270432	0.11	BRL	22.7	BRL
092914-7	EM 1270433	0.11	5.7	22.7	51.8
092914-8	EM 1270434	0.11	BRL	22.7	BRL
092914-9	EM 1270435	0.11	BRL	22.7	BRL
092914-10	EM 1270436	0.11	BRL	22.7	BRL
092914-11	EM 1270437	0.11	BRL	22.7	BRL

***Calculations Based On A 1 sq.ft. Sample Area Unless Otherwise Noted**
*** Unless otherwise noted all quality control samples performed within specifications established by the laboratory.**

Non-Responsive

Data

BRL = Below Reporting Limit

P: 303-964-1986
F: 303-477-4275

5801 Logan Street, Suite 100 Denver, CO 80216

www.rerlab.com

Appendix E

Violation Inventory Log

Industrial Hygiene Southwest

Violation Inventory Log

LOG OF SCHEDULE OF CORRECTIVE ACTION - COMPLIANCE WITH SAFETY AND HEALTH STANDARDS

RICHFIELD ARMORY CIFR,UTAH 84701

CONTROL NUMBER CLOSED [X]	HAZARD DESCRIPTION	SITE	RAC	CORRECTIVE ACTIONS (Abatement Plan)	SUSPENSE DATE	ACTION OIC/NCOIC	Estimated Cost(s)	DATE CORRECTED	REFERENCES
UTRA-09302014-3.1	Lead levels exceded the minimun requirements.	Armory	4	Upgrade housekeeping practices throughout this facility to help prevent migration of lead dust. Utilize Armory Clean-up SOP in future cleaning episodes.					Occupational Safety and Health Administration (OSHA) standard for lead; 1910.1025 (h)(1)
UTRA-09302014-3.6	The Fire extinguishers were found to be behind on monthly inspections.	Armory	3	Properly inspect all fire extinguishers on a monthly basis. Document inspections on inspection tag found on extinguisher.					29 CFR 1910.157(b)(1)].

ARMY NATIONAL GUARD
INDUSTRIAL HYGIENE – SOUTHWEST
Guam • Hawaii • California • Oregon • Washington • Nevada • Arizona • Idaho • Utah • Wyoming • Montana • New Mexico • Nebraska

Industrial Hygiene Site Assistance Visit

Springville Armory
125 South 700 East
Springville, UT 84663

10510 Superfortress Avenue, Suite C, Mather, CA 95655 9916) 854-1491

DEPARTMENT OF THE ARMY AND AIRFORCE
NATIONAL GUARD BUREAU
INDUSTRIAL HYGIENE SOUTHWEST
10510 Superfortress Ave, Ste. C
Mather, CA 95655

ARNG-CSG-IHSW

6 February 2013

MEMORANDUM THRU Utah Army National Guard, ATTN: Non-Responsive (OHN), 12953 S. Minuteman Drive, Draper, UT 84020-1776

FOR Commander, Springville Armory 125 South 700 East, Springville, UT 84663

SUBJECT: Executive Summary for Industrial Hygiene Site Assistance Visit (IHSAV) for the Springville Armory, 125 South 700 East, Springville, Utah conducted on 30 August 2012.

1. References. See survey report.

2. General.

a. At the request of the NGB Industrial Hygiene, Southwest (IHSW) Region, an Industrial Hygiene Site Assistance Visit and cursory review of safety related items and programs was conducted at the Springville Armory 125 South 700 East, Springville, UT on 30 AUG 2012.

b. The findings and recommendations in this Executive Summary are controlling and supersede all recommendations in the contractor report (reference Attachment II). However, IHSW concurs with the observations and findings within the attached contractor report.

c. Risk Assessment Codes (RAC) provided in this report have been derived from two sources: Deriving Risk Assessment Codes (RAC's) for Health Hazards (Ref: DOD Instruction 6055.1) and AR 385-10, The Army Safety Program.

d. Use of trademark names in the attached report, or this Executive Summary, does not imply Army National Guard endorsement of any product.

3. Findings. See survey report.

4. Commendable.

a. The facility was generally clean and orderly and personnel were helpful during this SAV.

5. Observations / Recommendations.

NOTE: This section provides conclusions and recommendations for the findings and observations made within the attached contractors report. The paragraphs are numbered to correspond to the sections where they were first noted. (i.e., paragraph 2.1a represents the 2.1a located within the contractors report.

a. Update chemical inventory list and associated MSDS's. Place MSDS's in easy to read and access binder placed in a general location so all can use. (para. 4.6.1) **(RAC 4)**

b. Assure construction personnel and allied trades personnel are given awareness training on lead paint and asbestos materials associated with the buildings they are working in. (para. 4.4) **(RAC 4)**

c. Find asbestos survey or have one accomplished and provide assigned personnel with asbestos awareness training. (para. 4.4) **(RAC 3)**

d. Install a cover plate on the junction box in the mechanical room to prevent electrical shock hazards (para. 4.10) **(RAC 4)**

6. Violation Correction Log.

a. IHSW has provided a Violation Correction Log derived from the observations from this visit. IHSW recommends the following:

1. Commander(s) assign an Action OIC/NCOIC, Suspense Date for completion, and Estimated Cost(s) to ensure item completion and corrective status is briefed during quarterly (or monthly) Safety Meetings/Councils until resolved.

2. Corrective measures should be implemented and accomplished at the lowest levels possible. Hazards and Corrective Measures that cannot be corrected at the facility level, and require assistance from higher headquarters or from the state level, should be elevated to the Quarterly State/BN Safety Council Meeting for resolution.

3. Recommend a representative from the facility attend all quarterly/monthly meetings to ensure the appropriate emphasis and corrective actions are followed for hazard resolution and abatement of the observations made during this visit.

4. Retain entries of the items corrected, or closed, for future reference. This may be accomplished by posting completed items within the Corrected Hazard Sheet portion of the Excel Violation Correction Log Workbook we've provided.

5. The preferred method to document and track identified hazards for resolution is for their entry into the Reserve Component Automation System – Safety and Occupational Health **(RCAS-SOH)** Program.

b. IHSW recommends further program refinement through written documentation for standardized guidance to the personnel performing the processes. Conducting Hazard Assessments consistent with 29 Code of Federal Regulations (CFR) 1910.132, General Requirements for Personal Protective Equipment and AR 40-5, Preventive Medicine, would provide this continued program refinement.

7. Hazard Assessment/Job Safety Analysis (JSA).

a. Documenting the Hazard Assessments provides a method to obtain initial and periodic review from the Industrial Hygiene, Occupational Health and Safety Professions located at the JFHQ/HQ/state level.

ARNG-CSG-IHSW

SUBJECT: Executive Summary for Industrial Hygiene Site Assistance Visit (IHSAV) for the Springville Armory, 125 South 700 East, Springville, Utah conducted on 30 August 2012.

b. The Hazard Assessments should be used as written training materials for the new, transfer and unit personnel working under the auspice of the facility.

c. IHSW recommends facility supervisory staff and facility personnel conduct initial Hazard Assessments outlined in AR 40-5, Army Preventive Medicine (Section V) and 29 CFR 1910.132 and submit for review and obtain approval from the state Industrial Hygiene, Occupational Health and Safety Professions.

d. We have provided an appendix with Hazard Assessments (HA) examples of some of this facilities operations. Additional operations can utilize this format to design HA not observed during this SAV.

e. An integral and important factor of the Hazard Assessment/JSA process is for the review and guidance from qualified Safety, Occupational Health and Industrial Hygiene professions located at the higher headquarters level or state level. For this reason, the Hazard Assessments (to include all pertinent and supporting documents) should be completed by the facility personnel and forward to the Utah Army National Guard Industrial Hygiene, Occupational Health and Safety Office for final review and approval (signature).

f. Job Safety Analysis (JSA's)/Hazard Assessments.

NOTE: The Hazard Assessments can be used for monthly meetings to brief/train, and document large group training events and activities.

8. IHSW recommends the **Senior Unit Commander of this Facility and any Co-Tenant Organizations or Units, review and provide assistance with implementation of these recommendations.** This will educate the chain of command and allow the unit or co-tenant organizations to take any necessary precautions or actions required by them and their personnel.

9. To assist you with execution of your responsibilities in correcting the observations noted, we encourage you to consult with the State Safety Manager, Occupational Health Manager and Industrial Hygiene professions located and/or authorized within the State Safety and Occupational Health Office.

10. For additional information please contact the undersigned at (916) 854-1491 or via email at Non-Responsive

Non-Responsive

NGB, IHSW, CIV
Industrial Hygiene

Industrial Hygiene Southwest

Violation Inventory Log

LOG OF SCHEDULE OF CORRECTIVE ACTION - COMPLIANCE WITH SAFETY AND HEALTH STANDARDS

Springville Armory, UT

CONTROL NUMBER CLOSED ☐	HAZARD DESCRIPTION	SITE	RAC	CORRECTIVE ACTIONS (Abatement Plan)	SUSPENSE DATE	ACTION OIC/NCOIC	Estimated Cost(s)	DATE CORRECTED	REFERENCES
UTSA-083012-4.4 ☐	An asbestos survey could not be located during this IH Assistance Visit.	Springville Armory	3	Either locate the asbestos survey for this building or contract with a licensed firm to perform an asbestos survey and assessment.					29 CFR 1910.1001(j)(3)(i)
UTSA-083012-4.4 ☐	Personnel have not been provided with asbestos awareness training.	Springville Armory	4	Based on the findings of this survey, provide awareness training to assigned personnel for the specific types of asbestos in this Armory.					29 CFR 1910.1001
UTSA-083012-4.6.1 ☐	Chemical inventories and MSDSs are not accurate and up to date.	Springville Armory	4	Update chemical inventory lists and the chemicals' associated MSDSs.					29 CFR 1910.1200 (g) (1)
UTSA-083012-4.6.1 ☐	Flammable chemicals are located outside of the flammable storage cabinets in the maintenance bay.	Springville Armory	4	Store all flammables in the flammable storage cabinets.					Recommended Practice & 29 CFR 1910.106 (d) (5) (iii)
UTSA-083012-4.10 ☐	Signage for a fire extinguisher exists in the drill hall where no fire extinguisher is present.	Springville Armory	4	Either remove the signage or place an extinguisher in the drill hall where signage exists but there is no fire extinguisher.					29 CFR 1910.157 (c) (1)
UTSA-083012-4.10 ☐	Exposed wiring exists in a junction box above the doorway in room 113.	Springville Armory	4	Install a cover plate on the junction box in the mechanical room to prevent electrical shock hazards.					29 CFR 1910.305 (b) (2)

BEST AVAILABLE COPY

ARMORY

CLEANUP & FOLLOW-UP HOUSEKEEPING RECOMMENDATIONS

Materials Needed:

1. Cloth Mop head (s) & Mop head holder(s) with handle.
2. Mop bucket (s) with wringer.
3. Clean cotton rags and sponges.
4. Disposable gloves
5. Large barrel (55 gal.) to store wastewater in after changing out of dirty scrub water. Waste water containers.
6. Disposable overshoes or rubber boots. Personnel conducting cleaning operations should not take clothes, boots, etc., home for laundering.
7. HEPA vacuum
8. Six (6) mill plastic bags to dispose of waste.
9. Detergent with surfactant, e.g., Spic-N-Span, Mr. Clean, etc.

Disposal of Waste Water and Cleaning Materials:

1. *NOTE*: Consult with Local Army National Guard Environmental Office prior to taking any collection, disposal or wiping activities commence. Each state and territory may have additional regulatory guidance on collection, storage and disposal of wastewater.

2. Mop heads should be disposed of after initial cleanup, unless otherwise advised by Environmental office personnel. Note: thorough cleaning of mop heads may be sufficient enough to reuse on future Armory cleanups but check with local Environmental Office.

3. Disposable gloves should be treated as hazardous waste.

4. Soiled cotton rags should be treated as hazardous waste.

5. Wash water contaminated with Lead can be collected and allowed to slowly evaporate leaving Lead deposits/sludge that may be collected in plastic containers, placed in metal drums, and stored for future delivery to an authorized hazardous waste disposal site.

a. Drums shall be properly labeled to identify contents In-Accordance With (IAW) Federal, State and local regulatory guidance.
b. Disposal of containerized waste shall be coordinated IAW State hazardous waste program requirements.
c. The Environmental Office shall coordinate removal and disposal of all containerized hazardous waste through established waste streams.

Post-Cleanup Precautionary Measures:

1. Thoroughly wash hands with soap and water.
2. Rinse off rubber boots with soap and water, capturing wastewater for collection into established waste stream. If personnel choose to use over shoes for protection, dispose of overshoes into waste stream. NOTE: This recommendation is for initial clean up activities and PPE requirements may be reduced after it has been determined non-hazardous levels have been achieved.
3. Wash BDU's or personal clothing separately from children's clothes.

NOTE: No eating, drinking or cosmetics allowed during cleanup procedures (these may be allowed after washing of hands/face and done outside of cleanup area)

NOTE: Avoid blowing, shaking or like actions which could potentially disperses lead dust. Dry sweeping, dusting, wiping or blowing with compressed air shall not be permitted

Initial Armory Cleanup:

1. Use a vacuum cleaner equipped with a HEPA exhaust filter. HEPA vacuum all surfaces in the room (ceiling, walls trim, and floors). Start with the ceiling and work down, moving toward the entry door. **Completely clean each room before moving on**.

2. Prepare water and detergent for the wipe down phase, according to manufactures recommendations.

3. Wet wipe, with cotton rags or sponge, any horizontal, diagonal or vertical surfaces up six (6) feet from floor surfaces using hot water and "Spic-n-Span" or an equivalent product.

    a. Rinse out cleaning cloths thoroughly and frequently.
    b. Change out cleaning water as necessary.

NOTE: **If walls to be cleaned show signs of deterioration, e.g., chipping or crumbling paint, in which wiping, scrubbing, or disrupting might potentially increase or spread contamination, then this portion of the clean up should be avoided**.

4. Now prepare water and detergent (e.g. Spic N Span, Mr. Clean, Pine Sol) for the mopping phase, according to manufactures recommendations, which should be found on the products label for general clean up.

    a. Change out water frequently (when water appears dirty)
    b. Rinse out mop heads frequently to prevent contamination of dirty water.

5. Cover entire drill floor surface with above prescribed water and detergent.

6. Final rinse should be with clean water only - -after mop heads have been cleaned.

Recommended Follow-up Housekeeping Practices *after Clearance sampling of cleaned area is performed by certified personnel:*

1. Floor cleaning and dusting should be accomplished using the wet method described in Initial Armory Cleanup SOP.

Note: Only exception to these wet cleaning procedures would be the use of a chemically treated dust floor mop. This can be used for follow-up armory cleaning by sweeping of large particles of dirt and paper.

    a. Pre-treated (chemically treated) dust floor mop will limit dust particles from being disbursed into the surround atmosphere.

b. If treated dust mop is used - -Do Not Shake Mop head - - have mop head laundered after use. **Always keep used dust mop heads in sealed double plastic bags when stored at armory/facility**. Shaking of mop head could release unwanted contaminants into surrounding atmosphere.

2. Frequency of Cleanup- Armories will vary, according to usage and how often they should be cleaned. The following general cleaning schedule is provided:

   a. Only full-time technicians and traditional soldiers using facility during the month. (***Cleaned Monthly***)

   b. Occasional activities taking place during the month, e.g., 1-2 classes or volleyball games, etc. (***Cleaned 2x's Monthly***)

   c. Used regularly by soldiers or outside agencies/personnel. (***Cleaned Regularly - -at least Weekly***)

NOTE: Armories with adjoining Indoor Firing Ranges (IFR) should be cleaned more than weekly, again depending on use of Armory and IFR.

NOTE: Clearance sampling/testing is to be accomplished by certified personnel after these cleanup procedures are followed. If the area is an average Armory, occupied by adults only, for which you are cleaning and **is not a Converted IFR space**, you may continue to utilize the Armory space before the officials re-test this space. Please notify your Safety and/or Occupational Health personnel of the completion of this cleaning regime and they will notify the proper officials of the sampling/testing requirements needed.

If work is contracted out, a third party should do the clearance sampling.

Young children and females who are pregnant, there should be posted signs on all facilities, warning of the potential danger of exposure to lead dust.

IHI
ENVIRONMENTAL
A Terracon COMPANY

IH ASSISTANCE VISIT

Utah Army National Guard
Springville Armory
125 South 700 East
Springville, Utah 84663

December 4, 2012

Prepared for:

Industrial Hygiene Southwest
10510 Superfortress Avenue, Suite C
Mather, California 95655

Prepared by:

Non-Responsive

Industrial Hygiene Technician

Reviewed by:

Non-Responsive

, MSPH, CIH, CSP
Industrial Hygiene Services Manager

Project #AL127194

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SALT LAKE CITY EMERYVILLE PHOENIX DENVER SEATTLE

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APPENDICES

EXECUTIVE SUMMARY

On August 30, 2012, Non-Responsive of IHI Environmental (IHI) conducted an IH Assistance Visit at the Springville Armory in Springville, Utah. The primary point of contact for information gathered during this survey was Non-Responsive 801) 794-6006, Non-Responsive

The objectives of this IH Assistance Visit were to perform the following activities:

- collect lead wipe samples;
- evaluate the condition of painted surfaces and collect paint chip samples for lead analysis where painted surfaces are peeling;
- inspect the interior rooms of the armory for water damage and the presence of fungal growth;
- review asbestos survey and assessment files and determine if documentation of asbestos awareness training is current;
- evaluate the condition of the Heating, Ventilation, and Air-Conditioning system, and collect indoor air quality data;
- review hazardous material storage and use procedures;
- review safety training and record keeping;
- perform a ventilation survey on the kitchen stove hood (if present);
- perform a noise survey on the kitchen appliances; and
- conduct a safety walk-through evaluation and note any existing safety hazards.

Significant findings for this IH Assistance Visit can be found in the Industrial Hygiene Southwest – Violation Inventory Log, located in Appendix K of this report.

The report that follows this Executive Summary should be read in its entirety because it includes important information not included in this summary, such as task descriptions, work space locations, regulatory requirements, and additional recommendations.

1.0 INTRODUCTION

On August 30, 2012 Non-Responsive of IHI Environmental (IHI) conducted an IH Assistance Visit at the Springville Armory located at 125 South 700 East, Springville, Utah 84663. The primary point of contact for information gathered during this survey was Non-Responsive Non-Responsive (801) 794-6006, Non-Responsive

1.1 Objectives

Evaluate the occupational environment of the administrative areas in the armory to determine the presence of operational health and safety risks, and make recommendations for corrective actions or follow-up work to manage those risks.

1.2 Scope of Work

To achieve the above objectives at this facility, the survey included the following work:

- collect lead wipe samples;
- evaluate the condition of painted surfaces and collect paint chip samples for lead analysis where painted surfaces are peeling;
- inspect the interior rooms of the armory for water damage and the presence of fungal growth;
- review asbestos survey and assessment files and determine if documentation of asbestos awareness training is current;
- evaluate the condition of the Heating, Ventilation, and Air-Conditioning system and collect indoor air quality data;
- review hazardous material storage and use procedures;
- review safety training, and record keeping;
- perform a ventilation survey on the kitchen stove hood (if present);
- perform a noise survey on the kitchen appliances; and
- conduct a safety walk-through evaluation and note any existing safety hazards.

2.0 PROCESS DESCRIPTION

At the time of the IH Assistance Visit, the primary unit at this facility was deployed. Three other units were occupying the facility at the time of the survey, so the Springville armory currently has ten full-time guard members. The armory has offices used for administrative purposes, a training area, drill floor, a maintenance bay, storage rooms, restrooms and locker rooms, kitchen, supply room and gun vault, and a mechanical room. There are two civilian employees at this armory. This armory is not currently used for any civilian activities.

Since the primary unit at this facility was deployed when this IH Assistance Visit was completed, weapons were not being stored at this facility. Weapons were not cleaned at the Springville Armory at the time of the visit.

3.0 METHODS AND APPLICABLE REGULATIONS AND STANDARDS

3.1 Lead Wipe Sampling

Lead residue (dust) wipe samples were collected on horizontal surfaces, such as the drill floor, kitchen, administrative areas, and indoor firing ranges (where present) to determine housekeeping standards. Lead Wipe™ brand wipes were used with a 100-square-centimeter template. The wipes used conform to American Society for Testing and Materials (ASTM) E1792, *Standard Specification for Wipe Sampling Materials for Lead in Surface Dust*. The collected wipe samples were placed in clean and labeled plastic containers. Samples were submitted to ALS Laboratories for analysis, using National Institute for Occupational Safety and Health (NIOSH) Method 7300. See Appendix I for sample locations and Appendix J for laboratory results.

The Mather, California, office of Industrial Hygiene Southwest (IHSW) has developed a Standard Operating Procedure (SOP) for lead, which is a blend of Occupational Safety and Health Administration (OSHA), U.S. Department of Housing and Urban Development (HUD), and Army regulations. Essentially, this SOP sets forth a criterion of 40 micrograms of lead per square foot ($\mu g/ft^2$) for converted indoor firing ranges, break rooms, floor surfaces, or any area that might be used for non-military functions. A 200 $\mu g/ft^2$ criterion has been established for tool rooms, maintenance bays, furnace rooms, boiler rooms, storage closets, and other areas where the general public is not expected to visit.

3.2 Painted Surface Evaluation

The interior of the armory was visually inspected for peeling paint on the walls and ceilings.

3.3 Moisture Intrusion and Limited Visual Fungal Growth Evaluation

The interior of the armory was visually inspected for signs of moisture intrusion that could result in fungal growth. Any signs of moisture intrusion (e.g., discoloration, staining, blistering) were noted and documented on a drawing for a follow-up evaluation.

3.4 Asbestos Management

Armory personnel were asked if an asbestos survey and assessment had been conducted and whether there was a written Operations and Maintenance Program for the facility. IHI also reviewed any asbestos awareness training records.

3.5 Heating, Ventilation, and Air-Conditioning Systems and Indoor Air Quality

The heating, ventilation, and air-conditioning (HVAC) systems that serve the armory were evaluated. This evaluation consisted of a visual inspection of the systems to note any obvious problems, and a review of the facility maintenance plan, if one was available.

Carbon dioxide (CO_2), temperature, and relative humidity were measured throughout the armory using a TSI Model 8762 IAQ-Calc™ Monitor. The unit was calibrated before use with certified zero gas and 1,000 parts per million(ppm) CO_2 span gas. See Appendix E for IAQ data.

Carbon dioxide is a normal constituent of exhaled breath and is commonly measured as a screening tool to evaluate whether adequate fresh, outdoor air is being provided. If typical CO_2 levels within a building are maintained at or less than 1,000 ppm, with appropriate temperature and humidity levels, complaints about indoor air quality should be minimal (American Society for Testing and Materials (ASTM) – International D6245-12, Using Indoor Carbon Dioxide Concentrations to Evaluate Indoor Air Quality). If a building exceeds this guideline, it should not be interpreted as an unhealthy or hazardous situation. An elevated CO_2 level is only an indication that the amount of outside air being brought into a building may be inadequate or poorly distributed and further investigation may be warranted.

In building areas where there are potential sources of CO_2 other than exhaled breath, the guidelines above cannot be used. The OSHA standard for CO_2 should be used in these instances. The OSHA standard is an eight-hour time-weighted average (TWA) of 5,000 ppm with a short-term 15-minute average limit of 30,000 ppm.

3.6 Hazard Communication and Hazardous Material Storage

A review of the armory's chemical inventory and Material Safety Data Sheet (MSDS) file was accomplished. Chemical storage areas, i.e., flammable storage cabinets/rooms, were also inspected.

3.7 Safety Training and Record Keeping

A review of safety training programs and documentation was performed to determine if the armory's site-specific training programs and annual documentation were current.

3.8 Kitchen Ventilation Survey

Duct velocity measurements were collected on facility kitchen exhaust hoods (when present) using a TSI VelociCalc, Model 9515.

The 2011 National Fire Protection Association Standard 96, Section 8.2.1.1, requires exhaust fan ducts used in commercial cooking equipment to have a duct velocity of not less than 500 feet per minute (fpm).

3.9 Kitchen Appliance Sound-Level Measurements

Sound-pressure levels of the kitchen appliances (when present) were measured using a Sound Level Meter in the dBA and dBC ranges, with the meter set on slow response. DD Forms 2214 are provided in Appendix M.

3.10 General Safety Walk-Through

A limited Fire Life Safety Code walk-through evaluation of the armory was performed to:

- document the presence of a fire alarm,
- determine if fire extinguishers are properly mounted and current on their monthly and annual inspections,
- determine if eyewash station inspections are current, and
- document any fire or safety hazards in the armory.

The average outdoor CO_2 concentration at the time of the survey was 393 ppm. The highest CO_2 concentration measured inside the building was 410 ppm, which should not result in indoor air quality complaints.

Building air temperatures ranged from 72 to 78°F and relative humidity was between 41 and 44 percent during the testing period. Air temperatures in the office areas were within the recommended comfort range of 68-75°F, but in the kitchen where air conditioning was not turned on at the time of the IH Assistance Visit, the air temperatures were slightly above the recommended comfort range. The relative humidity was within the recommended comfort range between 30 and 60 percent. Low relative humidity is common in Utah the majority of the year. Humidity levels above 60 percent can result in proliferation of bacteria and fungi, while levels below 30 percent can cause dry eyes, skin, and mucous membranes.

The DFCM personnel maintain all HVAC units in the armory.

Recommendation

None

4.6 Hazard Communication and Hazardous Material Storage

4.6.1 Hazardous Materials Inventory and Material Safety Data Sheets (MSDS)

Hazardous materials in this armory consist of custodial products, which are stored in two janitor's closets, and flammable chemicals, which are stored in four flammable storage cabinets located in the maintenance bay. Chemical inventories of products used by the armory are located outside of the flammable cabinets and in the MSDS binder. MSDSs are maintained in a master binder located in the drill hall. The chemical inventories and MSDS binder are arranged by alphabetical order. An inspection of the chemical inventory revealed that not all current products in use by the armory are accounted for in the chemical inventories and not all the associated MSDSs are available. Cans of flammable liquids were also found to be outside of the flammable storage cabinets in the maintenance bay.

Copies of chemical inventories are provided in Appendix D.

Recommendations

1. Update chemical inventory lists and the chemicals' associated MSDSs.

2. Store all flammables in the flammable storage cabinets.

4.6.2 Flammable Storage Cabinets

There are four flammable storage cabinets located in the maintenance bay of this armory. There were no storage incompatibilities or leaking materials in the flammable storage cabinet. The cabinet was in good condition and the doors of the flammable storage cabinet closed properly.

Recommendation

None

4.7 Safety Training and Record Keeping

The following safety training documentation is maintained in the Springville Armory:

- Composite Risk Management Training
- Accident Avoidance Training
- Forklift Training
- Split Rim Training
- Hazard Communication Training
- Hearing Conservation
- Safe Guard
- Cold Weather Training

The last Safety Council meeting was held in February 2012. In addition, the UTARNG has numerous required computer-based training courses with reference to safety training.

Note: IHI did not conduct a thorough evaluation of the contents or quality of any of the documents identified during this visit.

Recommendation

None

4.8 Kitchen Ventilation Survey

For the single hood located in the kitchen, there are two exterior wall-mounted exhaust fans that serve the kitchen appliances. Duct velocity measurements were obtained and an average of about 731 and 784 fpm was measured.

Recommendation

None

4.9 Kitchen Appliance Sound-Level Measurements

All of the kitchen appliances measured produce noise levels well below the hazardous noise criterion of 85 dBA. Based on this information, there is no need for noise reduction measures or additional noise dosimetry surveys for this area.

Recommendation

None

4.10 General Safety Walk-Through

1. Housekeeping throughout the facility was good.
2. There is a fire alarm in this facility that is maintained by Peak Alarm.
3. Fire extinguishers are strategically located throughout the armory. All extinguishers except one in the motor pool area were current on their annual and monthly inspections. One fire extinguisher was missing where signage existed in the drill hall.
4. There are no eyewash stations in this armory and no chemicals that would require one.
5. Fire evacuation routes are posted throughout the facility.
6. Electrical panel boxes were inspected and were found to contain no exposed wiring or openings in the panel, but exposed wiring was found in a junction box above the door in Room 113.

Recommendations

1. Either remove the signage or place an extinguisher in the drill hall where signage exists but there is no fire extinguisher.
2. Install a cover plate on the junction box in the mechanical room to prevent electrical shock hazards.

5.0 PROJECT LIMITATIONS

This Project was performed using, as a minimum, practices consistent with standards acceptable within the industry at this time, and a level of diligence typically exercised by industrial hygiene and environmental consultants performing similar services.

The procedures used in this investigation attempt to establish a balance between the competing goals of limiting investigative and reporting costs and time, and reducing the uncertainty about unknown conditions. Therefore, because the findings of this report were derived from the scope, costs, time, and other limitations, the conclusions should not be

construed as a guarantee that all environmental or occupational hazards have been identified and fully evaluated. Where sample collection and testing have been performed, IHI's professional opinions are based in part on the interpretation of data from discrete sampling locations that may not represent conditions at non-sampled locations. IHI assumes no responsibility for omissions or errors resulting from inaccurate information or data provided by sources outside of IHI, or from omissions or errors in public records.

Furthermore, it is emphasized that the final decision on how much risk to accept always remains with the client since IHI is not in a position to fully understand all of the client's needs. Clients with a greater aversion to risk may want to take additional actions while others, with less aversion to risk, may want to take no further action.

construed as a guarantee that all environmental or occupational hazards have been identified and fully evaluated. Where sample collection and testing have been performed, IHI's professional opinions are based in part on the interpretation of data from discrete sampling locations that may not represent conditions at non-sampled locations. IHI assumes no responsibility for omissions or errors resulting from inaccurate information or data provided by sources outside of IHI, or from omissions or errors in public records.

Furthermore, it is emphasized that the final decision on how much risk to accept always remains with the client since IHI is not in a position to fully understand all of the client's needs. Clients with a greater aversion to risk may want to take additional actions while others, with less aversion to risk, may want to take no further action.

6.0 PROJECT APPROVAL

This IH Assistance Visit was reviewed and approved by:

Non-Responsive

CIH, CSP
Industrial Hygiene Services Manager

December 4, 2012
Date

Technical Assistance: For technical assistance regarding information found in this report or the performed survey, please contact Non-Responsive at 801-466-2223, or Non-Responsive of the Southwest Regional Industrial Hygiene Office at 916-804-1707.

Contact the State Safety and Occupational Health Office and/or the Regional Industrial Hygienist should any of the operations change, or should the personnel become incapable of following the previous recommendations and subsequent recommendations are needed.

Appendix A

References

American Conference of Governmental Industrial Hygienists (ACGIH), Industrial Ventilation, A Manual of Recommended Practice

American Conference of Governmental Industrial Hygienists (ACGIH), Threshold Limit Values for Chemical Substances and Physical Agents and Biological Indices

American National Standards Institute (ANSI)/Illuminating Engineering Society (IES), Industrial Lighting.

American National Standards Institute, Z358. 1-1998. Emergency Eyewash and Shower Equipment

AR 40-5, Preventative Medicine

AR 40-10, Appendix B – Health Hazard Assessment Program in Support of Army Material Acquisition Decision Process

AR 385-10, The Army Safety Program

Corps of Engineers Guide Specification, CEGS-1585 1, Overhead vehicle tailpipe (and welding fume) Exhaust Systems

DA PAM 40-ERG, Ergonomics

DA PAM 40-501, Hearing Conservation.

National Safety Council, Fundamentals of Industrial Hygiene

NOR 385-10, Army National Guard Safety and Occupational Health Program

TB MED 503, The Army Industrial Hygiene Program

TG022, US Army Environmental Hygiene Agency (USAEHA), Industrial Hygiene Evaluation Guide

TG 141, US Army for Health Promotion and Preventive Medicine (USACHPPM) Industrial Hygiene Air Sampling Guide, Nov. 1997

Title 29, Code of Federal Regulations (CFR), 2011, revision Part 1910, Occupational Safety and Health Standards

Appendix B

Assessment Criteria

A. Ventilation Standards

Ventilation rates were compared to recommendations made in 29 CFR 1910, ACGIH Industrial Ventilation Manual, and Corps of Engineers specifications. See Appendix A for reference information.

B. Illumination Standards

Illumination measurements were compared with recommendations made by the Industrial Engineering Society (IES)/American National Standards Institute (ANSI) RP7-1991 Standard and MIL-STD¬1472E.

C. Noise

Noise measurements were taken and compared with OSHA Standard 29 CFR 1910.95 and Department of the Army Pamphlet 40-501.

D. Air Sampling

Personal air sampling was conducted in compliance with applicable National Institute of Occupational Safety and Health (NIOSH) Analytical Methods. Sampling results were compared to relevant Occupational Safety and Health Administration (OSHA) Permissible Exposure Limits (PEL), American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Values (TLV), or NIOSH Recommended Exposure Limits (REL).

Occupational Safety and Health Administration (OSHA)

OSHA has established Permissible Exposure Limits (PELs) for workplace toxic and hazardous substances listed in 29 CFR 1910.1000 Tables Z-1, Z-2 and Z-3. Most OSHA PELs are based on 8-hour time weighted averages (TWAs); when sampling periods are less than 8 hours, the result must first be converted to an 8-hour TWA before comparing it to the OSHA PEL. Some OSHA PELs are based on Short Term Exposures Limits (STEL) of 15 minutes of worst-case exposure or Ceiling Limits of worst-case peak exposures (sampled as a 15 minute exposure if direct-reading methods are not available).

OSHA regulations are legally enforceable. Employers are required to maintain employee exposures below PELs. The best practice is to eliminate hazards and use safer substitutes. Alternatively, engineering and/or administrative (work practice) controls may reduce exposures to acceptable levels. Personal protective equipment should be the solution of last resort, implemented after all other efforts to eliminate the hazard have been exhausted or deemed infeasible. OSHA 29 CFR 1910.134 covers the use of respiratory protection in the work place.

American Conference of Governmental Industrial Hygienists (ACGIH)

Unlike the OSHA PELs, the ACGIH TLVs are not consensus standards; however, TLVs represent a scientific opinion based on a review of existing peer-reviewed scientific literature by committees of experts in public health and related sciences.

Occupational Exposure Limit

In accordance with the Department of the Army (DA) Pamphlet 40-503, Industrial Hygiene Program (DA PAM 40-503), "The DA mandates the use of ACGIH TLVs when they are more stringent than OSHA regulations or when there is no PEL." The DA defines the resulting exposure limit as the Occupational Exposure Limit (OEL).

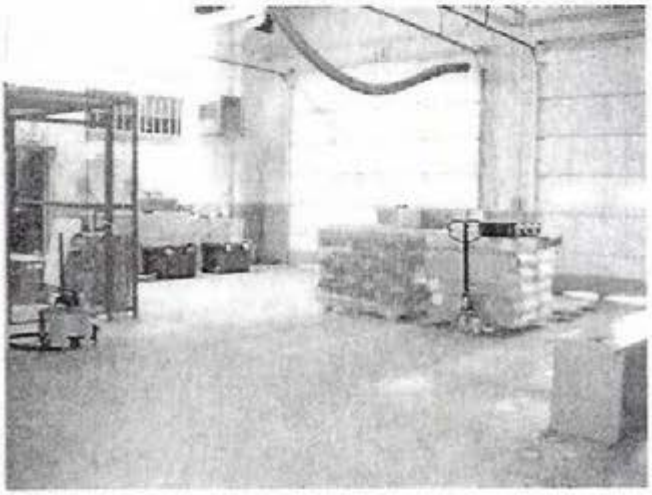
Appendix C

Photo Log

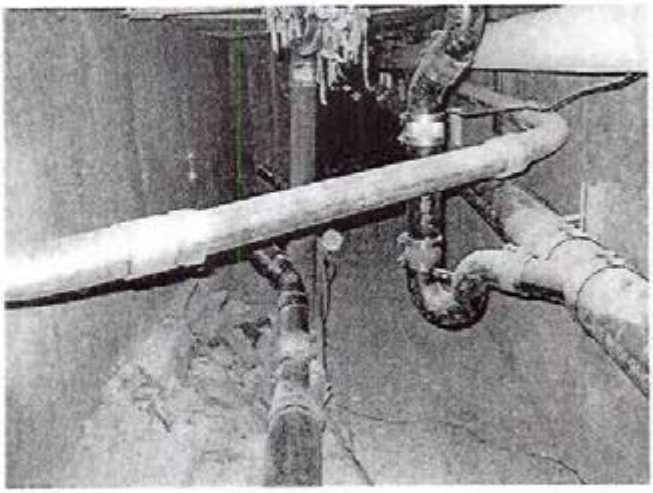
Photograph 1
Springville Armory, Front, Exterior

Photograph 2
Springville Armory, Side, Exterior

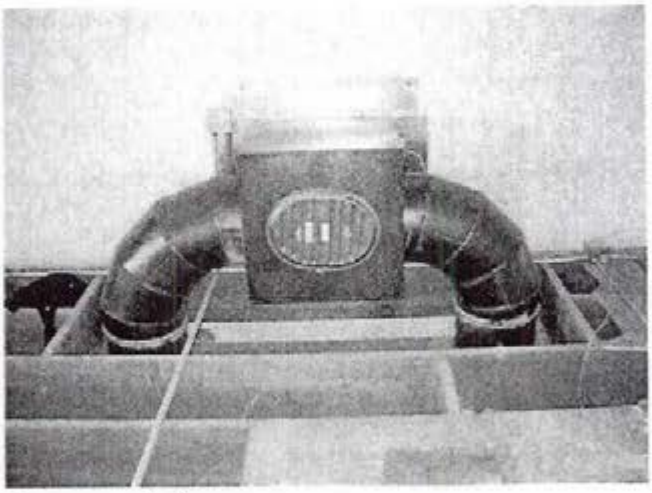
Photograph 3
Springville Armory, Drill Hall



Photograph 4
Springville Armory, Maintenance Bay



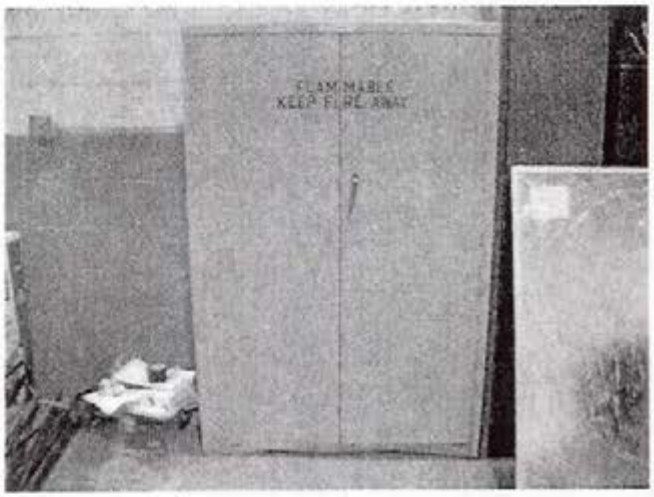
Photograph 5
Crawlspace



Photograph 6
Kitchen Exhaust Duct, Two Interior Vents

Photograph 7
Flammable Cabinets, closed

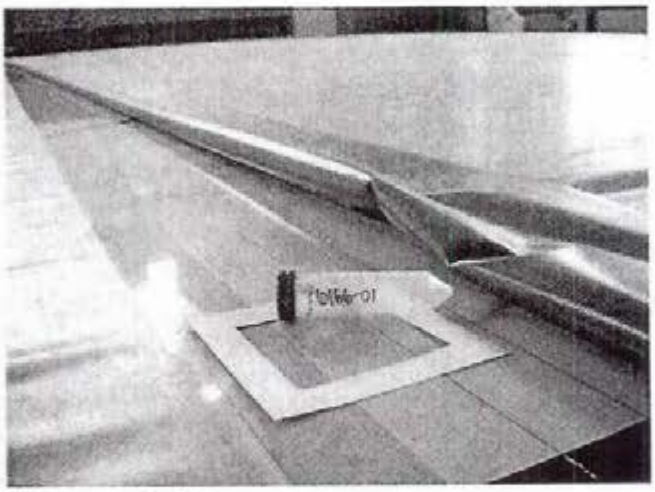
Photograph 8
Flammable Cabinets, open



Photograph 9
Flammable Cabinet, closed

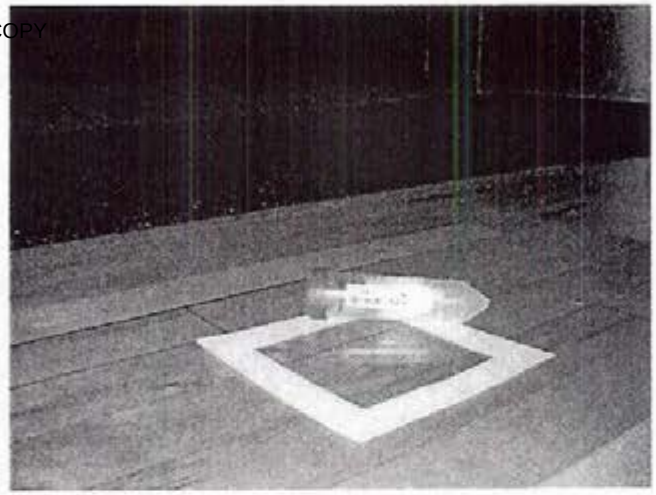
Photograph 10
Flammable Cabinet, open

Photograph 11
Flammables outside of a flammable cabinet

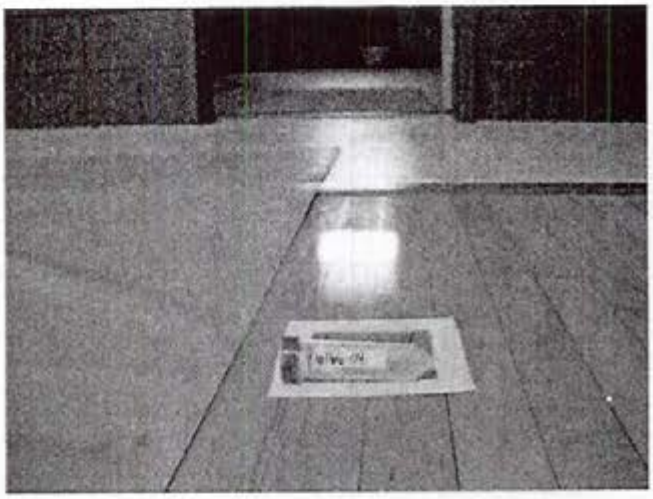


Photograph 12
Location of lead wipe sample number 6166-01

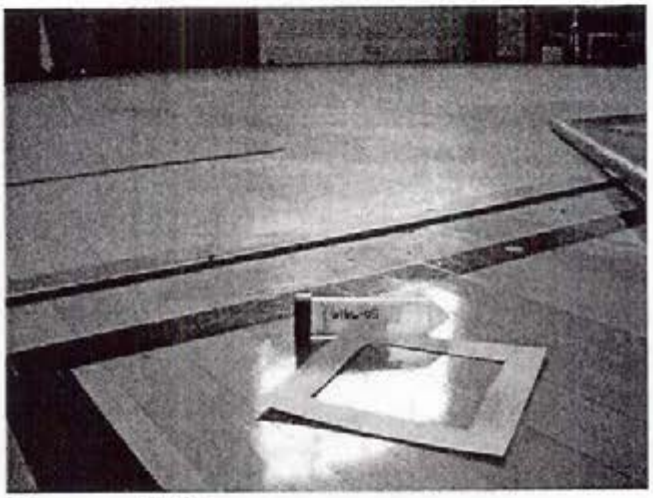
Photograph 13
Location of lead wipe sample number 6166-02



