ARMY NATIONAL GUARD
INDUSTRIAL HYGIENE – SOUTHWEST
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Industrial Hygiene Site Assistance Visit

Alamogordo Armory
1600 S. Florida Ave
Alamogordo, NM 88310

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

23 January 2013

ANG-CSG-IHSW

MEMORANDUM THRU New Mexico Army National Guard, ATTN: Non-Responsive 600 Wyoming Blvd NE, Albuquerque, NM 87123-1038

FOR Commander, Alamogordo Armory 1600 S. Florida Ave, Alamogordo, NM 88310

SUBJECT: Executive Summary for Industrial Hygiene Site Assistance Visit (IHSAV) for Alamogordo Armory, 1600 S. Florida Ave, Alamogordo, NM conducted on 10 September 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 Alamogordo Armory 1600 S. Florida Ave., Alamogordo, NM on 10 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 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. Clean lead dust from horizontal areas identified in this report to have exceeded 40 ug/ft2 of lead dust. Personnel should clean weapons in designated areas and on designated surfaces, e.g. tables, desks or floor surfaces and areas should be cleaned after every episode of weapons cleaning. (para. 4.1) **(RAC 3)**

b. Improve housekeeping practices throughout the facility. Ensure personnel clean-up after themselves after each episode of weapons cleaning. Utilize the Clean-up SOP attached. (Executive Summary) **(RAC 3)**

c. Asbestos survey should be accomplished for this facility. If accomplished, ensure a management program and awareness training is offered to facility and maintenance personnel. (para. 4.4) **(RAC 3)**

d. Ensure that annual and monthly fire extinguisher checks are maintained and current and annotated on extinguisher tag. (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.

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 New Mexico 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

For 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

Alamogordo Armory, Alamogordo, New Mexico

CONTROL NUMBER CLOSED ☐	HAZARD DESCRIPTION	SITE	RAC	CORRECTIVE ACTIONS (Abatement Plan)	SUSPENSE DATE	ACTION OIC/NCOIC	Estimated Cost(s)	DATE CORRECTED	REFERENCES
NMAA-091012-4.1 ☐	The Maintenance Bay, used previously as an indoor firing range, had surface lead concentrations ranging from 61 to 320 µg/ ft^2.	Mainteance Bay	3	Clean the floors of the maintenance bay to reduce lead levels to less than 40 µg/ ft^2.					IHSW SOP - Appendix O of this report
NMAA-091012-A124.4 ☐	An asbestos survey could not be located during this IH Assistance Visit.	Alamogordo Armory	3	Locate the asbestos survey or contract with a licensed firm to perform an asbestos survey and assessment. If asbestos-containing materials are identified and assessed, provide awareness training to assigned personnel in this armory.					29 CFR 1910.1001(j)(3)(i)
NMAA-091012-4.6.1 ☐	The door to the cleaning supply room was not posted with an NFPA placard.	Cleaning Supply Room	4	Post an NFPA placard on the entry door where chemicals are stored to alert fire department personnel of the contents of these rooms in an emergency.					NFPA 704
NMAA-091012-4.6.2 ☐	The chemical inventory was not updated to reflect the contents of the flammable storage cabinet and the cabinet containing hazardous materials	Flammable Storage Room and Chemical Storage Room	4	Update the chemical inventory and list of MSDSs to reflect the actual contents of the cabinet containing hazardous materials and the flammable storage cabinet.					1910.1200 (e) (i)
NMAA-091012-4.10 ☐	Monthly and annual fire extinguisher checks were not current	Alamogordo Armory	4	Ensure that annual and monthly fire extinguisher checks are maintained and current.					1910.157 (e)(3)· 1910.157 (e)(2)
NMJAA-091012-4.10 ☐	The ground fault circuit interrupters (GFCIs) installed on the outlets within six feet of water sources in the kitchen did not interrupt the circuit when tested.	Kitchen	4	Repair or replace the GFCI circuits located near the kitchen sink.					1910.303(b)(1) & NFPA 70, Article 210-8

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.

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

Alamogordo Armory
New Mexico Army National Guard
1600 South Florida Ave.,
Alamogordo, New Mexico 88310

December 20, 2012

Prepared for:

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

Non-Responsive [redacted]
Industrial Hygienist

Reviewed by:

Non-Responsive [redacted]
Industrial Hygiene Services Manager

Project No. AL127265

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APPENDICES

EXECUTIVE SUMMARY

On September 10, 2012, Non-Responsive MPH, an Industrial Hygienist with IHI Environmental (IHI), conducted an Industrial Hygiene (IH) Assistance Visit at the Alamogordo Armory located at1600 South Florida Ave. in Alamogordo, New Mexico. The primary point of contact for information gathered during this survey was Non-Responsive (505) 474-2644 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.

Civilian activities in this armory include renting the drill floor for celebratory occasions and occasional meetings and briefings by the U.S. Border Patrol and other government/military entities. Army National Guard members perform weapons maintenance and cleaning activities outdoors.

Armory housekeeping is performed by the Guard staff, and the maintenance of building systems is performed by the Department of Military Affairs, Maintenance Division, upon requested.

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, 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. 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.

All painted surfaces should be suspect lead-containing materials until determined otherwise. Contact the State FMO, State Safety, and the State Environmental directorates before conducting any work that may disturb painted surfaces integrity.

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.

3.7 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 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) are measured using a MSA Type-2 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™	9515	T95151103007	05/03/2012
TSI Q-Trak™	8550-X	8554-01051026	09/07/2012
MSA® Sound Level Meter Type II	Type 2	00035	02/10/2012

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 maintenance bay, used previously as an indoor firing range, had surface lead concentrations ranging from 61 to 320µg/ ft^2. The maintenance bay is currently used as a storage area and is not typically accessed by members of the general public. However, surface lead concentrations exceed the 200 µg/ft^2 criterion in the IHSW SOP for lead dust in areas not normally frequented by the public.

Surface lead concentrations in the gun vault measured 33 µg/ ft^2. This level is below the IHSW criterion level for restricted areas. See Appendix I for a data table and drawing illustrating the sample locations and Appendix J for the laboratory reports. Photographs were taken of each sampling point and are presented in Appendix C.

Recommendation

1. Clean the floors of the maintenance bay to reduce lead levels to less than 40 µg/ ft^2.

4.2 Painted Surface Evaluation

No peeling paint was observed in any space accessed on the day of the survey.

Note: All painted surfaces should be suspect lead-containing materials until determined otherwise.

Recommendation

1. Contact the State FMO, State Safety, and the State Environmental directorates before conducting any work that may disturb the integrity of a painted surface.

4.3 Moisture Intrusion and Limited Visual Fungal Growth Evaluation

Water damaged ceiling tiles were observed in the east office and the adjacent area; however, on the day of the survey there was no visible mold growth observed in the facility.

Recommendation

None

4.4 Asbestos Management

An asbestos building survey could not be located during this visit. Non-Responsive eported that an asbestos building survey had been conducted several years prior and to his knowledge there were no asbestos-containing materials identified in the building. The building was constructed in 1979.

According to the Occupational Safety and Health Administration (OSHA), Code of Federal Regulations (CFR) 1910.1001, thermal system insulation and surfacing materials found in buildings constructed before 1980 are *Presumed Asbestos Containing Material* (PACM). Although there may not be any PACM in the Alamogordo Armory building materials, suspect materials should be tested for the presence of asbestos prior to renovation and demolition activities.

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. If 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 HVAC system servicing the armory consists of a roof-mounted Trane® combination heating and cooling unit. The heating portion of the unit consists of a gas-fired forced-air furnace. The cooling portion distributes cool air through shared HVAC ducting to various areas of the building.

The State of New Mexico's Department of Military Affairs, Maintenance Division, regularly services and provides monthly preventive maintenance checks of the HVAC system for this armory.

The average outdoor CO_2 concentration at the time of the survey was 423 ppm. The highest CO_2 concentration measured inside the building was 636 ppm, which should not result in indoor air quality complaints.

Building air temperatures ranged from 72.1°F to 75.6°F and relative humidity was between 49.9% and 56.6% during the testing period. Air temperatures were within the recommended comfort range of 68°F to75°F, as was the relative humidity which was within the recommended comfort range of between 30% and 60%. Humidity levels above 60% can result in proliferation of bacteria and fungi, while levels below 30% can cause dry eyes, skin, and mucous membranes.

Recommendation

None

4.6 Hazard Communication and Hazardous Material Storage

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

An inventory of hazardous and flammable materials is documented in a master binder located near the safety board inside the Bunk House. A copy of the inventory and all associated MSDSs is maintained in a master binder near the cleaning supply closet.

All of the products in the cleaning supply cabinet are accounted for and there are no incompatible chemicals within the cabinet; however, there were many more items listed in the chemical inventory than were present in the cabinet. Non-Responsive reported that the quantity of hazardous materials used has been recently downsized. The door to the cleaning supply room was not posted with an NFPA placard.

An inventory and the associated MSDSs for the flammable materials stored inside the flammable cabinet in a storage annex were also inside the master binder. Similarly, all flammable materials were accounted for, but the inventory listed many more chemicals than were present at the time of the survey.

A copy of the available chemical inventory is provided in Appendix D.

Recommendations

1. Update the chemical inventory and list of MSDSs to reflect the actual contents of the cabinet containing hazardous materials and the flammable storage cabinet.
2. Post an NFPA placard on the entry door where chemicals are stored to alert fire department personnel of the contents of these rooms in an emergency.

4.6.2 Flammable Storage Cabinets

There is one flammable storage cabinet located in a storage annex accessed from the exterior of the building. The annex is constructed of cinder blocks and corrugated metal sheeting. This annex has light fixtures that appear to be explosion-proof, and it has local exhaust and general dilution ventilation.

The flammable and cleaning supply cabinets were inspected and there were no chemical incompatibilities or leaking containers observed. The flammable cabinet was in good condition and all doors closed properly.

Recommendation

None

4.7 Safety Training and Record Keeping

The following safety documentation is maintained in the Alamogordo armory:

Safety Standard Operating Procedure

4.8 Kitchen Ventilation Survey

There is one roof-mounted exhaust fan located above the stove in the kitchen. Duct velocity measurements could not be obtained directly from inside the duct. Therefore, the duct velocity was calculated indirectly (estimated) by using the face velocity readings from the face of the hood, the area dimensions of the hood face, and the diameter of the exhaust duct. The average estimated duct velocity is: 454 fpm, which is slightly below the NFPA recommended minimum of 500 fpm.

Recommendation

Upgrade the exhaust fan in the kitchen to 500 fpm.

4.9 Kitchen Appliance Sound-Level Measurements

Sound-pressure levels were collected for the kitchen exhaust hood and the freezer. The sound pressure levels of this equipment did not exceed the OSHA regulatory level of 85 dBA. The results and risk assessment for the kitchen appliance noise survey can be found on DD Form 2214 in Appendix M.

Recommendation

None

4.10 General Safety Walk-Through

1. Housekeeping throughout the facility was good.
2. There are fire alarms present in this facility that are maintained by the Department of Military Affairs, Maintenance Division.
3. Fire extinguishers are strategically located throughout the armory. The annual and monthly inspections were expired for the fire extinguishers inspected.
4. Eyewash stations were not observed in this facility.
5. Fire evacuation routes are posted in the rooms of this armory.
6. The two outlets ground fault circuit interrupter (GFCI) outlets located within six feet of the kitchen sink did not interrupt the circuit when tested.

Recommendations

1. Ensure that monthly and annual inspections of fire extinguishers are conducted.
2. Repair or replace the GFCI circuits located near the kitchen sink.

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

IH Services Group Manager

Dec. 20, 2012
Date

Technical Assistance: For Technical Assistance Section to: "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 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.

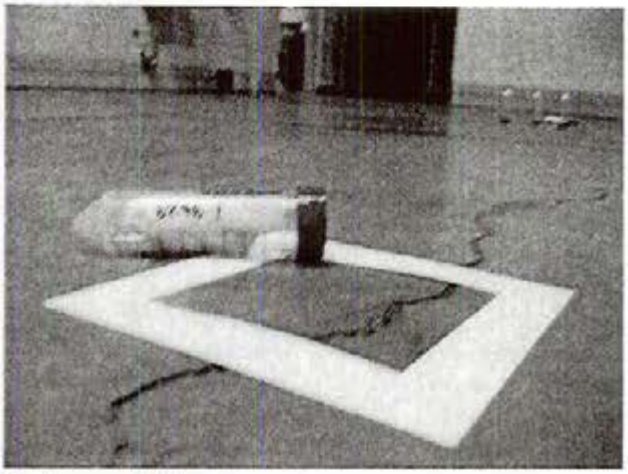
Occupational Exposure Limit

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).

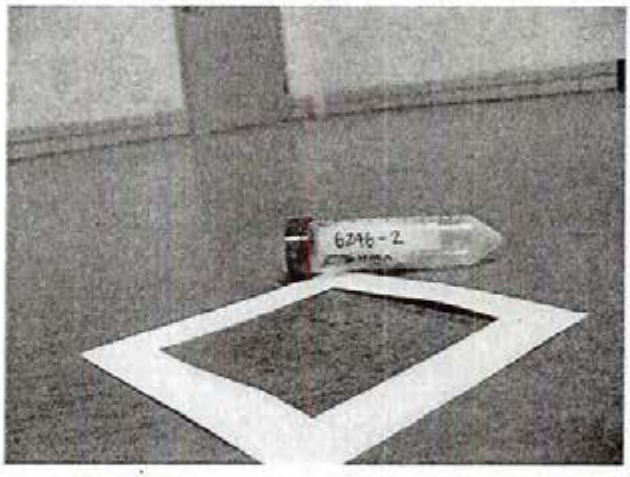
Photograph 1
View of east side of Alamogordo Armory, exterior

Photograph 2
View of west side of Alamogordo Armory, exterior

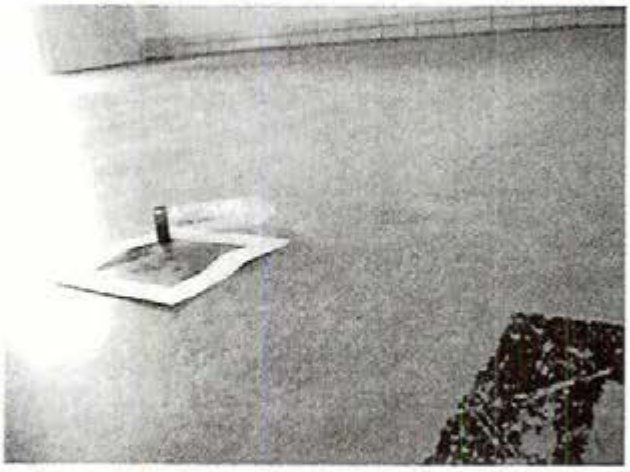
Photograph 3
View of the Alamogordo Armory drill hall, interior



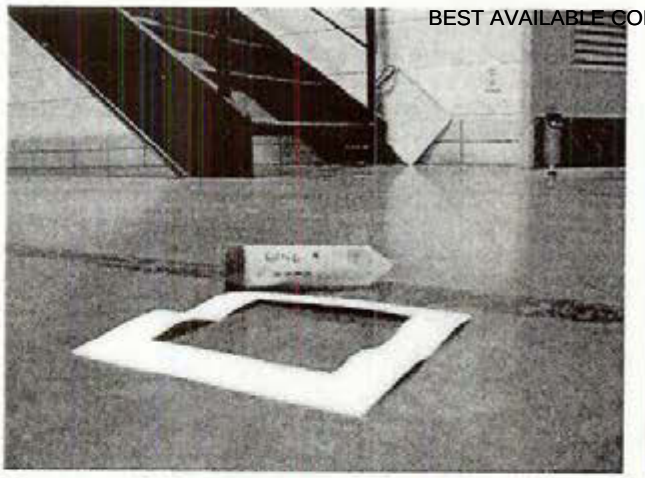
Photograph 4
Lead wipe sample location 6246-1, drill floor, N.E.



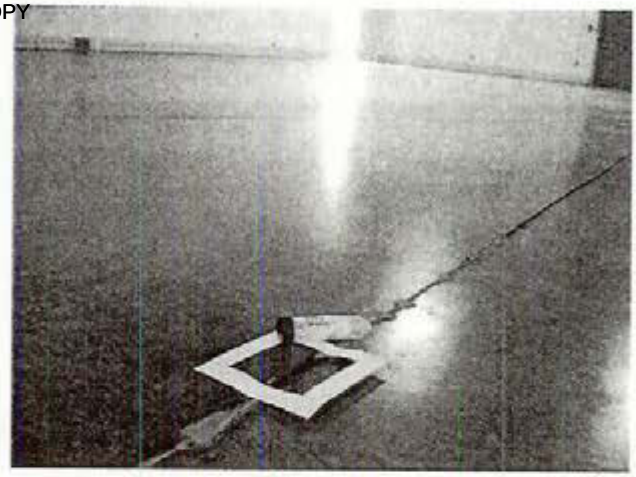
Photograph 5
Lead wipe sample location 6246-2, drill floor, S.E.



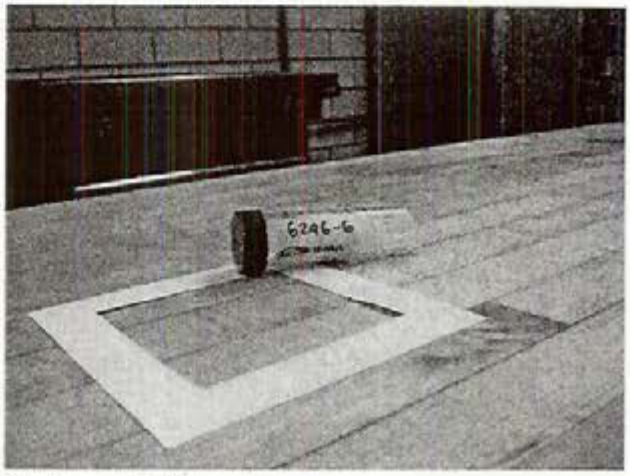
Photograph 6
Lead wipe sample location 6246-3, drill floor, S.W.



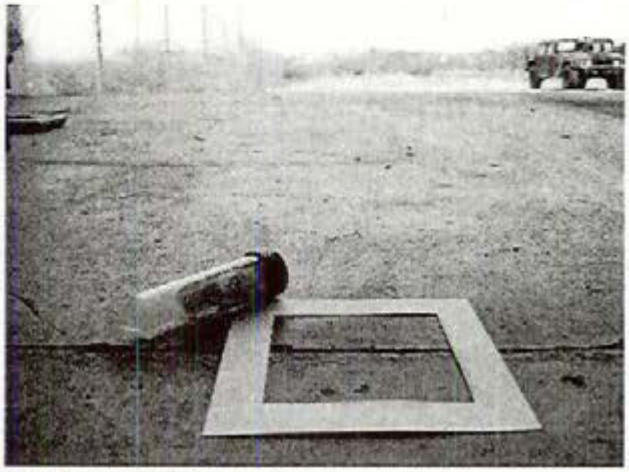
Photograph 7
Lead wipe sample location 6246-4, drill floor, N.W.



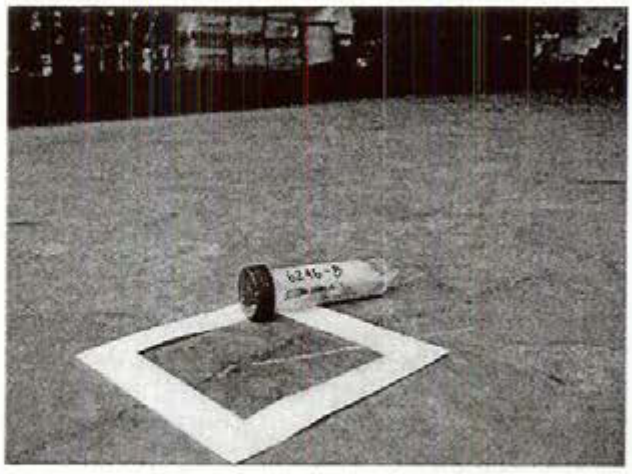
Photograph 8
Lead wipe sample location 6246-5, drill floor, Center



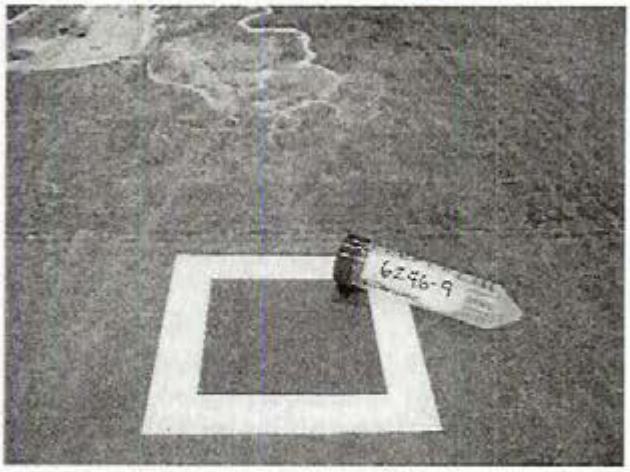
Photograph 9
Lead wipe sample location 6246-6, kitchen



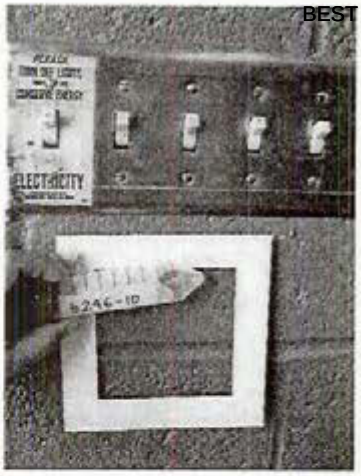
Photograph 10
Lead wipe sample location 6246-7, maintenance bay west



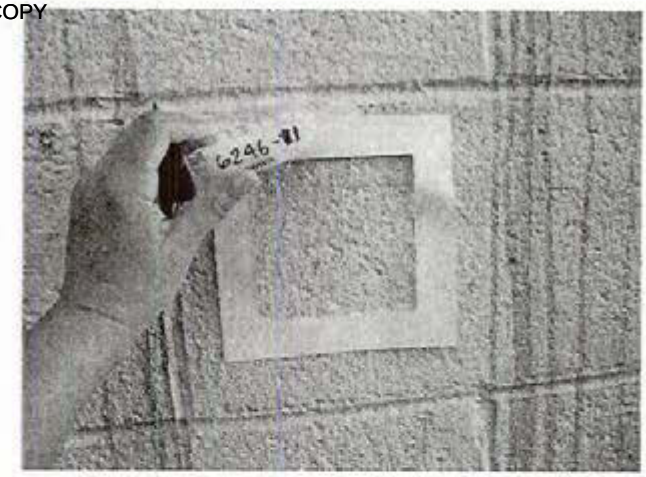
Photograph 11
Lead wipe sample location 6246-8, maintenance bay center



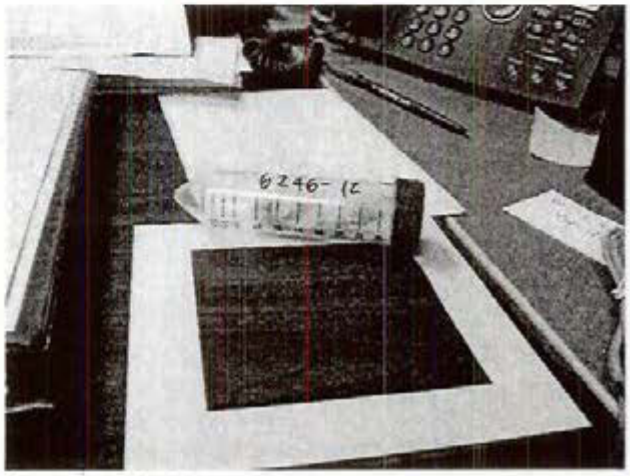
Photograph 12
Lead wipe sample location 6246-9, maintenance bay east



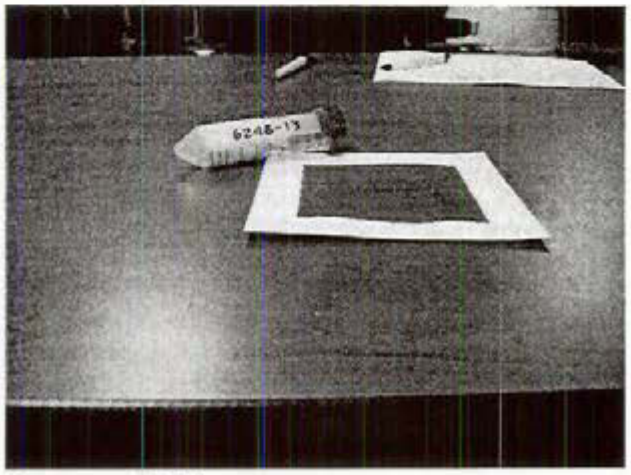
Photograph 13
Lead wipe sample location 6246-10, maintenance bay wall, west



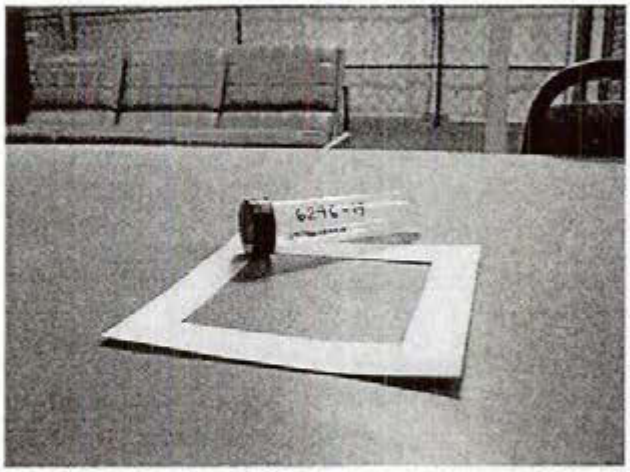
Photograph 14
Lead wipe sample location 6246-11, maintenance bay wall east



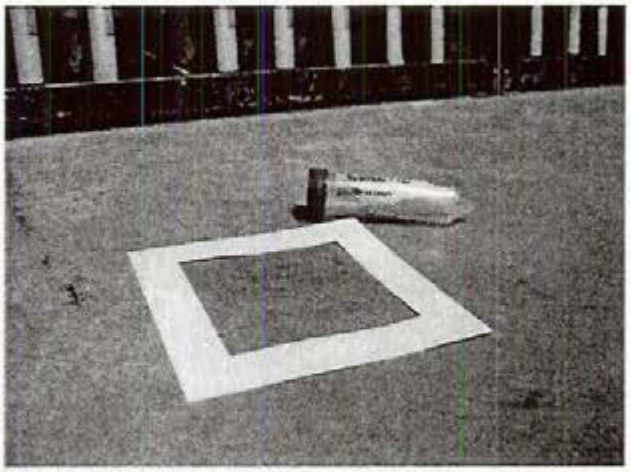
Photograph 15
Lead wipe sample location 6246-12, SFC Bowman's desk



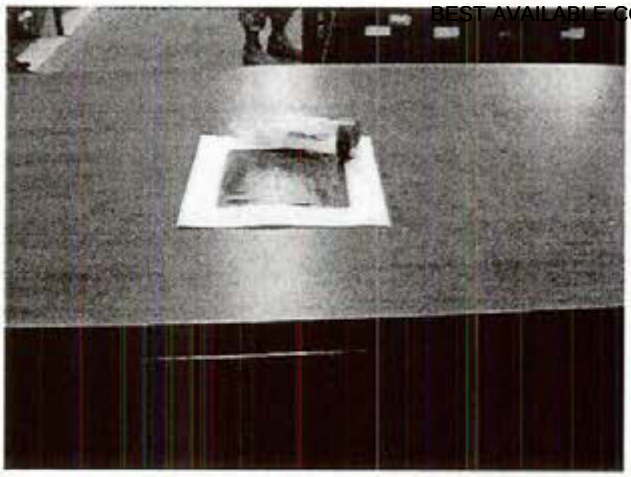
Photograph 16
Lead wipe sample location 6246-13, classroom



Photograph 17
Lead wipe sample location 6246-14, second floor storage

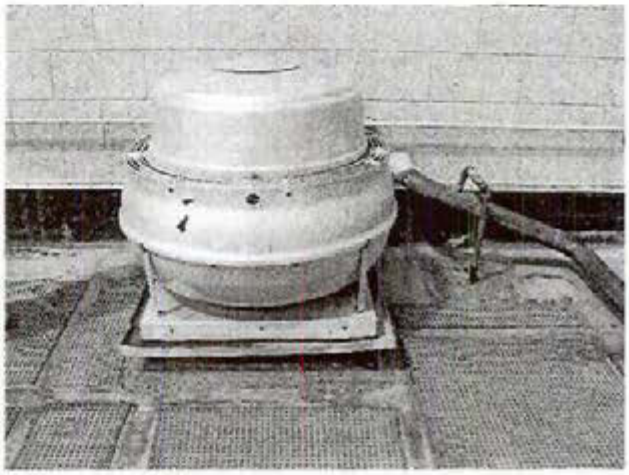


Photograph 18
Lead wipe sample location 6246-16, gun vault



Photograph 19
Lead wipe sample location 6246-17, supply room

Photograph 20
Kitchen exhaust hood over stove/oven



Photograph 21
Kitchen exhaust fan, roof, exterior

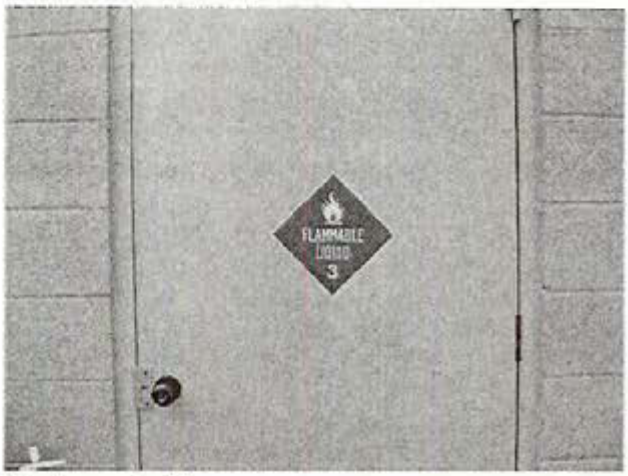
Photograph 22
Combination heating and cooling unit, roof exterior

Photograph 23
Chemical storage cabinet, doors open

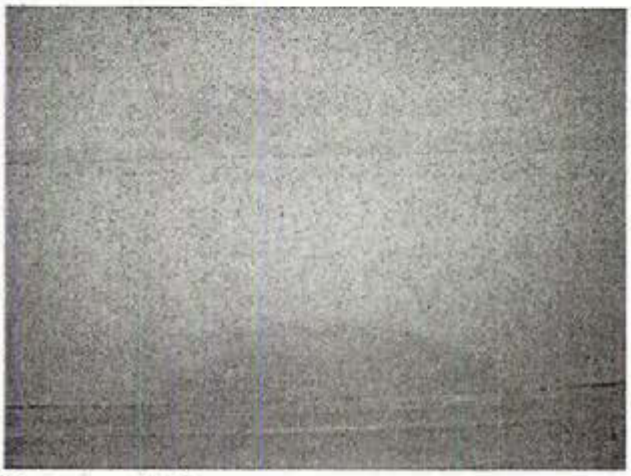
Photograph 24
Chemical storage cabinet, doors closed
Safety: unlabeled cabinet

Photograph 25
Flammables cabinet, doors open

Photograph 26
Flammables cabinet, doors closed



Photograph 27
Storage room containing Flammables cabinet



Photograph 28
Water-stained ceiling tiles, supply office

Photograph 29
Safety: Non- functional GFCI within six feet of a water source

Photograph 30
Safety: Expiring annual inspection for fire extinguishers

Photograph 31
Safety: Monthly fire extinguisher inspections are not current

DELTA COMPANY
CHEMICAL INVENTORY AND MSDA LISTING

These Material Safety Data Sheets are for chemicals which are used at DELTS COMPANY, NMARNG

http://www.msdssearch.com/DBLinksN.htm

PAINT PRODUCTS

MSDS NUMBER	PRODUCT NAME	NIIN/NSN OR PRODUCT NO.	MANUFACTURER	QUANTITY
	ALKYD SEMI-GLOSS ENAMEL	8-14	DUNN-EWARDS CORP	1EA 5 GAL CN
	KRYLON COLOR CREATIONS	KDH5052/DKQ5152	THE SHERWIN-WILLIAMS COMPANY	1EA-1QT CAN
	PAINTER TOUCH BRUSH TOPCOATS		RUST-OLEUM CORP	1EA-1QT CAN
	VAL ULTRA PREM INT S G BASE 4	007.0040240	The VELSPAR CORP.	1EA-1GAL CAN
	VAL ULTRA PREM INT S G BASE 1	007.0044978	The VELSPAR CORP.	1EA 5 GAL CN
000159	MAINCRAFT ALLPURPOSE PAINT		DELTA TECHNICAL COATINGS, INC	2EA-1PT CAN
9179 402	BLACK 9904129	9174 204	RUST-OLEUM CORP	1EA-1QT CAN
FORM #1	GENERIC WATERBRONE LATEX		DUNN-EWARDS CORP	

POL PRODUCTS

MSDS NUMBER	PRODUCT NAME	NIIN/NSN OR PRODUCT NO.	MANUFACTURER	QUANTITY
BJQFK	HYDRAULIC FLUID	9150-00-698-2362	CROWN OIL AND CHEMICAL COMPANY	2EA-1QT CAN
BJQXM	MIL-L-2105-80/90 LUBE OIL	9150-01-035-5392	BATTENFELD AMERICA INC	2EA-1QT CAN
BNBVF	LUBE OIL ENG MIL-L-2104 SAE30W	9150-01-178-4726	SOUTHWEST PETRO-CHEM DIV WITCO CHEMICAL CORP	1/2EA-1QT CN
BNDRZ	LUBE OIL ENG MIL-L-2104 10W	9150-00-189-6727	BORNE CHEMICAL COMPANY, INC	2EA-1QT CAN
BWMRJ	MIL-L-2104F GR 15W40	9150-01-152-4118	TECHNOLUBE PRODUCTS DIV (LUBRICATING SPECIALTY CO)	1EA-1QT CAN
BWPTH	SILICONE BRAKE FLUID	9150-01-102-9455	SAN JUAN INTERNATIONAL, INC	1EA-1GAL CN
BYXXT	CLP NC, MIL-L-63460 D	01-196-2174	BREAK-FREE DIV OF SAN/BAR CORP	46EA-3.5OZ 3EA-1QT BOT
	PRAMITOL 25E HERBICIDE	EPA REG 66222-22	MAKHTESHIM-AGAN OF NORTH AMERICA	1EA-1GAL CN 1EA-2.5 GAL C

JANITORIAL PRODUCT

MSDS NUMBER	PRODUCT NAME	NIIN/NSN OR PRODUCT NO.	MANUFACTURER	QUANTITY
	PARADICHLOROBENZENE BLOCKS		HOSPITAL SPECIALTY COMPANY	
124558	DETERGENT, GEN PURPOSE	7930009265280	THE LIGHTHOUSE OF HOUSTON	
16330	CLEANING COMPOUND, SEPTIC TK	7930008556876	WINSTON CHEMICAL COMPANY	
182030	CORRECTION FLUID	7510013336242	LHB INDUSTRIIES	
126011004	WINDEX POWERIZED GLASS CLEANER (RTU)		JOHNSONDIVERSITY, INC	
350000003607	PLEDGE LEMON AEROSOL		J.C. JOHNSON & SONS, INC	
3H399, 3H400	COTTO WAX SANDED OIL	A3-RED, A3-GREEN	COTTO-WAXO COMPANY	
BLJQB	SCOURING POWTER TYPE II	012941115	FITZPATRICK BROS., INC	
BZXSZ	ADHESIVE	010246988	CHEMENCE INC.	

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DELTA COMPANY
CHEMICAL INVENTORY AND MSDS LIST

PAINT PRODUCTS

MSDS NUMBER	PRODUCT NAME	NIIN/NSN OR PRODUCT NO.	MANUFACTURER	QUANTITY
	ALKYD SEMI-GLOSS ENAMEL	8-14	DUNN-EWARDS CORP	1EA 5 GAL CN
	KRYLON COLOR CREATIONS	KDH5052/DKQ5152	THE SHERWIN-WILLIAMS COMPANY	1EA-1QT CAN
	PAINTER TOUCH BRUSH TOPCOATS		RUST-OLEUM CORP	1EA-1QT CAN
	VAL ULTRA PREM INT S G BASE 4	007.0040240	The VELSPAR CORP.	1EA-1GAL CAN
	VAL ULTRA PREM INT S G BASE 1	007.0044978	The VELSPAR CORP.	1EA 5 GAL CN
000159	MAINCRAFT ALLPURPOSE PAINT		DELTA TECHNICAL COATINGS, INC	2EA-1PT CAN
9179 402	BLACK 9904129	9174 204	RUST-OLEUM CORP	1EA-1QT CAN
FORM #1	GENERIC WATERBRONE LATEX		DUNN-EWARDS CORP	

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Alamogordo Kitchen Stove/Oven Exhaust Duct Velocity Estimate

Face Dimensions =		14.5	X	65.5	Inches	
Face Area =	6.59549	ft^2				

Face Vel. Measurement Points

1	3	5	7	9	11
2	4	6	8	10	12

Face Velocity Measurements

Point	Flow rate (fpm)
1	170
2	147
3	96
4	164
5	577
6	79
7	471
8	67
9	398
10	202
11	121
12	104

Ave Flow Rate (V) =	216.333	fpm
Area of Face (A) =	6.59549	ft^2
Q = A x V		
Q =	1426.82	CFM
Exhaust Duct Diameter =	24	inches
Area of Roof Top Exhaust Duct =	3.1416	ft^2
Estimated Duct Velocity =	**454.171**	**fpm**

FACILITY INFORMATION

(Information listed in First Section)
(1st Few Paragraphs/Pages of Report)

1. Date Prepared: **09/10/12**

2. Names (and Company Name) of Personnel Conducting Industrial Hygiene Site Assistance Visit: Non-Responsive

3. Facility Name and Brief Summary of Primary Activities Conducted at Facility: Alamogordo Army National Guard

Activities: physical fitness training, classroom training, drill exercises

4. Facility Address:
1600 S. Florida Ave,
Alamogordo NM, 88310

5. Primary Unit Assigned to Facility (Ensure to capture and provide Unit Identification Code (UIC)): **Delta Company 1-200th Infantry**

6. Co-Tenant Units Assigned or Working Within Facility (LIST ALL): **none**

7. Square Ft. Area of Facility: **14563**

8. Work Schedule: **M-F 0900-1630**

9. Number of work bays: **1**

10. Equipment Density and Type:

    a. List Equipment Nomenclature Serviced or Maintained at Facility:

    b. List Total Number for Each Nomenclature Serviced or Maintained at Facility:

1 LMTV (5 ton)
HumV

11. Total Number of Personnel:**2**

12. No. of Admin. Personnel (Include Status – AGR, Fed. Tech., IDT, State or Contract Employee): **2 Military personnel conduct admin as well.**

13. No. of Maintenance Personnel (Include Status – AGR, Fed. Tech., IDT, State or Contract Employee): **0 on site, Maintenance conducted by Department of Military Affairs Maintenance Division.**

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
(505) 474-2644,
Non-Responsive

19. Safety Officer: Non-Responsive

20. Facility Telephone Number:

(505) 474-2644

Alamogordo Armory
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)	outdoors
Is there a **converted indoor firing range**? If so collect additional wipe samples IAW the SOW.	yes - maintenance bay used to be an IFR for a short period of time
Is there any peeling **paint**? Take bulk sample if able.	No
Are there any signs of water damage or **mold**?	yes- H_2O stained ceiling tiles no signs of mold
Any suspected **ACM**? Where and what condition is it in. Bulk sample if able.	yes -
Quality of housekeeping	Good
HVAC maintenance plan in place?	yes - Dept of Military affairs
Overall condition of HVAC system	Good
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	yes
Evidence of **monthly fire extinguisher inspections**	not current
Annual fire extinguisher inspections tags current	expired
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	—
Any hazardous **noise** sources	No
Light levels checked throughout building	—
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.?	2 full time guard members no civilian employees Units → Delta Co 1-200th Infantry.
Any civilian activities in armory (cub scouts, classes, day care, parties etc)	occasionally rent out drill hall for celebratory/ commemerative occasions
Obtain two **lead air samples**	—

Evaluate Kitchen Stove Hood. How it 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	Non-Responsive

DXP

THE INDUSTRIAL DISTRIBUTION EXPERTS

Technical Services Division

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:	MSA
Model:	Sound Level Meter Type 2
Serial Number:	00035
Calibration Date:	February 10, 2012
Calibrated By:	Non-Responsive [redacted]

1111 South 27th Street Billings, Montana 59101
1-800-947-7120

DXP

THE INDUSTRIAL DISTRIBUTION EXPERTS

Technical Services Division

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:	MSA
Model:	Sound Level Calibrator 6950
Serial Number:	07349
Calibration Date:	February 10, 2012
Calibrated By:	Non-Responsive [redacted]

1111 South 27th Street Billings, Montana 59101
1-800-947-7120

EQUIPCO RENTALS

TSI Model 8551 Q-TRAK
CALIBRATION CERTIFICATE

DATE: 9/7/12

CALIBRATED BY: Non-Responsive [redacted]

RENTAL I.D.: Q-TRAK. 07

SERIAL NO.: 8554-01051026

CALIBRATION GAS 1 : 99.8% Nitrogen (0ppm CO_2, 0ppm CO) Lot#: 105-102192670-6

RESPONSE TO GAS 1: 0 ppm CO_2

0 ppm CO

CALIBRATION GAS 2: Carbon Dioxide 1000 ppm Lot#: 91963100Z

RESPONSE TO GAS 2: 1000 ppm ± 3%

CALIBRATION GAS 3: Carbon Monoxide 95 ppm Lot#: 91963100Z

RESPONSE TO GAS 3: 95 PPM ±3%

THIS INSTRUMENT HAS BEEN CALIBRATED TO MEET FACTORY SPECIFICATIONS

2100 Meridian Park Blvd, Concord, CA. 94520 Phone (888) 234-5678 Fax (925) 674-8655

TSI VELOCICALC

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	66.7 (19.3)	°F (°C)
RELATIVE HUMIDITY	58	%RH
BAROMETRIC PRESSURE	28.78 (974.6)	inHg (hPa)

MODEL	9515
SERIAL NUMBER	T95151103007

☐ AS LEFT ☒ IN TOLERANCE
☒ AS FOUND ☐ OUT OF TOLERANCE

– CALIBRATION VERIFICATION RESULTS –

TEMPERATURE AS FOUND — SYSTEM T-101 — *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)	139.7 (59.8)	139.5~140.5 (59.7~60.3)

VELOCITY VERIFICATION — SYSTEM V-107 — *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	700 (3.55)	686 (3.49)	665~735 (3.38~3.73)
2	30 (0.15)	26 (0.13)	25~35 (0.13~0.18)	8	1198 (6.09)	1195 (6.07)	1138~1258 (5.78~6.39)
3	61 (0.31)	61 (0.31)	56~66 (0.28~0.33)	9	1922 (9.76)	1915 (9.73)	1826~2018 (9.28~10.25)
4	100 (0.51)	99 (0.50)	95~104 (0.48~0.53)	10	2711 (13.77)	2724 (13.84)	2576~2847 (13.08~14.46)
5	200 (1.02)	199 (1.01)	190~210 (0.97~1.07)	11	3791 (19.26)	3818 (19.39)	3601~3980 (18.29~20.22)
6	406 (2.06)	407 (2.07)	386~427 (1.96~2.17)				

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	04-17-12	10-17-12
DC Voltage	E001653	06-24-11	12-24-12
Temperature	E001643	02-16-12	08-16-12
Pressure	E002389	03-06-12	09-06-12

Measurement Variable	System ID	Last Cal.	Cal. Due
Temperature	E003987	04-17-12	10-17-12
Barometric Pressure	E001992	04-06-12	04-06-13
Pressure	E001718	12-07-11	06-07-12
Velocity	E003327	09-19-07	09-19-12

Non-Responsive

May 3, 2012
DATE

DOC ID: CERT_GEN_WCC

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	66.7 (19.3)	°F (°C)
RELATIVE HUMIDITY	58	%RH
BAROMETRIC PRESSURE	28.78 (974.6)	inHg (hPa)

MODEL	9515
SERIAL NUMBER	T95151103007

☒ AS LEFT ☐ AS FOUND

☒ IN TOLERANCE ☐ OUT OF TOLERANCE

– CALIBRATION VERIFICATION RESULTS –

TEMPERATURE VERIFICATION — SYSTEM T-101 — Unit: °F (°C)

#	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)	139.7 (59.8)	139.5~140.5 (59.7~60.3)

VELOCITY VERIFICATION — SYSTEM V-111 — Unit: ft/min (m/s)

#	STANDARD	MEASURED	ALLOWABLE RANGE
1	0 (0.00)	0 (0.00)	-5~5 (-0.03~0.03)
2	30 (0.15)	30 (0.15)	25~35 (0.13~0.18)
3	60 (0.30)	61 (0.31)	55~65 (0.28~0.33)
4	101 (0.51)	102 (0.52)	96~106 (0.49~0.54)
5	200 (1.01)	198 (1.01)	190~210 (0.96~1.07)
6	397 (2.02)	399 (2.03)	377~417 (1.91~2.12)
7	699 (3.55)	698 (3.55)	664~734 (3.37~3.73)
8	1203 (6.11)	1206 (6.12)	1143~1263 (5.81~6.42)
9	1901 (9.66)	1897 (9.64)	1806~1996 (9.18~10.14)
10	2705 (13.74)	2720 (13.82)	2570~2841 (13.06~14.43)
11	3804 (19.32)	3815 (19.38)	3614~3994 (18.36~20.29)

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	04-17-12	10-17-12
Barometric Pressure	E001992	04-06-12	04-06-13
Temperature	E001644	01-20-12	07-20-12
Pressure	E001058	01-18-12	01-18-13

Measurement Variable	System ID	Last Cal.	Cal. Due
Temperature	E003987	04-17-12	10-17-12
DC Voltage	E004398	12-08-11	06-08-12
Pressure	E004041	03-30-12	09-30-12
Velocity	E003327	09-19-07	09-19-12

Non-Responsive

May 3, 2012
DATE

ID: CERT_GEN_WCC

BEST AVAILABLE COPY

Lead Wipe Sample Results			
Sample Number	Collection Date	Location	Result $\mu g/ft^2$
6246-01	9/10/2012	Drill floor N.E.	< 23
6246-02	9/10/2012	Drill floor S.E.	< 23
6246-03	9/10/2012	Drill floor S.W.	< 23
6246-04	9/10/2012	Drill floor N.W.	< 23
6246-05	9/10/2012	Drill floor Center	< 23
6246-06	9/10/2012	Kitchen, on top of food preparation surface	< 23
6246-07	9/10/2012	Maintenance Bay (former IFR), West	190
6246-08	9/10/2012	Maintenance Bay (former IFR), East	320
6246-09	9/10/2012	Maintenance Bay (former IFR), Center	61
6246-10	9/10/2012	Maintenance Bay (former IFR), North wall under light switch	< 23
6246-11	9/10/2012	Maintenance Bay (former IFR), South wall	< 23
6246-12	9/10/2012	SFC Bowman's desk	< 23
6246-13	9/10/2012	Classroom	< 23
6246-14	9/10/2012	Second floor, storage room	< 23
6246-15	9/10/2012	Field Blank	< 23
6246-16	9/10/2012	Gun Vault	33
6246-17	9/10/2012	Supply Room adjacent to gun vault, weapons issue counter	< 23

ANALYTICAL REPORT
Amended

Report Date: October 05, 2012

Carina Kouyoumji
IHI Environmental
640 East Wilmington Avenue
Salt Lake City, UT 84106

Phone: (801) 466-2223
Fax: (801) 466-9616
E-mail: kouyoumji@ihi-env.com

Workorder: 34-1226231
Client Project ID: 12U-I6246/AlamogordoNM 091812
Purchase Order: 12U-I6246
Project Manager: Paul Pope

