Kitchen Stove/Oven Exhaust Duct Velocity Estimate

Face Dimensions =		114	X	3	Inches	
Face Area =	2.38	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	740
2	645
3	650
4	625
5	625
6	650
7	640
8	635
9	640
10	700
11	630
12	670

Ave Flow Rate	654	fpm		
Area of Face (A	2.38	ft^2		
Q = A x V				
Q =	1554	CFM		
Exhaust Duct Diameter =			25	inches
Area of Roof Top Exhaust Duct =			4.17	ft^2
Estimated Duct Velocity =			**373**	**fpm**

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Appendix G

Field Notes

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

Five **lead wipe** samples collected from drill floor (take samples from dusty horizontal floor surfaces)	yes.
Are any **weapons cleaned** in the facility, if yes where are they cleaned?	~~occasionally~~ rarely cleaned / wiped in supply rooms Mostly cleaned in another Bldg.
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.	N/A
Are there any signs of water damage or **mold**?	yes. 2nd Fl. & Basement
Any suspected **ACM**? Where and what condition is it in. Bulk sample if able.	unsure - DFCM would have survey
Quality of housekeeping	great.
HVAC maintenance plan in place?	CW facility maintenance.
Overall condition of HVAC system	good.
Obtained **CO2, Temp, RH** monitoring	yes
HAZMAT inventory on hand (make copies for the report), **MSDS** available for all materials.	yes.
HAZMAT storage, Condition of lockers, if outside storage building is used is it ventilated and does it meet OSHA standards.	good

Fire alarm in working condition - -not usually in place in older armories	CW facility maintenance
Fire extinguishers in place and properly identified and mounted	Simplex - Grinell
Evidence of **monthly fire extinguisher inspections**	CW facility
Annual fire extinguisher inspections tags current	CW facility
Are **eye wash stations** available in areas where hazardous materials are used and are they inspected weekly (inspections must be documented)	N/A
Egress routes accessible and properly marked - -noted on Fire Evacuation Plan	yes
Training programs in place; Hazcom, Respiratory Protection, Confined Spaces, Hearing conservation, PPE (if applicable)	Safety meeting - 4 April 2012 -unable to find Training documents
Any Photo labs	NO
Any hazardous **noise** sources	no
Light levels checked throughout building	N/A
Breaker panels properly labeled with no exposed wiring	one panel open in mechanical room
Check **building occupancy** 1. How many military personnel, how many civilian personnel 2. What types of units occupy facility, i.e. Administrative, Maintenance, etc.?	59 AGR
Any **civilian activities** in armory (cub scouts, classes, day care, parties etc)	ocassionally the Drill Hall is used by civilians
Obtain two **lead air samples**	On IHSW Request Only

Evaluate Kitchen Stove Hood Flow if Present IAW NFPA Standard 96.	yes
Collect Source Noise Measurements of Kitchen Appliances and Document Using DD 2214	yes
Conduct a safety walkthrough of entire facility document any safety deficiencies found.	yes
Take photos of outside of **building**, all **sample points** and any **pertinent hazards** or concerns.	yes
Name of Armory, **POC, phone #, address** and **organizations** in Armory **(Add Checklist to Report)**	Non-Responsive 801 878 5021 17800 Camp Williams Road Riverton, UT 84065 **(Add Checklist to Report)**

FACILITY INFORMATION

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

1. Date Prepared: **8/27/2012**

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

3. Facility Name and Brief Summary of Primary Activities Conducted at Facility: **Camp Williams Readiness Center**

4. Facility Address: **17800 Camp Williams Road, Readiness Center, Riverton, UT 84065**

5. Primary Unit Assigned to Facility: Non-Responsive

6. Co-Tenant Units Assigned or Working Within Facility (LIST ALL):
204th MEB
VC BTRY 145th FA
217th Signal NSC
RSP recruiters
115th EFD
Med DET

7. Square Ft. Area of Facility: **approximately 120,000 sq. ft**

8. Work Schedule**: 0630-1430 M-F**

9. Number of work bays: **0**

10. Equipment Density and Type**: N/A**

    a. List Equipment Nomenclature Serviced or Maintained at Facility: **N/A**

    b. List Total # for Each Nomenclature Serviced or Maintained at Facility: **N/A**