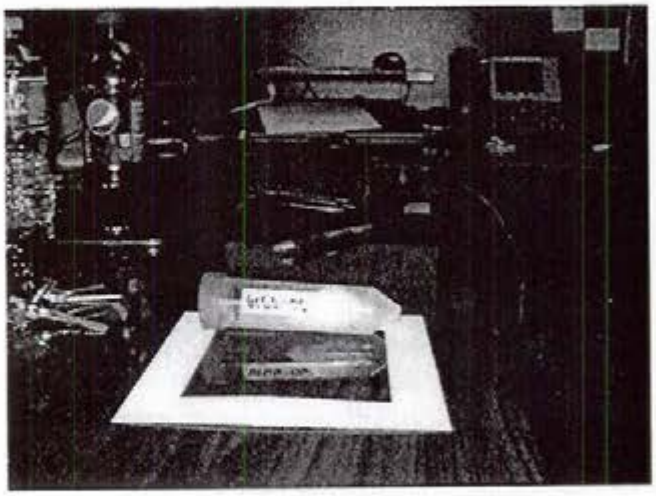
Photograph 14
Location of lead wipe sample number 6166-03



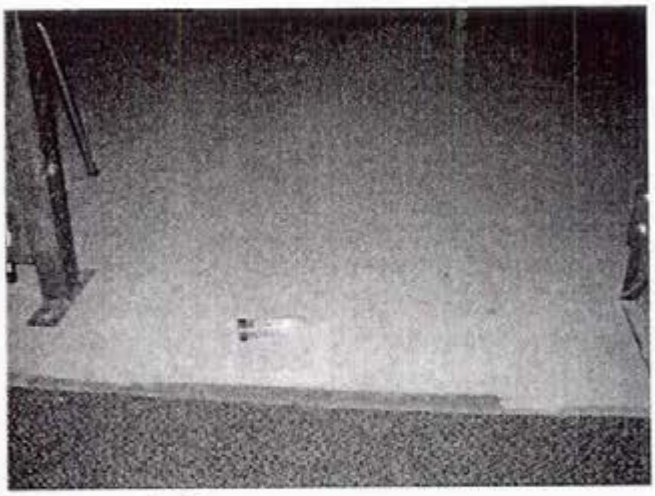
Photograph 15
Location of lead wipe sample number 6166-04



Photograph 16
Location of lead wipe sample number 6166-05

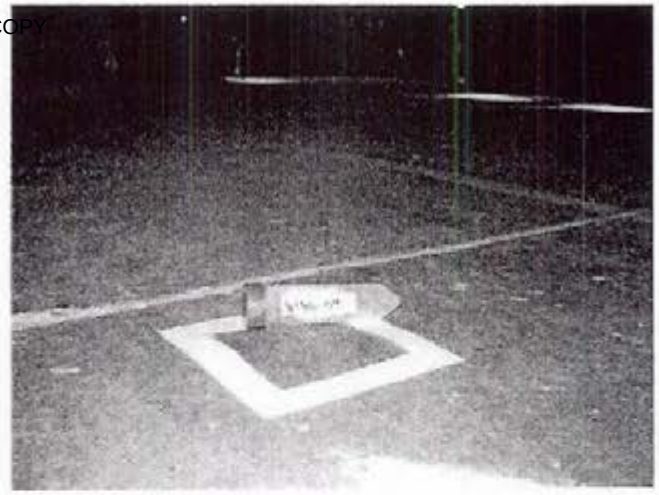


Photograph 17
Location of lead wipe sample number 6166-06



Photograph 18
Location of lead wipe sample number 6166-07

Photograph 19
Location of lead wipe sample number 6166-08



Photograph 20
Location of lead wipe sample number 6166-09

Appendix D

Chemical Inventory

BEST AVAILABLE COPY

Km 106

Item:	Quantity:
Neutral cleaner (3H)	2
Disinfectant cleaner (5L)	1
Bathroom cleaner (4L)	1
Glass Cleaner (1L)	2
General Purpose cleaner (8L)	2

Item:	Quantity:
Simple green	4
Soft scrub	1
Gojo hand soap	4
Meter mist	3
Plastic polish	6
Micrell lotion soap	24
Glass cleaner	15
All purpose cleaner	24
Power green	9
Flo-shine	1
Bleach	1
Pine oil	3
Riptide 2	1
Never-dull	2
Aterra hand soap	8
Cleaning compound	4
Ring master	8
Lysol	14
Scouring powder	26

Item:	Quantity:
Propane	25
Plastic polish	7
Penetrating oil	1
Rifle bore cleaner	11
Liquid wrench	1
Power steering	1
Weapon lubricating oil	3
2 stroke oil (echo and sthil)	24
Bar and chain lubricant	2

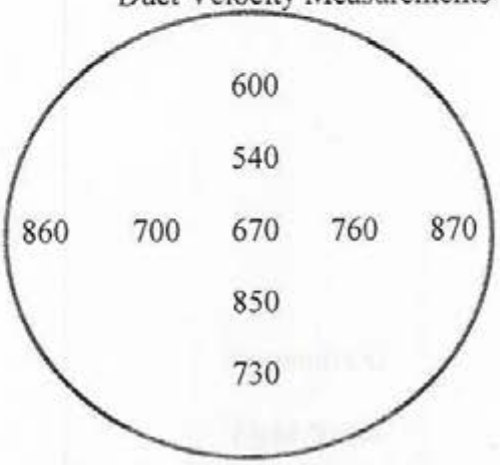
Ventilation Survey Data and Calculations
Kitchen Exhaust Vents
Springville, Utah Armory

Kitchen Stove/Oven Exhaust Duct Velocity

West Duct

Duct Dimensions = 14 inch diameter

Duct Velocity Measurements

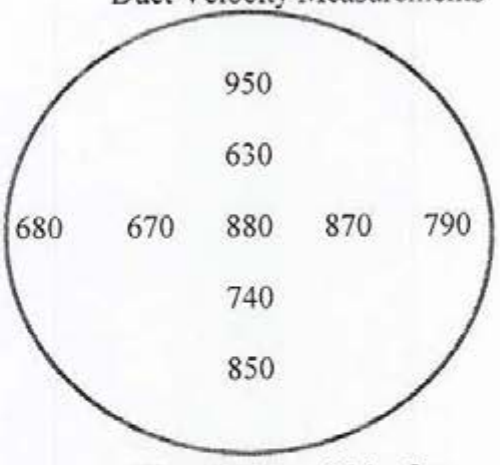


Average Flow Rate = 731 fpm

East Duct

Duct Dimensions = 14 inch diameter

Duct Velocity Measurements



Average Flow Rate = 784 fpm

Army National Guard Armory Survey
(To Be Included In Report)

Five **lead wipe** samples collected from drill floor (take samples from dusty horizontal floor surfaces)	yes
Are any **weapons cleaned** in the facility, if yes where are they cleaned?	Unit currently deployed that is usually here - no weapons currently here. 3 units here now have their weapons in Mt. Pleasant.
Additional lead **wipe** samples taken from 25% of the rest of the building - -(**on floor areas only**)	yes
Is there **a converted indoor firing range**? If so collect additional wipe samples IAW the SOW.	No.
Is there any peeling **paint**? Take bulk sample if able.	no.
Are there any signs of water damage or **mold**?	no.
Any suspected **ACM**? Where and what condition is it in. Bulk sample if able.	unsure since they do not usually occupy this facility
Quality of housekeeping	good.
HVAC maintenance plan in place?	State Personnel
Overall condition of HVAC system	~ 2 yrs old
Obtained **CO2, Temp, RH** monitoring	yes.
HAZMAT inventory on hand (make copies for the report), **MSDS** available for all materials.	inventory not up to date MSDSs organized alphabetically
HAZMAT storage, Condition of lockers, if outside storage building is used is it ventilated and does it meet OSHA standards.	good. some products outside of flam cabs.

Fire alarm in working condition - -not usually in place in older armories	yes - peak alarm
Fire extinguishers in place and properly identified and mounted	yes -
Evidence of **monthly fire extinguisher inspections**	yes. } inspections by DFCM
Annual fire extinguisher inspections tags current	yes. } inspections by DFCM
Are **eye wash stations** available in areas where hazardous materials are used and are they inspected weekly (inspections must be documented)	N/A
Egress routes accessible and properly marked - -noted on Fire Evacuation Plan	yes.
Training programs in place; Hazcom, Respiratory Protection, Confined Spaces, Hearing conservation, PPE (if applicable)	good.
Any Photo labs	N/A
Any hazardous **noise** sources	No.
Light levels checked throughout building	N/A
Breaker panels properly labeled with no exposed wiring	yes.
Check **building occupancy** 1. How many military personnel, how many civilian personnel 2. What types of units occupy facility, i.e. Administrative, Maintenance, etc.?	10 Admin 2 civilian Admin
Any **civilian activities** in armory (cub scouts, classes, day care, parties etc)	no
Obtain two **lead air samples**	On IHSW Request Only

Evaluate Kitchen Stove Hood Flow if Present IAW NFPA Standard 96.	yes
Collect Source Noise Measurements of Kitchen Appliances and Document Using DD 2214	yes
Conduct a safety walkthrough of entire facility document any safety deficiencies found.	yes
Take photos of outside of **building**, all **sample points** and any **pertinent hazards** or concerns.	yes
Name of Armory, **POC**, **phone #, address** and **organizations** in Armory **(Add Checklist to Report)**	Non-Responsive (801)794-6006 **(Add Checklist to Report)**

3M Occupational Health and
Environmental Safety Division

1060 Corporate Center Drive
Oconomowoc, WI 53066-4828
www.3m.com/OccSafety
651 735 6501
800 328 1667 Customer Service
800 243 4630 Technical Assistance

Certificate of Calibration

Certificate Number: 265801SD20010465

Model: SD-200 Class 2 Integrating SLM

Date Issued: 12-Sep-2011

S/N: SD20010465

On this day of manufacture and calibration 3M certifies that the above listed product meets or exceeds the perfomance requirements of the following accoustic standard(s)

ANSI S1.4 1983 (R 2006) - Type 2 / Specification for Sound Level Meters

ANSI S1.43 1997 (R 2007) - Type 2 / Integrating-Averaging Sound Level Meter

IEC 61672-1 (2002) - Class 2/Electo Accoustics - SLMs - Pt1: Specifications

Test Conditions: Temp: 18-25°C Humidity: 20-80% R.H. Barometer: 950-1050 mBar

Test Procedure: S053-771

Reference Standard(s):

Device	Ref Standard Cal Due	Uncertainty - Estimated at 95% Confidence Level (k=2)
B&K Ensemble	10/7/2011	+/- 2.2% Acoustic (0.19dB)

Calibrated By: Non-Responsive

In order to maintain best instrument performance over time, we recommend the instrument be recalibrated annually.
Any number of factors may cause the calibration to drift before the recommended interval has expired.
See user manual for more information.

All test equipment used in the test and calibration of this instrument is traceable to NIST, and applies only to the unit identified above.

3M Occupational Health and
Environmental Safety Division

1060 Corporate Center Drive
Oconomowoc, WI 53066-4828
www.3m.com/OccSafety
651 735 6501
800 328 1667 Customer Service
800 243 4630 Technical Assistance

Declaration of Conformity

Product/Model: SD-200 / Sound Detector - Class 2 Integrating SLM

Directives Covered:

> EMC / Council Directive 2004/108/EC on Electromagnetic Compatibility.
> Safety / Council Directive 2006/95/EC on Low Voltage Equipment Safety.
> RoHS / Council Directive 2002/95/EC Restriction of Hazardous Substances.
> WEEE / Council Directive 2002/96/EC Waste electrical and electronic equipment.
> Performance / Council Directive 2004/22/EC Measuring Instruments.

The basis on which conformity is declared:

EN 61326-1 (2005) Electrical equipment for measurement, control and laboratory use
EMC requirements, Group 1, Class B Equipment (emissions)

CFR:47 (2008) Code of Federal Regulations: Part 15 Subpart B - Radio Frequency Devices - Unintentional Radiators.

EN 61326-1 (2005) Electrical equipment for measurement, control and laboratory use
EMC requirements, Industrial Location Immunity.

3I S1.4 1983 (R 2006) - Type 2 / Specification for Sound Level Meters

ANSI S1.43 1997 (R 2007) - Type 2 / Integrating-Averaging Sound Level Meter

IEC 61672-1 (2002) - Class 2/Electo Accoustics - SLMs - Pt1: Specifications

IEC 61010-1 (2010) Safety requirements for electrical equipment for measurement, control and laboratory use
Part 1: General Requirements

This instrument is considered WEEE Category 6 (Electrical and electronic tools), and therefore falls within the scope of the RoHS Directive. These units are RoHS compliant.

Note: This certification applies to all standard options and accessories supplied with the SD-200.

At the end of it's life cycle, this product and internal power cell must be sent to a WEEE recycling center, and is marked accordingly.

The technical construction file required by this directive is maintained in Oconomowoc, WI USA

Non-Responsive

Appendix H

Calibration Certificates

TSI CERTIFICATE OF CALIBRATION AND TESTING

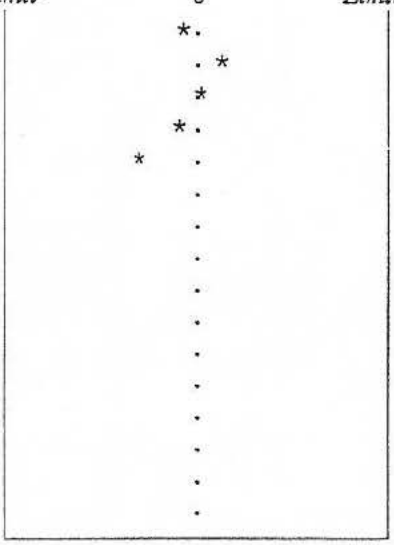
TSI Model 8732 TSI Serial No. 02100504

Description IAQ Meter with CO2

Calibration Standard Multi-Gas Calibration Bench #127

CALIBRATION VERIFICATION RESULTS

Calibration Standard	Instrument Output	Difference	Error Compared to Tolerance (Tolerance Limit- / 0 / Tolerance Limit+)
5001 PPM	4990 PPM	-0.2 %	
3000 PPM	3012 PPM	0.4 %	
1000 PPM	1001 PPM	1 PPM	
500 PPM	496 PPM	-4 PPM	
0 PPM	-15 PPM	-15 PPM	



Tolerance Limits:

CO2: 50PPM or 3% of reading

TSI Incorporated does hereby certify that all materials, components, and workmanship used in the manufacture of this equipment are in strict accordance with the applicable specifications agreed upon by TSI and the customer and with all published specifications. All performance and acceptance tests required under this contract were successfully conducted according to required specifications. Furthermore, all test and calibration data supplied by TSI has been obtained using standards whose accuracies are traceable to the National Institute of Standards and Technology (NIST) or has been verified with respect to instrumentation whose accuracy is traceable to NIST, or is derived from accepted values of physical constants. Calibration procedures for this instrument comply with MIL-STD-45662A. The accuracy of the calibration facilities is greater than a ratio of 1:1 with respect to the accuracy specifications of the instrument being calibrated.

Applicable Test Report	Report Number	Date Last Verified
DC Voltage	E002415	06-21-11
Barometric Pressure	E001992	04-08-11
Pure Nitrogen	UT-230	03-02-12
CO2 1000 PPM in N2	EB0013815	01-21-10
CO2 5000 PPM in N2	EB0020543	02-01-12

Non-Responsive

☑ Final Function Check

Mar 19, 2012 Calibration Date

TSI Incorporated, 500 Cardigan Road, Shoreview, MN 55126 USA
Tel: 800-874-2811 651-490-2874 FAX: 651-490-2121 www.tsi.com

TSI CERTIFICATE OF CALIBRATION AND TESTING

TSI Model 8732 TSI Serial No. 02100504

Description IAQ Meter with CO2

Calibration Standard Multi-Gas Calibration Bench #127

CALIBRATION VERIFICATION RESULTS

Calibration Standard	Instrument Output	Difference	Error Compared to Tolerance: Tolerance Limit-	0	Tolerance Limit+
5001 PPM	5895 PPM	17.9 %		·	X
3000 PPM	3762 PPM	25.4 %		·	X
1000 PPM	1243 PPM	243 PPM		·	X
500 PPM	614 PPM	114 PPM		·	X
0 PPM	-15 PPM	-15 PPM		* ·	

******* AS FOUND DATA *******
(INITIAL CALIBRATION CHECK)

Tolerance Limits:
CO2: 50PPM or 3% of reading

TSI Incorporated does hereby certify that all materials, components, and workmanship used in the manufacture of this equipment are in strict accordance with the applicable specifications agreed upon by TSI and the customer and with all published specifications. All performance and acceptance tests required under this contract were successfully conducted according to required specifications. Furthermore, all test and calibration data supplied by TSI has been obtained using standards whose accuracies are traceable to the National Institute of Standards and Technology (NIST) or has been verified with respect to instrumentation whose accuracy is traceable to NIST, or is derived from accepted values of physical constants. Calibration procedures for this instrument comply with MIL-STD-45662A. The accuracy of the calibration facilities is greater than a ratio of 1:1 with respect to the accuracy specifications of the instrument being calibrated.

Applicable Test Report	Report Number	Date Last Verified
DC Voltage	E002415	06-21-11
Barometric Pressure	E001992	04-08-11
Pure Nitrogen	UT-230	03-02-12
CO2 1000 PPM in N2	EB0013815	01-21-10
CO2 5000 PPM in N2	EB0020543	02-01-12

Non-Responsive

☐ Final Function Check

Mar 19, 2012
Calibration Date

TSI Incorporated, 500 Cardigan Road, Shoreview, MN 55126 USA
Tel: 800-874-2811 651-490-2874 FAX: 651-490-2121 www.tsi.com

CERTIFICATE OF CALIBRATION AND TESTING

TSI Incorporated, 500 Cardigan Road, Shoreview, MN 55126 USA
Tel: 1-800-874-2811 1-651-490-2811 Fax: 1-651-490-3824 http://www.tsi.com

ENVIRONMENT CONDITION		
TEMPERATURE	68.5 (20.3)	°F (°C)
RELATIVE HUMIDITY	53	%RH
BAROMETRIC PRESSURE	28.95 (980.4)	inHg (hPa)

MODEL	8345
SERIAL NUMBER	98060408

☒ AS LEFT ☐ AS FOUND

☒ IN TOLERANCE ☐ OUT OF TOLERANCE

– CALIBRATION VERIFICATION RESULTS –

VELOCITY VERIFICATION — SYSTEM V-110 — *Unit: ft/min (m/s)*

#	STANDARD	MEASURED	ALLOWABLE RANGE	#	STANDARD	MEASURED	ALLOWABLE RANGE
1	0 (0.00)	0 (0.00)	-3~3 (-0.02~0.02)	7	648 (3.29)	644 (3.27)	628~667 (3.19~3.39)
2	35 (0.18)	34 (0.17)	32~38 (0.16~0.19)	8	996 (5.06)	991 (5.03)	966~1026 (4.91~5.21)
3	65 (0.33)	65 (0.33)	62~68 (0.32~0.35)	9	1473 (7.48)	1476 (7.50)	1428~1517 (7.26~7.70)
4	99 (0.50)	98 (0.50)	96~102 (0.49~0.52)	10	2473 (12.56)	2484 (12.62)	2399~2547 (12.18~12.94)
5	160 (0.81)	158 (0.80)	155~165 (0.79~0.84)	11	4493 (22.82)	4514 (22.93)	4358~4627 (22.14~23.51)
6	334 (1.70)	333 (1.69)	324~344 (1.64~1.75)	12	5903 (29.99)	5902 (29.98)	5726~6080 (29.09~30.89)

TEMPERATURE VERIFICATION — SYSTEM T-119 — *Unit: °F (°C)*

#	STANDARD	MEASURED	ALLOWABLE RANGE	#	STANDARD	MEASURED	ALLOWABLE RANGE
1	32.0 (0.0)	32.1 (0.1)	31.5~32.5 (-0.3~0.3)	2	140.0 (60.0)	140.2 (60.1)	139.5~140.5 (59.7~60.3)

TSI does hereby certify that the above described instrument conforms to the original manufacturer's specification (not applicable to As Found data) and has been calibrated using standards whose accuracies are traceable to the United States National Institute of Standards and Technology (NIST) or has been verified with respect to instrumentation whose accuracy is traceable to NIST, or is derived from accepted values of physical constants. TSI's calibration system is registered to ISO-9001:2008 and meets the requirements of ISO 10012:2003.

Measurement Variable	System ID	Last Cal.	Cal. Due
Temperature	E001800	01-19-12	07-19-12
DC Voltage	E001658	06-28-11	12-28-12
Pressure	E001719	12-13-11	06-13-12
Barometric Pressure	E001992	04-06-12	04-06-13

Measurement Variable	System ID	Last Cal.	Cal. Due
Temperature	E001799	01-19-12	07-19-12
Temperature	E004402	12-08-11	06-08-12
Pressure	E001721	12-13-11	06-13-12
Velocity	E003327	09-19-07	09-19-12

Non-Responsive

June 5, 2012

DATE

DOC. ID: CERT_DEFAULT

TSI P/N 2300157

CERTIFICATE OF CALIBRATION AND TESTING

TSI Incorporated, 500 Cardigan Road, Shoreview, MN 55126 USA
Tel: 1-800-874-2811 1-651-490-2811 Fax: 1-651-490-3824 http://www.tsi.com

ENVIRONMENT CONDITION		
TEMPERATURE	67.8 (19.9)	°F (°C)
RELATIVE HUMIDITY	53	%RH
BAROMETRIC PRESSURE	28.93 (979.7)	inHg (hPa)

MODEL	8345
SERIAL NUMBER	98060408

☐ AS LEFT ☒ AS FOUND

☐ IN TOLERANCE ☒ OUT OF TOLERANCE

– CALIBRATION VERIFICATION RESULTS –

VELOCITY VERIFICATION — SYSTEM V-106 — *Unit: ft/min (m/s)*

#	STANDARD	MEASURED	ALLOWABLE RANGE	#	STANDARD	MEASURED	ALLOWABLE RANGE
1	0 (0.00)	0 (0.00)	-3~3 (-0.02~0.02)	7	645 (3.28)	626 (3.18)	626~664 (3.18~3.37)
2	35 (0.18)	36 (0.18)	32~38 (0.16~0.19)	8	996.5 (5.062)	* 961.5 (4.884)	966.6~1026.4 (4.91~5.214)
3	65 (0.33)	66 (0.33)	62~68 (0.31~0.34)	9	1473.3 (7.484)	* 1386.8 (7.045)	1429.1~1517.5 (7.26~7.709)
4	100 (0.51)	101 (0.51)	97~103 (0.49~0.52)	10	2503.6 (12.718)	* 2344.6 (11.911)	2428.5~2578.7 (12.337~13.10)
5	160 (0.81)	160 (0.81)	155~164 (0.79~0.84)	11	4484 (22.78)	4451 (22.61)	4350~4619 (22.10~23.46)
6	328 (1.67)	326 (1.65)	318~338 (1.62~1.72)	12	5908 (30.01)	5884 (29.89)	5731~6085 (29.11~30.91)

TEMPERATURE VERIFICATION — SYSTEM T-119 — *Unit: °F (°C)*

#	STANDARD	MEASURED	ALLOWABLE RANGE	#	STANDARD	MEASURED	ALLOWABLE RANGE
1	32.0 (0.0)	* 32.7 (0.39)	31.5~32.5 (-0.28~0.28)	2	140.0 (60.0)	140.0 (60.0)	139.5~140.5 (59.7~60.3)

**Indicates Out-of-Tolerance Condition*

TSI does hereby certify that the above described instrument conforms to the original manufacturer's specification (not applicable to As Found data) and has been calibrated using standards whose accuracies are traceable to the United States National Institute of Standards and Technology (NIST) or has been verified with respect to instrumentation whose accuracy is traceable to NIST, or is derived from accepted values of physical constants. TSI's calibration system is registered to ISO-9001:2008 and meets the requirements of ISO 10012:2003.

Measurement Variable	System ID	Last Cal.	Cal. Due
DC Voltage	E004477	12-15-11	12-15-12
Pressure	E001558	12-12-11	06-12-12
Velocity	E003327	09-19-07	09-19-12
Temperature	E001800	01-19-12	07-19-12

Measurement Variable	System ID	Last Cal.	Cal. Due
Temperature	E001644	01-20-12	07-20-12
Pressure	E001560	12-12-11	06-12-12
Barometric Pressure	E001992	04-06-12	04-06-13
Temperature	E001799	01-19-12	07-19-12

Non-Responsive

VERIFIED

June 5, 2012
DATE

Doc ID: CERT_DEFAULT

TSI P/N 2300157

TSI - Customer Service report

Thank you for the opportunity to service your instrument.

RMA Number: 800245509

Ship-to party 17032	Sold-to party 17032
IHI ENVIRONMENTAL 640 E WILMINGTON AVE SALT LAKE CITY UT USA	IHI ENVIRONMENTAL 640 E WILMINGTON AVE SALT LAKE CITY UT USA

Service Information:

Purchase Order 12U-I6001TSIJCH
Purchase Order Date 06/05/2012

Description Calibration of VelociCalc 8345

Equipment 98060408
Serial Number 98060408
Material 8345

Service Description:

Return Reason:
ANNUAL CALIBRATION

Findings:
Unit sent in for clean and calibration. The unit failed as found.

Action:
The unit was cleaned, calibrated, and a complete operational checkout

was performed.

Appendix I

Lead Wipe and Lead Paint Chip Table and Drawing

ANALYTICAL REPORT

Workorder: 34-1224339
Client Project ID: Armory-Springville,UT
Purchase Order: 12U-I6166
Project Manager: [redacted]

Analytical Results

Sample ID: 6166-05	Media: Lead Dust Wipe		Collected: 08/30/2012
Lab ID: 1224339005	Sampling Location: Armory-SpringvilleUT		Received: 08/30/2012
Method: **NIOSH 7300 Mod.**	Sampling Parameter: **Area 100 cm²**		Prepared: 09/04/2012 Analyzed: 09/04/2012

Analyte	ug/sample	ug/ft²	RL (ug/sample)
Lead	<2.5	<23	2.5

Sample ID: 6166-06	Media: Lead Dust Wipe		Collected: 08/30/2012
Lab ID: 1224339006	Sampling Location: Armory-SpringvilleUT		Received: 08/30/2012
Method: **NIOSH 7300 Mod.**	Sampling Parameter: **Area 100 cm²**		Prepared: 09/04/2012 Analyzed: 09/04/2012

Analyte	ug/sample	ug/ft²	RL (ug/sample)
Lead	<2.5	<23	2.5

Sample ID: 6166-07	Media: Lead Dust Wipe		Collected: 08/30/2012
Lab ID: 1224339007	Sampling Location: Armory-SpringvilleUT		Received: 08/30/2012
od: **NIOSH 7300 Mod.**	Sampling Parameter: **Area 100 cm²**		Prepared: 09/04/2012 Analyzed: 09/04/2012

Analyte	ug/sample	ug/ft²	RL (ug/sample)
Lead	<2.5	<23	2.5

Sample ID: 6166-08	Media: Lead Dust Wipe		Collected: 08/30/2012
Lab ID: 1224339008	Sampling Location: Armory-SpringvilleUT		Received: 08/30/2012
Method: **NIOSH 7300 Mod.**	Sampling Parameter: **Area 100 cm²**		Prepared: 09/04/2012 Analyzed: 09/04/2012

Analyte	ug/sample	ug/ft²	RL (ug/sample)
Lead	<2.5	<23	2.5

Sample ID: 6166-09	Media: Lead Dust Wipe		Collected: 08/30/2012
Lab ID: 1224339009	Sampling Location: Armory-SpringvilleUT		Received: 08/30/2012
Method: **NIOSH 7300 Mod.**	Sampling Parameter: **Area 100 cm²**		Prepared: 09/04/2012 Analyzed: 09/04/2012

Analyte	ug/sample	ug/ft²	RL (ug/sample)
Lead	**3.6**	**33**	2.5

ANALYTICAL REPORT

Report Date: September 05, 2012

Kat White
IHI Environmental
640 East Wilmington Avenue
Salt Lake City, UT 84106

Phone: (801) 466-2223
Fax: (801) 466-9616
E-mail: katwhite@ihi-env.com

Workorder: 34-1224339
Client Project ID: Armory-Springville,UT
Purchase Order: 12U-I6166
Project Manager: Paul Pope

Analytical Results

Sample ID: 6166-01 | Media: Lead Dust Wipe | Collected: 08/30/2012
Lab ID: 1224339001 | Sampling Location: Armory-SpringvilleUT | Received: 08/30/2012
Method: **NIOSH 7300 Mod.** | Sampling Parameter: **Area 100 cm²** | Prepared: 09/04/2012 Analyzed: 09/04/2012

Analyte	ug/sample	ug/ft²	RL (ug/sample)
Lead	<2.5	<23	2.5

Sample ID: 6166-02 | Media: Lead Dust Wipe | Collected: 08/30/2012
Lab ID: 1224339002 | Sampling Location: Armory-SpringvilleUT | Received: 08/30/2012
od: **NIOSH 7300 Mod.** | Sampling Parameter: **Area 100 cm²** | Prepared: 09/04/2012 Analyzed: 09/04/2012

Analyte	ug/sample	ug/ft²	RL (ug/sample)
Lead	<2.5	<23	2.5

Sample ID: 6166-03 | Media: Lead Dust Wipe | Collected: 08/30/2012
Lab ID: 1224339003 | Sampling Location: Armory-SpringvilleUT | Received: 08/30/2012
Method: **NIOSH 7300 Mod.** | Sampling Parameter: **Area 100 cm²** | Prepared: 09/04/2012 Analyzed: 09/04/2012

Analyte	ug/sample	ug/ft²	RL (ug/sample)
Lead	<2.5	<23	2.5

Sample ID: 6166-04 | Media: Lead Dust Wipe | Collected: 08/30/2012
Lab ID: 1224339004 | Sampling Location: Armory-SpringvilleUT | Received: 08/30/2012
Method: **NIOSH 7300 Mod.** | Sampling Parameter: **Area 100 cm²** | Prepared: 09/04/2012 Analyzed: 09/04/2012

Analyte	ug/sample	ug/ft²	RL (ug/sample)
Lead	<2.5	<23	2.5

ANALYTICAL REPORT

Workorder: **34-1224339**
Client Project ID: Armory-Springville,UT
Purchase Order: 12U J6166
Project Manager: Non-Responsive [redacted]

Analytical Results

Sample ID: 6166-10 | Media: Lead Dust Wipe | Collected: 08/30/2012
Lab ID: 1224339010 | Sampling Location: Armory-SpringvilleUT | Received: 08/30/2012
Method: **NIOSH 7300 Mod.** | Sampling Parameter: **Area Not Applicable** | Prepared: 09/04/2012 Analyzed: 09/04/2012

Analyte	ug/sample	ug/ft²	RL (ug/sample)
Lead	<2.5	NA	2.5

Report Authorization

Method	Analyst	Peer Review
NIOSH 7300 Mod.	Non-Responsive [redacted]	Non-Responsive [redacted]

Laboratory Contact Information

ALS Environmental
960 W Levoy Drive
Salt Lake City, Utah 84123

Phone: (801) 266-7700
Email: alslt.lab@ALSGlobal.com
Web: www.alsslc.com

ANALYTICAL REPORT

Workorder: 34-1224339
Client Project ID: Armory-Springville,UT
Purchase Order: 12UJ6166
Project Manager: Non-Responsive

General Lab Comments

The results provided in this report relate only to the items tested.
Samples were received in acceptable condition unless otherwise noted.
Samples have not been blank corrected unless otherwise noted.
This test report shall not be reproduced, except in full, without written approval of ALS.

ALS provides professional analytical services for all samples submitted. ALS is not in a position to interpret the data and assumes no responsibility for the quality of the samples submitted.

All quality control samples processed with the samples in this report yielded acceptable results unless otherwise noted.

ALS is accredited for specific fields of testing (scopes) in the following testing sectors. The quality system implemented at ALS conforms to accreditation requirements and is applied to all analytical testing performed by ALS. The following table lists testing sector, accreditation body, accreditation number and website. Please contact these accrediting bodies or your ALS project manager for the current scope of accreditation that applies to your analytical testing.

Testing Sector	Accreditation Body (Standard)	Certificate Number	Website
Environmental	ACLASS (DoD ELAP)	ADE-1420	http://www.aclasscorp.com
	Utah (NELAC)	DATA1	http://health.utah.gov/lab/labimp/
	Nevada	UT00009	http://ndep.nv.gov/bsdw/labservice.htm
	Oklahoma	UT00009	http://www.deq.state.ok.us/CSDnew/
	Iowa	IA# 376	http://www.iowadnr.gov/InsideDNR/RegulatoryWater.aspx
	Florida (TNI)	E871067	http://www.dep.state.fl.us/labs/bars/sas/qa/
	Texas (TNI)	T104704456-11-1	http://www.tceq.texas.gov/field/qa/lab_accred_certif.html
Industrial Hygiene	AIHA (ISO 17025 & AIHA IHLAP/ELLAP)	101574	http://www.aihaaccreditedlabs.org
Lead Testing:			
CPSC	ACLASS (ISO 17025, CPSC)	ADE-1420	http://www.aclasscorp.com
Soil, Dust, Paint ,Air	AIHA (ISO 17025, AIHA ELLAP and NLLAP)	101574	http://www.aihaaccreditedlabs.org
Dietary Supplements	ACLASS (ISO 17025)	ADE-1420	http://www.aclasscorp.com

Definitions

LOD = Limit of Detection = MDL = Method Detection Limit, A statistical estimate of method/media/instrument sensitivity.
LOQ = Limit of Quantitation = RL = Reporting Limit, A verified value of method/media/instrument sensitivity.
ND = Not Detected, Testing result not detected above the LOD or LOQ.
** No result could be reported, see sample comments for details.
< This testing result is less than the numerical value.
( ) This testing result is between the LOD and LOQ and has higher analytical uncertainty than values at or above the LOQ.

Appendix K

IHSW Violation Inventory Log

Industrial Hygiene Southwest

Violation Inventory Log

LOG OF SCHEDULE OF CORRECTIVE ACTION - COMPLIANCE WITH SAFETY AND HEALTH STANDARDS

Springville Armory, UT

CONTROL NUMBER CLOSED ☐	HAZARD DESCRIPTION	SITE	RAC	CORRECTIVE ACTIONS (Abatement Plan)	SUSPENSE DATE	ACTION OIC/NCOIC	Estimated Cost(s)	DATE CORRECTED	REFERENCES
UTSA-083012-4.4 ☐	An asbestos survey could not be located during this IH Assistance Visit.	Springville Armory	3	Either locate the asbestos survey for this building or contract with a licensed firm to perform an asbestos survey and assessment.					29 CFR 1910.1001(j)(3)(i)
UTSA-083012-4.4 ☐	Personnel have not been provided with asbestos awareness training.	Springville Armory	4	Based on the findings of this survey, provide awareness training to assigned personnel for the specific types of asbestos in this Armory.					29 CFR 1910.1001
UTSA-083012-4.6.1 ☐	Chemical inventories and MSDSs are not accurate and up to date.	Springville Armory	4	Update chemical inventory lists and the chemicals' associated MSDSs.					29 CFR 1910.1200 (g) (1)
UTSA-083012-4.6.1 ☐	Flammable chemicals are located outside of the flammable storage cabinets in the maintenance bay.	Springville Armory	4	Store all flammables in the flammable storage cabinets.					Recommended Practice & 29 CFR 1910.106 (d) (5) (iii)
UTSA-083012-4.10 ☐	Signage for a fire extinguisher exists in the drill hall where no fire extinguisher is present.	Springville Armory	4	Either remove the signage or place an extinguisher in the drill hall where signage exists but there is no fire extinguisher.					29 CFR 1910.157 (c) (1)
UTSA-083012-4.10 ☐	Exposed wiring exists in a junction box above the doorway in room 113.	Springville Armory	4	Install a cover plate on the junction box in the mechanical room to prevent electrical shock hazards.					29 CFR 1910.305 (b) (2)

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Appendix L

Recommendations

FACILITY INFORMATION

(Information listed in First Section)
(1st Few Paragraphs/Pages of Report)

1. Date Prepared: **8/30/2012**

2. Names (and Company Name) of Personnel Conducting Industrial Hygiene Site Assistance Visit: **Kat White, IHI Environmental**

3. Facility Name and Brief Summary of Primary Activities Conducted at Facility: **Springville Armory, Utah Army National Guard**
Drill Location

4. Facility Address: **125 South 700 East, Springville, UT 84663**

5. Primary Unit Assigned to Facility: **116th Engineer Company (Y10AA)**

6. Co-Tenant Units Assigned or Working Within Facility (LIST ALL): **C BTRY, 145th FA and CO A, 489th Distro**

7. Square Ft. Area of Facility: **approximately 15,000 sq. ft**

8. Work Schedule: **0700 – 1630; Monday through Friday**

9. Number of work bays: **3**

10. Equipment Density and Type: **N/A**

    a. List Equipment Nomenclature Serviced or Maintained at Facility: **N/A**

    b. List Total # for Each Nomenclature Serviced or Maintained at Facility: **N/A**

11. Total Number of Personnel: **12**

12. No. of Admin. Personnel (Include Status – AGR, Fed. Tech., IDT, State or Contract Employee): **12 AGR**

13. No. of Maintenance Personnel (Include Status – AGR, Fed. Tech., IDT, State or Contract Employee): **0**

14. Total Number of Personnel Enrolled in the Hearing Conservation Program: **0**

15. Total Number of Personnel Enrolled in the Respiratory Protection Program: **0**

16. Total Number of Personnel Enrolled in the Medical Surveillance Program: **0**

17. Total Number of Personnel Enrolled in the Vision Program: **0**

18. Facility Commander: **Kamron A. Wright**

    a. Email address, Commercial Telephone Number and Unit Assigned to: kamron.wright@us.army.mil, **801-794-6006 – Assigned to 116th Engineer Company**

19. Safety Officer: **Blair Jasperson**

    a. Email Address, Commercial Telephone Number and Unit Assigned to: randy.b.jasperson@us.army.mil; **801-794-6009, assigned to 116th Engineer Company**

20. Facility Telephone Number: **801-794-6009**

4.4 Asbestos Management

1. Locate the asbestos survey report for this building or contract with a licensed firm to perform an asbestos survey and assessment.

2. Once asbestos-containing materials have been identified and assessed, provide awareness training to assigned personnel for the specific material types and locations of asbestos in this armory.

4.6.1 Hazardous Materials Inventory and Material Safety Data Sheets (MSDS)

1. Update chemical inventory lists and the chemicals' associated MSDSs.

2. Store all flammables in the flammable storage cabinets.

4.10 General Safety Walk-Through

1. Either remove the signage or place an extinguisher in the drill hall where signage exists but there is no fire extinguisher.

2. Install a cover plate on the junction box in the mechanical room to prevent electrical shock hazards.

NOISE SURVEY
(Sound Level Meter Survey)

1. DATE *(YYYYMMDD)*	2. TYPE SURVEY *(Enter code)*
20120830	1 (1 - INITIAL SURVEY 2 - RE-SURVEY 3 - OTHER)

3. SOUND LEVEL METER		4. MICROPHONE		5. CALIBRATOR	
a. MANUFACTURER: 3M		a. MANUFACTURER: 3M		a. MANUFACTURER: 3M	
b. MODEL: SD-100	c. SERIAL NO.: SD20010465	b. MODEL: SD-100	c. SERIAL NO.: SD20010465	b. MODEL: QC-10	c. SERIAL NO.: QIA120222
d. LAST ELECTROACOUSTIC CALIB DATE *(YYYYMMDD)*: 20111012		d. LAST ELECTROACOUSTIC CALIB DATE *(YYYYMMDD)*: 20111012		d. LAST ELECTROACOUSTIC CALIB DATE *(YYYYMMDD)*: 20111012	

6. WIND SCREEN *(X one)*		7. MEASUREMENTS OBTAINED *(X one)*	
X USED	NOT USED	X INDOORS	OUTDOORS

8. DESCRIPTION OF AREAS/DUTIES WHERE NOISE SURVEY CONDUCTED *(Illustrate on additional sheet and attach to form)*	9. PRIMARY SOURCE OF NOISE
Kitchen	See 11a. column below
	10. SECONDARY SOURCE OF NOISE

11. SOUND LEVEL DATA — 12. PROTECTION REQUIRED *(re: dBA - Level)*

a. LOCATION	b. METER ACTION	c. dBC	d. dBA	e. RISK ASSESSMENT CODE	a. NONE *(Less than 85)*	b. PLUG OR MUFF *(85-108)*	c. PLUG AND MUFF *(108-118)*	d. PLUG + MUFF + TIME LIMIT *(Greater than 118)*
Hood Vent	S	84.0	74.5	IVD	X			
					X			
					X			
					X			
					X			
					X			

NOTES: Range of levels noted by /; i.e., 102/109. At operator stations, measure at ear level.
METER ACTION: Enter F for fast meter action and S for slow meter action.