Analytical Results

Sample ID: 6246-1	Media: Lead Dust Wipe	Collected: 09/10/2012
Lab ID: 1226231001	Sampling Location: Alamogordo, NM	Received: 09/18/2012
Method: NIOSH 7300 Mod.	**Sampling Parameter: Area 100 cm²**	**Prepared:** 09/20/2012 **Analyzed:** 09/24/2012

Analyte	ug/sample	ug/ft²	RL (ug/sample)
Lead	<2.5	<23	2.5

Sample ID: 6246-2	Media: Lead Dust Wipe	Collected: 09/10/2012
Lab ID: 1226231002	Sampling Location: Alamogordo, NM	Received: 09/18/2012
Method: NIOSH 7300 Mod.	**Sampling Parameter: Area 100 cm²**	**Prepared:** 09/20/2012 **Analyzed:** 09/24/2012

Analyte	ug/sample	ug/ft²	RL (ug/sample)
Lead	<2.5	<23	2.5

Sample ID: 6246-3	Media: Lead Dust Wipe	Collected: 09/10/2012
Lab ID: 1226231003	Sampling Location: Alamogordo, NM	Received: 09/18/2012
Method: NIOSH 7300 Mod.	**Sampling Parameter: Area 100 cm²**	**Prepared:** 09/20/2012 **Analyzed:** 09/24/2012

Analyte	ug/sample	ug/ft²	RL (ug/sample)
Lead	<2.5	<23	2.5

Sample ID: 6246-4	Media: Lead Dust Wipe	Collected: 09/10/2012
Lab ID: 1226231004	Sampling Location: Alamogordo, NM	Received: 09/18/2012
Method: NIOSH 7300 Mod.	**Sampling Parameter: Area 100 cm²**	**Prepared:** 09/20/2012 **Analyzed:** 09/24/2012

Analyte	ug/sample	ug/ft²	RL (ug/sample)
Lead	<2.5	<23	2.5

ANALYTICAL REPORT
Amended

Workorder: **34-1226231**
Client Project ID: 12U-I6246/AlamogordoNM 091812
Purchase Order: 12U-I6246
Project Manager: Paul Pope

Analytical Results

Sample ID: 6246-5	Media: Lead Dust Wipe	Collected: 09/10/2012
Lab ID: 1226231005	Sampling Location: Alamogordo, NM	Received: 09/18/2012
Method: NIOSH 7300 Mod.	**Sampling Parameter: Area 100 cm²**	Prepared: 09/20/2012 Analyzed: 09/24/2012

Analyte	ug/sample	ug/ft²	RL (ug/sample)
Lead	<2.5	<23	2.5

Sample ID: 6246-6	Media: Lead Dust Wipe	Collected: 09/10/2012
Lab ID: 1226231006	Sampling Location: Alamogordo, NM	Received: 09/18/2012
Method: NIOSH 7300 Mod.	**Sampling Parameter: Area 100 cm²**	Prepared: 09/20/2012 Analyzed: 09/24/2012

Analyte	ug/sample	ug/ft²	RL (ug/sample)
Lead	<2.5	<23	2.5

Sample ID: 6246-7	Media: Lead Dust Wipe	Collected: 09/10/2012
Lab ID: 1226231007	Sampling Location: Alamogordo, NM	Received: 09/18/2012
Method: NIOSH 7300 Mod.	**Sampling Parameter: Area 100 cm²**	Prepared: 09/20/2012 Analyzed: 09/24/2012

Analyte	ug/sample	ug/ft²	RL (ug/sample)
Lead	**20**	**190**	2.5

Sample ID: 6246-8	Media: Lead Dust Wipe	Collected: 09/10/2012
Lab ID: 1226231008	Sampling Location: Alamogordo, NM	Received: 09/18/2012
Method: NIOSH 7300 Mod.	**Sampling Parameter: Area 100 cm²**	Prepared: 09/20/2012 Analyzed: 09/24/2012

Analyte	ug/sample	ug/ft²	RL (ug/sample)
Lead	**35**	**320**	2.5

Sample ID: 6246-9	Media: Lead Dust Wipe	Collected: 09/10/2012
Lab ID: 1226231009	Sampling Location: Alamogordo, NM	Received: 09/18/2012
Method: NIOSH 7300 Mod.	**Sampling Parameter: Area 100 cm²**	Prepared: 09/20/2012 Analyzed: 09/24/2012

Analyte	ug/sample	ug/ft²	RL (ug/sample)
Lead	**6.6**	**61**	2.5

ANALYTICAL REPORT
Amended

Workorder: **34-1226231**
Client Project ID: 12U-I6246/AlamogordoNM 091812
Purchase Order: 12U-I6246
Project Manager: Paul Pope

Analytical Results

Sample ID: 6246-10	Media: Lead Dust Wipe	Collected: 09/10/2012
Lab ID: 1226231010	Sampling Location: Alamogordo, NM	Received: 09/18/2012
Method: NIOSH 7300 Mod.	**Sampling Parameter: Area 100 cm²**	Prepared: 09/20/2012 Analyzed: 09/24/2012

Analyte	ug/sample	ug/ft²	RL (ug/sample)
Lead	<2.5	<23	2.5

Sample ID: 6246-11	Media: Lead Dust Wipe	Collected: 09/10/2012
Lab ID: 1226231011	Sampling Location: Alamogordo, NM	Received: 09/18/2012
Method: NIOSH 7300 Mod.	**Sampling Parameter: Area 100 cm²**	Prepared: 09/20/2012 Analyzed: 09/24/2012

Analyte	ug/sample	ug/ft²	RL (ug/sample)
Lead	<2.5	<23	2.5

Sample ID: 6246-12	Media: Lead Dust Wipe	Collected: 09/10/2012
Lab ID: 1226231012	Sampling Location: Alamogordo, NM	Received: 09/18/2012
Method: NIOSH 7300 Mod.	**Sampling Parameter: Area 100 cm²**	Prepared: 09/20/2012 Analyzed: 09/24/2012

Analyte	ug/sample	ug/ft²	RL (ug/sample)
Lead	<2.5	<23	2.5

Sample ID: 6246-13	Media: Lead Dust Wipe	Collected: 09/10/2012
Lab ID: 1226231013	Sampling Location: Alamogordo, NM	Received: 09/18/2012
Method: NIOSH 7300 Mod.	**Sampling Parameter: Area 100 cm²**	Prepared: 09/20/2012 Analyzed: 09/24/2012

Analyte	ug/sample	ug/ft²	RL (ug/sample)
Lead	<2.5	<23	2.5

Sample ID: 6246-14	Media: Lead Dust Wipe	Collected: 09/10/2012
Lab ID: 1226231014	Sampling Location: Alamogordo, NM	Received: 09/18/2012
Method: NIOSH 7300 Mod.	**Sampling Parameter: Area 100 cm²**	Prepared: 09/20/2012 Analyzed: 09/24/2012

Analyte	ug/sample	ug/ft²	RL (ug/sample)
Lead	<2.5	<23	2.5

ANALYTICAL REPORT
Amended

Workorder: **34-1226231**
Client Project ID: 12U-I6246/AlamogordoNM 091812
Purchase Order: 12U-I6246
Project Manager: Paul Pope

Analytical Results

Sample ID: 6246-15	Media: Lead Dust Wipe		Collected: 09/10/2012
Lab ID: 1226231015	Sampling Location: Alamogordo, NM		Received: 09/18/2012
Method: NIOSH 7300 Mod.	**Sampling Parameter: Area 100 cm²**		Prepared: 09/20/2012 Analyzed: 09/24/2012
Analyte	ug/sample	ug/ft²	RL (ug/sample)
Lead	<2.5	<23	2.5

Sample ID: 6246-16	Media: Lead Dust Wipe		Collected: 09/10/2012
Lab ID: 1226231016	Sampling Location: Alamogordo, NM		Received: 09/18/2012
Method: NIOSH 7300 Mod.	**Sampling Parameter: Area 100 cm²**		Prepared: 09/20/2012 Analyzed: 09/25/2012
Analyte	ug/sample	ug/ft²	RL (ug/sample)
Lead	**3.6**	**33**	2.5

Sample ID: 6246-17	Media: Lead Dust Wipe		Collected: 09/10/2012
Lab ID: 1226231017	Sampling Location: Alamogordo, NM		Received: 09/18/2012
Method: NIOSH 7300 Mod.	**Sampling Parameter: Area 100 cm²**		Prepared: 09/20/2012 Analyzed: 09/25/2012
Analyte	ug/sample	ug/ft²	RL (ug/sample)
Lead	<2.5	<23	2.5

Sample ID: 6246-18 (FB)	Media: Lead Dust Wipe		Collected: 09/10/2012
Lab ID: 1226231018	Sampling Location: Alamogordo, NM		Received: 09/18/2012
Method: NIOSH 7300 Mod.	**Sampling Parameter: Area Not Applicable**		Prepared: 09/20/2012 Analyzed: 09/25/2012
Analyte	ug/sample	ug/ft²	RL (ug/sample)
Lead	<2.5	NA	2.5

Report Authorization

Method	Analyst	Peer Review
NIOSH 7300 Mod.	Penny A. Foote	Neil A. Edwards

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
Amended

Workorder: **34-1226231**
Client Project ID: 12U-I6246/AlamogordoNM 091812
Purchase Order: 12U-I6246
Project Manager: Paul Pope

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.

Industrial Hygiene Southwest

Violation Inventory Log

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

Alamogordo Armory, Alamogordo, New Mexico

CONTROL NUMBER CLOSED ☐	HAZARD DESCRIPTION	SITE	RAC	CORRECTIVE ACTIONS (Abatement Plan)	SUSPENSE DATE	ACTION OIC/NCOIC	Estimated Cost(s)	DATE CORRECTED	REFERENCES
NMAA-091012-4.1 ☐	The Maintenance Bay, used previously as an indoor firing range, had surface lead concentrations ranging from 61 to 320 µg/ ft^2.	Mainteance Bay	3	Clean the floors of the maintenance bay to reduce lead levels to less than 40 µg/ ft^2.					IHSW SOP
NMAA-091012-A124.4 ☐	An asbestos survey could not be located during this IH Assistance Visit.	Alamogordo Armory	3	Locate the asbestos survey or contract with a licensed firm to perform an asbestos survey and assessment. If asbestos-containing materials are identified and assessed, provide awareness training to assigned personnel in this armory.					29 CFR 1910.1001(j)(3)(i)
NMAA-091012-4.6.1 ☐	The door to the cleaning supply room was not posted with an NFPA placard.	Cleaning Supply Room	4	Post an NFPA placard on the entry door where chemicals are stored to alert fire department personnel of the contents of these rooms in an emergency.					NFPA 704
NMAA-091012-4.6.2 ☐	The chemical inventory was not updated to reflect the contents of the flammable storage cabinet and the cabinet containing hazardous materials	Flammable Storage Room and Chemical Storage Room	4	Update the chemical inventory and list of MSDSs to reflect the actual contents of the cabinet containing hazardous materials and the flammable storage cabinet.					1910.1200 (e) (i)
NMAA-091012-4.8 ☐	The average estimated duct velocity for the exhaust fan in the kitchen is 454 fpm, which is slightly below the NFPA recommended minimum of 500 fpm.	Kitchen	3	Upgrade the exhaust fan in the kitchen to 500 fpm.					2011 National Fire Protection Association Standard 96, Section 8.2.1.1
NMAA-091012-4.10 ☐	Monthly and annual fire extinguisher checks were not current	Alamogordo Armory	4	Ensure that annual and monthly fire extinguisher checks are maintained and current.					1910.157 (e)(3) 1910.157 (e)(2)

Reference DA FORM 4754
VER: 15 OCT 2009

Industrial Hygiene Southwest

Violation Inventory Log

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

Alamogordo Armory, Alamogordo, New Mexico

CONTROL NUMBER CLOSED ☐	HAZARD DESCRIPTION	SITE	RAC	CORRECTIVE ACTIONS (Abatement Plan)	SUSPENSE DATE	ACTION OIC/NCOIC	Estimated Cost(s)	DATE CORRECTED	REFERENCES
NMJAA-091012-4.10 ☐	The ground fault circuit interrupters (GFCIs) installed on the outlets within six feet of water sources in the kitchen did not interrupt the circuit when tested.	Kitchen	4	Repair or replace the GFCI circuits located near the kitchen sink.					1910.303(b)(1) & NFPA 70, Article 210-8

4.1 Lead Wipe Sampling

Recommendations

The Maintenance Bay should be cleaned in accordance with the IHSW Lead-Cleanup SOP in Appendix N.

4.2 Painted Surface Evaluation

Recommendation

Contact the State FMO, State Safety, and the State Environmental directorates before conducting any work that may disturb the integrity of a painted surface.

4.4 Asbestos Management

Recommendations

1. Locate the asbestos survey or 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.

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

Recommendations

1. Update the chemical inventory and list of MSDSs to reflect the actual contents of the cabinet containing hazardous materials and the flammable storage cabinet.
2. Visible Hazard identification signs in accordance with NFPA 704, Standard System for Identification of the Hazards of Materials for Emergency Response shall be placed on the cabinet containing the hazardous materials, as well as, the entrance of the room where the cabinet is located.

4.8 Kitchen Ventilation Survey

Recommendation
Upgrade the exhaust fan in the kitchen to 500 fpm.

4.10 General Safety Walk-Through

Recommendations

1. Ensure that monthly and annual inspections of fire extinguishers are conducted.
2. Place a work order to correct the wiring and/or repair the GFCI circuits located near the kitchen sink.

NOISE SURVEY
(Sound Level Meter Survey)

1. DATE (YYYYMMDD): 20120910

2. TYPE SURVEY (Enter code): 1 (1 - INITIAL SURVEY; 2 - RE-SURVEY; 3 - OTHER)

3. SOUND LEVEL METER		4. MICROPHONE		5. CALIBRATOR	
a. MANUFACTURER: MSA		a. MANUFACTURER: MSA		a. MANUFACTURER: MSA	
b. MODEL: Type 2	c. SERIAL NO.: 00035	b. MODEL: Type 2	c. SERIAL NO.: 00035	b. MODEL: 6950	c. SERIAL NO.: 07349
d. LAST ELECTROACOUSTIC CALIB DATE (YYYYMMDD): 20120210		e. LAST ELECTROACOUSTIC CALIB DATE (YYYYMMDD): 20120210		f. LAST ELECTROACOUSTIC CALIB DATE (YYYYMMDD): 20120210	

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)
Alamogordo Armory 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)
Kitchen exhaust hood over stove/oven	S	74.0	52.0	IVD	X			
True brand Freezer	S	65.0	55.0	IVD	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.)
The kitchen appliances at the armory were reported to be used very rarely.

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

a. NAME (Last, First, Middle Initial)	b. TELEPHONE (Include area code)	c. ORGANIZATION
SFC Bowman, James	(505) 474-2644	NMARNG

17. SURVEY PERFORMED BY (Last Name, First Name, MI)	18. HEARING CONSERVATION MONITOR (Last Name, First Name, MI)
Kouyoumji, Carina	Martinez, Monica

DD FORM 2214, JAN 2000 PREVIOUS EDITION MAY BE USED. Adobe Professional 7.0

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.

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.**

1.0 INTRODUCTION

On September 10, 2012, Non-Responsive MPH, an Industrial Hygienist with IHI Environmental (IHI), conducted an Industrial Hygiene (IH) Assistance Visit at the Alamogordo Armory located at 1600 South Florida Ave. in Alamogordo, New Mexico. The primary point of contact for information gathered during this survey was Non-Responsive 5) 474-2644 Non-Responsive .

1.1 Objectives

The objectives of the IH Assistance survey is to 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 Alamogordo Armory has two full-time guard members. The armory houses administrative offices, training facilities, a drill floor, storage rooms, a locker room, and a kitchen. The only organization assigned to this armory is the Delta Company 1-200th Infantry. There are no full-time or part-time civilians employed at the armory.

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 armory's heating, ventilation, and air-conditioning (HVAC) system was 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 is available.

Carbon dioxide (CO_2), temperature, and relative humidity were measured throughout the armory using a TSI Model 8550-X Q-Trak™ IAQ 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 minimized (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

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

- Fire Prevention/Protection
- Personal Protective Equipment
- Accident Investigation and Reporting
- Army Accident Prevention Awards Program
- Radiation Safety Management
- Hazardous Communication
- Emergency Planning and Response
- Occupational Safety and Health Program
- Chemical Agent Safety Management
- Composite Risk Management

AR 385-10 (The Army Safety Program)

NGR 385-10 (Army National Guard Safety Program)

DA Pam 385-10 (Army Safety Program)

DA PAM 385-30 (Mishap Risk Management)

FM 5-19 (Risk Management)

DA PAM 385-40 (Army Accident Investigation and Reporting)

AR 385-63 (Range Safety)

All other safety related regulations and training records are maintained electronically on the Reserve Component Automation System (RCAS) Website.

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

- Commanders Safety Course
- Additional Duty Safety Course (ADSC) 2G-F95
- Army Safety Traffic Program, Accident Avoidance for Army Motor Vehicles
- Composite Risk Management
- Online Radiation Safety Officer Training Course

The last Safety Council Meeting was held on June 29, 2012. In addition, the NMARNG 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

ARMY NATIONAL GUARD
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Industrial Hygiene Site Assistance Visit

Santa Fe

Bataan Memorial Museum

1050 Old Pecos Trail
Santa Fe, NM 87505

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

29 MAR 2014

MEMORANDUM THRU Non-Responsive SOHM, 600 Wyoming Blvd, NE, Albuquerque, NM 87123

FOR Commander, Bataan Memorial Museum 1050 Old Pecos Trail Santa Fe, NM 87505

SUBJECT: Executive Summary for Industrial Hygiene Site Assistance Visit (SAV) for Bataan Memorial Museum 1050 Old Pecos Trail Santa Fe, NM 87505 on 20 MAR 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 Bataan Memorial Museum 1050 Old Pecos Trail Santa Fe, NM 87505 on 20 MAR 2014.

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 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. Due to lead paint within this facility, areas should be identified with training about disturbing the integrity of the paint. Contact CFMO, Environmental and State Safety offices before paint integrity is disturbed. (para. 4.2) **(RAC 4)**

b. Recurring Observation: Develop a chemical inventory list and acquire all MSDS's needed for the chemicals utilized at this museum. (para. 4.6.1) **(RAC 4)**

c. Improve housekeeping practices throughout facility, especially in Public Affairs area and vault floor in basement, to help prevent migration of heavy metals in other areas of the building. Follow Armory Clean-up SOP attached to this SAV. (para. 4.1) **(RAC 3)**

d. Restrict access to mechanical room, B-8 and expedite hiring a mold remediation contractor to remove the gypsum board in this room. (para. 4.3) **(RAC 3)**

e. Recurring Observation: Safety training for personnel working in this facility, at a minimum, should include hazard communication for those who use chemical in the work place; emergency evacuation training; and fire extinguisher training. (para. 4.8.2) **(RAC 4)**

f. Personnel, while utilizing the Tanka leaf blower and weed wacker, should wear hearing protection to help prevent hearing loss. (para. 4.2) **(RAC 3)**

g. Provide permanent wiring and electrical outlets in museum where extension cords are currently used to prevent potential electrical fire(s) or pose as a tripping hazard. (para. 4.9.8) **(RAC 4)**

h. Recurring Observation: Provide GFCI receptacles for all electrical outlets within six feet of a water source, as noted in museum lobby kitchen. Repair GFCI receptacle in the women's restroom. (para. 4.9.6) **(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 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

SUBJECT: Executive Summary for Industrial Hygiene Site Assistance Visit (SAV) for the Bataan Memorial Museum 1050 Old Pecos Trail Santa Fe, NM 87505 on 20 MAR 2014.

personnel and forward to the New Mexico Army National Guard Industrial Hygiene, Occupational Health and Safety Office for final review and approval (signature).

personnel and forward to the New Mexico 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
Industrial Hygiene

Industrial Hygiene Southwest

Violation Inventory Log

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

Bataan Memorial Museum, Santa Fe, New Mexico

CONTROL NUMBER CLOSED ☐	HAZARD DESCRIPTION	SITE	RAC	CORRECTIVE ACTIONS (Abatement Plan)	SUSPENSE DATE	ACTION OIC/NCOIC	Estimated Cost(s)	DATE CORRECTED	REFERENCES
BMM-032014-4.1 ☐	The Public Affair's and basement weapons vault floors had lead levels of 180 and 240 µg/ft^2 respectively.	Weapons Vaults	3	Clean the Public Affair's and basement weapons vault floors to a lead level of below 40 µg/ft^2 following the guidance outlined in the IHSW SOPs for Lead in Appendix M of this report.					IHSW SOPs Lead
BMM-032014-4.2 ☐	The analytical result for the collected paint chip samples for the basement floor, white wall paint, and the tan wall paint indicates that these coating contain 0.44, 0.013, and 0.036% lead by weight.	Museum	4	1. Contact the State FMO, State Safety, and the State Environmental directorates before conducting any work that may disturb the integrity of the painted surfaces on the basement floor, or rooms B-6, B-8, and B-10. 2. 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.					29 CFR 1962.62
BMM-032014-4.3 ☐	High numbers of Penicillium/Aspergillus group and Stachybotrys species were observed in the bulk sample collected in Room B-8 from a water stained gypsum board covering an old furnace support stand.	Mechanical Room	3	Restrict access to the mechanical room, B-8 and expedite hiring a mold remediation contractor to remove the gypsum board in this room. Collect air samples at the end of this project to verify remediation efforts.					Recommended Practice
Recurring Finding BMM-032014-4.6.1 ☐	No chemical inventories or MSDSs were on file for the building maintenance products maintained at this facility.	HazComm	4	Develop a chemical inventory and acquire and maintain MSDS for all products maintained for this museum.					29 CFR 1910.1200 (e) (i), 29 CFR 1910.1200 (g) (1), 1910.1200 (a) (2)

Industrial Hygiene Southwest

Violation Inventory Log

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

Bataan Memorial Museum, Santa Fe, New Mexico

CONTROL NUMBER CLOSED ☐	HAZARD DESCRIPTION	SITE	RAC	CORRECTIVE ACTIONS (Abatement Plan)	SUSPENSE DATE	ACTION OIC/NCOIC	Estimated Cost(s)	DATE CORRECTED	REFERENCES
BMM-032014-4.7 ☐	Sound pressure levels above 85 dBA were measured on the Tanka leaf blower and weed wacker.	Sound Pressure Level Surveys	3	Wear hearing protection, i.e., ear plugs or ear muffs when operation the leaf blower and weed wacker.					DA PAM 40–501
Recurring Finding BMM-032014-4.8.2 ☐	There is no documentation of safety training for the employees or volunteer staff who occupy this museum.	Safety Training	4	At a minimum, provide hazard communication to those who use chemicals in the work place; emergency evacuation training to all personnel who work the museum; and fire extinguisher training for those expected to use fire extinguishers in this museum.					29 CFR 1910.1200, 29 CFR 1910.38, 29 CFR 1910.157
Recurring Finding BMM-032014-4.9.6 ☐	There is no ground fault circuit interrupter (GFCI) installed on the outlet within six feet of the sink in the museum lobby kitchen. The GFCI in the women's restroom of the museum failed to trip at 7 milliamps.	Safety	3	Install a GCFI protected receptacle for the electrical outlet near the sink in the museum lobby kitchen and repair or replace the GFCI receptacle in the women's restroom.					NFPA 70, Article 210-8
BMM-032014-4.9.7 ☐	Several of the emergency lights did not function when tested. Note: Mr. Soto is aware of this and a work order has been submitted.	Safety	4	Actively follow-up on the repair or replacement of the emergency lighting in this museum.					29 CFR 1910.37 (b) (1)
BMM-032014-4.9.8 ☐	There are two extension cords in the museum that are being used in place of permanent wiring.	Safety	4	Provide permanent wiring and electrical outlets in the museum where extension cords are currently used.					29 CFR 1910.305 (g) (1) (iii) (A)

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

New Mexico Army National Guard
Bataan Memorial Museum
1050 Old Pecos Trail
Santa Fe, New Mexico 87505

April 7, 2014

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 Services Manager

Project No. AL147163

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APPENDICES

EXECUTIVE SUMMARY

On March 20, 2014, Non-Responsive PE, CSP, of IHI Environmental (IHI), conducted an IH Assistance Visit at the New Mexico Army National Guard, Bataan Memorial Museum located at 1050 Old Pecos Trail in Santa Fe, New Mexico 87505. The primary point of contact for information gathered during this survey wa Non-Responsive 505) 474-1207, Non-Responsive

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

- collect wipe samples for residual metals;
- evaluate the condition of painted surfaces and collect paint chip samples for lead analysis where painted surfaces are damaged;
- inspect the interior of the Bataan Memorial Museum for water intrusion;
- evaluate the condition of the heating, ventilation and air-conditioning system and collect indoor air quality data;
- review hazardous material storage and use procedures;
- perform sound pressure level measurements;
- review safety policies/programs, training, and record keeping; 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 I 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 March 20, 2014 Non-Responsive PE, CSP, of IHI Environmental (IHI), conducted an IH Assistance Visit at the New Mexico Army National Guard, Bataan Memorial Museum located at 1050 Old Pecos Trail in Santa Fe, New Mexico 87505. The primary point of contact for information gathered during this survey was Non-Responsive 505) 474-1207, Non-Responsive

1.1 Objectives

The objective of the IH Assistance survey is to evaluate the occupational environment of the administrative areas in the Santa Fe Armory Bataan Memorial Museum/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 objective at this facility, the survey included the following work:

- collect wipe samples for residual metals;
- evaluate the condition of painted surfaces and collect paint chip samples for lead analysis where painted surfaces are damaged;
- inspect the interior of the museum for water intrusion;
- evaluate the condition of the heating, ventilation and air-conditioning system and collect indoor air quality data;
- review hazardous material storage and use procedures;
- perform sound level measurements;
- review safety policies/programs, training, and record keeping; and
- conduct a safety walk-through evaluation and note any existing safety hazards.

2.0 FACILITY DESCRIPTION

The New Mexico Army National Guard Bataan Memorial Museum/Armory historically served as a functional armory from 1940 to 1964. From 1964 to 1992, the facility served as an armory under the ownership of the state of New Mexico. The facility has been a museum since 1992. The Santa Fe Performing Arts also operates from this building. This group occasionally hosts theater productions, as well as using several rooms for other activities on the north side of the museum. At present, the museum has offices used for administrative purposes and storage. Rooms on the basement floor are dedicated as work and storage areas for artifacts, a historic gun vault, and the library. Civilian activities include people touring

the museum, productions by the Santa Fe Performing Arts, ceremonies, and social gatherings.

Most of the weapons maintained at the museum have been rendered nonfunctional. There are two weapons vaults; one is located on the ground level but was not accessible on the day of the survey, and the other is located on the basement floor and contains historical weapons,. The weapons in the historic gun vault are occasionally maintained in the work area immediately outside the gun vault. There are two full-time persons who work at this location. One is a full-time military individual who works for the Deputy Chief of operations, and Non-Responsive who serves as the manager/curator, and also performs maintenance duties. There is a public affairs division staffed by traditional New Mexico Army National Guardsmen.

Assigned personnel work Monday through Friday between the hours of 8:30 AM and 5:00 PM.

3.0 METHODS

3.1 Metal Wipe Sampling

Metal wipe samples were collected on horizontal surfaces in the Santa Fe Armory Bataan Memorial Museum to evaluate housekeeping standards. Lead Wipe™ brand wipes were used with a 100-square-centimeter template. The wipes conform to American Standards for Testing and 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 National Institute for Occupational Safety and Health (NIOSH) Method 7300. See Appendix F for sample locations and Appendix G for laboratory results.

The Mather, California, office of Industrial Hygiene Southwest has developed a Standard Operating Procedure (SOP) for lead that sets forth a criterion of 40 micrograms of lead per square foot ($\mu g/ft^2$) for 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 surfaces of the Santa Fe Armory Bataan Memorial Museum were visually inspected for peeling or damaged paint. All painted surfaces should be treated as lead-containing materials until determined otherwise. Contact the State FMO, State Safety, and the State Environmental Directorates before conducting any work that may disturb the integrity of painted surfaces.

3.3 Moisture Intrusion and Limited Visual Fungal Growth Evaluation

The interior of the Santa Fe Armory Bataan Memorial Museum 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.

One surface sample was collected in the basement mechanical room (B-8). A bulk sample of the apparent fungal growth on the gypsum board was collected. The bulk sample was placed in a sterile plastic bag, labeled, sealed, and sent by overnight Federal Express delivery to EMLab P&K of Phoenix, Arizona, for direct microscopic examination. EMLab P&K participates in the American Industrial Hygiene Association (AIHA) Environmental Microbiology Laboratory Accreditation Program (EMLAP). See Appendix L for a table of sample results, Appendix G for the laboratory results, and Appendix L for a drawing showing sample locations.

3.4 Heating, Ventilation and Air-Conditioning System and Indoor Air Quality

The Santa Fe Armory Bataan Memorial Museum's heating, ventilation, and air-conditioning (HVAC) system was evaluated. This evaluation consisted of a visual inspection of the system to note any obvious problems.

Carbon dioxide (CO_2), temperature, and relative humidity were measured throughout the CST using a TSI IAQ-Calc™ Meter. 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 for the number of building occupants present. 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 minimized (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.

3.5 Hazard Communication and Hazardous Material Storage

The facility's chemical inventory and Material Safety Data Sheet (MSDS) file were evaluated. Janitorial and building maintenance product storage areas were also inspected.

3.6 Sound Pressure Level Measurements

Sound pressure level measurements of specific noise sources in this facility were made using a Greenlee Sound Level Meter in the A-weighted decibel (dBA) and C-weighted decibel (dBC) ranges, using the slow meter response setting. A DD Form 2214 is provided in Appendix K. A copy of the annual calibration certificate for this instrument is located in Appendix H.

3.7 Safety Training and Record Keeping

An evaluation of safety training programs and documentation was performed to determine if the Santa Fe Armory Bataan Memorial Museum site-specific training programs and annual documentation were current.

3.8 General Safety Walk-Through

A limited walk-through evaluation (Fire & Life Safety) of the Santa Fe Armory Bataan Memorial Museum 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 CST.

3.9 Equipment Used

The following equipment was used for this survey.

Type	Model Number	Serial Number	Calibration Date
TSI IAQ-Calc™ Meter	7575-X	7575X1306021	02/07/2013
Greenlee Sound Level Meter	SM-100	010613107	10/08/2013

The calibration certificates for these instruments are attached in Appendix H.

3.10 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 Metal Wipe Sampling

Wipe samples were collected from horizontal surfaces throughout the facility to determine compliance with the IHSW Standard Operating Procedure for lead and to evaluate general housekeeping measures. This SOP allows up to 40 $\mu g/ft^2$ of lead for administrative areas, break rooms, and areas used by civilians. The SOP criterion for areas where the general public is not normally expected to access, e.g., tool rooms, maintenance bays, furnace rooms, boiler rooms, and specialized shop areas, is 200 $\mu g/ft^2$.

Analytical results for lead indicate all sampling locations were below the SOP's contamination criterion with the exception of the Public Affair's and basement weapons vaults. The Public Affairs and basement weapons vault floors had lead levels of 180 and 240 $\mu g/ft^2$, respectively. See Table 1 in Appendix F for a table of results and a drawing of sample locations; the laboratory reports are supplied in Appendix G. Photographs were taken of each sampling point and are presented in Appendix C.

Recommendation

1. Clean the Public Affairs and basement weapons vault floors to a lead level of below 40 $\mu g/ft^2$, following the guidance outlined in the IHSW SOPs for Lead in Appendix M of this report.

4.2 Painted Surface Evaluation

Peeling paint was observed on the red painted basement floor, on the white wall paint in a basement storage room (B-10) and the mechanical room (B-8), and on the tan wall paint in a basement storage room (B-6). A sample of each of these painted surfaces was collected for lead analysis.

The analytical results for the collected paint chip samples for the basement floor, white wall paint, and the tan wall paint indicate that these coatings contain 0.44, 0.013 and 0.036 percent lead by weight; all of these paint samples are less than the HUD standard of 0.5 percent for lead. However, because there is measureable lead in these samples, OSHA's Lead in Construction Standard applies when renovation work that may affect this paint is conducted. See Appendix F for a data table and a drawing showing sample locations and Appendix G for

the laboratory reports. Photographs were taken of each sampling point and are presented in Appendix C.

All painted surfaces should be considered lead-containing materials until determined otherwise.

Recommendations

1. Contact the State FMO, State Safety, and the State Environmental directorates before conducting any work that may disturb the integrity of the painted surfaces on the basement floor or in rooms B-6, B-8, and B-10.

2. Construction personnel must follow the requirements of the OSHA Lead in Construction Standard, 29 CFR 1926.62, if they perform activities involving these painted surfaces that could create lead dust or fume.

4.3 Water Intrusion Evaluation

Evidence of moisture intrusion was noted in three rooms on the northeast corner of the building. Non-Responsive has taken steps to divert rain water away from the building by adding extensions to the exterior downspouts. As a result, the paint is peeling on these exterior basement walls and there is visible fungal growth on the gypsum board covering a furnace stand in the mechanical room (B-8). As indicated in Table 2 in Appendix L, high spores numbers of the *Penicillium/Aspergillus* group and *Stachybotrys* genera were observed in the bulk sample.

The analytical report from EMLab, for the bulk sample collected, is included in Appendix G, and Appendix L has a drawing showing the sample location.

Recommendation

1. Restrict access to mechanical room B-8 and expedite hiring a mold remediation contractor to remove the affected gypsum board in this room. Collect air samples at the end of this project to verify the effectiveness of remediation efforts.

4.4 Indoor Air Quality

The Heating, Ventilation, and Air-Conditioning (HVAC) systems servicing the building consist of four gas-fired packaged heating and cooling units located in a mechanical room on the second floor, as well as an above-ceiling heat pump and air-conditioning unit that serves

the museum lobby, and a gas-fired unit heater for the main museum. The curator maintains all HVAC equipment with the assistance of the NMARNG Facilities Group when necessary.

Carbon dioxide concentrations ranged from 402 to 684 parts per million (ppm) throughout the facility, which should not result in building occupant complaints with respect to body odors. Building air temperatures ranged from 67-68°F and relative humidity was between 11 and 24 percent during the testing period. Air temperatures were within or close to the recommended comfort range of 68-75°F and the relative humidity was below the recommended comfort range of between 30 and 60 percent. Humidity levels above 60 percent can result in the proliferation of allergenic or pathogenic organisms, while levels below 30 percent can cause dry eyes, skin, and mucous membranes.

Recommendation

None

4.6 Hazardous Materials Use and Storage

4.6.1 Material Safety Data Sheets (MSDS) and Chemical Inventories

Small quantities of janitorial and building maintenance products are stored in a basement storage room. There is a shed for grounds maintenance equipment located on the side of the building. There was no gasoline stored in this shed at the time of this visit. No chemical inventories or MSDSs were on file.

Recommendation

1. Develop a chemical inventory and acquire and maintain MSDSs for all products maintained for this museum.

4.7 Sound Pressure Level Surveys

Sound pressure level measurements were obtained on various noise sources in the museum. The following table lists the noise level measurements obtained during this visit:

Noise Source	Noise Level Measurement
DeWALT Battery-Powered Drill	78.5 dBA at operator ear level
DeWALT Battery-Powered Reciprocating Saw	88.0 dBA at operator ear level
DeWALT Battery-Powered Impact Wrench	77.5 dBA at operator ear level
DeWALT Battery-Powered Cut-Off Saw	81.3 dBA at operator ear level

Noise Source	Noise Level Measurement
Tanaka Leaf Blower	93.6 dBA at operator ear level
Tanaka Weed Wacker	94.1 dBA at operator ear level

A DD Form 2214 is provided in Appendix K of this report.

Recommendation

1. Wear hearing protection, e.g., ear plugs or ear muffs, when operating the leaf blower and weed wacker.

4.8 Safety Policies, Procedures, and Training Documents

4.8.1 Safety Policies and Procedures

The following safety policies and procedures were found at the site:

a. The Army Safety Program AR 385-10
b. Accident Reporting and Records AR 385-40
c. Prevention of Motor Vehicle Accidents AR 385-55
d. Army Accident Prevention Awards Program AR 672-74
e. Small Unit Safety Officer/NCO Guide DA Pam 385-1
f. Risk Management FM 100-14
g. Abbreviated Ground Accident Reporting AGAR Guide

In addition to these documents found on site, more safety-related information is available electronically.

4.8.2 Training Documents

There is no documentation of safety training for the employees or volunteer staff who occupy this museum.

Recommendation

1. At a minimum, provide hazard communication to those who use chemicals in the work place, emergency evacuation training to all personnel who work the museum, and fire extinguisher training for those expected to use fire extinguishers in this museum.

4.9 General Safety Walk-Through

1. Housekeeping throughout the facility was good.
2. There is a fire alarm maintained by Fire Safety Sales in this facility.
3. Fire extinguishers are strategically located throughout the museum. Annual and monthly inspections were current.
4. Fire evacuation routes are posted in most rooms of this museum.

5. Electrical panel boxes were inspected and were found to contain no exposed wiring or openings in the panel.
6. There is no ground fault circuit interrupter (GFCI) installed on the outlet within six feet of the sink in the museum lobby kitchen. The GFCI in the women's restroom of the museum failed to trip at 7 milliamps.
7. Several of the emergency lights did not function when tested. **Note:** [redacted] is aware of this and a work order has been submitted.
8. There are two extension cords in the museum that are being used in place of permanent wiring.

Recommendations

1. Install a GCFI protected receptacle for the electrical outlet near the sink in the museum lobby kitchen and repair or replace the GFCI receptacle in the women's restroom.
2. Actively follow up on the repair or replacement of the emergency lighting in this museum.
3. Provide permanent wiring and electrical outlets in the museum where extension cords are currently used.

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

March 27, 2014
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

American College of Occupational and Environmental Medicine (ACOEM), Position Statements/Guidelines, Evidence Based Statements, Adverse Human Health Effects Associated with Molds in the Indoor Environment, 2002. Available www.acoem.org.

American Conference of Industrial Hygienists, Bioaerosols: Assessment and Control, Macher, J, Ed., Cincinnati, Ohio, 1999.

American Industrial Hygiene Association, Recognition, Evaluation and Control of Indoor Mold. Prezant B, DM Weekes, JD Miller, eds. AIHA, Fairfax, VA. 2008.

New York City Department of Health, Bureau of Environmental & Occupational Disease Epidemiology. Guidelines on assessment and remediation of fungi in indoor environments. 2008.

Rao, C, H Burge, J Chang. Review of quantitative standards and guidelines for fungi in indoor air. J. Air & Waste Manage. Assoc. 46:899-908, 1996.

USEPA, Office of Air and Radiation, Indoor Environments Division. Mold remediation in schools and commercial buildings. EPA 402-K-01-001, 2001.

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

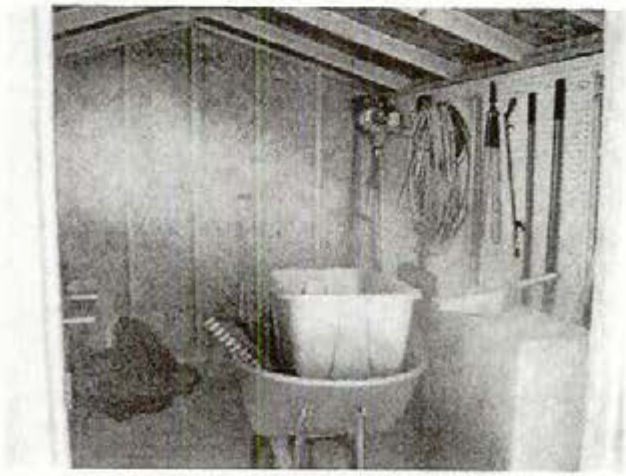
In accordance with the Department of the Army (DA) Pamphlet 40-503, Industrial Hygiene Program (DA PAM 40-503), "The DA mandates the use of ACGIH TLVs when they are more stringent than OSHA regulations or when there is no PEL." The DA defines the resulting exposure limit as the Occupational Exposure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

There are currently no legal standards governing specific permissible levels of mold spore exposures. We rely upon current scientific literature, guidelines and recommendations made by professional organizations and experts, and statistical methods in interpreting mold-sampling results.

Photograph 1
Bataan Memorial Museum, Front, Exterior

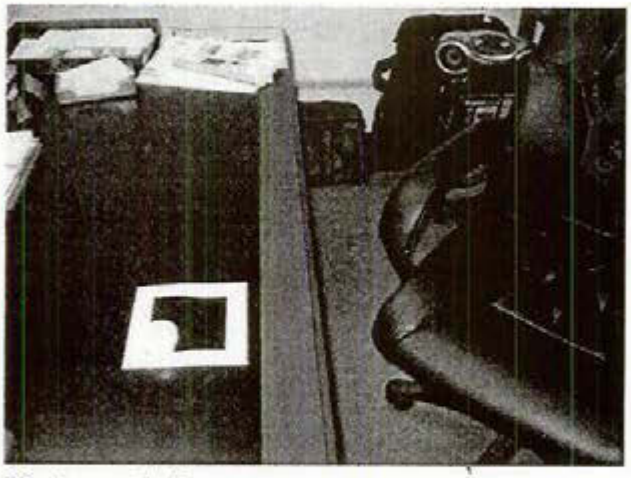
Photograph 2
Bataan Memorial Museum, Rear, Exterior

Photograph 3
Maintenance Shed, Closed



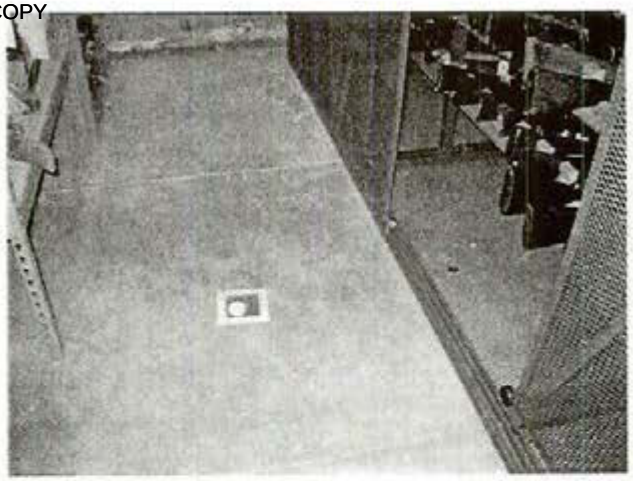
Photograph 4
Maintenance Shed, Open

Photograph 5
Janitorial and building maintenance product storage



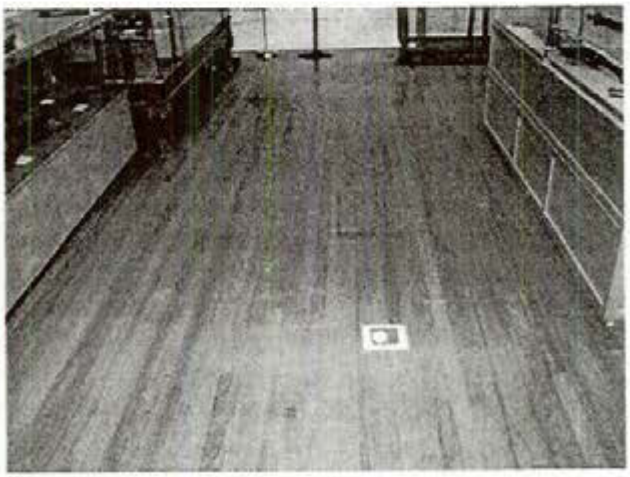
Photograph 6
Location of lead wipe sample number 163-01

Photograph 7
Location of lead wipe sample number 163-02



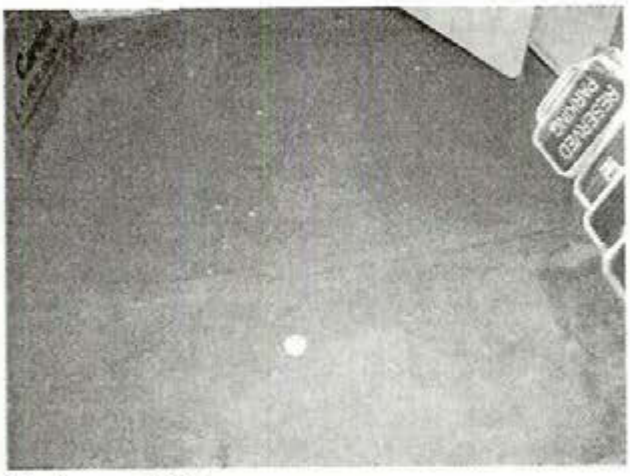
Photograph 8
Location of lead wipe sample number 163-03

Photograph 9
Location of lead wipe sample number 163-04

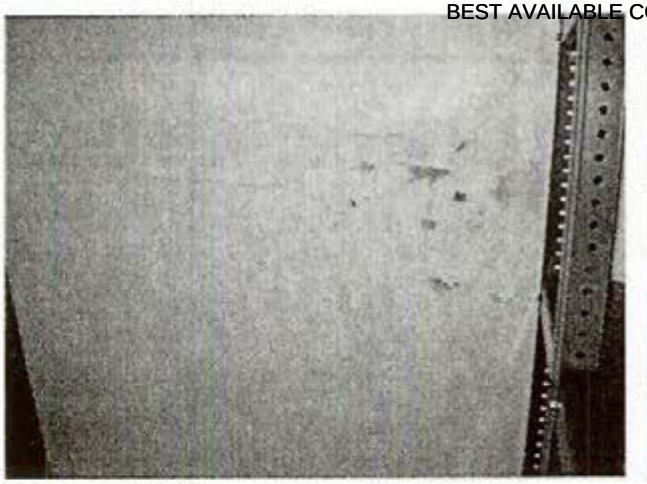


Photograph 10
Location of lead wipe sample number 163-05

Photograph 11
Location of lead wipe sample number 163-06



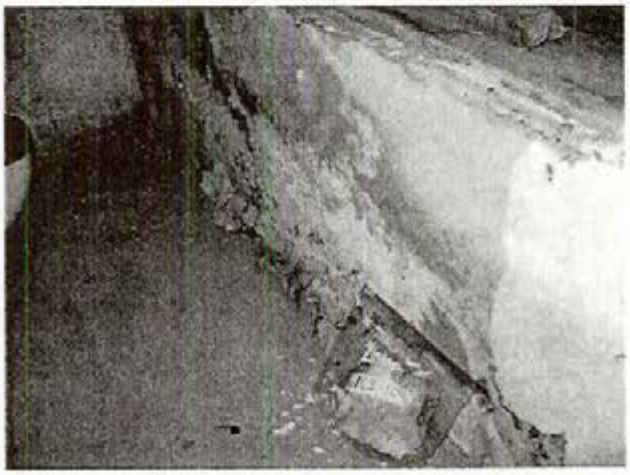
Photograph 12
Location of paint chip sample number 163-07



Photograph 13
Typical peeling paint (room B-10)

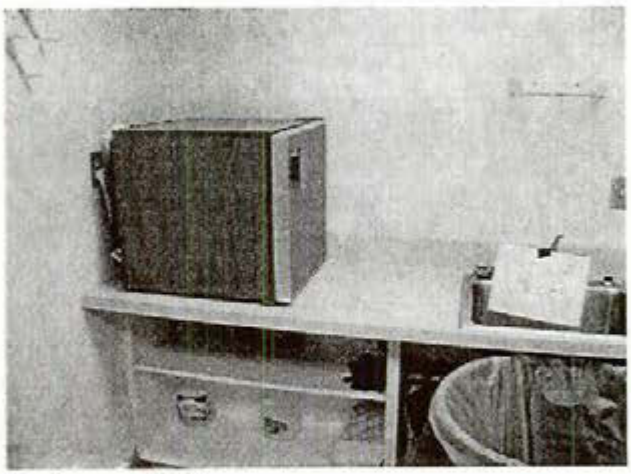
Photograph 14
Location of paint chip sample number 163-08