11. Total Number of Personnel: **59**

12. No. of Admin. Personnel (Include Status – AGR, Fed. Tech., IDT, State or Contract Employee): **59 AGR**

13. No. of Maintenance Personnel (Include Status – AGR, Fed. Tech., IDT, State or Contract Employee): **N/A**

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14. Total Number of Personnel Enrolled in the Hearing Conservation Program: **N/A**
15. Total Number of Personnel Enrolled in the Respiratory Protection Program: **N/A**
16. Total Number of Personnel Enrolled in the Medical Surveillance Program: **N/A**
17. Total Number of Personnel Enrolled in the Vision Program: **N/A**
18. Facility Commander Non-Responsive Non-Responsive
    a. Email address, Commercial Telephone Number and Unit Assigned to:
19. Safety Officer: Non-Responsive Non-Responsive
    a. Email Address, Commercial Telephone Number and Unit Assigned to:
20. Facility Telephone Number: **(801) 878-5021**

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Appendix H

Calibration Certificates

3M Occupational Health and
Environmental Safety Division

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

Certificate of Calibration

Certificate Number: 265801SD20010465

Model: SD-200 Class 2 Integrating SLM

Date Issued: 12-Sep-2011

S/N: SD20010465

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

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

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

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

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

Test Procedure: S053-771

Reference Standard(s):

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

Calibrated By: Non-Responsive

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

3M Occupational Health and
Environmental Safety Division

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

Declaration of Conformity

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

Directives Covered:

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

The basis on which conformity is declared:

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

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

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

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

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

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

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

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

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

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

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

Non-Responsive

TSI CERTIFICATE OF CALIBRATION AND TESTING

TSI Model 8732 TSI Serial No. 02100504

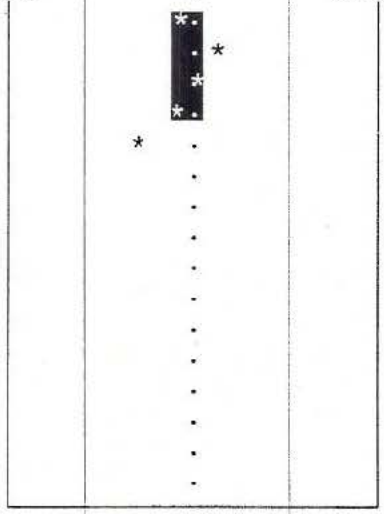
Description IAQ Meter with CO2

Calibration Standard Multi-Gas Calibration Bench #127

CALIBRATION VERIFICATION RESULTS

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

Tolerance Limit- | 0 | Tolerance Limit+



Tolerance Limits:

CO2: 50PPM or 3% of reading

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

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

Non-Responsive

Calibrated by

☑ Final Function Check

Mar 19, 2012
Calibration Date

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

TSI CERTIFICATE OF CALIBRATION AND TESTING

TSI Model 8732 TSI Serial No. 02100504

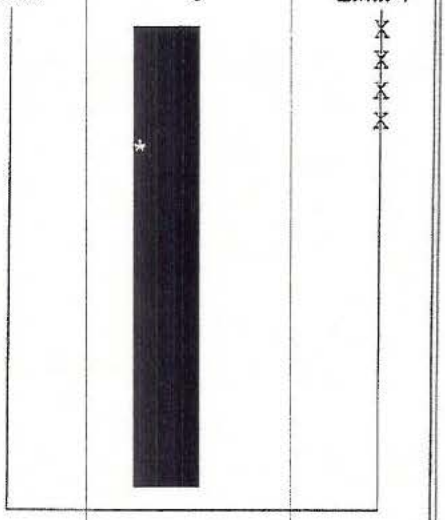
Description IAQ Meter with CO2

Calibration Standard Multi-Gas Calibration Bench #127

CALIBRATION VERIFICATION RESULTS

Calibration Standard	Instrument Output	Difference
5001 PPM	5895 PPM	17.9 %
3000 PPM	3762 PPM	25.4 %
1000 PPM	1243 PPM	243 PPM
500 PPM	614 PPM	114 PPM
0 PPM	-15 PPM	-15 PPM