13. REMARKS *(i.e., Area and equipment posted, hearing protection in use, etc.)*

14. MORE DETAILED NOISE EVALUATION REQUIRED: ☐ YES ☒ NO *(If "YES," identify type evaluation needed.)*

15. NAME(S) OF PERSON(S) IDENTIFIED FOR AUDIOMETRIC MONITORING *(Use additional sheet if more space is needed and attach to form)*

16. SUPERVISOR OF NOISE-HAZARDOUS AREA OR OPERATION

a. NAME *(Last, First, Middle Initial)*	b. TELEPHONE *(Include area code)*	c. ORGANIZATION
Non-Responsive	(801) 794-6009	UTARNG

17. SURVEY PERFORMED BY *(Last Name, First Name, MI)*	18. HEARING CONSERVATION MONITOR *(Last Name, First Name, MI)*
Non-Responsive	Non-Responsive

DD FORM 2214, JAN 2000 PREVIOUS EDITION MAY BE USED.

INSTRUCTIONS

(Refer to DoD Component Instructions for Additional Guidance)

PURPOSE: This form is intended to record noise survey results for the identification of potentially noise-hazardous environments.

GENERAL: Print all information in ink. Only medical, industrial hygiene, safety, or engineering personnel who meet training requirements specified by the DOD components will make sound level measurements.

1. Date - Enter date noise survey conducted (e.g., if Jan. 14, 1999, enter 19990114).

2. Type, Survey - Enter appropriate numeric code in box (e.g., enter "1" if area or operation not surveyed before or no available records of previous survey; enter "2" if resurvey conducted at regular intervals (such as once each 12 months); or enter "3" if noise being reevaluated to confirm validity of previously obtained measurements or for purposes other than indicated).

3. Sound Level Meter:
   a. Mfgr - Enter name of company that produced sound level meter.
   b. Model - Enter manufacturer's designation.
   c. Serial No. - Enter manufacturer's serial number.
   d. Last Electroacoustic Calib Date - Enter year, month, day (see Item 1) of last comprehensive calibration required by DOD component. Not to include calibration checks made with acoustical calibrator.

4. Microphone (Fill in this section if microphone is detachable from sound level meter)
   a. Manufacturer - Enter name of company that produced microphone.
   b. Model - Enter manufacturer's designation.
   c. Serial No. - Enter manufacturer's serial number.
   d. Last Electroacoustic Calib Date - Enter year, month, and day (see Item 1) of last comprehensive calibration as required by DOD component.

5. Calibrator:
   a. Manufacturer - Enter name of company that produced calibrator.
   b. Model - Enter manufacturer's designation.
   c. Serial Number. Enter manufacturer's serial number.
   d. Last Electroacoustic Calib Date. Enter year, month, and day (see Item 1) of last comprehensive calibration as required by DoD component.

6. Wind Screen - Check appropriate box indicating if manufacturer's device to reduce wind noise is mounted over microphone assembly.

7. Measurements Obtained - Check appropriate box indicating if measurements obtained indoors or outdoors.

8. Description of Areas/Duties Where Noise Survey Conducted - Include building number(s), name of activity and/or operation, identify specific microphone locations, performance conditions and descriptions of machinery (e.g., rpm, load, etc). Where applicable, include noise-hazard contours of area. On additional sheet make simple line drawing of area and identify noise sources and locations of measurement.

9. Primary Source of Noise - If possible, identify the location(s) of the highest dBA value.

10. Secondary Source of Noise - If possible, identify all other noise sources when the primary noise source is off (e.g. background noise sources and other noise sources that may or may not be noise hazardous).

11. Sound Level Data
   a. Location - Position where measurement is obtained should correspond with those identified, or illustrated on form.
   b. Meter Action - See Notes in Sound Level Data Sec. levels measured with weighting switch of meter in "C" position.
   c. dBC - If required by DOD component, enter sound levels measured with weighting switch of meter in "C" position.
   d. dBA - Enter sound levels measured with weighting switch of meter in "A" position. See NOTES in Sound Level Data Section.
   e. Risk Assessment Code - Enter expression of risk that combines elements of hazard severity and mishap probability. Hazard severity categories shall be assigned by roman numeral as follows:
   (1) Category I - Catastrophic: May cause death or loss of a facility (Code I).
   (2) Category II - Critical: May cause severe injury, e.g., severe occupational illness, or major property damage (Code II).
   (3) Category III - Marginal: May cause minor injury, e.g., minor occupational illness, or minor property damage (Code III).
   (4) Category IV - Negligible: Probably would not affect personnel safety or health, but is nevertheless in violation of specific criteria (Code IV). Mishap probability shall be assigned capital letter according to following criteria:
   (a) Subcategory A: Likely to occur immediately or within a short period of time (Code A).
   (b) Subcategory B: Probably will occur in time (Code B).
   (c) Subcategory C: May occur in time (Code C).
   (d) Subcategory D: Unlikely to occur (Code D).
Enter codes as IIB, IIIC, etc. Refer to DOD Instruction 6055.1/DOD component instructions for specific definitions and guidance.

12. Protection Required (re: dBA Level)
   a. None (less than 85: If dBA levels less than 85, check this column. No hearing protectors required.
   b. Plug or Muff (85 - 108): If dBA levels 85 - 108 inclusive, check this column. Earplugs, ear muffs, ear-canal caps, or noise-attenuating helmet required.
   c. Plug and Muff (108 - 118): If dBA levels over 108 to 118 inclusive, check this column. Earplugs worn in combination with ear muffs or noise-attenuating helmet required.
   d. Plug, Muff & Time: If dBA levels over 118, check this column. Earplugs worn in combination with ear muffs or noise-attenuating helmet and time limit (to be determined by DOD component) required.

13. Remarks - Enter type of hearing protection in use, whether area and equipment posted with appropriate caution signs, etc.

14. More Detailed Noise Evaluation Required - Check "yes" box if more detailed noise evaluation is required; check "no" box if not. Specify the type of evaluation needed (e.g., octave band analysis, etc.).

15. Name(s) of Persons Identified for Audiometric Monitoring - List names of individuals routinely exposed to noise in preceding locations.

16. Supervisor of Noise - Hazardous Area or Operation - Enter name (surname, given name, & middle initial) of the first-echelon (immediate) supervisor of the location (and personnel) surveyed.

17. Survey Performed by - Enter name (surname, given name & middle initial) of individual performing survey & signature.

18. Hearing Conservation Monitor - Enter name of individual reviewing survey results & signature. Usually local surgeon or designated representative.

ARMY NATIONAL GUARD
INDUSTRIAL HYGIENE – SOUTHWEST
Guam • Hawaii • California • Oregon • Washington • Nevada • Arizona • Idaho • Utah • Wyoming • Montana • New Mexico • Nebraska

Industrial Hygiene Site Assistance Visit

St. George Armory
1710 East 4150 South
St. George, UT

10510 Superfortrress Avenue, Suite C, Mather, CA 95655 (916) 854-1491

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DEPARTMENT OF THE ARMY AND AIRFORCE
NATIONAL GUARD BUREAU
INDUSTRIAL HYGIENE SOUTHWEST
10510 Superfortress Ave, Ste. C
Mather, CA 95655

ARNG-CSG-IHSW

8 November 2012

MEMORANDUM THRU Utah Army National Guard, Deputy State Surgeon (DSS), 12953 S. Minuteman Drive, Draper, Utah 84020

FOR Commander St. George Armory 1710 East 4150 South St. George, UT 84790

SUBJECT: Executive Summary for Industrial Hygiene Site Assistance Visit for the St. George Armory 1710 East 4150 South, St. George, UT conducted on 19 June 2012.

1. **References**. See survey report.

2. **General.**

a. At the request of the NGB Industrial Hygiene, Southwest (IHSW) Region, an Industrial Hygiene Site Assistance Visit and cursory review of safety related items and programs was conducted at the St. George Armory, St. George, UT on 19 June 2012.

b. The findings and recommendations in this Executive Summary are controlling and supersede all recommendations in the contractor report (reference Attachment II). However, IHSW concurs with the observations and findings within the attached contractor report.

c. Risk Assessment Codes (RAC) provided in this report have been derived from two sources: Deriving Risk Assessment Codes (RAC's) for Health Hazards (Ref: DOD Instruction 6055.1) and AR 385-10, The Army Safety Program.

d. Use of trademark names in the attached report, or this Executive Summary, does not imply Army National Guard endorsement of any product.

3. **Findings.** See survey report.

4. **Commendable.**

a. The facility was generally clean and orderly and personnel were helpful during this SAV.

5. **Observations / Recommendations.**

NOTE: This section provides conclusions and recommendations for the findings and observations made within the attached contractors report. The paragraphs are numbered to correspond to the sections where they were first noted. (i.e., paragraph 2.1a represents the 2.1a located within the contractors report.

a. Find asbestos survey or have one accomplished and provide assigned personnel with asbestos awareness training. (para. 4.4.1 & 4.4.2) **(RAC 4)**

b. Clean the vault floor to less than 200 ug/ft2 of lead dust,as outlined in the Lead Clean Up SOP found within this report (para. 4.1) **(RAC 3)**

c. Correct the wiring and verify the function of the GFCI outlet in the kitchen. (para. 4.10(7)) **(RAC 3)**

6. Violation Correction Log.

a. IHSW has provided a Violation Correction Log derived from the observations from this visit. IHSW recommends the following:

1. Commander(s) assign an Action OIC/NCOIC, Suspense Date for completion, and Estimated Cost(s) to ensure item completion and corrective status is briefed during quarterly (or monthly) Safety Meetings/Councils until resolved.

2. Corrective measures should be implemented and accomplished at the lowest levels possible. Hazards and Corrective Measures that cannot be corrected at the facility level, and require assistance from higher headquarters or from the state level, should be elevated to the Quarterly State/BN Safety Council Meeting for resolution.

3. Recommend a representative from the facility attend all quarterly/monthly meetings to ensure the appropriate emphasis and corrective actions are followed for hazard resolution and abatement of the observations made during this visit.

4. Retain entries of the items corrected, or closed, for future reference. This may be accomplished by posting completed items within the Corrected Hazard Sheet portion of the Excel Violation Correction Log Workbook we've provided.

5. The preferred method to document and track identified hazards for resolution is for their entry into the Reserve Component Automation System – Safety and Occupational Health **(RCAS-SOH)** Program.

b. IHSW recommends further program refinement through written documentation for standardized guidance to the personnel performing the processes. Conducting Hazard Assessments consistent with 29 Code of Federal Regulations (CFR) 1910.132, General Requirements for Personal Protective Equipment and AR 40-5, Preventive Medicine, would provide this continued program refinement.

7. Hazard Assessment/Job Safety Analysis (JSA).

a. Documenting the Hazard Assessments provides a method to obtain initial and periodic review from the Industrial Hygiene, Occupational Health and Safety Professions located at the JFHQ/HQ/state level.

b. The Hazard Assessments should be used as written training materials for the new, transfer and unit personnel working under the auspice of the facility.

c. IHSW recommends facility supervisory staff and facility personnel conduct initial Hazard Assessments outlined in AR 40-5, Army Preventive Medicine (Section V) and 29 CFR 1910.132 and submit for review and obtain approval from the state Industrial Hygiene, Occupational Health and Safety Professions.

SUBJECT: Executive Summary for Industrial Hygiene Site Assistance Visit for the St. George Armory 1710 East 4150 South, St. George, UT conducted on 19 June 2012.

d. We have provided an appendix with Hazard Assessments (HA) examples of some of this facilities operations. Additional operations can utilize this format to design HA not observed during this SAV.

e. An integral and important factor of the Hazard Assessment/JSA process is for the review and guidance from qualified Safety, Occupational Health and Industrial Hygiene professions located at the higher headquarters level or state level. For this reason, the Hazard Assessments (to include all pertinent and supporting documents) should be completed by the facility personnel and forward to the Utah Army National Guard Industrial Hygiene, Occupational Health and Safety Office for final review and approval (signature).

f. Job Safety Analysis (JSA's)/Hazard Assessments.

NOTE: The Hazard Assessments can be used for monthly meetings to brief/train, and document large group training events and activities.

8. IHSW recommends the **Senior Unit Commander of this Facility and any Co-Tenant Organizations or Units, review and provide assistance with implementation of these recommendations.** This will educate the chain of command and allow the unit or co-tenant organizations to take any necessary precautions or actions required by them and their personnel.

9. To assist you with execution of your responsibilities in correcting the observations noted, we encourage you to consult with the State Safety Manager, Occupational Health Manager and Industrial Hygiene professions located and/or authorized within the State Safety and Occupational Health Office.

10. For additional information please contact the undersigned at (916) 854-1491 or via email at Non-Responsive

Non-Responsive

NGB, IHSW, CIV
Industrial Hygiene

Industrial Hygiene Southwest

Violation Inventory Log

LOG OF SCHEDULE OF CORRECTIVE ACTION - COMPLIANCE WITH SAFETY AND HEALTH STANDARDS

St. George Armory, Utah

CONTROL NUMBER CLOSED ☐	HAZARD DESCRIPTION	SITE	RAC	CORRECTIVE ACTIONS (Abatement Plan)	SUSPENSE DATE	ACTION OIC/NCOIC	Estimated Cost(s)	DATE CORRECTED	REFERENCES
SGA-0616212-4.1 ☐	The vault floor was found to contain lead in excess of 200 µg/ft^2.	St. George Armory	3	Clean the vault floor, as outlined in the Lead Cleanup SOP, so as to be less than 200 µg/ft^2.					29 CFR1910.1025 (h)(1) & IHSW Lead Cleanup SOP
SGA-0616212-4.4 ☐	An asbestos survey could not be located during this IH Assistance Visit.	St. George Armory	4	Contract with a licensed firm to perform an asbestos survey and assessment.					Recommended Practice
SGA-0616212-4.4 ☐	Personnel have not been provided with asbestos awareness training.	St. George Armory	4	Based on the findings of this survey, provide awareness training to assigned personnel for the specific types of asbestos in this Armory.					29 cfr 1910.1001 or 1101 or AR 40-5
SGA-0616212-4.10(7) ☐	One electrical receptacle next to a kitchen sink was noted with an open ground and a non-functioning GFCI outlet.	Kitchen	3	Correct the wiring and verify the function of the GFCI outlet in the kitchen.					1910.303(b)(1) & NFPA 70, Article 210-8

ARMORY

CLEANUP & FOLLOW-UP HOUSEKEEPING RECOMMENDATIONS

Materials Needed:

1. Cloth Mop head (s) & Mop head holder(s) with handle.
2. Mop bucket (s) with wringer.
3. Clean cotton rags and sponges.
4. Disposable gloves
5. Large barrel (55 gal.) to store wastewater in after changing out of dirty scrub water. Waste water containers.
6. Disposable overshoes or rubber boots. Personnel conducting cleaning operations should not take clothes, boots, etc., home for laundering.
7. HEPA vacuum
8. Six (6) mill plastic bags to dispose of waste.
9. Detergent with surfactant, e.g., Spic-N-Span, Mr. Clean, etc.

Disposal of Waste Water and Cleaning Materials:

1. *NOTE*: Consult with Local Army National Guard Environmental Office prior to taking any collection, disposal or wiping activities commence. Each state and territory may have additional regulatory guidance on collection, storage and disposal of wastewater.

2. Mop heads should be disposed of after initial cleanup, unless otherwise advised by Environmental office personnel. Note: thorough cleaning of mop heads may be sufficient enough to reuse on future Armory cleanups but check with local Environmental Office.

3. Disposable gloves should be treated as hazardous waste.

4. Soiled cotton rags should be treated as hazardous waste.

5. Wash water contaminated with Lead can be collected and allowed to slowly evaporate leaving Lead deposits/sludge that may be collected in plastic containers, placed in metal drums, and stored for future delivery to an authorized hazardous waste disposal site.

a. Drums shall be properly labeled to identify contents In-Accordance With (IAW) Federal, State and local regulatory guidance.
b. Disposal of containerized waste shall be coordinated IAW State hazardous waste program requirements.
c. The Environmental Office shall coordinate removal and disposal of all containerized hazardous waste through established waste streams.

Post-Cleanup Precautionary Measures:

1. Thoroughly wash hands with soap and water.
2. Rinse off rubber boots with soap and water, capturing wastewater for collection into established waste stream. If personnel choose to use over shoes for protection, dispose of overshoes into waste stream. NOTE: This recommendation is for initial clean up activities and PPE requirements may be reduced after it has been determined non-hazardous levels have been achieved.
3. Wash BDU's or personal clothing separately from children's clothes.

NOTE: No eating, drinking or cosmetics allowed during cleanup procedures (these may be allowed after washing of hands/face and done outside of cleanup area)

NOTE: Avoid blowing, shaking or like actions which could potentially disperses lead dust. Dry sweeping, dusting, wiping or blowing with compressed air shall not be permitted

Initial Armory Cleanup:

1. Use a vacuum cleaner equipped with a HEPA exhaust filter. HEPA vacuum all surfaces in the room (ceiling, walls trim, and floors). Start with the ceiling and work down, moving toward the entry door. **Completely clean each room before moving on**.

2. Prepare water and detergent for the wipe down phase, according to manufactures recommendations.

3. Wet wipe, with cotton rags or sponge, any horizontal, diagonal or vertical surfaces up six (6) feet from floor surfaces using hot water and "Spic-n-Span" or an equivalent product.

    a. Rinse out cleaning cloths thoroughly and frequently.
    b. Change out cleaning water as necessary.

NOTE: **If walls to be cleaned show signs of deterioration, e.g., chipping or crumbling paint, in which wiping, scrubbing, or disrupting might potentially increase or spread contamination, then this portion of the clean up should be avoided**.

4. Now prepare water and detergent (e.g. Spic N Span, Mr. Clean, Pine Sol) for the mopping phase, according to manufactures recommendations, which should be found on the products label for general clean up.

    a. Change out water frequently (when water appears dirty)
    b. Rinse out mop heads frequently to prevent contamination of dirty water.

5. Cover entire drill floor surface with above prescribed water and detergent.

6. Final rinse should be with clean water only - -after mop heads have been cleaned.

Recommended Follow-up Housekeeping Practices *after Clearance sampling of cleaned area is performed by certified personnel:*

1. Floor cleaning and dusting should be accomplished using the wet method described in Initial Armory Cleanup SOP.

Note: Only exception to these wet cleaning procedures would be the use of a chemically treated dust floor mop. This can be used for follow-up armory cleaning by sweeping of large particles of dirt and paper.

    a. Pre-treated (chemically treated) dust floor mop will limit dust particles from being disbursed into the surround atmosphere.

b. If treated dust mop is used - -Do Not Shake Mop head - - have mop head laundered after use. **Always keep used dust mop heads in sealed double plastic bags when stored at armory/facility**. Shaking of mop head could release unwanted contaminants into surrounding atmosphere.

2. Frequency of Cleanup- Armories will vary, according to usage and how often they should be cleaned. The following general cleaning schedule is provided:

   a. Only full-time technicians and traditional soldiers using facility during the month. (***Cleaned Monthly***)

   b. Occasional activities taking place during the month, e.g., 1-2 classes or volleyball games, etc. (***Cleaned 2x's Monthly***)

   c. Used regularly by soldiers or outside agencies/personnel. (***Cleaned Regularly - -at least Weekly***)

NOTE: Armories with adjoining Indoor Firing Ranges (IFR) should be cleaned more than weekly, again depending on use of Armory and IFR.

NOTE: Clearance sampling/testing is to be accomplished by certified personnel after these cleanup procedures are followed. If the area is an average Armory, occupied by adults only, for which you are cleaning and **is not a Converted IFR space**, you may continue to utilize the Armory space before the officials re-test this space. Please notify your Safety and/or Occupational Health personnel of the completion of this cleaning regime and they will notify the proper officials of the sampling/testing requirements needed.

If work is contracted out, a third party should do the clearance sampling.

Young children and females who are pregnant, there should be posted signs on all facilities, warning of the potential danger of exposure to lead dust.

IHI ENVIRONMENTAL

IH ASSISTANCE VISIT

Utah Army National Guard Armory
1710 East 4150 South
St. George, Utah

July 13, 2012

Prepared for:

Industrial Hygiene Southwest
10510 Superfortress Avenue, Suite C
Mather, California 95655

Prepared by:

Non-Responsive

Senior Project Manager

Reviewed by:

Non-Responsive

Industrial Hygiene Program Manager

Project #12U-I6146

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SALT LAKE CITY EMERYVILLE PHOENIX DENVER SEATTLE

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APPENDICES

EXECUTIVE SUMMARY

On June 19, 2012, Non-Responsive PE, CSP, of IHI Environmental (IHI), conducted an IH Assistance Visit at the St. George armory. The primary point of contact for information gathered during this survey was Non-Responsive (435) 986-6702, Non-Responsive

The objectives of this IH Assistance Visit were to perform the following activities:

- collect lead wipe samples;
- evaluate the condition of painted surfaces and collect paint chip samples for lead analysis where painted surfaces are peeling;
- inspect the interior rooms of the armory for water damage and the presence of fungal growth;
- review asbestos survey and assessment files and determine if documentation of asbestos awareness training is current;
- evaluate the condition of the Heating, Ventilation, and Air-Conditioning system, and collect indoor air quality data;
- review hazardous material storage and use procedures;
- review safety training and record keeping;
- perform a ventilation survey on the kitchen stove hood (if present);
- perform a noise survey on the kitchen appliances; and
- conduct a safety walk-through evaluation and note any existing safety hazards.

Significant findings for this IH Assistance Visit can be found in the Industrial Hygiene Southwest – Violation Inventory Log located in Appendix K of this report.

The report that follows this Executive Summary should be read in its entirety because it includes important information not included in this summary, such as task descriptions, work space locations, regulatory requirements, and additional recommendations.

1.0 INTRODUCTION

On June 19, 2012, Non-Responsive PE, CSP, of IHI Environmental (IHI), conducted an IH Assistance Visit at the St. George armory located at 1710 East 4150 South, St. George, Utah. The primary point of contact for information gathered during this survey was Non-Responsive Non-Responsive 35) 986-6702 Non-Responsive

1.1 Objectives

Evaluate the occupational environment of the administrative areas in the armory to determine the presence of operational health and safety risks, and make recommendations for corrective actions or follow-up work to manage those risks.

1.2 Scope of Work

To achieve the above objectives at this facility, the survey included the following work:

- collect lead wipe samples;
- evaluate the condition of painted surfaces and collect paint chip samples for lead analysis where painted surfaces are peeling;
- inspect the interior rooms of the armory for water damage and the presence of fungal growth;
- review asbestos survey and assessment files and determine if documentation of asbestos awareness training is current;
- evaluate the condition of the Heating, Ventilation, and Air-Conditioning system and collect indoor air quality data;
- review hazardous material storage and use procedures;
- review safety training, and record keeping;
- perform a ventilation survey on the kitchen stove hood (if present);
- perform a noise survey on the kitchen appliances; and
- conduct a safety walk-through evaluation and note any existing safety hazards.

2.0 PROCESS DESCRIPTION

The St. George (Stanley A. Staheli) Armory is located on the James V. Hansen Training Complex, which comprises four buildings; a training facility for new recruits, a military intelligence building, Field Maintenance Shop, and the armory itself. There are nine full-time guard members assigned to the armory. The armory has offices used for administrative purposes and also contains a drill floor, supply rooms, a kitchen, locker rooms, training room, classrooms, library, media center, and two orderly rooms. There are no civilian

employees at this armory. The only civilian activities carried out in this armory are occasional use for family support group functions.

Army National Guard members do not clean weapons in this armory.

3.0 METHODS AND APPLICABLE REGULATIONS AND STANDARDS

3.1 Lead Wipe Sampling

Lead residue (dust) wipe samples were collected on horizontal surfaces including the drill floor, kitchen, and administrative areas to determine housekeeping standards. Lead Wipe™ brand wipes were used with a 100-square-centimeter template. The wipes used conform to American Standards for Testing Materials E1792, Standard Specification for Wipe Sampling Materials for Lead in Surface Dust. The collected wipe samples were placed in clean and labeled plastic containers. Samples were submitted to ALS Laboratories for analysis, using NIOSH Method 7300. See Appendix I for sample locations and Appendix J for laboratory results.

The Mather, California, office of Industrial Hygiene Southwest has developed a Standard Operating Procedure (SOP) for lead, which is a blend of OSHA, HUD, and Army regulations. Essentially, this SOP sets forth a criterion of 40 micrograms per square foot ($\mu g/ft^2$) for converted indoor firing ranges, break rooms, floor surfaces, or any area that might be used for non-military functions. Additionally, a 200-$\mu g/ft^2$ criterion has been established for tool rooms, maintenance bays, furnace rooms, boiler rooms, storage closets, and other areas where general public access is not expected.

3.2 Painted Surface Evaluation

The interior of the armory was visually inspected for peeling paint on the walls and ceilings. Any peeling paint was sampled by removing all paint inside a two-inch by two-inch template and placing it in a sampling vial. All samples were submitted to American West Analytical Laboratories (AWAL) in Salt Lake City, Utah. AWAL analyzed the samples for lead using inductively coupled plasma (ICP) and atomic emission spectroscopy (EPA SW-846, Method 6010C). See Appendix I for sample locations and Appendix J for laboratory results.

The U.S. Department of Housing and Urban Development (HUD) and EPA define "lead-based paint" as any coating that has a lead concentration of 1.0 milligram per square centimeter (mg/cm^2) or greater, or if the lead concentration is greater than 0.5 percent (%) by weight. The Consumer Product Safety Commission (CPSC) currently considers paint to be lead-containing if the concentration of lead exceeds 600 parts per million (ppm) or 0.06% by weight. Both the CPSC and HUD definitions of lead paint are aimed at protecting the general population from exposure to lead in the residential setting.

By contrast, the mission of the Occupational Safety and Health Administration (OSHA) with respect to lead-containing paint is to protect workers during construction activities that could result in hazardous exposures. OSHA states that construction work (including renovation, maintenance, and demolition) performed on structures coated with paint that contains levels of lead lower than HUD and CPSC standards can still result in exposures that exceed the regulatory limits. For this reason, OSHA has not defined a lower threshold level of lead content for lead-containing paint, but states that paint with any measurable level of lead may pose a significant potential for overexposure.

Therefore, construction activities that create lead containing dust or fume must be performed in accordance with OSHA's Lead in Construction Standard, 29 CFR 1926.62. This standard requires, among other things, medical surveillance, lead training, initial exposure assessments, respiratory protection, and worker hygiene facilities.

3.3 Moisture Intrusion and Limited Visual Fungal Growth Evaluation

The interior of the armory was visually inspected for signs of moisture intrusion that could result in fungal growth. Any signs of moisture intrusion (e.g., discoloration, staining, blistering) were noted and documented on a drawing for a follow-up evaluation.

3.4 Asbestos Management

Armory personnel were asked if an asbestos survey and assessment had been conducted and whether they had received asbestos awareness training. IHI also reviewed any asbestos awareness training records.

3.5 Heating, Ventilation, and Air-Conditioning Systems and Indoor Air Quality

An evaluation of the heating, ventilation, and air-conditioning (HVAC) systems that serve the armory was accomplished. This evaluation consisted of a visual inspection of the system to note any obvious problems and a review of the facility maintenance plan, if one is available.

Carbon dioxide (CO_2), temperature, and relative humidity were measured throughout the armory using a TSI Model 8762 IAQ-Calc™ Monitor. The unit was calibrated before use with certified zero gas and 1,000-ppm CO_2 span gas. See Appendix E for indoor air quality (IAQ) data.

Carbon dioxide is a normal constituent of exhaled breath and is commonly measured as a screening tool to evaluate whether adequate fresh, outdoor air is being provided. If typical CO_2 levels within a building are maintained at or less than 1,000 ppm, with appropriate temperature and humidity levels, complaints about indoor air quality should be minimal (American Society for Testing and Material (ASTM) – International D6245-12, Using Indoor Carbon Dioxide Concentrations to Evaluate Indoor Air Quality). If a building exceeds this guideline, it should not be interpreted as an unhealthy or hazardous situation. An elevated CO_2 level is only an indication that the amount of outside air being brought into a building may be inadequate or poorly distributed and further investigation may be warranted.

In building areas where there are potential sources of CO_2 other than exhaled breath, the guidelines above cannot be used. The Occupational Safety and Health Administration (OSHA) standard for CO_2 should be used in these instances. The OSHA standard is an eight-hour time-weighted average (TWA) of 5,000 ppm with a short-term 15-minute average limit of 30,000 ppm.

3.6 Hazard Communication and Hazardous Material Storage

A review of the armory's chemical inventory and Material Safety Data Sheet (MSDS) file was accomplished. Chemical storage areas, i.e., flammable storage cabinets/rooms, were also inspected.

3.7 Safety Training and Record Keeping

An inspection of safety training programs and documentation was performed to determine if the armory's site-specific training programs and annual documentation were current.

3.8 Kitchen Ventilation Survey

Duct velocity measurements are performed on facility kitchen exhaust hoods (when present) using a TSI VelociCalc, Model 8345.

The 2011 National Fire Protection Association Standard 96, Section 8.2.1.1 requires exhaust fan ducts used in commercial cooking equipment to have a duct velocity of not less than 500 feet per minute (fpm).

3.9 Kitchen Appliance Sound-Level Measurements

Sound pressure levels of the kitchen appliances (when present) are measured using a Sound Level Meter in the dBA and dBC ranges, with the meter set on slow response. DD Forms 2214 documenting these measurements are provided in Appendix M.

3.10 General Safety Walk-Through

A limited fire and life safety code walk-through evaluation of the armory was performed to:

- document the presence of a fire alarm;
- determine if fire extinguishers are properly mounted and current on their monthly and annual inspections;
- determine if eyewash station inspections are current; and
- document any fire or safety hazards in the armory.

3.11 Equipment Used

The following equipment was used for this survey.

Type	Model Number	Serial Number	Calibration Date
TSI Veloi Calc™ Meter	9515	T95150720007	10/13/2011
TSI IAQ Calc™	8732	54100272	03/19/2012
Greenlee® Sound Level Meter	SM-100	010613107	10/05/2011

The calibration certificates for these instruments are attached in Appendix H.

3.12 Quality Assurance

IHI employs, at a minimum, the following methods to help assure quality of field investigations and reports:

- Use of appropriately educated and experienced personnel;
- Documentation of pertinent field and sampling information
- Continuing education of technical personnel through attendance at training sessions and conferences, and literature review;
- Peer and supervisory review of sampling strategy, field methods, calculations, and reports;
- Strict adherence to method requirements, in particular to NIOSH and OSHA standard methods, including strict chain-of-custody protocol;
- Use of accredited laboratories, or, in cases where specific accreditation is not available, choice of laboratories of good reputation, having strong QA/QC programs.
- Calibration of instruments, including field calibration via manufacturers' recommended procedures and routine (typically annual) off-site calibration of equipment via certified third parties.

4.0 FINDINGS AND RECOMMENDATIONS

4.1 Lead Wipe Sampling

Analytical results for lead wipe sampling indicate all locations were below the analytical criterion outlined in the IHSW SOP except for the vault floor where 320 micrograms per square foot ($\mu g/ft^2$) was found. See Appendix I for a data table and a drawing showing sample locations and Appendix J for the laboratory reports. Photographs were taken of each sampling point and are presented in Appendix C.

Recommendation

Decontaminate the vault floor so lead levels are below 200 $\mu g/ft^2$; use the attached SOP's in Appendix N for guidance.

4.2 Painted Surface Evaluation

Peeling paint was not noted in any of the rooms inspected during this assistance visit.

Recommendation

None

4.3 Moisture Intrusion and Limited Visual Fungal Growth Evaluation

Water damaged ceiling tiles were not observed in this armory.

Recommendations

None

4.4 Asbestos Management

An asbestos survey is not available for this armory, presumably due to the 1994 construction date. Personnel have not been provided with asbestos awareness training.

Recommendations

1. Contract with a licensed firm to perform an asbestos survey and assessment.
2. If asbestos-containing materials are identified and assessed, provide awareness training to assigned personnel for the specific material types and locations of asbestos in this armory.

4.5 Heating, Ventilation, and Air-Conditioning Systems and Indoor Air Quality

Heating and cooling is provided to this armory by numerous rooftop spilt heating, ventilation, and air-conditioning units.

The average outdoor CO_2 concentration at the time of the survey was 400 ppm. The highest CO_2 concentration measured inside the building was 442 ppm, which indicates adequate fresh, outdoor air is provided.

Building air temperatures ranged from 74.3 to 80.6°F and relative humidity was between 25 and 26 percent during the testing period. Air temperatures were slightly above the recommended comfort range of 68-75°F. This armory is heated and cooled by zones and when certain areas of the armory are not occupied the temperatures are adjusted to an economy mode by individual thermostat sensors. The relative humidity was lower than the recommended comfort range of between 30 and 60 percent. Low relative humidity is common in Utah during the majority of the year. Humidity levels above 60 percent can result in proliferation of bacteria and fungi, while levels below 30 percent can cause dry eyes, skin, and mucous membranes.

The Utah Army National in the Construction Facilities Management office maintains all HVAC units in the armory.

Recommendations

None

4.6 Hazard Communication and Hazardous Material Storage

4.6.1 Hazardous Materials Inventory and Material Safety Data Sheets (MSDS)

Hazardous materials are not used or stored in this armory. The only MSDSs on file are for the building maintenance and cleaning products located in a custodial closet. Inventories of all products used by the armory along with their associated MSDSs are maintained in a master binder located in the custodial closet. The master chemical inventory and MSDS binder is arranged alphabetically. An inspection of the chemical inventory revealed that current products in use by the armory are all accounted for and their associated MSDSs are available.

Copies of chemical inventories are provided in Appendix D.

Recommendations

None

4.6.2 Flammable Storage Cabinets

There are no flammable materials or flammable storage cabinets stored in this armory.

Recommendations

None

4.7 Safety Training and Record Keeping

The following safety documentation is maintained in this armory: Safety Standard Operating Procedure NGUT-FAB-Z 8 February 2012.

All other safety-related regulations are maintained electronically on the Utah Army National Guard Portal (Home page).

Documentation of safety training is currently stored in a Conex located in Indiana as this unit recently returned from a deployment and has yet to receive all of their equipment and the unit safety training records.

The last record of a Safety Council Meeting was dated January 28, 2012.

Note: IHI did not conduct a thorough evaluation of the contents or quality of any of the documents identified during this visit.

Recommendations

None

4.8 Kitchen Ventilation Survey

An overhead exhaust fan services the kitchen's industrial quality cooking appliances. The exhaust fan and associated duct work is located on the roof. However, due to a double walled sheet metal duct enclosure, the duct itself could not be accessed for ventilation measurements. Instead, air velocity measurements were obtained across the face of the kitchen's intake diffuser. A volumetric flow rate of 2,744 cubic feet per minute (cfm) was obtained from the face of the exhaust duct. This volumetric flow equates to a duct velocity of approximately 875feet per minute (fpm) from the 24 inch circular duct that exhausts air from this hood.

This kitchen exhaust duct meets the 2011 National Fire Protection Association Standard 96, Section 8.2.1.1, which requires exhaust fan ducts used in commercial cooking equipment to have a duct velocity of not less than 500 fpm.

Recommendations

None

4.9 Kitchen Appliance Sound-Level Measurements

All of the kitchen appliances measured produce noise levels well below the hazardous noise criterion of 85 dBA. Based on this information, there is no need for noise reduction measures or additional noise dosimetery surveys for this area.

Recommendations

None

4.10 General Safety Walk-Through

1. Housekeeping throughout the facility was good.
2. The fire alarm in this facility is currently being replaced.
3. Fire extinguishers are strategically located throughout the armory. All extinguishers were replaced this month with an annual inspection date of January 2012.
4. There are no eyewash stations in this facility.
5. Fire evacuation routes are posted in most rooms of this armory.
6. Electrical panel boxes were inspected and were found to contain no exposed wiring or openings in the panel.
7. One electrical receptacle next to a kitchen sink was noted with an open ground and a non-functioning GFCI outlet.

Recommendation

Correct the wiring and verify the function of the GFCI outlet in the kitchen.

5.0 PROJECT LIMITATIONS

This Project was performed using, as a minimum, practices consistent with standards acceptable within the industry at this time, and a level of diligence typically exercised by industrial hygiene and environmental consultants performing similar services.

The procedures used in this investigation attempt to establish a balance between the competing goals of limiting investigative and reporting costs and time, and reducing the uncertainty about unknown conditions. Therefore, because the findings of this report were derived from the scope, costs, time, and other limitations, the conclusions should not be construed as a guarantee that all environmental or occupational hazards have been identified and fully evaluated. Where sample collection and testing have been performed, IHI's professional opinions are based in part on the interpretation of data from discrete sampling locations that may not represent conditions at non-sampled locations. IHI assumes no responsibility for omissions or errors resulting from inaccurate information or data provided by sources outside of IHI, or from omissions or errors in public records.

Furthermore, it is emphasized that the final decision on how much risk to accept always remains with the client since IHI is not in a position to fully understand all of the client's

needs. Clients with a greater aversion to risk may want to take additional actions while others, with less aversion to risk, may want to take no further action.

6.0 Project Approval

This IH Assistance Visit was reviewed and approved by:

Non-Responsive

Industrial Hygiene Program Manager

July 13, 2012
Date

Technical Assistance: For technical assistance regarding information found in this report or the performed survey, please contact Non-Responsive 801-466-2223, or Non-Responsive of the Southwest Regional Industrial Hygiene Office at 916-804-1707.

Contact the State Safety and Occupational Health Office and/or the Regional Industrial Hygienist should any of the operations change, or should the personnel become incapable of following the previous recommendations and subsequent recommendations are needed.

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Appendix A

References

American Conference of Governmental Industrial Hygienists (ACGIH), Industrial Ventilation, A Manual of Recommended Practice

American Conference of Governmental Industrial Hygienists (ACGIH), Threshold Limit Values for Chemical Substances and Physical Agents and Biological Indices

American National Standards Institute (ANSI)/Illuminating Engineering Society (IES), Industrial Lighting.

American National Standards Institute, Z358. 1-1998. Emergency Eyewash and Shower Equipment

AR 40-5, Preventative Medicine

AR 40-10, Appendix B – Health Hazard Assessment Program in Support of Army Material Acquisition Decision Process

AR 385-10, The Army Safety Program

Corps of Engineers Guide Specification, CEGS-1585 1, Overhead vehicle tailpipe (and welding fume) Exhaust Systems

DA PAM 40-ERG, Ergonomics

DA PAM 40-501, Hearing Conservation.

National Safety Council, Fundamentals of Industrial Hygiene

NOR 385-10, Army National Guard Safety and Occupational Health Program

TB MED 503, The Army Industrial Hygiene Program

TG022, US Army Environmental Hygiene Agency (USAEHA), Industrial Hygiene Evaluation Guide

TG 141, US Army for Health Promotion and Preventive Medicine (USACHPPM) Industrial Hygiene Air Sampling Guide, Nov. 1997

Title 29, Code of Federal Regulations (CFR), 2011, revision Part 1910, Occupational Safety and Health Standards

Appendix B

Assessment Criteria

A. Ventilation Standards

Ventilation rates were compared to recommendations made in 29 CFR 1910, ACGIH Industrial Ventilation Manual, and Corps of Engineers specifications. See Appendix A for reference information.

B. Illumination Standards

Illumination measurements were compared with recommendations made by the Industrial Engineering Society (IES)/American National Standards Institute (ANSI) RP7-1991 Standard and MIL-STD¬1472E.

C. Noise

Noise measurements were taken and compared with OSHA Standard 29 CFR 1910.95 and Department of the Army Pamphlet 40-501.

D. Air Sampling

Personal air sampling was conducted in compliance with applicable NIOSH Analytical Methods. Sampling results were compared to relevant Occupational Safety and Health Administration (OSHA) Permissible Exposure Limits (PEL), American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Values (TLV), or National Institute of Occupational Safety and Health (NIOSH) Recommended Exposure Limits (REL).

Occupational Safety and Health Administration (OSHA)

OSHA has established Permissible Exposure Limits (PELs) for workplace toxic and hazardous substances listed in 29 CFR 1910.1000 Table Z-1. Most OSHA PELs are based on 8-hour time weighted averages (TWAs); when sampling periods differ from 8 hours, the result must first be converted to an 8-hour TWA before comparing it to the OSHA PEL. Some OSHA PELs are based on Short Term Exposures Limits (STEL) of 15 minutes of worst case exposure or Ceiling Limits of worst case peak exposures (sampled as a 15 minute exposure if direct-reading methods are not available).

OSHA regulations are legally enforceable. Employers are required to maintain employee exposures below PELs. The best practice is to eliminate hazards and use safer substitutes. Alternatively, engineering and/or administrative (work practice) controls may reduce exposures to acceptable levels. Personal protective equipment should be the solution of last resort, implemented after all other efforts to eliminate the hazard have been exhausted or deemed infeasible. OSHA 29 CFR 1910.134 covers the use of respiratory protection in the work place.

American Conference of Governmental Industrial Hygienists (ACGIH)

Unlike the OSHA PELs, the ACGIH TLVs are not consensus standards; however, TLVs represent a scientific opinion based on a review of existing peer-reviewed scientific literature by committees of experts in public health and related sciences.

Occupational Exposure Limit

In accordance with the Department of the Army (DA) Pamphlet 40-503, Industrial Hygiene Program (DA PAM 40-503), "The DA mandates the use of ACGIH TLVs when they are more stringent than OSHA regulations or when there is no PEL." The DA defines the resulting exposure limit as the Occupational Exposure Limit (OEL).