Photograph 15
Location of paint chip sample number 163-09

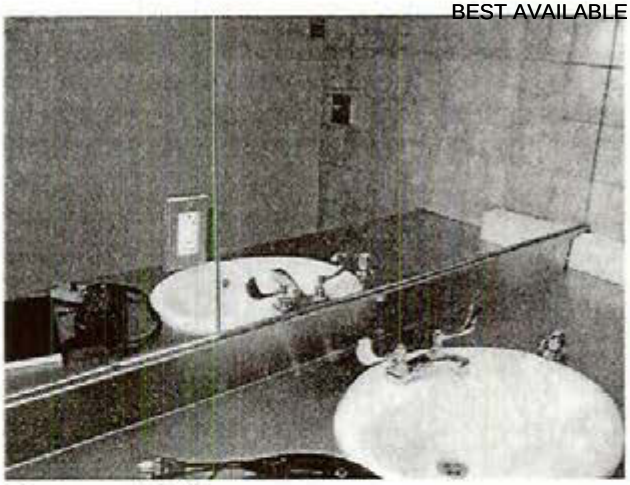


Photograph 16
Location of fungal bulk sample number 163-10

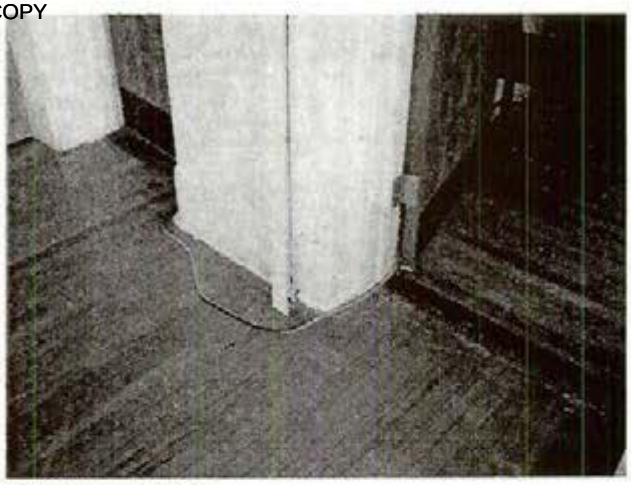
Photograph 17
Safety – Typical emergency exit with emergency lighting that failed to function when tested



Photograph 18
Safety – GFCI missing for electrical receptacle within 6 feet of a water source



Photograph 19
Safety – GFCI did not function when tested in the women's restroom



Photograph 20
Safety – Extension cord used in place of permanent wiring in museum

Photograph 21
Safety – Extension cord used in place of permanent wiring in museum

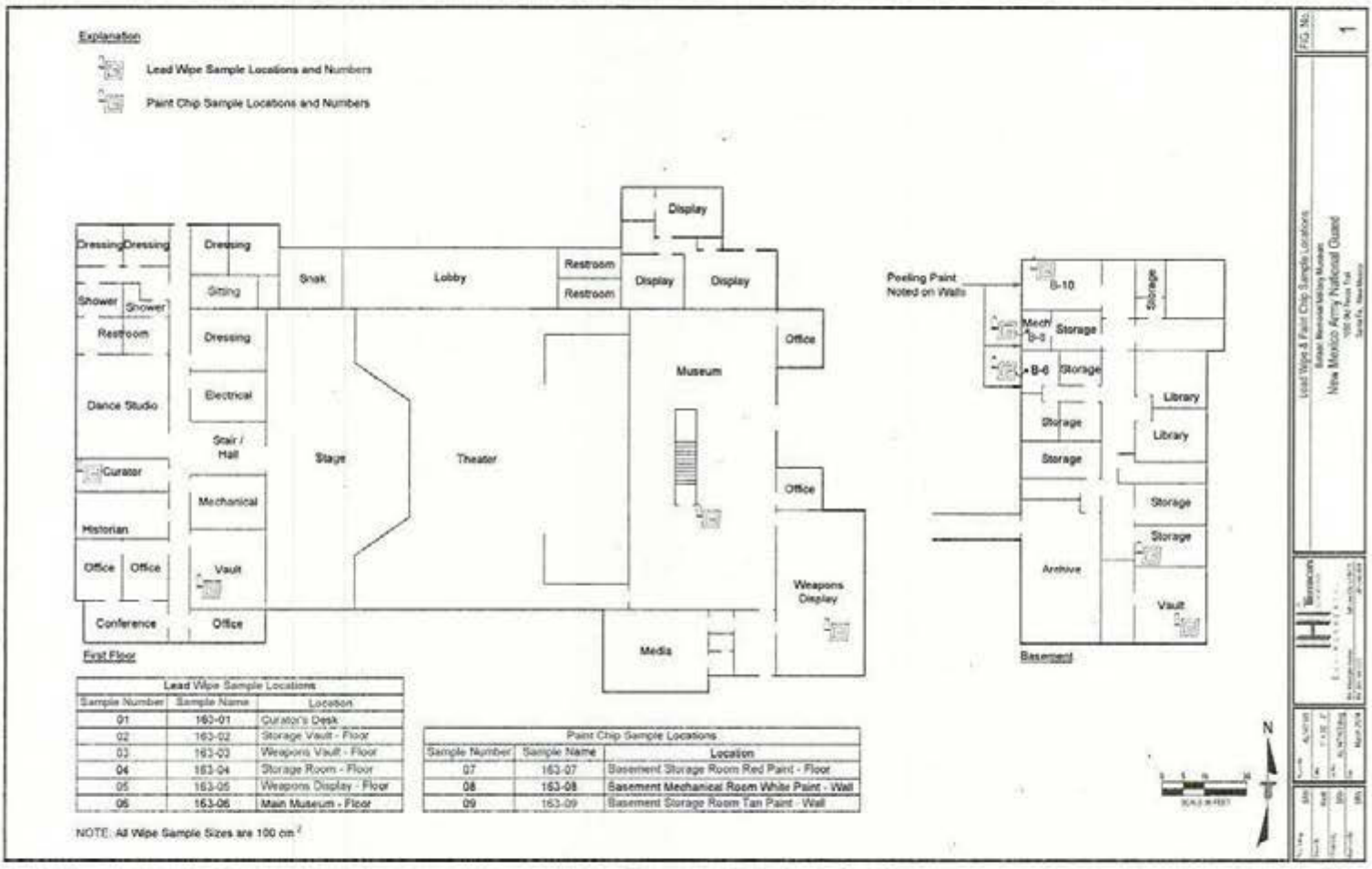
Table 1 Lead Wipe Results NMARNG
Bataan Memorial Museum
Santa Fe, New Mexico

Lead Wipe Sample Results

Sample Number	Collection Date	Location	Result $\mu g/ft^2$
163-01	3/20/2014	Curator's Desk	<12
163-02	3/20/2014	Upstairs PA Storage Vault - Floor	180
163-03	3/20/2014	Basement Weapons Vault - Floor	240
163-04	3/20/2014	Basement Storage - Floor	64
163-05	3/20/2014	Museum Weapons Display Room - Floor	<12
163-06	3/20/2014	Main Museum - Floor	<12
161-10	3/18/2014	Field Blank	<12

Paint Chip Sample Results

Sample Number	Date Collected	Location	Lead % by Weight
163-07	3/20/2014	Basement Storage Room - Red Floor Paint	0.44
163-08	3/20/2014	Basement Mechanical Room - White Wall Paint	0.013
163-09	3/20/2014	Basement Storage Room - Tan Wall Paint	0.036



ANALYTICAL REPORT

Report Date: March 26, 2014

Non-Responsive
IHI Environmental
640 East Wilmington Avenue
Salt Lake City, UT 84106

Phone: (801) 466-2223
Fax: (801) 466-9616
Non-Responsive

Workorder: 34-1408391
Client Project ID: AL147163
Purchase Order: AL147163
Project Manager: Non-Responsive

Analytical Results

Sample ID: 163-01				Collected: 03/20/2014
Lab ID: 1408391001	Sampling Location: Bataan Memorial Muse			Received: 03/24/2014
Method: NIOSH 7300 Mod.	Media: Lead Dust Wipe Sampling Parameter: Area 100 cm²			Prepared: 03/25/2014 Analyzed: 03/25/2014
Analyte	ug/sample	ug/ft²	RL (ug/sample)	
Lead	<1.3	<12	1.3	

Sample ID: 163-02				Collected: 03/20/2014
Lab ID: 1408391002	Sampling Location: Bataan Memorial Muse			Received: 03/24/2014
Method: NIOSH 7300 Mod.	Media: Lead Dust Wipe Sampling Parameter: Area 100 cm²			Prepared: 03/25/2014 Analyzed: 03/25/2014
Analyte	ug/sample	ug/ft²	RL (ug/sample)	
Lead	**20**	**180**	1.3	

Sample ID: 163-03				Collected: 03/20/2014
Lab ID: 1408391003	Sampling Location: Bataan Memorial Muse			Received: 03/24/2014
Method: NIOSH 7300 Mod.	Media: Lead Dust Wipe Sampling Parameter: Area 100 cm²			Prepared: 03/25/2014 Analyzed: 03/25/2014
Analyte	ug/sample	ug/ft²	RL (ug/sample)	
Lead	**26**	**240**	1.3	

Sample ID: 163-04				Collected: 03/20/2014
Lab ID: 1408391004	Sampling Location: Bataan Memorial Muse			Received: 03/24/2014
Method: NIOSH 7300 Mod.	Media: Lead Dust Wipe Sampling Parameter: Area 100 cm²			Prepared: 03/25/2014 Analyzed: 03/25/2014
Analyte	ug/sample	ug/ft²	RL (ug/sample)	
Lead	**6.9**	**64**	1.3	

ANALYTICAL REPORT

Workorder: 34-1408391
Client Project ID: AL147163
Purchase Order: AL147163
Project Manager: Non-Responsive

Analytical Results

Sample ID: 163-05			Collected: 03/20/2014
Lab ID: 1408391005	Sampling Location: Bataan Memorial Muse		Received: 03/24/2014
Method: **NIOSH 7300 Mod.**	Media: Lead Dust Wipe Sampling Parameter: **Area 100 cm²**		Prepared: 03/25/2014 Analyzed: 03/25/2014

Analyte	ug/sample	ug/ft²	RL (ug/sample)
Lead	<1.3	<12	1.3

Sample ID: 163-06			Collected: 03/20/2014
Lab ID: 1408391006	Sampling Location: Bataan Memorial Muse		Received: 03/24/2014
Method: **NIOSH 7300 Mod.**	Media: Lead Dust Wipe Sampling Parameter: **Area 100 cm²**		Prepared: 03/25/2014 Analyzed: 03/25/2014

Analyte	ug/sample	ug/ft²	RL (ug/sample)
Lead	<1.3	<12	1.3

Sample ID: 163-07			Collected: 03/20/2014
Lab ID: 1408391007	Sampling Location: Bataan Memorial Muse		Received: 03/24/2014
Method: **NIOSH 7300 Mod.**	Media: Paint Chip Sampling Parameter: **Weight 0.1006 grams**		Prepared: 03/25/2014 Analyzed: 03/25/2014

Analyte	%	RL (%)
Lead	**0.44**	0.0012

Sample ID: 163-08			Collected: 03/20/2014
Lab ID: 1408391008	Sampling Location: Bataan Memorial Muse		Received: 03/24/2014
Method: **NIOSH 7300 Mod.**	Media: Paint Chip Sampling Parameter: **Weight 0.1005 grams**		Prepared: 03/25/2014 Analyzed: 03/25/2014

Analyte	%	RL (%)
Lead	**0.013**	0.0012

Sample ID: 163-09			Collected: 03/20/2014
Lab ID: 1408391009	Sampling Location: Bataan Memorial Muse		Received: 03/24/2014
Method: **NIOSH 7300 Mod.**	Media: Paint Chip Sampling Parameter: **Weight 0.101 grams**		Prepared: 03/25/2014 Analyzed: 03/25/2014

Analyte	%	RL (%)
Lead	**0.036**	0.0012

Report Authorization

Method	Analyst	Peer Review
NIOSH 7300 Mod.	Non-Responsive	Non-Responsive
NIOSH 7300 Mod.		

ANALYTICAL REPORT

Workorder: 34-1408391
Client Project ID: AL147163
Purchase Order: AL147163
Project Manager: 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

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.
NA = Not Applicable.
** 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.

EMLab P&K
A TestAmerica Company

Report for:

Non-Responsive
IHI Environmental, Salt Lake City
640 E. Wilmington Avenue
Salt Lake City, UT 84106

Regarding: Project: AI147163; Bataan Memorial Museum
EML ID: 1186930

Approved by:

Non-Responsive

Dates of Analysis:
Direct microscopic exam (Qualitative): 03-26-2014

Service SOPs: Direct microscopic exam (Qualitative) (1039)
AIHA-LAP, LLC accredited service, Lab ID #102297

All samples were received in acceptable condition unless noted in the Report Comments portion in the body of the report. Due to the nature of the analyses performed, field blank correction of results is not applied. The results relate only to the items tested.

EMLab P&K ("the Company") shall have no liability to the client or the client's customer with respect to decisions or recommendations made, actions taken or courses of conduct implemented by either the client or the client's customer as a result of or based upon the Test Results. In no event shall the Company be liable to the client with respect to the Test Results except for the Company's own willful misconduct or gross negligence nor shall the Company be liable for incidental or consequential damages or lost profits or revenues to the fullest extent such liability may be disclaimed by law, even if the Company has been advised of the possibility of such damages, lost profits or lost revenues. In no event shall the Company's liability with respect to the Test Results exceed the amount paid to the Company by the client therefor.

EMLab P&K
1501 West Knudsen Drive, Phoenix, AZ 85027
(800) 651-4802 Fax (623) 780-7695 www.emlab.com

Client: IHI Environmental, Salt Lake City
Non-Responsive
Re: AI147163; Bataan Memorial Museum

Date of Sampling: 03-20-2014
Date of Receipt: 03-25-2014
Date of Report: 03-26-2014

DIRECT MICROSCOPIC EXAMINATION REPORT

Background Debris and/or Description	Miscellaneous Spores Present*	MOLD GROWTH: Molds seen with underlying mycelial and/or sporulating structures†	Other Comments††	General Impression
Lab ID-Version‡: 5382982-1, Analysis Date: 03/26/2014: Bulk sample 1: 163-10 Bulk Sample Fungal Growth On Gypsum Board				
Fungal Growth On Gypsum Board	Very few	3+ *Penicillium/Aspergillus* group 3+ *Stachybotrys* species	None	Mold growth

* Indicative of normal conditions, i.e. seen on surfaces everywhere. Includes basidiospores (mushroom spores), myxomycetes, plant pathogens such as ascospores, rusts and smuts, and a mix of saprophytic genera with no particular spore type predominating. Distribution of spore types seen mirrors that usually seen outdoors.

† Quantities of molds seen growing are listed in the MOLD GROWTH column and are graded 1+ to 4+, with 4+ denoting the highest numbers.

†† Some comments may refer to the following: Most surfaces collect a mix of spores which are normally present in the outdoor environment. At times it is possible to note a skewing of the distribution of spore types, and also to note "marker" genera which may indicate indoor mold growth. Marker genera are those spore types which are present normally in very small numbers, but which multiply indoors when conditions are favorable for growth.

‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

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	67.6 (19.8)	°F (°C)
RELATIVE HUMIDITY	19	%RH
BAROMETRIC PRESSURE	29.00 (982.1)	inHg (hPa)

MODEL	7575-X
SERIAL NUMBER	7575X1306021

☒ AS LEFT ☐ AS FOUND

☒ IN TOLERANCE ☐ OUT OF TOLERANCE

– CALIBRATION VERIFICATION RESULTS –

THERMO COUPLE — SYSTEM PRESSURE01-01 — *Unit: °F (°C)*

#	STANDARD	MEASURED	ALLOWABLE RANGE	#	STANDARD	MEASURED	ALLOWABLE RANGE
1	68.6 (20.3)	68.5 (20.3)	66.6~70.6 (19.2~21.4)				

BAROMETRIC PRESSURE — SYSTEM PRESSURE01-01 — *Unit: inHg (hPa)*

#	STANDARD	MEASURED	ALLOWABLE RANGE	#	STANDARD	MEASURED	ALLOWABLE RANGE
1	29.17 (987.8)	29.17 (987.8)	28.59~29.75 (968.2~1007.5)				

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	E003299	07-12-12	01-12-14
Temperature	E003170	01-09-13	01-09-14
Pressure	E003303	09-25-12	03-25-13

Measurement Variable	System ID	Last Cal.	Cal. Due
DC Voltage	E003300	07-12-12	01-12-14
Pressure	E003302	03-29-12	03-29-13

Non-Responsive

February 7, 2013

DATE

Doc ID: CERT_GEN_WCC

DXP

THE INDUSTRIAL DISTRIBUTION EXPERTS

Technical Services Division

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 Test Instruments
Model:	SM-100
Serial Number:	010613107
Calibration Date:	October 8, 2013
Calibrated By:	Non-Responsive [redacted]

1111 South 27th Street Billings, Montana 59101
1-800-947-7120

Industrial Hygiene Southwest

Violation Inventory Log

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

Bataan Memorial Museum, Santa Fe, New Mexico

CONTROL NUMBER CLOSED ☐	HAZARD DESCRIPTION	SITE	RAC	CORRECTIVE ACTIONS (Abatement Plan)	SUSPENSE DATE	ACTION OIC/NCOIC	Estimated Cost(s)	DATE CORRECTED	REFERENCES
BMM-032014-4.1 ☐	The Public Affair's and basement weapons vault floors had lead levels of 180 and 240 µg/ft² respectively.	Weapons Vaults	3	Clean the Public Affair's and basement weapons vault floors to a lead level of below 40 µg/ft² following the guidance outlined in the IHSW SOPs for Lead in Appendix M of this report.					IHSW SOPs Lead
BMM-032014-4.2 ☐	The analytical result for the collected paint chip samples for the basement floor, white wall paint, and the tan wall paint indicates that these coating contain 0.44, 0.013, and 0.036% lead by weight.	Museum	4	1. Contact the State FMO, State Safety, and the State Environmental directorates before conducting any work that may disturb the integrity of the painted surfaces on the basement floor, or rooms B-6, B-8, and B-10. 2. 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.					29 CFR 1962.62
BMM-032014-4.3 ☐	High numbers of Penicillium/Aspergillus group and Stachybotrys species were observed in the bulk sample collected in Room B-8 from a water stained gypsum board covering an old furnace support stand.	Mechanical Room	3	Restrict access to the mechanical room, B-8 and expedite hiring a mold remediation contractor to remove the gypsum board in this room. Collect air samples at the end of this project to verify remediation efforts.					Recommended Practice
Recurring Finding BMM-032014-4.6.1 ☐	No chemical inventories or MSDSs were on file for the building maintenance products maintained at this facility.	HazComm	4	Develop a chemical inventory and acquire and maintain MSDS for all products maintained for this museum.					29 CFR 1910.1200 (e) (i), 29 CFR 1910.1200 (g) (1), 1910.1200 (a) (2)

Industrial Hygiene Southwest

Violation Inventory Log

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

Bataan Memorial Museum, Santa Fe, New Mexico

CONTROL NUMBER / CLOSED ☐	HAZARD DESCRIPTION	SITE	RAC	CORRECTIVE ACTIONS (Abatement Plan)	SUSPENSE DATE	ACTION OIC/NCOIC	Estimated Cost(s)	DATE CORRECTED	REFERENCES
BMM-032014-4.7 ☐	Sound pressure levels above 85 dBA were measured on the Tanka leaf blower and weed wacker.	Sound Pressure Level Surveys	3	Wear hearing protection, i.e., ear plugs or ear muffs when operation the leaf blower and weed wacker.					DA PAM 40-501
Recurring Finding BMM-032014-4.8.2 ☐	There is no documentation of safety training for the employees or volunteer staff who occupy this museum.	Safety Training	4	At a minimum, provide hazard communication to those who use chemicals in the work place; emergency evacuation training to all personnel who work the museum; and fire extinguisher training for those expected to use fire extinguishers in this museum.					29 CFR 1910.1200, 29 CFR 1910.38, 29 CFR 1910.157
Recurring Finding BMM-032014-4.9.6 ☐	There is no ground fault circuit interrupter (GFCI) installed on the outlet within six feet of the sink in the museum lobby kitchen. The GFCI in the women's restroom of the museum failed to trip at 7 milliamps.	Safety	3	Install a GCFI protected receptacle for the electrical outlet near the sink in the museum lobby kitchen and repair or replace the GFCI receptacle in the women's restroom.					NFPA 70, Article 210-8
BMM-032014-4.9.7 ☐	Several of the emergency lights did not function when tested. Note: Mr. Soto is aware of this and a work order has been submitted.	Safety	4	Actively follow-up on the repair or replacement of the emergency lighting in this museum.					29 CFR 1910.37 (b) (1)
BMM-032014-4.9.8 ☐	There are two extension cords in the museum that are being used in place of permanent wiring.	Safety	4	Provide permanent wiring and electrical outlets in the museum where extension cords are currently used.					29 CFR 1910.305 (g) (1) (ii) (A)

4.1 Metal Wipe Sampling

Recommendation

Clean the Public Affair's and basement weapons vault floors to a lead level of below 40 $\mu g/ft^2$ following the guidance outlined in the IHSW SOPs for Lead in Appendix M of this report.

4.2 Painted Surface Evaluation

Recommendations

1. Contact the State FMO, State Safety, and the State Environmental directorates before conducting any work that may disturb the integrity of the painted surfaces on the basement floor, or rooms B-6, B-8, and B-10.
2. 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 Water Intrusion Evaluation

Recommendation

Restrict access to the mechanical room, B-8 and expedite hiring a mold remediation contractor to remove the gypsum board in this room. Collect air samples at the end of this project to verify remediation efforts.

4.6 Hazardous Materials Use and Storage

4.6.1 Material Safety Data Sheets (MSDS) and Chemical Inventories

Recommendation

Develop a chemical inventory and acquire and maintain MSDS for all products maintained for this museum.

4.7 Sound Pressure Level Surveys

Recommendation

Wear hearing protection, i.e., ear plugs or ear muffs when operating the leaf blower and weed wacker.

4.8.2 Training Documents

Recommendation

At a minimum, provide hazard communication to those who use chemicals in the work place; emergency evacuation training to all personnel who work the museum; and fire extinguisher training for those expected to use fire extinguishers in this museum.

4.9 General Safety Walk-Through

Recommendations

1. Install a GCFI protected receptacle for the electrical outlet near the sink in the museum lobby kitchen and repair or replace the GFCI receptacle in the women's restroom.
2. Actively follow-up on the repair or replacement of the emergency lighting in this museum.
3. Provide permanent wiring and electrical outlets in the museum where extension cords are currently used.

NOISE SURVEY
(Sound Level Meter Survey)

1. DATE (YYYYMMDD)	2. TYPE SURVEY (Enter code)
20140320	1 (1 - INITIAL SURVEY 2 - RE-SURVEY 3 - OTHER)

3. SOUND LEVEL METER		4. MICROPHONE		5. CALIBRATOR	
a. MANUFACTURER: Greenlee		a. MANUFACTURER: Greenlee		a. MANUFACTURER	
b. MODEL: SM-100	c. SERIAL NO.: 010613107	b. MODEL: SM-100	c. SERIAL NO.: 010613107	b. MODEL	c. SERIAL NO.
d. LAST ELECTROACOUSTIC CALIB DATE (YYYYMMDD): 20131008		d. LAST ELECTROACOUSTIC CALIB DATE (YYYYMMDD): 20131008		d. LAST ELECTROACOUSTIC CALIB DATE (YYYYMMDD): 20131008	

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)
Bataan Memorial Museum, Santa Fe, New Mexico

9. PRIMARY SOURCE OF NOISE
See Column 11 a 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)
Dewalt Battery-Powered Drill	S	79.5	78.5	IVD	X			
Dewalt Battery-Powered Reciprocating Saw	S	89.0	88.0	IIIB		X		
Dewalt Battery-Powered Impact Wrench	S	79.0	77.5	IVD	X			
Dewalt Battery-Powered Cut-Off Saw	S	82.0	81.3	IVD	X			
Tanaka Leaf Blower	S	101.2	93.6	IIIB		X		
Tanaka Weed Wacker	S	95.3	94.1	IIIB		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

a. NAME (Last, First, Middle Initial) | b. TELEPHONE (Include area code) | c. ORGANIZATION

[redacted] ne, First Name, MI)

Non-Responsive

DD FORM 2214, JAN 2000 PREVIOUS EDITION MAY BE USED. Adobe Professional 7.0

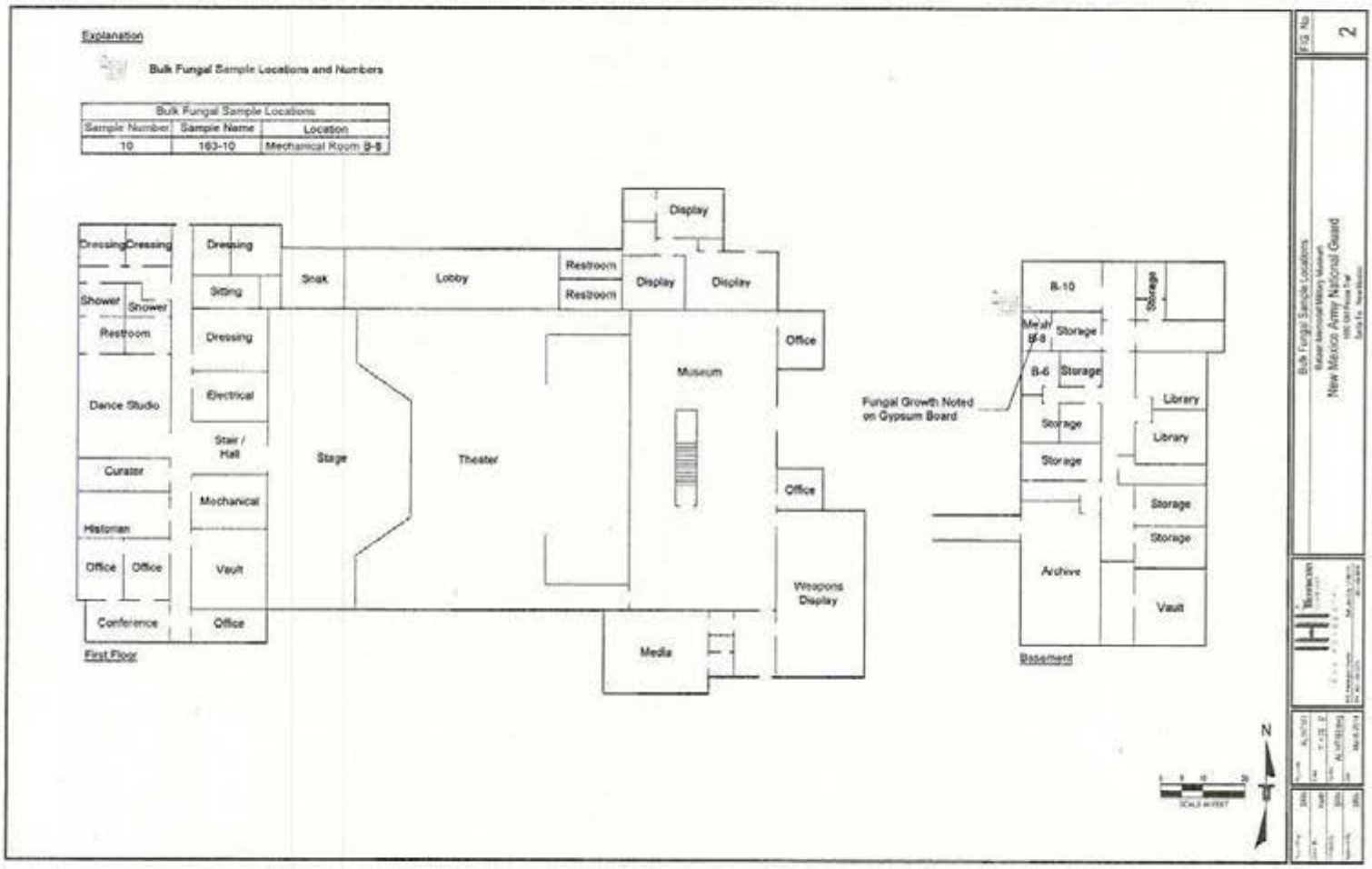
Table 2

Fungal Bulk Sampling Results

NMARNG
Bataan Memorial Museum
Santa Fe, New Mexico

Sample No.	Sample Type	Location/Description	Species Found	Mold Growth
163-10	Bulk	Mechanical Room B-8/Gypsum Borad	*Penicillium/Aspergillus group* *Stachybotrys species*	3+ 3+

* Quantities of molds seen growing are graded 1+ to 4+, with 4+ denoting the highest number.



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.**

FACILITY INFORMATION

(Information listed in First Section)
(1st Few Paragraphs/Pages of Report)

1. Date Prepared: March 20, 2014

2. Names (and Company Name) of Personnel Conducting Industrial Hygiene Site Assistance Visit: Non-Responsive

3. Facility Name and Brief Summary of Primary Activities Conducted at Facility: NMARNG Bataan Memorial Museum. This is a military museum/performing arts center.

4. Facility Address: 1050 Old Pecos Trail, Santa Fe, NM 87505-2688

5. Primary Unit Assigned to Facility (Ensure to capture and provide Unit Identification Code (UIC)): NMARNG Museum, 200th Public Affairs Detachment, UIC Non-Responsive

6. Co-Tenant Units Assigned or Working within Facility (LIST ALL): Museum Staff & the Santa Fe Performing Arts, 200th Public Affairs Division

7. Square Ft. Area of Facility: ~20,000 ft^2

8. Work Schedule: Monday –Friday, 0830-1700 hours

9. Number of work bays: None.

10. Equipment Density and Type: None; demilitarized static displays only.

    a. List Equipment Nomenclature Serviced or Maintained at Facility: 0

    b. List Total Number for Each Nomenclature Serviced or Maintained at Facility: 0

11. Total Number of Personnel: 4 Full-Time, 8 Part-Time

12. No. of Admin. Personnel (Include Status – AGR, Fed. Tech., IDT, State or Contract Employee): 2 – 1 Federal Technician and 1 State Employee

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 (505) 474-1207 (Unit not applicable)

19. Safety Officer: Non-Responsive

    a. Email Address, Commercial Telephone Number and Unit Assigned to: Non-Responsive 05) 474-1207

20. Facility Telephone Number: (505) 474-1207

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

Bataan Memorial Museum/ Armory

1050 Old Pecos Trail
Santa Fe, NM 87505

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

7 January 2013

MEMORANDUM THRU New Mexico Army National Guard, ATTN: Non-Responsive OHN), 600 Wyoming Blvd NE, Albuquerque, NM 87123-1038

FOR Commander, Bataan Memorial Museum, 1050 Old Pecos Trail, Santa Fe, NM 87505

SUBJECT: Executive Summary for Industrial Hygiene Site Assistance Visit (IHSAV) for the Bataan Memorial Museum, 1050 Old Pecos Trail, Santa Fe, NM conducted on 08 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 Bataan Memorial Museum/ Armory 1050 Old Pecos Trail, Santa Fe, NM on 08 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 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. Clean Gun Vault of lead dust by utilizing the Armory Clean-Up SOP provided and keep up good housekeeping practices to help prevent migration of heavy metals. (para. 4.1) **(RAC 3)**

b. Locate the asbestos survey for this building or contract to have a licensed firm to perform an asbestos survey and assessment. This should be part of the NM ARNG Asbestos Management Plan which should provide personnel with asbestos awareness training to help prevent them from contaminating others, the building or themselves (para. 4.4.1) **(RAC 3)**

c. All flammables should be stored in flammable storage cabinets, a chemical inventory list should be maintained and MSDS's acquired for all the chemicals used within the museum. (para. 4.6.1) **(RAC 4)**

d. Perform monthly and annual fire extinguisher inspections and document on tag located on extinguisher. (para. 4.10.3) **(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 Bataan Memorial Museum, 1050 Old Pecos Trail, Santa Fe, NM conducted on 08 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 New Mexico 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

Bataan Memorial Museum, Santa Fe, New Mexico

CONTROL NUMBER CLOSED ☐	HAZARD DESCRIPTION	SITE	RAC	CORRECTIVE ACTIONS (Abatement Plan)	SUSPENSE DATE	ACTION OIC/NCOIC	Estimated Cost(s)	DATE CORRECTED	REFERENCES
BM-080812;4.1 ☐	The analytical result for the wipe sample collected from the floor indicated a lead concentration of 240 µg/ ft2 which exceeds the IHSW criterion of 200 µg/ ft2 for spaces which have restricted public access.	Historic Gun Vault, Basement floor	3	Perform cleaning in the historical weapons gun vault following the standard operating procedures titled "Lead Clean-up and follow- up Housekeeping" as outlined in Appendix N.					29 CFR 1910.1025 (h)(1)
BM-080812;4.4.1 ☐	An asbestos survey could not be located during this IH Assistance Visit.	Bataan Memorial Museum	3	Either locate the asbestos survey for this building or contract with a licensed firm to perform an asbestos survey and assessment.					1910.1001(j)(3)(i)
BM-080812;4.4.2 ☐	Personnel have not been provided with asbestos awareness training.	Bataan Memorial Museum	4	Based on the findings of this survey, provide awareness training to assigned personnel for the specific types of asbestos in this Armory.					1910.1001(j)(3)(iii)
BM-080812;4.6.1 ☐	The museum stores small quantities of flammable materials, which are used for vehicle maintenance and janitorial cleaning. All the chemicals were located on a single shelving unit in a storage room in the basement.	Bataan Memorial Museum	4	Segregate all flammable materials and store them in a flammable storage cabinet.					1910.106 (d) (5) (iii)
BM-080812;4.6.1 ☐	A chemical inventory could not be located for the chemicals located in the stroage room on the basement floor	Bataan Memorial Museum	4	Develop and maintain an inventory of all chemicals which are in use by the museum					1910.1200 (e)(i)
BM-080812;4.6.1 ☐	a list of MSDSs could not be located for the chemicals located in the stroage room on the basement floor	Bataan Memorial Museum	4	Develop and maintain a list of MSDSs for all chemicals which are in use by the museum					1910.1200 (g)(1)

Industrial Hygiene Southwest

Violation Inventory Log

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

Bataan Memorial Museum, Santa Fe, New Mexico

CONTROL NUMBER CLOSED ☐	HAZARD DESCRIPTION	SITE	RAC	CORRECTIVE ACTIONS (Abatement Plan)	SUSPENSE DATE	ACTION OIC/NCOIC	Estimated Cost(s)	DATE CORRECTED	REFERENCES
BM-080812;4.7 ☐	There are no safety training and safety records maintained at the museum.	Bataan Memorial Museum	4	At a minimum provide hazard communication to those who use chemicals in the work place and fire prevention training, fire safety, and fire extinguisher training to all personnel who occupy the museum.					1910.1200 (h), 1910.157 (g), 1910.39 (b)
BM-080812;4.10.3 ☐	Monthly fire extinguisher checks are not marked on the fire extinguisher tags	Bataan Memorial Museum	4	Perform monthly fire extinguisher inspections and document the date on the fire extinguisher tags.					29 CFR 1910.157 (e)(2
BM-080812;4.10.6 ☐	There are no GCFIs installed within 6 feet of the sink	Consession Stand	4	Install a GCFI on all outlets within six feet of all water sources.					NFPA 70 Article 210-8

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.

Indoor Firing Range
Decontamination and Cleaning Protocol
(Periodic Cleaning and Conversion)

1. Ensure that all procedures listed below comply with all federal, state, and local regulation. Consult with the Regional Industrial Hygiene Office and the State Environmental Office for further guidance.

2. **Ventilation System.**
   i. The range ventilation system must be in operation during all cleaning activities. If no ventilation system is available all doors and windows must be kept 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. In a HEPA vacuum cannot be obtained a wet method, detailed below, should be utilized. **A high-pressure 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. Personnel responsible for decontamination of the range and stored items should 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 26 CFR 1910.134. Employees should be provided with protective coveralls with hood and shoe covers (i.e. Tyvex full-body

suit). Protective clothing should be hanged daily at the end of the shift and more frequently if the suit becomes grossly contaminated. If cotton coveralls are provided then the employer must provide for maintenance and laundering of protective clothing. Protective clothing should not be taken home and prior to leaving the work 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 and/or the steel backstop, areas in front of and behind the bullet trap, along with the steel backstop plates should be cleaned.

iii. The ceiling, lights, baffles, retrieval system, heating system, and ventilation ducts should be cleaned.

iv. Acoustical material should be vacuumed instead of being painted over. A Toxic Characteristic Leaching Procedure (TCLP) may need to be used for acoustical material and the like, to determine if the material needs to be classified as hazardous and disposed of accordingly. 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, while linoleum, on the tile floor, should be waxed.

vi. All walls should be painted, preferably with a sealant, 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 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.

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

7. Air Monitoring.

i. 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.

i. A training program must be instituted for all individuals who are subject to exposure to lead at or above the action level, or for whom the possibility of skin or eye irritation exits. This training should be provided for all personnel currently involved in range cleanup operations, at least annually.

IHI ENVIRONMENTAL
A Terracon COMPANY

IH ASSISTANCE VISIT

New Mexico Army National Guard
Bataan Memorial Museum/Armory
1050 Old Pecos Trail
Santa Fe, New Mexico 87505

November 9, 2012

Prepared for:

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

Prepared by:

Non-Responsive

Reviewed by:

Non-Responsive

Project #AL127262

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APPENDICES

EXECUTIVE SUMMARY

On August 8, 2012 Non-Responsive H, an Industrial Hygienist with IHI Environmental (IHI), conducted an IH Assistance Visit at the Santa Fe Armory Bataan Memorial Museum/Armory located at 1050 Old Pecos Trail in Santa Fe, New Mexico. The primary point of contact for information gathered during this survey w Non-Responsive 505) 474-1670, 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 8, 2012 Non-Responsive MPH, an Industrial Hygienist with IHI Environmental (IHI), conducted an IH Assistance Visit at the Santa Fe Armory Bataan Memorial Museum located at 1050 Old Pecos Trail in Santa Fe, New Mexico 87505. The primary point of contact for information gathered during this survey was Non-Responsive (505) 474-1670, Non-Responsive

1.1 Objectives

The objective of the IH Assistance survey is to 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 NMNG Bataan Memorial Museum/Armory has one full-time guard member. Historically, the museum served as a functional armory from 1940-1964. From 1964 till 1992, the facility served as an armory under the ownership of the state of New Mexico. The facility has been a museum since 1992. The Santa Fe Performing Arts operate from this building, also. This group occasionally hosts theater productions, as well as using several

rooms on the north side of the museum. At present, the museum has offices used for administrative purposes and storage. Rooms on the basement floor are dedicated as work and storage areas for artifacts, a historic gun vault, and the library. There is one state civilian employee at this museum who works as the museum director. Civilian activities include people touring the museum, productions by the Santa Fe Performing Arts, ceremonies, and social gatherings.

Most of the weapons maintained at the museum have been demilitarized. There are two weapons vaults; one is located on the ground level but was not accessible on the day of the survey and the other contains historical weapons, located on the basement floor. The weapons in the historic gun vault are occasionally maintained in the work area immediately outside of the gun vault. There is one retired military person serving as a contracted facility manager/curator, who also has some maintenance duties.

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.

(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 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) are measured using an MSA Type-2 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™	9515	T95151103007	05/03/2012
TSI Q-Trak™	7565-X	7565X 0812016	11/15/2011
MSA® Sound Level Meter Type II	Type 2	00035	02/10/2012

The calibration certificates for the equipment 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 analytical results for lead wipe sampling in the historic weapons gun vault exceeded the 200 µg/ft^2 criterion. The lead concentration at the floor of the vault measured 240 µg/ ft^2. All other 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.

Recommendation

Perform cleaning in the historical weapons gun vault following the standard operating procedures titled "Lead Cleanup and follow- up Housekeeping" as outlined in Appendix N.

4.2 Painted Surface Evaluation

There was no peeling paint noted in the surveyed areas within the museum/armory.

Recommendation

None

4.3 Moisture Intrusion and Limited Visual Fungal Growth Evaluation

Recommendation

None

4.4 Asbestos Management

An asbestos survey could not be located during this visit; personnel have not been provided 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 HVAC system servicing the building consists of three Sterling® gas-fired packaged heating and cooling units, as well as three Carrier® air conditioning units mounted on the roof.

The average outdoor CO_2 concentration at the time of the survey was 373 ppm. The highest CO_2 concentration measured inside the building was 486 ppm, which is unlikely to result in indoor air quality complaints.

Building air temperatures ranged from about 70.4°F to 72.8°F and relative humidity was between 58.5% and 59.6% during the survey period. Air temperatures were within the recommended comfort range of 68.0°F to 75.0°F and the relative humidity was also within

the recommended comfort range of between 30% and 60%. Humidity levels above 60% can result in the proliferation of bacteria and fungi, while levels below 30% can cause dry eyes, skin, and mucous membranes.

Recommendation

None

4.6 Hazard Communication and Hazardous Material Storage

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

The museum stores small quantities of flammable materials that are used for vehicle maintenance and janitorial cleaning. All the chemicals were located on a single shelving unit in a basement storage room. Non-Responsive the facilities manager, reported that a shed for flammable materials has been purchased and will be located outdoors. He is in the process of properly labeling the shed with the NFPA flammable hazards, sign as well as moving all flammable materials to the shed. No chemical inventories or MSDSs were identified in the armory on the day of the survey.

Recommendations

1. Segregate all flammable materials and store them in a flammable storage cabinet.
2. Develop a chemical inventory and acquire and maintain MSDS for all chemicals maintained in this museum.

4.6.2 Flammable Storage Cabinets

There is currently no functional flammable storage cabinet located in this building.

Recommendation

None

4.7 Safety Training and Record Keeping

There are no safety training and safety records maintained at the museum.

Recommendation

At a minimum, provide hazard communication to those who use chemicals in the work place and fire-prevention training, fire safety, and fire extinguisher training to all personnel who occupy the museum.

4.8 Kitchen Ventilation Survey

This museum does not have a formal kitchen.

Recommendation

None

4.9 Kitchen Appliance Sound-Level Measurements

Since there is no formal kitchen at the museum/armory, sound-pressure level measurements were not performed.

Recommendation

None

4.10 General Safety Walk-Through

1. Housekeeping throughout the facility was good.
2. There is a fire alarm in this facility maintained by Fire Safety Sales.
3. Fire extinguishers are strategically located throughout the museum. Monthly inspections on all of the extinguishers were not marked on the tags.
4. Fire evacuation routes are posted in most rooms of this museum.
5. Electrical panel boxes were inspected and were found to contain no exposed wiring or openings in the panel.
6. There is no ground fault circuit interrupter (GFCI) installed on the outlets within six feet of the sink in the concession area.

Recommendations

1. Perform monthly fire extinguisher inspections and document the date on the fire extinguisher tags.
2. Install GCFIs on all outlets within six feet of water sources.

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:

Non-Responsive

ager

Nov. 9, 2012
Date

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).

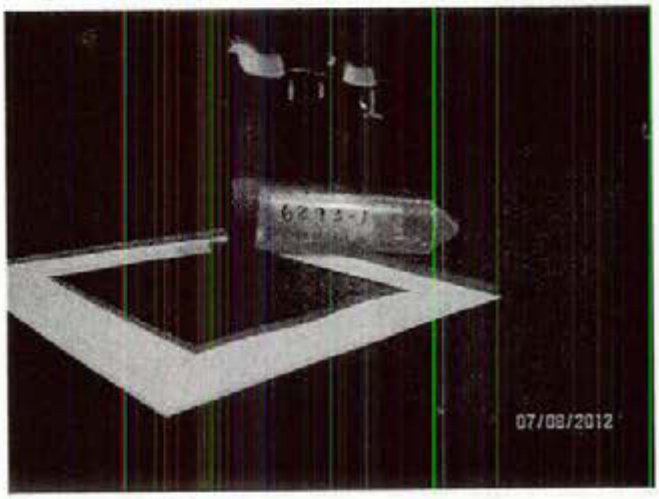
OSHA regulations are legally enforceable. Employers are required to maintain employee exposures below PELs. The best practice is to eliminate hazards and use safer substitutes. Alternatively, engineering and/or administrative (work practice) controls may reduce exposures to acceptable levels. Personal 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.