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



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

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

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

Non-Responsive

☐ Final Function Check

Mar 19, 2012
Calibration Date

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

CERTIFICATE OF CALIBRATION AND TESTING

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

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

MODEL	8345
SERIAL NUMBER	98060408

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

– CALIBRATION VERIFICATION RESULTS –

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

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

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

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

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

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

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

Non-Responsive

CALIBRATED

June 5, 2012
DATE

DOC_ID CERT_DEFAULT

TSI P/N 2300157

CERTIFICATE OF CALIBRATION AND TESTING

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

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

MODEL	8345
SERIAL NUMBER	98060408

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

– CALIBRATION VERIFICATION RESULTS –

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

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

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

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

**Indicates Out-of-Tolerance Condition*

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

Measurement Variable	System ID	Last Cal.	Cal. Due
DC Voltage	E004477	12-15-11	12-15-12
Pressure	E001558	12-12-11	06-12-12
Velocity	E003327	09-19-07	09-19-12
Temperature	E001800	01-19-12	07-19-12

Measurement Variable	System ID	Last Cal.	Cal. Due
Temperature	E001644	01-20-12	07-20-12
Pressure	E001560	12-12-11	06-12-12
Barometric Pressure	E001992	04-06-12	04-06-13
Temperature	E001799	01-19-12	07-19-12

Non-Responsive

VERIFIED

June 5, 2012
DATE

DOC. ID: CERT_DEFAULT

TSI P/N 2300157

TSI - Customer Service report

Thank you for the opportunity to service your instrument.

RMA Number: 800245509

Ship-to party 17032	Sold-to party 17032
IHI ENVIRONMENTAL 640 E WILMINGTON AVE SALT LAKE CITY UT USA	IHI ENVIRONMENTAL 640 E WILMINGTON AVE SALT LAKE CITY UT USA

Service Information:
Purchase Order 12U-I6001TSIJCH
Purchase Order Date 06/05/2012

Description Calibration of VelociCalc 8345

Equipment 98060408
Serial Number 98060408
Material 8345

Service Description:

Return Reason:
ANNUAL CALIBRATION

Findings:
Unit sent in for clean and calibration. The unit failed as found.

Action:
The unit was cleaned, calibrated, and a complete operational checkout

was performed.

Appendix I

Lead Wipe and Lead Paint Chip Table

Lead Wipe Sample Results

Sample Number	Collection Date	Location	Result µg/ft^2
6198-01	8/30/2012	SE Corner of Drill Hall Floor	<23
6198-02	8/30/2012	SW Corner of Drill Hall Floor	<23
6198-03	8/30/2012	Center of Drill Hall Floor	<23
6198-04	8/30/2012	NE Corner of Drill Hall Floor	<23
6198-05	8/30/2012	NW Corner of Drill Hall Floor	<23
6198-06	8/30/2012	Kitchen Counter	<23
6198-07	8/30/2012	Vault Floor	<23
6198-08	8/30/2012	POC's Desk	<23
6198-09	8/30/2012	2nd Floor Breakroom Counter	<23

Appendix J

Laboratory Reports

ANALYTICAL REPORT

Report Date: October 03, 2012

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

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

Workorder: 34-1227251
Client Project ID: 12U-I6198/Camp Williams Readin
Purchase Order: 12U-I6198
Project Manager: Non-Responsive

Analytical Results

Sample ID: 6198-01	Media: Lead Dust Wipe		Collected: 09/27/2012
Lab ID: 1227251001	Sampling Location: Camp Williams Readin		Received: 09/28/2012
Method: **NIOSH 7300 Mod.**	Sampling Parameter: **Area 100 cm²**		Prepared: 10/01/2012 Analyzed: 10/02/2012

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

Sample ID: 6198-02	Media: Lead Dust Wipe		Collected: 09/27/2012
Lab ID: 1227251002	Sampling Location: Camp Williams Readin		Received: 09/28/2012
ethod: **NIOSH 7300 Mod.**	Sampling Parameter: **Area 100 cm²**		Prepared: 10/01/2012 Analyzed: 10/02/2012

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

Sample ID: 6198-03	Media: Lead Dust Wipe		Collected: 09/27/2012
Lab ID: 1227251003	Sampling Location: Camp Williams Readin		Received: 09/28/2012
Method: **NIOSH 7300 Mod.**	Sampling Parameter: **Area 100 cm²**		Prepared: 10/01/2012 Analyzed: 10/02/2012

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

Sample ID: 6198-04	Media: Lead Dust Wipe		Collected: 09/27/2012
Lab ID: 1227251004	Sampling Location: Camp Williams Readin		Received: 09/28/2012
Method: **NIOSH 7300 Mod.**	Sampling Parameter: **Area 100 cm²**		Prepared: 10/01/2012 Analyzed: 10/02/2012