Appendix C

Photo Log

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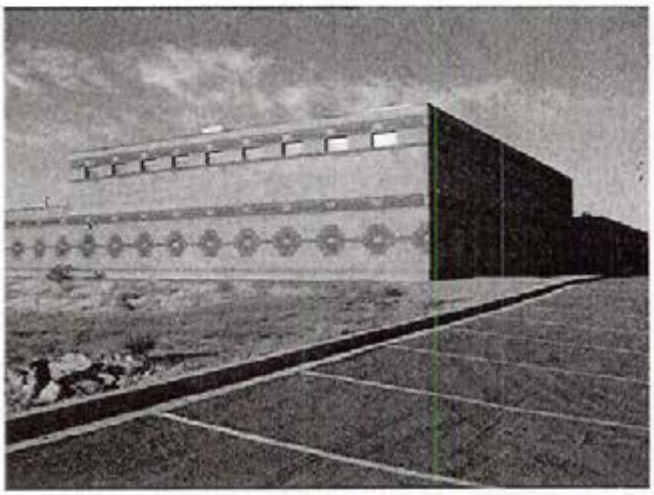
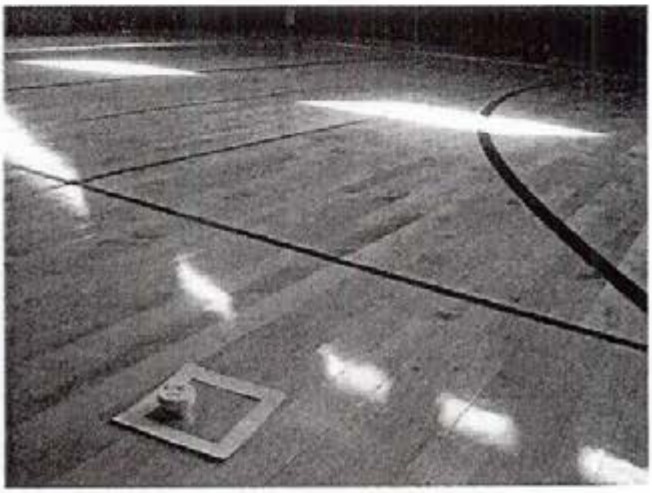
Photograph 1
James V. Hansen Training Complex, St. George, Utah

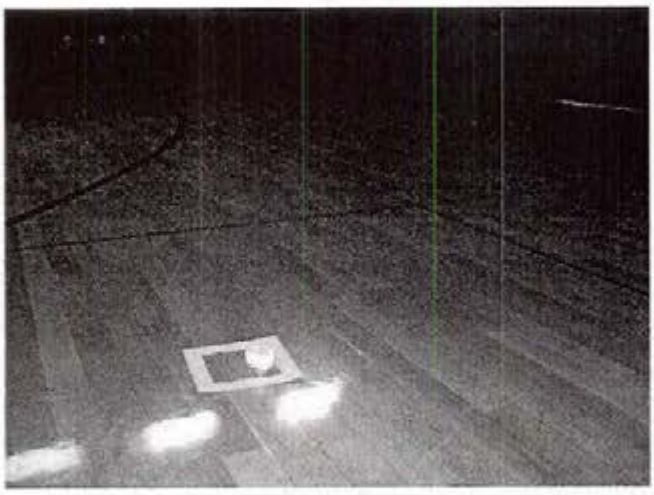
Photograph 2
St. George (Stanley A. Staheli) armory, Front, Exterior



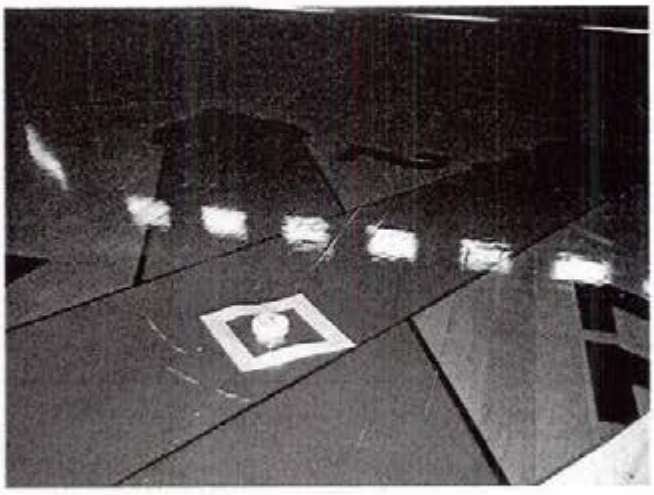
Photograph 3
St. George (Stanley A. Staheli) armory, Rear, Exterior



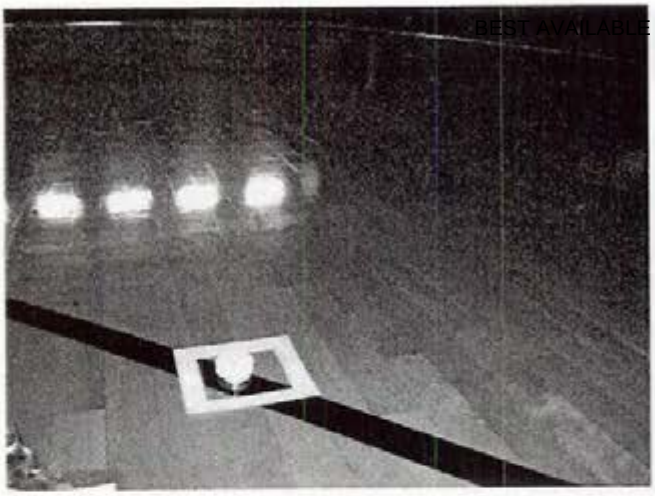
Photograph 4
Lead wipe sample number 6146-01



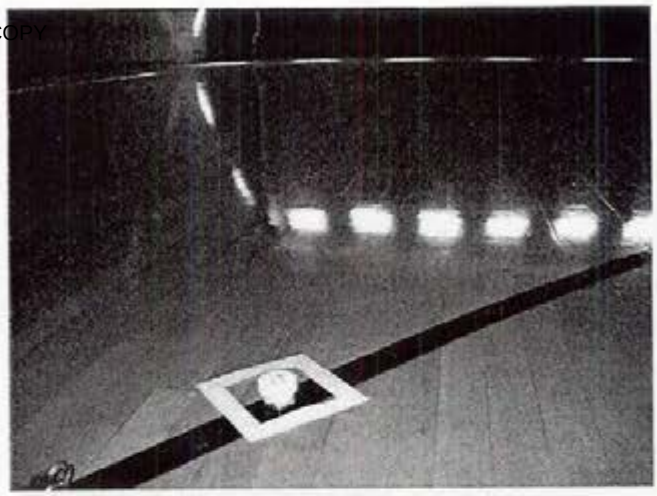
Photograph 5
Lead wipe sample number 6146-02



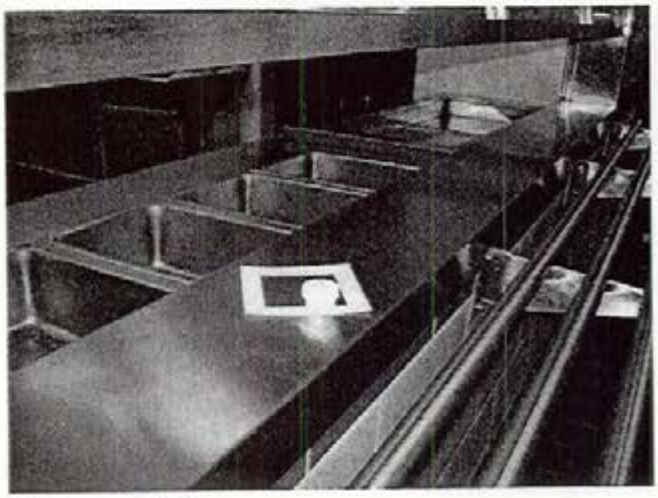
Photograph 6
Lead wipe sample number 6146-03



Photograph 7
Lead wipe sample number 6146-04

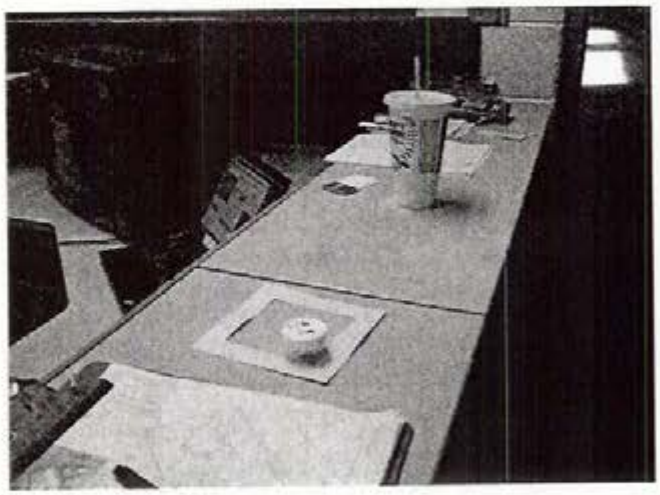


Photograph 8
Lead wipe sample number 6146-05

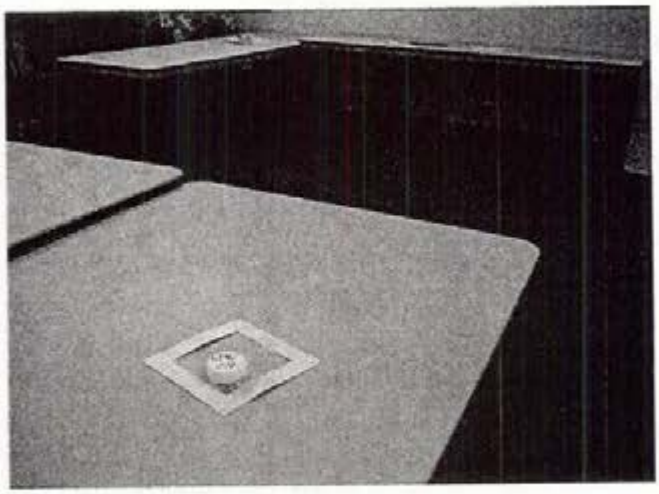


Photograph 9
Lead wipe sample number 6146-06

Photograph 10
Lead wipe sample number 6146-07



Photograph 11
Lead wipe sample number 6146-08

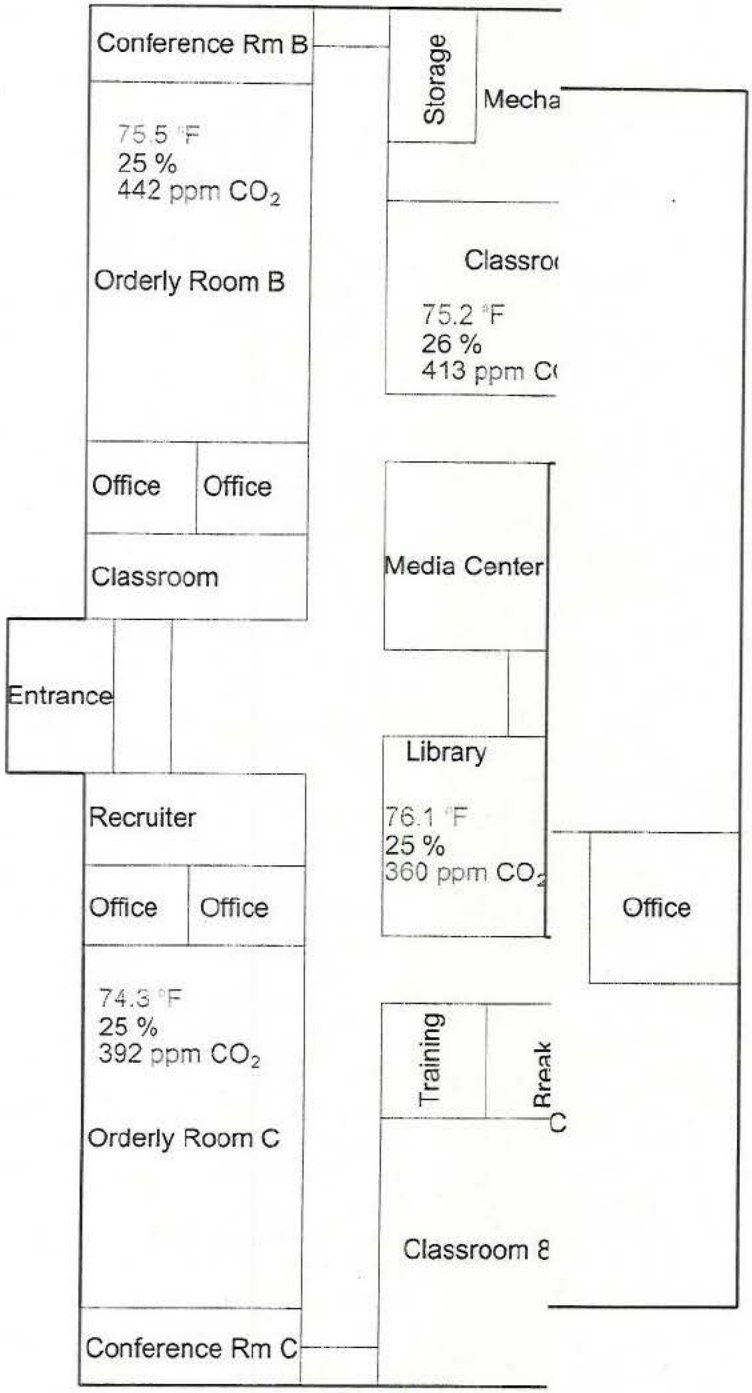


Photograph 12
Lead wipe sample number 6146-09

TAB	NAME	INVENTORY DATE: APRIL 3 2012
ABC	ISOPROPYL ALCOHOL	Non-Responsive
	ANTIBACTERIAL LOTION SOAP	
	BREAK FREE/CLP	
DEF	DUST OFF	
GHI	GLASS CLEANER	
	ID RED	
	INSECTICIDE	
	INSTABOND	
JKL		
MNO	UNI-PAINT MARKERS	
	ARTLINE PAINT MARKER	
	MARKER FELT TIP	
PQRS	PINE OIL	
	PROPANE	
	RATION FLAMELESS HEATER	
	SCOURING POWDER	
	SODIUM SOAP (FIRE EXTIGUISHER)	
	SIMPLE GREEN	
	TOILET SOAP	
	STATICIDE (ANTI STATIC SPRAY)	
	SCREENO OPENER/CLOG REMOVER	
	GOJO LOTION HAND SOAP	
	SPRAY NINE DISINFECTANT	
TUV	DISINFECTANT MINT (URINALS)	
	URINAL CAKES	
WXYZ		
BOOKLET	3M CLEANERS	

Appendix E

Floor Plan/IAQ - Temp, RH, & CO_2 Monitoring



F)
%)
ɔm)

ENVIRONMENTAL
640 E. Wilmington Ave.
Salt Lake City, UT 84106
801.466.2223
ihi@ihi-env.com

Utah Army National Guard
St. George Armory
1710 East 4150 South
St. George, Utah

Indoor Air Quality Survey

0 10' 20'

PROJECT No:	12U-I6146
SHEET:	2 of 2
DRAWN BY:	[redacted]
DATE:	6-26-2012
REVISED BY:	
DATE:	
REVIEWED BY:	
DATE:	

W:\...St. George Armory\Drawings\12U6146.dwg, iaq, 6/26/2012 2:00:29 PM, keithf, ANSI full bleed B (17.00 x 11.00 inches)

S:\...12 Projects\12U...

Appendix F

Ventilation Data

Kitchen Exhaust Duct **Ventilation Survey Data and Calculations** **UTARNG**
St. Geroge Armory

	Exhaust Duct			144		X		4.5		Inches	
	Area =		4.5	ft^2							
	1	2	3	4	5	6	7	8	9	10	11	12
	Face Velocity Measurements											
	Point		Flow rate (fpm)									
	1		321									
	2		363									
	3		447									
	4		524									
	5		764									
	6		1178									
	7		935									
	8		970									
	9		565									
	10		509									
	11		380									
	12		361									
Average Flow Rate =			609.75	fpm								
Area =			4.5	ft^2								
Q = A x V												
Q =			2743.88	CFM								
Roof Top Exhaust Duct =							24	inches				
Area of Roof Top Exhaust Duct =							3.1416	ft^2				
Estimated Duct Velocity =							**873.4**	**fpm**				

Appendix G

Field Notes

Army National Guard Armory Survey
(To Be Included In Report)

Five **lead wipe** samples collected from drill floor (take samples from dusty horizontal floor surfaces)	✓
Are any **weapons cleaned** in the facility, if yes where are they cleaned?	No
Additional lead **wipe** samples taken from 25% of the rest of the building - -**(on floor areas only)**	✓
Is there **a converted indoor firing range**? If so collect additional wipe samples IAW the SOW.	No
Is there any peeling **paint**? Take bulk sample if able.	✓
Are there any signs of water damage or **mold**?	✓
Any suspected **ACM**? Where and what condition is it in. Bulk sample if able.	N/A
Quality of housekeeping	✓
HVAC maintenance plan in place?	✓
Overall condition of HVAC system	✓
Obtained **CO2, Temp, RH** monitoring	✓
HAZMAT inventory on hand (make copies for the report), **MSDS** available for all materials.	✓
HAZMAT storage, Condition of lockers, if outside storage building is used is it ventilated and does it meet OSHA standards.	✓

Fire alarm in working condition - -not usually in place in older armories	✓
Fire extinguishers in place and properly identified and mounted	✓
Evidence of **monthly fire extinguisher inspections**	✓
Annual fire extinguisher inspections tags current	✓
Are **eye wash stations** available in areas where hazardous materials are used and are they inspected weekly (inspections must be documented)	✓
Egress routes accessible and properly marked - -noted on Fire Evacuation Plan	✓
Training programs in place; Hazcom, Respiratory Protection, Confined Spaces, Hearing conservation, PPE (if applicable)	✓
Any Photo labs	NO
Any hazardous **noise** sources	NO
Light levels checked throughout building	NO
Breaker panels properly labeled with no exposed wiring	✓
Check **building occupancy** 1. How many military personnel, how many civilian personnel 2. What types of units occupy facility, i.e. Administrative, Maintenance, etc.?	✓
Any **civilian activities** in armory (cub scouts, classes, day care, parties etc)	* FAMILY SUPPORT
Obtain two **lead air samples**	On IHSW Request Only

Evaluate Kitchen Stove Hood Flow if Present IAW NFPA Standard 96.	✓
Collect Source Noise Measurements of Kitchen Appliances and Document Using DD 2214	✓
Conduct a safety walkthrough of entire facility document any safety deficiencies found.	✓
Take photos of outside of **building**, all **sample points** and any **pertinent hazards** or concerns.	✓
Name of Armory, **POC, phone #, address** and **organizations** in Armory **(Add Checklist to Report)**	Non-Responsive 435. 986. 6704 B BTRY, 2-222 FA Non-Responsive (Add Checklist to Report)

FACILITY INFORMATION

(Information listed in First Section)
(1st Few Paragraphs/Pages of Report)

1. Date Prepared: JUNE 19, 2012
2. Names (and C[redacted]onducting Industrial Hygiene Site Assistance Visit: Non-Responsive 1141 ENVIRONMENTAL
3. Facility Name and Brief Summary of Primary Activities Conducted at Facility: ST. GEORGE ARMORY
4. Facility Address: 1710 E COMMERCE CIRCLE ST. GEORGE, UT
5. Primary Unit Assigned to Facility (Ensure to capture and provide Unit Identification Code (UIC)): Non-Responsive ..B Btry 2-222 FA
6. Co-Tenant Units Assigned or Working Within Facility (LIST ALL): 213th FSC, C CO 2SP, D 141st MI, FMS #6
7. Square Ft. Area of Facility:
8. Work Schedule: 0600 - 1800
9. Number of work bays: 05
10. Equipment Density and Type: N/A
    a. List Equipment Nomenclature Serviced or Maintained at Facility:
    b. List Total Number for Each Nomenclature Serviced or Maintained at Facility:
11. Total Number of Personnel: ~~277~~ 277
12. No. of Admin. Personnel (Include Status – AGR, Fed. Tech., IDT, State or Contract Employee): 14
13. No. of Maintenance Personnel (Include Status – AGR, Fed. Tech., IDT, State or Contract Employee): 12 9 for Armory only
14. Total Number of Personnel Enrolled in the Hearing Conservation Program: 277
15. Total Number of Personnel Enrolled in the Respiratory Protection Program: 12
16. Total Number of Personnel Enrolled in the Medical Surveillance Program:

17. Total Number of Personnel Enrolled in the Vision Program: 12

18. Facility Commander: Non-Responsive

a. Email address, Commercial Telephone Number and Unit Assigned to: [redacted] 6704

19. Safety Officer: Non-Responsive

a. Email Address, Commercial Telephone Number and Unit Assigned to: Non-Responsive 435 986-6704, B Btry 2-222 FA

20. Fac[redacted] 435 986-6700

Appendix H

Calibration Certificates

CERTIFICATE OF CALIBRATION AND TESTING

TSI Incorporated, 500 Cardigan Road, Shoreview, MN 55126 USA
Tel: 1-800-874-2811 1-651-490-2811 Fax: 1-651-490-3824 http://www.tsi.com

ENVIRONMENT CONDITION		
TEMPERATURE	70.5 (21.4)	°F (°C)
RELATIVE HUMIDITY	49	%RH
BAROMETRIC PRESSURE	28.67 (970.9)	inHg (hPa)

MODEL	9515
SERIAL NUMBER	T95150720007

☒ AS LEFT ☐ AS FOUND

☒ IN TOLERANCE ☐ OUT OF TOLERANCE

– CALIBRATION VERIFICATION RESULTS –

TEMPERATURE VERIFICATION — SYSTEM T-101 — *Unit: °F (°C)*

#	STANDARD	MEASURED	ALLOWABLE RANGE	#	STANDARD	MEASURED	ALLOWABLE RANGE
1	32.0 (0.0)	32.1 (0.0)	31.5~32.5 (-0.3~0.3)	2	140.0 (60.0)	140.0 (60.0)	139.5~140.5 (59.7~60.3)

VELOCITY VERIFICATION — SYSTEM V-111 — *Unit: ft/min (m/s)*

#	STANDARD	MEASURED	ALLOWABLE RANGE	#	STANDARD	MEASURED	ALLOWABLE RANGE
1	0 (0.00)	0 (0.00)	-5~5 (-0.03~0.03)	7	697 (3.54)	700 (3.55)	663~732 (3.37~3.72)
2	30 (0.15)	30 (0.15)	25~35 (0.13~0.18)	8	1205 (6.12)	1205 (6.12)	1144~1265 (5.81~6.42)
3	61 (0.31)	61 (0.31)	56~66 (0.28~0.33)	9	1902 (9.66)	1905 (9.68)	1807~1997 (9.18~10.15)
4	100 (0.51)	101 (0.51)	95~105 (0.48~0.53)	10	2715 (13.79)	2727 (13.85)	2579~2851 (13.10~14.48)
5	200 (1.02)	199 (1.01)	190~210 (0.97~1.07)	11	3793 (19.27)	3778 (19.19)	3604~3983 (18.31~20.23)
6	398 (2.02)	400 (2.03)	378~418 (1.92~2.12)				

TSI does hereby certify that the above described instrument conforms to the original manufacturer's specification (not applicable to As Found data) and has been calibrated using standards whose accuracies are traceable to the United States National Institute of Standards and Technology (NIST) or has been verified with respect to instrumentation whose accuracy is traceable to NIST, or is derived from accepted values of physical constants. TSI's calibration system is registered to ISO-9001:2008 and meets the requirements of ISO 10012:2003.

Measurement Variable	System ID	Last Cal.	Cal. Due
Temperature	E003986	04-25-11	10-25-11
Barometric Pressure	E001992	04-08-11	04-08-12
Temperature	E001644	07-27-11	01-27-12
Pressure	E001058	01-17-11	01-17-12

Measurement Variable	System ID	Last Cal.	Cal. Due
Temperature	E003987	04-25-11	10-25-11
DC Voltage	E004398	06-09-11	12-09-11
Pressure	E004041	04-07-11	04-07-12
Velocity	E003327	09-19-07	09-19-12

Non-Responsive

CALIBRATED

October 13, 2011

DATE

Doc. ID: CERT_GEN_WCC

TSI CERTIFICATE OF CALIBRATION AND TESTING

TSI Model 8732 TSI Serial No. 02100504

Description IAQ Meter with CO2

Calibration Standard Multi-Gas Calibration Bench #127

CALIBRATION VERIFICATION RESULTS

Calibration Standard	Instrument Output	Difference	Error Compared to Tolerance: Tolerance Limit-	0	Tolerance Limit+
5001 PPM	4990 PPM	-0.2 %		*	
3000 PPM	3012 PPM	0.4 %		*	
1000 PPM	1001 PPM	1 PPM		*	
500 PPM	496 PPM	-4 PPM		*	
0 PPM	-15 PPM	-15 PPM		*	

Tolerance Limits:

CO2: 50PPM or 3% of reading

TSI Incorporated does hereby certify that all materials, components, and workmanship used in the manufacture of this equipment are in strict accordance with the applicable specifications agreed upon by TSI and the customer and with all published specifications. All performance and acceptance tests required under this contract were successfully conducted according to required specifications. Furthermore, all test and calibration data supplied by TSI has been obtained using standards whose accuracies are traceable to the National Institute of Standards and Technology (NIST) or has been verified with respect to instrumentation whose accuracy is traceable to NIST, or is derived from accepted values of physical constants. Calibration procedures for this instrument comply with MIL-STD-45662A. The accuracy of the calibration facilities is greater than a ratio of 1:1 with respect to the accuracy specifications of the instrument being calibrated.

Applicable Test Report	Report Number	Date Last Verified
DC Voltage	E002415	06-21-11
Barometric Pressure	E001992	04-08-11
Pure Nitrogen	UT-230	03-02-12
CO2 1000 PPM in N2	EB0013815	01-21-10
CO2 5000 PPM in N2	EB0020543	02-01-12

Non-Responsive

☑ Final Function Check

Mar 19, 2012 Calibration Date

TSI Incorporated, 500 Cardigan Road, Shoreview, MN 55126 USA
Tel: 800-874-2811 651-490-2874 FAX: 651-490-2121 www.tsi.com

DXP

THE INDUSTRIAL DISTRIBUTION EXPERTS

Certificate of Calibration

The following equipment was calibrated to manufacturer's specification with instrumentation whose accuracies are traceable to the *National Institute of Standards and Technology*.

Manufacturer:	Greenlee
Model:	SM-100
Serial Number:	010613107
Calibration Date:	October 5, 2011
Calibrated By:	Non-Responsive [redacted]

1111 S. 27th St. Billings MT 59101
406-247-2050

Appendix I

Lead Wipe and Lead Paint Chip Table and Drawing

St. George Armory - Lead Wipe Results

Lead Wipe Sample Results

Sample Number	Collection Date	Location	Result $\mu g/ft^2$
6146-01	6/19/2012	Drill floor N.W.	<23
6146-02	6/19/2012	Drill floor N.E.	<23
6146-03	6/19/2012	Drill floor Center	<23
6146-04	6/19/2012	Drill floor S.E.	<23
6146-05	6/19/2012	Drill floor S.W.	<23
6146-06	6/19/2012	Kitchen, Serving Line	<23
6146-07	6/19/2012	Vault Floor	320
6146-08	6/19/2012	Battery B Orderly Room, Desk Top	<23
6146-09	6/19/2012	Classroom, Table Top	<23

Appendix J

Laboratory Reports

ANALYTICAL REPORT

Report Date: June 28, 2012

Non-Responsive
IHI Environmental
640 East Wilmington Avenue
Salt Lake City, UT 84106

Phone: (801) 466-2223
Fax: (801) 466-9616
E-mail: Non-Responsive

Workorder: 34-1217739
Client Project ID: 12U-I6146/Sir George Army
Purchase Order: 12U-I6146
Project Manager: Non-Responsive

Analytical Results

Sample ID: 6146-01 | Media: Lead Dust Wipe | Received: 06/25/2012
Lab ID: 1217739001 | Sampling Location: Sir George Army
Method: NIOSH 7300 Mod. | Sampling Parameter: Area 100 cm² | Prepared: 06/27/2012 Analyzed: 06/27/2012

Analyte	ug/sample	ug/ft²	RL (ug/sample)
Lead	<2.5	<23	2.5

Sample ID: 6146-02 | Media: Lead Dust Wipe | Received: 06/25/2012
Lab ID: 1217739002 | Sampling Location: Sir George Army
od: NIOSH 7300 Mod. | Sampling Parameter: Area 100 cm² | Prepared: 06/27/2012 Analyzed: 06/27/2012

Analyte	ug/sample	ug/ft²	RL (ug/sample)
Lead	<2.5	<23	2.5

Sample ID: 6146-03 | Media: Lead Dust Wipe | Received: 06/25/2012
Lab ID: 1217739003 | Sampling Location: Sir George Army
Method: NIOSH 7300 Mod. | Sampling Parameter: Area 100 cm² | Prepared: 06/27/2012 Analyzed: 06/27/2012

Analyte	ug/sample	ug/ft²	RL (ug/sample)
Lead	<2.5	<23	2.5

Sample ID: 6146-04 | Media: Lead Dust Wipe | Received: 06/25/2012
Lab ID: 1217739004 | Sampling Location: Sir George Army
Method: NIOSH 7300 Mod. | Sampling Parameter: Area 100 cm² | Prepared: 06/27/2012 Analyzed: 06/27/2012

Analyte	ug/sample	ug/ft²	RL (ug/sample)
Lead	<2.5	<23	2.5

ANALYTICAL REPORT

Workorder: 34-1217739
Client Project ID: 12U-I6146/Sir George Army
Purchase Order: 12U-I6146
Project Manager: Non-Responsive

Analytical Results

Sample ID: 6146-05 | Media: Lead Dust Wipe | Received: 06/25/2012
Lab ID: 1217739005 | Sampling Location: Sir George Army
Method: NIOSH 7300 Mod. | Sampling Parameter: Area 100 cm² | Prepared: 06/27/2012 Analyzed: 06/27/2012

Analyte	ug/sample	ug/ft²	RL (ug/sample)
Lead	<2.5	<23	2.5

Sample ID: 6146-06 | Media: Lead Dust Wipe | Received: 06/25/2012
Lab ID: 1217739006 | Sampling Location: Sir George Army
Method: NIOSH 7300 Mod. | Sampling Parameter: Area 100 cm² | Prepared: 06/27/2012 Analyzed: 06/27/2012

Analyte	ug/sample	ug/ft²	RL (ug/sample)
Lead	<2.5	<23	2.5

Sample ID: 6146-07 | Media: Lead Dust Wipe | Received: 06/25/2012
Lab ID: 1217739007 | Sampling Location: Sir George Army
Method: NIOSH 7300 Mod. | Sampling Parameter: Area 100 cm² | Prepared: 06/27/2012 Analyzed: 06/27/2012

Analyte	ug/sample	ug/ft²	RL (ug/sample)
Lead	**35**	**320**	2.5

Sample ID: 6146-08 | Media: Lead Dust Wipe | Received: 06/25/2012
Lab ID: 1217739008 | Sampling Location: Sir George Army
Method: NIOSH 7300 Mod. | Sampling Parameter: Area 100 cm² | Prepared: 06/27/2012 Analyzed: 06/27/2012

Analyte	ug/sample	ug/ft²	RL (ug/sample)
Lead	<2.5	<23	2.5

Sample ID: 6146-09 | Media: Lead Dust Wipe | Received: 06/25/2012
Lab ID: 1217739009 | Sampling Location: Sir George Army
Method: NIOSH 7300 Mod. | Sampling Parameter: Area 100 cm² | Prepared: 06/27/2012 Analyzed: 06/27/2012

Analyte	ug/sample	ug/ft²	RL (ug/sample)
Lead	<2.5	<23	2.5

ANALYTICAL REPORT

Workorder: 34-1217739
Client Project ID: 12U-I6146/Sir George Army
Purchase Order: 12U-I6146
Project Manager: Non-Responsive

Analytical Results

Sample ID: 6146-10 Media: Lead Dust Wipe Received: 06/25/2012
Lab ID: 1217739010 Sampling Location: Sir George Army

Method: NIOSH 7300 Mod. **Sampling Parameter: Area 100 cm²** **Prepared:** 06/27/2012 **Analyzed:** 06/27/2012

Analyte	ug/sample	ug/ft²	RL (ug/sample)
Lead	<2.5	<23	2.5

Report Authorization

Method	Analyst	Peer Review
NIOSH 7300 Mod.	Non-Responsive	Non-Responsive

Laboratory Contact Information

ALS Environmental
960 W Levoy Drive
Salt Lake City, Utah 84123

Phone: (801) 266-7700
Email: alslt.lab@ALSGlobal.com
Web: www.alsslc.com

ANALYTICAL REPORT

Workorder: 34-1217739
Client Project ID: 12U-I6146/Sir George Army
Purchase Order: 12U-I6146
Project Manager: Non-Responsive

General Lab Comments

The results provided in this report relate only to the items tested.
Samples were received in acceptable condition unless otherwise noted.
Samples have not been blank corrected unless otherwise noted.
This test report shall not be reproduced, except in full, without written approval of ALS.

ALS provides professional analytical services for all samples submitted. ALS is not in a position to interpret the data and assumes no responsibility for the quality of the samples submitted.

All quality control samples processed with the samples in this report yielded acceptable results unless otherwise noted.

ALS is accredited for specific fields of testing (scopes) in the following testing sectors. The quality system implemented at ALS conforms to accreditation requirements and is applied to all analytical testing performed by ALS. The following table lists testing sector, accreditation body, accreditation number and website. Please contact these accrediting bodies or your ALS project manager for the current scope of accreditation that applies to your analytical testing.

Testing Sector	Accreditation Body (Standard)	Certificate Number	Website
Environmental	ACLASS (DoD ELAP)	ADE-1420	http://www.aclasscorp.com
	Utah (NELAC)	DATA1	http://health.utah.gov/lab/labimp/
	Nevada	UT00009	http://ndep.nv.gov/bsdw/labservice.htm
	Oklahoma	UT00009	http://www.deq.state.ok.us/CSDnew/
	Iowa	IA# 376	http://www.iowadnr.gov/InsideDNR/RegulatoryWater.aspx
	Florida (TNI)	E871067	http://www.dep.state.fl.us/labs/bars/sas/qa/
	Texas (TNI)	T104704456-11-1	http://www.tceq.texas.gov/field/qa/lab_accred_certif.html
Industrial Hygiene	AIHA (ISO 17025 & AIHA IHLAP/ELLAP)	101574	http://www.aihaaccreditedlabs.org
Lead Testing:			
CPSC	ACLASS (ISO 17025, CPSC)	ADE-1420	http://www.aclasscorp.com
Soil, Dust, Paint ,Air	AIHA (ISO 17025, AIHA ELLAP and NLLAP)	101574	http://www.aihaaccreditedlabs.org
Dietary Supplements	ACLASS (ISO 17025)	ADE-1420	http://www.aclasscorp.com

Definitions

LOD = Limit of Detection = MDL = Method Detection Limit, A statistical estimate of method/media/instrument sensitivity.
LOQ = Limit of Quantitation = RL = Reporting Limit, A verified value of method/media/instrument sensitivity.
ND = Not Detected, Testing result not detected above the LOD or LOQ.
** No result could be reported, see sample comments for details.
< This testing result is less than the numerical value.
( ) This testing result is between the LOD and LOQ and has higher analytical uncertainty than values at or above the LOQ.

Appendix K

IHSW Violation Inventory Log

Industrial Hygiene Southwest

Violation Inventory Log

LOG OF SCHEDULE OF CORRECTIVE ACTION - COMPLIANCE WITH SAFETY AND HEALTH STANDARDS

St. George Armory, Utah

CONTROL NUMBER CLOSED ☐	HAZARD DESCRIPTION	SITE	RAC	CORRECTIVE ACTIONS (Abatement Plan)	SUSPENSE DATE	ACTION OIC/NCOIC	Estimated Cost(s)	DATE CORRECTED	REFERENCES
SGA-0616212-4.1 ☐	The vault floor was found to contain lead in excess of 200 µg/ft^2.	St. George Armory	3	Clean the vault floor, as outlined in the Lead Cleanup SOP, so as to be less than 200 µg/ft^2.					29 CFR1910.1025 (h)(1) & IHSW Lead Cleanup SOP
SGA-0616212-4.4 ☐	An asbestos survey could not be located during this IH Assistance Visit.	St. George Armory	4	Contract with a licensed firm to perform an asbestos survey and assessment.					Recommended Practice
SGA-0616212-4.4 ☐	Personnel have not been provided with asbestos awareness training.	St. George Armory	4	Based on the findings of this survey, provide awareness training to assigned personnel for the specific types of asbestos in this Armory.					29 CFR 1910.1001 or 1101 or AR 40-5
SGA-0616212-4.10(7) ☐	One electrical receptacle next to a kitchen sink was noted with an open ground and a non-functioning GFCI outlet.	Kitchen	3	Correct the wiring and verify the function of the GFCI outlet in the kitchen.					1910.303(b)(1) & NFPA 70, Article 210-8

Appendix L

Recommendations

4.1 Lead Wipe Sampling

Recommendation

Decontaminate the vault floor so lead levels are below 200 $\mu g/ft^2$; use the attached SOP's in Appendix O for guidance.

4.4 Asbestos Management

Recommendations

1. Contract with a licensed firm to perform an asbestos survey and assessment.
2. If asbestos-containing materials are identified and assessed, provide awareness training to assigned personnel for the specific material types and locations of asbestos in this armory.

4.10 General Safety Walk-Through

Recommendation

Correct the wiring and verify the function of the GFCI outlet in the kitchen.

NOISE SURVEY
(Sound Level Meter Survey)

1. DATE (YYYYMMDD)	2. TYPE SURVEY (Enter code)
20120606	1 (1 - INITIAL SURVEY 2 - RE-SURVEY 3 - OTHER)

3. SOUND LEVEL METER		4. MICROPHONE		5. CALIBRATOR	
a. MANUFACTURER		a. MANUFACTURER		a. MANUFACTURER	
GreenLee		GreenLee		GreenLee	
b. MODEL	c. SERIAL NO.	b. MODEL	c. SERIAL NO.	b. MODEL	c. SERIAL NO.
SM-100	010613107	SM-100	010613107	SM-100	010613107
d. LAST ELECTROACOUSTIC CALIB DATE (YYYYMMDD)	20111005	d. LAST ELECTROACOUSTIC CALIB DATE (YYYYMMDD)	20111005	d. LAST ELECTROACOUSTIC CALIB DATE (YYYYMMDD)	20111005

6. WIND SCREEN (X one)		7. MEASUREMENTS OBTAINED (X one)	
X USED	NOT USED	INDOORS	X OUTDOORS

8. DESCRIPTION OF AREAS/DUTIES WHERE NOISE SURVEY CONDUCTED *(Illustrate on additional sheet and attach to form)*
Kitchen

9. PRIMARY SOURCE OF NOISE
Appliances

10. SECONDARY SOURCE OF NOISE

11. SOUND LEVEL DATA / 12. PROTECTION REQUIRED (re: dBA - Level)

a. LOCATION	b. METER ACTION	c. dBC	d. dBA	e. RISK ASSESSMENT CODE	a. NONE (Less than 85)	b. PLUG OR MUFF (85-108)	c. PLUG AND MUFF (108-118)	d. PLUG + MUFF + TIME LIMIT (Greater than 118)
Refrigerator	S	73.6	60.7	IVD	X			
Freezer	S	79.2	63.0	IVD	X			
Exhaust Fan	S	80.1	71.7	IVD	X			
Sink Disposal	S	72.6	70.8	IVD	X			
					X			
					X			

NOTES: Range of levels noted by /; i.e., 102/109. At operator stations, measure at ear level.
METER ACTION: Enter F for fast meter action and S for slow meter action.

13. REMARKS *(i.e., Area and equipment posted, hearing protection in use, etc.)*

14. MORE DETAILED NOISE EVALUATION REQUIRED: ( ) YES (X) NO *(If "YES," identify type evaluation needed.)*

15. NAME(S) OF PERSON(S) IDENTIFIED FOR AUDIOMETRIC MONITORING *(Use additional sheet if more space is needed and attach to form)*
None

16. SUPERVISOR OF NOISE-HAZARDOUS AREA OR OPERATION

a. NAME (Last, First, Middle Initial)	b. TELEPHONE (Include area code)	c. ORGANIZATION
Non-Responsive	(435) 986-6704	UTARNG

17. [illegible] (Last Name, First Name, MI)
Non-Responsive

18. HEARING CONSERVATION MONITOR (Last Name, First Name, MI)
Non-Responsive

DD FORM 2214, JAN 2000 PREVIOUS EDITION MAY BE USED.

Appendix N

IHSW Lead-Cleanup SOPs

Lead

CLEANUP & FOLLOW-UP HOUSEKEEPING RECOMMENDATIONS

Materials Needed:

1. Cloth Mop head (s) & Mop head holder(s) with handle.
2. Mop bucket (s) with wringer.
3. Clean cotton rags and sponges.
4. Disposable gloves
5. Large barrel (55 gal.) to store wastewater in after changing out of dirty scrub water.
6. Disposable overshoes or rubber boots. Personnel conducting cleaning operations should not take clothes, boots, etc., home for laundering.
7. HEPA vacuum
8. Six (6) mill plastic bags to dispose of waste.
9. Waste water containers.

Disposal of Waste Water and Cleaning Materials:

1. *NOTE*: Consult with Local Army National Guard Environmental Office prior to taking any collection, disposal or wiping activities commence. Each state and territory may have additional regulatory guidance on collection, storage and disposal of wastewater.

2. Mop heads should be disposed of after initial cleanup, unless otherwise advised by Environmental office personnel. Note: thorough cleaning of mop heads may be sufficient enough to reuse on future Armory cleanups but check with local Environmental Office.

3. Disposable gloves should be treated as hazardous waste.

4. Soiled cotton rags should be treated as hazardous waste.

5. Wash water contaminated with Lead can be collected and allowed to slowly evaporate leaving Lead deposits/sludge that may be collected in plastic containers, placed in metal drums, and stored for future delivery to an authorized hazardous waste disposal site.

a. Drums shall be properly labeled to identify contents In-Accordance With (IAW) Federal, State and local regulatory guidance.
b. Disposal of containerized waste shall be coordinated IAW State hazardous waste program requirements.
c. The Environmental Office shall coordinate removal and disposal of all containerized hazardous waste through established waste streams.

Post-Cleanup Precautionary Measures:

1. Thoroughly wash hands with soap and water.
2. Rinse off rubber boots with soap and water, capturing wastewater for collection into established waste stream. If personnel choose to use over shoes for protection, dispose of overshoes into waste stream. NOTE: This recommendation is for initial clean up activities and PPE requirements may be reduced after it has been determined non-hazardous levels have been achieved.
3. Wash BDU's or personal clothing separately from children's clothes.

NOTE: No eating, drinking or cosmetics allowed during cleanup procedures (these may be allowed after washing of hands/face and done outside of cleanup area)

NOTE: Avoid blowing, shaking or like actions which could potentially disperses lead dust. Dry sweeping, dusting, wiping or blowing with compressed air shall not be permitted

Initial Cleanup:

1. Use a vacuum cleaner equipped with a HEPA exhaust filter. HEPA vacuum all surfaces in the room (ceiling, walls trim, and floors). Start with the ceiling and work down, moving toward the entry door. **Completely clean each room before moving on**.