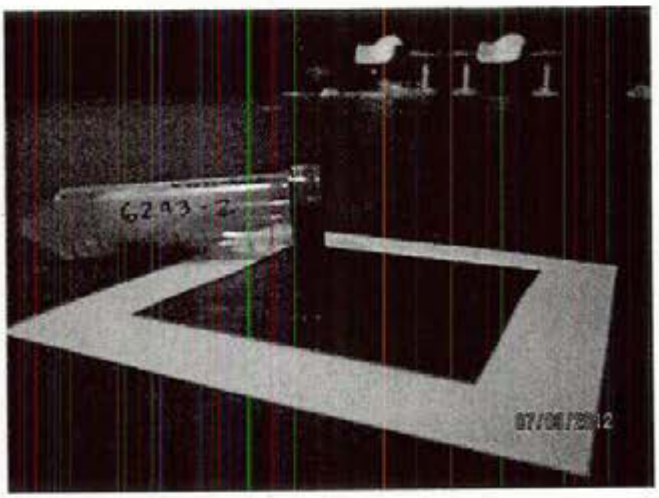
Occupational Exposure Limit
In accordance with the Department of the Army (DA) Pamphlet 40-503, Industrial Hygiene Program (DA PAM 40-503), "The DA mandates the use of ACGIH TLVs when they are more stringent than OSHA regulations or when there is no PEL." The DA defines the resulting exposure limit as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

Photograph 1
General view of the Bataan Memorial Museum, Rear, Exterior

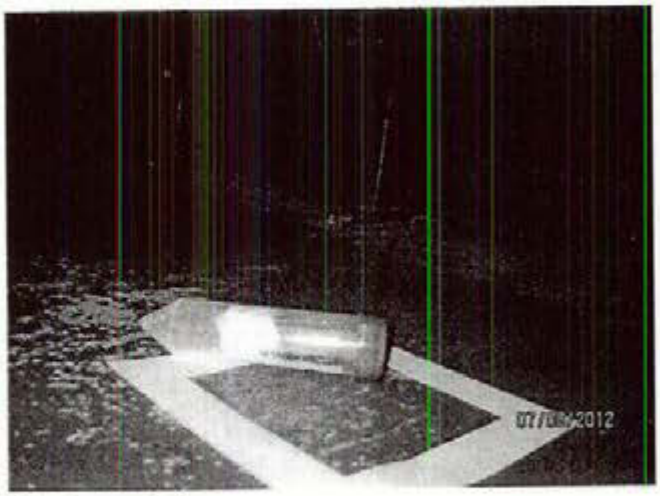
Photograph 2
HazMat – View of chemical and flammable storage



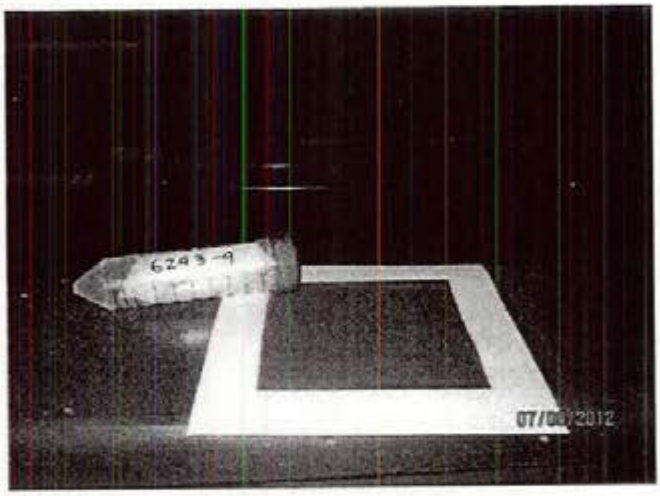
Photograph 3
Lead wipe sample number 6243-01 location



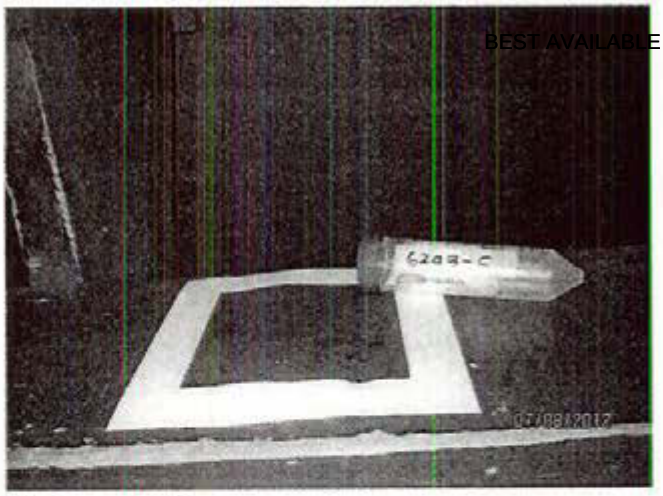
Photograph 4
Lead wipe sample number 6243-02 location



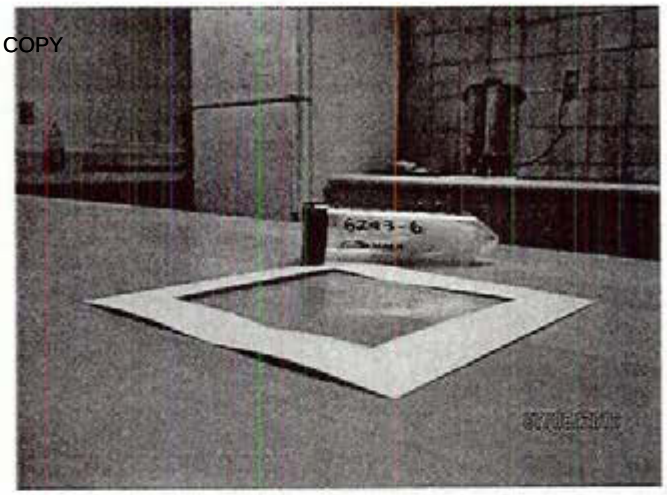
Photograph 5
Lead wipe sample number 6243-03 location



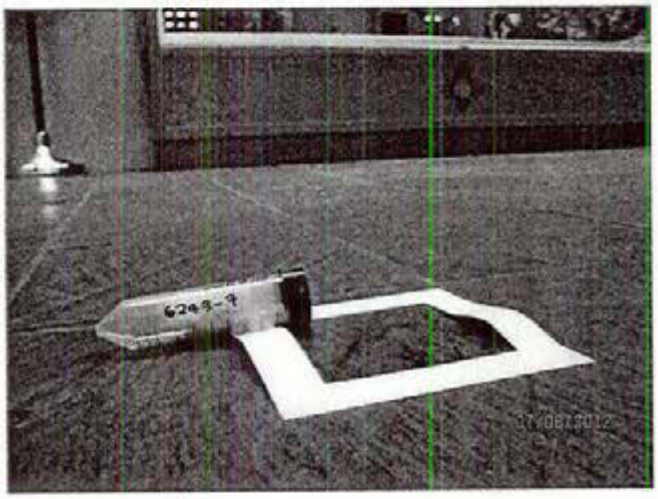
Photograph 6
Lead wipe sample number 6243-04 location



Photograph 7
Lead wipe sample number 6243-05 location



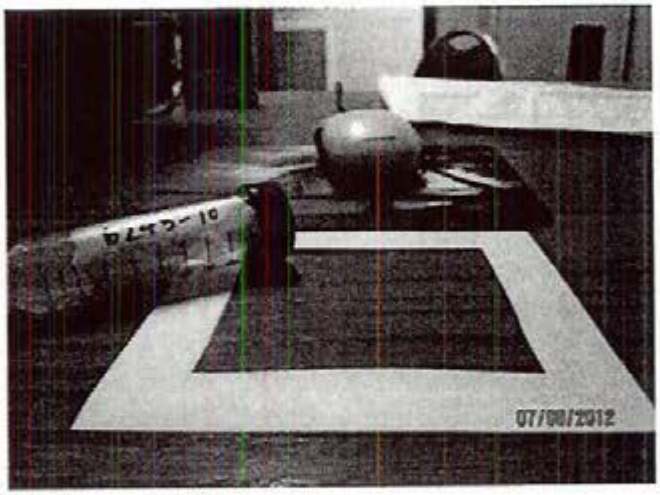
Photograph 8
Lead wipe sample number 6243-06 location



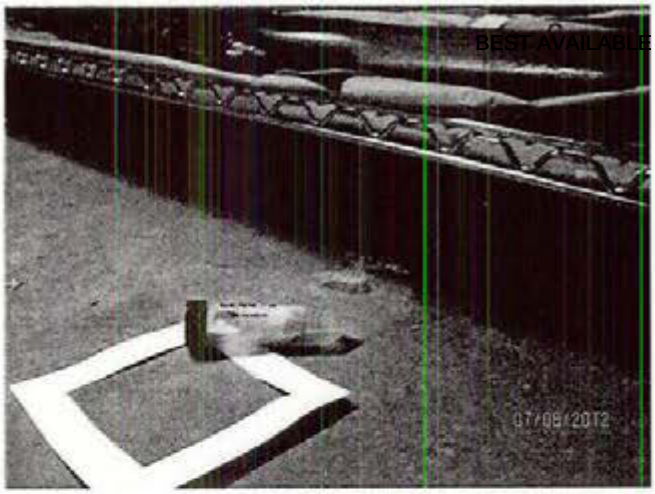
Photograph 9
Lead wipe sample number 6243-07 location

Photograph 10
Lead wipe sample number 6243-08 location

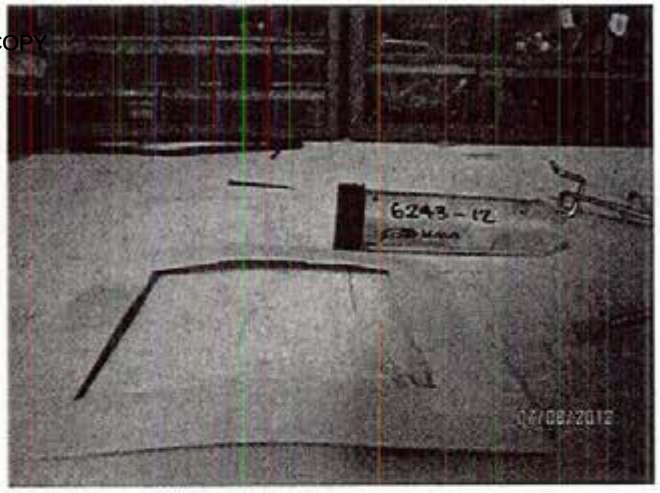
Photograph 11
Lead wipe sample number 6243-09 location



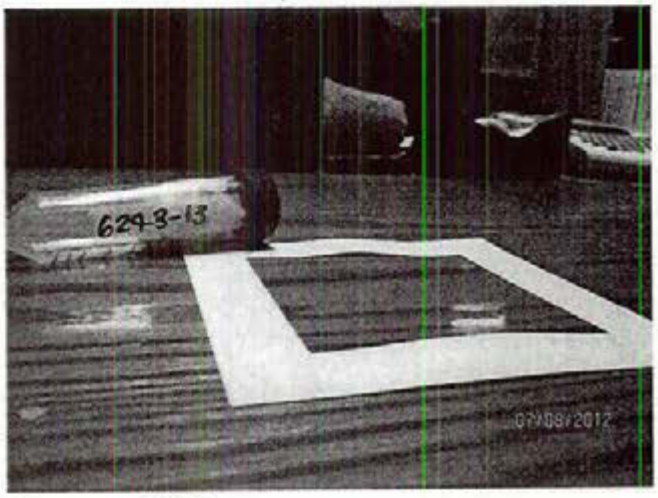
Photograph 12
Lead wipe sample number 6243-10 location



Photograph 13
Lead wipe sample number 6243-11 location

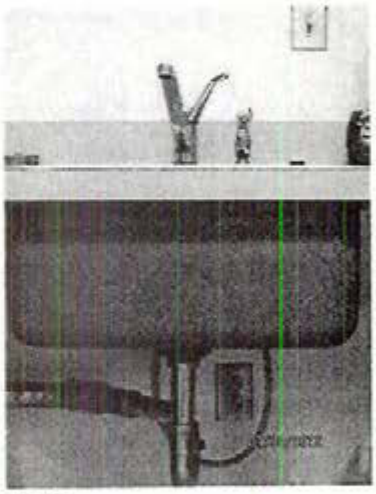


Photograph 14
Lead wipe sample number 6243-12 location

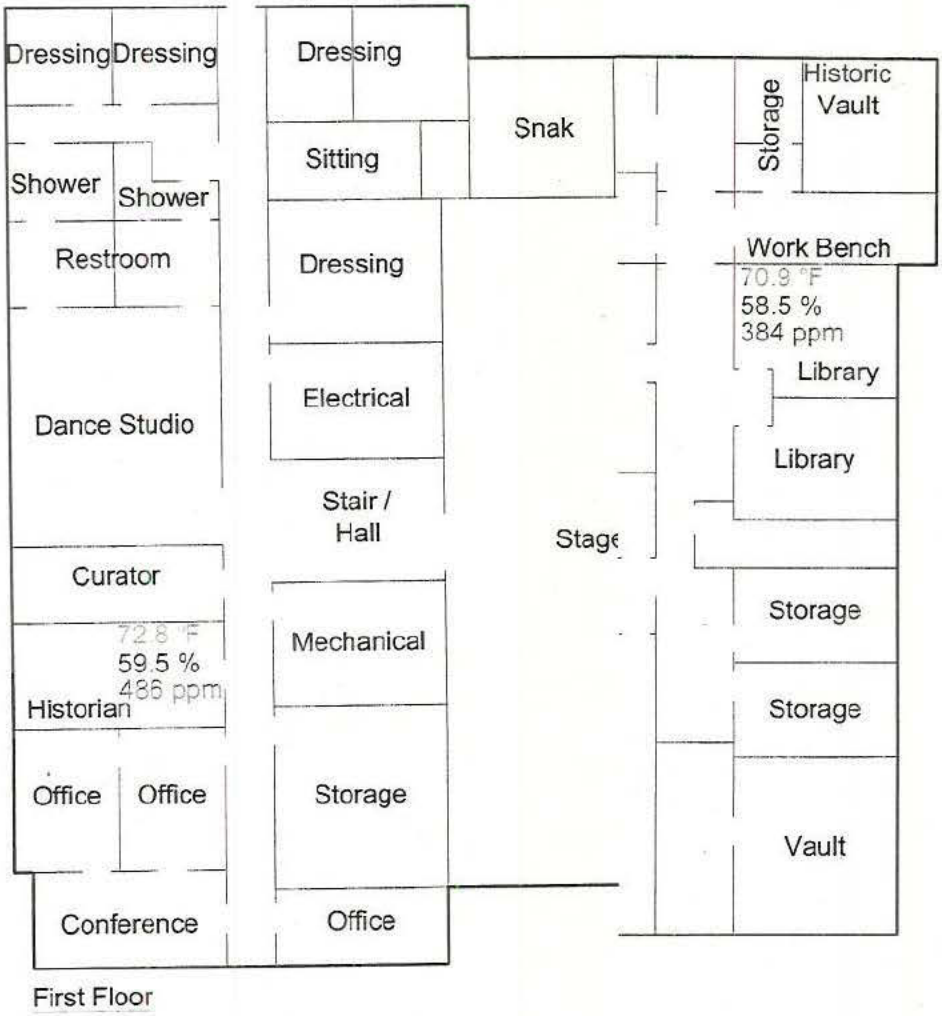


Photograph 15
Lead wipe sample number 6243-13 location

Photograph 16
Safety – Fire extinguishers without evidence of monthly inspections



Photograph 17
Safety – unprotected receptacle within 6 feet of a water source



First Floor

Outdoor Measurements

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New Mexico Army National Guard
Bataan Memorial Military Museum
1050 Old Pecos Trail
Santa Fe, New Mexico

Indoor Air Quality Sample Locations

N

0 10' 20'

PROJECT No:	12U-I6243
SHEET:	1 of 3
DRAWN BY:	Non-Responsive
DATE:	09-26-2012
REVISED BY:	
DATE:	
REVIEWED BY:	
DATE:	

S:\- 12 Projects\- IHS\W12U-I6243 IHSW NMNG Bataan Memorial Museum Santa Fe, New Mexico\Drawings\12UI6243.dwg, irq, 11/5/2012 11:54:50 AM, keith, ANSI full bleed B (17.00 x 11.00 Inches)

Bataan Memorial Museum

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?	Yes
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.	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.	Yes
Quality of housekeeping	V. good
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.	✓ A new locker has been purchased & materials haven't been transferred to it yet.

Fire alarm in working condition - -not usually in place in older armories	Yes
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)	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)	NA
Any Photo labs	NA
Any hazardous **noise** sources	No
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.?	
Any **civilian activities** in armory (cub scouts, classes, day care, parties etc)	museum visitors Social events Theater - attendees, Santa Fe performing Arts
Obtain two lead air samples	—

Evaluate Kitchen Stove Hood Flow if Present IAW NFPA Standard 96	
Collect Source Noise Measurements of Kitchen Appliances and Document Using DD 2214	none
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	Non-Responsive mallary (505) 474 -1670 Non-Responsive

V.
1050 Old Pecos Trail
Santa Fe, NM 87505

FACILITY INFORMATION

(Information listed in First Section)
(1st Few Paragraphs/Pages of Report)

1. Date Prepared: 2 August 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: NMNG Bataan Memorial Museum. This is a military museum/performing arts center.

4. Facility Address: 1050 Old Pecos Trail, Santa Fe, NM 87505-2688

5. Primary Unit Assigned to Facility (Ensure to capture and provide Unit Identification Code (UIC)): 200th Public Affairs Detachment, UIC Non-Responsive

6. Co-Tenant Units Assigned or Working within Facility (LIST ALL): Museum Staff & the Santa Fe Performing Arts

7. Square Ft. Area of Facility: 19,569

8. Work Schedule: Monday – Saturday, 0700-1600

9. Number of work bays: None.

10. Equipment Density and Type: None; demilitarized static displays only.

    a. List Equipment Nomenclature Serviced or Maintained at Facility: 0

    b. List Total Number for Each Nomenclature Serviced or Maintained at Facility: 0

11. Total Number of Personnel: 4 Full-Time, 8 Part-Time

12. No. of Admin. Personnel (Include Status – AGR, Fed. Tech., IDT, State or Contract Employee): 2 – 1 Fed Tech and 1 State Employee

13. No. of Maintenance Personnel (Include Status – AGR, Fed. Tech., IDT, State or Contract Employee): 2, both Contract Employees

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

BEST AVAILABLE COPY

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 505-474-1207 (Unit not applicable)

19. Safety Officer: Non-Responsive

    a. Email Address, Commercial Telephone Number and Unit Assigned to: Non-Responsive 505-474-1670

20. Facility Telephone Number: 505-474-1670

DXP

THE INDUSTRIAL DISTRIBUTION EXPERTS

Technical Services Division

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:	MSA
Model:	Sound Level Meter Type 2
Serial Number:	00035
Calibration Date:	February 10, 2012
Calibrated By:	Non-Responsive [redacted]

1111 South 27th Street Billings, Montana 59101
1-800-947-7120

DXP

THE INDUSTRIAL DISTRIBUTION EXPERTS

Technical Services Division

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:	MSA
Model:	Sound Level Calibrator 6950
Serial Number:	07349
Calibration Date:	February 10, 2012
Calibrated By:	Non-Responsive [redacted]

1111 South 27th Street Billings, Montana 59101
1-800-947-7120

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	66.9 (19.4)	°F (°C)
RELATIVE HUMIDITY	21	%RH
BAROMETRIC PRESSURE	28.60 (968.5)	inHg (hPa)

MODEL	7565-X
SERIAL NUMBER	7565X0812016

☒ AS LEFT ☐ AS FOUND

☒ IN TOLERANCE ☐ OUT OF TOLERANCE

– CALIBRATION VERIFICATION RESULTS –

THERMO COUPLE — SYSTEM PRESSURE01-02 — Unit: °F (°C)

#	STANDARD	MEASURED	ALLOWABLE RANGE	#	STANDARD	MEASURED	ALLOWABLE RANGE
1	72.3 (22.4)	72.3 (22.4)	70.3~74.3 (21.3~23.5)				

BAROMETRIC PRESSURE — SYSTEM PRESSURE01-02 — Unit: inHg (hPa)

#	STANDARD	MEASURED	ALLOWABLE RANGE	#	STANDARD	MEASURED	ALLOWABLE RANGE
1	28.68 (971.2)	28.68 (971.2)	28.11~29.25 (951.9~990.5)				

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	Measurement Variable	System ID	Last Cal.	Cal. Due
Temperature	E002416	03-25-11	03-25-12	Pressure	E003984	10-06-11	10-06-12
Pressure	E003982	10-03-11	04-03-12	DC Voltage	E003493	01-05-11	01-05-12

Non-Responsive

November 15, 2011
DATE

: CERT_GEN_WCC

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	67.1 (19.5)	°F (°C)
RELATIVE HUMIDITY	21	%RH
BAROMETRIC PRESSURE	28.60 (968.5)	inHg (hPa)

MODEL	7565-X
SERIAL NUMBER	7565X0812016

☐ AS LEFT ☒ IN TOLERANCE
☒ AS FOUND ☐ OUT OF TOLERANCE

– CALIBRATION VERIFICATION RESULTS –

THERMO COUPLE			SYSTEM PRESSURE01-02				Unit: °F (°C)
#	STANDARD	MEASURED	ALLOWABLE RANGE	#	STANDARD	MEASURED	ALLOWABLE RANGE
1	72.3 (22.4)	72.1 (22.3)	70.3~74.3 (21.3~23.5)				

BAROMETRIC PRESSURE			SYSTEM PRESSURE01-02				Unit: inHg (hPa)
#	STANDARD	MEASURED	ALLOWABLE RANGE	#	STANDARD	MEASURED	ALLOWABLE RANGE
1	28.67 (970.9)	28.65 (970.2)	28.10~29.24 (951.6~990.2)				

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	Measurement Variable	System ID	Last Cal.	Cal. Due
Temperature	E002416	03-25-11	03-25-12	Pressure	E003984	10-06-11	10-06-12
Pressure	E003982	10-03-11	04-03-12	DC Voltage	E003493	01-05-11	01-05-12

Non-Responsive [redacted]

November 15, 2011
DATE

Doc. ID: CERT_GEN_WCC

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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	66.7 (19.3)	°F (°C)
RELATIVE HUMIDITY	22	%RH
BAROMETRIC PRESSURE	28.60 (968.5)	inHg (hPa)

MODEL	982
SERIAL NUMBER	P08100015

☐ AS LEFT ☐ IN TOLERANCE
☒ AS FOUND ☒ OUT OF TOLERANCE

– CALIBRATION VERIFICATION RESULTS –

GAS CO_2 AS FOUND — SYSTEM G-101 — *Unit: ppm*

#	STANDARD	MEASURED	ALLOWABLE RANGE	#	STANDARD	MEASURED	ALLOWABLE RANGE
1	0	0	0~50	4	2999	3063	2909~3089
2	513.4	* 350.5	463.4~563.4	5	4934	* 5115.4	4786~5082
3	1009.6	* 914.7	959.6~1059.6				

GAS CO AS FOUND — SYSTEM G-101 — *Unit: ppm*

#	STANDARD	MEASURED	ALLOWABLE RANGE	#	STANDARD	MEASURED	ALLOWABLE RANGE
1	35	35	32~38	2	100.1	* 95.6	97.1~103.1

TEMPERATURE AS FOUND — SYSTEM T-101 — *Unit: °F (°C)*

#	STANDARD	MEASURED	ALLOWABLE RANGE	#	STANDARD	MEASURED	ALLOWABLE RANGE
1	32.0 (0.0)	32.5 (0.3)	31.0~33.0 (-0.6~0.6)	2	140.0 (60.0)	140.5 (60.3)	139.0~141.0 (59.4~60.6)

HUMIDITY AS FOUND — SYSTEM H-102 — *Unit: %RH*

#	STANDARD	MEASURED	ALLOWABLE RANGE	#	STANDARD	MEASURED	ALLOWABLE RANGE
1	10.0	9.7	7.0~13.0	4	70.0	68.3	67.0~73.0
2	30.0	29.6	27.0~33.0	5	90.0	87.4	87.0~93.0
3	50.0	49.3	47.0~53.0				

**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
5000 CO_2	EB0021287	08-03-11	08-02-14
N_2	K100246116	11-04-11	10-26-16
Flow	E003297	04-20-11	04-20-12
Flow	E003501	06-08-11	06-08-12
2000 C_4H_8	CC314662	06-04-09	06-04-12
Temperature	E003986	10-24-11	04-24-12
Humidity	E003539	08-30-11	02-29-12

Measurement Variable	System ID	Last Cal.	Cal. Due
200 CO	CC188518	07-28-11	07-27-14
Air	HP-T-098370	10-11-11	09-16-14
Flow	E003298	04-22-11	04-22-12
Flow	E003980	08-17-11	08-17-12
100 C_4H_8	EB0014789	05-06-09	05-06-12
Temperature	E003987	10-24-11	04-24-12

Non-Responsive

November 15, 2011
DATE

Doc. ID: CERT_GEN_WCC

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	70.2 (21.2)	°F (°C)
RELATIVE HUMIDITY	16	%RH
BAROMETRIC PRESSURE	28.87 (977.7)	inHg (hPa)

MODEL	982
SERIAL NUMBER	P08100015

☒ 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)	31.0~33.0 (-0.6~0.6)	2	140.0 (60.0)	140.1 (60.0)	139.0~141.0 (59.4~60.6)

HUMIDITY VERIFICATION — SYSTEM H-102 — *Unit: %RH*

#	STANDARD	MEASURED	ALLOWABLE RANGE	#	STANDARD	MEASURED	ALLOWABLE RANGE
1	10.0	9.4	7.8~12.2	4	70.0	69.8	67.8~72.2
2	30.0	29.9	27.8~32.2	5	90.0	89.2	87.8~92.2
3	50.0	50.2	47.8~52.2				

CO_2 GAS VERIFICATION — SYSTEM G-101 — *Unit: ppm*

#	STANDARD	MEASURED	ALLOWABLE RANGE	#	STANDARD	MEASURED	ALLOWABLE RANGE
1	0	0	0~50	4	3001	2993	2911~3091
2	512	507	462~562	5	4926	4918	4778~5074
3	1010	1010	960~1060				

CO GAS VERIFICATION — SYSTEM G-101 — *Unit: ppm*

#	STANDARD	MEASURED	ALLOWABLE RANGE	#	STANDARD	MEASURED	ALLOWABLE RANGE
1	35	35	32~38	2	100	99	97~103

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	10-24-11	04-24-12
Humidity	E003539	08-30-11	02-29-12
200 CO	CC188518	07-28-11	07-27-14
Air	HP-T-098370	10-11-11	09-16-14
Flow	E003298	04-22-11	04-22-12
Flow	E003980	08-17-11	08-17-12
100 C4H8	EB0014789	05-06-09	05-06-12

Measurement Variable	System ID	Last Cal.	Cal. Due
Temperature	E003987	10-24-11	04-24-12
5000 CO_2	EB0015430	08-03-11	03-04-12
N_2	K100246116	11-04-11	10-26-16
Flow	E003297	04-20-11	04-20-12
Flow	E003501	06-08-11	06-08-12
2000 C4H8	CC314662	06-04-09	06-04-12

Non-Responsive

November 16, 2011
DATE

Doc. ID: CERT_GEN_WCC

TSI P/N 2800157

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	66.7 (19.3)	°F (°C)
RELATIVE HUMIDITY	58	%RH
BAROMETRIC PRESSURE	28.78 (974.6)	inHg (hPa)

MODEL	9515
SERIAL NUMBER	T95151103007

☐ AS LEFT ☒ IN TOLERANCE
☒ AS FOUND ☐ OUT OF TOLERANCE

– CALIBRATION VERIFICATION RESULTS –

TEMPERATURE AS FOUND — SYSTEM T-101 — *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)	139.7 (59.8)	139.5~140.5 (59.7~60.3)

VELOCITY VERIFICATION — SYSTEM V-107 — *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	700 (3.55)	686 (3.49)	665~735 (3.38~3.73)
2	30 (0.15)	26 (0.13)	25~35 (0.13~0.18)	8	1198 (6.09)	1195 (6.07)	1138~1258 (5.78~6.39)
3	61 (0.31)	61 (0.31)	56~66 (0.28~0.33)	9	1922 (9.76)	1915 (9.73)	1826~2018 (9.28~10.25)
4	100 (0.51)	99 (0.50)	95~104 (0.48~0.53)	10	2711 (13.77)	2724 (13.84)	2576~2847 (13.08~14.46)
5	200 (1.02)	199 (1.01)	190~210 (0.97~1.07)	11	3791 (19.26)	3818 (19.39)	3601~3980 (18.29~20.22)
6	406 (2.06)	407 (2.07)	386~427 (1.96~2.17)				

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Measurement Variable	System ID	Last Cal.	Cal. Due
Temperature	E003986	04-17-12	10-17-12
DC Voltage	E001653	06-24-11	12-24-12
Temperature	E001643	02-16-12	08-16-12
Pressure	E002389	03-06-12	09-06-12

Measurement Variable	System ID	Last Cal.	Cal. Due
Temperature	E003987	04-17-12	10-17-12
Barometric Pressure	E001992	04-06-12	04-06-13
Pressure	E001718	12-07-11	06-07-12
Velocity	E003327	09-19-07	09-19-12

Non-Responsive

May 3, 2012
DATE

GEN_WCC

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	66.7 (19.3)	°F (°C)
RELATIVE HUMIDITY	58	%RH
BAROMETRIC PRESSURE	28.78 (974.6)	inHg (hPa)

MODEL	9515
SERIAL NUMBER	T95151103007

☒ AS LEFT ☐ AS FOUND

☒ IN TOLERANCE ☐ OUT OF TOLERANCE

– CALIBRATION VERIFICATION RESULTS –

TEMPERATURE VERIFICATION

SYSTEM T-101

Unit: °F (°C)

#	STANDARD	MEASURED	ALLOWABLE RANGE
1	32.0 (0.0)	32.1 (0.1)	31.5~32.5 (-0.3~0.3)

#	STANDARD	MEASURED	ALLOWABLE RANGE
2	140.0 (60.0)	139.7 (59.8)	139.5~140.5 (59.7~60.3)

VELOCITY VERIFICATION

SYSTEM V-111

Unit: ft/min (m/s)

#	STANDARD	MEASURED	ALLOWABLE RANGE
1	0 (0.00)	0 (0.00)	-5~5 (-0.03~0.03)
2	30 (0.15)	30 (0.15)	25~35 (0.13~0.18)
3	60 (0.30)	61 (0.31)	55~65 (0.28~0.33)
4	101 (0.51)	102 (0.52)	96~106 (0.49~0.54)
5	200 (1.01)	198 (1.01)	190~210 (0.96~1.07)
6	397 (2.02)	399 (2.03)	377~417 (1.91~2.12)

#	STANDARD	MEASURED	ALLOWABLE RANGE
7	699 (3.55)	698 (3.55)	664~734 (3.37~3.73)
8	1203 (6.11)	1206 (6.12)	1143~1263 (5.81~6.42)
9	1901 (9.66)	1897 (9.64)	1806~1996 (9.18~10.14)
10	2705 (13.74)	2720 (13.82)	2570~2841 (13.06~14.43)
11	3804 (19.32)	3815 (19.38)	3614~3994 (18.36~20.29)

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Measurement Variable	System ID	Last Cal.	Cal. Due
Temperature	E003986	04-17-12	10-17-12
Barometric Pressure	E001992	04-06-12	04-06-13
Temperature	E001644	01-20-12	07-20-12
Pressure	E001058	01-18-12	01-18-13

Measurement Variable	System ID	Last Cal.	Cal. Due
Temperature	E003987	04-17-12	10-17-12
DC Voltage	E004398	12-08-11	06-08-12
Pressure	E004041	03-30-12	09-30-12
Velocity	E003327	09-19-07	09-19-12

Non-Responsive

CALIBRATED

May 3, 2012
DATE

Doc. ID: CERT_GEN_WCC

ANALYTICAL REPORT

Report Date: August 28, 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: 34-1223442
Client Project ID: 12U-I6243/NMNG Bataan Memorial
Purchase Order: 12U-I6243
Project Manager: Non-Responsive

Analytical Results

Sample ID: 6243-1 | Media: Lead Dust Wipe | Collected: 08/08/2012
Lab ID: 1223442001 | Sampling Location: NMNG Bataan Memorial | Received: 08/21/2012
Method: **NIOSH 7300 Mod.** | Sampling Parameter: **Area 100 cm²** | Prepared: 08/24/2012 Analyzed: 08/27/2012

Analyte	ug/sample	ug/ft²	RL (ug/sample)
Lead	<2.5	<23	2.5

Sample ID: 6243-2 | Media: Lead Dust Wipe | Collected: 08/08/2012
Lab ID: 1223442002 | Sampling Location: NMNG Bataan Memorial | Received: 08/21/2012
Method: **NIOSH 7300 Mod.** | Sampling Parameter: **Area 100 cm²** | Prepared: 08/24/2012 Analyzed: 08/27/2012

Analyte	ug/sample	ug/ft²	RL (ug/sample)
Lead	<2.5	<23	2.5

Sample ID: 6243-3 | Media: Lead Dust Wipe | Collected: 08/08/2012
Lab ID: 1223442003 | Sampling Location: NMNG Bataan Memorial | Received: 08/21/2012
Method: **NIOSH 7300 Mod.** | Sampling Parameter: **Area 100 cm²** | Prepared: 08/24/2012 Analyzed: 08/27/2012

Analyte	ug/sample	ug/ft²	RL (ug/sample)
Lead	<2.5	<23	2.5

Sample ID: 6243-4 | Media: Lead Dust Wipe | Collected: 08/08/2012
Lab ID: 1223442004 | Sampling Location: NMNG Bataan Memorial | Received: 08/21/2012
Method: **NIOSH 7300 Mod.** | Sampling Parameter: **Area 100 cm²** | Prepared: 08/24/2012 Analyzed: 08/27/2012

Analyte	ug/sample	ug/ft²	RL (ug/sample)
Lead	<2.5	<23	2.5

ANALYTICAL REPORT

Workorder: **34-1223442**
Client Project ID: 12U-I6243/NMNG Bataan Memorial
Purchase Order: 12U-I6243
Project Manager: [redacted]

Analytical Results

Sample ID: 6243-5 | Media: Lead Dust Wipe | Collected: 08/08/2012
Lab ID: 1223442005 | Sampling Location: NMNG Bataan Memorial | Received: 08/21/2012
Method: **NIOSH 7300 Mod.** | Sampling Parameter: **Area 100 cm²** | Prepared: 08/24/2012 Analyzed: 08/27/2012

Analyte	ug/sample	ug/ft²	RL (ug/sample)
Lead	<2.5	<23	2.5

Sample ID: 6243-6 | Media: Lead Dust Wipe | Collected: 08/08/2012
Lab ID: 1223442006 | Sampling Location: NMNG Bataan Memorial | Received: 08/21/2012
Method: **NIOSH 7300 Mod.** | Sampling Parameter: **Area 100 cm²** | Prepared: 08/24/2012 Analyzed: 08/27/2012

Analyte	ug/sample	ug/ft²	RL (ug/sample)
Lead	<2.5	<23	2.5

Sample ID: 6243-7 | Media: Lead Dust Wipe | Collected: 08/08/2012
Lab ID: 1223442007 | Sampling Location: NMNG Bataan Memorial | Received: 08/21/2012
Method: **NIOSH 7300 Mod.** | Sampling Parameter: **Area 100 cm²** | Prepared: 08/24/2012 Analyzed: 08/27/2012

Analyte	ug/sample	ug/ft²	RL (ug/sample)
Lead	<2.5	<23	2.5

Sample ID: 6243-8 | Media: Lead Dust Wipe | Collected: 08/08/2012
Lab ID: 1223442008 | Sampling Location: NMNG Bataan Memorial | Received: 08/21/2012
Method: **NIOSH 7300 Mod.** | Sampling Parameter: **Area 100 cm²** | Prepared: 08/24/2012 Analyzed: 08/27/2012

Analyte	ug/sample	ug/ft²	RL (ug/sample)
Lead	<2.5	<23	2.5

Sample ID: 6243-9 | Media: Lead Dust Wipe | Collected: 08/08/2012
Lab ID: 1223442009 | Sampling Location: NMNG Bataan Memorial | Received: 08/21/2012
Method: **NIOSH 7300 Mod.** | Sampling Parameter: **Area 100 cm²** | Prepared: 08/24/2012 Analyzed: 08/27/2012

Analyte	ug/sample	ug/ft²	RL (ug/sample)
Lead	<2.5	<23	2.5

ANALYTICAL REPORT

Workorder: 34-1223442
Client Project ID: 12U-I6243/NMNG Bataan Memorial
Purchase Order: 12U-I6243
Project Manager: Non-Responsive

Analytical Results

Sample ID: 6243-10 | Media: Lead Dust Wipe | Collected: 08/08/2012
Lab ID: 1223442010 | Sampling Location: NMNG Bataan Memorial | Received: 08/21/2012
Method: NIOSH 7300 Mod. | Sampling Parameter: Area 100 cm² | Prepared: 08/24/2012 Analyzed: 08/27/2012

Analyte	ug/sample	ug/ft²	RL (ug/sample)
Lead	<2.5	<23	2.5

Sample ID: 6243-11 | Media: Lead Dust Wipe | Collected: 08/08/2012
Lab ID: 1223442011 | Sampling Location: NMNG Bataan Memorial | Received: 08/21/2012
Method: NIOSH 7300 Mod. | Sampling Parameter: Area 100 cm² | Prepared: 08/24/2012 Analyzed: 08/27/2012

Analyte	ug/sample	ug/ft²	RL (ug/sample)
Lead	**26**	**240**	2.5

Sample ID: 6243-12 | Media: Lead Dust Wipe | Collected: 08/08/2012
Lab ID: 1223442012 | Sampling Location: NMNG Bataan Memorial | Received: 08/21/2012
Method: NIOSH 7300 Mod. | Sampling Parameter: Area 100 cm² | Prepared: 08/24/2012 Analyzed: 08/27/2012

Analyte	ug/sample	ug/ft²	RL (ug/sample)
Lead	**3.4**	**32**	2.5

Sample ID: 6243-13 | Media: Lead Dust Wipe | Collected: 08/08/2012
Lab ID: 1223442013 | Sampling Location: NMNG Bataan Memorial | Received: 08/21/2012
Method: NIOSH 7300 Mod. | Sampling Parameter: Area 100 cm² | Prepared: 08/24/2012 Analyzed: 08/27/2012

Analyte	ug/sample	ug/ft²	RL (ug/sample)
Lead	<2.5	<23	2.5

Sample ID: 6243-14 | Media: Lead Dust Wipe | Collected: 08/08/2012
Lab ID: 1223442014 | Sampling Location: NMNG Bataan Memorial | Received: 08/21/2012
Method: NIOSH 7300 Mod. | Sampling Parameter: Area 100 cm² | Prepared: 08/24/2012 Analyzed: 08/27/2012

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

ANALYTICAL REPORT

Workorder: 34-1223442
Client Project ID: 12U-I6243/NMNG Bataan Memorial
Purchase Order: 12U-I6243
Project Manager: [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

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.

Industrial Hygiene Southwest

Violation Inventory Log

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

Bataan Memorial Museum, Santa Fe, New Mexico

CONTROL NUMBER CLOSED ☐	HAZARD DESCRIPTION	SITE	RAC	CORRECTIVE ACTIONS (Abatement Plan)	SUSPENSE DATE	ACTION OIC/NCOIC	Estimated Cost(s)	DATE CORRECTED	REFERENCES
BM-080812;4.1 ☐	The analytical result for the wipe sample collected from the floor indicated a lead concentration of 240 µg/ ft2 which exceeds the IHSW criterion of 200 µg/ ft2 for spaces which have restricted public access.	Historic Gun Vault, Basement floor	3	Perform cleaning in the historical weapons gun vault following the standard operating procedures titled "Lead Clean-up and follow- up Housekeeping" as outlined in Appendix N.					29 CFR 1910.1025 (h)(1)
BM-080812;4.4.1 ☐	An asbestos survey could not be located during this IH Assistance Visit.	Bataan Memorial Museum	3	Either locate the asbestos survey for this building or contract with a licensed firm to perform an asbestos survey and assessment.					1910.1001(j)(3)(i)
BM-080812;4.4.2 ☐	Personnel have not been provided with asbestos awareness training.	Bataan Memorial Museum	4	Based on the findings of this survey, provide awareness training to assigned personnel for the specific types of asbestos in this Armory.					1910.1001(j)(3)(iii)
BM-080812;4.6.1 ☐	The museum stores small quantities of flammable materials, which are used for vehicle maintenance and janitorial cleaning. All the chemicals were located on a single shelving unit in a storage room in the basement.	Bataan Memorial Museum	4	Segregate all flammable materials and store them in a flammable storage cabinet.					1910.106 (d) (5) (iii)
BM-080812;4.6.1 ☐	A chemical inventory could not be located for the chemicals located in the stroage room on the basement floor	Bataan Memorial Museum	4	Develop and maintain an inventory of all chemicals which are in use by the museum					1910.1200 (e)(i)
BM-080812;4.6.1 ☐	A list of MSDSs could not be located for the chemicals located in the stroage room on the basement floor	Bataan Memorial Museum	4	Develop and maintain a list of MSDSs for all chemicals which are in use by the museum					1910.1200 (g)(1)

Industrial Hygiene Southwest

Violation Inventory Log

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

Bataan Memorial Museum, Santa Fe, New Mexico

CONTROL NUMBER CLOSED ☐	HAZARD DESCRIPTION	SITE	RAC	CORRECTIVE ACTIONS (Abatement Plan)	SUSPENSE DATE	ACTION OIC/NCOIC	Estimated Cost(s)	DATE CORRECTED	REFERENCES
BM-080812;4.7 ☐	There are no safety training and safety records maintained at the museum.	Bataan Memorial Museum	4	At a minimum provide hazard communication to those who use chemicals in the work place and fire prevention training, fire safety, and fire extinguisher training to all personnel who occupy the museum.					1910.1200 (h), 1910.157 (g), 1910.39 (b)
BM-080812;4.10.3 ☐	Monthly fire extinguisher checks are not marked on the fire extinguisher tags	Bataan Memorial Museum	4	Perform monthly fire extinguisher inspections and document the date on the fire extinguisher tags.					29 CFR 1910.157 (e)(2
BM-080812;4.10.6 ☐	There are no GCFIs installed within 6 feet of the sink	Consession Stand	4	Install a GCFI on all outlets within six feet of all water sources.					NFPA 70 Article 210-8

Summary of Recommendations for the Santa Fe Armory Bataan Memorial Museum

4.1 Lead Wipe Sampling

Recommendation

Perform cleaning in the historical weapons gun vault following the standard operating procedures titled "Lead Clean-up and follow- up Housekeeping" as outlined in Appendix N.

4.4 Asbestos Management

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.

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

Recommendations

1. Segregate all flammable materials and store them in a flammable storage cabinet.
2. Develop a chemical inventory, and acquire and maintain MSDS for all chemicals maintained in this museum.

4.7 Safety Training and Record Keeping

Recommendations

At a minimum provide hazard communication to those who use chemicals in the work place and fire prevention training, fire safety, and fire extinguisher training to all personnel who occupy the museum.

4.10 General Safety Walk-Through

Recommendation

1. Perform monthly fire extinguisher inspections and document the date on the fire extinguisher tags.
2. Install GCFIs on all outlets within six feet of water sources.

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)

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.**

ARMY NATIONAL GUARD
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Industrial Hygiene Site Assistance Visit

Belen Armory
21 General E. Baca Rd.
Belen, NM 87002

10510 Superfortress Avenue, Suite C, Mather, CA 95655 (916) 854-1491

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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

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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

12 December 2012

MEMORANDUM THRU New Mexico Army National Guard, Deputy State Surgeon (DSS) 600 Wyoming Blvd NE, Albuquerque, NM 87123

FOR Commander, Belen Armory 21 General E. Baca Rd, Belen, NM 87002

SUBJECT: Executive Summary for Industrial Hygiene Site Assistance Visit for the Belen Armory 21 General E. Baca Rd, Belen, New Mexico conducted on 12 September 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 Belen Armory 21 General E. Baca Rd., Belen, NM on 12 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 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 annual and monthly fire extinguisher checks are maintained on the tag found on the extinguisher and they are current. (para. 4.10) **(RAC 3)**

b. Locate the asbestos survey for this building or contract to have a licensed firm to perform an asbestos survey and assessment. This should be part of the NM ARNG Asbestos Management Plan. (para. 4.4) **(RAC 3)**

c. Develop and maintain a chemical inventory log for agents found within the flammable storage cabinet. MSDS's should be acquired for each of these agents and maintained in a organized binder. (para. 4.6.1) **(RAC 4)**

d. Provide personnel with asbestos awareness training to help prevent them from contaminating others, the building or themselves. (para. 4.4) **(RAC 4)**

e. Upgrade the duct velocity of the kitchen exhaust fan to at least 500 fpm to help evacuate smoke and fumes. (para. 4.8) **(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.

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 New Mexico 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

For

NGB, IHSW, CIV
Industrial Hygiene

Industrial Hygiene Southwest

Violation Inventory Log

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

Belen Armory, Belen, New Mexico

CONTROL NUMBER CLOSED ☐	HAZARD DESCRIPTION	SITE	RAC	CORRECTIVE ACTIONS (Abatement Plan)	SUSPENSE DATE	ACTION OIC/NCOIC	Estimated Cost(s)	DATE CORRECTED	REFERENCES
NMBA-091212-4.4 ☐	An asbestos survey could not be located during this IH Assistance Visit.	Belen 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)
NMBA-091212-4.4 ☐	Personnel have not been provided with asbestos awareness training.	Belen 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
NMBA-091212-4.6.1 ☐	The chemical inventory / MSDSs for flammable materials is inconsistent with the contents of the flammable storage cabinet.	Flammable Storage Annex	4	Develop and maintain a chemical inventory for agents found in the flammable storage cabinet as part of the Hazard Communications program					29 CFR 1910.1200 (e) (i); 29 CFR1900.1200 (g) (1)
NMBA-091212-4.6.1 ☐	The cleaning supply room containing hazardous materials is not labeled with the NFPA required signage.	Cleaning Supply Room	4	Visible Hazard identification signs in accordance with NFPA 704, *Standard System for Identification of the Hazards of Materials for Emergency Response* shall be placed on the cabinet, as well as, the entrance of the room the cabinet is located.					NFPA 1 Section 60.5.1.8.2.1, NFPA 704
NMBA-091212-4.8 ☐	The average estimated duct velocity is: 88 fpm, which does not meet the NFPA recommended minimum of 500 fpm.	Kitchen	4	Upgrade the duct velocity of the kitchen exhaust fan to at least 500 fpm.					NFPA 96, Section 8.2.1.1

Industrial Hygiene Southwest

Violation Inventory Log

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

Belen Armory, Belen, New Mexico

CONTROL NUMBER CLOSED ☐	HAZARD DESCRIPTION	SITE	RAC	CORRECTIVE ACTIONS (Abatement Plan)	SUSPENSE DATE	ACTION OIC/NCOIC	Estimated Cost(s)	DATE CORRECTED	REFERENCES
NMBA-091212-4.10 ☐	Monthly and annual fire extinguisher checks were not current	Belen Armory	4	Ensure that annual and monthly fire extinguisher checks are maintained and current.					29 CFR 1910.157 (e)(2)

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

New Mexico Army National Guard
Belen Armory
21 General E. Baca Road
Belen, New Mexico 87002

December 6, 2012

Prepared for:

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

Prepared by:
Non-Responsive
Industrial Hygienist

Reviewed by:
Non-Responsive
Industrial Hygiene Services Manager

Project AL127267

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SALT LAKE CITY EMERYVILLE PHOENIX DENVER SEATTLE

APPENDICES

EXECUTIVE SUMMARY

On September 12, 2012, Non-Responsive CIH, CPH, an Industrial Hygienist with IHI Environmental (IHI), conducted an Industrial Hygiene (IH) Assistance Visit at the Belen Armory, located at 21 General E Baca, Belen, New Mexico, 87002. The primary point of contact for information gathered during this survey was Non-Responsive (505) 474-2050, marc.mcanally@us.army.mil.

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 12, 2012, Non-Responsive MPH, an Industrial Hygienist with IHI Environmental (IHI), conducted an Industrial Hygiene (IH) Assistance Visit at the Belen Armory, located at 21 General E. Baca, Belen, New Mexico, 87002. The primary point of contact for information gathered during this survey was Non-Responsive (505) 474-2050. Non-Responsive

1.1 Objectives

The objective of the IH Assistance survey is to 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 Belen Armory has nine full-time military guard members and one full-time civilian employee. The armory houses administrative offices, training facilities, a drill floor, storage rooms, a locker room, and a kitchen. The organizations assigned to this armory are the Combat Sustainment Support Battalion; the Detachment 1-200th Infantry; and the State

Defense Force. Civilian activities in this armory include renting the drill floor for celebratory or commemorative occasions, and occasionally using the armory for firearms training in the drill hall. Army National Guard members occasionally use the drill hall as a staging area for weapons maintenance, including gun cleaning.

Armory housekeeping is performed by the Guard staff, and maintenance of building systems is performed by the Department of Military Affairs, Maintenance Division, upon requested.

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, 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. 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 ALS Laboratories in Salt Lake City, Utah. ALS 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

The armory's heating, ventilation, and air-conditioning (HVAC) system was 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 is available.

Carbon dioxide (CO_2), temperature, and relative humidity were measured throughout the armory using a TSI Model 8550-X Q-Trak™ IAQ 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 minimized (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

The armory's chemical inventory and Material Safety Data Sheet (MSDS) file was reviewed. 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 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) are measured using a MSA Type-2 Sound Level Meter in the dBA and dBC ranges, with the meter set on slow response. DD Form 2214 is 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™	9515	T95151103007	05/03/2012
TSI Q-Trak™	8550-X	8554-01051026	09/07/2012
MSA® Sound Level Meter Type II	Type 2	00035	02/10/2012

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 weapon vault had surface lead concentrations of 72µg/ft^2 which is below the IHSW criterion of 200 µg/ft^2 for lead dust in areas restricted to the general public. None of the remaining rooms tested had detectable concentrations of lead for the analytical method used. 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

None

4.2 Painted Surface Evaluation

Peeling paint was observed in the computer room, supply room, boiler room, and the office inside the maintenance bay. None of the paint samples collected revealed concentrations of lead above the limit of detection for the analytical method used. Note: this was not a comprehensive lead-containing material survey.

Recommendation

Evaluate all suspect lead-containing materials before performing any activities that may create lead-containing dust or fume.

4.3 Moisture Intrusion and Limited Visual Fungal Growth Evaluation

Water-damaged ceiling tiles were observed in the conference room, the computer room, and an office located along the southeast side of the facility. No visible mold growth was observed throughout the surveyed spaces.

Recommendations

None

4.4 Asbestos Management

An asbestos survey could not be located during this visit. The facility was constructed in 1992. *Presumed asbestos containing material* (PACM) as defined by the Occupational Safety and Health Administration (OSHA) per Code of Federal Regulations (CFR) 1910.1001, means thermal system insulation and surfacing material found in buildings constructed no later than 1980. Although there may not be any PACM at the Belen Armory, building materials should be tested for the presence of asbestos prior to renovation and demolition activities. 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. If 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 HVAC system servicing the armory consists of several types of units, including a roof-mounted combination heating and cooling unit, evaporative coolers, and several filtered air-handling units dedicated solely to individual rooms. The heating portion of the combination heating and cooling units consists of a gas-fired forced-air furnace. The cooling portion of the air-handling units distributes cool air through the same HVAC ducting to various areas of the building.

The State of New Mexico Department of Military Affairs, Maintenance Division, regularly services and provides monthly preventive maintenance checks of the HVAC system for this armory.

The average outdoor CO_2 concentration at the time of the survey was 491 ppm. The highest CO_2 concentration measured inside the building was 738 ppm, which should not result in indoor air quality complaints.

Building air temperatures ranged from 67.5°F to 75.8°F and relative humidity was between 35.7% and 41.2% during the testing period. Air temperatures were within the recommended comfort range of 68°F to 75°F, as well as, the relative humidity which was within the recommended range of between 30% and 60%. Humidity levels above 60% can result in proliferation of bacteria and fungi, while levels below 30% can cause dry eyes, skin, and mucous membranes.