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

ANALYTICAL REPORT

Workorder: 34-1227251
Client Project ID: 12U-I6198/Camp Williams Readin
Purchase Order: 12U-I6198
Project Manager: [redacted]

Analytical Results

Sample ID: 6198-05	Media: Lead Dust Wipe	Collected: 09/27/2012
Lab ID: 1227251005	Sampling Location: Camp Williams Readin	Received: 09/28/2012
Method: NIOSH 7300 Mod.	Sampling Parameter: Area 100 cm²	Prepared: 10/01/2012 Analyzed: 10/02/2012

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

Sample ID: 6198-06	Media: Lead Dust Wipe	Collected: 09/27/2012
Lab ID: 1227251006	Sampling Location: Camp Williams Readin	Received: 09/28/2012
Method: NIOSH 7300 Mod.	Sampling Parameter: Area 100 cm²	Prepared: 10/01/2012 Analyzed: 10/02/2012

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

Sample ID: 6198-07	Media: Lead Dust Wipe	Collected: 09/27/2012
Lab ID: 1227251007	Sampling Location: Camp Williams Readin	Received: 09/28/2012
Method: NIOSH 7300 Mod.	Sampling Parameter: Area 100 cm²	Prepared: 10/01/2012 Analyzed: 10/02/2012

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

Sample ID: 6198-08	Media: Lead Dust Wipe	Collected: 09/27/2012
Lab ID: 1227251008	Sampling Location: Camp Williams Readin	Received: 09/28/2012
Method: NIOSH 7300 Mod.	Sampling Parameter: Area 100 cm²	Prepared: 10/01/2012 Analyzed: 10/02/2012

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

Sample ID: 6198-09	Media: Lead Dust Wipe	Collected: 09/27/2012
Lab ID: 1227251009	Sampling Location: Camp Williams Readin	Received: 09/28/2012
Method: NIOSH 7300 Mod.	Sampling Parameter: Area 100 cm²	Prepared: 10/01/2012 Analyzed: 10/02/2012

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

ANALYTICAL REPORT

Workorder: 34-1227251
Client Project ID: 12U-I6198/Camp Williams Readin
Purchase Order: 12U-I6198
Project Manager: Non-Responsive

Analytical Results

Sample ID: 6198-10	Media: Lead Dust Wipe	Collected: 09/27/2012
Lab ID: 1227251010	Sampling Location: Camp Williams Readin	Received: 09/28/2012
Method: **NIOSH 7300 Mod.**	Sampling Parameter: **Area Not Provided**	Prepared: 10/01/2012 Analyzed: 10/02/2012

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

Comments

Quality Control: **NIOSH 7300 Mod. - (HBN: 94820)**

The lead relative percent difference (RPD) between field sample 1227022002 and its matrix duplicate (299198) was high outside of control limits at 28.4. Suspect non-homogeneity of the sample to be the cause of the high RPD.

Report Authorization

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

Laboratory Contact Information

ALS Environmental
960 W Levoy Drive
Salt Lake City, Utah 84123

Phone: (801) 266-7700
Email: alslt.lab@ALSGlobal.com
Web: www.alsslc.com

ANALYTICAL REPORT

Workorder: 34-1227251
Client Project ID: 12U-I6198/Camp Williams Readin
Purchase Order: 12U-I6198
Project Manager: Non-Responsive

General Lab Comments

The results provided in this report relate only to the items tested.
Samples were received in acceptable condition unless otherwise noted.
Samples have not been blank corrected unless otherwise noted.
This test report shall not be reproduced, except in full, without written approval of ALS.

ALS provides professional analytical services for all samples submitted. ALS is not in a position to interpret the data and assumes no responsibility for the quality of the samples submitted.

All quality control samples processed with the samples in this report yielded acceptable results unless otherwise noted.

ALS is accredited for specific fields of testing (scopes) in the following testing sectors. The quality system implemented at ALS conforms to accreditation requirements and is applied to all analytical testing performed by ALS. The following table lists testing sector, accreditation body, accreditation number and website. Please contact these accrediting bodies or your ALS project manager for the current scope of accreditation that applies to your analytical testing.