2. Prepare water and detergent for the wipe down phase, according to manufactures recommendations.

3. Wet wipe, with cotton rags or sponge, any horizontal, diagonal or vertical surfaces up six (6) feet from floor surfaces using hot water and "Spic-n-Span" or an equivalent product.

    a. Rinse out cleaning cloths thoroughly and frequently.
    b. Change out cleaning water as necessary.

NOTE: **If walls to be cleaned show signs of deterioration, e.g., chipping or crumbling paint, in which wiping, scrubbing, or disrupting might potentially increase or spread contamination, then this portion of the clean up should be avoided**.

4. Now prepare water and detergent (e.g. Spic N Span, Mr. Clean, Pine Sol) for the mopping phase, according to manufactures recommendations, which should be found on the products label for general clean up.

    a. Change out water frequently (when water appears dirty)
    b. Rinse out mop heads frequently to prevent contamination of dirty water.

5. Cover entire drill floor surface with above prescribed water and detergent.

6. Final rinse should be with clean water only - -after mop heads have been cleaned.

Recommended Follow-up Housekeeping Practices *after Clearance sampling of cleaned area is performed by certified personnel:*

1. Floor cleaning and dusting should be accomplished using the wet method described in Initial Armory Cleanup SOP.

Note: Only exception to these wet cleaning procedures would be the use of a chemically treated dust floor mop. This can be used for follow-up armory cleaning by sweeping of large particles of dirt and paper.

    a. Pre-treated (chemically treated) dust floor mop will limit dust particles from being disbursed into the surround atmosphere.

b. If treated dust mop is used - -Do Not Shake Mop head - - have mop head laundered after use. **Always keep used dust mop heads in sealed double plastic bags when stored at armory/facility**. Shaking of mop head could release unwanted contaminants into surrounding atmosphere.

2. Frequency of Cleanup- Armories will vary, according to usage and how often they should be cleaned. The following general cleaning schedule is provided:

   a. Only full-time technicians and traditional soldiers using facility during the month. (***Cleaned Monthly***)

   b. Occasional activities taking place during the month, e.g., 1-2 classes or volleyball games, etc. (***Cleaned 2x's Monthly***)

   c. Used regularly by soldiers or outside agencies/personnel. (***Cleaned Regularly - -at least Weekly***)

NOTE: Armories with adjoining Indoor Firing Ranges (IFR) should be cleaned more than weekly, again depending on use of Armory and IFR.

NOTE: Clearance sampling/testing is to be accomplished by certified personnel after these cleanup procedures are followed. If the area is an average Armory, occupied by adults only, for which you are cleaning and **is not a Converted IFR space**, you may continue to utilize the Armory space before the officials re-test this space. Please notify your Safety and/or Occupational Health personnel of the completion of this cleaning regime and they will notify the proper officials of the sampling/testing requirements needed.

If work is contracted out, a third party should do the clearance sampling.

Young children and females who are pregnant, there should be posted signs on all facilities, warning of the potential danger of exposure to lead dust.

SOP FOR ARMORY CLEANUP

1. General.

1.1 Objective.

1.1.1. The purpose of this SOP (Standard Operating Procedure) is once a lead dust hazard has been identified and excess exists, how to lower the level of lead dust to afford a safe building, which is clean enough for all personnel exposed to this potential hazard.

1.2 Description of An Armory.

1.2.1 Armories provide a space for units to support and train soldiers.

1.2.2 The facility is utilized by Army National Guard (ARNG) family members, usually in a recreational or festive setting. This may include all members and all ages of a given family.

1.2.3 The Armory can be used for community activities, which may include all age levels.

1.3 Responsibilities.

1.3.1 It is the ARNG specialty branches, e.g., Industrial Hygiene (IH), Occupational Health & Safety's, responsibility to notify occupants of any known health risk within their facility.

1.3.2 It is the building managers responsibility to warn any users of this facility about potential hazards by, e.g., verbal, written or warning signs.

1.3.3 The ultimate responsibility falls back on the TAG of each state.

2. Background.

2.1 IH Investigation.

2.1.1 The IH community found unexpectedly high levels of lead dust during a normal IH investigation (survey) in an armory that had an Indoor Firing Range (IFR) within it. Wipe samples were taken in another armory without an IFR, only to find that this armory had higher than expected levels of lead dust, also.

2.1.2 Each ARNG Regional Industrial Hygienist has planned to survey all their armories spearheaded by the Midwest regional office, to determine the magnitude of these findings.

2.1.3 About 2/3rds of the armories tested so far, did not have "a clean bill of health". Now the IH community will attempt to discern where the contamination is coming from and also, give guidance on how to deal with these contaminant.

2.1.4 Air sampling of the armories tested have shown very low levels of lead dust in the breathing area. Dust wipe samples have varied in quantities present but have exceeded the EPA's floor standard and the ARNG IFR guidelines.

3. Relevant Standards and Guidelines.

3.1 **Airborne Lead.**

3.1.1 The Occupational Safety and Health Administrations (OSHA) Permissible Exposure Level (PEL) for airborne lead is **50 micrograms per cubic meter** (ug/m3), averaged over an 8-hour work shift. The OSHA action level is 30 ug/m3.

3.2 **Blood Lead Level** (BLL).

3.2.1 OSHA requires that personnel who are exposed to airborne lead above the PEL be offered medical surveillance that includes blood lead level monitoring. Personnel with total **BLL above 50** micrograms per deciliter (ug/dl) of blood are required to be removed from occupational lead exposures until the BLL drops back to 40.

3.2.2 Women who may become pregnant who are exposed to lead should consult with their physician. Fetal and newborn BLLs are similar to those of

the mother. The Center for Disease Control and Prevention considers levels above **10 ug/dl** in children under 6 to be elevated BLLs.

3.3 Lead in Surface Dust.

3.3.1 There are no established standards for lead levels in dust within buildings other than those used by children under 6. The Environmental Protection Agency (**EPA**) along with Housing and Urban Development (**HUD**) floor dust lead level standard (which is currently **40 ug/ft2**) does not apply to workplace surfaces, and would be impossible to maintain in many industrial facilities. (EPA 40 CFR Part 745)

3.3.1.1 The EPA interior windowsill standard is 250 ug/ft2.
3.3.1.2 The EPA standard for window trough is 400 ug/ft2.

3.3.2 OSHA cites a level of 200 ug/ft2 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.

3.4 Lead in Paint.

3.4.1 EPA's standard for lead-based paint or other surface coatings that contain lead equal to or exceeding 1.0 milligram per square centimeter (mg/cm2) or 0.5 percent (%) by weight or 5000 parts per million (ppm) by weight.

4. Indoor Firing Ranges (IFR).

4.1 Relevant Standards and Guidelines.

4.1.1 OSHA guidelines stated above (see 3.3.2) are the recommended working levels to achieve in an active IFR.

4.1.2 NGR 385-10 guideline reflects that of OSHA at 200 ug/ft2 for lead dust on surfaces.

4.2 Maintenance and Cleaning.

4.2.1 Follow NGR 385-10, along with SOP found in All States Letter (Log Number P00-0059 along with All States Letter (Log Number P01-0075)

addressing Policy and Responsibilities for Inspection, Evaluation and Operation of ARNG Indoor Firing Ranges. Also, utilize AR 385-63 Range Safety.

4.2.2 Cross contamination is a concern where Armories and IFR's are co-located. Keeping an IFR dust level at 200 ug/ft2 does not meet the 40 ug/ft2 required on floor surfaces for children 6 and under. Tracking lead dust to other parts of the armory is a concern and should be addressed by the facilities manager and the range custodian.

5. Converted/Closed Indoor Firing Ranges.

5.1 Closed IFR.

5.1.1 Closed IFR's should be not utilized for anything, e.g. storage, office space or anything else. This should be a voided space with no entry. The IFR should have been cleaned to at least 200 ug/ft2 before closure to prevent contamination via air stream or other means.

5.1.2 Should be locked and signage placed on entryway to warn personnel of lead contents.

5.2 Converted IFR– NG PAM 385-16 "Guidelines for converting of IFR."

5.2.1 These spaces should have been cleaned and taken to lowest possible level, e.g. 0-40 ug/ft2, and then the proper sealant applied, retested via wipe samples. The results should be below the pre-sealant sample results and as close to zero as possible.

5.2.2 The backstop and ventilation system should have been removed prior to cleaning of the range.

5.2.3 **If all of this wasn't accomplished initially and you have high lead levels after this Baseline survey, or if it was accomplished, you need to talk to the original contractor who was responsible for the cleanup or get the area re-cleaned by a different contractor.** Converted IFR's have to meet certain criteria before they can be changed into something that will be utilized for an office, storage, or something else where contamination to an individual may occur.

6. **Armory Cleanup.**

6.1 **High Test Result.**

6.1.1 If the public utilizes your facility and the results came back above 40 ug/ft2 you are responsible for cleaning this area and adjoining areas to meet the 40 ug/ft2 or less.

6.1.1.1 Unless you can guarantee no children under the age of 7 will come into your facility.

6.1.1.2 Unless your state public health has other guidance, e.g., post signage to warn personnel who are pregnant or of child bearing age, or under the age of 7 y/o.

6.1.1.3 Signs stating "No smoking, drinking or eating, application of make-up without washing of hands prior to activity."

6.2 **Cleaning of Building.** Before proceeding into the cleanup mode, first, discus with your Environmental office what procedures they would recommend and then coordinate your efforts with local agencies, if warranted.

6.2.1 The building, and dusty materials and equipment in it should be cleaned one time to reach the dust lead levels appropriate for the function of this facility, e.g., used by full-time personnel only, utilized by adults or children 7 y/o, or order children only, or utilized by pregnant individuals and/or children under the age of 7. **NOTE:** This type cleaning implies that this is not a facility that has an active Indoor Firing Range. For facilities with active ranges, these facilities should be monitored with wipe samples taken over the drill floor area by the Range Custodian quarterly, to ascertain the level of lead is at the required level for your particular facility and situation.

6.2.1.1 This cleanup can be accomplished using a HEPA vacuum (a very tedious and long operation) and then by utilizing a wet method with "Spic n Span" or something equivalent to this detergent - -using wet rags to wipe down surfaces and mops soaked in this solution to do floor area. NOTE: Personal protective gloves, rubber boots or protective disposable shoe/boot covers should be used during this procedure and personnel's

clothing should be washed separately from their families, if they have young children at home. Personnel should wash their hands after performing this operation to assure lead contaminants are not ingested.

6.2.1.2 Frequent changing out of the water used is vital. Disposal of this hazardous waste water and rags/mop heads, Personal Protective Equipment (PPE), etc., should be coordinated with your Environmental office.

6.2.2 Clean all ductwork where lead was found. EPA has a protocol specifically for replacing or cleaning lead in dust form in HVAC systems. EPA Office of Pollution Prevention and Toxics, "*Reducing Lead Hazards When Remodeling Your Home*" www.epa.gov/opptintr/lead/rrpamph.pdf.

6.2.3 Continue to enforce good housekeeping and hygiene practices. These measures make good sense to minimize exposures to any toxic chemicals in the workplace.

6.2.4 Provide lead awareness training to the general workforce and any occupants of your facility.

NOTE: **Before you start any new procedures or practices be aware of the local city and state regulations in your area.**

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Industrial Hygiene Site Assistance Visit

Tooele Armory
16 South 1st Street
Tooele, UT

10510 Superfortress Avenue, Suite C, Mather, CA 95655 (916) 854-1491

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DEPARTMENT OF THE ARMY AND AIRFORCE
NATIONAL GUARD BUREAU
INDUSTRIAL HYGIENE SOUTHWEST
10510 Superfortress Ave, Ste. C
Mather, CA 95655

ARNG-CSG-IHSW

23 July 2012

MEMORANDUM THRU Utah Army National Guard, Deputy State Surgeon (DSS), 12953 S. Minuteman Dr., Draper, UT 84020-1776

FOR Commander, Tooele Armory, 16 South 1st Street, Tooele, UT 84074

SUBJECT: Executive Summary for Industrial Hygiene Site Assistance Visit (IHSAV) for the Tooele Armory, 16 South 1st Street, Tooele, UT conducted on 23 May 2012.

1. **References**. See survey report.

2. **General.**

a. At the request of the NGB Industrial Hygiene, Southwest (IHSW) Region, an Industrial Hygiene Site Assistance Visit and cursory review of safety related items and programs was conducted at the Tooele Armory, Tooele, UT on 23 May 2012.

b. The findings and recommendations in this Executive Summary are controlling and supersede all recommendations in the contractor report (reference Attachment II). However, IHSW concurs with the observations and findings within the attached contractor report.

c. Risk Assessment Codes (RAC) provided in this report have been derived from two sources: Deriving Risk Assessment Codes (RAC's) for Health Hazards (Ref: DOD Instruction 6055.1) and AR 385-10, The Army Safety Program.

d. Use of trademark names in the attached report, or this Executive Summary, does not imply Army National Guard endorsement of any product.

3. **Findings.** See survey report.

4. **Commendable.**

a. Many of the areas reviewed during this visit were posted as noise hazardous areas and personnel were using the appropriate hearing protective devices and PPE for the particular operation.

b. The facility was generally clean and orderly and personnel were helpful during this SAV.

5. **Observations / Recommendations.**

NOTE: This section provides conclusions and recommendations for the findings and observations made within the attached contractors report. The paragraphs are numbered to correspond to the sections where they were first noted. (i.e., paragraph 2.1a represents the 2.1a located within the contractors report.

a. Water intrusion was noted on some ceiling tiles within the Armory. These tiles should be replaced and repairs should be accomplished if needed. (para. 4.3) **(RAC 5)**

b. Assure construction personnel and allied trades personnel are made aware of lead painted surfaces and how their work performance should be altered to compensate for the potential lead dust hazard noted in this visit (para. 4.2.1) **(RAC 3)**

c. Remove acetylene tank from armory and secure acetylene cylinder in FMS 7 where cutting and welding takes place. This will help remove a potential tripping or missile hazard. (para. 4.10) **(RAC 3)**

d. Find asbestos survey or have one accomplished and provide assigned personnel with asbestos awareness training. (para. 4.4.1 & 4.4.2) **(RAC 4)**

6. Violation Correction Log.

a. IHSW has provided a Violation Correction Log derived from the observations from this visit. IHSW recommends the following:

1. Commander(s) assign an Action OIC/NCOIC, Suspense Date for completion, and Estimated Cost(s) to ensure item completion and corrective status is briefed during quarterly (or monthly) Safety Meetings/Councils until resolved.

2. Corrective measures should be implemented and accomplished at the lowest levels possible. Hazards and Corrective Measures that cannot be corrected at the facility level, and require assistance from higher headquarters or from the state level, should be elevated to the Quarterly State/BN Safety Council Meeting for resolution.

3. Recommend a representative from the facility attend all quarterly/monthly meetings to ensure the appropriate emphasis and corrective actions are followed for hazard resolution and abatement of the observations made during this visit.

4. Retain entries of the items corrected, or closed, for future reference. This may be accomplished by posting completed items within the Corrected Hazard Sheet portion of the Excel Violation Correction Log Workbook we've provided.

5. The preferred method to document and track identified hazards for resolution is for their entry into the Reserve Component Automation System – Safety and Occupational Health **(RCAS-SOH)** Program.

b. IHSW recommends further program refinement through written documentation for standardized guidance to the personnel performing the processes. Conducting Hazard Assessments consistent with 29 Code of Federal Regulations (CFR) 1910.132, General Requirements for Personal Protective Equipment and AR 40-5, Preventive Medicine, would provide this continued program refinement.

7. Hazard Assessment/Job Safety Analysis (JSA).

a. Documenting the Hazard Assessments provides a method to obtain initial and periodic review from the Industrial Hygiene, Occupational Health and Safety Professions located at the JFHQ/HQ/state level.

b. The Hazard Assessments should be used as written training materials for the new, transfer and unit personnel working under the auspice of the facility.

c. IHSW recommends facility supervisory staff and facility personnel conduct initial Hazard Assessments outlined in AR 40-5, Army Preventive Medicine (Section V) and 29 CFR 1910.132 and submit for review and obtain approval from the state Industrial Hygiene, Occupational Health and Safety Professions.

d. We have provided an appendix with Hazard Assessments (HA) examples of some of this facilities operations. Additional operations can utilize this format to design HA not observed during this SAV.

e. An integral and important factor of the Hazard Assessment/JSA process is for the review and guidance from qualified Safety, Occupational Health and Industrial Hygiene professions located at the higher headquarters level or state level. For this reason, the Hazard Assessments (to include all pertinent and supporting documents) should be completed by the facility personnel and forward to the Hawaii Army National Guard Industrial Hygiene, Occupational Health and Safety Office for final review and approval (signature).

f. Job Safety Analysis (JSA's)/Hazard Assessments.

NOTE: The Hazard Assessments can be used for monthly meetings to brief/train, and document large group training events and activities.

8. IHSW recommends the **Senior Unit Commander of this Facility and any Co-Tenant Organizations or Units, review and provide assistance with implementation of these recommendations.** This will educate the chain of command and allow the unit or co-tenant organizations to take any necessary precautions or actions required by them and their personnel.

9. To assist you with execution of your responsibilities in correcting the observations noted, we encourage you to consult with the State Safety Manager, Occupational Health Manager and Industrial Hygiene professions located and/or authorized within the State Safety and Occupational Health Office.

10. For additional information please contact the undersigned at (916) 804-1707 or via email at Non-Responsive Non-Responsive

NGB, IHSW, CIV
Industrial Hygiene

Industrial Hygiene Southwest's mission is to ensure all military personnel and military leadership is provided the specialized technical expertise, consultation and assistance to ensure all military operations and processes are conducted in a healthy manner

10510 Superfortress Avenue, Suite C, Mather, CA 95655 (916) 854-1491

IHI ENVIRONMENTAL

IH ASSISTANCE VISIT

Utah Army National Guard Armory
16 South 1st Street
Tooele, Utah

June 15, 2012

Prepared for:

Industrial Hygiene Southwest
10510 Superfortress Avenue, Suite C
Mather, California 95655

Non-Responsive

Senior Project Manager

Reviewed by:

Non-Responsive

Industrial Hygiene Services Manager

Project #12U-I6128

640 EAST WILMINGTON AVENUE SALT LAKE CITY, UT 84106 TELEPHONE: 801-466-2223 FAX: 801-466-9616 E-MAIL: IHI@IHI-ENV.COM

SALT LAKE CITY EMERYVILLE PHOENIX DENVER SEATTLE

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APPENDICES

EXECUTIVE SUMMARY

On May 23, 2012, Non-Responsive CSP, of IHI Environmental (IHI), conducted an IH Assistance Visit at the Tooele armory. The primary point of contact for information gathered during this survey was Non-Responsive (435) 882-2886, Non-Responsive

The objectives of this IH Assistance Visit were to perform the following activities:

- collect lead wipe samples;
- evaluate the condition of painted surfaces and collect paint chip samples for lead analysis where painted surfaces are peeling;
- inspect the interior rooms of the armory for water damage and the presence of fungal growth;
- review asbestos survey and assessment files and determine if documentation of asbestos awareness training is current;
- evaluate the condition of the Heating, Ventilation, and Air-Conditioning system, and collect indoor air quality data;
- review hazardous material storage and use procedures;
- review safety training and record keeping;
- perform a ventilation survey on the kitchen stove hood (if present);
- perform a noise survey on the kitchen appliances; and
- conduct a safety walk-through evaluation and note any existing safety hazards.

Significant findings for this IH Assistance Visit can be found in the Industrial Hygiene Southwest – Violation Inventory Log located in Appendix K of this report.

The report that follows this Executive Summary should be read in its entirety because it includes important information not included in this summary, such as task descriptions, work space locations, regulatory requirements, and additional recommendations.

1.0 INTRODUCTION

On May 23, 2012, Non-Responsive E, CSP, and John Murphy, CSP, of IHI Environmental (IHI), conducted an IH Assistance Visit at the Utah Army National Guard armory located at 16 South 1st Street, Tooele, Utah. The primary point of contact for information gathered during this survey was Non-Responsive 435) 882-2886, Non-Responsive

1.1 Objectives

Evaluate the occupational environment of the administrative areas in the armory to determine the presence of operational health and safety risks, and make recommendations for corrective actions or follow-up work to manage those risks.

1.2 Scope of Work

To achieve the above objectives at this facility, the survey included the following work:

- collect lead wipe samples;
- evaluate the condition of painted surfaces and collect paint chip samples for lead analysis where painted surfaces are peeling;
- inspect the interior rooms of the armory for water damage and the presence of fungal growth;
- review asbestos survey and assessment files and determine if documentation of asbestos awareness training is current;
- evaluate the condition of the Heating, Ventilation, and Air-Conditioning system and collect indoor air quality data;
- review hazardous material storage and use procedures;
- review safety training, and record keeping;
- perform a ventilation survey on the kitchen stove hood (if present);
- perform a noise survey on the kitchen appliances; and
- conduct a safety walk-through evaluation and note any existing safety hazards.

2.0 PROCESS DESCRIPTION

The Tooele armory has three full-time guard members. The armory has offices used for administrative purposes and also contains training facilities, a drill floor, storage rooms, break room, locker room, and an equipment storage bay. There are no civilian employees at this armory. Several civilian activities carried out in this armory include self-defense courses, use of the basketball court, and family support group functions.

Army National Guard members occasionally use the drill floor as a staging area to clean weapons.

3.0 METHODS AND APPLICABLE REGULATIONS AND STANDARDS

3.1 Lead Wipe Sampling

Lead residue (dust) wipe samples were collected on horizontal surfaces such as the drill floor, kitchen, administrative areas, and indoor firing ranges (where present) to determine housekeeping standards. Lead Wipe™ brand wipes were used with a 100-square-centimeter template. The wipes used conform to American Standards for Testing Materials E1792, Standard Specification for Wipe Sampling Materials for Lead in Surface Dust. The collected wipe samples were placed in clean and labeled plastic containers. Samples were submitted to ALS Laboratories for analysis, using NIOSH Method 7300. See Appendix I for sample locations and Appendix J for laboratory results.

The Mather, California, office of Industrial Hygiene Southwest has developed a Standard Operating Procedure (SOP) for lead, which is a blend of OSHA, HUD, and Army regulations. Essentially, this SOP sets forth a criterion of 40 micrograms per square foot ($\mu g/ft^2$) for converted indoor firing ranges, break rooms, floor surfaces, or any area that might be used for non-military functions. Additionally, a 200-$\mu g/ft^2$ criterion has been established for tool rooms, maintenance bays, furnace rooms, boiler rooms, storage closets, and other areas where general public access is not expected.

3.2 Painted Surface Evaluation

The interior of the armory was visually inspected for peeling paint on the walls and ceilings. Upon encountering peeling paint, a paint chip sample was collected by removing all paint inside a two-inch by two-inch template and placing it in a sampling vial. All samples were submitted to American West Analytical Laboratories (AWAL) in Salt Lake City, Utah. AWAL analyzed the samples for lead using inductively coupled plasma (ICP) and atomic emission spectroscopy (EPA SW-846, Method 6010C). See Appendix I for sample locations and Appendix J for laboratory results.

The U.S. Department of Housing and Urban Development (HUD) and EPA define "lead-based paint" as any coating that has a lead concentration of 1.0 milligram per square

centimeter (mg/cm^2) or greater, or if the lead concentration is greater than 0.5 percent (%) by weight. The Consumer Product Safety Commission (CPSC) currently considers paint to be lead-containing if the concentration of lead exceeds 600 parts per million (ppm) or 0.06% by weight. Both the CPSC and HUD definitions of lead paint are aimed at protecting the general population from exposure to lead in the residential setting.

By contrast, the mission of the Occupational Safety and Health Administration (OSHA) with respect to lead-containing paint is to protect workers during construction activities that could result in hazardous exposures. OSHA states that construction work (including renovation, maintenance, and demolition) performed on structures coated with paint that contains levels of lead lower than HUD and CPSC standards can still result in exposures that exceed the regulatory limits. For this reason, OSHA has not defined a lower threshold level of lead content for lead-containing paint, but states that paint with any measurable level of lead may pose a significant potential for overexposure.

Therefore, construction activities that create lead containing dust or fume must be performed in accordance with OSHA's Lead in Construction Standard, 29 CFR 1926.62. This standard requires, among other things, medical surveillance, lead training, initial exposure assessments, respiratory protection, and worker hygiene facilities.

3.3 Moisture Intrusion and Limited Visual Fungal Growth Evaluation

The interior of the armory was visually inspected for signs of moisture intrusion that could result in fungal growth. Any signs of moisture intrusion (e.g., discoloration, staining, blistering) were noted and documented on a drawing for a follow-up evaluation.

3.4 Asbestos Management

Armory personnel were asked if an asbestos survey and assessment had been conducted and whether there was a written Operations and Maintenance Program for the facility. IHI also reviewed any asbestos awareness training records.

3.5 Heating, Ventilation, and Air-Conditioning Systems and Indoor Air Quality

An evaluation of the heating, ventilation, and air-conditioning (HVAC) systems that serve the armory was accomplished. This evaluation consisted of a visual inspection of the system

to note any obvious problems, and a review of the facility maintenance plan, if one is available.

Carbon dioxide (CO_2), temperature, and relative humidity were measured throughout the armory using a TSI Model 8762 IAQ-Calc™ Monitor. The unit was calibrated before use with certified zero gas and 1,000-ppm CO_2 span gas. See Appendix E for IAQ data.

Carbon dioxide is a normal constituent of exhaled breath and is commonly measured as a screening tool to evaluate whether adequate volumes of fresh outdoor air are being introduced into indoor air. The outdoor level of CO_2 is usually 300 parts per million (ppm) to 400 ppm. Properly ventilated buildings should have CO_2 levels between 600 and 1,500 ppm, with a floor or building average around 1,000 ppm. If average CO_2 levels within a building are maintained at or less than 1,000 ppm, with appropriate temperature and humidity levels, complaints about indoor air quality should be minimized. If a building exceeds this guideline, it should not be interpreted as a hazardous or life-threatening situation. An elevated CO_2 level is only an indication that the amount of outside air being brought into a building may be inadequate or poorly distributed.

In building areas where there are potential sources of CO_2 other than exhaled breath, the guidelines above cannot be used. The Occupational Safety and Health Administration (OSHA) standard for CO_2 should be used in these instances. The OSHA standard is an eight-hour time-weighted average (TWA) of 5,000 ppm with a short-term 15-minute average limit of 30,000 ppm.

3.6 Hazard Communication and Hazardous Material Storage

A review of the armory's chemical inventory and Material Safety Data Sheet (MSDS) file was accomplished. Chemical storage areas, i.e., flammable storage cabinets/rooms, were also inspected.

3.7 Safety Training and Record Keeping

An inspection of safety training programs and documentation was performed to determine if the armory's site-specific training programs and annual documentation were current.

3.8 Kitchen Ventilation Survey

Duct velocity measurements are performed on facility kitchen exhaust hoods (when present) using a TSI VelociCalc, Model 8345.

The 2011 National Fire Protection Association Standard 96, Section 8.2.1.1 requires exhaust fan ducts used in commercial cooking equipment to have a duct velocity of not less than 500 feet per minute (fpm).

3.9 Kitchen Appliance Sound-Level Measurements

Sound-pressure-levels of the kitchen appliances (when present) are measured using a Sound Level Meter in the dBA and dBC ranges, with the meter set on slow response. DD Forms 2214 are provided in Appendix N.

3.10 General Safety Walk-Through

A limited fire life safety code walk-through evaluation of the armory was performed to

- document the presence of a fire alarm,
- determine if fire extinguishers are properly mounted and current on their monthly and annual inspections,
- determine if eyewash station inspections are current, and
- document any fire or safety hazards in the armory.

3.11 Equipment Used

The following equipment was used for this survey.

Type	Model Number	Serial Number	Calibration Date
TSI IAQ-Calc™ Meter	8762	56040313	12/21/2011

The calibration certificate for this meter is attached in Appendix H.

3.12 Quality Assurance

IHI employs, at a minimum, the following methods to help assure quality of field investigations and reports:

- Use of appropriately educated and experienced personnel;
- Documentation of pertinent field and sampling information

- Continuing education of technical personnel through attendance at training sessions and conferences, and literature review;
- Peer and supervisory review of sampling strategy, field methods, calculations, and reports;
- Strict adherence to method requirements, in particular to NIOSH and OSHA, standard methods, including strict chain-of-custody protocol;
- Use of accredited laboratories, or, in cases where specific accreditation is not available, choice of laboratories of good reputation, having strong QA/QC programs.
- Calibration of instruments, including field calibration via manufacturers' recommended procedures and routine (typically annual) off-site calibration of equipment via certified third parties.

4.0 FINDINGS AND RECOMMENDATIONS

4.1 Lead Wipe Sampling

Analytical results for lead wipe sampling indicate all locations were below the analytical criterion outlined in the IHSW SOP. See Appendix I for a data table and a drawing showing sample locations and Appendix J for the laboratory reports. Photographs were taken of each sampling point and are presented in Appendix C.

Recommendations

None

4.2 Painted Surface Evaluation

The only room in this armory where peeling paint was noted was the mechanical room between the restrooms. One paint chip sample was collected from the ceiling paint in this room.

The analytical result for the paint chip sample collected indicates that it contains 0.651% lead by weight, greater than the HUD standard of 0.5% for lead. Also, because there is measureable lead in the sample, OSHA's Lead in Construction Standard applies when renovation work that may affect this paint is conducted. See Appendix I for a data table and a drawing showing sample locations and Appendix J for the laboratory reports. Photographs were taken of each sampling point and are presented in Appendix C.

Recommendation

Construction personnel must follow the requirements of the OSHA Lead in Construction Standard, 29 CFR 1926.62, if they perform activities involving this painted surface that could create lead dust or fume.

4.3 Moisture Intrusion and Limited Visual Fungal Growth Evaluation

Water damaged ceiling tiles were noted in three rooms; however, no fungal growth was observed. See drawing in appendix E for specific locations of these ceiling tiles.

Recommendations

None

4.4 Asbestos Management

An asbestos survey could not be located during this visit; however, SFC Brown believes that a survey was performed and that there is a written report located somewhere in the armory. Personnel have not been provided with asbestos awareness training.

Recommendations

1. Locate the asbestos survey for this building or contract with a licensed firm to perform an asbestos survey and assessment.

2. Once asbestos-containing materials have been identified and assessed, provide awareness training to assigned personnel for the specific material types and locations of asbestos in this armory.

4.5 Heating, Ventilation, and Air-Conditioning Systems and Indoor Air Quality

The east armory offices and storage areas are heated by radiant heat from a steam boiler. A new boiler was being installed at the time of this visit. Ethylene glycol is transferred through pipes located throughout the basement of the facility. The west portions of the armory are heated and cooled by a gas-fired forced-air heating HVAC unit with a cooling condenser located outside the armory. Ceiling-mounted gas-fired heating units provide supplemental heat. Ethylene glycol is piped from the boiler to an overhead fan-forced

heating system that serves the drill hall floor. Air conditioning is provided on the east side of the armory's offices and training room by electric wall-mounted air conditioners.

The average outdoor CO_2 concentration at the time of the survey was 335 ppm. The highest CO_2 concentration measured inside the building was 460 ppm, which should not result in indoor air quality complaints.

Building air temperatures ranged from about 72.3 to 73.2^{0}F and relative humidity was between 22.1 and 23.1 percent during the testing period. Air temperatures were within the recommended comfort range of 68-75^0 F and the relative humidity was lower than the recommended comfort range of between 30 and 60 percent. Low relative humidity is common in Utah during the majority of the year. Humidity levels above 60 percent can result in proliferation of bacteria and fungi, while levels below 30 percent can cause dry eyes, skin, and mucous membranes.

The State of Utah Division of Facilities, Construction, and Management personnel maintain all HVAC units in the armory.

Recommendations

None

4.6 Hazard Communication and Hazardous Material Storage

4.6.1 Hazardous Materials Inventory and Material Safety Data Sheets (MSDS)

Inventories of all hazardous materials used by the armory along with their associated MSDSs are maintained in a master binder located on the drill hall floor. The master chemical inventory and MSDS binder is arranged by flammable storage cabinet number and product name. An inspection of the chemical inventory revealed that current products in use by the armory are all accounted for and their associated MSDSs are available.

Copies of chemical inventories are provided in Appendix D.

Recommendations

None

4.6.2 Flammable Storage Cabinets

There are four flammable storage cabinets located in the following locations:

- Three in the maintenance bays/storage room;
- One in the supply room.

These flammable lockers were inspected, and no storage incompatibilities or leaking materials were found. The lockers were in good condition and all doors were noted to close properly.

Recommendations

None

4.7 Safety Training and Record Keeping

The following safety documentation is maintained in the Tooele armory:

Standard Army Safety and Occupation Health Inspections - UTARNG 385-10

- Radiation Protection Program
- Industrial Hygiene
- Hazard Communications
- Hearing Conservation Program
- Flammable and Combustible Liquids
- General Environmental Controls
- Medical and 1st Aid
- Fire Protection
- Compressed Gas
- Materials Handling and Storage
- Powered Industrial Trucks
- Hand and Power Tools
- Electrical Safety
- Battery Charging Operations
- Health Surveillance
- Respiratory Protection
- Vision Conservation
- Ergonomics
- Reproductive Health
- Indoor Firing Ranges

The following safety training documentation is maintained in the Tooele armory:

- Hazard Communication
- Hearing Conservation
- Composite Risk Management
- Split Rim Training
- Crane Operations

The last Safety Council Meeting was held on September 19, 2011. In addition, the UTARNG has numerous required computer based training courses with reference to safety training.

Note: IHI did not conduct a thorough evaluation of the contents or quality of any of the documents identified during this visit.

Recommendations

None

4.8 Kitchen Ventilation Survey

This armory does not currently have a kitchen; however, there are plans to build a kitchen in the near future.

Recommendations

None

4.9 Kitchen Appliance Sound-Level Measurements

There are currently no kitchen appliances in this armory; therefore, sound-level measurements were not measured.

Recommendations

None

4.10 General Safety Walk-Through

1. Housekeeping throughout the facility was fair. This armory is in transition and is installing storage cages in the west side of the facility. As such, there are numerous items on the floor of the maintenance garage and in some offices awaiting disposition.
2. There is a fire alarm in this facility maintained by Peak Alarm.
3. Fire extinguishers are strategically located throughout the armory. All extinguishers were replaced this month with an annual inspection date of May 2012.
4. There are no eyewash stations in this facility.
5. Fire evacuation routes are posted in most rooms of this armory.
6. Electrical panel boxes were inspected and were found to contain no exposed wiring or openings in the panel.
7. A pressurized cylinder of acetylene was noted in the maintenance garage and was not secured against movement.

Recommendation

Secure the acetylene cylinder so it cannot fall, or, because there is no welding or torch cutting performed in this armory, re-locate this cylinder to the FMS #7.

6.0 PROJECT LIMITATIONS

This Project was performed using, as a minimum, practices consistent with standards acceptable within the industry at this time, and a level of diligence typically exercised by industrial hygiene and environmental consultants performing similar services.

The procedures used in this investigation attempt to establish a balance between the competing goals of limiting investigative and reporting costs and time, and reducing the uncertainty about unknown conditions. Therefore, because the findings of this report were derived from the scope, costs, time, and other limitations, the conclusions should not be construed as a guarantee that all environmental or occupational hazards have been identified and fully evaluated. Where sample collection and testing have been performed, IHI's professional opinions are based in part on the interpretation of data from discrete sampling locations that may not represent conditions at non-sampled locations. IHI assumes no responsibility for omissions or errors resulting from inaccurate information or data provided by sources outside of IHI, or from omissions or errors in public records.

Furthermore, it is emphasized that the final decision on how much risk to accept always remains with the client since IHI is not in a position to fully understand all of the client's needs. Clients with a greater aversion to risk may want to take additional actions while others, with less aversion to risk, may want to take no further action.

7.0 Project Approval

This IH Assistance Visit was reviewed and approved by:

June 15, 2012
Date

Industrial Hygiene Services Manager

Technical Assistance: For technical assistance regarding information found in this report or the performed survey, please contac[redacted] at 801-466-2223, or [redacted] of the Southwest Regional Industrial Hygiene Office at 916-804-1707.

Contact the State Safety and Occupational Health Office and/or the Regional Industrial Hygienist should any of the operations change, or should the personnel become incapable of following the previous recommendations and subsequent recommendations are needed.

BEST AVAILABLE COPY

Appendix A

References

American Conference of Governmental Industrial Hygienists (ACGIH), Industrial Ventilation, A Manual of Recommended Practice

American Conference of Governmental Industrial Hygienists (ACGIH), Threshold Limit Values for Chemical Substances and Physical Agents and Biological Indices

American National Standards Institute (ANSI)/Illuminating Engineering Society (IES), Industrial Lighting.

American National Standards Institute, Z358. 1-1998. Emergency Eyewash and Shower Equipment

AR 40-5, Preventative Medicine

AR 40-10, Appendix B – Health Hazard Assessment Program in Support of Army Material Acquisition Decision Process

AR 385-10, The Army Safety Program

Corps of Engineers Guide Specification, CEGS-1585 1, Overhead vehicle tailpipe (and welding fume) Exhaust Systems

DA PAM 40-ERG, Ergonomics

DA PAM 40-501, Hearing Conservation.

National Safety Council, Fundamentals of Industrial Hygiene

NOR 385-10, Army National Guard Safety and Occupational Health Program

TB MED 503, The Army Industrial Hygiene Program

TG022, US Army Environmental Hygiene Agency (USAEHA), Industrial Hygiene Evaluation Guide

TG 141, US Army for Health Promotion and Preventive Medicine (USACHPPM) Industrial Hygiene Air Sampling Guide, Nov. 1997

Title 29, Code of Federal Regulations (CFR), 2011, revision Part 1910, Occupational Safety and Health Standards

Appendix B

Assessment Criteria

A. Ventilation Standards

Ventilation rates were compared to recommendations made in 29 CFR 1910, ACGIH Industrial Ventilation Manual, and Corps of Engineers specifications. See Appendix A for reference information.

B. Illumination Standards

Illumination measurements were compared with recommendations made by the Industrial Engineering Society (IES)/American National Standards Institute (ANSI) RP7-1991 Standard and MIL-STD¬1472E.

C. Noise

Noise measurements were taken and compared with OSHA Standard 29 CFR 1910.95 and Department of the Army Pamphlet 40-501.

D. Air Sampling

Personal air sampling was conducted in compliance with applicable NIOSH Analytical Methods. Sampling results were compared to relevant Occupational Safety and Health Administration (OSHA) Permissible Exposure Limits (PEL), American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Values (TLV), or National Institute of Occupational Safety and Health (NIOSH) Recommended Exposure Limits (REL).

Occupational Safety and Health Administration (OSHA)

OSHA has established Permissible Exposure Limits (PELs) for workplace toxic and hazardous substances listed in 29 CFR 1910.1000 Table Z-1. Most OSHA PELs are based on 8-hour time weighted averages (TWAs); when sampling periods differ from 8 hours, the result must first be converted to an 8-hour TWA before comparing it to the OSHA PEL. Some OSHA PELs are based on Short Term Exposures Limits (STEL) of 15 minutes of worst case exposure or Ceiling Limits of worst case peak exposures (sampled as a 15 minute exposure if direct-reading methods are not available).

OSHA regulations are legally enforceable. Employers are required to maintain employee exposures below PELs. The best practice is to eliminate hazards and use safer substitutes. Alternatively, engineering and/or administrative (work practice) controls may reduce exposures to acceptable levels. Personal protective equipment should be the solution of last resort, implemented after all other efforts to eliminate the hazard have been exhausted or deemed infeasible. OSHA 29 CFR 1910.134 covers the use of respiratory protection in the work place.

American Conference of Governmental Industrial Hygienists (ACGIH)

Unlike the OSHA PELs, the ACGIH TLVs are not consensus standards; however, TLVs represent a scientific opinion based on a review of existing peer-reviewed scientific literature by committees of experts in public health and related sciences.

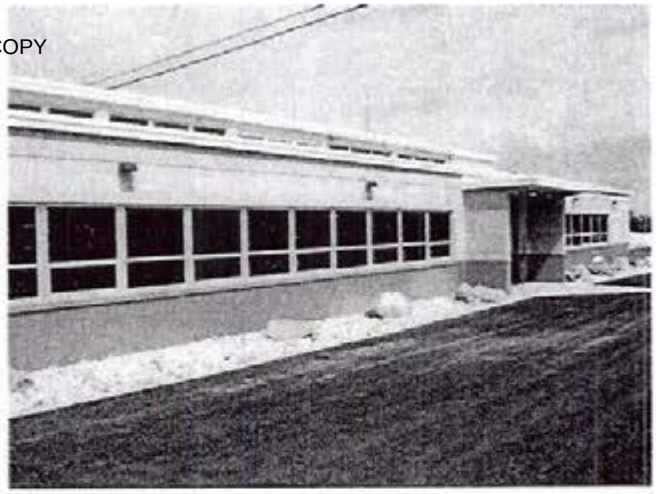
Occupational Exposure Limit

In accordance with the Department of the Army (DA) Pamphlet 40-503, Industrial Hygiene Program (DA PAM 40-503), "The DA mandates the use of ACGIH TLVs when they are more stringent than OSHA regulations or when there is no PEL." The DA defines the resulting exposure limit as the Occupational Exposure Limit (OEL).