Recommendation

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 and flammable materials are documented in a master binder located along the north wall of the entrance. A binder with the inventory of the hazardous materials and the associated MSDSs is also located in the cleaning supply room along with the hazardous materials. An inspection of the chemical inventory and MSDSs revealed that current hazardous materials in the cleaning supply room are all accounted for. There were no leaking containers and no chemical incompatibilities noted. The room containing the hazardous materials did not contain the NFPA required signage, and the inventory and associated MSDSs for the flammable agents inside the flammable storage cabinet did not accurately reflect the contents of the cabinet.

Copies of the available chemical inventory are provided in Appendix D.

Recommendations

1. Post an NFPA placard on the door where hazardous materials are stored to alert fire department personnel of the contents of this room. The numbering on the placard should satisfy the requirements of NFPA 704, Standard System for Identification of the Hazards of Materials for Emergency Response.
2. Update and maintain MSDSs and a chemical inventory for the contents of the flammable storage cabinet.

4.6.2 Flammable Storage Cabinets

There is one flammable storage cabinet located inside an annex designated for flammable materials. The chemical inventory and associated MSDSs in the master binder were not consistent with the contents of the room and cabinet.

There were no chemical incompatibilities or leaking containers observed and the cabinet was in good condition and all doors close properly. The room is ventilated through a supply air duct and the annex contained explosion-proof lighting fixtures.

Recommendation

See Section **4.6.1** of this report.

4.7 Safety Training and Record Keeping

The following safety documentation is maintained in the Belen Armory:

Safety Standard Operating Procedure

- Explosives Safety Management
- Army Accident Prevention Awards Program
- Radiation Safety Management
- Safety Awards Program
- Motor Vehicle Accident Prevention
- Emergency Planning and Response
- Occupational Safety and Health Program
- Chemical Agent Safety Management
- Composite Risk Management
- Fire Prevention Plan

AR 385-10 (The Army Safety Program)

NGR 385-10 (Army National Guard Safety Program)

DA Pam 385-10 (Army Safety Program)

DA Pam 385-1 (Small Unit Safety Officer/NCO Guide)

DA PAM 385-30 (Mishap Risk Management)

FM 5-19 (Risk Management)

DA PAM 385-40 (Army Accident Investigation and Reporting)

AR 385-63 (Range Safety)

AGNOM 785-10 (Army National Guard Safety Program)

AR 385-40 (Accident Reporting and Records)

29 CFR 1910.38 (Emergency Action Plan)

All other safety-related regulations are maintained electronically on the Reserve Component Automation System (RCAS) website. Safety training records and rosters are maintained electronically. Hard copies of safety training records were not available at the Belen armory.

The last Safety Council meeting was held on June 14, 2012. In addition, the NMARNG has numerous required compute- 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

Duct velocity was calculated for the exhaust hood serving the stove. Duct velocity measurements could not be obtained directly for the stove/oven exhaust duct. Therefore, the duct velocity was calculated indirectly (estimated) by using the face velocity readings from the face of the hood, the area dimensions of the hood face, and the diameter of the exhaust duct. The average estimated duct velocity is 88 fpm, which does not meet the NFPA recommended minimum of 500 fpm.

Recommendation

Upgrade the duct velocity of the kitchen exhaust fan to at least 500 fpm.

4.9 Kitchen Appliance Sound-Level Measurements

The sound-pressure levels of the kitchen equipment were measured during this visit. This equipment included the kitchen exhaust fan above the stove; the ice machine, freezer, and refrigerator; and the garbage disposal. None of this equipment produced levels above the

OSHA regulatory level of 85 dBA. Results and risk assessment for the kitchen appliance noise survey can be found on DD Form 2214 in Appendix M.

Recommendation

None

4.10 General Safety Walk-Through

1. Housekeeping throughout the facility was very good.
2. There are fire alarms present in this facility that are maintained by the Department of Military Affairs, Maintenance Division.
3. There were no eyewash stations in this facility.
4. Fire evacuation routes are posted in all rooms of the armory.
5. All inspected electrical panels had labeled switches with no missing panel covers.
6. Fire extinguishers are strategically located throughout the armory. The annual inspections for the inspected fire extinguishers are current, but the monthly inspections are outdated.

Recommendations

1. Ensure that monthly inspections for fire extinguishers are conducted.

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

December 6, 2012
Date

Industrial Hygiene Services Manager

Technical Assistance: For technical assistance regarding information found in this report or the performed survey, please contact Non-Responsive t (801) 466-2223, or Non-Responsive f 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 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.

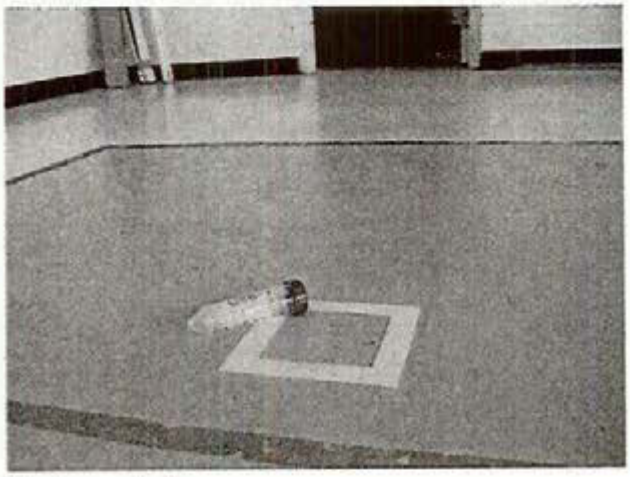
Occupational Exposure Limit

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).

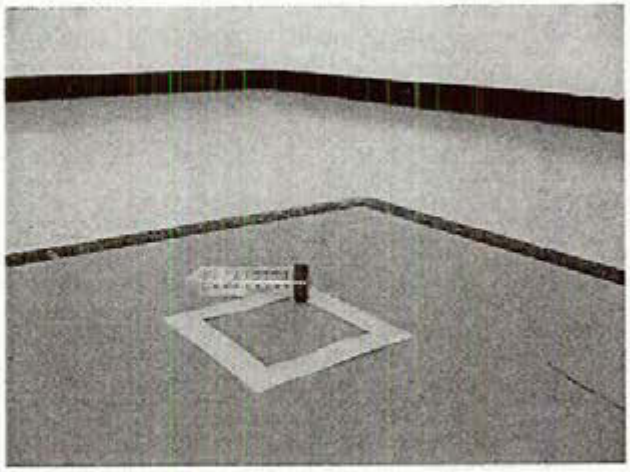
Photograph 1
View of south side of Belen Armory, exterior

Photograph 2
View of north side of Belen Armory, exterior

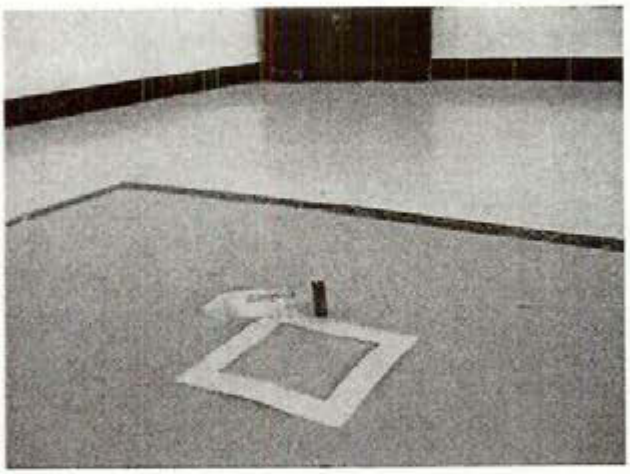
Photograph 3
View of the Belen Armory drill hall, interior



Photograph 4
Lead wipe sample location 6248-1, Drill floor, S.E.

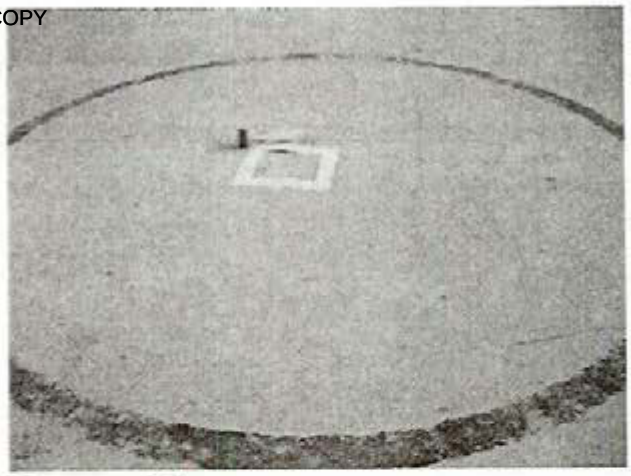


Photograph 5
Lead wipe sample location 6248-2, Drill floor, S.W.



Photograph 6
Lead wipe sample location 6248-3, Drill floor, N.W.

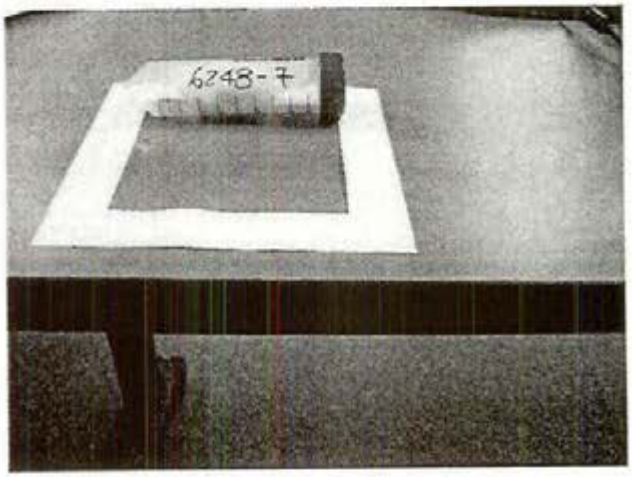
Photograph 7
Lead wipe sample location 6248-4, Drill floor, N.E.



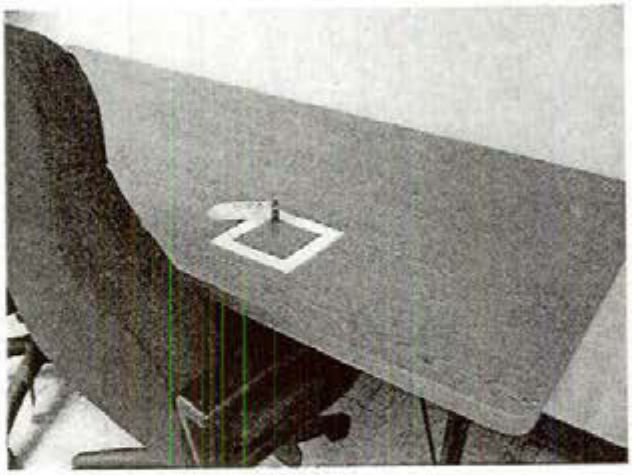
Photograph 8
Lead wipe sample location 6248-5, Drill floor, Center

Picture Unavailable

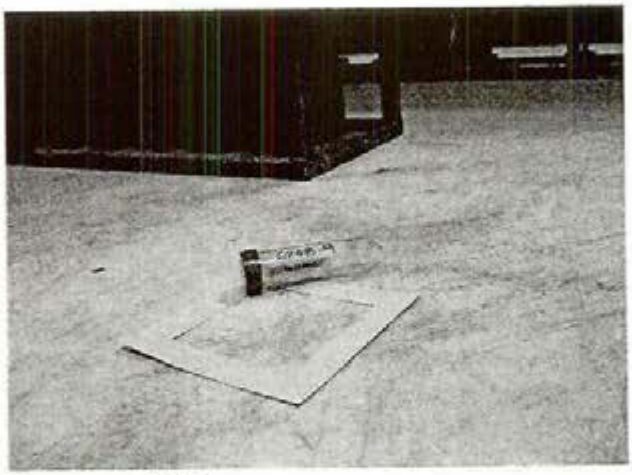
Photograph 9
Lead wipe sample location 6248-6, Kitchen



Photograph 10
Lead wipe sample location 6248-7, Conference room



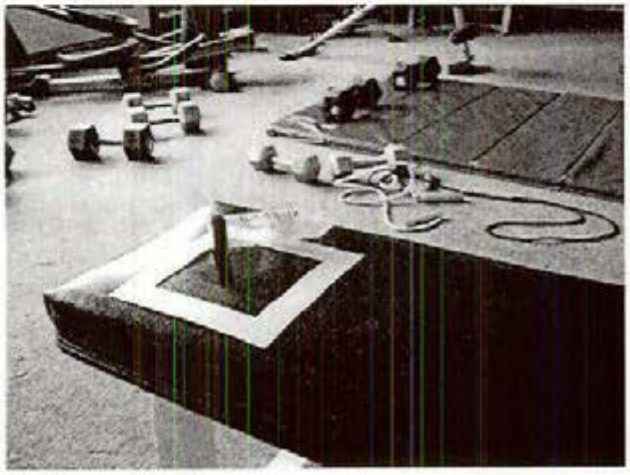
Photograph 11
Lead wipe sample location 6248-8, Computer room



Photograph 12
Lead wipe sample location 6248-9, Weapons Vault

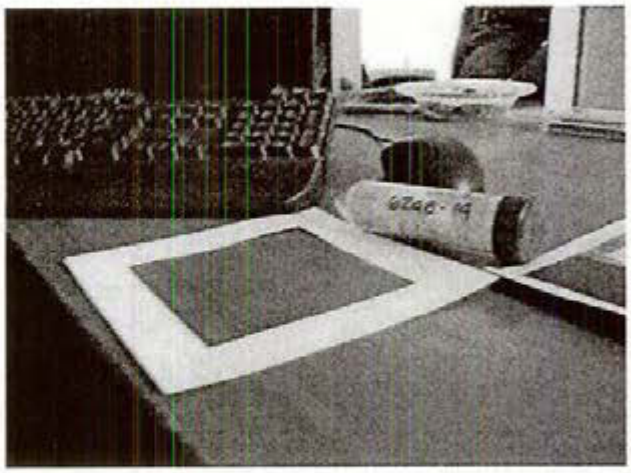
Photograph 13
Lead wipe sample location 6248-10, Supply Room

Photograph 14
Lead wipe sample location 6248-11, Dormitory

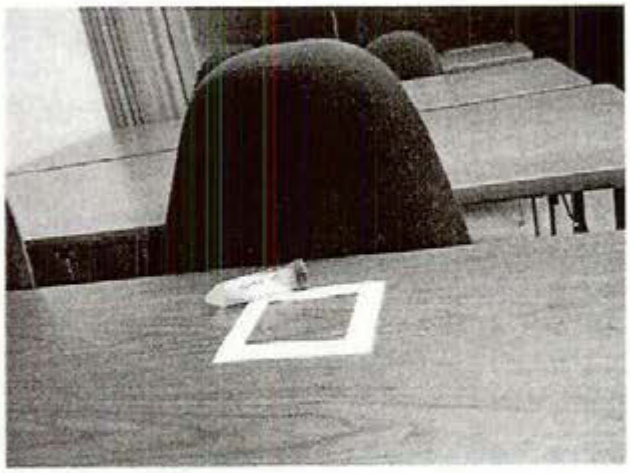


Photograph 15
Lead wipe sample location 6248-12, Workout room

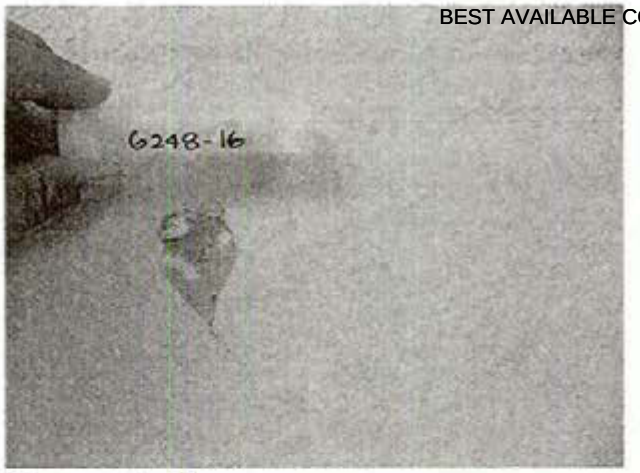
Photograph 16
Lead wipe sample location 6248-13, Communications room



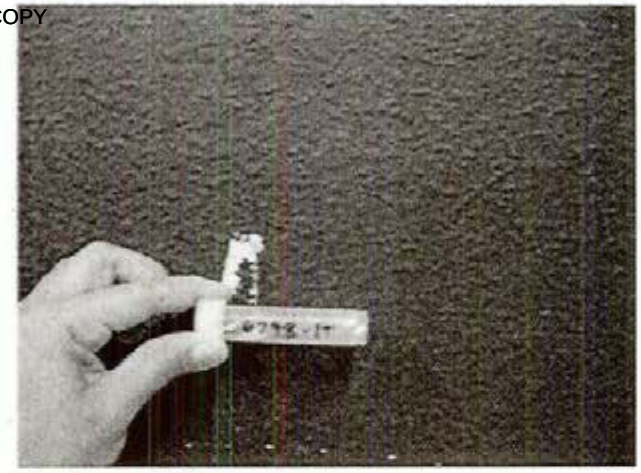
Photograph 17
Lead wipe sample location 6248-14, Dwayne Glass' Desk



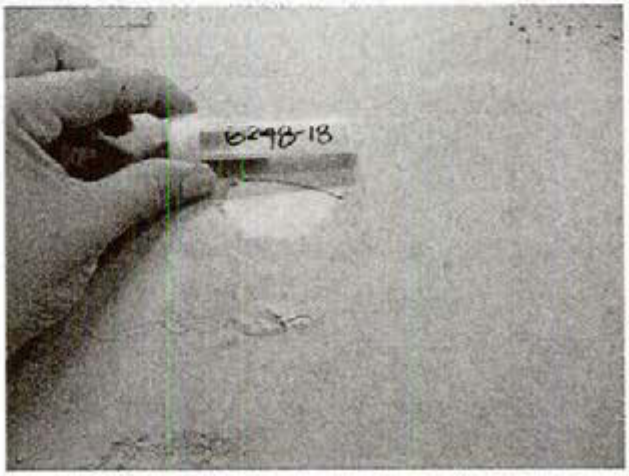
Photograph 18
Lead wipe sample location 6248-15, Classroom



Photograph 19
Lead wipe sample location 6248-16, Computer room entrance



Photograph 20
Lead wipe sample location 6248-17, Supply room entrance



Photograph 21
Lead wipe sample location 6248-18, Boiler room

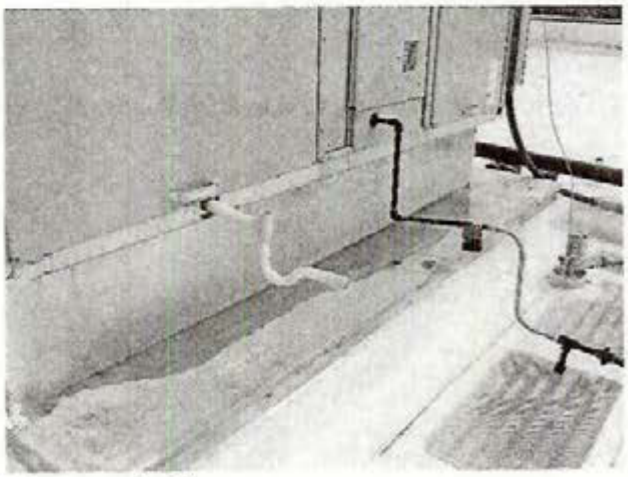
Photograph 22
Lead wipe sample location 6248-19, Maintenance Bay

Photograph 23
Kitchen exhaust hood servicing the stove/oven

Photograph 24
Exhaust duct for hood servicing the stove/oven

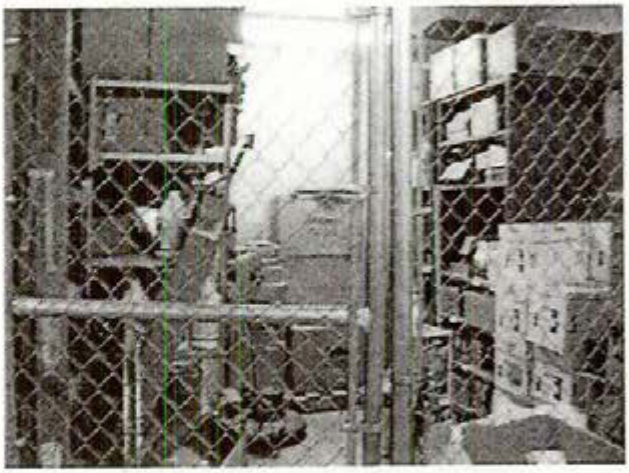
Photograph 27
Package heating and cooling combination unit

Photograph 28
HVAC unit on the roof



Photograph 29
HVAC unit condensation in collection pan.

Photograph 30
Hazardous materials storage room, interior



Photograph 31
Hazardous materials/cleaning supply storage room, exterior

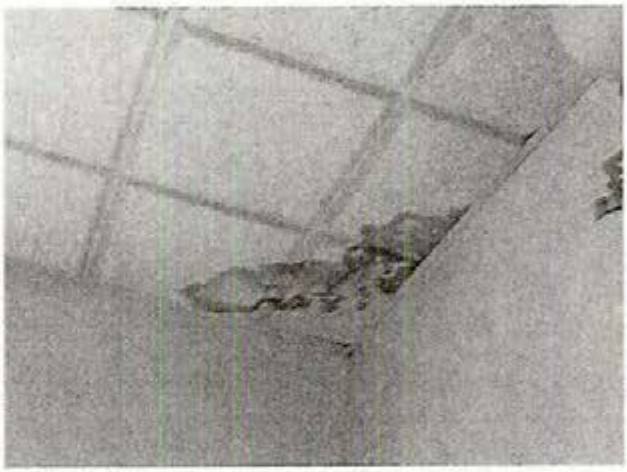
Photograph 32
Partially used flammable materials inside flammable materials annex

Photograph 33
Empty canisters inside flammable materials annex

Photograph 34
Flammable materials cabinet, door open

Photograph 35
Flammable materials cabinet, door closed

Photograph 36
Exterior view of the annex containing flammable materials and flammables cabinet



Photograph 37
Water stained ceiling tiles

Photograph 38
Safety: monthly inspections for fire extinguishers are not current

JANITORIAL STORAGE ROOM

1. PINE OIL
2. CITRUSOLV SPRAY
3. PINE DISINFECTANT
4. RTL/GLASS CLEANER
5. COCONUT LIQUID HAND SOAP
6. RENEW FLOOR RESTORER CLEANER
7. 700 SPECIAL OIL
8. SPRAY BUFF
9. GOJO ORIGINAL FORMULA HAND CLEANER
10. SILICONE DIOXIDE SCOUTING POWDER
11. NON-ACID CREAM CLEANSER-BLUE
12. TOILET BOWL CLEANER
13. CLEAN ALL-PUPOSE CLEANER AND DEGREASER
14. LEMON OIL FURNITURE POLISE
15. FURNITURE POLISH
16. CLEAN ALL PURPOSE CLEANER
17. FLOOR INISH
18. FLOOR FINISH SEALER
19. RESILIENT FLOOR SEALER
20. CAREFREE
21. DETERGENT LAUNDRY
22. DISHWASH SOAP HAND
23. NEUTRAL FLOOR CLEANER
24. SPEED STRIPPER

MOTOR POOL FLAMMABLE STORAGE

1. ISOPROPYI ALCOHOL
2. CLEANER LUBRICANT AND PRESERVATIVE
3. KRYLON INDOOR/OUTDOOR PAINT GLOBAL BLUE
4. GLIDEDEN PORCH AND FLOOR OIL
5. SO-SURE TAN OBLITERATING COMPOUND
6. NUTS N BOLTS 227
7. ELIMINATOR WEED AND GRASS KILLER
8. KRYLON INDOOR/OUTDOOR PAINT NAVY BLUE
9. SO-SURE AERSOL ENAMEL PAINT
10. WD 40 AERSOL

Lead Wipe Sample Results			
Sample Number	Collection Date	Location	Result $\mu g/ft^2$
6248-01	9/12/2012	Drill floor S.E.	< 23
6248-02	9/12/2012	Drill floor S.W.	< 23
6248-03	9/12/2012	Drill floor N.W.	< 23
6248-04	9/12/2012	Drill floor N.E.	< 23
6248-05	9/12/2012	Drill floor Center	< 23
6248-06	9/12/2012	Kitchen, on top of food preparation surface	< 23
6248-07	9/12/2012	Conference room	< 23
6248-08	9/12/2012	computer room (S.W. armory)	< 23
6248-09	9/12/2012	Gun Vault	72
6248-10	9/12/2012	Supply Room	< 23
6248-11	9/12/2012	Dormitory	< 23
6248-12	9/12/2012	Work out room	< 23
6248-13	9/12/2012	Communication room	< 23
6248-14	9/12/2012	Dwayne Glass's desk	< 23
6248-15	9/12/2012	Classroom	< 23

Paint Chip Sample Result			
Sample Number	Collection Date	Location	Result mg/kg
6248-16	9/12/2012	white paint- entrance of computer room	< 0.0025

Kitchen Stove/Oven Exhaust Duct Velocity Estimate

Face Dimensions =		18	X	116	Inches		
Face Area =	14.5	ft^2					

Face Vel. Measurement Points

1	3	5	7	9	11
2	4	6	8	10	12

Face Velocity Measurements

Point	Flow rate (fpm)
1	2
2	3
3	50
4	35
5	95
6	58
7	67
8	46
9	0
10	1
11	0
12	0

Ave Flow Rate	29.75	fpm		
Area of Face (A	14.5	ft^2		
Q = A x V				
Q =	431.375	CFM		
Exhaust Duct Diameter =			30	inches
Area of Roof Top Exhaust Duct =			4.90875	ft^2
Estimated Duct Velocity =			**87.8788**	**fpm**

Belen Armory

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 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.	yes - see map
Are there any signs of water damage or mold?	Yes... H_2O damaged tiles... no signs of mold
Any suspected ACM? Where and what condition is it in. Bulk sample if able.	yes. Bldg - constructed in 1992
Quality of housekeeping	Good
HVAC maintenance plan in place?	~~State~~ Dept of Military Affairs
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. inventory not consistent w/ contents of flammable
HAZMAT storage, Condition of lockers, if outside storage building is used is it ventilated and does it meet OSHA standards.	Good - supply + return vents

* No asb. report
* no o&m program - maintenance should be trained.

Fire alarm in working condition - -not usually in place in older armories	Yes.
Fire extinguishers in place and properly identified and mounted	Yes.
Evidence of **monthly fire extinguisher inspections**	Not current
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)	No eyewash
Egress routes accessible and properly marked - -noted on Fire Evacuation Plan	Yes in most rooms
Training programs in place; Hazcom, Respiratory Protection, Confined Spaces, Hearing conservation, PPE (if applicable)	Yes
Any Photo labs	—
Any hazardous **noise** sources	No
Light levels checked throughout building	—
Breaker panels properly labeled with no exposed wiring	Yer.
Check **building occupancy** 1. How many military personnel, how many civilian personnel 2. What types of units occupy facility: i.e. Administrative, Maintenance, etc.?	Full time military - 9 civilian full time - 1 Combat sustainment support Battalion (1°) Det 1 - 100th Infantry. State Defense force
Any **civilian activities** in armory (cub scouts, classes, day care, parties etc)	Rent out drill hall, Firearms training.
Obtain two **lead air samples**	—

* Clean weapons in drill hall
* State Dept of military Affairs - maint. - fire alarms as well. Belen fire dept aids. necessary.
* Military personnel do housekeeping.

Evaluate Kitchen Stove Hood Flow if Present IAW NFPA Standard 96.	✓
Collect Source Noise Measurements of Kitchen Appliances and Document Using HD 2214	✓
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.	✓
Name of Armory, **POC, phone #, address** and **organizations** in Armory	Non-Responsive (503) 419-2030

FACILITY INFORMATION

(Information listed in First Section)
(1st Few Paragraphs/Pages of Report)

1. Date Prepared: **09/12/12**

2. Names (and Company Name) of Personnel Conducting Industrial Hygiene Site Assistance Visit: Non-Responsive

3. Facility Name and Brief Summary of Primary Activities Conducted at Facility:
Belen Army National Guard

Activities: training

4. Facility Address:
21 General E Baca
Belen, New Mexico, 87002

5. Primary Unit Assigned to Facility (Ensure to capture and provide Unit Identification Code (UIC)):
Combat Sustainment Support Battalion
the Det 1-200th Infantry
the State Defense Force

6. Co-Tenant Units Assigned or Working Within Facility (LIST ALL): **none**

7. Square Ft. Area of Facility:

8. Work Schedule: **M-F 0900-1630**

9. Number of work bays: **1**

10. Equipment Density and Type:

    a. List Equipment Nomenclature Serviced or Maintained at Facility:

    b. List Total Number for Each Nomenclature Serviced or Maintained at Facility:

information could not be provided on the day of the survey

11. Total Number of Personnel: **9**

12. No. of Admin. Personnel (Include Status – AGR, Fed. Tech., IDT, State or Contract Employee): **9**

TSI VELOCICALC

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	66.7 (19.3)	°F (°C)
RELATIVE HUMIDITY	58	%RH
BAROMETRIC PRESSURE	28.78 (974.6)	inHg (hPa)

MODEL	9515
SERIAL NUMBER	T95151103007

☐ AS LEFT ☒ IN TOLERANCE
☒ AS FOUND ☐ OUT OF TOLERANCE

– CALIBRATION VERIFICATION RESULTS –

TEMPERATURE AS FOUND — SYSTEM T-101 — *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)	139.7 (59.8)	139.5~140.5 (59.7~60.3)

VELOCITY VERIFICATION — SYSTEM V-107 — *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	700 (3.55)	686 (3.49)	665~735 (3.38~3.73)
2	30 (0.15)	26 (0.13)	25~35 (0.13~0.18)	8	1198 (6.09)	1195 (6.07)	1138~1258 (5.78~6.39)
3	61 (0.31)	61 (0.31)	56~66 (0.28~0.33)	9	1922 (9.76)	1915 (9.73)	1826~2018 (9.28~10.25)
4	100 (0.51)	99 (0.50)	95~104 (0.48~0.53)	10	2711 (13.77)	2724 (13.84)	2576~2847 (13.08~14.46)
5	200 (1.02)	199 (1.01)	190~210 (0.97~1.07)	11	3791 (19.26)	3818 (19.39)	3601~3980 (18.29~20.22)
6	406 (2.06)	407 (2.07)	386~427 (1.96~2.17)				

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	Measurement Variable	System ID	Last Cal.	Cal. Due
Temperature	E003986	04-17-12	10-17-12	Temperature	E003987	04-17-12	10-17-12
DC Voltage	E001653	06-24-11	12-24-12	Barometric Pressure	E001992	04-06-12	04-06-13
Temperature	E001643	02-16-12	08-16-12	Pressure	E001718	12-07-11	06-07-12
Pressure	E002389	03-06-12	09-06-12	Velocity	E003327	09-19-07	09-19-12

Non-Responsive

VERIFIED

May 3, 2012
DATE

Doc ID: CERT_GEN_WCC

TSI P/N 2300157

DXP

THE INDUSTRIAL DISTRIBUTION EXPERTS

Technical Services Division

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:	MSA
Model:	Sound Level Calibrator 6950
Serial Number:	07349
Calibration Date:	February 10, 2012
Calibrated By:	Non-Responsive

1111 South 27th Street Billings, Montana 59101
1-800-947-7120

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	66.7 (19.3)	°F (°C)
RELATIVE HUMIDITY	58	%RH
BAROMETRIC PRESSURE	28.78 (974.6)	inHg (hPa)

MODEL	9515
SERIAL NUMBER	T95151103007

☒ AS LEFT ☐ AS FOUND

☒ IN TOLERANCE ☐ OUT OF TOLERANCE

– CALIBRATION VERIFICATION RESULTS –

TEMPERATURE VERIFICATION — SYSTEM T-101

Unit: °F (°C)

#	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)	139.7 (59.8)	139.5~140.5 (59.7~60.3)

VELOCITY VERIFICATION — SYSTEM V-111

Unit: ft/min (m/s)

#	STANDARD	MEASURED	ALLOWABLE RANGE
1	0 (0.00)	0 (0.00)	-5~5 (-0.03~0.03)
2	30 (0.15)	30 (0.15)	25~35 (0.13~0.18)
3	60 (0.30)	61 (0.31)	55~65 (0.28~0.33)
4	101 (0.51)	102 (0.52)	96~106 (0.49~0.54)
5	200 (1.01)	198 (1.01)	190~210 (0.96~1.07)
6	397 (2.02)	399 (2.03)	377~417 (1.91~2.12)
7	699 (3.55)	698 (3.55)	664~734 (3.37~3.73)
8	1203 (6.11)	1206 (6.12)	1143~1263 (5.81~6.42)
9	1901 (9.66)	1897 (9.64)	1806~1996 (9.18~10.14)
10	2705 (13.74)	2720 (13.82)	2570~2841 (13.06~14.43)
11	3804 (19.32)	3815 (19.38)	3614~3994 (18.36~20.29)

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	04-17-12	10-17-12
Barometric Pressure	E001992	04-06-12	04-06-13
Temperature	E001644	01-20-12	07-20-12
Pressure	E001058	01-18-12	01-18-13

Measurement Variable	System ID	Last Cal.	Cal. Due
Temperature	E003987	04-17-12	10-17-12
DC Voltage	E004398	12-08-11	06-08-12
Pressure	E004041	03-30-12	09-30-12
Velocity	E003327	09-19-07	09-19-12

Non-Responsive

May 3, 2012
DATE

Doc. ID. CERT_GEN_WCC

Lead Wipe Sample Results			
Sample Number	Collection Date	Location	Result $\mu g/ft^2$
6248-01	9/12/2012	Drill floor S.E.	< 23
6248-02	9/12/2012	Drill floor S.W.	< 23
6248-03	9/12/2012	Drill floor N.W.	< 23
6248-04	9/12/2012	Drill floor N.E.	< 23
6248-05	9/12/2012	Drill floor Center	< 23
6248-06	9/12/2012	Kitchen, on top of food preparation surface	< 23
6248-07	9/12/2012	Conference room	< 23
6248-08	9/12/2012	computer room (S.W. armory)	< 23
6248-09	9/12/2012	Gun Vault	72
6248-10	9/12/2012	Supply Room	< 23
6248-11	9/12/2012	Dormitory	< 23
6248-12	9/12/2012	Work out room	< 23
6248-13	9/12/2012	Communication room	< 23
6248-14	9/12/2012	Dwayne Glass's desk	< 23
6248-15	9/12/2012	Classroom	< 23

Paint Chip Sample Result			
Sample Number	Collection Date	Location	Result mg/kg
6248-16	9/12/2012	white paint- entrance of computer room	< 0.0025

ANALYTICAL REPORT
Amended

Report Date: October 22, 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: 34-1226534
Client Project ID: 12U-I6248/Belen Armory 092112
Purchase Order: 12U-I6248
Project Manager: Non-Responsive

Analytical Results

Sample ID: 6248-1	Media: Lead Dust Wipe			Collected: 09/12/2012
Lab ID: 1226534001	Sampling Location: Belen Armory			Received: 09/21/2012
Method: NIOSH 7300 Mod.	Sampling Parameter: Area 100 cm²			Prepared: 09/25/2012 Analyzed: 09/27/2012
Analyte	ug/sample	ug/ft²	RL (ug/sample)	
Lead	<2.5	<23	2.5	

Sample ID: 6248-2	Media: Lead Dust Wipe			Collected: 09/12/2012
Lab ID: 1226534002	Sampling Location: Belen Armory			Received: 09/21/2012
Method: NIOSH 7300 Mod.	Sampling Parameter: Area 100 cm²			Prepared: 09/25/2012 Analyzed: 09/27/2012
Analyte	ug/sample	ug/ft²	RL (ug/sample)	
Lead	<2.5	<23	2.5	

Sample ID: 6248-3	Media: Lead Dust Wipe			Collected: 09/12/2012
Lab ID: 1226534003	Sampling Location: Belen Armory			Received: 09/21/2012
Method: NIOSH 7300 Mod.	Sampling Parameter: Area 100 cm²			Prepared: 09/25/2012 Analyzed: 09/27/2012
Analyte	ug/sample	ug/ft²	RL (ug/sample)	
Lead	<2.5	<23	2.5	

Sample ID: 6248-4	Media: Lead Dust Wipe			Collected: 09/12/2012
Lab ID: 1226534004	Sampling Location: Belen Armory			Received: 09/21/2012
Method: NIOSH 7300 Mod.	Sampling Parameter: Area 100 cm²			Prepared: 09/25/2012 Analyzed: 09/27/2012
Analyte	ug/sample	ug/ft²	RL (ug/sample)	
Lead	<2.5	<23	2.5	

ANALYTICAL REPORT
Amended

Workorder: 34-1226534
Client Project ID: 12U-I6248/Belen Armory 092112
Purchase Order: 12U-I6248
Project Manager: [redacted]

Analytical Results

Sample ID: 6248-5	Media: Lead Dust Wipe			Collected: 09/12/2012
Lab ID: 1226534005	Sampling Location: Belen Armory			Received: 09/21/2012
Method: NIOSH 7300 Mod.	**Sampling Parameter: Area 100 cm²**			Prepared: 09/25/2012 Analyzed: 09/27/2012
Analyte	ug/sample	ug/ft²	RL (ug/sample)	
Lead	<2.5	<23	2.5	

Sample ID: 6248-6	Media: Lead Dust Wipe			Collected: 09/12/2012
Lab ID: 1226534006	Sampling Location: Belen Armory			Received: 09/21/2012
Method: NIOSH 7300 Mod.	**Sampling Parameter: Area 100 cm²**			Prepared: 09/25/2012 Analyzed: 09/27/2012
Analyte	ug/sample	ug/ft²	RL (ug/sample)	
Lead	<2.5	<23	2.5	

Sample ID: 6248-7	Media: Lead Dust Wipe			Collected: 09/12/2012
Lab ID: 1226534007	Sampling Location: Belen Armory			Received: 09/21/2012
Method: NIOSH 7300 Mod.	**Sampling Parameter: Area 100 cm²**			Prepared: 09/25/2012 Analyzed: 09/27/2012
Analyte	ug/sample	ug/ft²	RL (ug/sample)	
Lead	<2.5	<23	2.5	

Sample ID: 6248-8	Media: Lead Dust Wipe			Collected: 09/12/2012
Lab ID: 1226534008	Sampling Location: Belen Armory			Received: 09/21/2012
Method: NIOSH 7300 Mod.	**Sampling Parameter: Area 100 cm²**			Prepared: 09/25/2012 Analyzed: 09/27/2012
Analyte	ug/sample	ug/ft²	RL (ug/sample)	
Lead	<2.5	<23	2.5	

Sample ID: 6248-9	Media: Lead Dust Wipe			Collected: 09/12/2012
Lab ID: 1226534009	Sampling Location: Belen Armory			Received: 09/21/2012
Method: NIOSH 7300 Mod.	**Sampling Parameter: Area 100 cm²**			Prepared: 09/25/2012 Analyzed: 09/27/2012
Analyte	ug/sample	ug/ft²	RL (ug/sample)	
Lead	**7.7**	**72**	2.5	

ANALYTICAL REPORT
Amended

Workorder: 34-1226534
Client Project ID: 12U-I6248/Belen Armory 092112
Purchase Order: 12U-I6248
Project Manager: [redacted]

Analytical Results

Sample ID: 6248-10	Media: Lead Dust Wipe	Collected: 09/12/2012
Lab ID: 1226534010	Sampling Location: Belen Armory	Received: 09/21/2012
Method: NIOSH 7300 Mod.	**Sampling Parameter: Area 100 cm²**	Prepared: 09/25/2012 Analyzed: 09/27/2012

Analyte	ug/sample	ug/ft²	RL (ug/sample)
Lead	<2.5	<23	2.5

Sample ID: 6248-11	Media: Lead Dust Wipe	Collected: 09/12/2012
Lab ID: 1226534011	Sampling Location: Belen Armory	Received: 09/21/2012
Method: NIOSH 7300 Mod.	**Sampling Parameter: Area 100 cm²**	Prepared: 09/25/2012 Analyzed: 09/27/2012

Analyte	ug/sample	ug/ft²	RL (ug/sample)
Lead	<2.5	<23	2.5

Sample ID: 6248-12	Media: Lead Dust Wipe	Collected: 09/12/2012
Lab ID: 1226534012	Sampling Location: Belen Armory	Received: 09/21/2012
Method: NIOSH 7300 Mod.	**Sampling Parameter: Area 100 cm²**	Prepared: 09/25/2012 Analyzed: 09/27/2012

Analyte	ug/sample	ug/ft²	RL (ug/sample)
Lead	<2.5	<23	2.5

Sample ID: 6248-13	Media: Lead Dust Wipe	Collected: 09/12/2012
Lab ID: 1226534013	Sampling Location: Belen Armory	Received: 09/21/2012
Method: NIOSH 7300 Mod.	**Sampling Parameter: Area 100 cm²**	Prepared: 09/25/2012 Analyzed: 09/27/2012

Analyte	ug/sample	ug/ft²	RL (ug/sample)
Lead	<2.5	<23	2.5

Sample ID: 6248-14	Media: Lead Dust Wipe	Collected: 09/12/2012
Lab ID: 1226534014	Sampling Location: Belen Armory	Received: 09/21/2012
Method: NIOSH 7300 Mod.	**Sampling Parameter: Area 100 cm²**	Prepared: 09/25/2012 Analyzed: 09/27/2012

Analyte	ug/sample	ug/ft²	RL (ug/sample)
Lead	<2.5	<23	2.5

ANALYTICAL REPORT
Amended

Workorder: 34-1226534
Client Project ID: 12U-I6248/Belen Armory 092112
Purchase Order: 12U-I6248
Project Manager: [redacted]

Analytical Results

Sample ID: 6248-14b	Media: Lead Dust Wipe	Collected: 09/12/2012
Lab ID: 1226534015	Sampling Location: Belen Armory	Received: 09/21/2012
Method: NIOSH 7300 Mod.	**Sampling Parameter: Area 100 cm²**	**Prepared:** 09/25/2012 **Analyzed:** 09/27/2012

Analyte	ug/sample	ug/ft²	RL (ug/sample)
Lead	<2.5	<23	2.5

Sample ID: 15	Media: Lead Dust Wipe	Collected: 09/12/2012
Lab ID: 1226534016	Sampling Location: Belen Armory	Received: 09/21/2012
Method: NIOSH 7300 Mod.	**Sampling Parameter: Area 100 cm²**	**Prepared:** 09/25/2012 **Analyzed:** 09/27/2012

Analyte	ug/sample	ug/ft²	RL (ug/sample)
Lead	<2.5	<23	2.5

Sample ID: 16	Media: Paint Chip	Collected: 09/12/2012
Lab ID: 1226534017	Sampling Location: Belen Armory	Received: 09/21/2012
Method: NIOSH 7300 Mod.	**Sampling Parameter: Weight 0.1008 grams**	**Prepared:** 09/27/2012 **Analyzed:** 09/27/2012

Analyte	%	RL (%)
Lead	<0.0025	0.0025

Sample ID: 17	Media: Paint Chip	Collected: 09/12/2012
Lab ID: 1226534018	Sampling Location: Belen Armory	Received: 09/21/2012
Method: NIOSH 7300 Mod.	**Sampling Parameter: Weight 0.101 grams**	**Prepared:** 09/27/2012 **Analyzed:** 09/27/2012

Analyte	%	RL (%)
Lead	<0.0025	0.0025

Sample ID: 18	Media: Paint Chip	Collected: 09/12/2012
Lab ID: 1226534019	Sampling Location: Belen Armory	Received: 09/21/2012
Method: NIOSH 7300 Mod.	**Sampling Parameter: Weight 0.1008 grams**	**Prepared:** 09/27/2012 **Analyzed:** 09/27/2012

Analyte	%	RL (%)
Lead	<0.0025	0.0025

ANALYTICAL REPORT
Amended

Workorder: **34-1226534**
Client Project ID: 12U-I6248/Belen Armory 092112
Purchase Order: 12U-I6248
Project Manager: Non-Responsive

Analytical Results

Sample ID: 19	Media: Paint Chip	Collected: 09/12/2012
Lab ID: 1226534020	Sampling Location: Belen Armory	Received: 09/21/2012
Method: NIOSH 7300 Mod.	**Sampling Parameter: Weight 0.1005 grams**	Prepared: 09/27/2012 Analyzed: 09/27/2012

Analyte	%	RL (%)
Lead	<0.0025	0.0025

Comments

Quality Control: **NIOSH 7300 Mod. - (HBN: 94584)**

The lead recovery for 298488 (1226534018MS) was just above of current limits of 80.6% to 110.7% at 111% so data was reported as is without further comment.

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
Amended

Workorder: 34-1226534
Client Project ID: 12U-I6248/Belen Armory 092112
Purchase Order: 12U-I6248
Project Manager: [redacted]

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.

Industrial Hygiene Southwest

Violation Inventory Log

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

Belen Armory, Belen, New Mexico

CONTROL NUMBER CLOSED ☐	HAZARD DESCRIPTION	SITE	RAC	CORRECTIVE ACTIONS (Abatement Plan)	SUSPENSE DATE	ACTION OIC/NCOIC	Estimated Cost(s)	DATE CORRECTED	REFERENCES
NMBA-091212-4.4 ☐	An asbestos survey could not be located during this IH Assistance Visit.	Belen 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)
NMBA-091212-4.4 ☐	Personnel have not been provided with asbestos awareness training.	Belen 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
NMBA-091212-4.6.1 ☐	The chemical inventory / MSDSs for flammable materials is inconsistent with the contents of the flammable storage cabinet.	Flammable Storage Annex	4	Develop and maintain a chemical inventory for agents found in the flammable storage cabinet as part of the Hazard Communications program					29 CFR 1910.1200 (e) (i); 29 CFR1900.1200 (g) (1)
NMBA-091212-4.6.1 ☐	The cleaning supply room containing hazardous materials is not labeled with the NFPA required signage.	Cleaning Supply Room	4	Visible Hazard identification signs in accordance with NFPA 704, *Standard System for Identification of the Hazards of Materials for Emergency Response* shall be placed on the cabinet, as well as, the entrance of the room the cabinet is located.					NFPA 1 Section 60.5.1.8.2.1, NFPA 704
NMBA-091212-4.8 ☐	The average estimated duct velocity is: 88 fpm, which does not meet the NFPA recommended minimum of 500 fpm.	Kitchen	4	Upgrade the duct velocity of the kitchen exhaust fan to at least 500 fpm.					NFPA 96, Section 8.2.1.1

Industrial Hygiene Southwest

Violation Inventory Log

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

Belen Armory, Belen, New Mexico

CONTROL NUMBER CLOSED ☐	HAZARD DESCRIPTION	SITE	RAC	CORRECTIVE ACTIONS (Abatement Plan)	SUSPENSE DATE	ACTION OIC/NCOIC	Estimated Cost(s)	DATE CORRECTED	REFERENCES
NMBA-091212-4.10 ☐	Monthly and annual fire extinguisher checks were not current	Belen Armory	4	Ensure that annual and monthly fire extinguisher checks are maintained and current.					29 CFR 1910.157 (e)(2)

4.2 Painted Surface Evaluation

Recommendation

Evaluate all suspect lead-containing materials before performing any activities that may create lead-containing dust or fume.

4.4 Asbestos Management

Recommendations

1. Locate the asbestos survey for this building or contract with a licensed firm to perform an asbestos survey and assessment.

2. If 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)

Recommendations

1. Post an NFPA placard on the door where hazardous materials are stored to alert fire department personnel of the contents of this room. The numbering on the placard should satisfy the requirements of NFPA 704, Standard System for Identification of the Hazards of Materials for Emergency Response.
2. Update and maintain MSDSs and a chemical inventory for the contents of the flammable storage cabinet.

4.8 Kitchen Ventilation Survey

Recommendation

Upgrade the duct velocity of the kitchen exhaust fan to at least 500 fpm.