Testing Sector	Accreditation Body (Standard)	Certificate Number	Website
Environmental	ACLASS (DoD ELAP) Utah (NELAC) Nevada Oklahoma Iowa Florida (TNI) Texas (TNI)	ADE-1420 DATA1 UT00009 UT00009 IA# 376 E871067 T104704456-11-1	http://www.aclasscorp.com http://health.utah.gov/lab/labimp/ http://ndep.nv.gov/bsdw/labservice.htm http://www.deq.state.ok.us/CSDnew/ http://www.iowadnr.gov/InsideDNR/RegulatoryWater.aspx http://www.dep.state.fl.us/labs/bars/sas/qa/ 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

Definitions

LOD = Limit of Detection = MDL = Method Detection Limit, A statistical estimate of method/media/instrument sensitivity.
LOQ = Limit of Quantitation = RL = Reporting Limit, A verified value of method/media/instrument sensitivity.
ND = Not Detected, Testing result not detected above the LOD or LOQ.
** No result could be reported, see sample comments for details.
< This testing result is less than the numerical value.
( ) This testing result is between the LOD and LOQ and has higher analytical uncertainty than values at or above the LOQ.

Appendix M

DD Form 2214

Industrial Hygiene Southwest

Violation Inventory Log

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

Camp Williams Readiness Center, Riverton, Utah

CONTROL NUMBER CLOSED ☐	HAZARD DESCRIPTION	SITE	RAC	CORRECTIVE ACTIONS (Abatement Plan)	SUSPENSE DATE	ACTION OIC/NCOIC	Estimated Cost(s)	DATE CORRECTED	REFERENCES
UTCWRC-082712-4.3 ☐	Visual evidence of water damage and moisture intrusion were observed throughout this armory.	Camp Williams Readiness Center	3	Repair the leaks in the roof and replace damaged building materials in the janitor's closet.					Recommended Practice
UTCWRC-082712-4.4 ☐	An asbestos survey could not be located during this IH Assistance Visit.	Camp Williams Readiness Center	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)
UTCWRC-082712-4.4 ☐	Personnel have not been provided with asbestos awareness training.	Camp Williams Readiness Center	4	Based on the findings of this survey, provide awareness training to assigned personnel for the specific types of asbestos in this Armory.					29 CFR 1910.1001 or 1101 or AR 40-5
UTCWRC-082712-4.7 ☐	Safety training and records were not available for the units that occupy this building.	Camp Williams Readiness Center	4	At a minimum, provide hazard communication training 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 facility.					1910.1200 (h), 1910.157 (g), 1910.39 (b)
UTCWRC-082712-4.8 ☐	The kitchen oven/stove exhaust fans has an average duct velocity less than the recommended 500 fpm	Camp Williams Readiness Center	4	Increase the duct velocity to 500 fpm for this exhaust.					NFPA, Standard 96, Section 8.2.1.1 (2011)
UTCWRC-082712-4.10 ☐	An open knockout was found in one of the breaker panels in the mechanical room.	Camp Williams Readiness Center	4	Provide a knockout plate for the electrical panel in the mechanical room.					28 CFR 1910.305 (b) (2)
UTCWRC-082712-4.10 ☐	The fire suppression system in the kitchen is not current on annual inspections.	Camp Williams Readiness Center	4	Inspect the fire suppression system in the kitchen.					Recommended Practice

Industrial Hygiene Southwest

Violation Inventory Log

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

Camp Williams Readiness Center, Riverton, Utah

CONTROL NUMBER CLOSED ☐	HAZARD DESCRIPTION	SITE	RAC	CORRECTIVE ACTIONS (Abatement Plan)	SUSPENSE DATE	ACTION OIC/NCOIC	Estimated Cost(s)	DATE CORRECTED	REFERENCES
UTCWRC-082712-4.10 ☐	Egress routes that are posted are not clear or accurate.	Camp Williams Readiness Center	4	Post accurate fire evacuation routes. Signs must be posted along the exit access indicating the direction of travel to the nearest exit and exit discharge.					29 CFR 1910.37 (c)
UTCWRC-082712-4.10 ☐	Personnel noted that the wiring for the fire suppression system throughout the building has had issues and the master control panels has been beeping.	Camp Williams Readiness Center	4	Inspect the fire-suppression system for the armory and correct the source of the alarm.					Recommended Practice
UTCWRC-082712-4.10 ☐	Personnel noted that the emergency lighting system may not meet all requirements.	Camp Williams Readiness Center	4	Evaluate the emergency lighting system to ensure emergency evacuation routes are properly illuminated.					29 CFR 1910.37 (b) (6)

Appendix L

Recommendations

4.3 Moisture Intrusion and Limited Visual Fungal Growth Evaluation

1. Repair the leaks in the roof and replace damaged building materials in the janitor's closet.

4.4 Asbestos Management

1. Locate the asbestos survey report for this building or contract with a licensed firm to perform an asbestos survey and assessment.
2. Once asbestos-containing materials have been identified and assessed, provide awareness training to assigned personnel for the specific material types and locations of asbestos in this armory.