Appendix C

Photo Log

Photograph 1
View of north side of Tooele Armory



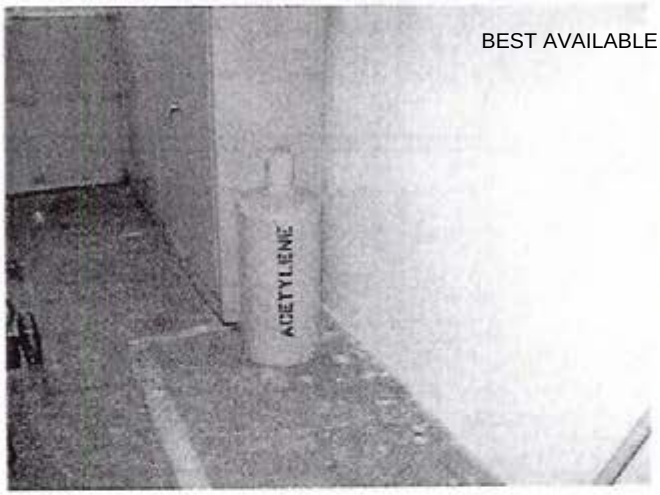
Photograph 2
View of east side of Tooele Armory

Photograph 3
View of south side of Tooele Armory

Photograph 4
View of Tooele Armory gymnasium/drill floor

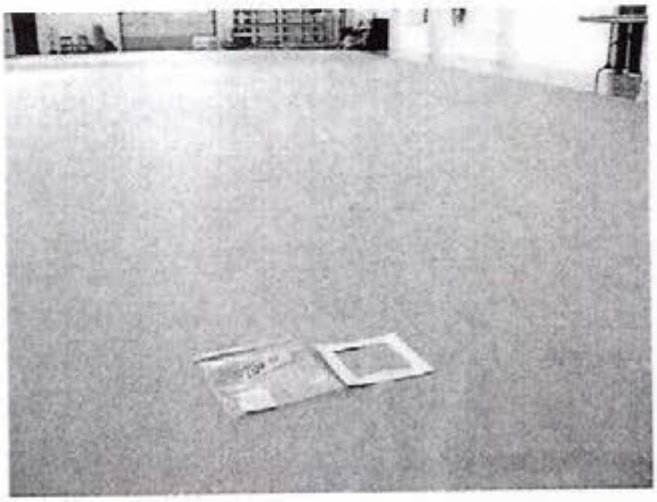
Photograph 5
View of flammable storage lockers

Photograph 6
View of contents of flammable storage lockers

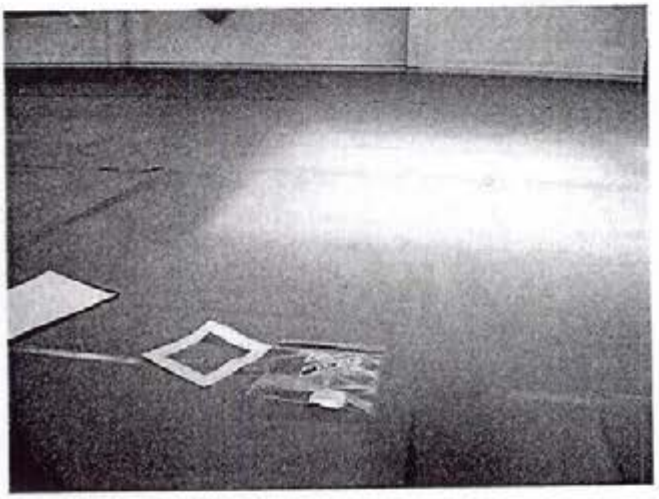


Photograph 7
View of unsecured acetylene tank

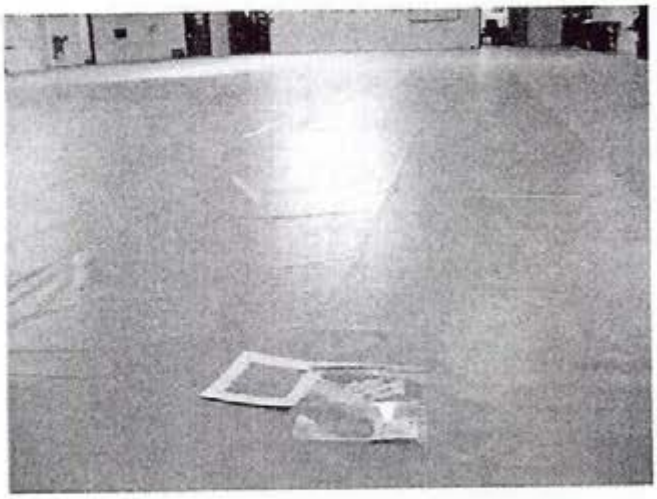
Photograph 8
Lead wipe sample number 6128-01 location



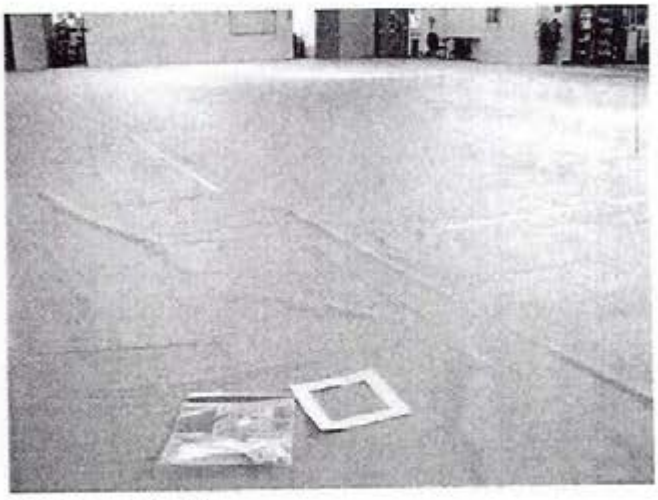
Photograph 9
Lead wipe sample number 6128-02 location



Photograph 10
Lead wipe sample number 6128-03 location



Photograph 11
Lead wipe sample number 6128-04 location

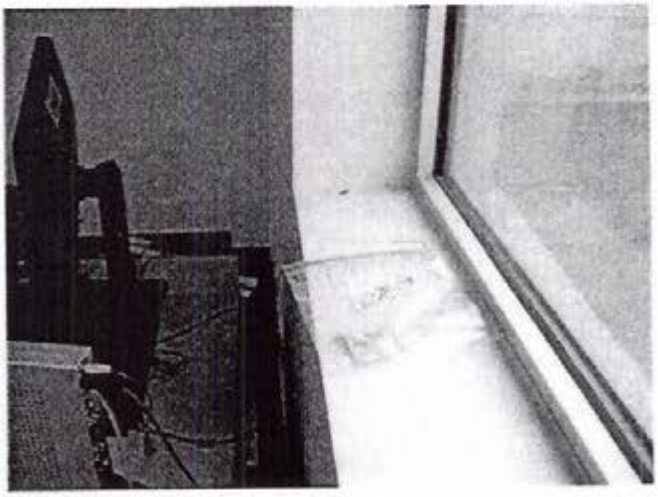


Photograph 12
Lead wipe sample number 6128-05 location

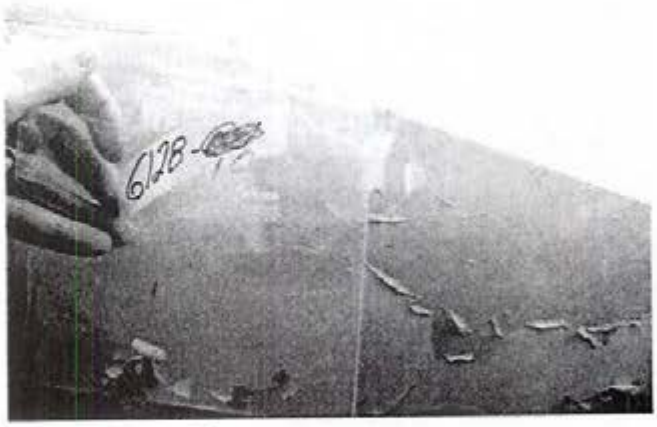
Photograph 13
Lead wipe sample number 6128-06 location

Photograph 14
Lead wipe sample number 6128-07 location

Photograph 15
Lead wipe sample number 6128-08 location



Photograph 16
Lead wipe sample number 6128-09 location



Photograph 17
Paint chip sample from peeling paint on ceiling of maintenance room between rest rooms

Appendix D

Chemical Inventory

BEST AVAILABLE COPY

Appendix E

Floor Plan/IAQ - Temp, RH, & CO_2 Monitoring

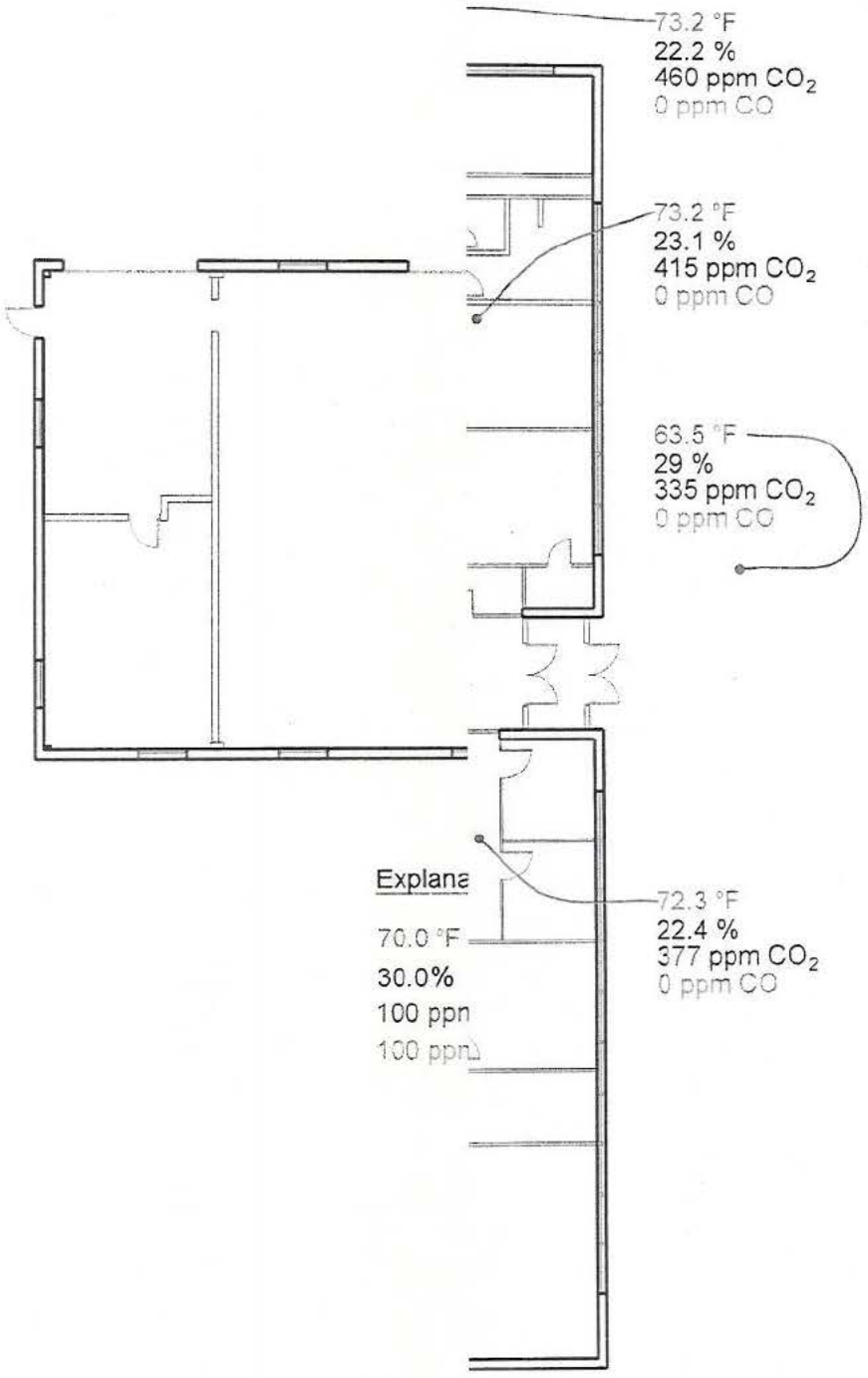
TABLE OF CONTENTS

TABLE OF CONTENTS

2. SUPPLY ROOM MSDS

2.1. LOCKER 1

IHI ENVIRONMENTAL
640 E. Wilmington Ave.
Salt Lake City, UT 84106
801.466.2223
ihi@ihi-env.com



Utah Army National Guard
Tooele Armory
16 South 1st Street
Tooele, Utah

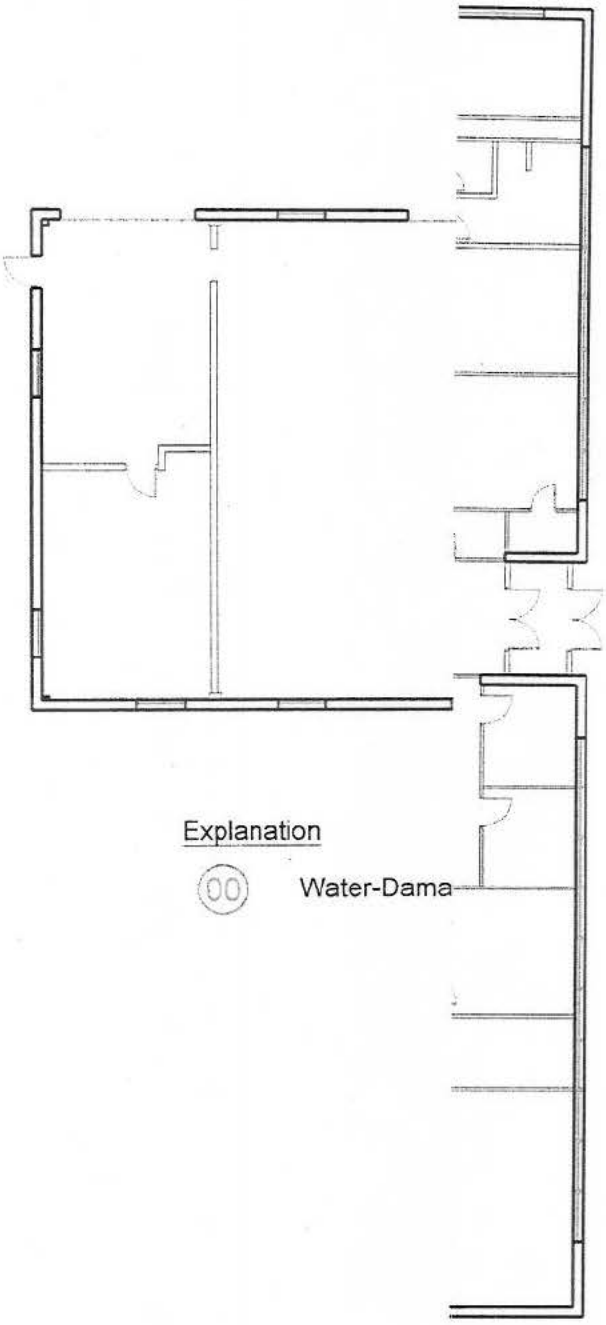
Indoor Air Quality Map - Level 1

N

0 10' 20'

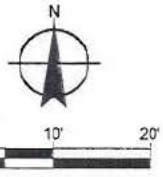
PROJECT No:	12U-I6128
SHEET:	1 of 3
DRAWN BY:	Non-Responsive
DATE:	6-18-2012
REVISED BY:	
DATE:	
REVIEWED BY:	
DATE:	

IHI ENVIRONMENTAL
640 E. Wilmington Ave.
Salt Lake City, UT 84106
801.466.2223
ihi@ihi-env.com



Location of Water-Damaged Ceiling - Level 1

Utah Army National Guard
Tooele Armory
16 South 1st Street
Tooele, Utah



PROJECT No:	12U-I6128
SHEET:	3 of 3
DRAWN BY:	Non-Responsive
DATE:	6-18-2012
REVISED BY:	
DATE:	
REVIEWED BY:	
DATE:	

Appendix F

Ventilation Data

Appendix G

Field Notes

Army National Guard Armory Survey
(To Be Included In Report)

Five **lead wipe** samples collected from drill floor (take samples from dusty horizontal floor surfaces)	yes
Are any **weapons cleaned** in the facility, if yes where are they cleaned?	YES- ON THE DRILL FLOOR
Additional lead **wipe** samples taken from 25% of the rest of the building - -(**on floor areas only**)	yes
Is there **a converted indoor firing range**? If so collect additional wipe samples IAW the SOW.	No
Is there any peeling **paint**? Take bulk sample if able.	~~SEVERAL ROOMS HAVE WATER~~ yes – ONE BULK collected 6128-10
Are there any signs of water damage or **mold**?	SEVERAL ROOMS HAVE WATER DAMAGED CEILING TILES; HOWEVER NO FUNGAL GROWTH NOTED. ROOF RECENTLY REPLACED.
Any suspected **ACM**? Where and what condition is it in. Bulk sample if able.	N/A
Quality of housekeeping	FAIR - Armory is in TRANSITION
HVAC maintenance plan in place?	yes
Overall condition of HVAC system	Good - New Boiler currently being installed
Obtained **CO2, Temp, RH** monitoring	yes
HAZMAT inventory on hand (make copies for the report), **MSDS** available for all materials.	yes
HAZMAT storage, Condition of lockers, if outside storage building is used is it ventilated and does it meet OSHA standards.	yes

Evaluate Kitchen Stove Hood Flow if Present IAW NFPA Standard 96.	NA - No kitchen currently
Collect Source Noise Measurements of Kitchen Appliances and Document Using DD 2214	NA
Conduct a safety walkthrough of entire facility document any safety deficiencies found.	Yes
Take photos of outside of **building**, all **sample points** and any **pertinent hazards** or concerns.	Yes
Name of Armory, **POC, phone #, address** and **organizations** in Armory **(Add Checklist to Report)**	Tooele Armory **(Add Checklist to Report)**

Tooele Armory
16 So 1ST STreet

FACILITY INFORMATION

(Information listed in First Section)
(1st Few Paragraphs/Pages of Report)

– Forward Support CO.

1. Date Prepared: 20120522

2. Names (and Company Name) of Personnel Conducting Industrial Hygiene Site Assistance Visit:

3. Facility Name and Brief Summary of Primary Activities Conducted at Facility: Tooele Armory, Admin functions, Unit formations, Training

4. Facility Address: 16 South 1st Street Tooele ut 84074

5. Primary Unit Assigned to Facility (Ensure to capture and provide Unit Identification Code (UIC)): 214th FSC Non-Responsive

6. Co-Tenant Units Assigned or Working Within Facility (LIST ALL): N/A

7. Square Ft. Area of Facility:

8. Work Schedule: Monday – Thursday 0600 – 1630

9. Number of work bays: 3 = storage

10. Equipment Density and Type:

   a. List Equipment Nomenclature Serviced or Maintained at Facility: N/A

   b. List Total Number for Each Nomenclature Serviced or Maintained at Facility:

11. Total Number of Personnel: 3 Full time 161 part time

12. No. of Admin. Personnel (Include Status – AGR, Fed. Tech., IDT, State or Contract Employee): 3 AGR

13. No. of Maintenance Personnel (Include Status – AGR, Fed. Tech., IDT, State or Contract Employee): None

14. Total Number of Personnel Enrolled in the Hearing Conservation Program: Annual Briefs PHA - Periodic Health ~~Test~~ Assessments

15. Total Number of Personnel Enrolled in the Respiratory Protection Program: – No Respirators other than Gas Masks are used in this Armory

16. Total Number of Personnel Enrolled in the Medical Surveillance Program: All Soldiers receive an annual PHA – Periodic Health Assessment

Appendix H

Calibration Certificates

TSI CERTIFICATE OF CALIBRATION AND TESTING

TSI Model 8762 TSI Serial No. 56040313

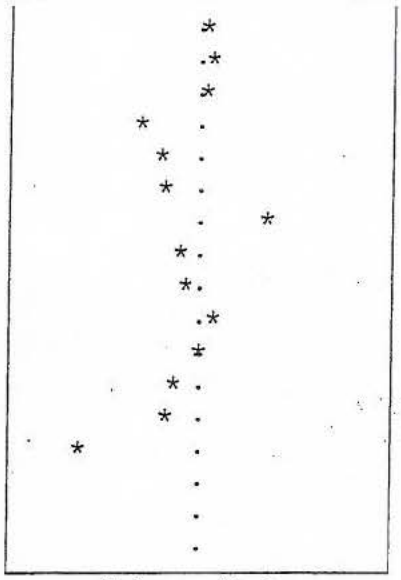
Description IAQ Meter with CO2 and CO

Calibration Standard Multi-Gas Calibration Bench #127

CALIBRATION VERIFICATION RESULTS

Calibration Standard	Instrument Output	Difference
5041 PPM	5046 PPM	0.1 %
3000 PPM	3006 PPM	0.2 %
1000 PPM	1001 PPM	1 PPM
500 PPM	485 PPM	-16 PPM
0 PPM	-10 PPM	-10 PPM
140.0°F	139.8°F	-0.2°F
41.0°F	41.4°F	0.4°F
15.0 %rh	14.7 %rh	-0.3 %rh
30.0 %rh	29.8 %rh	-0.2 %rh
50.0 %rh	50.2 %rh	0.2 %rh
70.0 %rh	70.0 %rh	0.0 %rh
90.0 %rh	89.6 %rh	-0.4 %rh
0.0 PPM	-0.5 PPM	-0.5 PPM
100.0 PPM	98.1 PPM	-1.9 %

Error Compared to Tolerance



Tolerance Limits:

CO2: 50PPM or 3% of reading
rh: ± 3%rh
Temp: ± 1°F
CO: 3PPM or 3% of reading

TSI Incorporated does hereby certify that the above described instrument conforms to the original manufacturers specifications (not applicable to As Found data) and has been calibrated using standards whose accuracies are traceable to the National Institute of Standards and Technology within the limitations of NISTs calibration services or have been derived from accepted values of natural physical constants or have been derived by the ratio type of self calibration techniques. The calibration ratio for this instrument is at least 6.7:1 for barometric pressure and 3:1 for differential pressure. TSIs calibration system meets ISO-9001:2000 and complies with ISO 10012:2003, Quality Assurance Requirements for Measuring Equipment. This report may not be reproduced, except in full, unless permission for the publication of an approved abstract is obtained in writing from the calibration organization issuing this report.

Applicable Test Report	Report Number	Date Last Verified
DC Voltage	E002415	06-21-11
Barometric Pressure	E001992	04-08-11
Pure Nitrogen	3321	11-04-11
CO2 1000 PPM in N2	EB0013815	01-21-10
CO2 5000 PPM in N2	EB0030820	08-19-11
Temperature 0 C	E002412	03-21-11
Temperature 60 C	E001026	03-21-11
Humidity	E002008	09-12-11
CO 200 PPM in N2	CC280735	09-27-11

Non-Responsive

[X] Final Function Check

Dec 21, 2011
Calibration Date

TSI Incorporated, 500 Cardigan Road, Shoreview, MN 55126 USA
Tel: 800-874-2811 651-490-2874 FAX: 651-490-2121 www.tsi.com

TSI P/N 2300157

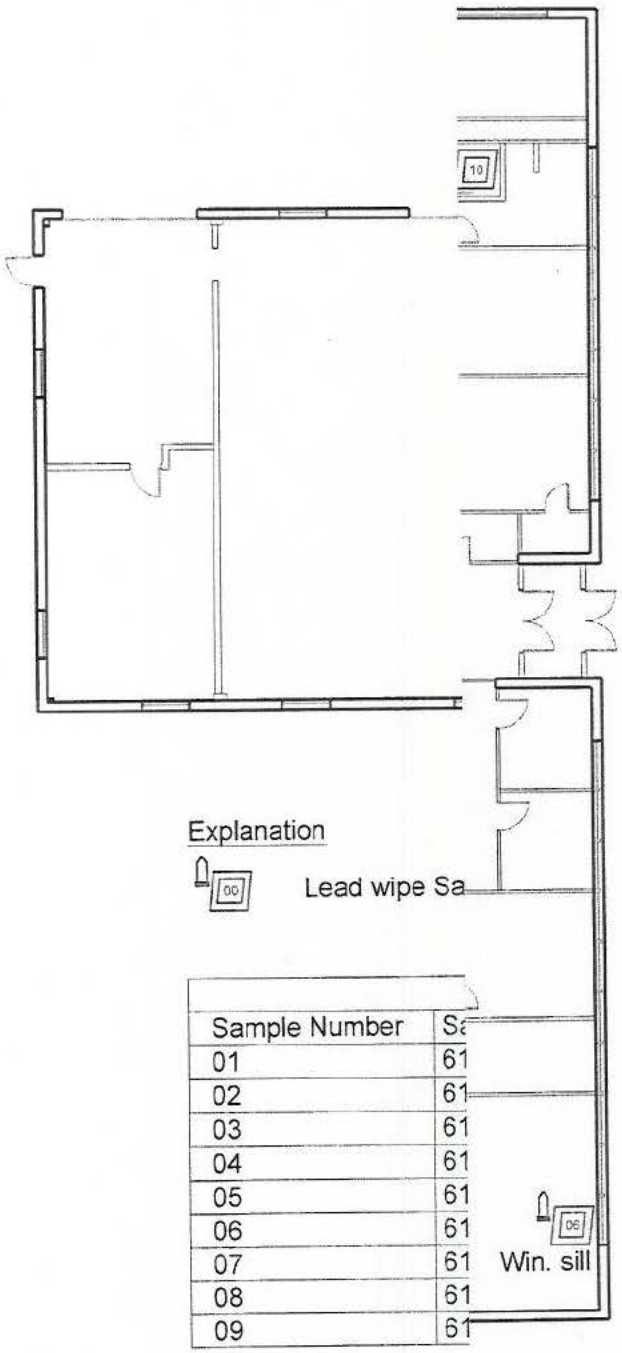
Appendix I

Lead Wipe and Lead Paint Chip Table and Drawing

IHI
ENVIRONMENTAL
640 E. Wilmington Ave.
Salt Lake City, UT 84106
801.466.2223
ihi@ihi-env.com

Lead Wipe Sample Location Map - Level 1

Utah Army National Guard
Tooele Armory
16 South 1st Street
Tooele, Utah



Sample Number	Sa
01	61
02	61
03	61
04	61
05	61
06	61
07	61
08	61
09	61

Sample Number	Sa
10	61

NOTE: All Wipe Sample

N

0 10' 20'

PROJECT No:	12U-I6128
SHEET:	2 of 3
DRAWN BY:	Non-Responsive
DATE:	6-18-2012
REVISED BY:	
DATE:	
REVIEWED BY:	

Tooele Armory - Lead Wipe and Paint Chip Sample Results

Lead Wipe Sample Results

Sample Number	Collection Date	Location	Result $\mu g/ft^2$
6128-01	5/23/2012	Drill floor N.E. area	<23
6128-02	5/23/2012	Drill floor N.W. area	<23
6128-03	5/23/2012	Drill floor S.E. area	<23
6128-04	5/23/2012	Drill floor S.W. area	<23
6128-05	5/23/2012	Drill floor Center area	<23
6128-06	5/23/2012	Fitness room, on window sill, S.E. area	<23
6128-07	5/23/2012	Supply office, top of file cabinet, N.E. area	25
6128-08	5/23/2012	Break room, on top of food preparation surface	<23
6128-09	5/23/2012	Training room, on top of window sill, S.E. area	<23

Paint Chip Sample Result

Sample Number	Collection Date	Location	Lead Result mg/kg
6128-10	5/23/2012	Ceiling above hot water heater in Janitor's Closet	6,510

Appendix J

Laboratory Reports

Appendix H

Calibration Certificates

TSI CERTIFICATE OF CALIBRATION AND TESTING

TSI Model 8762 TSI Serial No. 56040313

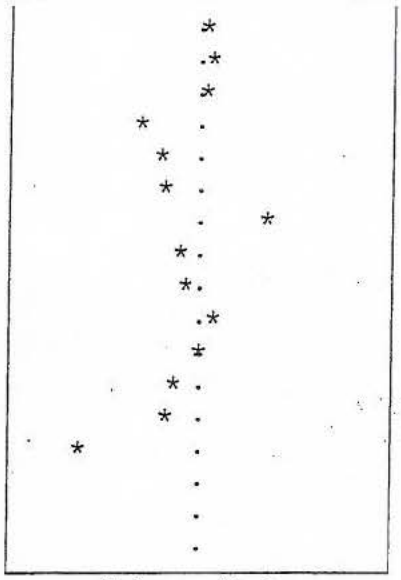
Description IAQ Meter with CO2 and CO

Calibration Standard Multi-Gas Calibration Bench #127

CALIBRATION VERIFICATION RESULTS

Calibration Standard	Instrument Output	Difference
5041 PPM	5046 PPM	0.1 %
3000 PPM	3006 PPM	0.2 %
1000 PPM	1001 PPM	1 PPM
500 PPM	485 PPM	-16 PPM
0 PPM	-10 PPM	-10 PPM
140.0°F	139.8°F	-0.2°F
41.0°F	41.4°F	0.4°F
15.0 %rh	14.7 %rh	-0.3 %rh
30.0 %rh	29.8 %rh	-0.2 %rh
50.0 %rh	50.2 %rh	0.2 %rh
70.0 %rh	70.0 %rh	0.0 %rh
90.0 %rh	89.6 %rh	-0.4 %rh
0.0 PPM	-0.5 PPM	-0.5 PPM
100.0 PPM	98.1 PPM	-1.9 %

Error Compared to Tolerance



Tolerance Limits:

CO2: 50PPM or 3% of reading
rh: ± 3%rh
Temp: ± 1°F
CO: 3PPM or 3% of reading

TSI Incorporated does hereby certify that the above described instrument conforms to the original manufacturers specifications (not applicable to As Found data) and has been calibrated using standards whose accuracies are traceable to the National Institute of Standards and Technology within the limitations of NISTs calibration services or have been derived from accepted values of natural physical constants or have been derived by the ratio type of self calibration techniques. The calibration ratio for this instrument is at least 6.7:1 for barometric pressure and 3:1 for differential pressure. TSIs calibration system meets ISO-9001:2000 and complies with ISO 10012:2003, Quality Assurance Requirements for Measuring Equipment. This report may not be reproduced, except in full, unless permission for the publication of an approved abstract is obtained in writing from the calibration organization issuing this report.

Applicable Test Report	Report Number	Date Last Verified
DC Voltage	E002415	06-21-11
Barometric Pressure	E001992	04-08-11
Pure Nitrogen	3321	11-04-11
CO2 1000 PPM in N2	EB0013815	01-21-10
CO2 5000 PPM in N2	EB0030820	08-19-11
Temperature 0 C	E002412	03-21-11
Temperature 60 C	E001026	03-21-11
Humidity	E002008	09-12-11
CO 200 PPM in N2	CC280735	09-27-11

Non-Responsive

[X] Final Function Check

Dec 21, 2011
Calibration Date

TSI Incorporated, 500 Cardigan Road, Shoreview, MN 55126 USA
Tel: 800-874-2811 651-490-2874 FAX: 651-490-2121 www.tsi.com

TSI P/N 2300157

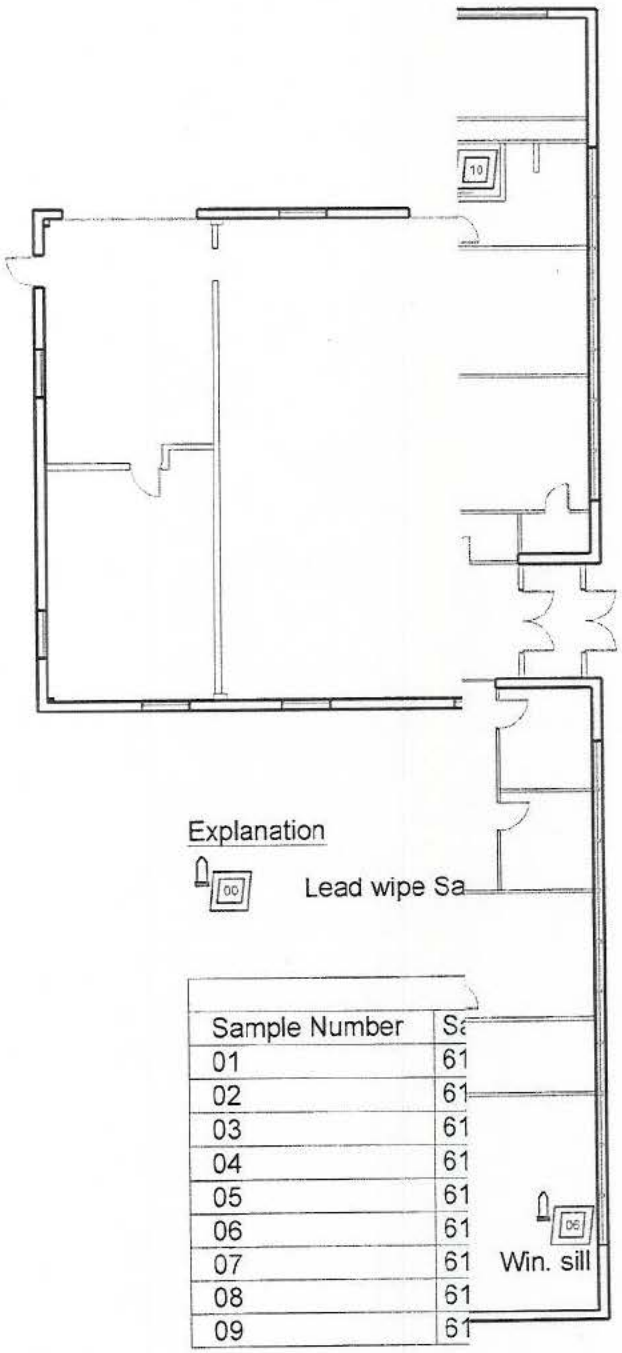
Appendix I

Lead Wipe and Lead Paint Chip Table and Drawing

IHI
ENVIRONMENTAL
640 E. Wilmington Ave.
Salt Lake City, UT 84106
801.466.2223
ihi@ihi-env.com

Lead Wipe Sample Location Map - Level 1

Utah Army National Guard
Tooele Armory
16 South 1st Street
Tooele, Utah



Sample Number	Sa
01	61
02	61
03	61
04	61
05	61
06	61
07	61
08	61
09	61

Sample Number	Sa
10	61

NOTE: All Wipe Sample

N

0 10' 20'

PROJECT No:	12U-I6128
SHEET:	2 of 3
DRAWN BY:	Non-Responsive
DATE:	6-18-2012
REVISED BY:	
DATE:	
REVIEWED BY:	

Tooele Armory - Lead Wipe and Paint Chip Sample Results

Lead Wipe Sample Results

Sample Number	Collection Date	Location	Result $\mu g/ft^2$
6128-01	5/23/2012	Drill floor N.E. area	<23
6128-02	5/23/2012	Drill floor N.W. area	<23
6128-03	5/23/2012	Drill floor S.E. area	<23
6128-04	5/23/2012	Drill floor S.W. area	<23
6128-05	5/23/2012	Drill floor Center area	<23
6128-06	5/23/2012	Fitness room, on window sill, S.E. area	<23
6128-07	5/23/2012	Supply office, top of file cabinet, N.E. area	25
6128-08	5/23/2012	Break room, on top of food preparation surface	<23
6128-09	5/23/2012	Training room, on top of window sill, S.E. area	<23

Paint Chip Sample Result

Sample Number	Collection Date	Location	Lead Result mg/kg
6128-10	5/23/2012	Ceiling above hot water heater in Janitor's Closet	6,510

Appendix J

Laboratory Reports

Industrial Hygiene Southwest

Violation Inventory Log

LOG OF SCHEDULE OF CORRECTIVE ACTION - COMPLIANCE WITH SAFETY AND HEALTH STANDARDS

Tooele Armory, Tooele, Utah

CONTROL NUMBER CLOSED ☐	HAZARD DESCRIPTION	SITE	RAC	CORRECTIVE ACTIONS (Abatement Plan)	SUSPENSE DATE	ACTION OIC/NCOIC	Estimated Cost(s)	DATE CORRECTED	REFERENCES
TA-0523212;4.2.1 ☐	The analytical result for the paint chip sample collected indicates that it contains 0.651% lead by weight, greater than the HUD standard of 0.5% lead and considered lead-containing by OSHA.	Maintenance closet between rest rooms	3	Construction personnel must follow the requirements of the OSHA Lead in Construction Standard, 29 CFR 1926.62, prior to performing construction activities that affect this painted surface.					29 CFR 1926.62
TA-052312;4.4.1 ☐	An asbestos survey could not be located during this IH Assistance Visit.	Tooele Armory	4	Either locate the asbestos survey for this building or contract with a licensed firm to perform an asbestos survey and assessment.					Recommended Practice
TA-052312;4.4.2 ☐	Personnel have not been provided with asbestos awareness training.	Tooele Armory	4	Once asbestos-containing materials have been identified and assessed, provide awareness training to assigned personnel for the specific material types and locations of asbestos in this armory.					Recommended Practice
TA-052312;4.10.1 ☐	A pressurized cylinder of acetylene was noted in the maintenance garage and was not secured against movement.	Tooele Armory	3	Secure the acetylene cylinder so it cannot fall, or, because there is no welding or torch cutting performed in this armory, re-locate this cylinder to the FMS #7.					29 CFR 1910.253(b)(2)(ii)

Appendix H

Calibration Certificates

TSI CERTIFICATE OF CALIBRATION AND TESTING

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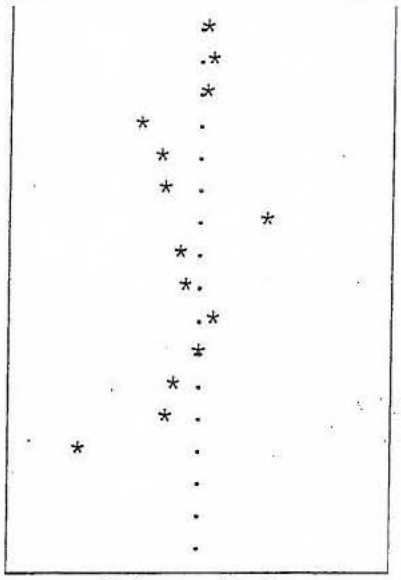

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Non-Responsive

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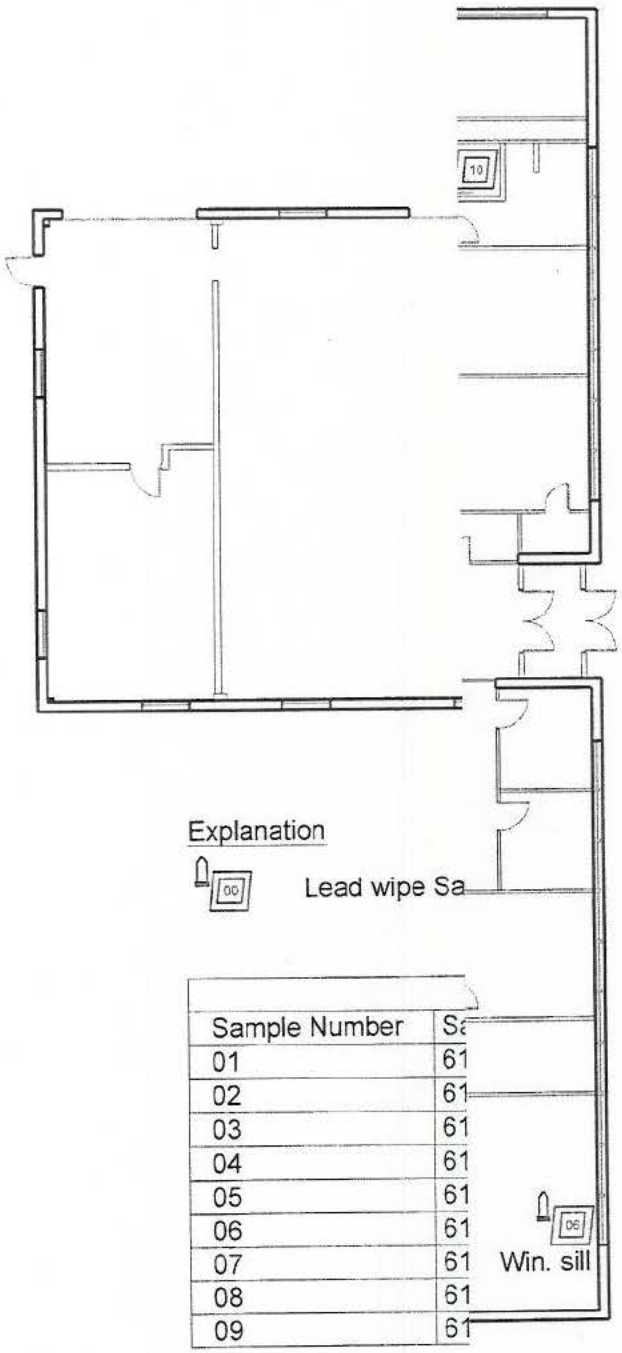

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PROJECT No:	12U-I6128
SHEET:	2 of 3
DRAWN BY:	Non-Responsive
DATE:	6-18-2012
REVISED BY:	
DATE:	
REVIEWED BY:	

Tooele Armory - Lead Wipe and Paint Chip Sample Results

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Paint Chip Sample Result

Sample Number	Collection Date	Location	Lead Result mg/kg
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Appendix J

Laboratory Reports

ARMY NATIONAL GUARD
INDUSTRIAL HYGIENE – SOUTHWEST
Guam • Hawaii • California • Oregon • Washington • Nevada • Arizona • Idaho • Utah • Wyoming • Montana • New Mexico • Nebraska

Industrial Hygiene Site Assistance Visit

Vernal Armory
220 South 500 East
Vernal, UT 84078

10510 Superfortress Avenue, Suite C, Mather, CA 95655 (916) 854-1491

DEPARTMENT OF THE ARMY AND AIRFORCE
NATIONAL GUARD BUREAU
INDUSTRIAL HYGIENE SOUTHWEST
10510 Superfortress Ave, Ste. C
Mather, CA 95655

ARNG-CSG-IHSW

6 February 2013

MEMORANDUM THRU Utah Army National Guard, ATTN: Non-Responsive HN), 12953 S. Minuteman Drive, Draper, UT 1776

FOR Commander, Vernal Armory 220 South 500 East, Vernal, UT 84078

SUBJECT: Executive Summary for Industrial Hygiene Site Assistance Visit (IHSAV), for the Vernal Armory, 220 South 500 East, Vernal, Utah conducted on 5 September 2013.

1. References. See survey report.

2. General.

a. At the request of the NGB Industrial Hygiene, Southwest (IHSW) Region, an Industrial Hygiene Site Assistance Visit and cursory review of safety related items and programs was conducted at the Vernal Armory 220 South 500 East, Vernal, UT on 05 SEP 2012.

b. The findings and recommendations in this Executive Summary are controlling and supersede all recommendations in the contractor report (reference Attachment II). However, IHSW concurs with the observations and findings within the attached contractor report.

c. Risk Assessment Codes (RAC) provided in this report have been derived from two sources: Deriving Risk Assessment Codes (RAC's) for Health Hazards (Ref: DOD Instruction 6055.1) and AR 385-10, The Army Safety Program.

d. Use of trademark names in the attached report, or this Executive Summary, does not imply Army National Guard endorsement of any product.

3. Findings. See survey report.

4. Commendable.

a. The facility was generally clean and orderly and personnel were helpful during this SAV.