4.10 General Safety Walk-Through

Recommendations

Ensure that the monthly inspections for the fire extinguishers are conducted and documented.

NOISE SURVEY
(Sound Level Meter Survey)

1. DATE *(YYYYMMDD)*: 20120912

2. TYPE SURVEY *(Enter code)*: 1 (1 - INITIAL SURVEY; 2 - RE-SURVEY; 3 - OTHER)

3. SOUND LEVEL METER	4. MICROPHONE	5. CALIBRATOR
a. MANUFACTURER: MSA	a. MANUFACTURER: MSA	a. MANUFACTURER: MSA
b. MODEL: Type 2	b. MODEL: Type 2	b. MODEL: 6950
c. SERIAL NO.: 00035	c. SERIAL NO.: 00035	c. SERIAL NO.: 07349
d. LAST ELECTROACOUSTIC CALIB DATE *(YYYYMMDD)*: 20120210	d. LAST ELECTROACOUSTIC CALIB DATE *(YYYYMMDD)*: 20120210	d. LAST ELECTROACOUSTIC CALIB DATE *(YYYYMMDD)*: 20120210

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)*: Armory 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)*
Kitchen exhaust hood over stove/oven	S	70.0	60.0	IVD	X			
True brand Freezer	S	81.0	71.0	IVD	X			
Ice-o-matic ice machine	S	81.0	73.0	IVD	X			
Hobart refrigerator	S	75.0	66.0	IVD	X			
Salvajor garbage disposal	S	84.0	82.0	IVD	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

a. NAME *(Last, First, Middle Initial)*: [redacted] b. TELEPHONE *(Include area code)*: [redacted] c. ORGANIZATION: MARNG

[redacted] RVATION MONITOR *(Last Name, First Name, MI)*:

Non-Responsive

DD FORM 2214, JAN 2000 PREVIOUS EDITION MAY BE USED.

Adobe Professional 7.0

16 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

Belen Armory
21 General E. Baca
Belen, NM 87002

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

14 NOV 2014

MEMORANDUM THRU Non-Responsive SOHM, 600 Wyoming Blvd, NE, Albuquerque, NM 87123

FOR Commander, Belen Armory 21 General E. Baca, Belen, NM 87002

SUBJECT: Executive Summary for a Site Assistant Visit (IHSAV) for Belen Armory 21 General E. Baca, Belen, NM on 16 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 Belen Armory 21 General E. Baca, Belen, NM on 16 OCT 2014.

b. The findings and recommendations in this Executive Summary are controlling and supersede all recommendations within the attached Industrial Hygienist report. However, IHSW concurs with the observations and findings within the attached Industrial Hygiene 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. **General Observations.**

a. The armory currently has an In-Active Indoor Firing Range. Note, the NM ARNG command closed this and several other IFR's within the state until assessments to identify potential elevated lead concentrations and to employ control measures to ensure occupant health and property integrity / serviceability as necessary.

b. The observations and data collected during this evaluation indicate the elevated lead concentrations are attributed to multiple factors arising from the operation and/or presence of the IFR. Its current condition will continue to significantly impact the other areas and occupants within the armory if not remediated.

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. Check water damaged ceiling tile for additional water intrusion. Repair any areas where water intrusion has occurred and remove water damaged materials, e.g. sheet rock, ceiling tile, etc. and replace with new materials. This will help prevent proliferation of mold spores/allergens. (para. 3.3) (**RAC 4**)

b. Annual and monthly fire extinguishers inspections should be accomplished and recorded on inspection tag affixed to extinguisher(s). (para. 3.6) (**RAC 3**)

(1) Properly mount or store all fire extinguisher laying around the armory to prevent potential trip or missile hazard.

c. Update MSDSs to SDS format and add table of contents to help utilize index easier. (para. 3.5) (**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.

SUBJECT: Executive Summary for a Site Assistant Visit (IHSAV) of Belen Armory 21 General E. Baca, Belen, NM on 16 OCT 2014.

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 not 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 New Mexico 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

BELEN ARMORY, NEW MEXICO 87002

CONTROL NUMBER CLOSED [x]	HAZARD DESCRIPTION	SITE	RAC	CORRECTIVE ACTIONS (Abatement Plan)	SUSPENSE DATE	ACTION OIC/NCOIC	Estimated Cost(s)	DATE CORRECTED	REFERENCES
NMBA-10162014-3.3	There were ceiling tiles damaged from water intrusion.	Armory	4	Check ceiling tile areas for water intrusion. Repair any areas where water intrusion has occurred and remove water damaged materials and replace					General Duty Clause 5 (a)(1)
NMBA-10162014-3.5	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					29 CFR 1910.1200(g)(8)
NMBA-10162014-3.6	Several fire extinguishers were not being stored properly.	Armory	3	Properly mount or store all fire extinguishers to prevent potential missle or trip hazards.					CFR 1910.157(c)(1)
NMBA-10162014-3.6	Fire extinguishers, throughout the facility, were not being inspected monthly.	Armory	3	Annual and monthly inspection of fire extinguishers should be accomplished and recorded on fire extinguisher.					29 CFR 1910.157(b)(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.

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.

NEW MEXICO ARMY NATIONAL GUARD

BELEN ARMORY

21 General E Baca
Belen, NM 87002
(505) 474 2042

Submitted to:

Non-Responsive

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

BEST AVAILABLE COPY

Table of Contents

INDUSTRIAL HYGIENE ASSISTANCE VISIT
BELEN ARMORY
BELEN, NEW MEXICO

1.0. Introduction and Background

1.1. This report summarizes the results of the Industrial Hygiene (IH) Survey conducted at the Belen Armory in Belen, NM on October 16, 2014. The Army National Guard of Industrial Hygiene Southwest Regional Manager (ARNG-IHSW) requested Non-Responsive to visit the Belen 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 Belen Armory supports the Combat Sustainment Support Battalion. The Armory has eight full time guard members and approximately 60 guardsmen and women on drill weekend. This armory was constructed in 1992. The armory has offices used for administrative purposes and also contains a drill floor, arms room, supply room, storage and a maintenance bay.

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, the maintenance bay and the kitchen. "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 1992 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 a Konica Minolta Light Meter, Model TL-1. Measurements in the office and classroom areas were taken at typical work locations, such as the tops of desks and near computer workstations.

Equipment Used

Type	Model Number	Serial Number	Calibration Date
Konica Minolta	TL-1	00279029	September 2014

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*
101614-1	Control	NA	BDL
101614-2	North drill hall	2	BDL
101614-3	Center drill hall	3	BDL
101614-4	South drill hall	.4	BDL
101614-5	West drill hall	5	BDL
101614-6	East drill hall	6	BDL
101614-7	North maintenance bay	7	BDL
101614-8	South maintenance bay	8	BDL
101614-9	Kitchen	9	29.1

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

NOTE: Continue cleaning throughout the armory. Please utilize the attached SOP and general information paper provided for cleaning procedures.

3.2. **Asbestos Survey-** Non-Responsive was asked during this survey about the presence of asbestos and she advised there is no suspected asbestos 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.

3.3 **Indoor air quality and HVAC Systems-** The armory is heated through a central air system. There is an air conditioning unit in this facility. The HVAC is maintained by the Department of Military Affairs (DMA).

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 70 degrees Fahrenheit outside. Inside air temperature is recommended to be between 72-75 degrees Fahrenheit and the relative humidity is to range from 30-60%. The indoor temperature was 73-75 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 signs of water leakage throughout the armory, particularly in the conference room.

Recommendation: Check ceiling for water leakage. Repair all leaks and replace water damaged materials, e.g., ceiling tile, sheet rock, etc.

3.4. **Exhaust and Ventilation Systems-** The Belen Armory has a maintenance bay that is now used as storage. There are no exhaust ducts in this maintenance bay. All vehicle maintenance is done at FMS 3. Vehicle maintenance was done at this armory for a few years when it first opened. The wash bay and pipes have been cemented over. The waste is still in a pool that is fenced off as shown in **Appendix C**.

Air flow was measured in the industrial kitchen under the hood of the oven. Air flow was measured at 760 fpm. This kitchen exhaust 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. **Hazardous Materials Use and Storage-** There is a POL storage room at this armory. The POL storage room has safety lights; a fire extinguisher located outside the door and is well ventilated. Per Non-Responsive oil changes are done outside during drill weekend. MSDS's have not yet been updated to the new SDS format.

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 good condition. Electrical breaker boxes were properly labeled and accessible.

This 1992 building is of concrete block and brick construction.

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. Fire extinguishers were improperly stored in the maintenance bay and being used to prop doors open.

Recommendation: Properly mount or store all fire extinguishers 1910.157(c)(1)

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 Belen 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 most office and classroom areas. 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** – The following safety policies and procedures were found at this site: Hazcom and SDS training

3.10. **Recurring event** –unable to obtain past surveys

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 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.

Photo Log

Photo #1 – Belen Armory

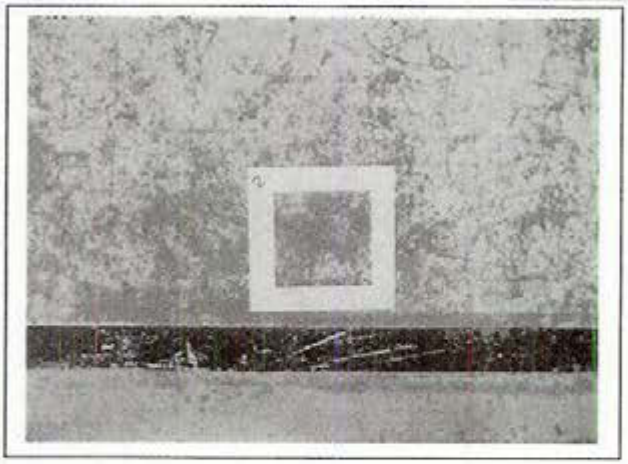


Photo #2- North drill hall wipe

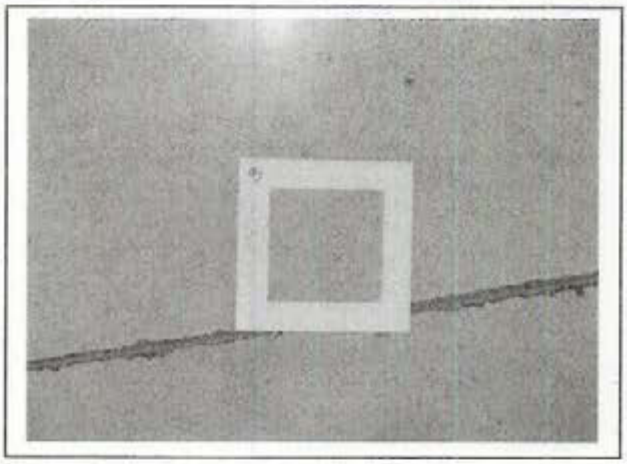


Photo #3- Center drill hall wipe

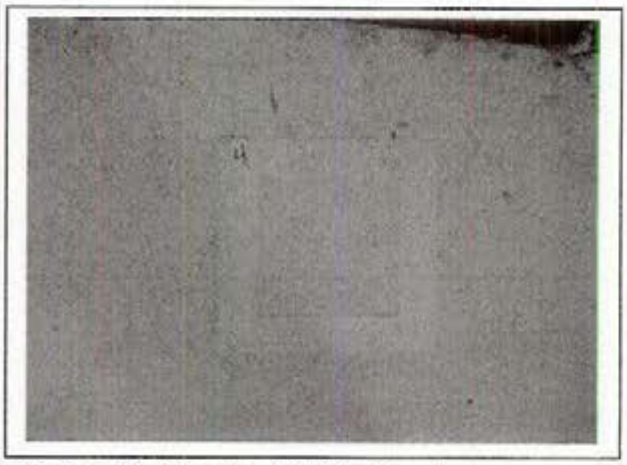


Photo #4- South drill hall wipe

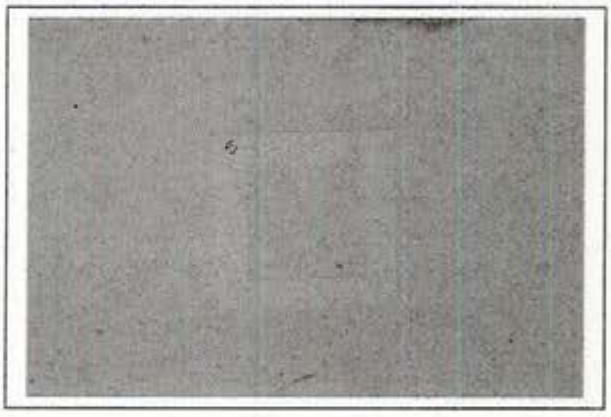


Photo #5 –West drill hall wipe

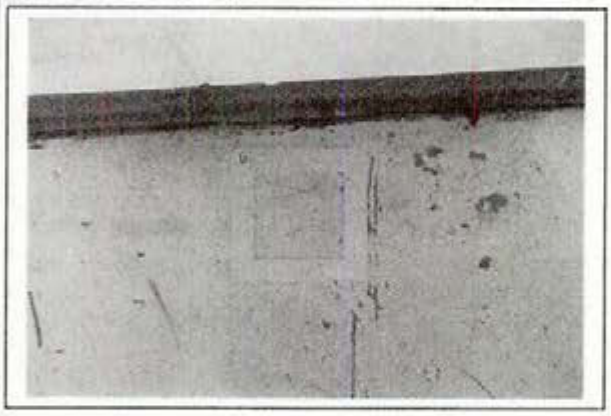


Photo #6 – East drill hall wipe

Photo Log

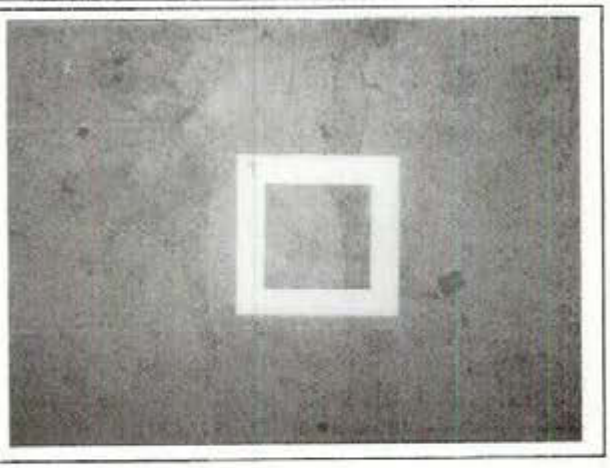


Photo #7 – North maintenance bay wipe

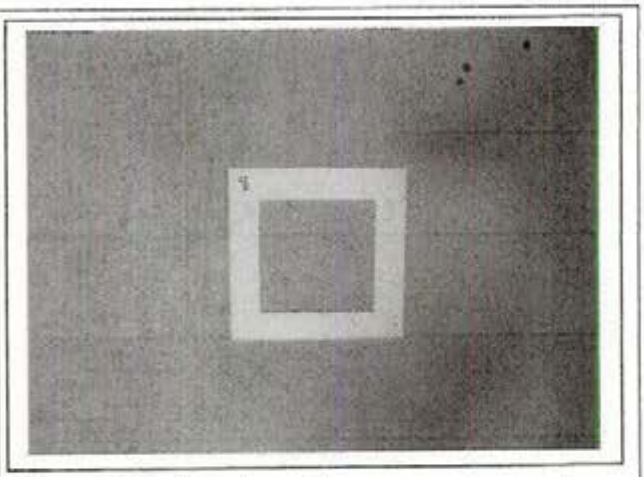


Photo #8- South maintenance bay wipe

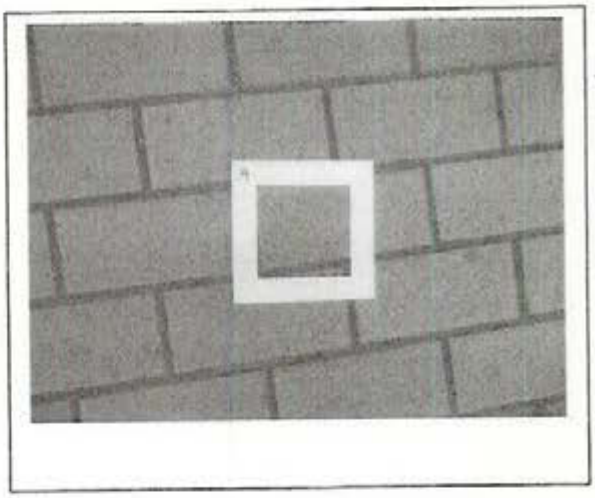


Photo #9 – Kitchen wipe

Photo #10 – Janitor closet

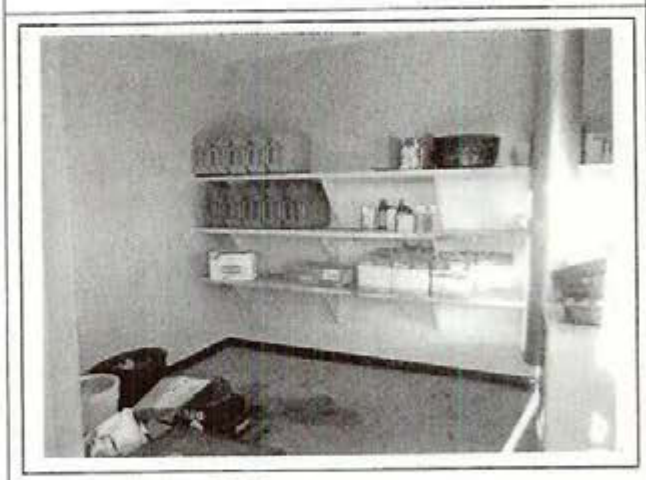


Photo #11 –POL storage

Photo #12 –Drill hall

Photo Log

Photo #13 – Fire extinguishers

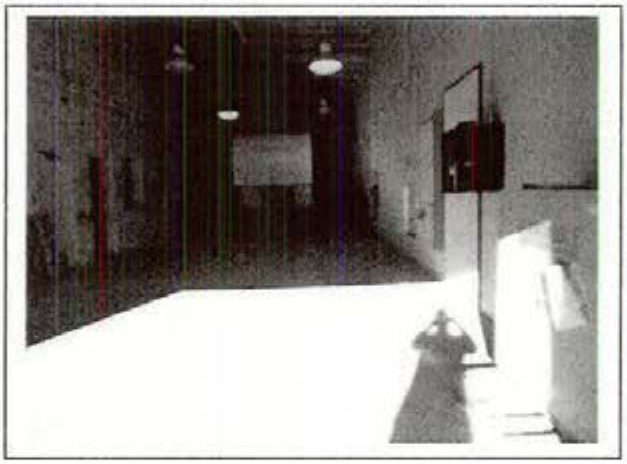


Photo #14- Maintenance bay

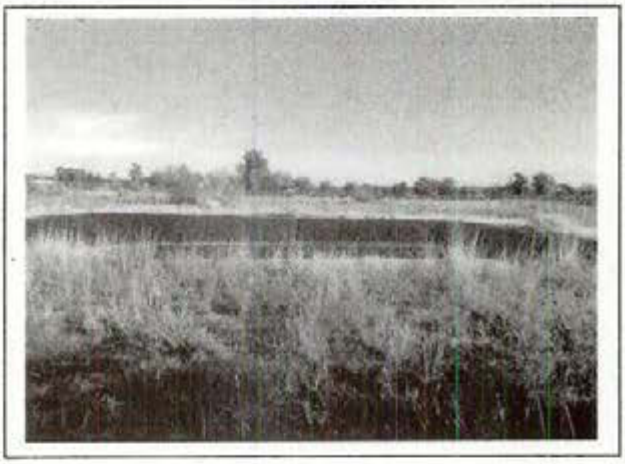
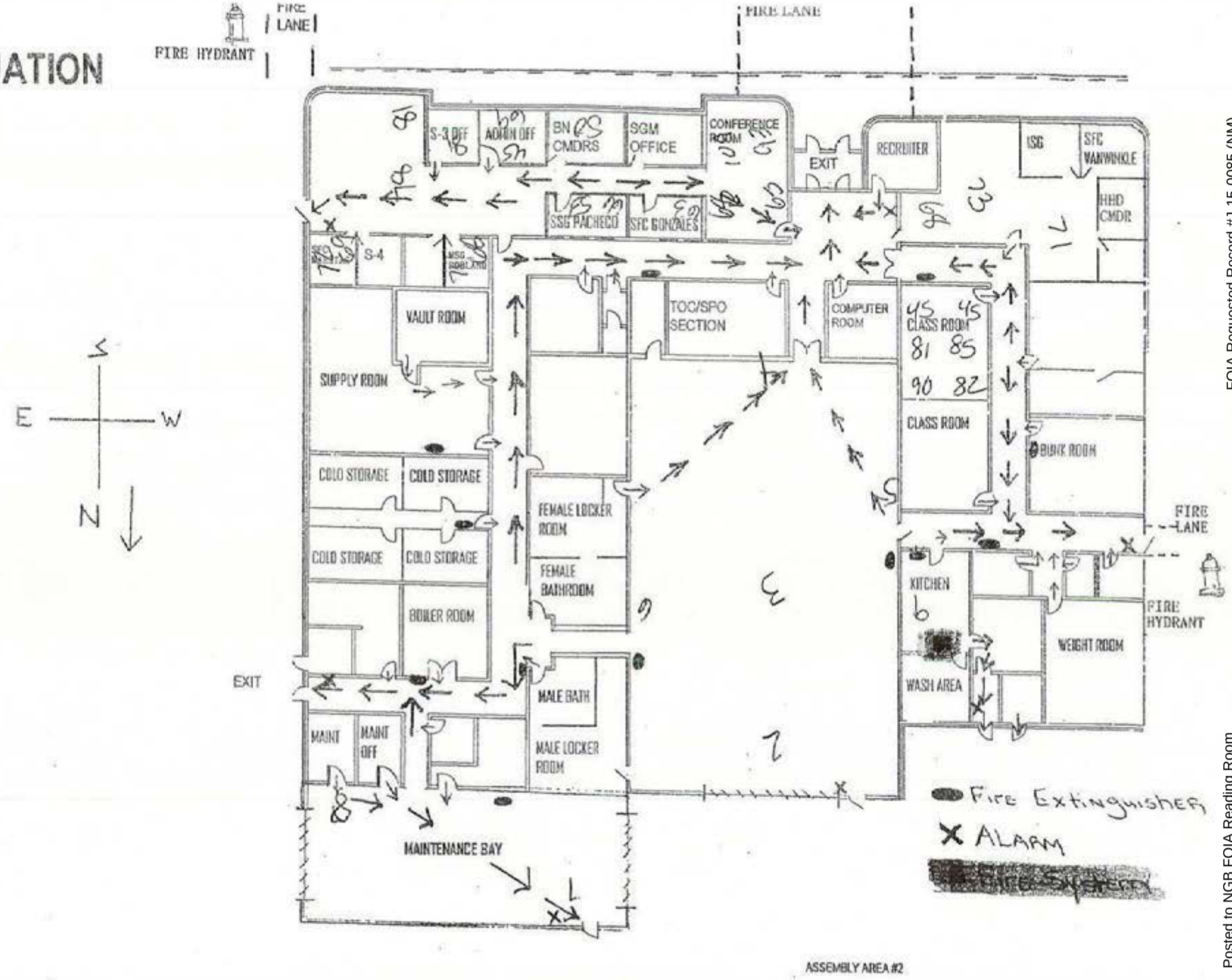


Photo #15- oil runoff

Photo #16-

FIRE EVACUATION



RESERVOIRS ENVIRONMENTAL, INC.

5801 Logan St., Suite 100
Denver CO 80216

TABLE ANALYSIS: LEAD BY WIPE SAMPLING

RES Job Number:	**RES 303547-1**
Client:	**Aloha World**
Client Project Number / P.O.:	**101614**
Client Project Description:	**Belen Armory**
Date Samples Received:	**October 21, 2014**
Analysis Type:	**USEPA SW846 3050B / AA (7420)**
Turnaround:	**3-5 Day**
Date Samples Analyzed:	**October 23, 2014**

Client ID Number	Lab ID Number	Sample Area (sq.ft.)	LEAD (µg)	Reporting Limit (µg/ft^2)	LEAD CONCENTRATION (µg/ft^2)
101614-1 Bathroom	EM 1280839	0.11	BRL	22.7	BRL
101614-2 North Drill Hall	EM 1280840	0.11	BRL	22.7	BRL
101614-3 Center Drill Hall	EM 1280841	0.11	BRL	22.7	BRL
101614-4 South Drill Hall	EM 1280842	0.11	BRL	22.7	BRL
101614-5 West Drill Hall	EM 1280843	0.11	BRL	22.7	BRL
101614-6 East Drill Hall	EM 1280844	0.11	BRL	22.7	BRL
101614-7 Main Bay North	EM 1280845	0.11	BRL	22.7	BRL
101614-8 Main Bay South	EM 1280846	0.11	BRL	22.7	BRL
101614-9 Kitchen	EM 1280847	0.11	3.2	22.7	29.1

***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 QA_____

BRL = Below Reporting Limit

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Turnaround:	**3-5 Day**
Date Samples Analyzed:	**October 23, 2014**

Client ID Number	Lab ID Number	Sample Area (sq.ft.)	LEAD (µg)	Reporting Limit (µg/ft^2)	LEAD CONCENTRATION (µg/ft^2)
101614-1 Bathroom	EM 1280839	0.11	BRL	22.7	BRL
101614-2 North Drill Hall	EM 1280840	0.11	BRL	22.7	BRL
101614-3 Center Drill Hall	EM 1280841	0.11	BRL	22.7	BRL
101614-4 South Drill Hall	EM 1280842	0.11	BRL	22.7	BRL
101614-5 West Drill Hall	EM 1280843	0.11	BRL	22.7	BRL
101614-6 East Drill Hall	EM 1280844	0.11	BRL	22.7	BRL
101614-7 Main Bay North	EM 1280845	0.11	BRL	22.7	BRL
101614-8 Main Bay South	EM 1280846	0.11	BRL	22.7	BRL
101614-9 Kitchen	EM 1280847	0.11	3.2	22.7	29.1

***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

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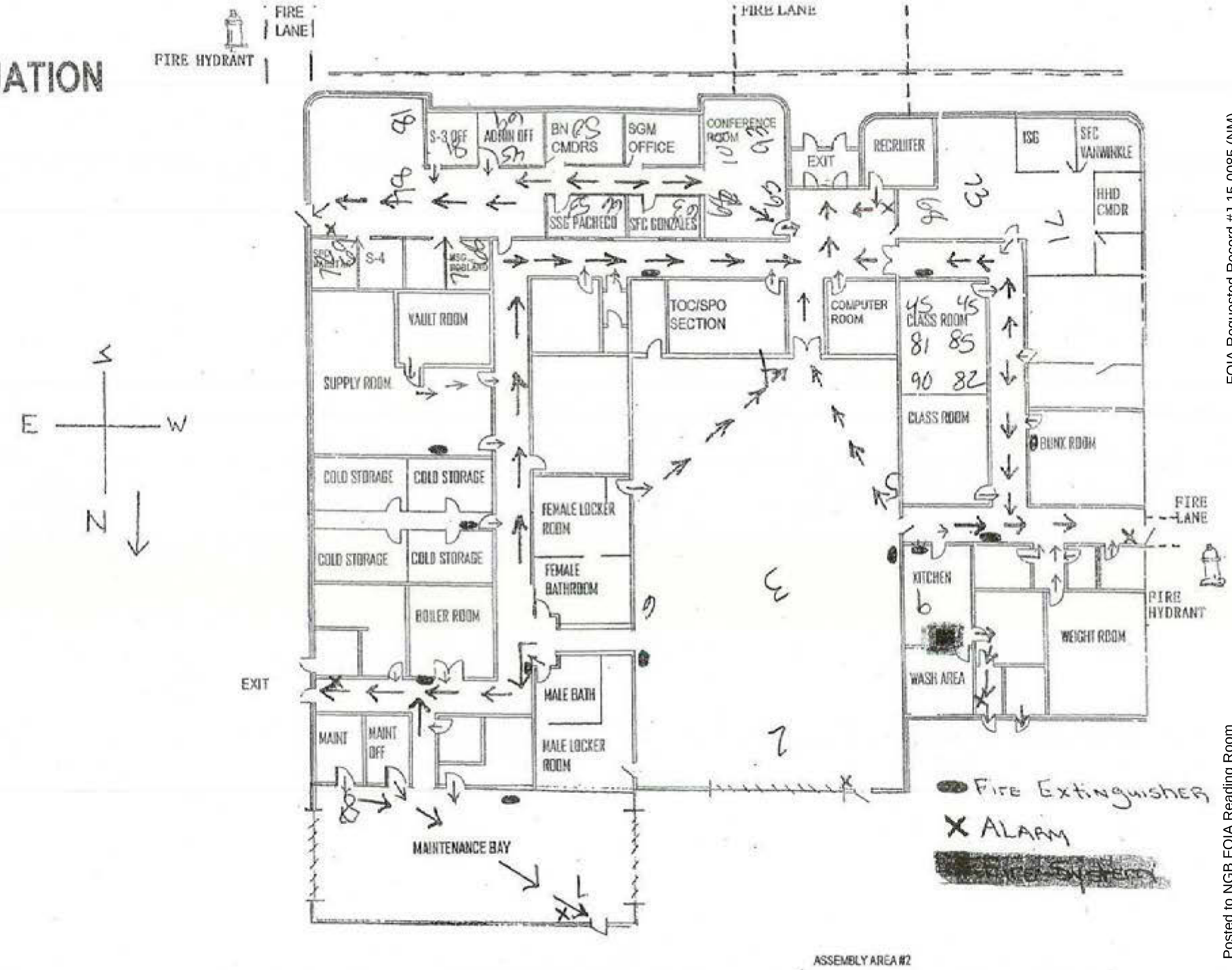
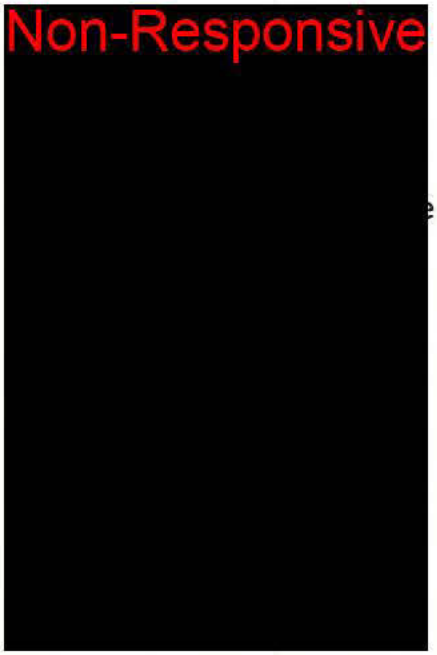
FIRE EVACUATION



BELEN ARMORY FULL TIME ROSTER



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?	yes
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.	no
Are there any signs of water damage or **mold**?	yes- roof.
Any suspected **ACM**? Where and what condition is it in. Bulk sample if able.	none
Quality of housekeeping	good
HVAC maintenance plan in place?	DMA
Overall condition of HVAC system	Swamp coolers
Obtained **CO2, Temp, RH** monitoring	72°
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.	FMS 3

JANITORIAL STORAGE ROOM

A. PINE OIL

B. CITRUS-SOLV SPRAY

C. PINE DISINFECTANT

D. RTL/GLASS CLEANER

E. COCONUT LIQUID HAND SOAP

F. RENEW FLOOR RESTORER CLEANER

G. 700 SPECIAL OIL

H. SPRAY BUFF

I. GOJO ORIGINAL FORMULA HAND CLEANER

J. SILICONE DIOXIDE SCOURING POWDER

K. NON-ACID CREAM CLEANSER –BLUE

L. CLEAN ALL PURPOSE CLEANER & DEGREASER

M. LEMON OIL FURNITURE POLISH

N. NEUTRAL FLOOR CLEANER

O. SPEED STRIPPER

P. RESILIENT FLOOR SEALER

Q. DETERGENT LAUNDRY

R. DISH WASH SOAP HAND

S. FLOOR FINISH

T. FLOOR FINISH SEALER

U.

V.

W.

RECOMMENDATIONS

1 Check ceiling for water leakage. OSHA requires that safeguards designed to protect employees during an emergency, including displaced ceiling tile, must be in proper working order at all times General Duty Clause 5(a)(1).

2. Update all MSDS for the facility with the new SDS format by June 2016 CFR 1910.1200.

3. Properly mount or store all fire extinguishers CFR 1910.157(c)(1).

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)].

Industrial Hygiene Southwest

Violation Inventory Log

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

BELEN ARMORY, NEW MEXICO 87002

CONTROL NUMBER CLOSED [x]	HAZARD DESCRIPTION	SITE	RAC	CORRECTIVE ACTIONS (Abatement Plan)	SUSPENSE DATE	ACTION OIC/NCOIC	Estimated Cost(s)	DATE CORRECTED	REFERENCES
NMBA-10162014-3.3	There were ceiling tiles damaged from water intrusion.	Armory	4	Check ceiling tile areas for water intrusion. Repair any areas where water intrusion has occurred and remove water damaged materials and replace					General Duty Clause 5 (a)(1)
NMBA-10162014-3.5	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					29 CFR 1910.1200(g)(8)
NMBA-10162014-3.6	Several fire extinguishers were not being stored properly.	Armory	3	Properly mount or store all fire extinguishers to prevent potential missle or trip hazards.					CFR 1910.157(c)(1)
NMBA-10162014-3.6	Fire extinguishers, throughout the facility, were not being inspected monthly.	Armory	3	Annual and monthly inspection of fire extinguishers should be accomplished and recorded on fire extinguisher.					29 CFR 1910.157(b)(1)].

Reference DA FORM 4754
VER: 15 OCT 2009

Industrial Hygiene Site Assistance Visit

Carlsbad Armory

305 E. Fiesta Drive
Carlsbad, NM 88220

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

5 December 2012

MEMORANDUM THRU New Mexico Army National Guard, Deputy State Surgeon (DSS), 600 Wyoming Blvd NE, Albuquerque, NM 87123

FOR Commander, Carlsbad Armory, 305 E. Fiesta Drive, Carlsbad, NM 88220

SUBJECT: Executive Summary for Industrial Hygiene Site Assistance Visit (IHSAV) for the Carlsbad Armory, 305 E. Fiesta Drive, Carlsbad, New Mexico conducted on 10 July 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 Carlsbad Armory 305 E. Fiesta Dr., Carlsbad, NM on 10 JUL 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 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. Improve housekeeping practices and clean areas noted in this report that exceeded 40 ug/ft2, mainly in former Indoor Firing Range, using the Clean-up SOP included in this report. (para. 4.1) **(RAC 3)**

b. Locate the asbestos survey for this building or contract to have a licensed firm to perform an asbestos survey and assessment. This should be part of the NM ARNG Asbestos Management Plan with awareness training being provided to facility personnel and workers. (para. 4.4) **(RAC 3)**

c. Segregate and store incompatible chemical such as bleach and ammonia in separate cabinets and acquire the MSDS's for these products. (para. 4.6.2) **(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 New Mexico 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

Carlsbad Armory, NM

CONTROL NUMBER CLOSED ☐	HAZARD DESCRIPTION	SITE	RAC	CORRECTIVE ACTIONS (Abatement Plan)	SUSPENSE DATE	ACTION OIC/NCOIC	Estimated Cost(s)	DATE CORRECTED	REFERENCES
NMCA-071012-4.1 ☐	The Platoon Room had lead concentrations of 85 µg/ft^2 on the floor of the former firing lanes and 95 µg/ft^2 on the floor of the former bullet trap area.	Platoon Room	3	Clean the floors of the Platoon Room (former indoor firing range) in accordance with the Standard Operating Procedure to reduce lead concentrations below the 40 µg/ft^2 IHSW SOP criterion level.					IHSW SOP - Lead
NMCA-071012-4.4 ☐	An asbestos survey could not be located during this IH Assistance Visit.	Carlsbad 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)
NMCA-071012-4.4 ☐	Personnel have not been provided with asbestos awareness training.	Carlsbad 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
NMCA-071012-4.6.1 ☐	Incompatible chemicals such as surface cleaning sprays (containing ammonia) and bleach were stored in the same cabinet in the janitorial closet.	Entrance to Women's Restroom	4	Segregate and store incompatible chemicals such as bleach and ammonia-containing janitorial products in separate cabinets.					NFPA 1 Section 60.5.1.13.1 NFPA 400 Sections 18.1 and 19.1
NMCA-071012-4.6.2 ☐	There were no MSDSs or a chemical inventory for the products in the flammable storage cabinets.	Flammable Storage Room	4	Obtain MSDSs and develop a chemical inventory for the products stored in the flammable storage cabinets.					1910.1200 (e) (i) 1900.1200 (g) (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.

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

New Mexico Army National Guard
Carlsbad Armory
305 East Fiesta Drive
Carlsbad, New Mexico 88220

November 28, 2012

Prepared for:

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

Prepared by:

Non-Responsive

Industrial Hygienist

Reviewed by:

Non-Responsive

IH Services Group Manager

Project #AL127187

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 July 10, 2012 Non-Responsive MPH, an Industrial Hygienist with IHI Environmental (IHI), conducted an Industrial Hygiene (IH) Assistance Visit at the Carlsbad Armory located at 305 East Fiesta Drive, Carlsbad, New Mexico 88220. The primary point of contact for information gathered during this survey was Non-Responsive 505) 474-2686, 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 July 10, 2012 Non-Responsive PH, an Industrial Hygienist with IHI Environmental (IHI), conducted an Industrial Hygiene (IH) Assistance Visit at the Carlsbad Armory located at 305 East Fiesta Drive, Carlsbad, New Mexico 88220. The primary point of contact for information gathered during this survey was Non-Responsive 05) 474-2686, Non-Responsive

1.1 Objectives

The objectives of this visit were to evaluate the occupational environment of the administrative areas in the armory in order 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 Carlsbad Armory has one full-time guard member. The armory has administrative rooms, training facilities, a drill floor, storage rooms, a conference room, a locker room, and a kitchen. The organizations assigned to this armory are the Veterans Services Department, Army Recruiting Office, Leadership Office, and the New Mexico State Guard Office. There is one State civilian employee assigned to this armory who works as an administrative officer

at the Veterans Services Department. There are three civilian contract employees who are responsible for armory maintenance. Civilians frequently enter this armory when visiting the various services housed here. Occasionally, Safe-Guard employees make use of the classroom at the armory to conduct briefings, and the drill floor is rented for special occasions.

Army National Guard members occasionally use the drill floor as a staging area to clean weapons; however, according to Non-Responsive ost cleaning activities are performed outdoors.

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.

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, if they were available.

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 was available.

Carbon dioxide (CO_2), temperature, and relative humidity were measured throughout the armory using a TSI Model 7565-X Q-Trak™ IAQ 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 parts per million (ppm), with appropriate temperature and humidity levels, complaints about indoor air quality should be minimized (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 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) are measured using a MSA Type-2 Sound Level Meter in the dBA and dBC ranges, with the meter set on slow response. DD Form 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™	9515	T95151103007	05/03/2012
TSI Q-Trak™	7565-X	7565X 0812016	11/15/2011
MSA® Sound Level Meter Type II	Type 2	00035	02/10/2012

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 that the Platoon Room (a converted indoor firing range currently used for storage and physical fitness equipment) had lead concentrations of 85 $\mu g/ft^2$ on the floor of the former firing lanes and 95$\mu g/ft^2$ on the floor of the former bullet trap area, which exceeds the cleanup criteria as specified by the Industrial Hygiene Southwest (IHSW) SOP for lead. The gun vault also had a lead dust concentration of 130 $\mu g/ft^2$; however, the levels measured in the gun vault are below the criterion level of 200 $\mu g/ft^2$. 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

1. Clean the floors of the Platoon Room (former indoor firing range) in accordance with the Standard Operating Procedure to reduce lead concentrations below the 40 $\mu g/ft^2$ IHSW SOP criterion level. The lead cleanup SOP is included in Appendix N.

4.2 Painted Surface Evaluation

No peeling paint was observed in any of the spaces accessed on the day of this IH Assistance Visit.

Recommendation

None

4.3 Moisture Intrusion and Limited Visual Fungal Growth Evaluation

Water-damaged ceiling tiles were not observed in any of the accessed spaces in the armory.

Recommendation

None

4.4 Asbestos Management

An asbestos survey could not be located during this visit. Personnel have not been provided with asbestos awareness training.

Recommendation

1. Locate the asbestos survey or 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

The HVAC system servicing the armory consists of a roof-mounted Trane ® combination heating and cooling unit. The heating portion of the unit consists of a gas-fired forced-air

furnace. The cooling portion of the air-handling unit distributes cool air through the same HVAC ducting to various areas of the building.

The State of New Mexico Department of Military Affairs, Maintenance Division, regularly service and provide monthly preventive maintenance checks of the HVAC system for this armory.

The average outdoor CO_2 concentration at the time of the survey was 382 ppm. The highest CO_2 concentration measured inside the building was 499 ppm, which should not result in indoor air quality complaints.

Building air temperatures ranged from 72.6°F to 77.4°F and relative humidity was between 51.0% and 54.9% during the testing period. Air temperatures were slightly above the recommended comfort range of 68°F to75°F; however, the relative humidity was within the recommended comfort range of between 30% and 60%. Humidity levels above 60% can result in proliferation of bacteria and fungi, while levels below 30% can cause dry eyes, skin, and mucous membranes.

Recommendation

None

4.6 Hazard Communication and Hazardous Material Storage

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

A chemical inventory and MSDSs are maintained for janitorial products in the cleaning supply cabinet near the women's restroom. 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 for the janitorial products. Incompatible chemicals, such as surface cleaning sprays (containing ammonia) and bleach, were stored in the same cabinet. These cleaning products could react to produce toxic by-products and should be stored separately.

A copy of the chemical inventory is provided in Appendix D.

Recommendation

1. Segregate and store incompatible chemicals such as bleach and ammonia-containing janitorial products in separate cabinets.

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

- Commanders Safety Course
- Additional Duty Safety Course (ADSC) 2G-F95

The last Safety Council meeting was held on June 14, 2012. In addition, the NMARNG 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

There is one roof-mounted exhaust fan above the stove in the kitchen. Duct velocity measurements could not be directly obtained; therefore, estimates were indirectly calculated by using the face velocity and the dimensions of the exhaust hood and duct.

A volumetric flow rate of 1,190 cubic feet per minute (cfm) was measured at the face of the exhaust duct. This volumetric flow equates to a duct velocity of approximately 674 feet per minute (fpm) from the 18 inch circular duct that exhausts air from this hood.

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

There were no operational kitchen appliances in this armory, with the exception of the stove. Sound-level measurements were obtained for the kitchen exhaust fan above the stove. The exhaust fan produced 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 are fire alarms present in this facility.
3. Fire extinguishers are strategically located throughout the armory. The annual and monthly inspections are current for the fire extinguishers inspected.
4. Eyewash stations were not observed in this armory.
5. Fire evacuation routes are posted in the rooms of this armory.

Recommendations

None

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

Nov. 28, 2012
Date

IH Services Group Manager

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 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.

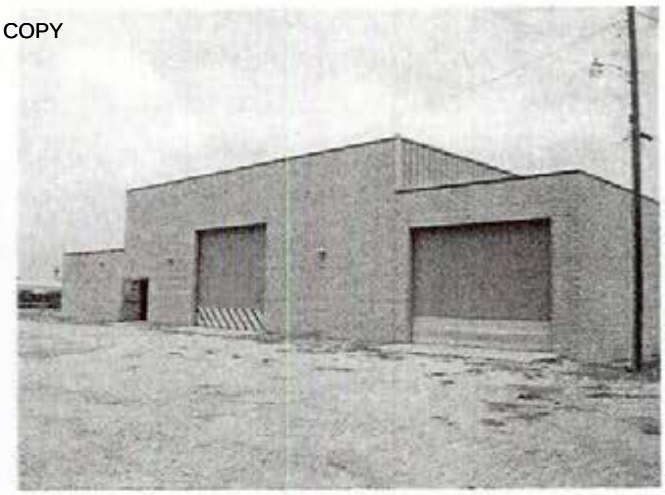
American Conference of Governmental Industrial Hygienists (ACGIH)

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

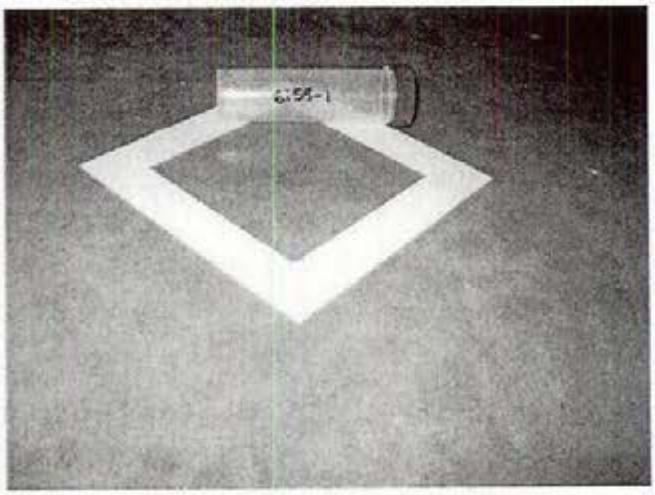
In accordance with the Department of the Army (DA) Pamphlet 40-503, Industrial Hygiene Program (DA PAM 40-503), "The DA mandates the use of ACGIH TLVs when they are more stringent than OSHA regulations or when there is no PEL." The DA defines the resulting exposure limit as the Occupational Exposure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

Photograph 1
View of north side of Carlsbad Armory, exterior

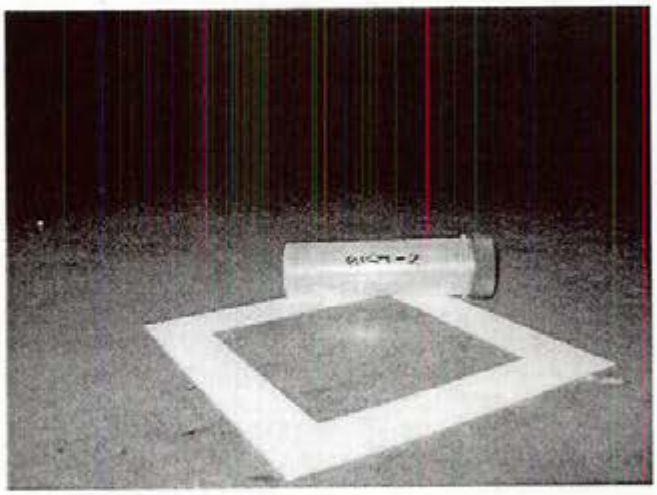


Photograph 2
View of south side of Carlsbad Armory, exterior

Photograph 3
View of the drill hall, interior of Carlsbad Armory, interior

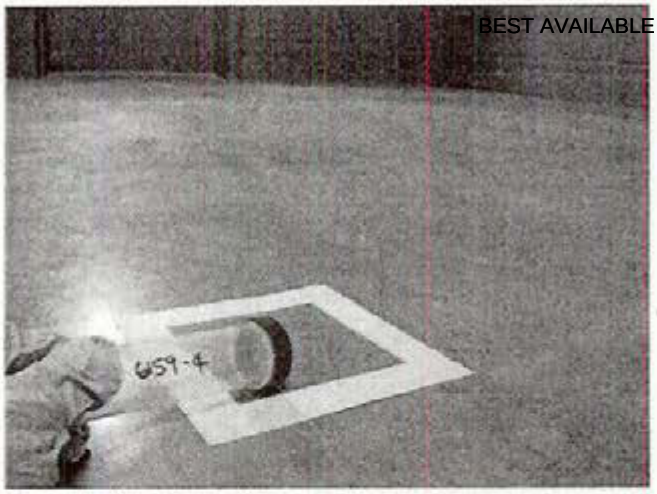


Photograph 4
Lead wipe sample location 6159-1, Drill floor, N.W.