4.7 Safety Training and Record Keeping

1. At a minimum, provide hazard communication training 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 facility.

4.8 Kitchen Ventilation Survey

Increase the duct velocities to 500 fpm for the kitchen exhaust fans.

4.10 General Safety Walk-Through

1. Inspect the fire-suppression system in the kitchen.
2. Post accurate fire evacuation routes when the direction of travel to an exit is not readily apparent.
3. Provide a knockout plate for the electrical panel in the mechanical room.
4. Inspect the fire-suppression system for the armory and correct the source of the alarm.
5. Evaluate the emergency lighting system to ensure emergency evacuation routes are properly illuminated.

Appendix M

DD Form 2214

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

Cedar City Armory
Indoor Firing Range (IFR)
1065 North Airport Road
Cedar City, UT 84720

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

02 December 2013

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

FOR Commander Cedar City Armory Indoor Firing Range (IFR) 1065 North Airport Rd. Cedar City, UT 84720

SUBJECT: Executive Summary for Industrial Hygiene Site Assistance Visit (SAV) for the Cedar City Armory Indoor Firing Range (IFR) 1065 North Airport Rd. Cedar City, UT on 05 SEP 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 Cedar City Armory Indoor Firing Range (IFR) 1065 North Airport Rd. Cedar City, UT on 05 SEP 2013.

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

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

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

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

4. **Commendable.**

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

5. **Observations / Recommendations.**

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

a. Keep up the good Housekeeping and Safety practices. Utilize Armory Cleanup SOP accompanying this report for clean-up. (Exec. Summary) **(NO RAC)**

5. 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.

ARNG-CSG-P

SUBJECT: Executive Summary for Industrial Hygiene Site Assistance Visit (SAV) for the Cedar City Armory Indoor Firing Range (IFR) 1065 North Airport Rd. Cedar City, UT on 05 SEP 2013

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

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

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

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

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

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

Non-Responsive

NGB, IHSW, CIV
Industrial Hygiene

Industrial Hygiene Southwest

Violation Inventory Log

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

Cedar City Armory, UT- Indoor Firing Range (IFR)

CONTROL NUMBER CLOSED ☐	HAZARD DESCRIPTION	SITE	RAC	CORRECTIVE ACTIONS (Abatement Plan)	SUSPENSE DATE	ACTION OIC/NCOIC	Estimated Cost(s)	DATE CORRECTED	REFERENCES
☐ UTCCA-090513-Exec. Summary	No Significant Adverse Observations noted during this Industrial Hygiene Site Assistant Visit	Armory	None	Continue Sound Safety and Housekeeping Practices					NGB, OSHA Regulations

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: **<u>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</u>**.

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.

<u>Recommended Follow-up Housekeeping Practices</u> *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

Indoor Firing Range
Utah Army National Guard
1065 North Airport Road
Cedar City, Utah 84720

September 30, 2013

Prepared for:

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

Non-Responsive

Senior Project Manager

Reviewed by:

Non-Responsive

Industrial Hygiene Services Manager

AL137635

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

EXECUTIVE SUMMARY

On September 5, 2013, Non-Responsive Certified Safety Professional (CSP) with IHI Environmental (IHI), conducted an Industrial Hygiene (IH) Assistance Visit at the Utah Army National Guard Indoor Firing Range (IFR) located at 1065 North Airport Road, Cedar City, Utah 84720. The primary point of contact for information gathered during this survey was Non-Responsive (435) 867-6500, Non-Responsive

The objectives of this IH Assistance Visit were to determine if the firing range is operational or converted, and to determine if the range and adjacent spaces were contaminated with lead residues above the limits outlined in NGP 420-15, *Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges*, and the *Standard Operating Procedure (SOP) for Armory Cleanup & Follow-up Housekeeping*.

There are no significant findings for this IH Assistance Visit and a Violation Inventory Log is not provided for this report.