5. Observations / Recommendations.

NOTE: This section provides conclusions and recommendations for the findings and observations made within the attached contractors report. The paragraphs are numbered to correspond to the sections where they were first noted. (i.e., paragraph 2.1a represents the 2.1a located within the contractors report.

a. Ensure all fire extinguishers are provided a monthly inspection and document these inspections on the tag (para. 4.2) **(RAC 4)**

b. Assure construction personnel and allied trades personnel are given awareness training on lead paint and asbestos materials associated with the buildings they are working in. (para. 4.4) **(RAC 4)**

c. Find asbestos survey or have one accomplished and provide assigned personnel with asbestos awareness training. (para. 4.4) **(RAC 3)**

d. Clean and decontaminate the lead dust in former maintenance bay by utilizing Armory Clean-Up SOP. Improve housekeeping practices so migration of heavy metals will be prevented.(para. 4.1) **(RAC 3)**

e. Acquire MSDS's for all chemical products and make sure chemical inventories are accurate. (para. 4.6.1) **(RAC 4)**

6. Violation Correction Log.

a. IHSW has provided a Violation Correction Log derived from the observations from this visit. IHSW recommends the following:

1. Commander(s) assign an Action OIC/NCOIC, Suspense Date for completion, and Estimated Cost(s) to ensure item completion and corrective status is briefed during quarterly (or monthly) Safety Meetings/Councils until resolved.

2. Corrective measures should be implemented and accomplished at the lowest levels possible. Hazards and Corrective Measures that cannot be corrected at the facility level, and require assistance from higher headquarters or from the state level, should be elevated to the Quarterly State/BN Safety Council Meeting for resolution.

3. Recommend a representative from the facility attend all quarterly/monthly meetings to ensure the appropriate emphasis and corrective actions are followed for hazard resolution and abatement of the observations made during this visit.

4. Retain entries of the items corrected, or closed, for future reference. This may be accomplished by posting completed items within the Corrected Hazard Sheet portion of the Excel Violation Correction Log Workbook we've provided.

5. The preferred method to document and track identified hazards for resolution is for their entry into the Reserve Component Automation System – Safety and Occupational Health **(RCAS-SOH)** Program.

b. IHSW recommends further program refinement through written documentation for standardized guidance to the personnel performing the processes. Conducting Hazard Assessments consistent with 29 Code of Federal Regulations (CFR) 1910.132, General Requirements for Personal Protective Equipment and AR 40-5, Preventive Medicine, would provide this continued program refinement.

ARNG-CSG-IHSW

SUBJECT: Executive Summary for Industrial Hygiene Site Assistance Visit (IHSAV), for the Vernal Armory, 220 South 500 East, Vernal, Utah conducted on 5 September 2013.

7. Hazard Assessment/Job Safety Analysis (JSA).

a. Documenting the Hazard Assessments provides a method to obtain initial and periodic review from the Industrial Hygiene, Occupational Health and Safety Professions located at the JFHQ/HQ/state level.

b. The Hazard Assessments should be used as written training materials for the new, transfer and unit personnel working under the auspice of the facility.

c. IHSW recommends facility supervisory staff and facility personnel conduct initial Hazard Assessments outlined in AR 40-5, Army Preventive Medicine (Section V) and 29 CFR 1910.132 and submit for review and obtain approval from the state Industrial Hygiene, Occupational Health and Safety Professions.

d. We have provided an appendix with Hazard Assessments (HA) examples of some of this facilities operations. Additional operations can utilize this format to design HA not observed during this SAV.

e. An integral and important factor of the Hazard Assessment/JSA process is for the review and guidance from qualified Safety, Occupational Health and Industrial Hygiene professions located at the higher headquarters level or state level. For this reason, the Hazard Assessments (to include all pertinent and supporting documents) should be completed by the facility personnel and forward to the Utah Army National Guard Industrial Hygiene, Occupational Health and Safety Office for final review and approval (signature).

f. Job Safety Analysis (JSA's)/Hazard Assessments.

NOTE: The Hazard Assessments can be used for monthly meetings to brief/train, and document large group training events and activities.

8. IHSW recommends the **Senior Unit Commander of this Facility and any Co-Tenant Organizations or Units, review and provide assistance with implementation of these recommendations.** This will educate the chain of command and allow the unit or co-tenant organizations to take any necessary precautions or actions required by them and their personnel.

9. To assist you with execution of your responsibilities in correcting the observations noted, we encourage you to consult with the State Safety Manager, Occupational Health Manager and Industrial Hygiene professions located and/or authorized within the State Safety and Occupational Health Office.

10. For additional information please contact the undersigned at (916) 854-1491 or via email at Non-Responsive

Non-Responsive

NGB, IHSW, CIV
Industrial Hygiene

Industrial Hygiene Southwest

Violation Inventory Log

LOG OF SCHEDULE OF CORRECTIVE ACTION - COMPLIANCE WITH SAFETY AND HEALTH STANDARDS

Vernal Armory, Vernal, Utah

CONTROL NUMBER CLOSED ☐	HAZARD DESCRIPTION	SITE	RAC	CORRECTIVE ACTIONS (Abatement Plan)	SUSPENSE DATE	ACTION OIC/NCOIC	Estimated Cost(s)	DATE CORRECTED	REFERENCES
UTVA-100512-4.1 ☐	The analytical results for lead on the former maintenance bay floor was 74 µg/ft2.	Vernal Armory	3	Clean the floor of the former maintenance bay to a lead concentration of less than 40 mg/ft2 following the guidance in the attached SOPs.					IHSW SOP Lead, 29 CFR 1910.1025 (h)(1)
UTVA-100512-4.4 ☐	An asbestos survey could not be located during this IH Assistance Visit.	Vernal Armory	3	Either locate the asbestos survey for this building or contract with a licensed firm to perform an asbestos survey and assessment.					29 CFR 1910.1001(j)(3)(i)
UTVA-100512-4.4 ☐	Personnel have not been provided with asbestos awareness training.	Vernal Armory	4	Based on the findings of this survey, provide awareness training to assigned personnel for the specific types of asbestos in this Armory.					29 CFR 1910.1001
UTVA-100512-4.6.1 ☐	Not all MSDSs are available for all chemical products. The chemical inventories are not accurate.	Vernal Armory	4	Ensure MSDSs are available for all chemical products and chemical inventories are accurate.					29 CFR 1910.1200 (g) (1)
UTVA-100512-4.10 ☐	The fires extinguishers have not been inspected monthly.	Vernal Armory	4	Ensure all fire extinguishers are provided a monthly inspection and document these inspections on the attached inspection cards.					29 CFR 1910.157 (e) (2) & (3) and NFPA-10-2007, Para 7.2.1.2 & 7.3.1.1.1

ARMORY

CLEANUP & FOLLOW-UP HOUSEKEEPING RECOMMENDATIONS

Materials Needed:

1. Cloth Mop head (s) & Mop head holder(s) with handle.
2. Mop bucket (s) with wringer.
3. Clean cotton rags and sponges.
4. Disposable gloves
5. Large barrel (55 gal.) to store wastewater in after changing out of dirty scrub water. Waste water containers.
6. Disposable overshoes or rubber boots. Personnel conducting cleaning operations should not take clothes, boots, etc., home for laundering.
7. HEPA vacuum
8. Six (6) mill plastic bags to dispose of waste.
9. Detergent with surfactant, e.g., Spic-N-Span, Mr. Clean, etc.

Disposal of Waste Water and Cleaning Materials:

1. *NOTE*: Consult with Local Army National Guard Environmental Office prior to taking any collection, disposal or wiping activities commence. Each state and territory may have additional regulatory guidance on collection, storage and disposal of wastewater.

2. Mop heads should be disposed of after initial cleanup, unless otherwise advised by Environmental office personnel. Note: thorough cleaning of mop heads may be sufficient enough to reuse on future Armory cleanups but check with local Environmental Office.

3. Disposable gloves should be treated as hazardous waste.

4. Soiled cotton rags should be treated as hazardous waste.

5. Wash water contaminated with Lead can be collected and allowed to slowly evaporate leaving Lead deposits/sludge that may be collected in plastic containers, placed in metal drums, and stored for future delivery to an authorized hazardous waste disposal site.

a. Drums shall be properly labeled to identify contents In-Accordance With (IAW) Federal, State and local regulatory guidance.
b. Disposal of containerized waste shall be coordinated IAW State hazardous waste program requirements.
c. The Environmental Office shall coordinate removal and disposal of all containerized hazardous waste through established waste streams.

Post-Cleanup Precautionary Measures:

1. Thoroughly wash hands with soap and water.
2. Rinse off rubber boots with soap and water, capturing wastewater for collection into established waste stream. If personnel choose to use over shoes for protection, dispose of overshoes into waste stream. NOTE: This recommendation is for initial clean up activities and PPE requirements may be reduced after it has been determined non-hazardous levels have been achieved.
3. Wash BDU's or personal clothing separately from children's clothes.

NOTE: No eating, drinking or cosmetics allowed during cleanup procedures (these may be allowed after washing of hands/face and done outside of cleanup area)

NOTE: Avoid blowing, shaking or like actions which could potentially disperses lead dust. Dry sweeping, dusting, wiping or blowing with compressed air shall not be permitted

Initial Armory Cleanup:

1. Use a vacuum cleaner equipped with a HEPA exhaust filter. HEPA vacuum all surfaces in the room (ceiling, walls trim, and floors). Start with the ceiling and work down, moving toward the entry door. **Completely clean each room before moving on**.

2. Prepare water and detergent for the wipe down phase, according to manufactures recommendations.

3. Wet wipe, with cotton rags or sponge, any horizontal, diagonal or vertical surfaces up six (6) feet from floor surfaces using hot water and "Spic-n-Span" or an equivalent product.

    a. Rinse out cleaning cloths thoroughly and frequently.
    b. Change out cleaning water as necessary.

NOTE: **If walls to be cleaned show signs of deterioration, e.g., chipping or crumbling paint, in which wiping, scrubbing, or disrupting might potentially increase or spread contamination, then this portion of the clean up should be avoided**.

4. Now prepare water and detergent (e.g. Spic N Span, Mr. Clean, Pine Sol) for the mopping phase, according to manufactures recommendations, which should be found on the products label for general clean up.

    a. Change out water frequently (when water appears dirty)
    b. Rinse out mop heads frequently to prevent contamination of dirty water.

5. Cover entire drill floor surface with above prescribed water and detergent.

6. Final rinse should be with clean water only - -after mop heads have been cleaned.

Recommended Follow-up Housekeeping Practices *after Clearance sampling of cleaned area is performed by certified personnel:*

1. Floor cleaning and dusting should be accomplished using the wet method described in Initial Armory Cleanup SOP.

Note: Only exception to these wet cleaning procedures would be the use of a chemically treated dust floor mop. This can be used for follow-up armory cleaning by sweeping of large particles of dirt and paper.

    a. Pre-treated (chemically treated) dust floor mop will limit dust particles from being disbursed into the surround atmosphere.

IHI
ENVIRONMENTAL
A Terracon COMPANY

IH ASSISTANCE VISIT

Utah Army National Guard
Vernal Armory
220 South 500 East
Vernal, Utah 84078

December 4, 2012

Prepared for:

Industrial Hygiene Southwest
10510 Superfortress Avenue, Suite C
Mather, California 95655

Prepared by:

Non-Responsive

Industrial Hygiene Technician

Reviewed by:

Non-Responsive

Industrial Hygiene Services Manager

Project #AL127192

640 EAST WILMINGTON AVENUE SALT LAKE CITY, UT 84106 TELEPHONE: 801-466-2223 FAX: 801-466-9616 E-MAIL: IHI@IHI-ENV.COM
SALT LAKE CITY EMERYVILLE PHOENIX DENVER SEATTLE

TABLE OF CONTENTS

APPENDICES

EXECUTIVE SUMMARY

On September 5, 2012 Non-Responsive of IHI Environmental (IHI) conducted an IH Assistance Visit at the Vernal Armory in Vernal, Utah. The primary point of contact for information gathered during this survey was Non-Responsive (435) 789-3691, Non-Responsive

The objectives of this IH Assistance Visit were to perform the following activities:

- collect lead wipe samples;
- evaluate the condition of painted surfaces and collect paint chip samples for lead analysis where painted surfaces are peeling;
- inspect the interior rooms of the armory for water damage and the presence of fungal growth;
- review asbestos survey and assessment files and determine if documentation of asbestos awareness training is current;
- evaluate the condition of the Heating, Ventilation, and Air-Conditioning system, and collect indoor air quality data;
- review hazardous material storage and use procedures;
- review safety training and record keeping;
- perform a ventilation survey on the kitchen stove hood (if present);
- perform a noise survey on the kitchen appliances; and
- conduct a safety walk-through evaluation and note any existing safety hazards.

Significant findings for this IH Assistance Visit can be found in the Industrial Hygiene Southwest – Violation Inventory Log, located in Appendix K of this report.

The report that follows this Executive Summary should be read in its entirety because it includes important information not included in this summary, such as task descriptions, work space locations, regulatory requirements, and additional recommendations.

1.0 INTRODUCTION

On September 5, 2012, Non-Responsive of IHI Environmental (IHI) conducted an IH Assistance Visit at the Vernal Armory located at 220 South 500 East, Vernal, Utah 84078. The primary point of contact for information gathered during this survey was Non-Responsive McMullin, (435) 789-3691. Non-Responsive

1.1 Objectives

Evaluate the occupational environment of the administrative areas in the armory to determine the presence of operational health and safety risks, and make recommendations for corrective actions or follow-up work to manage those risks.

1.2 Scope of Work

To achieve the above objectives at this facility, the survey included the following work:

- collect lead wipe samples;
- evaluate the condition of painted surfaces and collect paint chip samples for lead analysis where painted surfaces are peeling;
- inspect the interior rooms of the armory for water damage and the presence of fungal growth;
- review asbestos survey and assessment files and determine if documentation of asbestos awareness training is current;
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- review safety training, and record keeping;
- perform a ventilation survey on the kitchen stove hood (if present);
- perform a noise survey on the kitchen appliances; and
- conduct a safety walk-through evaluation and note any existing safety hazards.

2.0 PROCESS DESCRIPTION

The Vernal Armory has one full-time guard member. The armory has offices used for administrative purposes, a training area, drill floor, a former maintenance bay that was converted to storage, storage rooms, restrooms and locker rooms, kitchen, gun vault, and a mechanical room. There is one civilian state employee at this armory. This armory is not used for any civilian activities.

Army National Guard members clean weapons about four times per year on the drill hall floor at this armory.

3.0 METHODS AND APPLICABLE REGULATIONS AND STANDARDS

3.1 Lead Wipe Sampling

Lead residue (dust) wipe samples were collected on horizontal surfaces, such as the drill floor, kitchen, administrative areas, and indoor firing ranges (where present) to determine housekeeping standards. Lead Wipe™ brand wipes were used with a 100-square-centimeter template. The wipes used conform to American Society for Testing and Materials (ASTM) E1792, *Standard Specification for Wipe Sampling Materials for Lead in Surface Dust*. The collected wipe samples were placed in clean and labeled plastic containers. Samples were submitted to ALS Laboratories for analysis, using National Institute for Occupational Safety and Health (NIOSH) Method 7300. See Appendix I for sample locations and Appendix J for laboratory results.

The Mather, California, office of Industrial Hygiene Southwest has developed a Standard Operating Procedure (SOP) for lead, which is a blend of Occupational Safety and Health Administration (OSHA), U.S. Department of Housing and Urban Development (HUD), and Army regulations. Essentially, this SOP sets forth a criterion of 40 micrograms of lead per square foot ($\mu g/ft^2$) for converted indoor firing ranges, break rooms, floor surfaces, or any area that might be used for non-military functions. A 200-$\mu g/ft^2$ criterion has been established for tool rooms, maintenance bays, furnace rooms, boiler rooms, storage closets, and other areas where the general public is not expected to visit.

3.2 Painted Surface Evaluation

The interior of the armory was visually inspected for peeling paint on the walls and ceilings.

3.3 Moisture Intrusion and Limited Visual Fungal Growth Evaluation

The interior of the armory was visually inspected for signs of moisture intrusion that could result in fungal growth. Any signs of moisture intrusion (e.g., discoloration, staining, blistering) were noted and documented on a drawing for a follow-up evaluation.

3.4 Asbestos Management

Armory personnel were asked if an asbestos survey and assessment had been conducted and whether there was a written Operations and Maintenance Program for the facility. IHI also reviewed any asbestos awareness training records.

3.5 Heating, Ventilation, and Air-Conditioning Systems and Indoor Air Quality

The heating, ventilation, and air-conditioning (HVAC) systems that serve the armory were evaluated. This evaluation consisted of a visual inspection of the system to note any obvious problems, and a review of the facility maintenance plan, if one was available.

Carbon dioxide (CO_2), temperature, and relative humidity were measured throughout the armory using a TSI Model 8762 IAQ-Calc™ Monitor. The unit was calibrated before use with certified zero gas and 1,000 ppm CO_2 span gas. See Appendix E for IAQ data.

Carbon dioxide is a normal constituent of exhaled breath and is commonly measured as a screening tool to evaluate whether adequate fresh, outdoor air is being provided. If typical CO_2 levels within a building are maintained at or less than 1,000 ppm, with appropriate temperature and humidity levels, complaints about indoor air quality should be minimal (American Society for Testing and Materials (ASTM) – International D6245-12, *Using Indoor Carbon Dioxide Concentrations to Evaluate Indoor Air Quality*). If a building exceeds this guideline, it should not be interpreted as an unhealthy or hazardous situation. An elevated CO_2 level is only an indication that the amount of outside air being brought into a building may be inadequate or poorly distributed and further investigation may be warranted.

In building areas where there are potential sources of CO_2 other than exhaled breath, the guidelines above cannot be used. The OSHA standard for CO_2 should be used in these instances. The OSHA standard is an eight-hour time-weighted average (TWA) of 5,000 ppm with a short-term 15-minute average limit of 30,000 ppm.

3.6 Hazard Communication and Hazardous Material Storage

A review of the armory's chemical inventory and Material Safety Data Sheet (MSDS) file was accomplished. Chemical storage areas, i.e., flammable storage cabinets/rooms, were also inspected.

3.7 Safety Training and Record Keeping

A review of safety training programs and documentation was performed to determine if the armory's site-specific training programs and annual documentation were current.

3.8 Kitchen Ventilation Survey

Duct velocity measurements were collected on facility kitchen exhaust hoods (when present) using a TSI VelociCalc, Model 9515.

The 2011 National Fire Protection Association Standard 96, Section 8.2.1.1, requires exhaust fan ducts used in commercial cooking equipment to have a duct velocity of not less than 500 feet per minute (fpm).

3.9 Kitchen Appliance Sound-Level Measurements

Sound-pressure levels of the kitchen appliances (when present) were measured using a Sound Level Meter in the dBA and dBC ranges, with the meter set on slow response. DD Forms 2214 are provided in Appendix M.

3.10 General Safety Walk-Through

A limited Fire Life Safety Code walk-through evaluation of the armory was performed to:

- document the presence of a fire alarm,
- determine if fire extinguishers are properly mounted and current on their monthly and annual inspections,
- determine if eyewash station inspections are current, and
- document any fire or safety hazards in the armory.

3.11 Equipment Used

The following equipment was used for this survey.

Type	Model Number	Serial Number	Calibration Date
TSI VelociCalc™ Meter	9515	T95150720007	10/13/2011
TSI IAQ Calc™	8732	02100504	03/19/2012
3M™ Sound Level Meter	SM-200	SD20010465	09/12/2011

The calibration certificates for these instruments are attached in Appendix H.

3.12 Quality Assurance

IHI employs, at a minimum, the following methods to help assure quality of field investigations and reports:

- Use of appropriately educated and experienced personnel;
- Documentation of pertinent field and sampling information
- Continuing education of technical personnel through attendance at training sessions and conferences, and literature review;
- Peer and supervisory review of sampling strategy, field methods, calculations, and reports;
- Strict adherence to method requirements, in particular to NIOSH and OSHA standard methods, including strict chain-of-custody protocol;
- Use of accredited laboratories, or, in cases where specific accreditation is not available, choice of laboratories of good reputation, having strong QA/QC programs.
- Calibration of instruments, including field calibration via manufacturers' recommended procedures and routine (typically annual) off-site calibration of equipment via certified third parties.

4.0 FINDINGS AND RECOMMENDATIONS

4.1 Lead Wipe Sampling

The laboratory analytical results indicate that lead concentrations for all of the lead wipe samples collected were below the standards, except for one sample collected on the former maintenance bay floor. The sample on the former maintenance bay floor indicated a lead concentration of 74 $\mu g/ft^2$, which is above the 40-$\mu g/ft^2$ standard outlined in the IHSW Standard Operating Procedure (SOP) for Armory Cleanup. See Appendix I for a data table and a drawing showing sample locations and Appendix J for the laboratory reports. Photographs were taken of each sampling point and are presented in Appendix C.

Recommendations

1. Clean the floor of the former maintenance bay to a lead concentration of less than 40 $\mu g/ft^2$ following the guidance in the attached SOPs.
2. Perform post-cleanup wipe sampling to ensure lead levels are within the criterion outlined in the IHSW SOP for Armory Cleanup.

4.2 Painted Surface Evaluation

Peeling paint was not observed in this armory.

Recommendation

None

4.3 Moisture Intrusion and Limited Visual Fungal Growth Evaluation

Visual evidence of water damage, moisture intrusion, or fungal growth was not observed in this armory.

Recommendation

None

4.4 Asbestos Management

An asbestos survey could not be located during this visit; however, Non-Responsive believes the Division of Facilities, Construction, and Management (DFCM) for the State of Utah may have one on file due to asbestos abatement activities that have occurred in the past. Personnel have not been provided with asbestos awareness training.

Recommendations

1. Locate the asbestos survey report for this building or contract with a licensed firm to perform an asbestos survey and assessment.
2. Once asbestos-containing materials have been identified and assessed, provide awareness training to assigned personnel for the specific material types and locations of asbestos in this armory.

4.5 Heating, Ventilation, and Air-Conditioning Systems and Indoor Air Quality

The armory is heated by three radiant gas units located on the drill hall ceiling and two forced-air central heaters for the offices. Air conditioning is provided by the two forced-air units as well. These units supply cooled air to office areas only.

The average outdoor CO_2 concentration at the time of the survey was 336 ppm. The highest CO_2 concentration measured inside the building was 395 ppm, which should not result in indoor air quality complaints.

Building air temperatures ranged from 72 to 74°F and relative humidity was between 26 and 27 percent during the testing period. Air temperatures were within the recommended comfort range of 68-75°F and relative humidity was slightly below the recommended comfort range of between 30 and 60 percent. Low relative humidity is common in Utah the majority of the year. Humidity levels above 60 percent can result in proliferation of bacteria and fungi, while levels below 30 percent can cause dry eyes, skin, and mucous membranes.

The DFCM personnel maintain all HVAC units in the armory.

Recommendation

None

4.6 Hazard Communication and Hazardous Material Storage

4.6.1 Hazardous Materials Inventory and Material Safety Data Sheets (MSDS)

Hazardous materials in this armory consist of custodial products, which are stored in the cleaning closet, and flammable chemicals, which are stored in a flammable storage cabinet. Chemical inventories of all products used by the armory along with their associated MSDSs are maintained master binders located in the drill hall next to the janitor's closet. The chemical inventories and MSDS binder are arranged in numerical order. An inspection of the chemical inventory revealed that current products in use by the armory are not all accounted for and not all the associated MSDSs are available.

Copies of chemical inventories are provided in Appendix D.

Recommendation

1. Ensure MSDSs are available for all chemical products and chemical inventories are accurate.

4.6.2 Flammable Storage Cabinets

There is a flammable storage cabinet located in the storage room in this armory. There were no storage incompatibilities or leaking materials in the flammable storage cabinet. The cabinet was in good condition and the doors of the flammable storage cabinet closed properly.

Recommendation

None

4.7 Safety Training and Record Keeping

The following safety training documentation is maintained in the Vernal Armory:

- Split Rim Training
- Safeguard Training
- Hazard Communication
- Hearing Conservation

The last Safety Council meeting was held on 28 August, 2011. In addition, the UTARNG has numerous required computer-based training courses with reference to safety training.

Note: IHI did not conduct a thorough evaluation of the contents or quality of any of the documents identified during this visit.

Recommendation

None

4.8 Kitchen Ventilation Survey

For the single hood located in the kitchen, there is one exterior roof-mounted exhaust fan that serves the kitchen appliances. Duct velocity measurements were obtained and an average of about 1,450 fpm was measured.

This kitchen exhaust duct exceeds the 2011 National Fire Protection Association Standard 96, Section 8.2.1.1, which requires exhaust fan ducts used in commercial cooking equipment to have a duct velocity of not less than 500 fpm.

Recommendation

None

4.9 Kitchen Appliance Sound-Level Measurements

All of the kitchen appliances measured produce noise levels well below the hazardous noise criterion of 85 dBA. Based on this information, there is no need for noise reduction measures or additional noise dosimetry surveys for this area.

Recommendation

None

4.10 General Safety Walk-Through

1. Housekeeping throughout the facility was good.
2. There is a fire alarm in this facility that is maintained by Peak Alarm.
3. Fire extinguishers are strategically located throughout the armory. Fire extinguishers do not have evidence of monthly inspections.
4. There are no eyewash stations in this armory and no chemicals that would require one.
5. Fire evacuation routes are posted throughout the facility.
6. Electrical panel boxes were inspected and were found to contain no exposed wiring or openings in the panel.

Recommendation

1. Ensure all fire extinguishers are provided a monthly inspection and document these inspections on the attached inspection cards.

5.0 PROJECT LIMITATIONS

This Project was performed using, as a minimum, practices consistent with standards acceptable within the industry at this time, and a level of diligence typically exercised by industrial hygiene and environmental consultants performing similar services.

The procedures used in this investigation attempt to establish a balance between the competing goals of limiting investigative and reporting costs and time, and reducing the uncertainty about unknown conditions. Therefore, because the findings of this report were derived from the scope, costs, time, and other limitations, the conclusions should not be construed as a guarantee that all environmental or occupational hazards have been identified and fully evaluated. Where sample collection and testing have been performed, IHI's professional opinions are based in part on the interpretation of data from discrete sampling locations that may not represent conditions at non-sampled locations. IHI assumes no responsibility for omissions or errors resulting from inaccurate information or data provided by sources outside of IHI, or from omissions or errors in public records.

Furthermore, it is emphasized that the final decision on how much risk to accept always remains with the client since IHI is not in a position to fully understand all of the client's needs. Clients with a greater aversion to risk may want to take additional actions while others, with less aversion to risk, may want to take no further action.

6.0 PROJECT APPROVAL

This IH Assistance Visit was reviewed and approved by:

Non-Responsive

CIH, CSP
Industrial Hygiene Services Manager

4 December 2012
Date

Technical Assistance: For technical assistance regarding information found in this report or the performed survey, please contact Non-Responsive 801-466-2223, or Non-Responsive of the Southwest Regional Industrial Hygiene Office at 916-804-1707.

Contact the State Safety and Occupational Health Office and/or the Regional Industrial Hygienist should any of the operations change, or should the personnel become incapable of following the previous recommendations and subsequent recommendations are needed.

BEST AVAILABLE COPY

Appendix A

References

American Conference of Governmental Industrial Hygienists (ACGIH), Industrial Ventilation, A Manual of Recommended Practice

American Conference of Governmental Industrial Hygienists (ACGIH), Threshold Limit Values for Chemical Substances and Physical Agents and Biological Indices

American National Standards Institute (ANSI)/Illuminating Engineering Society (IES), Industrial Lighting.

American National Standards Institute, Z358. 1-1998. Emergency Eyewash and Shower Equipment

AR 40-5, Preventative Medicine

AR 40-10, Appendix B – Health Hazard Assessment Program in Support of Army Material Acquisition Decision Process

AR 385-10, The Army Safety Program

Corps of Engineers Guide Specification, CEGS-1585 1, Overhead vehicle tailpipe (and welding fume) Exhaust Systems

DA PAM 40-ERG, Ergonomics

DA PAM 40-501, Hearing Conservation.

National Safety Council, Fundamentals of Industrial Hygiene

NOR 385-10, Army National Guard Safety and Occupational Health Program

TB MED 503, The Army Industrial Hygiene Program

TG022, US Army Environmental Hygiene Agency (USAEHA), Industrial Hygiene Evaluation Guide

TG 141, US Army for Health Promotion and Preventive Medicine (USACHPPM) Industrial Hygiene Air Sampling Guide, Nov. 1997

Title 29, Code of Federal Regulations (CFR), 2011, revision Part 1910, Occupational Safety and Health Standards

Appendix B

Assessment Criteria

A. Ventilation Standards

Ventilation rates were compared to recommendations made in 29 CFR 1910, ACGIH Industrial Ventilation Manual, and Corps of Engineers specifications. See Appendix A for reference information.

B. Illumination Standards

Illumination measurements were compared with recommendations made by the Industrial Engineering Society (IES)/American National Standards Institute (ANSI) RP7-1991 Standard and MIL-STD¬1472E.

C. Noise

Noise measurements were taken and compared with OSHA Standard 29 CFR 1910.95 and Department of the Army Pamphlet 40-501.

D. Air Sampling

Personal air sampling was conducted in compliance with applicable National Institute of Occupational Safety and Health (NIOSH) Analytical Methods. Sampling results were compared to relevant Occupational Safety and Health Administration (OSHA) Permissible Exposure Limits (PEL), American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Values (TLV), or NIOSH Recommended Exposure Limits (REL).

Occupational Safety and Health Administration (OSHA)

OSHA has established Permissible Exposure Limits (PELs) for workplace toxic and hazardous substances listed in 29 CFR 1910.1000 Tables Z-1, Z-2 and Z-3. Most OSHA PELs are based on 8-hour time weighted averages (TWAs); when sampling periods are less than 8 hours, the result must first be converted to an 8-hour TWA before comparing it to the OSHA PEL. Some OSHA PELs are based on Short Term Exposures Limits (STEL) of 15 minutes of worst-case exposure or Ceiling Limits of worst-case peak exposures (sampled as a 15 minute exposure if direct-reading methods are not available).

OSHA regulations are legally enforceable. Employers are required to maintain employee exposures below PELs. The best practice is to eliminate hazards and use safer substitutes. Alternatively, engineering and/or administrative (work practice) controls may reduce exposures to acceptable levels. Personal protective equipment should be the solution of last resort, implemented after all other efforts to eliminate the hazard have been exhausted or deemed infeasible. OSHA 29 CFR 1910.134 covers the use of respiratory protection in the work place.

American Conference of Governmental Industrial Hygienists (ACGIH)

Unlike the OSHA PELs, the ACGIH TLVs are not consensus standards; however, TLVs represent a scientific opinion based on a review of existing peer-reviewed scientific literature by committees of experts in public health and related sciences.

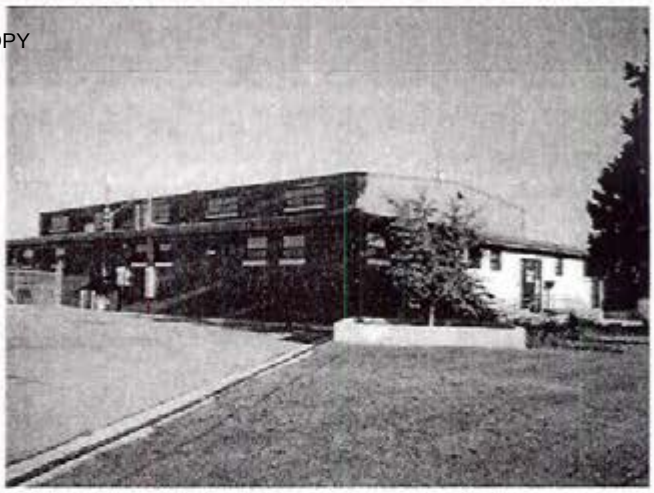
Occupational Exposure Limit

In accordance with the Department of the Army (DA) Pamphlet 40-503, Industrial Hygiene Program (DA PAM 40-503), "The DA mandates the use of ACGIH TLVs when they are more stringent than OSHA regulations or when there is no PEL." The DA defines the resulting exposure limit as the Occupational Exposure Limit (OEL).

Appendix C

Photo Log

Photograph 1
Vernal Armory, Front, Exterior

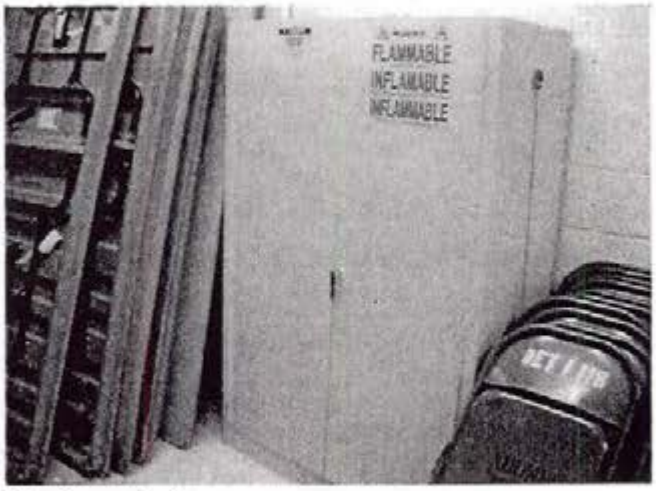


Photograph 2
Vernal Armory, Rear, Exterior

Photograph 3
Vernal Armory, Drill Hall

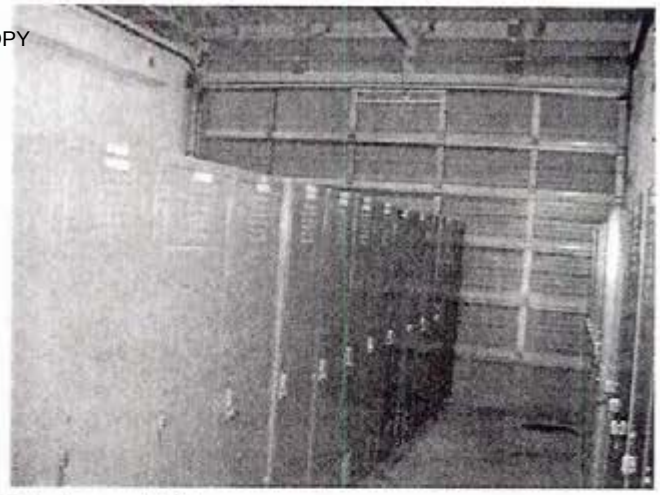
Photograph 4
Vernal Armory, Drill Hall

Photograph 5
Flammable Cabinet open



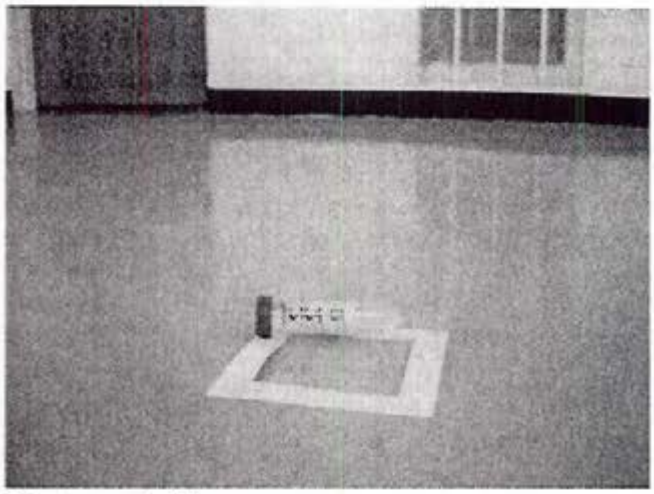
Photograph 6
Flammable Cabinet closed

Photograph 7
Fire Extinguisher without Monthly Inspection

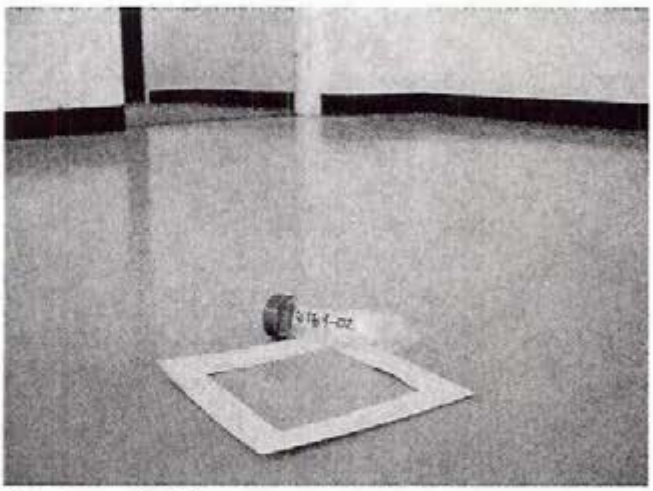


Photograph 8
Maintenance Bay

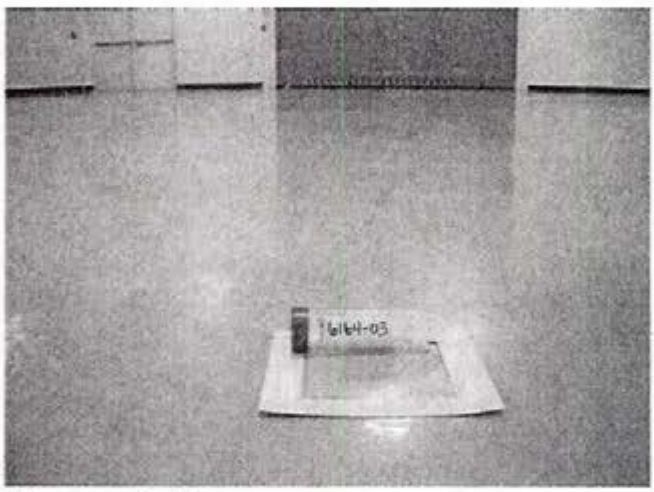
Photograph 9
MSDS Binder



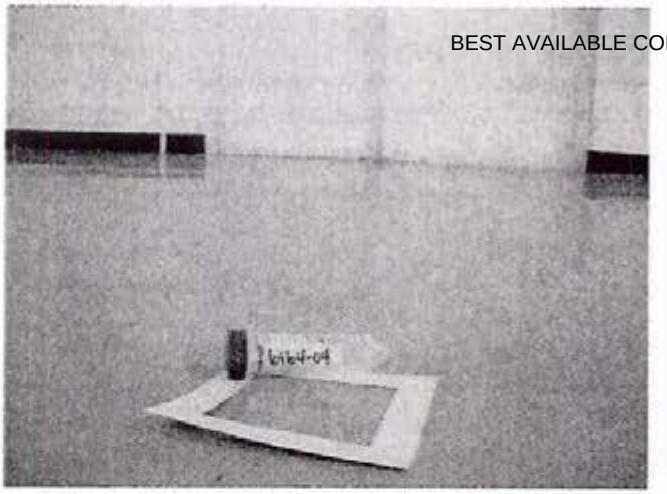
Photograph 10
Location of lead wipe sample number 6164-01



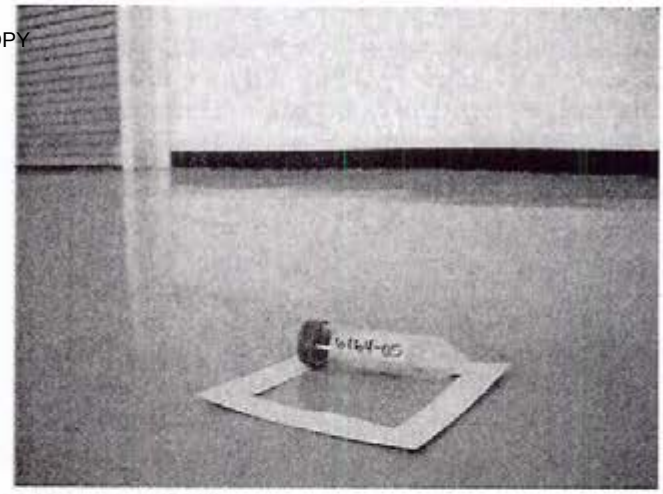
Photograph 11
Location of lead wipe sample number 6164-02



Photograph 12
Location of lead wipe sample number 6164-03



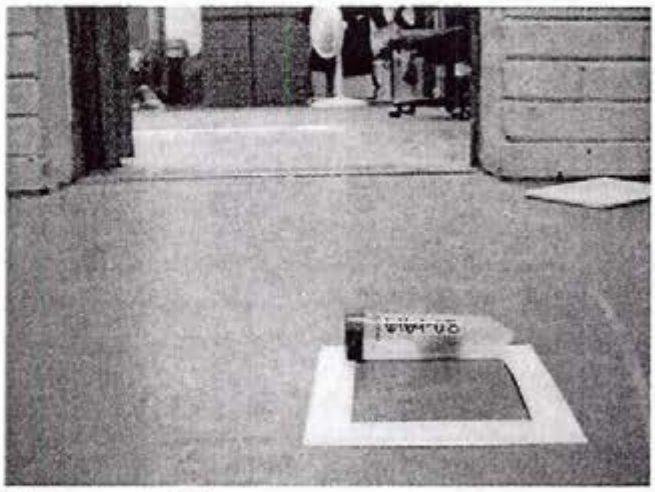
Photograph 13
Location of lead wipe sample number 6164-04



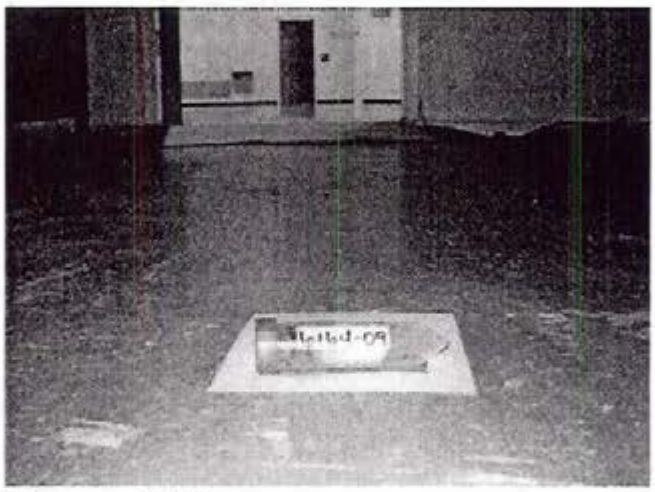
Photograph 14
Location of lead wipe sample number 6164-05

Photograph 15
Location of lead wipe sample number 6164-06

Photograph 16
Location of lead wipe sample number 6164-07



Photograph 17
Location of lead wipe sample number 6164-08



Photograph 18
Location of lead wipe sample number 6164-09

Appendix D

Chemical Inventory

Flammables Closet Inventory Listing

ITEM DESCRIPTION	MSDS LISTING	MANUFACTURER	QUANTITY
Propane	#1	Bernomatic	11-14.1 oz cans
Yellow Paint 13538	#2	Aerosol Paint	2 cans
High Hide Base, Gloss Enamel Clear Base	#3	Bar-Ox	1-1 qt can/ 1-1 gal can
CLP (Clean, Lubricate, Preserve)	#4	Break Free	2 Bottles
High Build Epoxy Coating	#5	Devoe	2-1 gal can
Interior Acrylic Wall & Trim Enamel	#6	Dulux	4-5 gallon buckets/ 1-1 gal can
Interior/ Exterior Semi-Gloss	#7	Fuller Obrien	1-1 gal can
Porch & Floor Enamel	#8	Groundworks	8-1 gal can
Wood Stain Clear Base	#9	Pratt & Lambert	1-1 gal can
Interior Vinyl Latex	#10	Wonder Tones	1-1 gal can
Clear Satin Varnish	#11	Woodpride	1-1 gal can
Interior latex Semi-gloss	#12	Olympic	1-1gal can

Cleaning Supply Closet Inventory Listing

ITEM DESCRIPTION	MSDS LISTING	MANUFACTURER	QUANTITY
Glass Cleaner	#1	3M	1- 2Liter Bottle
Bathroom Disinfectant Cleaner Concentrate	#2	3M	1- 2 Liter Bottle
Speed Stripper	#3	3M	1- 2 Liter Bottle
General Purpose Cleaner	#4	3M	1- 2 Liter Bottle
Neutral Cleaner	#5	3M	1- 2 Liter Bottle
Quat Disinfectant Cleaner	#6	3M	1- 2 Liter Bottle
Floor Finish	#7	3M	4- 2.5 Gallon Bottles
Floor Stripper	#8	3M	1-2.5 Gallon Bottle
Vanish Bowl Cleaner	#9	Easy Paks	1-3lb Bucket
Mice Killer	#10	D-Con	1-1.5oz Box
Dust Power	#11	Skilcraft	~~5-10 oz Cans~~ 3-10 oz cans
Dry Erase Cleaner	#12	Skilcraft	1- 10 oz Bottle
Toilet Bowl Cleaner	#13	Lysol	1-32 FL oz Bottles
Scouring Powder	#14	Fitzpatrick Bros, INC.	3- 21 oz Cans
Goo Gone	#15	Magic American Product	0
Deodorizer- Fresh Scent	#16	3M	1-2 Liter Bottle
White Board Care/Cleaner	#17	Expo	12-8 oz Bottles
Hand soap	#18	Ateria	4-1 Gallon bottles

Appendix E

Floor Plan/IAQ - Temp, RH, & CO_2 Monitoring

IHI ENVIRONMENTAL
A Terracon COMPANY
ihienv.com | terracon.com

Utah Army National Guard
Vernal Armory
220 South 500 East
Vernal, Utah

Indoor Air Quality Sample Locations

N

0 10' 20'

PROJECT No:	12U-I6164
SHEET:	2 of 2
DRAWN BY:	[redacted]
DATE:	11-27-2012
REVISED BY:	
DATE:	
REVIEWED BY:	
DATE:	

Appendix F

Ventilation Data

Ventilation Survey Data and Calculations
Kitchen Exhaust Vents
Vernal, Utah Armory

Kitchen Stove/Oven Exhaust Duct Velocity

Duct Dimensions = 12 x 12 inches

Duct Velocity Measurements

1645	1700	1610	1925
1500	1485	1330	1745
1790	895	980	875

Average Flow Rate = 1457 fpm

Appendix G

Field Notes

Army National Guard Armory Survey
(To Be Included In Report)

Five **lead wipe** samples collected from drill floor (take samples from dusty horizontal floor surfaces)	yes
Are any **weapons cleaned** in the facility, if yes where are they cleaned?	yes - on Drill Hall Floor about 3-4 x per year
Additional lead **wipe** samples taken from 25% of the rest of the building - -**(on floor areas only)**	yes
Is there a **converted indoor firing range**? If so collect additional wipe samples IAW the SOW.	yes.
Is there any peeling **paint**? Take bulk sample if able.	no.
Are there any signs of water damage or **mold**?	no.
Any suspected **ACM**? Where and what condition is it in. Bulk sample if able.	they beleive there has been a survey, but does not know where it would be.
Quality of housekeeping	good.
HVAC maintenance plan in place?	DFCM
Overall condition of HVAC system	good.
Obtained **CO2, Temp, RH** monitoring	yes
HAZMAT inventory on hand (make copies for the report), **MSDS** available for all materials.	yes
HAZMAT storage, Condition of lockers, if outside storage building is used is it ventilated and does it meet OSHA standards.	good.