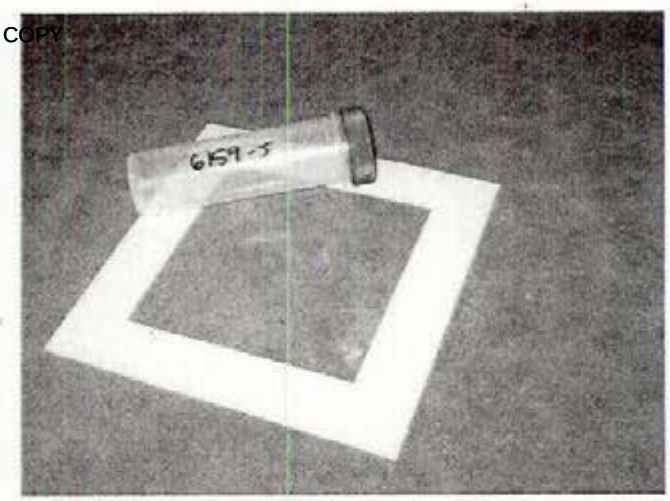


Photograph 5
Lead wipe sample location 6159-2, Drill floor, N.E.

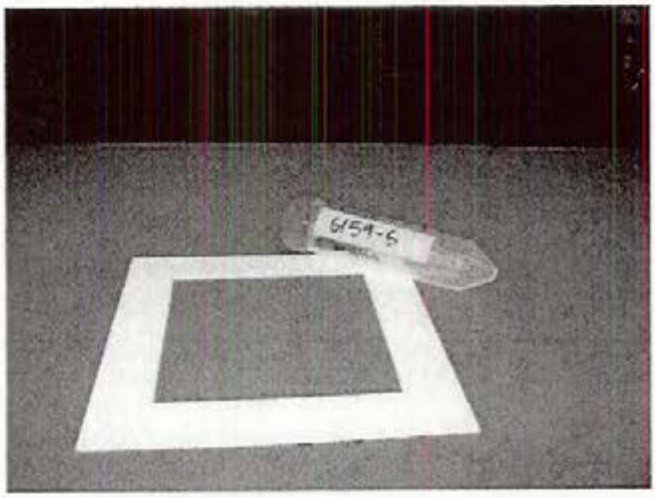
Photograph 6
Lead wipe sample location 6159-3, Drill floor, S.E.



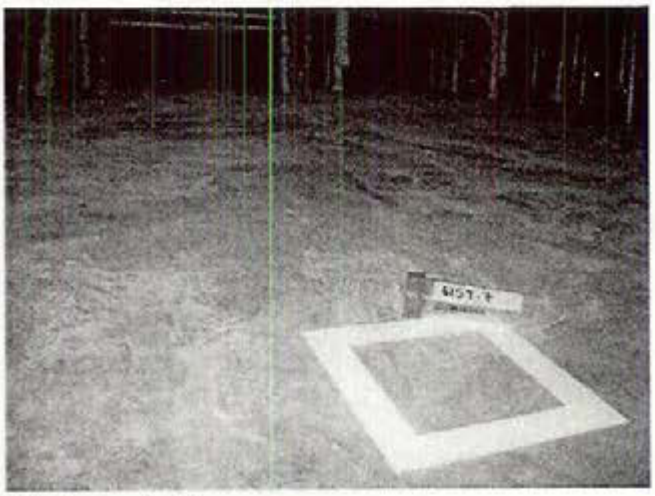
Photograph 7
Lead wipe sample location 6159-4, Drill floor, S.W.



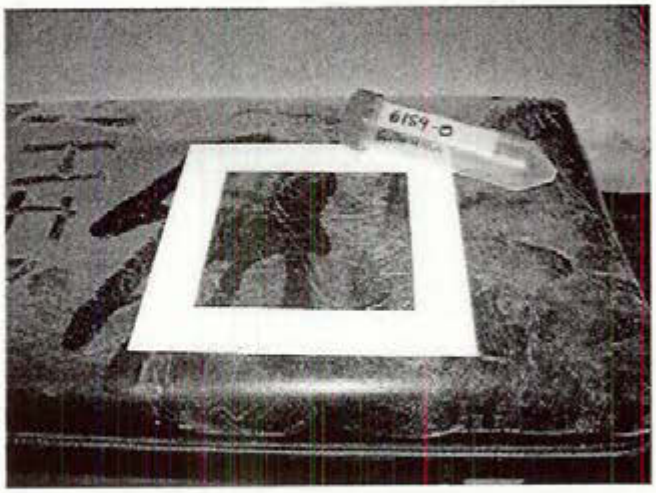
Photograph 8
Lead wipe sample location 6159-5, Drill floor, Center



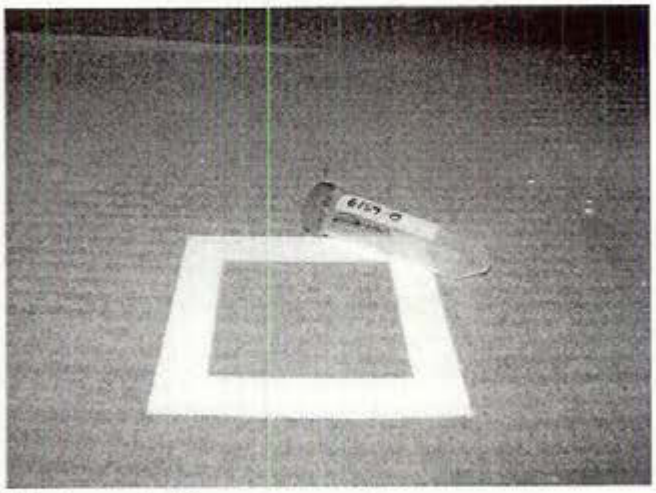
Photograph 9
Lead wipe sample location 6159-6, Kitchen



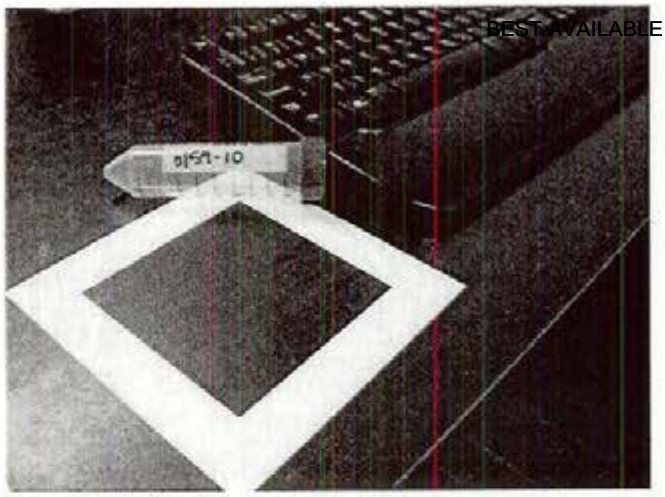
Photograph 10
Lead wipe sample location 6159-7, Platoon room



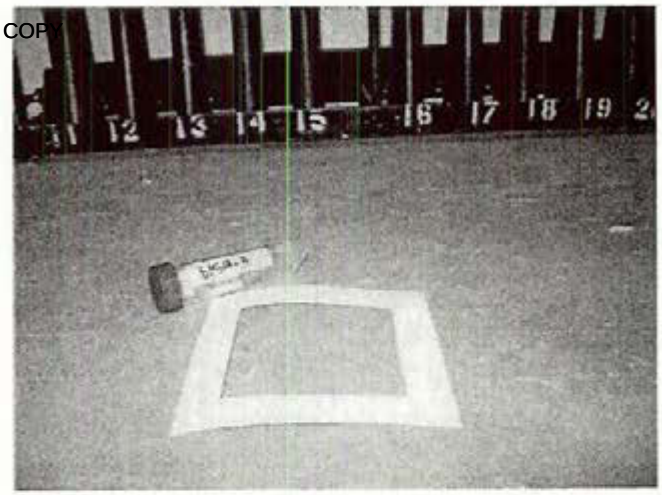
Photograph 11
Lead wipe sample location 6159-8, Platoon room



Photograph 12
Lead wipe sample location 6159-9, Platoon room

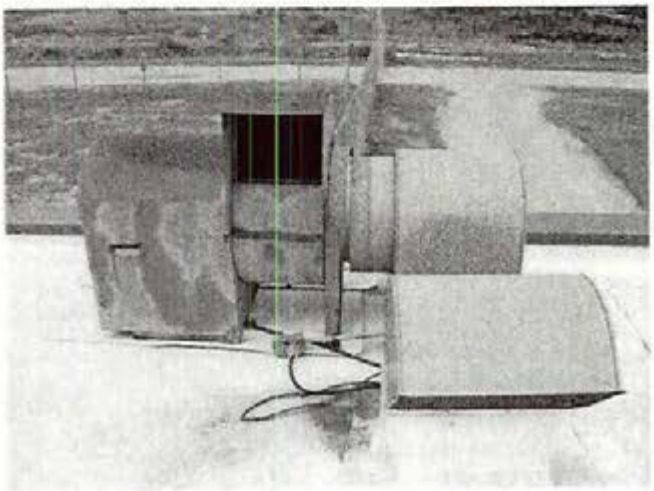


Photograph 13
Lead wipe sample location 6159-10, SSG Hernandez's desk



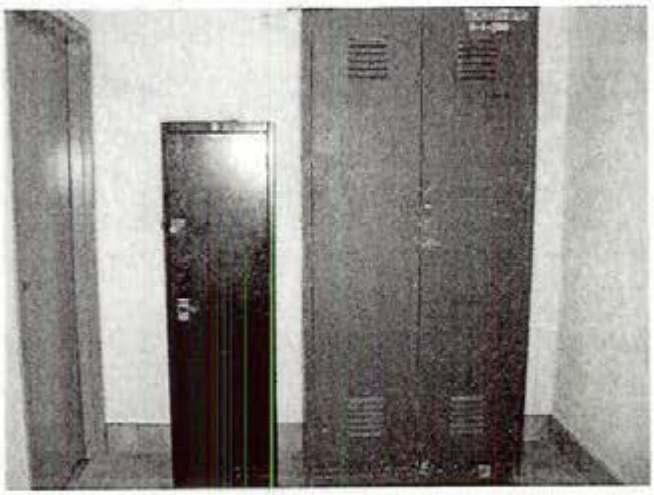
Photograph 14
Lead wipe sample location 6159-11, Gun vault

Photograph 15
Kitchen exhaust hood, interior



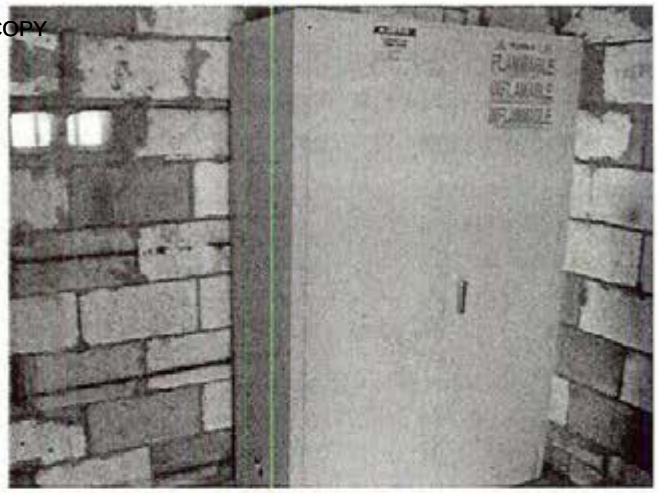
Photograph 16
Exhaust fan servicing the stove/oven, exterior

Photograph 17
Cabinet where hazardous chemicals are stored, doors open



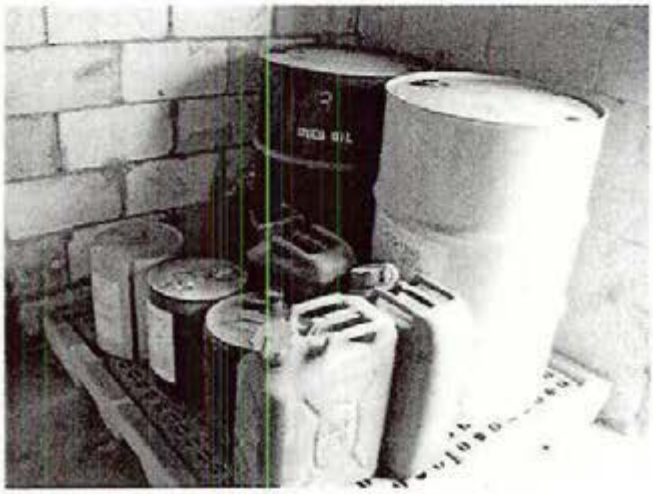
Photograph 18
Cabinet where hazardous chemicals are stored, doors closed

Photograph 19
Exterior Prefabricated Flammable Storage Building



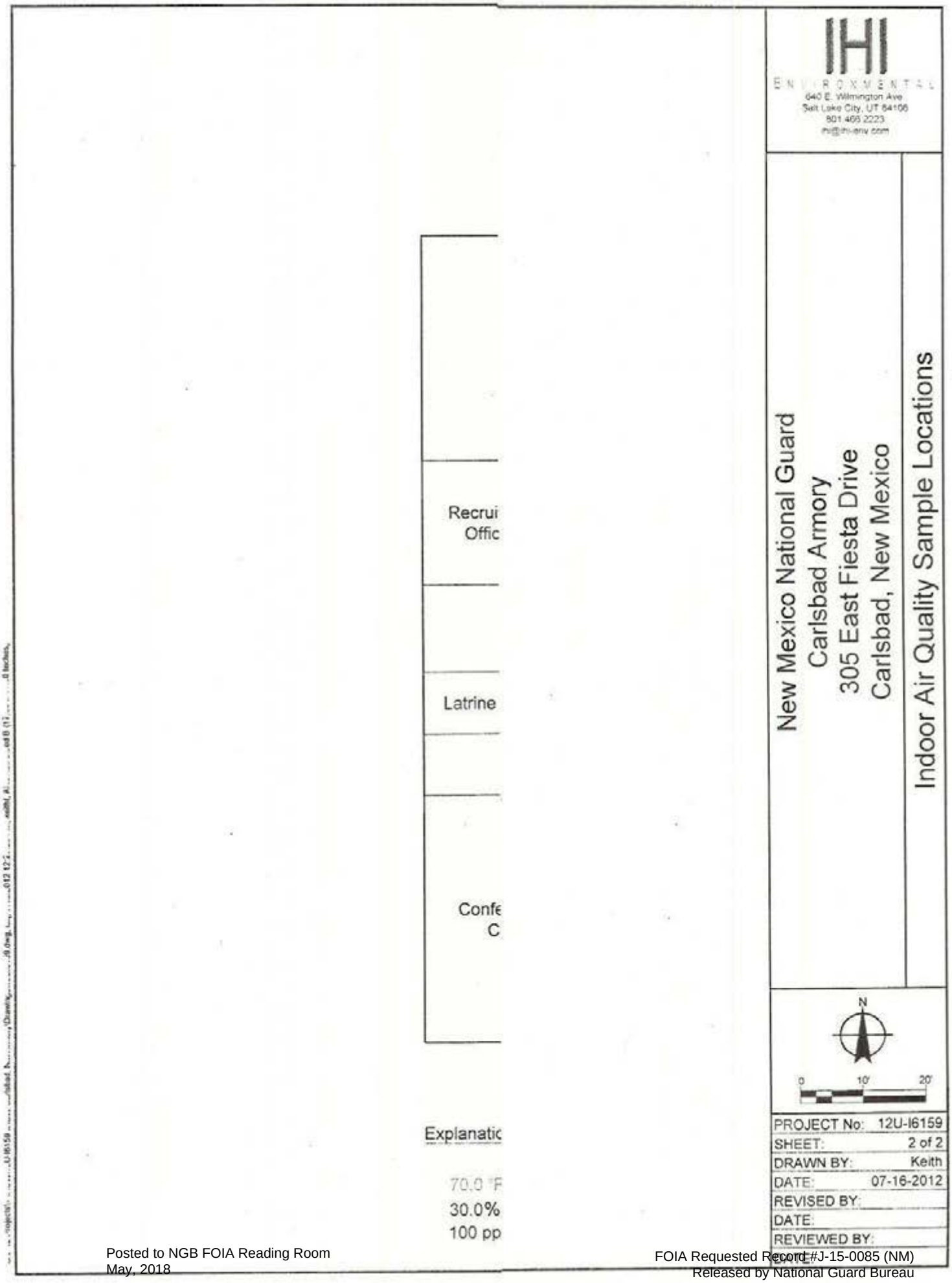
Photograph 20
Flammable Storage Cabinet, Closed

Photograph 21
Flammable Storage Cabinet, Open



Photograph 22
Used material in the exterior flammable storage building

	Womens Latrine Cleaning Material Locker
1	Citra Solve
2	Scouring Powder with Clorine Bleach
3	Tough Guy Disinfectant Spray
4	ProForce Foaming Antibactiral Hand Soup
5	Coconut Liquid Hand Soap
6	Instant Power Heavy Duty Drain Opener
7	Lemon Oil Furniture Polish
8	Simple Green Hand Cleaner
9	Clorox Bleach
10	Floor Sweep
11	Endeavor
12	Devastator
13	All Purpose Simple Green Cleaner



ENVIRONMENTAL
640 E. Wilmington Ave
Salt Lake City, UT 84106
801 466 2223
mj@hi-env.com

New Mexico National Guard
Carlsbad Armory
305 East Fiesta Drive
Carlsbad, New Mexico

Indoor Air Quality Sample Locations

N

0 10' 20'

PROJECT No:	12U-I6159
SHEET:	2 of 2
DRAWN BY:	Keith
DATE:	07-16-2012
REVISED BY:	
DATE:	
REVIEWED BY:	
DATE:	

	Exhaust Duct			18		X		58		Inches		
	Area =	7.25	ft^2									
	1	2	3	4	5	6	7	8	9	10	11	12
	Face Velocity Measurements											
	Point	Flow rate (fpm)										
	1	194										
	2	89										
	3	320										
	4	347										
	5	151										
	6	148										
	7	95										
	8	94										
	9	168										
	10	225										
	11	46										
	12	94										
Average Flow Rate		164.25	fpm									
Area =		7.25	ft^2									
Q = A x V												
Q =		1190.81	CFM									
Roof Top Exhaust Duct =						18	inches					
Area of Roof Top Exhaust Duct =						1.76715	ft^2					
Estimated Duct Velocity =						**673.86**	**fpm**					

Carlsbad Armory
305 E. Fiesta Dr.
Carlsbad NM, 88220

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?	Yes. Drill Hall & outdoors
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.	Former gun range 3 samps from floor - start, mid, end
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.	?
Quality of housekeeping	Good
HVAC maintenance plan in place?	
Overall condition of HVAC system	Good
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)	NA
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	NA
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.?	1 military 1 civilian - VA Admin
Any civilian activities in armory (cub scouts, classes, day care, parties etc)	Yes. VA admin, Community service, rent out drill hall
Obtain two **lead air samples**	NA

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.	✓
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	Non-Responsive (575) - 706 - 5807 305 E. Fiesta Dr. Carlsbad NM, 88220

Industrial Hygiene Southwest
IH Site Assistance Visit

(Initial Information Request))

(Version 11 Nov 07)

Det 3, 92cth Eng Co.
305 E. Fiesta Dr
Carlsbad, NM 88220

Non-Responsive

1. General Information:

   a. List of all personnel in facility with SSAN #s (last four).
   Non-Responsive Non-Responsive

   b. Equipment List - aircraft, vehicles or ancillary equipment that maintenance is performed on (to include density of equipment). see attached

   c. Fire Escape (evacuation) Plan for your facility. see attached
   yes

   d. Chemical Listing (Hazardous Materials list).
   yes

   e. Listing of all onsite ventilation systems, to include physical locations of all hoods, vehicle exhaust drops or systems to remove or control Hazardous Material vapors and fumes. kitchen hood only.

   f. The number of personnel at the facility who are enrolled in the Respiratory Protection Program. ∅

   g. The number of personnel enrolled in the facility Hearing Conservation Program.
   ∅

2. Hazard Assessments:

   a. Does the installation have copies of their Hazard Assessments they have completed for the processes conducted at this facility (Reference 29 CFR 1910.132(d))? No

   b. If yes, please forward Written Hazard Assessments NLT 30 Days prior to schedule date of this visit.

3. ARC WELDING: NA

   a. What are the names and SSN's of the welders for the facility?

   b. Are the welders enrolled in a medical surveillance program? If yes, why are they enrolled?

   c What are the components welded, treated/painted with:

   Provide a MSDS for the paint/coating:

d. What are the metals used in welding operations at the facility:

Provide a MSDS for these metals:

e. Welding Rods: NA

1. Types used:

2. Provide an MSDS for Welding Rods:

f. Respiratory protection used by employees for welding operations: NA

1. Manufacture:

2. Respiratory Protection Type, i.e. half face, full face, Powered Air Purifying Respirator (PAPR):

3. Cartridge type used on Respiratory Protection:

4. Is other Personal Protective Equipment (PPE) used in operation? If so what types:

g. Are ventilation systems used during welding operations? If so, briefly explain: NA

1. Booth used:

2. Local exhaust/ventilation:

3. Outside area used:

4. What is the size(ft) of the room/booth for these operations:

Height: Length: Width:

h. Has a noise survey been conducted on the equipment in this area to determine the noise levels (<85 decibels)?

4. Brazing Operations, Copper, Aluminum: NA

a. What are the names and SSN's of the personnel conducting Brazing operations for the facility?

b. Are these personnel enrolled in a medical surveillance program? If yes, why are

they enrolled?

c. What are components treated/painted with:

Provide a MSDS for the paint/coating:

d. What are the metals used in brazing operations at the facility:

Provide a MSDS for these metals:

e. Brazing Rods: ~~NA~~

1. Types used:

2. Provide an MSDS for Brazing Rods:

3. What other materials are used in conjunction with brazing operations (Flux):

4. Provide an MSDS for other materials used:

f. Respiratory protection used by employees for brazing operations: ~~NA~~

1. Manufacture:

2. Respiratory Protection Type, i.e. half face, full face, Powered Air Purifying Respirator (PAPR):

3. Cartridge type used on Respiratory Protection:

4. Is other Personal Protective Equipment (PPE) used in this operation? If so what types:

g. Are ventilation systems used during Brazing operations? If so, briefly explain: ~~NA~~

1. Booth used:

2. Local exhaust/ventilation:

3. Outside area used:

4. What is the size(ft) of the room/booth for these operations:

Height: Length: Width:

h. Has a noise survey been conducted on the equipment in this area to determine the noise levels (<85 decibels)?

5. Grinding Operations: N/A

a. What are components treated/painted with:

Provide a MSDS for the paint/coating:

b. Respiratory protection used by employees for Grinding operations: N/A

1. Manufacture:

2. Respiratory Protection Type, i.e. half face, full face, Powered Air Purifying Respirator (PAPR):

3. Cartridge type used on Respiratory Protection:

4. Is other Personal Protective Equipment (PPE) used in operation? If so what types:

c. Are ventilation systems used during Grinding operations? If so, briefly explain: N/A

1. Booth used:

2. Local exhaust/ventilation:

3. Outside area used:

d. Do processes involve the use of solvents/cleaners: N/A

Provide MSDS for products used:

e. Has a noise survey been conducted on the equipment used to determine the noise levels (<85 decibels)?

6. Sand/Grit Blasting: N/A

a. What are components treated/painted with:

Provide a MSDS for the paint/coating:

b. Respiratory protection used by employees for Sand/Grit Blasting operations: NA

1. Manufacture:

2. Respiratory Protection Type, i.e. half face, full face, Powered Air Purifying Respirator (PAPR):

3. Cartridge type used on Respiratory Protection:

4. Is Supplied Air respiratory protection used in process? If so, what type of compressor/free air pump is used?

   a. Manufacture:

   b. Model:

   c. Hose lengths used:

   d. Number of possible respirators used with system:

5. Is other Personal Protective Equipment (PPE) used in operation? If so what types:

c. Are ventilation systems used during Sand/Grit Blasting operations? If so, briefly explain: NA

1. Booth used:

2. Local exhaust/ventilation:

3. Outside area used:

4. What is the size(ft) of the room/booth for these operations:

   Height: Length: Width:

d. Do processes involve the use of solvents/cleaners: NA

   Provide MSDS for products used:

e. Has a noise survey been conducted on the equipment used in this area, or general noise measurements collected within this area, to determine the noise levels (<85 decibels)?

7. Wiping/Cleaning Equipment:

a. Do processes involve the use of Solvents or Cleaners? NK

Provide MSDS for products used:

b. Respiratory protection used by employees for Wiping/Cleaning processes: NK

1. Manufacture:

2. Respiratory Protection Type, i.e. half face, full face, Powered Air Purifying Respirator (PAPR):

3. Cartridge type used on Respiratory Protection:

4. Is other Personal Protective Equipment (PPE) used in operation? If so what types:

c. Are ventilation systems used during Wiping/Cleaning processes? If so, briefly NK explain:

1. Booth used:

2. Local exhaust/ventilation:

3. Outside area used:

8. Soldering Operations:

a. What are components being soldered, treated/painted with: NK

Provide a MSDS for the paint/coating:

b. What are the metals used in soldering operations at the facility: NK

Provide a MSDS for these metals:

c. What other materials are used in conjunction with soldering operations (Flux. Cleaning solvents): NK

Provide an MSDS for other materials used.

d. Respiratory protection used by employees for Soldering operations: NA

1. Manufacture:

2. Respiratory Protection Type, i.e. half face, full face, Powered Air Purifying Respirator (PAPR):

3. Cartridge type used on Respiratory Protection:

4. Is other Personal Protective Equipment (PPE) used in operation? If so what types:

e. Are ventilation systems used during Soldering operations? If so, briefly explain: NA

1. Booth used:

2. Local exhaust/ventilation:

3. Outside area used:

4. What is the size(ft) of the room for these operations:

Height: Length: Width:

f. Do processes involve the use of Solvents or Cleaners?

Provide MSDS for products used: NA

9. Painting Operations (Large Scale):
(See small scale for aerosol operations) NA

a. What are the names and SSN's of the personnel identified as painters for the facility?

b. Are these personnel enrolled in a medical surveillance program? If yes, why are they enrolled?

c. Are paint strippers/removers used in component preparation for painting?

Provide MSDS for strippers/removers used: NA

Height: Length: Width:

h. Do processes involve the use of Solvents or Cleaners? N/A

Provide MSDS for products used:

i. Has a noise survey been conducted on the equipment used in this area, or general noise measurements collected within this area, to determine the noise levels (<85 decibels)? N/A

10. Painting Operations (Small Scale Operations - Aerosol): N/A

a. What paints are used?:

Provide MSDS for paints used in painting operations:

Do the paints contain Chromates:

Do the paints contain Isocyanates:

b. What is the process for Small Scale Paint application: N/A

Roller

Spray

Brush

Other

Are painting processes conducted inside hangar or work-bay areas? If yes, briefly explain:

c. Are paint strippers/removers used in component preparation for painting? N/A

Provide MSDS for strippers/removers used:

d. Respiratory protection used by employees for Small Scale operations: N/A

1. Manufacture:

2. Respiratory Protection Type, i.e. half face, full face, Powered Air Purifying

Respirator (PAPR):

3. Cartridge type used on Respiratory Protection:

4. Is other Personal Protective Equipment (PPE) used in operation? If so what types:

e. Are ventilation systems used during Small Scale Painting operations? If so, briefly explain: N/A

1. Booth used:

2. Local exhaust/ventilation:

3. Outside area used:

4. What is the size(ft) of the room/booth for these operations:

Height: Length: Width:

f. Do processes involve the use of Solvents or Cleaners? N/A

Provide MSDS for products used:

g. Has a noise survey been conducted on the equipment used in this area, or general noise measurements collected within this area, to determine the noise levels (<85 decibels)? N/A

11. Chemical Inventory/Hazardous Materials Listing:

a. Is there a list of the Hazardous Materials and quantities on hand located at the facility? yes

Provide a copy of the list: see attached.

12. To date, How many Ergonomic Workstation Evaluations have been conducted at the facility? 0

13. What types of High Frequency Communication Systems are located at this facility, or what equipment has High Frequency Communication Systems authorized/installed for use. N/A

14. What Radioactive Isotopes are processed at this facility (i.e. M43A1, M1AI, CAM and Calibration Equipment)? none

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	66.9 (19.4)	°F (°C)
RELATIVE HUMIDITY	21	%RH
BAROMETRIC PRESSURE	28.60 (968.5)	inHg (hPa)

MODEL	7565-X
SERIAL NUMBER	7565X0812016

☒ AS LEFT ☒ IN TOLERANCE
☐ AS FOUND ☐ OUT OF TOLERANCE

–CALIBRATION VERIFICATION RESULTS–

THERMO COUPLE				SYSTEM PRESSURE01-02			Unit: °F (°C)
#	STANDARD	MEASURED	ALLOWABLE RANGE	#	STANDARD	MEASURED	ALLOWABLE RANGE
1	72.3 (22.4)	72.3 (22.4)	70.3~74.3 (21.3~23.5)				

BAROMETRIC PRESSURE				SYSTEM PRESSURE01-02			Unit: inHg (hPa)
#	STANDARD	MEASURED	ALLOWABLE RANGE	#	STANDARD	MEASURED	ALLOWABLE RANGE
1	28.68 (971.2)	28.68 (971.2)	28.11~29.25 (951.9~990.5)				

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	Measurement Variable	System ID	Last Cal.	Cal. Due
Temperature	E002416	03-25-11	03-25-12	Pressure	E003984	10-06-11	10-06-12
Pressure	E003982	10-03-11	04-03-12	DC Voltage	E003493	01-05-11	01-05-12

Non-Responsive

November 15, 2011
DATE

Doc. ID: CERT_GEN_WCC

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	67.1 (19.5)	°F (°C)
RELATIVE HUMIDITY	21	%RH
BAROMETRIC PRESSURE	28.60 (968.5)	inHg (hPa)

MODEL	7565-X
SERIAL NUMBER	7565X0812016

☐ AS LEFT ☒ IN TOLERANCE
☒ AS FOUND ☐ OUT OF TOLERANCE

– CALIBRATION VERIFICATION RESULTS –

THERMO COUPLE				SYSTEM PRESSURE01-02			Unit: °F (°C)
#	STANDARD	MEASURED	ALLOWABLE RANGE	#	STANDARD	MEASURED	ALLOWABLE RANGE
1	72.3 (22.4)	72.1 (22.3)	70.3~74.3 (21.3~23.5)				

BAROMETRIC PRESSURE				SYSTEM PRESSURE01-02			Unit: inHg (hPa)
#	STANDARD	MEASURED	ALLOWABLE RANGE	#	STANDARD	MEASURED	ALLOWABLE RANGE
1	28.67 (970.9)	28.65 (970.2)	28.10~29.24 (951.6~990.2)				

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	Measurement Variable	System ID	Last Cal.	Cal. Due
Temperature	E002416	03-25-11	03-25-12	Pressure	E003984	10-06-11	10-06-12
Pressure	E003982	10-03-11	04-03-12	DC Voltage	E003493	01-05-11	01-05-12

Non-Responsive [redacted]

November 15, 2011
DATE

Doc. ID: CERT_GEN_WCC

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	66.7 (19.3)	°F (°C)
RELATIVE HUMIDITY	22	%RH
BAROMETRIC PRESSURE	28.60 (968.5)	mHg (hPa)

MODEL	982
SERIAL NUMBER	P08100015

☐ AS LEFT ☐ IN TOLERANCE
☒ AS FOUND ☒ OUT OF TOLERANCE

–CALIBRATION VERIFICATION RESULTS–

GAS CO2 AS FOUND — SYSTEM G-101 — *Unit: ppm*

#	STANDARD	MEASURED	ALLOWABLE RANGE	#	STANDARD	MEASURED	ALLOWABLE RANGE
1	0	0	0~50	4	2999	3063	2909~3089
2	513.4	* 350.5	463.4~563.4	5	4934	* 5115.4	4786~5082
3	1009.6	* 914.7	959.6~1059.6				

GAS CO AS FOUND — SYSTEM G-101 — *Unit: ppm*

#	STANDARD	MEASURED	ALLOWABLE RANGE	#	STANDARD	MEASURED	ALLOWABLE RANGE
1	35	35	32~38	2	100.1	* 95.6	97.1~103.1

TEMPERATURE AS FOUND — SYSTEM T-101 — *Unit: °F (°C)*

#	STANDARD	MEASURED	ALLOWABLE RANGE	#	STANDARD	MEASURED	ALLOWABLE RANGE
1	32.0 (0.0)	32.5 (0.3)	31.0~33.0 (−0.6~0.6)	2	140.0 (60.0)	140.5 (60.3)	139.0~141.0 (59.4~60.6)

HUMIDITY AS FOUND — SYSTEM H-102 — *Unit: %RH*

#	STANDARD	MEASURED	ALLOWABLE RANGE	#	STANDARD	MEASURED	ALLOWABLE RANGE
1	10.0	9.7	7.0~13.0	4	70.0	68.3	67.0~73.0
2	30.0	29.6	27.0~33.0	5	90.0	87.4	87.0~93.0
3	50.0	49.3	47.0~53.0				

**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
5000 CO2	EB0021287	08-03-11	08-02-14
N2	K100246116	11-04-11	10-26-16
Flow	E003297	04-20-11	04-20-12
Flow	E003501	06-08-11	06-08-12
2000 C4H8	CC314662	06-04-09	06-04-12
Temperature	E003986	10-24-11	04-24-12
Humidity	E003539	08-30-11	02-29-12

Measurement Variable	System ID	Last Cal.	Cal. Due
200 CO	CC188518	07-28-11	07-27-14
Air	HP-T-098370	10-11-11	09-16-14
Flow	E003298	04-22-11	04-22-12
Flow	E003980	08-17-11	08-17-12
100 C4H8	EB0014789	05-06-09	05-06-12
Temperature	E003987	10-24-11	04-24-12

Non-Responsive

November 15, 2011
DATE

Doc. ID: CERT_GEN_WCC

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	70.2 (21.2)	°F (°C)
RELATIVE HUMIDITY	16	%RH
BAROMETRIC PRESSURE	28.87 (977.7)	inHg (hPa)

MODEL	982
SERIAL NUMBER	P08100015

☒ 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)	31.0~33.0 (−0.6~0.6)	2	140.0 (60.0)	140.1 (60.0)	139.0~141.0 (59.4~60.6)

HUMIDITY VERIFICATION — SYSTEM H-102 — *Unit: %RH*

#	STANDARD	MEASURED	ALLOWABLE RANGE	#	STANDARD	MEASURED	ALLOWABLE RANGE
1	10.0	9.4	7.8~12.2	4	70.0	69.8	67.8~72.2
2	30.0	29.9	27.8~32.2	5	90.0	89.2	87.8~92.2
3	50.0	50.2	47.8~52.2				

CO_2 GAS VERIFICATION — SYSTEM G-101 — *Unit: ppm*

#	STANDARD	MEASURED	ALLOWABLE RANGE	#	STANDARD	MEASURED	ALLOWABLE RANGE
1	0	0	0~50	4	3001	2993	2911~3091
2	512	507	462~562	5	4926	4918	4778~5074
3	1010	1010	960~1060				

CO GAS VERIFICATION — SYSTEM G-101 — *Unit: ppm*

#	STANDARD	MEASURED	ALLOWABLE RANGE	#	STANDARD	MEASURED	ALLOWABLE RANGE
1	35	35	32~38	2	100	99	97~103

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	10-24-11	04-24-12
Humidity	E003539	08-30-11	02-29-12
200 CO	CC188518	07-28-11	07-27-14
Air	HP-T-098370	10-11-11	09-16-14
Flow	E003298	04-22-11	04-22-12
Flow	E003980	08-17-11	08-17-12
100 C4H8	EB0014789	05-06-09	05-06-12

Measurement Variable	System ID	Last Cal.	Cal. Due
Temperature	E003987	10-24-11	04-24-12
5000 CO_2	EB0015430	08-03-11	03-04-12
N2	K100246116	11-04-11	10-26-16
Flow	E003297	04-20-11	04-20-12
Flow	E003501	06-08-11	06-08-12
2000 C4H8	CC114662	06-04-09	06-04-12

Non-Responsive

November 16, 2011
DATE

Doc. ID: CERT_GEN_WCC

TSI P/N 2300157

Lead Wipe Sample Results

Sample Number	Collection Date	Location	Result µg/ft^2
6159-01	7/10/2012	Drill floor N.W. area	<23
6159-02	7/10/2012	Drill floor N.E. area	<23
6159-03	7/10/2012	Drill floor S.E. area	<23
6159-04	7/10/2012	Drill floor S.W. area	<23
6159-05	7/10/2012	Drill floor Center area	<23
6159-06	7/10/2012	Break room, on top of food preparation surface	<23
6159-07	7/10/2012	Platoon Room (Training/Work Area) , South area	95
6159-08	7/10/2012	Platoon Room (Training/Work Area) training bench , Center area	35
6159-09	7/10/2012	Platoon Room (Training/Work Area) on mat in sand trap , North area	85
6159-10	7/10/2012	Traing NCO Office, SSG Hernanzez's Desk	<23
6159-11	7/10/2012	Gun Vault, Center	130
6159-12	7/10/2012	Field Blank	NA

ANALYTICAL REPORT

Report Date: July 23, 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: 34-1219952
Client Project ID: 12U-I6159/Carlsbad Armory
Purchase Order: 12U-I6159
Project Manager: Non-Responsive

Analytical Results

Sample ID: 6159-1 | Media: Lead Dust Wipe | Collected: 07/10/2012
Lab ID: 1219952001 | Sampling Location: Carlsbad Armory | Received: 07/17/2012
Method: NIOSH 7300 Mod. | Sampling Parameter: Area 100 cm² | Prepared: 07/18/2012 Analyzed: 07/19/2012

Analyte	ug/sample	ug/ft²	RL (ug/sample)
Lead	<2.5	<23	2.5

Sample ID: 6159-2 | Media: Lead Dust Wipe | Collected: 07/10/2012
Lab ID: 1219952002 | Sampling Location: Carlsbad Armory | Received: 07/17/2012
Method: NIOSH 7300 Mod. | Sampling Parameter: Area 100 cm² | Prepared: 07/18/2012 Analyzed: 07/19/2012

Analyte	ug/sample	ug/ft²	RL (ug/sample)
Lead	<2.5	<23	2.5

Sample ID: 6159-3 | Media: Lead Dust Wipe | Collected: 07/10/2012
Lab ID: 1219952003 | Sampling Location: Carlsbad Armory | Received: 07/17/2012
Method: NIOSH 7300 Mod. | Sampling Parameter: Area 100 cm² | Prepared: 07/18/2012 Analyzed: 07/19/2012

Analyte	ug/sample	ug/ft²	RL (ug/sample)
Lead	<2.5	<23	2.5

Sample ID: 6159-4 | Media: Lead Dust Wipe | Collected: 07/10/2012
Lab ID: 1219952004 | Sampling Location: Carlsbad Armory | Received: 07/17/2012
Method: NIOSH 7300 Mod. | Sampling Parameter: Area 100 cm² | Prepared: 07/18/2012 Analyzed: 07/19/2012

Analyte	ug/sample	ug/ft²	RL (ug/sample)
Lead	<2.5	<23	2.5

ANALYTICAL REPORT

Workorder: 34-1219952
Client Project ID: 12U-I6159/Carlsbad Armory
Purchase Order: 12U-I6159
Project Manager: Non-Responsive

Analytical Results

Sample ID: 6159-5	Media: Lead Dust Wipe		Collected: 07/10/2012
Lab ID: 1219952005	Sampling Location: Carlsbad Armory		Received: 07/17/2012
Method: NIOSH 7300 Mod.	Sampling Parameter: Area 100 cm²		Prepared: 07/18/2012 Analyzed: 07/19/2012

Analyte	ug/sample	ug/ft²	RL (ug/sample)
Lead	<2.5	<23	2.5

Sample ID: 6159-6	Media: Lead Dust Wipe		Collected: 07/10/2012
Lab ID: 1219952006	Sampling Location: Carlsbad Armory		Received: 07/17/2012
Method: NIOSH 7300 Mod.	Sampling Parameter: Area 100 cm²		Prepared: 07/18/2012 Analyzed: 07/19/2012

Analyte	ug/sample	ug/ft²	RL (ug/sample)
Lead	<2.5	<23	2.5

Sample ID: 6159-7	Media: Lead Dust Wipe		Collected: 07/10/2012
Lab ID: 1219952007	Sampling Location: Carlsbad Armory		Received: 07/17/2012
Method: NIOSH 7300 Mod.	Sampling Parameter: Area 100 cm²		Prepared: 07/18/2012 Analyzed: 07/19/2012

Analyte	ug/sample	ug/ft²	RL (ug/sample)
Lead	10	95	2.5

Sample ID: 6159-8	Media: Lead Dust Wipe		Collected: 07/10/2012
Lab ID: 1219952008	Sampling Location: Carlsbad Armory		Received: 07/17/2012
Method: NIOSH 7300 Mod.	Sampling Parameter: Area 100 cm²		Prepared: 07/18/2012 Analyzed: 07/19/2012

Analyte	ug/sample	ug/ft²	RL (ug/sample)
Lead	3.7	35	2.5

Sample ID: 6159-9	Media: Lead Dust Wipe		Collected: 07/10/2012
Lab ID: 1219952009	Sampling Location: Carlsbad Armory		Received: 07/17/2012
Method: NIOSH 7300 Mod.	Sampling Parameter: Area 100 cm²		Prepared: 07/18/2012 Analyzed: 07/19/2012

Analyte	ug/sample	ug/ft²	RL (ug/sample)
Lead	9.2	85	2.5

ANALYTICAL REPORT

Workorder: 34-1219952
Client Project ID: 12U-I6159/Carlsbad Armory
Purchase Order: 12U-I6159
Project Manager: Non-Responsive

Analytical Results

Sample ID: 6159-10	Media: Lead Dust Wipe		Collected: 07/10/2012
Lab ID: 1219952010	Sampling Location: Carlsbad Armory		Received: 07/17/2012
Method: NIOSH 7300 Mod.	Sampling Parameter: Area 100 cm²		Prepared: 07/18/2012 Analyzed: 07/19/2012

Analyte	ug/sample	ug/ft²	RL (ug/sample)
Lead	<2.5	<23	2.5

Sample ID: 6159-11	Media: Lead Dust Wipe		Collected: 07/10/2012
Lab ID: 1219952011	Sampling Location: Carlsbad Armory		Received: 07/17/2012
Method: NIOSH 7300 Mod.	Sampling Parameter: Area 100 cm²		Prepared: 07/18/2012 Analyzed: 07/19/2012

Analyte	ug/sample	ug/ft²	RL (ug/sample)
Lead	14	130	2.5

Sample ID: 6159-12(FB)	Media: Lead Dust Wipe		Collected: 07/10/2012
Lab ID: 1219952012	Sampling Location: Carlsbad Armory		Received: 07/17/2012
Method: NIOSH 7300 Mod.	Sampling Parameter: Area Not Applicable		Prepared: 07/18/2012 Analyzed: 07/19/2012

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	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

Appendix K

IHSW Violation Log

Industrial Hygiene Southwest

Violation Inventory Log

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

Carlsbad Armory, NM

CONTROL NUMBER CLOSED ☐	HAZARD DESCRIPTION	SITE	RAC	CORRECTIVE ACTIONS (Abatement Plan)	SUSPENSE DATE	ACTION OIC/NCOIC	Estimated Cost(s)	DATE CORRECTED	REFERENCES
NMCA-071012-4.1 ☐	The Platoon Room had lead concentrations of 85 µg/ft^2 on the floor of the former firing lanes and 95 µg/ft^2 on the floor of the former bullet trap area.	Platoon Room	3	Clean the floors of the Platoon Room (former indoor firing range) in accordance with the Standard Operating Procedure to reduce lead concentrations below the 40 µg/ft^2 IHSW SOP criterion level.					IHSW SOP - Lead
NMCA-071012-4.4 ☐	An asbestos survey could not be located during this IH Assistance Visit.	Carlsbad 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)
NMCA-071012-4.4 ☐	Personnel have not been provided with asbestos awareness training.	Carlsbad 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
NMCA-071012-4.6.1 ☐	Incompatible chemicals such as surface cleaning sprays (containing ammonia) and bleach were stored in the same cabinet in the janitorial closet.	Entrance to Women's Restroom	4	Segregate and store incompatible chemicals such as bleach and ammonia-containing janitorial products in separate cabinets.					NFPA 1 Section 60.5.1.13.1 NFPA 400 Sections 18.1 and 19.1
NMCA-071012-4.6.2 ☐	There were no MSDSs or a chemical inventory for the products in the flammable storage cabinets.	Flammable Storage Room	4	Obtain MSDSs and develop a chemical inventory for the products stored in the flammable storage cabinets.					1910.1200 (e) (i) 1900.1200 (g) (1)

4.1 Lead Wipe Sampling

Recommendations

Clean the floors of the Platoon Room (former indoor firing range) in accordance with the Standard Operating Procedure to reduce lead concentrations below the 40 $\mu g/ft^2$ IHSW SOP criterion level. The lead clean-up SOP is included in Appendix N.

4.2 Painted Surface Evaluation

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.

4.4 Asbestos Management

Recommendations

1. Locate the asbestos survey or 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.

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

Recommendations

Segregate and store incompatible chemicals such as bleach and ammonia-containing janitorial products in separate cabinets.

4.6.2 Flammable Storage Cabinets

Recommendations

Obtain MSDSs and develop a chemical inventory for the products stored in the flammable storage cabinets.

4.8 Kitchen Ventilation Survey

Recommendation

Repair the overhead exhaust hood in the kitchen and perform a ventilation survey to ensure this hood is exhausting a minimum of 500 fpm.

NOISE SURVEY
(Sound Level Meter Survey)

1. DATE (YYYYMMDD)	2. TYPE SURVEY (Enter code)
20120710	1 (1 - INITIAL SURVEY 2 - RE-SURVEY 3 - OTHER)

3. SOUND LEVEL METER		4. MICROPHONE		5. CALIBRATOR	
a. MANUFACTURER: MSA		a. MANUFACTURER: MSA		a. MANUFACTURER: MSA	
b. MODEL: Type 2	c. SERIAL NO.: 00035	b. MODEL: Type 2	c. SERIAL NO.: 00035	b. MODEL: 6950	c. SERIAL NO.: 07349
d. LAST ELECTROACOUSTIC CALIB DATE (YYYYMMDD): 20120210		d. LAST ELECTROACOUSTIC CALIB DATE (YYYYMMDD): 20120210		d. LAST ELECTROACOUSTIC CALIB DATE (YYYYMMDD): 20120210	

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)
Carlsbad Armory 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	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)
Kitchen exhaust hood	S	77.0	65.0	IVD	X			
	S				X			
	S				X			
	S				X			
	S				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.)*
There are appliances at the Carlsbad Armory which were not functional on the day of the survey. Sound level measurements were not collected from non-functional equipment.

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
Non-Responsive	(505) 474-2686	NMARNG

17. [illegible], First Name, MI)

18. HEARING CONSERVATION MONITOR (Last Name, First Name, MI)
Non-Responsive

DD FORM 2214, JAN 2003 PREVIOUS EDITION IS OBSOLETE. BEST AVAILABLE COPY

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.**

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

Clayton Armory
1601 Water Street
Clayton, NM 87415

10510 Superfortress Avenue, Suite C, Mather, CA 95655 9916) 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 June 2013

MEMORANDUM THRU New Mexico Army National Guard, ATTN: Non-Responsive 00 Wyoming Blvd NE, Albuquerque, NM 87123-1038

FOR Commander Clayton Armory, 1601 Water Street, Clayton, NM 87415

SUBJECT: Executive Summary for Industrial Hygiene Site Assistance Visit (IHSAV) for the Clayton Armory, 1601 Water Street, Clayton, NM conducted on 22 April 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 Clayton Armory 1601 Water St., Clayton, NM on 22 APR 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 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 annual and monthly fire extinguisher checks are maintained on the tag found on the extinguisher and they are current. (para. 4.10) **(RAC 4)**

b. Locate the asbestos survey for this building or contract to have a licensed firm to perform an asbestos survey and assessment. This should be part of the NM ARNG Asbestos Management Plan. (para. 4.1) **(RAC 3)**

c. Develop and maintain a chemical inventory log for agents found within the flammable storage cabinet. MSDS's should be acquired for each of these agents and maintained in a organized binder. (para. 4.6.1) **(RAC 4)**

d. Provide personnel with asbestos awareness training to help prevent them from contaminating others, the building or themselves. (para. 4.1) **(RAC 4)**

e. Acquire an exhaust duct flange for the exhaust duct located closest to the exhaust fan motor. (para. 4.8.1) **(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).

ARNG-CSG-P

SUBJECT: Executive Summary for Industrial Hygiene Site Assistance Visit (IHSAV) for the Clayton Armory, 1601 Water Street, Clayton, NM conducted on 22 April 2013.

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 New Mexico 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

for 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

Clayton Armory, New Mexico

CONTROL NUMBER CLOSED ☐	HAZARD DESCRIPTION	SITE	RAC	CORRECTIVE ACTIONS (Abatement Plan)	SUSPENSE DATE	ACTION OIC/NCOIC	Estimated Cost(s)	DATE CORRECTED	REFERENCES
NMCA-042213-4.1	Documentation of an asbestos survey could not be located during this visit.	Clayton Armory	3	1. Contract with a licensed firm to perform an asbestos survey and assessment. 2. If 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.					29 CFR 1910.1001 or 1101 or AR 40-5
NMCA-042213-4.6.1	A review of the MSDSs revealed that not all products used in this armory have a MSDS for them. In addition, a chemical inventory is not available for any of the products used in this armory.	Clayton Armory	4	1. Obtain MSDSs for each chemical at the Armory and store the MSDSs in a location that is known to all potential users. 2. Once the MSDSs are obtained, develop a chemical inventory for all products used in this Armory.					29 CFR 1910.1200 (g) (1); 29 CFR 1910.1200 (e) (i)
NMCA-042213-4.6.2	The door to the flammable storage room is marked Flammable Materials; however, there is not an NFPA placard on the door or on the outside of the maintenance bay.	Flammable Storage	4	Place visible hazard identification placards with markings that comply with NFPA 704, Standard System for Identification of the Hazards of Materials for Emergency Response, on the flammable storage room and on the maintenance bay access door.					NFPA 704
NMCA-042213-4.7	There was no documentation of Hazard Communication Training for those who use hazardous materials in this armory.	HazComm	4	Provide hazard communication training to those who use chemicals in this Armory.					29 CFR 1910.1200 (h)
NMCA-042213-4.8.1	The exhaust flange is missing from exhaust duct number four.	Ventilation	4	Provide an exhaust duct flange for the exhaust duct located closest to the exhaust fan motor.					Recommended Practice

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

Clayton Armory
New Mexico Army National Guard
1601 Water Street
Clayton, New Mexico 87415

May 21, 2013

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 Services Manager

Project No. AL137008

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SALT LAKE CITY EMERYVILLE PHOENIX DENVER SEATTLE

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APPENDICES

EXECUTIVE SUMMARY

On April 22, 2013, Non-Responsive PE, CSP, with IHI Environmental (IHI), conducted an Industrial Hygiene (IH) Assistance Visit at the Clayton Armory located at 1601 Water Street, Clayton, New Mexico 87415. The primary point of contact for information gathered during this survey was 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 April 22, 2013, Non-Responsive E, CSP, with IHI Environmental (IHI), conducted an Industrial Hygiene (IH) Assistance Visit at the Clayton Armory located at 1601 Water Street, Clayton, New Mexico 87415. The primary point of contact for information gathered during this survey was Non-Responsive (505) 474-2656, Non-Responsive

1.1 Objectives

The objective of the IH Assistance survey was to 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 FACILITY DESCRIPTION

The Clayton Armory has two full-time guard members. The armory houses administrative offices, training facilities, a drill floor, storage rooms, locker rooms, maintenance bay, and a kitchen. This armory was originally designed with an indoor firing range; however, this range was never activated and the space was converted to a large training room. Only the 1115th Transportation Company is assigned to this armory. There are no full-time or part-time civilian employees employed at the armory.

Civilian activities in this armory include Correctional Academy training, Summer Youth Program, Union County Health Fare, Pee Wee basketball, Cub Scouts, and renting of the gymnasium floor to the general public for celebratory or commemorative occasions.

Army National Guard members perform weapons maintenance and cleaning activities in the drill hall.

Armory housekeeping is performed by the Guard staff, and the maintenance of building systems is conducted by the Department of Military Affairs, Maintenance Division, upon request.

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, 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.

All painted surfaces should be suspect lead-containing materials until determined otherwise. Contact the State FMO, State Safety, and the State Environmental directorates before conducting any work that may disturb the integrity of painted surfaces.

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 armory's heating, ventilation, and air-conditioning (HVAC) system was 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 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 parts per million (ppm), with appropriate temperature and humidity levels, complaints about indoor air quality should be minimized (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 Greenlee Type-2 Sound Level Meter in the dBA and dBC ranges, with the meter set on slow response. A DD Form 2214 is 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 IAQ-Calc™	8762	56040313	10/18/2012
TSI VelociCalc®	8345	98060408	06/05/2012
Greenlee® Sound Level Meter	SM-100	010613107	09/26/2013

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

All of the lead wipe samples collected in the Clayton Armory were below the IHSW lead criterion of 40 µg/ ft^2 for areas that are accessible to members of the general public. Additionally, the results of all lead wipe samples were also below the laboratory limit of detection. This is a noteworthy accomplishment as there was no lead detected in any of the samples collected, which indicates outstanding housekeeping at the Clayton Armory. 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

None

4.2 Painted Surface Evaluation

No peeling paint was observed in any space accessed on the day of the survey.

Note: All painted surfaces should be suspect lead-containing materials until determined otherwise.

Contact the State FMO, State Safety, and the State Environmental directorates before conducting any work that may disturb the integrity of a painted surface.

Recommendation

None

4.3 Moisture Intrusion and Limited Visual Fungal Growth Evaluation

Water-damaged ceiling tiles were not observed in the Clayton Armory. No visible mold growth was observed in any of the areas surveyed.

Recommendation

None

4.4 Asbestos Management

Documentation of an asbestos survey could not be located during this visit.

According to the Occupational Safety and Health Administration, Code of Federal Regulations (CFR) 1910.1001, thermal system insulation and surfacing materials found in buildings constructed before 1980 are *Presumed Asbestos Containing Material* (PACM). Although there may not be any PACM in the Clayton Armory building materials, suspect materials should be tested for the presence of asbestos prior to renovation and demolition activities.

Recommendations

1. Contract with a licensed firm to perform an asbestos survey and assessment.

2. If 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 HVAC system servicing the armory consists of seven split-package units located on the roof that heat and cool specific zones of the building. There are wall-mounted thermostats that control the air temperatures in this armory. The maintenance bay has a ceiling-mounted radiant heat system.

The State of New Mexico Department of Military Affairs, Maintenance Division, regularly service and provide monthly preventive maintenance checks of the HVAC system for this armory.

The average outdoor CO_2 concentration at the time of the survey was 416 ppm. The highest CO_2 concentration measured inside the building was 929 ppm, which should not result in indoor air quality complaints.

Building air temperatures ranged from 60°F to 65°F and relative humidity was between 20% and 24% during the testing period. Air temperatures were below the recommended comfort range of 68°F to75°F and the relative humidity was also below the recommended comfort range of between 30% and 60%. Humidity levels above 60% can result in proliferation of bacteria and fungi, while levels below 30% can cause dry eyes, skin, and mucous membranes. Building air temperatures are controlled by unit personnel and set to levels that are comfortable to the building users or are set at a low temperature to conserve energy.

Recommendation

None

4.6 Hazard Communication and Hazardous Material Storage

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

Material safety data sheets are maintained either in a folder located next to the products or are attached to the cabinet where they are stored. A review of the MSDSs revealed that not

all products used in this armory have an MSDS. In addition, a chemical inventory is not available for any of the products used in this armory.

Recommendations

1. Obtain MSDSs for each chemical at the armory and store the MSDSs in a location that is known to all potential users.
2. Once the MSDSs are obtained, develop a chemical inventory for all products used in this armory.

4.6.2 Flammable Storage Cabinets

Flammable and combustible materials are stored in an attached flammable storage room. There is one flammable storage cabinet in this room where various vehicle maintenance products are stored. Also stored in this room are five-gallon containers of vehicle maintenance products. There is a flammable storage cabinet located in the vehicle maintenance bay. This flammable storage cabinet is dedicated to paint storage. Both flammable storage cabinets are properly marked. There were no chemical incompatibilities noted at any of the storage locations, and none of the containers was leaking. The door to the flammable storage room is marked "Flammable Materials"; however, there is no NFPA placard on the door or on the outside of the maintenance bay.

Recommendation

1. Place visible hazard identification placards with markings that comply with NFPA 704, Standard System for Identification of the Hazards of Materials for Emergency Response, on the flammable storage room and on the maintenance bay access door.

4.7 Safety Training and Record Keeping

The following safety documentation is maintained electronically in the Clayton Armory:

Safety Standard Operating Procedure

- Facility Emergency Evacuation Plan
- Fire and Bomb Evacuation Procedures
- Adjutant General's Safety Policy
- Emergency Action Plan
- Accident Notification Plan

- Fire Prevention Plan
- Hazardous Material and Hazardous Waste Management
- Safety Council Meeting – 3 April 2011
- Fire Extinguisher Checklist

The following Safety training is maintained at the Clayton Armory

- Fire Extinguisher Training
- POV Safety
- Accident Avoidance Training
- Composite Risk Management Training
- Commander's Safety Course
- Injury Prevention

All other safety-related regulations and training records are maintained electronically on the Reserve Component Automation System (RCAS) Website.

The NMARNG in general 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

1. Provide hazard communication training to those who use chemicals in this armory.

4.8 Ventilation Surveys

4.8.1 Tailpipe Exhaust Ventilation Systems

The Clayton Armory has one maintenance bay, and personnel reportedly provide minor maintenance on military vehicles. The largest vehicle maintained at this armory is a 350-horsepower (Hp) diesel M915A3 Freightliner truck

The US Army Corps of Engineers has developed exhaust criteria in concert with members of the Navy, Air Force, and the National Aeronautical and Space Administration. These criteria are outlined in the Unified Facilities Guide Specification (UFGS) 23 35 19. 00 20, *Industrial*

Ventilation and Exhaust, which specifies minimum exhaust rates by engine horsepower as follows:

Diesel Engines Up To:	Required cfm
200 Hp	300
300 Hp	400
500 Hp	600
700 Hp	1,000
500 Hp (Turbo-charged)	1,400

The ACGIH recommends a minimum of 400 to 1,200 cubic feet per minute (cfm0 for diesel engines and 1,200 to 2,200 cfm for turbo-charged diesel engines.

There are four drop-down tailpipe exhaust ventilation systems in the maintenance bay; one of these ventilation ducts is capped and not used. This local exhaust ventilation system is powered by one exhaust motor. The exhaust ducts reportedly reach all exhaust ports as required by AR 385-55, Section 2-14(b). The exhaust flange is missing from exhaust duct number four. The following table lists volumetric flow rates measured in each duct:

Location	cfm
TP-01	481
TP-02	Capped Not Used
TP-03	508
TP-04	433

The current required volumetric flow rate for the vehicles serviced at the armory is 450 cfm based on the largest engine type reported, a 350-Hp diesel engine.

The airflows for all exhaust ducts measured were above or very close to the UFGS specifications for engines serviced at this facility.

Recommendation

1. Provide an exhaust duct flange for the exhaust duct located closest to the exhaust fan motor.

4.8.2 Flammable Storage Room

There is one attached flammable storage room located at this armory. The walls are constructed of concrete masonry units and the floor is concrete. There is one flammable

storage cabinet in this room where various vehicle maintenance products are stored. Also stored in this room are five-gallon containers of vehicle maintenance products. There is one electrically powered exhaust duct located at the ceiling level in this room. There is one passive make-up air vent located in the exterior wall of this room. The ventilation from this fan produces approximately 596 cfm of exhaust air and results in 41 air changes per hour. Standard 29 CFR 1910.106(d)(4)(iv) requires the exhaust system to provide a complete change of air within an inside flammable storage room of at least six air changes per hour. This exhaust system far exceeds the above criterion.

Recommendation

None

4.8.3 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 3,556 cubic feet per minute was obtained from the face of the exhaust duct. This volumetric flow equates to a duct velocity of approximately 2,012 feet per minute (fpm) from the 18-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.

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 decibels "A" weighted (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 outstanding.
2. There are fire alarms present in this facility.
3. Fire extinguishers are strategically located throughout the armory. The annual inspections and monthly inspections are current.
4. Fire evacuation routes are posted in the rooms of this armory.

Recommendation

None

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

May 13, 2013
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

Unified Facilities Guide Specification 23 35 19 . 00 20, Industrial Ventilation and Exhaust

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.

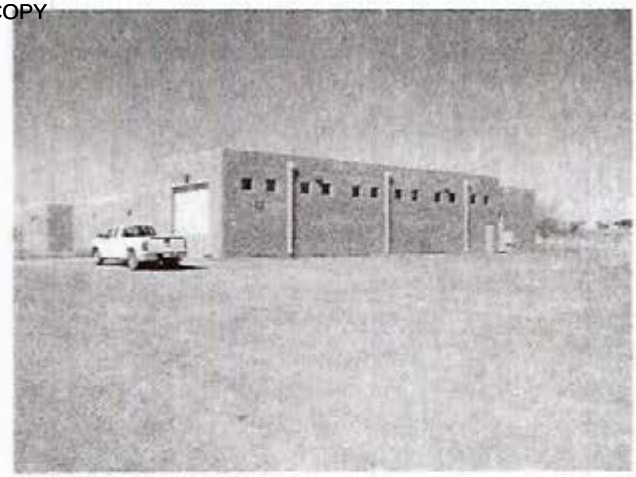
American Conference of Governmental Industrial Hygienists (ACGIH)

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).

Photograph 1
New Mexico Army National Guard, Clayton Armory, Front, Exterior



Photograph 2
New Mexico Army National Guard, Clayton Armory, Rear, Exterior

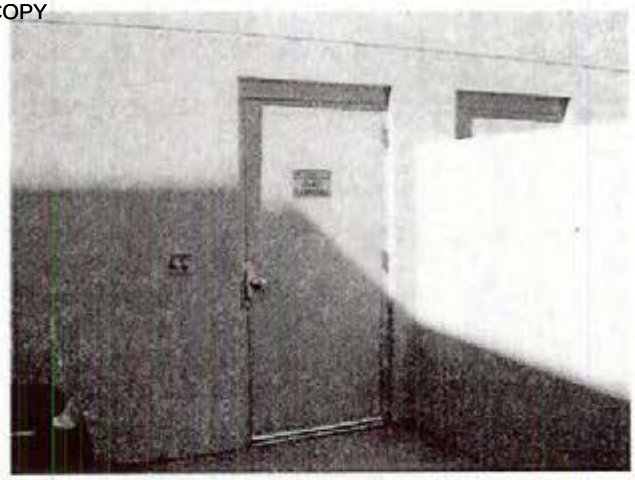
Photograph 3
New Mexico Army National Guard, Clayton Armory, Truck Lot

Photograph 4
General View – Drill Hall

Photograph 5
General View – Maintenance Bay

Photograph 6
Hazmat – Flammable Storage Cabinet in Flammable Storage Room, Closed

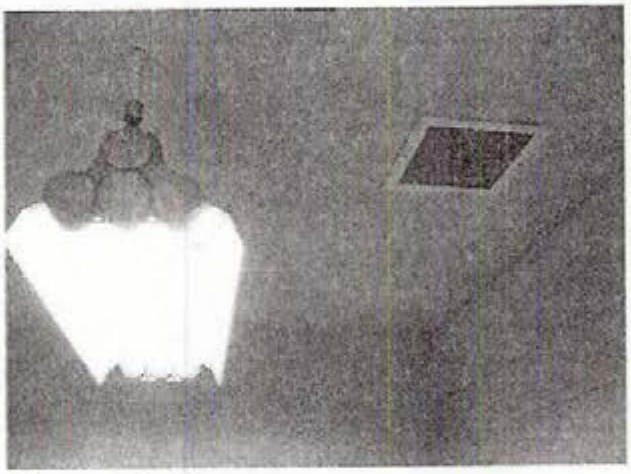
Photograph 7
Hazmat – Flammable Storage Cabinet in Flammable Storage Room, Open



Photograph 8
Hazmat – Flammable Storage Room, Exterior

Photograph 9
Hazmat – Flammable Storage Cabinet in Maintenance Bay, Closed

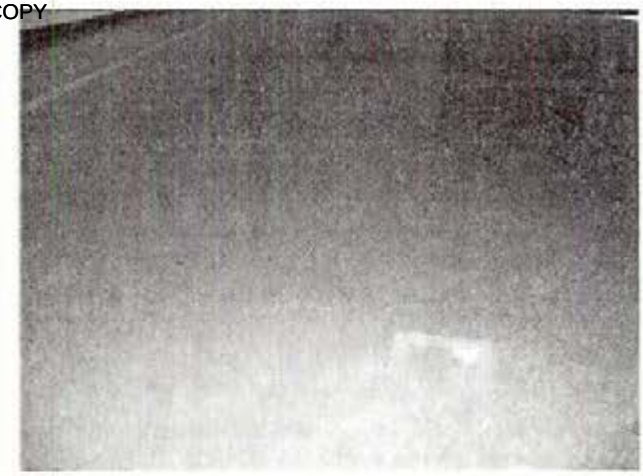
Photograph 10
Hazmat – Flammable Storage Cabinet in Maintenance Bay, Open



Photograph 11
Ventilation – Flammable Storage Room

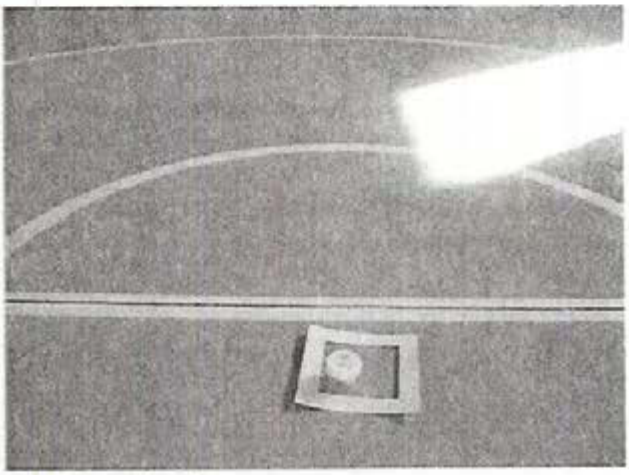
Photograph 12
Ventilation – Kitchen Exhaust Hood

Photograph 13
Ventilation – Drop-Down Tailpipe Exhaust System

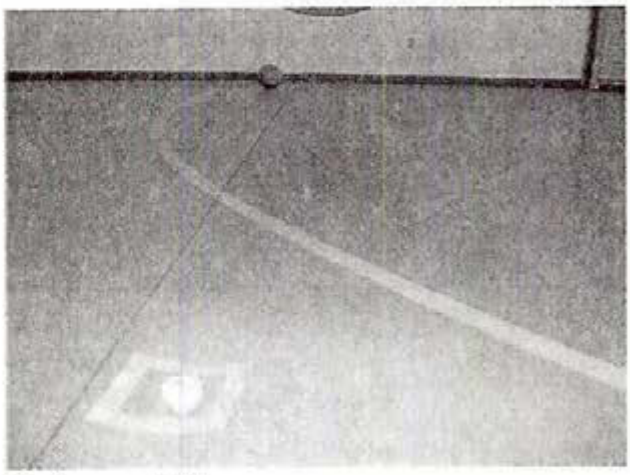


Photograph 14
Location of Lead Wipe Sample Number 008-01

Photograph 15
Location of Lead Wipe Sample Number 008-02

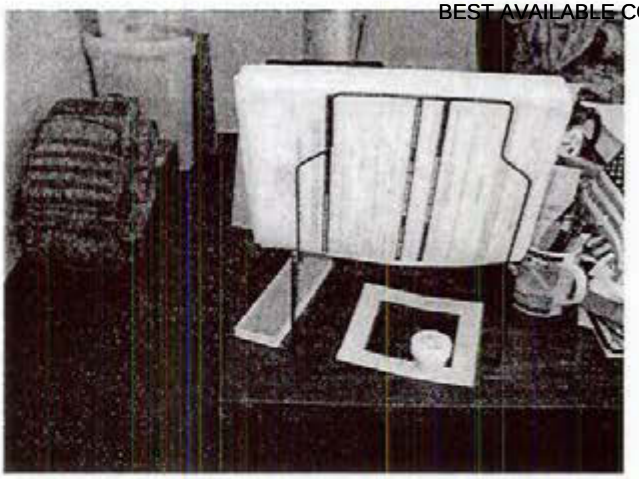


Photograph 16
Location of Lead Wipe Sample Number 008-03

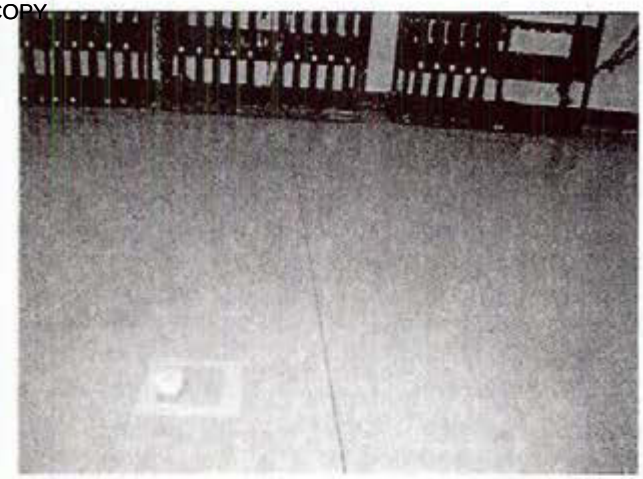


Photograph 17
Location of Lead Wipe Sample Number 008-04

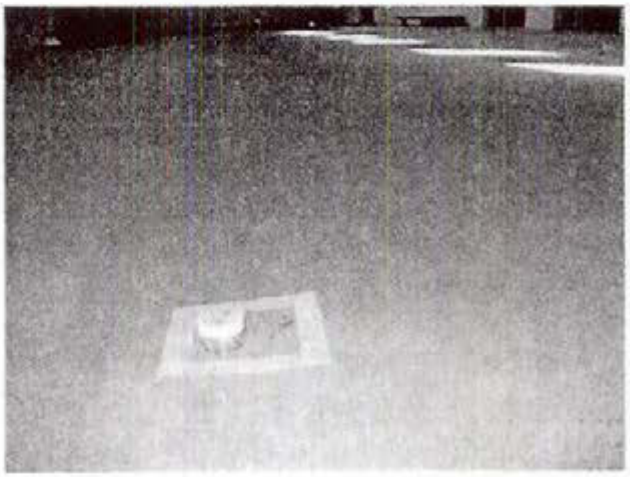
Photograph 18
Location of Lead Wipe Sample Number 008-05



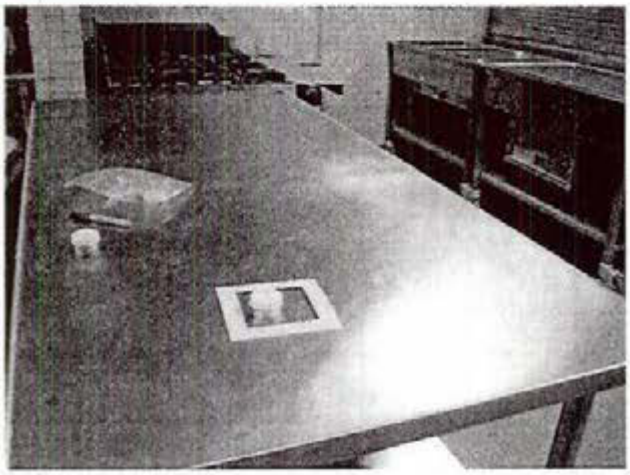
Photograph 19
Location of Lead Wipe Sample Number 008-06



Photograph 20
Location of Lead Wipe Sample Number 008-07



Photograph 21
Location of Lead Wipe Sample Number 008-08



Photograph 22
Location of Lead Wipe Sample Number 008-09

Table 1 **Tailpipe Ventilation Survey Data and Calculations** **NMARNG**
Clayton Armory

	Duct Diameter =			7	inches	Ducts 1-3			Duct Diameter for Duct 4 =			5.5	inches			
	Area =	0.267	ft^2						Area =	0.165	ft^2					
	Two 6 point traverses collected at right angles on duct															
	Duct #1 - TP-01				Duct #2 - TP-02				Duct #3 - TP-03				Duct #4 - TP-04			
	Point	Flow rate (fpm)			Point	Flow rate (fpm)			Point	Flow rate (fpm)			Point	Flow rate (fpm)		
					This one dampered											
	1	2460			Shut				1	2670			1	3670		
	2	2190			2				2	1950			2	2850		
	3	1770			3				3	1860			3	2850		
	4	1600			4	675			4	1810			4	2270		
	5	1480			5	655			5	1560			5	2270		
	6	1520			6	685			6	1580			6	2520		
	7	2480			7	1040			7	2520			7	2880		
	8	1850			8	895			8	2060			8	2550		
	9	1750			9	875			9	1790			9	2410		
	10	1520			10	834			10	1740			10	2350		
	11	1500			11	705			11	1650			11	2060		
	12	1490			12	700			12	1620			12	2790		
	Average Flow Rate =		1801	fpm	Average Flow Rate =		588.7	fpm	Average Flow Rate =		1901	fpm	Average Flow Rate =		2623	fpm
	Area =		0.27	ft^2	Area =		0.27	ft^2	Area =		0.27	ft^2	Area =		0.16	ft^2
	Q = A x V				Q = A x V				Q = A x V				Q = A x V			
	Q =		481	CFM	Q =		157	CFM	Q =		508	CFM	Q =		433	CFM

Table 2 **Flammable Storage Room Ventilation Survey Data and Calculations** NMARNG
Clayton Armory

	One Exhaust Duct		13	X	13	Inches		
	1	2	3	4				
	5	6	7	8				
	9	10	11	12				
	13	14	15	16				
	Overhead Exhaust Duct							
	Point	Flow rate (fpm)						
	1	575						
	2	520						
	3	490						
	4	480						
	5	530						
	6	525						
	7	510						
	8	400						
	9	550						
	10	545						
	11	480						
	12	426						
	13	540						
	14	530						
	15	520						
	16	500						
Average Flow Rate		508	fpm					
Area =		1.17	ft^2					
Q = A x V								
Q =		595.681	CFM					
Volume of Room =		12	feet	0	inches	Long		
		8	feet	3	inches	Wide		
		8	feet	10	inches	High		
Volume of Room =		12	X	8.25	X	8.8		
Volume of Room =		875	ft^3					
Air Changes per Hour = Q x 60								
		Volume						
Air Changes per Hour =			41	**AC/Hr**				

Table 3 **Kitchen Exhaust Duct Ventilation Survey Data and Calculations** **NMARNG**
Clayton Armory

	Exhaust Duct		16	X	10	Inches
	Area =	1.11111	ft^2			
	1 2 3 4 5 6					
	7 8 9 10 11 12					
	Face Velocity Measurements					
	Point	Flow rate (fpm)				
	1	3620				
	2	2680				
	3	3090				
	4	2730				
	5	3860				
	6	3040				
	7	3400				
	8	2790				
	9	3940				
	10	3170				
	11	3160				
	12	2930				
Average Flow Rate		3201	fpm			
Area =		1.1	ft^2			
Q = A x V						
Q =		3556	CFM			
				18	inches	
Roof Top Exhaust Duct =				1.8	ft^2	
Area of Roof Top Exhaust Duct =				**2013**	**fpm**	
Estimated Duct Velocity =						

FACILITY INFORMATION

(Information listed in First Section)
(1st Few Paragraphs/Pages of Report)

1. Date Prepared: April 22, 2013

2. Names (and Company Name) of Personnel Conducting Industrial Hygiene Site Assistance Visit: Non-Responsive

3. Facility Name and Brief Summary of Primary Activities Conducted at Facility: Clayton Armory

4. Facility Address: 1601 Water Street, Clayton, New Mexico 87415

5. Primary Unit Assigned to Facility (Ensure to capture and provide Unit Identification Code (UIC)): Non-Responsive – Detachment 2 1115th Transportation Company

6. Co-Tenant Units Assigned or Working Within Facility (LIST ALL): Family Readiness Coordinator and Recruiting

7. Square Ft. Area of Facility: 20,000 ft^2

8. Work Schedule: 0700-1700 hours Monday-Friday

9. Number of work bays:1

10. Equipment Density and Type: 915AE, 915A5, 1165 HMVEE, M872 Transport trailer

    a. List Equipment Nomenclature Serviced or Maintained at Facility: N/A

    b. List Total Number for Each Nomenclature Serviced or Maintained at Facility: N/A

11. Total Number of Personnel: 1

12. No. of Admin. Personnel (Include Status – AGR, Fed. Tech., IDT, State or Contract Employee): 2

13. No. of Maintenance Personnel (Include Status –None

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 505) 670-0830, 1115th Transportation Company

19. Safety Officer: Non-Responsive State Safety Specilalist

    a. Email Address, Commercial Telephone Number and Unit Assigned to: Non-Responsive 505) 474-1580

20. Facility Telephone Number: (505) 474-2656

BEST AVAILABLE COPY

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?	Drill Hall
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.	There is a IFR designed for this armory, but it was never used. Instead it is used as a large classroom/training area.
Is there any peeling **paint**? Take bulk sample if able.	✓ None noted
Are there any signs of water damage or **mold**?	✓ None noted
Any suspected **ACM**? Where and what condition is it in. Bulk sample if able.	N/A
Quality of housekeeping	✓ Good
HVAC maintenance plan in place?	✓ HVAC maintained by Facilities group
Overall condition of HVAC system	✓
Obtained **CO2, Temp, RH** monitoring	✓
HAZMAT inventory on hand (make copies for the report), **MSDS** available for all materials.	✓ No inventory on hand – see report
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)	✓ N/A
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)	✓ See report for recommendation
Any Photo labs	N/A
Any hazardous **noise** sources	✓ None in kitchen
Light levels checked throughout building	N/A
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.?	✓ See Attachment 5 for specific information on personnel
Any **civilian activities** in armory (cub scouts, classes, day care, parties etc)	✓ Yes – see report
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)**	Clayton Armory, 1601 Water Street, Clayton, New Mexico 87415. Non-Responsive (505) 474-2656, Non-Responsive

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 ☒ In Tolerance
☐ As Found ☐ 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)	641 (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

TSI P/N 2300157

TSI CERTIFICATE OF CALIBRATION AND TESTING

TSI Model 8762 TSI Serial No. 56040313

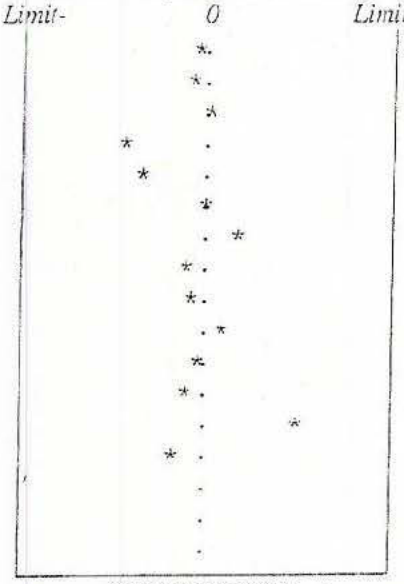
Description IAQ Meter with CO2 and CO

Calibration Standard Multi-Gas Calibration Bench #127

CALIBRATION VERIFICATION RESULTS

Calibration Standard	Instrument Output	Difference
5127 PPM	5122 PPM	-0.1 %
3000 PPM	2994 PPM	-0.2 %
1000 PPM	1001 PPM	1 PPM
500 PPM	478 PPM	-22 PPM
0 PPM	-18 PPM	-18 PPM
140.0°F	140.0°F	0.0°F
41.0°F	41.2°F	0.2°F
15.0 %rh	14.7 %rh	-0.3 %rh
30.0 %rh	29.8 %rh	-0.2 %rh
50.0 %rh	50.3 %rh	0.3 %rh
70.0 %rh	69.9 %rh	-0.1 %rh
90.0 %rh	89.7 %rh	-0.3 %rh
0.0 PPM	1.5 PPM	1.5 PPM
100.0 PPM	99.5 PPM	-0.5 %

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 NIST's 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. TSI's 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	04-06-12
Pure Nitrogen	T608123	10-03-12
CO2 1000 PPM in N2	EB0013815	01-21-10
CO2 5000 PPM in N2	SG9931528	07-27-12
Temperature 0 C	E002412	03-13-12
Temperature 60 C	E001026	03-13-12
Humidity	E002008	09-11-12
CO 200 PPM in N2		08-13-12

Cali Non-Responsive

[X] Final Function Check

Oct 18, 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 Test Instruments
Model:	SM-100
Serial Number:	010613107
Calibration Date:	September 26, 2012
Calibrated By:	Non-Responsive

1111 S. 27th St. Billings MT 59101
406-247-2050

Appendix I

Lead Wipe and Lead Paint Chip Table and Drawing

Clayton Armory - Lead Wipe Sample Results

Table 4

Sample Number	Collection Date	Location	Result $\mu g/ft^2$
008-01	4/22/2013	South West Drill Hall - Floor	<12
008-02	4/22/2013	South East Drill Hall - Floor	<12
008-03	4/22/2013	Center Drill Hall - Floor	<12
008-04	4/22/2013	North West Drill Hall - Floor	<12
008-05	4/22/2013	North East Drill Hall - Floor	<12
008-06	4/22/2013	Supervisor's Desk	<12
008-07	4/22/2013	Weapon's Vault - Floor	<12
008-08	4/22/2013	Maintenance Shop - Floor	<12
008-09	4/22/2013	Kitchen - Food Preparation Table	<12
008-10	4/22/2013	Blank	<12

Explanation

10 Lead Sample Locations & Numbers

Lead Wipe Sampl		
Sample Number	Sample Name	
01	008-01	SW [
02	008-02	SE D
03	008-03	Cent
04	008-04	NW [
05	008-05	NE D
06	008-06	Supe
07	008-07	Wea-
08	008-08	Main
09	008-09	Food

NOTE: All Wipe Sample Sizes are 100 cm^2

IHI ENVIRONMENTAL
A Terracon COMPANY

New Mexico Army National Guard
1601 Water Street
Clayton, New Mexico

Lead Wipe Sample Locations

N

0 10' 20'

PROJECT No:	AL137008
SHEET:	1 of 2
DRAWN BY:	Keith
DATE:	04-30-2013
REVISED BY:	
DATE:	
REVIEWED BY:	SRN
DATE:	04-30-2013

N:\Projects\2012\AL137008\Working Files\Diagrams-Drawings-Figures\AL137008.dwg, wipe, 4/30/2013 3:38:34 PM, Marvell, ANSI full bleed B (17.00 x 11.00 Inches)

ANALYTICAL REPORT

Report Date: May 06, 2013

[redacted]
IHI Environmental
640 East Wilmington Avenue
Salt Lake City, UT 84106

Phone: (801) 466-2223
Fax: (801) 466-9616
[redacted]

Workorder: **34-1311907**
Client Project ID: AL137008/Clayton Armory, Clayt
Purchase Order: AL137008
Project Manager: [redacted]

Analytical Results

Sample ID: 008-01	Media: Lead Dust Wipe		Received: 04/29/2013
Lab ID: 1311907001	Sampling Location: Clayton Armory, Clay		
Method: NIOSH 7300 Mod.	**Sampling Parameter: Area 100 cm²**		**Prepared: 05/02/2013** **Analyzed: 05/03/2013**
Analyte	ug/sample	ug/ft²	RL (ug/sample)
Lead	<1.3	<12	1.3

Sample ID: 008-02	Media: Lead Dust Wipe		Received: 04/29/2013
Lab ID: 1311907002	Sampling Location: Clayton Armory, Clay		
Method: NIOSH 7300 Mod.	**Sampling Parameter: Area 100 cm²**		**Prepared: 05/02/2013** **Analyzed: 05/03/2013**
Analyte	ug/sample	ug/ft²	RL (ug/sample)
Lead	<1.3	<12	1.3

Sample ID: 008-03	Media: Lead Dust Wipe		Received: 04/29/2013
Lab ID: 1311907003	Sampling Location: Clayton Armory, Clay		
Method: NIOSH 7300 Mod.	**Sampling Parameter: Area 100 cm²**		**Prepared: 05/02/2013** **Analyzed: 05/03/2013**
Analyte	ug/sample	ug/ft²	RL (ug/sample)
Lead	<1.3	<12	1.3

Sample ID: 008-04	Media: Lead Dust Wipe		Received: 04/29/2013
Lab ID: 1311907004	Sampling Location: Clayton Armory, Clay		
Method: NIOSH 7300 Mod.	**Sampling Parameter: Area 100 cm²**		**Prepared: 05/02/2013** **Analyzed: 05/03/2013**
Analyte	ug/sample	ug/ft²	RL (ug/sample)
Lead	<1.3	<12	1.3

ANALYTICAL REPORT

Workorder: 34-1311907
Client Project ID: AL137008/Clayton Armory, Clayt
Purchase Order: AL137008
Project Manager: [redacted]

Analytical Results

Sample ID: 008-05	Media: Lead Dust Wipe	Received: 04/29/2013
Lab ID: 1311907005	Sampling Location: Clayton Armory, Clay	
Method: **NIOSH 7300 Mod.**	Sampling Parameter: **Area 100 cm²**	Prepared: 05/02/2013 Analyzed: 05/03/2013

Analyte	ug/sample	ug/ft²	RL (ug/sample)
Lead	<1.3	<12	1.3

Sample ID: 008-06	Media: Lead Dust Wipe	Received: 04/29/2013
Lab ID: 1311907006	Sampling Location: Clayton Armory, Clay	
Method: **NIOSH 7300 Mod.**	Sampling Parameter: **Area 100 cm²**	Prepared: 05/02/2013 Analyzed: 05/03/2013

Analyte	ug/sample	ug/ft²	RL (ug/sample)
Lead	<1.3	<12	1.3

Sample ID: 008-07	Media: Lead Dust Wipe	Received: 04/29/2013
Lab ID: 1311907007	Sampling Location: Clayton Armory, Clay	
Method: **NIOSH 7300 Mod.**	Sampling Parameter: **Area 100 cm²**	Prepared: 05/02/2013 Analyzed: 05/03/2013

Analyte	ug/sample	ug/ft²	RL (ug/sample)
Lead	<1.3	<12	1.3

Sample ID: 008-08	Media: Lead Dust Wipe	Received: 04/29/2013
Lab ID: 1311907008	Sampling Location: Clayton Armory, Clay	
Method: **NIOSH 7300 Mod.**	Sampling Parameter: **Area 100 cm²**	Prepared: 05/02/2013 Analyzed: 05/03/2013

Analyte	ug/sample	ug/ft²	RL (ug/sample)
Lead	<1.3	<12	1.3

Sample ID: 008-09	Media: Lead Dust Wipe	Received: 04/29/2013
Lab ID: 1311907009	Sampling Location: Clayton Armory, Clay	
Method: **NIOSH 7300 Mod.**	Sampling Parameter: **Area 100 cm²**	Prepared: 05/02/2013 Analyzed: 05/03/2013

Analyte	ug/sample	ug/ft²	RL (ug/sample)
Lead	<1.3	<12	1.3

ANALYTICAL REPORT

Workorder: 34-1311907
Client Project ID: AL137008/Clayton Armory, Clayt
Purchase Order: AL137008
Project Manager: Non-Responsive

Analytical Results

Sample ID: 008-10	Media: Lead Dust Wipe	Received: 04/29/2013
Lab ID: 1311907010	Sampling Location: Clayton Armory, Clay	
Method: **NIOSH 7300 Mod.**	Sampling Parameter: **Area 100 cm²**	Prepared: 05/02/2013 Analyzed: 05/03/2013

Analyte	ug/sample	ug/ft²	RL (ug/sample)
Lead	<1.3	<12	1.3

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

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 Soil, Dust, Paint ,Air	ACLASS (ISO 17025, CPSC) AIHA (ISO 17025, AIHA ELLAP and NLLAP)	ADE-1420 101574	http://www.aclasscorp.com http://www.aihaaccreditedlabs.org
Dietary Supplements	ACLASS (ISO 17025)	ADE-1420	http://www.aclasscorp.com

ANALYTICAL REPORT

Workorder: 34-1311907
Client Project ID: AL137008/Clayton Armory, Clayt
Purchase Order: AL137008
Project Manager: [redacted]

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.

Industrial Hygiene Southwest

Violation Inventory Log

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

Clayton Armory, New Mexico

CONTROL NUMBER CLOSED ☐	HAZARD DESCRIPTION	SITE	RAC	CORRECTIVE ACTIONS (Abatement Plan)	SUSPENSE DATE	ACTION OIC/NCOIC	Estimated Cost(s)	DATE CORRECTED	REFERENCES
NMCA-042213-4.1	Documentation of an asbestos survey could not be located during this visit.	Clayton Armory	3	1. Contract with a licensed firm to perform an asbestos survey and assessment. 2. If 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.					29 CFR 1910.1001 or 1101 or AR 40-5
NMCA-042213-4.6.1	A review of the MSDSs revealed that not all products used in this armory have a MSDS for them. In addition, a chemical inventory is not available for any of the products used in this armory.	Clayton Armory	4	1. Obtain MSDSs for each chemical at the Armory and store the MSDSs in a location that is known to all potential users. 2. Once the MSDSs are obtained, develop a chemical inventory for all products used in this Armory.					29 CFR 1910.1200 (g) (1); 29 CFR 1910.1200 (e) (i)
NMCA-042213-4.6.2	The door to the flammable storage room is marked Flammable Materials; however, there is not an NFPA placard on the door or on the outside of the maintenance bay.	Flammable Storage	4	Place visible hazard identification placards with markings that comply with NFPA 704, Standard System for Identification of the Hazards of Materials for Emergency Response, on the flammable storage room and on the maintenance bay access door.					NFPA 704
NMCA-042213-4.7	There was no documentation of Hazard Communication Training for those who use hazardous materials in this armory.	HazComm	4	Provide hazard communication training to those who use chemicals in this Armory.					29 CFR 1910.1200 (h)

Industrial Hygiene Southwest

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Clayton Armory, New Mexico

CONTROL NUMBER CLOSED ☐	HAZARD DESCRIPTION	SITE	RAC	CORRECTIVE ACTIONS (Abatement Plan)	SUSPENSE DATE	ACTION OIC/NCOIC	Estimated Cost(s)	DATE CORRECTED	REFERENCES
NMCA-042213-4.8.1	The exhaust flange is missing from exhaust duct number four.	Ventilation	4	Provide an exhaust duct flange for the exhaust duct located closest to the exhaust fan motor.					Recommended Practice

4.4 Asbestos Management

Recommendations

1. Contract with a licensed firm to perform an asbestos survey and assessment.

2. If 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 Hazard Communication and Hazardous Material Storage

Recommendations

1. Obtain MSDSs for each chemical at the Armory and store the MSDSs in a location that is known to all potential users.

2. Once the MSDSs are obtained, develop a chemical inventory for all products used in this Armory.

4.6.2 Flammable Storage Cabinets

Recommendation

Place visible hazard identification placards with markings that comply with NFPA 704, Standard System for Identification of the Hazards of Materials for Emergency Response, on the flammable storage room and on the maintenance bay access door.

4.7 Safety Training and Record Keeping

Recommendation

Provide hazard communication training to those who use chemicals in this Armory.

4.8 Ventilation Surveys

4.8.1 Tailpipe Exhaust Ventilation Systems

Recommendation

Provide an exhaust duct flange for the exhaust duct located closest to the exhaust fan motor.

Industrial Hygiene Site Assistance Visit

Clovis Armory
601 South Norris Street
Clovis, NM 88101

10510 Superfortress Avenue, Suite C, Mather, CA (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

8 November 2012

MEMORANDUM THRU New Mexico Army National Guard, Occupational Health Nurse, 600 Wyoming Blvd NE, Albuquerque, NM 87123

FOR Commander, Clovis Armory 601 South Norris Street, Clovis, New Mexico 88101

SUBJECT: Executive Summary for Industrial Hygiene Site Assistance Visit (IHSAV) for the Clovis Armory 601 South Norris Street, Clovis, NM conducted on 11 July 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 Clovis Armory 601 S. Norris St., Clovis, NM on 11 JUL 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 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. A lead paint management plan should be in place to protect self-help personnel or any state maintenance personnel during repair or renovations. (para. 4.2.1) **(RAC 3)**

b. Locate the asbestos survey for this building or contract to have a licensed firm to perform an asbestos survey and assessment. This should be part of the NM ARNG Asbestos Management Plan. (para. 4.4) **(RAC 3)**

c. Replace cover plate on the electrical panel in the kitchen panel box K, so electrical wires cannot be contacted accidentally. (para. 4.10) **(RAC 3)**

d. Provide personnel with asbestos awareness training to help prevent them from contaminating others, the building or themselves. (para. 4.4) **(RAC 4)**

e. Replace the sheet rock wallboard found on the south wall of the classroom and fix/repair the source of the water damage. (para. 4.3)

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.

Industrial Hygiene Southwest

Violation Inventory Log

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

Clovis Armory, Clovis, New Mexico

CONTROL NUMBER CLOSED ☐	HAZARD DESCRIPTION	SITE	RAC	CORRECTIVE ACTIONS (Abatement Plan)	SUSPENSE DATE	ACTION OIC/NCOIC	Estimated Cost(s)	DATE CORRECTED	REFERENCES
NMCA-071112-4.2.1 ☐	The peeling paint contains 0.0025% lead by weight and is regulated by OSHA if paint is disturbed.	Classroom	3	Construction personnel must follow the requirements of the OSHA Lead in Construction Standard, 29 CFR 1926.62, prior to performing construction activities that disturb this painted surface.					29 CFR 1926.62
NMCA-071112-4.4 ☐	An asbestos survey could not be located during this IH Assistance Visit.	Clovis Armory	3	Either locate the asbestos survey for this building or contract with a licensed firm to perform an asbestos survey and assessment.					1910.1001(j)(3)(i)
NMCA-071112-4.4 ☐	Personnel have not been provided with asbestos awareness training.	Clovis Armory	4	Based on the findings of an asbestos 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
NMCA-071112-4.3 ☐	Dark staining was found on the gypsum wallboard behind the peeling paint along the south wall of the southwest classroom.	Classroom	4	Perform fungal sampling along the south wall of the southwest classroom by a professional proficient in conducting mold assessments.					Recommended Practice
NMCA-071112-4.6.1 ☐	The inventory for flammable materials is inconsistent with the contents of the flammable storage cabinet.	Room Containing Flammable Storage Cabinet	4	Update inventory and MSDSs for the flammables to reflect the current contents of the flammable storage cabinet.					1910.1200 (e) (1) (i)
NMCA-071112-4.10 ☐	Not all fire extinguishers have current monthly and annual mainteance checks	Clovis Armory	4	Conduct monthly and annual maintenance checks on all fire extinguishers					1910.157 (d) (2) 1910.157 (e) (2)
NMCA-071112-4.10 ☐	There was no ground fault circuit interrupter (GFCI) outlet located within six feet of the kitchen sink.	Kitchen	4	Install GFCI protection on any outlets within six feet of a water source.					1910.303(b)(1) & NFPA 70, Article 210-8

Industrial Hygiene Southwest

Violation Inventory Log

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

Clovis Armory, Clovis, New Mexico

CONTROL NUMBER CLOSED ☐	HAZARD DESCRIPTION	SITE	RAC	CORRECTIVE ACTIONS (Abatement Plan)	SUSPENSE DATE	ACTION OIC/NCOIC	Estimated Cost(s)	DATE CORRECTED	REFERENCES
NMCA-071112-4.10 ☐	A cover plate on an electrical panel in the kitchen (Box "K") was missing and wires are accessible.	Clovis Armory	3	Replace the cover plate on electrical panel box K in the kitchen so electrical wires cannot be contacted.					1910.303 (g) (2) (i) (B)

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

New Mexico Clovis Armory
601 South Norris Street
Clovis, New Mexico 88101

October 31, 2012

Prepared for:

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

Prepared by:

Non-Responsive

Reviewed by:

Non-Responsive

Project #AL127188

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