Fire alarm in working condition - -not usually in place in older armories	Peak Alarm takes care of system.
Fire extinguishers in place and properly identified and mounted	yes.
Evidence of **monthly fire extinguisher inspections**	DFCM
Annual fire extinguisher inspections tags current	DFCM
Are **eye wash stations** available in areas where hazardous materials are used and are they inspected weekly (inspections must be documented)	no.
Egress routes accessible and properly marked - -noted on Fire Evacuation Plan	yes.
Training programs in place; Hazcom, Respiratory Protection, Confined Spaces, Hearing conservation, PPE (if applicable)	Haz Comm Split Rim Hearing Cons. Safe Guard
Any Photo labs	no.
Any hazardous **noise** sources	no.
Light levels checked throughout building	N/A
Breaker panels properly labeled with no exposed wiring	good
Check **building occupancy** 1. How many military personnel, how many civilian personnel 2. What types of units occupy facility, i.e. Administrative, Maintenance, etc.?	1 AGR, 1 State Tech.
Any **civilian activities** in armory (cub scouts, classes, day care, parties etc)	no
Obtain two **lead air samples**	On IHSW Request Only

Evaluate Kitchen Stove Hood Flow if Present IAW NFPA Standard 96	yes,
Collect Source Noise Measurements of Kitchen Appliances and Document Using DD 2214	yes.
Conduct a safety walkthrough of entire facility document any safety deficiencies found.	yes.
Take photos of outside of **building**, all **sample points** and any **pertinent hazards** or concerns.	yes.
Name of Armory, **POC**, **phone #, address** and **organizations** in Armory **(Add Checklist to Report)**	Non-Responsive (435) 781-5[redacted] Non-Responsive 220 South [redacted] Vernal, UT 84078 **(Add Checklist to Report)**

FACILITY INFORMATION

(Information listed in First Section)
(1st Few Paragraphs/Pages of Report)

1. Date Prepared: **10/5/2012**

2. Names (and Company Name) of Personnel Conducting Industrial Hygiene Site Assistance Visit: Non-Responsive **HI Environmental**

3. Facility Name and Brief Summary of Primary Activities Conducted at Facility: **Logan Armory, Utah Army National Guard**

4. Facility Address: **220 South 500 East, Vernal, UT 84078**

5. Primary Unit Assigned to Facility Non-Responsive

6. Co-Tenant Units Assigned or Working Within Facility (LIST ALL): **N/A**

7. Square Ft. Area of Facility: **approximately 12,500 sq. ft**

8. Work Schedule: **0600 – 1630; Monday through Thursday**

9. Number of work bays: **2**

10. Equipment Density and Type: **shop tools**

    a. List Equipment Nomenclature Serviced or Maintained at Facility: **N/A**

    b. List Total # for Each Nomenclature Serviced or Maintained at Facility: **N/A**

11. Total Number of Personnel: **2**

12. No. of Admin. Personnel (Include Status – AGR, Fed. Tech., IDT, State or Contract Employee): **1 AGR, 1 State (FAC)**

13. No. of Maintenance Personnel (Include Status – AGR, Fed. Tech., IDT, State or Contract Employee): **0**

14. Total Number of Personnel Enrolled in the Hearing Conservation Program: **0**

15. Total Number of Personnel Enrolled in the Respiratory Protection Program: **0**

16. Total Number of Personnel Enrolled in the Medical Surveillance Program: **0**

17. Total Number of Personnel Enrolled in the Vision Program: **0**

18. Facility Commander: Non-Responsive

    a. Email address, Commercial Telephone Number and Unit Assigned to: Non-Responsive **5-789-3691**

19. Safety Officer: Non-Responsive

    a. Email Address, Commercial Telephone Number and Unit Assigned to: Non-Responsive **5-789-3691**

20. Facility Telephone Number: **435-789-3691**

Appendix H

Calibration Certificates

3M Occupational Health and
Environmental Safety Division

1060 Corporate Center Drive
Oconomowoc, WI 53066-4828
www.3m.com/OccSafety
651 735 6501
800 328 1667 Customer Service
800 243 4630 Technical Assistance

Certificate of Calibration

Certificate Number: 265801SD20010465

Model: SD-200 Class 2 Integrating SLM

Date Issued: 12-Sep-2011

S/N: SD20010465

On this day of manufacture and calibration 3M certifies that the above listed product meets or exceeds the perfomance requirements of the following accoustic standard(s)

ANSI S1.4 1983 (R 2006) - Type 2 / Specification for Sound Level Meters

ANSI S1.43 1997 (R 2007) - Type 2 / Integrating-Averaging Sound Level Meter

IEC 61672-1 (2002) - Class 2/Electo Accoustics - SLMs - Pt1: Specifications

Test Conditions: Temp: 18-25°C Humidity: 20-80% R.H. Barometer: 950-1050 mBar

Test Procedure: S053-771

Reference Standard(s):

Device	Ref Standard Cal Due	Uncertainty - Estimated at 95% Confidence Level (k=2)
B&K Ensemble	10/7/2011	+/- 2.2% Acoustic (0.19dB)

Calibrated By: Non-Responsive

In order to maintain best instrument performance over time, we recommend the instrument be recalibrated annually.
Any number of factors may cause the calibration to drift before the recommended interval has expired.
See user manual for more information.

All test equipment used in the test and calibration of this instrument is traceable to NIST, and applies only to the unit identified above.

3M Occupational Health and
Environmental Safety Division

1060 Corporate Center Drive
Oconomowoc, WI 53066-4828
www.3m.com/OccSafety
651 735 6501
800 328 1667 Customer Service
800 243 4630 Technical Assistance

Declaration of Conformity

Product/Model: SD-200 / Sound Detector - Class 2 Integrating SLM

Directives Covered:

> EMC / Council Directive 2004/108/EC on Electromagnetic Compatibility.
> Safety / Council Directive 2006/95/EC on Low Voltage Equipment Safety.
> RoHS / Council Directive 2002/95/EC Restriction of Hazardous Substances.
> WEEE / Council Directive 2002/96/EC Waste electrical and electronic equipment.
> Performance / Council Directive 2004/22/EC Measuring Instruments.

The basis on which conformity is declared:

EN 61326-1 (2005) Electrical equipment for measurement, control and laboratory use
EMC requirements, Group 1, Class B Equipment (emissions)

CFR:47 (2008) Code of Federal Regulations: Part 15 Subpart B - Radio Frequency Devices - Unintentional Radiators.

EN 61326-1 (2005) Electrical equipment for measurement, control and laboratory use
EMC requirements, Industrial Location Immunity.

S1.4 1983 (R 2006) - Type 2 / Specification for Sound Level Meters

ANSI S1.43 1997 (R 2007) - Type 2 / Integrating-Averaging Sound Level Meter

IEC 61672-1 (2002) - Class 2/Electo Accoustics - SLMs - Pt1: Specifications

IEC 61010-1 (2010) Safety requirements for electrical equipment for measurement, control and laboratory use
Part 1: General Requirements

This instrument is considered WEEE Category 6 (Electrical and electronic tools), and therefore falls within the scope of the RoHS Directive. These units are RoHS compliant.

Note: This certification applies to all standard options and accessories supplied with the SD-200.

At the end of it's life cycle, this product and internal power cell must be sent to a WEEE recycling center, and is marked accordingly.

The technical construction file required by this directive is maintained in Oconomowoc, WI USA

Non-Responsive

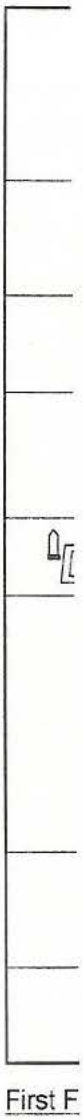
Appendix I

Lead Wipe and Lead Paint Chip Table and Drawing

Vernal, UT - Lead Wipe Sample Results

Lead Wipe Sample Results

Sample Number	Collection Date	Location	Result $\mu g/ft^2$
6163-01	7/30/2012	SE Corner of Drill Hall Floor	<23
6163-02	7/30/2012	NE Corner of Drill Hall Floor	<23
6163-03	7/30/2012	Center of Drill Hall Floor	<23
6163-04	7/30/2012	SW Corner of Drill Hall Floor	<23
6163-05	7/30/2012	NW Corner of Drill Hall Floor	<23
6163-06	7/30/2012	POC's Desk	<23
6163-07	7/30/2012	Kitchen Counter	<23
6163-08	7/30/2012	Weapon's Vault Floor	37
6163-09	7/30/2012	Former Maintenance Bay Floor	74



IHI ENVIRONMENTAL
A Terracon COMPANY
ihi-env.com | terracon.com

Utah Army National Guard
Vernal Armory
220 South 500 East
Vernal, Utah

Lead Wipe Sample Locations

N

0 10' 20'

PROJECT No:	12U-I6164
SHEET:	1 of 2
DRAWN BY:	[redacted]
DATE:	11-27-2012
REVISED BY:	
DATE:	
REVIEWED BY:	
DATE:	

Appendix J

Laboratory Reports

ANALYTICAL REPORT

Report Date: September 12, 2012

Non-Responsive
IHI Environmental
640 East Wilmington Avenue
Salt Lake City, UT 84106

Phone: (801) 466-2223
Fax: (801) 466-9616
Non-Responsive

Workorder: 34-1225079
Client Project ID: 12U-I6164/Armory-Vernal, UT
Purchase Order: 12U-I6164
Project Manager: Non-Responsive

Analytical Results

Sample ID: 6164-01 | Media: Lead Dust Wipe | Collected: 09/05/2012
Lab ID: 1225079001 | Sampling Location: Armory-Vernal, UT | Received: 09/06/2012
Method: NIOSH 7300 Mod. | Sampling Parameter: Area 100 cm² | Prepared: 09/10/2012 Analyzed: 09/11/2012

Analyte	ug/sample	ug/ft²	RL (ug/sample)
Lead	<2.5	<23	2.5

Sample ID: 6164-02 | Media: Lead Dust Wipe | Collected: 09/05/2012
Lab ID: 1225079002 | Sampling Location: Armory-Vernal, UT | Received: 09/06/2012
Method: NIOSH 7300 Mod. | Sampling Parameter: Area 100 cm² | Prepared: 09/10/2012 Analyzed: 09/11/2012

Analyte	ug/sample	ug/ft²	RL (ug/sample)
Lead	<2.5	<23	2.5

Sample ID: 6164-03 | Media: Lead Dust Wipe | Collected: 09/05/2012
Lab ID: 1225079003 | Sampling Location: Armory-Vernal, UT | Received: 09/06/2012
Method: NIOSH 7300 Mod. | Sampling Parameter: Area 100 cm² | Prepared: 09/10/2012 Analyzed: 09/11/2012

Analyte	ug/sample	ug/ft²	RL (ug/sample)
Lead	<2.5	<23	2.5

Sample ID: 6164-04 | Media: Lead Dust Wipe | Collected: 09/05/2012
Lab ID: 1225079004 | Sampling Location: Armory-Vernal, UT | Received: 09/06/2012
Method: NIOSH 7300 Mod. | Sampling Parameter: Area 100 cm² | Prepared: 09/10/2012 Analyzed: 09/11/2012

Analyte	ug/sample	ug/ft²	RL (ug/sample)
Lead	<2.5	<23	2.5

ANALYTICAL REPORT

Workorder: **34-1225079**
Client Project ID: 12U-I6164/Armory-Vernal, UT
Purchase Order: 12U-I6164
Project Manager: Non-Responsive

Analytical Results

Sample ID: 6164-05 | Media: Lead Dust Wipe | Collected: 09/05/2012
Lab ID: 1225079005 | Sampling Location: Armory-Vernal, UT | Received: 09/06/2012
Method: **NIOSH 7300 Mod.** | Sampling Parameter: **Area 100 cm²** | Prepared: 09/10/2012 Analyzed: 09/11/2012

Analyte	ug/sample	ug/ft²	RL (ug/sample)
Lead	<2.5	<23	2.5

Sample ID: 6164-06 | Media: Lead Dust Wipe | Collected: 09/05/2012
Lab ID: 1225079006 | Sampling Location: Armory-Vernal, UT | Received: 09/06/2012
Method: **NIOSH 7300 Mod.** | Sampling Parameter: **Area 100 cm²** | Prepared: 09/10/2012 Analyzed: 09/11/2012

Analyte	ug/sample	ug/ft²	RL (ug/sample)
Lead	<2.5	<23	2.5

Sample ID: 6164-07 | Media: Lead Dust Wipe | Collected: 09/05/2012
Lab ID: 1225079007 | Sampling Location: Armory-Vernal, UT | Received: 09/06/2012
od: **NIOSH 7300 Mod.** | Sampling Parameter: **Area 100 cm²** | Prepared: 09/10/2012 Analyzed: 09/11/2012

Analyte	ug/sample	ug/ft²	RL (ug/sample)
Lead	<2.5	<23	2.5

Sample ID: 6164-08 | Media: Lead Dust Wipe | Collected: 09/05/2012
Lab ID: 1225079008 | Sampling Location: Armory-Vernal, UT | Received: 09/06/2012
Method: **NIOSH 7300 Mod.** | Sampling Parameter: **Area 100 cm²** | Prepared: 09/10/2012 Analyzed: 09/11/2012

Analyte	ug/sample	ug/ft²	RL (ug/sample)
Lead	**4.0**	**37**	2.5

Sample ID: 6164-09 | Media: Lead Dust Wipe | Collected: 09/05/2012
Lab ID: 1225079009 | Sampling Location: Armory-Vernal, UT | Received: 09/06/2012
Method: **NIOSH 7300 Mod.** | Sampling Parameter: **Area 100 cm²** | Prepared: 09/10/2012 Analyzed: 09/11/2012

Analyte	ug/sample	ug/ft²	RL (ug/sample)
Lead	**8.0**	**74**	2.5

ANALYTICAL REPORT

Workorder: **34-1225079**
Client Project ID: 12U-I6164/Armory-Vernal, UT
Purchase Order: 12U-I6164
Project Manager: Non-Responsive

Analytical Results

Sample ID: **6164-10** Media: Lead Dust Wipe Collected: 09/05/2012
Lab ID: 1225079010 Sampling Location: Armory-Vernal, UT Received: 09/06/2012

Method: **NIOSH 7300 Mod.** Sampling Parameter: **Area 100 cm²** Prepared: 09/10/2012
Analyzed: 09/11/2012

Analyte	ug/sample	ug/ft²	RL (ug/sample)
Lead	<2.5	<23	2.5

Report Authorization

Method	Analyst	Peer Review
NIOSH 7300 Mod.	Non-Responsive	Non-Responsive

Laboratory Contact Information

ALS Environmental
960 W Levoy Drive
Salt Lake City, Utah 84123

Phone: (801) 266-7700
Email: alslt.lab@ALSGlobal.com
Web: www.alsslc.com

ANALYTICAL REPORT

Workorder: 34-1225079
Client Project ID: 12U-I6164/Armory-Vernal, UT
Purchase Order: 12U-I6164
Project Manager: Non-Responsive

General Lab Comments

The results provided in this report relate only to the items tested.
Samples were received in acceptable condition unless otherwise noted.
Samples have not been blank corrected unless otherwise noted.
This test report shall not be reproduced, except in full, without written approval of ALS.

ALS provides professional analytical services for all samples submitted. ALS is not in a position to interpret the data and assumes no responsibility for the quality of the samples submitted.

All quality control samples processed with the samples in this report yielded acceptable results unless otherwise noted.

ALS is accredited for specific fields of testing (scopes) in the following testing sectors. The quality system implemented at ALS conforms to accreditation requirements and is applied to all analytical testing performed by ALS. The following table lists testing sector, accreditation body, accreditation number and website. Please contact these accrediting bodies or your ALS project manager for the current scope of accreditation that applies to your analytical testing.

Testing Sector	Accreditation Body (Standard)	Certificate Number	Website
Environmental	ACLASS (DoD ELAP)	ADE-1420	http://www.aclasscorp.com
	Utah (NELAC)	DATA1	http://health.utah.gov/lab/labimp/
	Nevada	UT00009	http://ndep.nv.gov/bsdw/labservice.htm
	Oklahoma	UT00009	http://www.deq.state.ok.us/CSDnew/
	Iowa	IA# 376	http://www.iowadnr.gov/InsideDNR/RegulatoryWater.aspx
	Florida (TNI)	E871067	http://www.dep.state.fl.us/labs/bars/sas/qa/
	Texas (TNI)	T104704456-11-1	http://www.tceq.texas.gov/field/qa/lab_accred_certif.html
Industrial Hygiene	AIHA (ISO 17025 & AIHA IHLAP/ELLAP)	101574	http://www.aihaaccreditedlabs.org
Lead Testing:			
CPSC	ACLASS (ISO 17025, CPSC)	ADE-1420	http://www.aclasscorp.com
Soil, Dust, Paint ,Air	AIHA (ISO 17025, AIHA ELLAP and NLLAP)	101574	http://www.aihaaccreditedlabs.org
Dietary Supplements	ACLASS (ISO 17025)	ADE-1420	http://www.aclasscorp.com

Definitions

LOD = Limit of Detection = MDL = Method Detection Limit, A statistical estimate of method/media/instrument sensitivity.
LOQ = Limit of Quantitation = RL = Reporting Limit, A verified value of method/media/instrument sensitivity.
ND = Not Detected, Testing result not detected above the LOD or LOQ.
** No result could be reported, see sample comments for details.
< This testing result is less than the numerical value.
( ) This testing result is between the LOD and LOQ and has higher analytical uncertainty than values at or above the LOQ.

Appendix K

IHSW Violation Inventory Log

Industrial Hygiene Southwest

Violation Inventory Log

LOG OF SCHEDULE OF CORRECTIVE ACTION - COMPLIANCE WITH SAFETY AND HEALTH STANDARDS

Vernal Armory, Vernal, Utah

CONTROL NUMBER CLOSED ☐	HAZARD DESCRIPTION	SITE	RAC	CORRECTIVE ACTIONS (Abatement Plan)	SUSPENSE DATE	ACTION OIC/NCOIC	Estimated Cost(s)	DATE CORRECTED	REFERENCES
UTVA-100512-4.1 ☐	The analytical results for lead on the former maintenance bay floor was 74 µg/ft^2.	Vernal Armory	3	Clean the floor of the former maintenance bay to a lead concentration of less than 40 µg/ft^2 following the guidance in the attached SOPs.					IHSW SOP Lead, 29 CFR 1910.1025 (h)(1)
UTVA-100512-4.4 ☐	An asbestos survey could not be located during this IH Assistance Visit.	Vernal Armory	3	Either locate the asbestos survey for this building or contract with a licensed firm to perform an asbestos survey and assessment.					29 CFR 1910.1001(j)(3)(i)
UTVA-100512-4.4 ☐	Personnel have not been provided with asbestos awareness training.	Vernal Armory	4	Based on the findings of this survey, provide awareness training to assigned personnel for the specific types of asbestos in this Armory.					29 CFR 1910.1001
UTVA-100512-4.6.1 ☐	Not all MSDSs are available for all chemical products. The chemical inventories are not accurate.	Vernal Armory	4	Ensure MSDSs are available for all chemical products and chemical inventories are accurate.					29 CFR 1910.1200 (g) (1)
UTVA-100512-4.10 ☐	The fires extinguishers have not been inspected monthly.	Vernal Armory	4	Ensure all fire extinguishers are provided a monthly inspection and document these inspections on the attached inspection cards.					29 CFR 1910.157 (e) (2) & (3) and NFPA-10-2007, Para 7.2.1.2 & 7.3.1.1.1

BEST AVAILABLE COPY

Reference DA FORM 4754
VER: 15 OCT 2009

Appendix L

Recommendations

4.1 Lead Wipe Sampling

1. Clean the floor of the former maintenance bay to a lead concentration of less than 40 $\mu g/ft^2$ following the guidance in the attached SOPs.

2. Perform post-cleanup wipe sampling to ensure lead levels are within the criterion outlined in the IHSW SOP for Armory Cleanup.

4.4 Asbestos Management

1. Locate the asbestos survey report for this building or contract with a licensed firm to perform an asbestos survey and assessment.

2. Once asbestos-containing materials have been identified and assessed, provide awareness training to assigned personnel for the specific material types and locations of asbestos in this armory.

4.6.1 Hazardous Materials Inventory and Material Safety Data Sheets (MSDS)

1. Ensure MSDSs are available for all chemical products and chemical inventories are accurate.

4.10 General Safety Walk-Through

1. Ensure all fire extinguishers are provided a monthly inspection and document these inspections on the attached inspection cards.

Appendix M

DD Form 2214

NOISE SURVEY
(Sound Level Meter Survey)

1. DATE *(YYYYMMDD)*: 20120730

2. TYPE SURVEY *(Enter code)*: 1 — 1 - INITIAL SURVEY 2 - RE-SURVEY 3 - OTHER

3. SOUND LEVEL METER		4. MICROPHONE		5. CALIBRATOR	
a. MANUFACTURER		a. MANUFACTURER		a. MANUFACTURER	
3M		3M		3M	
b. MODEL	c. SERIAL NO.	b. MODEL	c. SERIAL NO.	b. MODEL	c. SERIAL NO.
SD-100	SD20010465	SD-100	SD20010465	QC-10	QIA120222
d. LAST ELECTROACOUSTIC CALIB DATE *(YYYYMMDD)*	20111012	d. LAST ELECTROACOUSTIC CALIB DATE *(YYYYMMDD)*	20111012	d. LAST ELECTROACOUSTIC CALIB DATE *(YYYYMMDD)*	20111012

6. WIND SCREEN *(X one)*: X USED ☐ NOT USED

7. MEASUREMENTS OBTAINED *(X one)*: X INDOORS ☐ OUTDOORS

8. DESCRIPTION OF AREAS/DUTIES WHERE NOISE SURVEY CONDUCTED *(Illustrate on additional sheet and attach to form)*
Kitchen

9. PRIMARY SOURCE OF NOISE
See 11a. column below

10. SECONDARY SOURCE OF NOISE

11. SOUND LEVEL DATA / 12. PROTECTION REQUIRED *(re: dBA - Level)*

a. LOCATION	b. METER ACTION	c. dBC	d. dBA	e. RISK ASSESSMENT CODE	12. a. NONE *(Less than 85)*	b. PLUG OR MUFF *(85-108)*	c. PLUG AND MUFF *(108-118)*	d. PLUG + MUFF + TIME LIMIT *(Greater than 118)*
Hood Vent	S	73.2	57.6	IVD	X			
					X			
					X			
					X			
					X			
					X			

NOTES: Range of levels noted by /; i.e., 102/109. At operator stations, measure at ear level.
METER ACTION: Enter F for fast meter action and S for slow meter action.

13. REMARKS *(i.e., Area and equipment posted, hearing protection in use, etc.)*

14. MORE DETAILED NOISE EVALUATION REQUIRED: ☐ YES X NO *(If "YES," identify type evaluation needed.)*

15. NAME(S) OF PERSON(S) IDENTIFIED FOR AUDIOMETRIC MONITORING *(Use additional sheet if more space is needed and attach to form)*

16. SUPERVISOR OF NOISE-HAZARDOUS AREA OR OPERATION

	b. TELEPHONE *(Include area code)*	c. ORGANIZATION
[redacted]	(435) 789-3691	UTARNG

[redacted] *First Name, MI)* | [redacted] ONITOR *(Last Name, First Name, MI)*

PREVIOUS EDITIO[redacted]

Adobe Professional 7.0

INSTRUCTIONS

(Refer to DoD Component Instructions for Additional Guidance)

PURPOSE: This form is intended to record noise survey results for the identification of potentially noise-hazardous environments.

GENERAL: Print all information in ink. Only medical, industrial hygiene, safety, or engineering personnel who meet training requirements specified by the DOD components will make sound level measurements.

1. Date - Enter date noise survey conducted (e.g., if Jan. 14, 1999, enter 19990114).

2. Type, Survey - Enter appropriate numeric code in box (e.g., enter "1" if area or operation not surveyed before or no available records of previous survey; enter "2" if resurvey conducted at regular intervals (such as once each 12 months); or enter "3" if noise being reevaluated to confirm validity of previously obtained measurements or for purposes other than indicated).

3. Sound Level Meter:
   a. Mfgr - Enter name of company that produced sound level meter.
   b. Model - Enter manufacturer's designation.
   c. Serial No. - Enter manufacturer's serial number.
   d. Last Electroacoustic Calib Date - Enter year, month, day (see Item 1) of last comprehensive calibration required by DOD component. Not to include calibration checks made with acoustical calibrator.

4. Microphone (Fill in this section if microphone is detachable from sound level meter)
   a. Manufacturer - Enter name of company that produced microphone.
   b. Model - Enter manufacturer's designation.
   c. Serial No. - Enter manufacturer's serial number.
   d. Last Electroacoustic Calib Date - Enter year, month, and day (see Item 1) of last comprehensive calibration as required by DOD component.

5. Calibrator:
   a. Manufacturer - Enter name of company that produced calibrator.
   b. Model - Enter manufacturer's designation.
   c. Serial Number. Enter manufacturer's serial number.
   d. Last Electroacoustic Calib Date. Enter year, month, and day (see Item 1) of last comprehensive calibration as required by DoD component.

6. Wind Screen - Check appropriate box indicating if manufacturer's device to reduce wind noise is mounted over microphone assembly.

7. Measurements Obtained - Check appropriate box indicating if measurements obtained indoors or outdoors.

8. Description of Areas/Duties Where Noise Survey Conducted - Include building number(s), name of activity and/or operation, identify specific microphone locations, performance conditions and descriptions of machinery (e.g., rpm, load, etc). Where applicable, include noise-hazard contours of area. On additional sheet make simple line drawing of area and identify noise sources and locations of measurement.

9. Primary Source of Noise - If possible, identify the location(s) of the highest dBA value.

10. Secondary Source of Noise - If possible, identify all other noise sources when the primary noise source is off (e.g. background noise sources and other noise sources that may or may not be noise hazardous).

11. Sound Level Data
   a. Location - Position where measurement is obtained should correspond with those identified, or illustrated on form.
   b. Meter Action - See Notes in Sound Level Data Sec. levels measured with weighting switch of meter in "C" position.
   c. dBC - If required by DOD component, enter sound levels measured with weighting switch of meter in "C" position.
   d. dBA - Enter sound levels measured with weighting switch of meter in "A" position. See NOTES in Sound Level Data Section.
   e. Risk Assessment Code - Enter expression of risk that combines elements of hazard severity and mishap probability. Hazard severity categories shall be assigned by roman numeral as follows:
   (1) Category I - Catastrophic: May cause death or loss of a facility (Code I).
   (2) Category II - Critical: May cause severe injury, e.g., severe occupational illness, or major property damage (Code II).
   (3) Category III - Marginal: May cause minor injury, e.g., minor occupational illness, or minor property damage (Code III).
   (4) Category IV - Negligible: Probably would not affect personnel safety or health, but is nevertheless in violation of specific criteria (Code IV). Mishap probability shall be assigned capital letter according to following criteria:
   (a) Subcategory A: Likely to occur immediately or within a short period of time (Code A).
   (b) Subcategory B: Probably will occur in time (Code B).
   (c) Subcategory C: May occur in time (Code C).
   (d) Subcategory D: Unlikely to occur (Code D).
   Enter codes as IIB, IIIC, etc. Refer to DOD Instruction 6055.1/DOD component instructions for specific definitions and guidance.

12. Protection Required (re: dBA Level)
   a. None (less than 85: If dBA levels less than 85, check this column. No hearing protectors required.
   b. Plug or Muff (85 - 108): If dBA levels 85 - 108 inclusive, check this column. Earplugs, ear muffs, ear-canal caps, or noise-attenuating helmet required.
   c. Plug and Muff (108 - 118): If dBA levels over 108 to 118 inclusive, check this column. Earplugs worn in combination with ear muffs or noise-attenuating helmet required.
   d. Plug, Muff & Time: If dBA levels over 118, check this column. Earplugs worn in combination with ear muffs or noise-attenuating helmet and time limit (to be determined by DOD component) required.

13. Remarks - Enter type of hearing protection in use, whether area and equipment posted with appropriate caution signs, etc.

14. More Detailed Noise Evaluation Required - Check "yes" box if more detailed noise evaluation is required; check "no" box if not. Specify the type of evaluation needed (e.g., octave band analysis, etc.).

15. Name(s) of Persons Identified for Audiometric Monitoring - List names of individuals routinely exposed to noise in preceding locations.

16. Supervisor of Noise - Hazardous Area or Operation - Enter name (surname, given name, & middle initial) of the first-echelon (immediate) supervisor of the location (and personnel) surveyed.

17. Survey Performed by - Enter name (surname, given name & middle initial) of individual performing survey & signature.

18. Hearing Conservation Monitor - Enter name of individual reviewing survey results & signature. Usually local surgeon or designated representative.

Lead

CLEANUP & FOLLOW-UP HOUSEKEEPING RECOMMENDATIONS

Materials Needed:

1. Cloth Mop head (s) & Mop head holder(s) with handle.
2. Mop bucket (s) with wringer.
3. Clean cotton rags and sponges.
4. Disposable gloves
5. Large barrel (55 gal.) to store wastewater in after changing out of dirty scrub water.
6. Disposable overshoes or rubber boots. Personnel conducting cleaning operations should not take clothes, boots, etc., home for laundering.
7. HEPA vacuum
8. Six (6) mill plastic bags to dispose of waste.
9. Waste water containers.

Disposal of Waste Water and Cleaning Materials:

1. *NOTE*: Consult with Local Army National Guard Environmental Office prior to taking any collection, disposal or wiping activities commence. Each state and territory may have additional regulatory guidance on collection, storage and disposal of wastewater.

2. Mop heads should be disposed of after initial cleanup, unless otherwise advised by Environmental office personnel. Note: thorough cleaning of mop heads may be sufficient enough to reuse on future Armory cleanups but check with local Environmental Office.

3. Disposable gloves should be treated as hazardous waste.

4. Soiled cotton rags should be treated as hazardous waste.

5. Wash water contaminated with Lead can be collected and allowed to slowly evaporate leaving Lead deposits/sludge that may be collected in plastic containers, placed in metal drums, and stored for future delivery to an authorized hazardous waste disposal site.

a. Drums shall be properly labeled to identify contents In-Accordance With (IAW) Federal, State and local regulatory guidance.
b. Disposal of containerized waste shall be coordinated IAW State hazardous waste program requirements.
c. The Environmental Office shall coordinate removal and disposal of all containerized hazardous waste through established waste streams.

Post-Cleanup Precautionary Measures:

1. Thoroughly wash hands with soap and water.
2. Rinse off rubber boots with soap and water, capturing wastewater for collection into established waste stream. If personnel choose to use over shoes for protection, dispose of overshoes into waste stream. NOTE: This recommendation is for initial clean up activities and PPE requirements may be reduced after it has been determined non-hazardous levels have been achieved.
3. Wash BDU's or personal clothing separately from children's clothes.

NOTE: No eating, drinking or cosmetics allowed during cleanup procedures (these may be allowed after washing of hands/face and done outside of cleanup area)

NOTE: Avoid blowing, shaking or like actions which could potentially disperses lead dust. Dry sweeping, dusting, wiping or blowing with compressed air shall not be permitted

Initial Cleanup:

1. Use a vacuum cleaner equipped with a HEPA exhaust filter. HEPA vacuum all surfaces in the room (ceiling, walls trim, and floors). Start with the ceiling and work down, moving toward the entry door. **Completely clean each room before moving on**.

2. Prepare water and detergent for the wipe down phase, according to manufactures recommendations.

3. Wet wipe, with cotton rags or sponge, any horizontal, diagonal or vertical surfaces up six (6) feet from floor surfaces using hot water and "Spic-n-Span" or an equivalent product.

    a. Rinse out cleaning cloths thoroughly and frequently.
    b. Change out cleaning water as necessary.

NOTE: **If walls to be cleaned show signs of deterioration, e.g., chipping or crumbling paint, in which wiping, scrubbing, or disrupting might potentially increase or spread contamination, then this portion of the clean up should be avoided**.

4. Now prepare water and detergent (e.g. Spic N Span, Mr. Clean, Pine Sol) for the mopping phase, according to manufactures recommendations, which should be found on the products label for general clean up.

    a. Change out water frequently (when water appears dirty)
    b. Rinse out mop heads frequently to prevent contamination of dirty water.

5. Cover entire drill floor surface with above prescribed water and detergent.

6. Final rinse should be with clean water only - -after mop heads have been cleaned.

Recommended Follow-up Housekeeping Practices *after Clearance sampling of cleaned area is performed by certified personnel:*

1. Floor cleaning and dusting should be accomplished using the wet method described in Initial Armory Cleanup SOP.

Note: Only exception to these wet cleaning procedures would be the use of a chemically treated dust floor mop. This can be used for follow-up armory cleaning by sweeping of large particles of dirt and paper.

    a. Pre-treated (chemically treated) dust floor mop will limit dust particles from being disbursed into the surround atmosphere.

b. If treated dust mop is used - -Do Not Shake Mop head - - have mop head laundered after use. **Always keep used dust mop heads in sealed double plastic bags when stored at armory/facility**. Shaking of mop head could release unwanted contaminants into surrounding atmosphere.

2. Frequency of Cleanup- Armories will vary, according to usage and how often they should be cleaned. The following general cleaning schedule is provided:

   a. Only full-time technicians and traditional soldiers using facility during the month. (***Cleaned Monthly***)

   b. Occasional activities taking place during the month, e.g., 1-2 classes or volleyball games, etc. (***Cleaned 2x's Monthly***)

   c. Used regularly by soldiers or outside agencies/personnel. (***Cleaned Regularly - -at least Weekly***)

NOTE: Armories with adjoining Indoor Firing Ranges (IFR) should be cleaned more than weekly, again depending on use of Armory and IFR.

NOTE: Clearance sampling/testing is to be accomplished by certified personnel after these cleanup procedures are followed. If the area is an average Armory, occupied by adults only, for which you are cleaning and **is not a Converted IFR space**, you may continue to utilize the Armory space before the officials re-test this space. Please notify your Safety and/or Occupational Health personnel of the completion of this cleaning regime and they will notify the proper officials of the sampling/testing requirements needed.

If work is contracted out, a third party should do the clearance sampling.

Young children and females who are pregnant, there should be posted signs on all facilities, warning of the potential danger of exposure to lead dust.

SOP FOR ARMORY CLEANUP

1. **General.**

1.1 **Objective.**

1.1.1. The purpose of this SOP (Standard Operating Procedure) is once a lead dust hazard has been identified and excess exists, how to lower the level of lead dust to afford a safe building, which is clean enough for all personnel exposed to this potential hazard.

1.2 **Description of An Armory.**

1.2.1 Armories provide a space for units to support and train soldiers.

1.2.2 The facility is utilized by Army National Guard (ARNG) family members, usually in a recreational or festive setting. This may include all members and all ages of a given family.

1.2.3 The Armory can be used for community activities, which may include all age levels.

1.3 **Responsibilities.**

1.3.1 It is the ARNG specialty branches, e.g., Industrial Hygiene (IH), Occupational Health & Safety's, responsibility to notify occupants of any known health risk within their facility.

1.3.2 It is the building managers responsibility to warn any users of this facility about potential hazards by, e.g., verbal, written or warning signs.

1.3.3 The ultimate responsibility falls back on the TAG of each state.

2. **Background.**

2.1 **IH Investigation.**

the mother. The Center for Disease Control and Prevention considers levels above **10 ug/dl** in children under 6 to be elevated BLLs.

3.3 **Lead in Surface Dust.**

3.3.1 There are no established standards for lead levels in dust within buildings other than those used by children under 6. The Environmental Protection Agency (**EPA**) along with Housing and Urban Development (**HUD**) floor dust lead level standard (which is currently **40 ug/ft2**) does not apply to workplace surfaces, and would be impossible to maintain in many industrial facilities. (EPA 40 CFR Part 745)

3.3.1.1 The EPA interior windowsill standard is 250 ug/ft2.
3.3.1.2 The EPA standard for window trough is 400 ug/ft2.

3.3.2 OSHA cites a level of 200 ug/ft2 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.

3.4 **Lead in Paint.**

3.4.1 EPA's standard for lead-based paint or other surface coatings that contain lead equal to or exceeding 1.0 milligram per square centimeter (mg/cm2) or 0.5 percent (%) by weight or 5000 parts per million (ppm) by weight.

4. **Indoor Firing Ranges** (IFR).

4.1 **Relevant Standards and Guidelines.**

4.1.1 OSHA guidelines stated above (see 3.3.2) are the recommended working levels to achieve in an active IFR.

4.1.2 NGR 385-10 guideline reflects that of OSHA at 200 ug/ft2 for lead dust on surfaces.

4.2 **Maintenance and Cleaning.**

4.2.1 Follow NGR 385-10, along with SOP found in All States Letter (Log Number P00-0059 along with All States Letter (Log Number P01-0075)

clothing should be washed separately from their families, if they have young children at home. Personnel should wash their hands after performing this operation to assure lead contaminants are not ingested.

6.2.1.2 Frequent changing out of the water used is vital. Disposal of this hazardous waste water and rags/mop heads, Personal Protective Equipment (PPE), etc., should be coordinated with your Environmental office.

6.2.2 Clean all ductwork where lead was found. EPA has a protocol specifically for replacing or cleaning lead in dust form in HVAC systems. EPA Office of Pollution Prevention and Toxics, "*Reducing Lead Hazards When Remodeling Your Home*" www.epa.gov/opptintr/lead/rrpamph.pdf.

6.2.3 Continue to enforce good housekeeping and hygiene practices. These measures make good sense to minimize exposures to any toxic chemicals in the workplace.

6.2.4 Provide lead awareness training to the general workforce and any occupants of your facility.

NOTE: **Before you start any new procedures or practices be aware of the local city and state regulations in your area.**