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

1.0 INTRODUCTION

On September 5, 2013, Non-Responsive Certified Safety Professional (CSP) with IHI Environmental (IHI), conducted an Industrial Hygiene (IH) Assistance Visit at the Utah Army National Guard Indoor Firing Range (IFR) located at 1065 North Airport Road, Cedar City, Utah 84720. The primary point of contact for information gathered during this survey was Non-Responsive (435) 867-6500, Non-Responsive

1.1 Objectives

The objectives of this IH Assistance Visit were to determine if the firing range is operational or converted, and to determine if the range and adjacent spaces were contaminated with lead residues above the limits outlined in NGP 420-15, *Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges*, and the *Standard Operating Procedure (SOP) for Armory Cleanup & Follow-up Housekeeping*.

1.2 Scope of Work

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

- evaluate the status of the firing range;
- collect lead surface wipe samples from the firing range, adjacent spaces, and any areas where weapons are cleaned; and
- provide a report of findings.

2.0 METHODS

2.1 Lead Wipe Sampling

Lead wipe samples were collected on floor surfaces in the former Indoor Firing Range (IFR) at the former firing line, former mid-range, and the former bullet trap location. Additional lead wipe samples were collected on the drill hall floor. Lead Wipe™ brand wipes were used with 100-square-centimeter disposable templates. The wipes used conform to American Society 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 NIOSH Method 7300.

2.2 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.

3.0 FINDINGS

3.1 Range Status and Description

The IFR at this armory was decommissioned and removed, including the complete removal of the associated heating, ventilation, and air conditioning (HVAC) in the late 1980's. The interior of the firing range was converted to a maintenance bay and storage rooms shortly after that time. In 2012, the storage areas over the former bullet trap end of the range were remodeled into a conference room. The maintenance bay and adjoining work site office area had their floors and walls painted and a drop ceiling was installed. The 2012 conference room remodel included glued-down 2-foot by 2-foot carpet tiles, furring-out the previous exterior cinder block walls with framing and drywall, installing two large retractable divider walls, and a new drop ceiling consisting of 2-foot by 4-foot drop-in tiles on a grid system installed across the entire ceiling.

Civilian activities occurring within this armory include evening youth basketball in the gymnasium only at night. The American Legion holds meetings approximately once per month in the building in the conference room, gymnasium, and kitchen. Weapons are occasionally cleaned inside the armory, primarily in the Supply Room.

3.2 Wipe Sampling Results

The laboratory analytical results indicate that every lead wipe sample collected within the converted firing range and adjacent areas had a lead concentration well below the 40-µg/ft^2 standard outlined in NGP 420-15, *Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges.*

Table 1 in Appendix B contains the complete list of the sample results and the laboratory analytical reports are included in Appendix C. A drawing identifying all sample locations is included in Appendix D.

4.0 RECOMMENDATIONS

None

There are no significant findings for this IH Assistance Visit and a Violation Inventory Log is not provided for this report.

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

September 20, 2013
Date

Senior Project Manager

7.0 TECHNICAL ASSISTANCE

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, 916-804-1707. Contact the State Safety and Occupational Health Office and/or the Regional Industrial Hygienist if the operations change, or the personnel are incapable of following the recommendations.

APPENDIX A

References

AR 385-10, *The Army Safety Program*

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

NGP 420-15, *Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges*

IHSW, *Standard Operating Procedure for Armory Cleanup & Follow-up Housekeeping Recommendations*

APPENDIX B

Table 1 – Lead Wipe Sample Results

Table 1 **Lead Wipe Results** **Former Indoor Firing Range**
Cedar City, UT

Lead Wipe Sample Results			
Sample Number	n Date	Location	Result µg/ft^2
635-01	9/5/2013	Floor – Center of supply room #124 (painted concrete)	<12
635-02	9/5/2013	Former Range Bullet Trap Area (wall in Administrationn Room - drywall surfa	<12
635-03	9/5/2013	Former Bullet Trap Area (floor in Administration Room under carpet)	<12
635-04	9/5/2013	Work Site Office (floor - painted concrete)	<12
635-05	9/5/2013	Former Mid-Range Line (floor - painted carpet)	<12
635-06	9/5/2013	Former Range Firing Line (floor - painted concrete)	14
635-07	9/5/2013	Former Range Firing Line (wall - painted concrete block)	12
635-08	9/5/2013	Former Entrance to Range (floor - painted concrete)	<12
635-09	9/5/2013	Southeast Area of Drill Hall Floor (varnished wood)	<12
635-10	9/5/2013	Southwest Area of Drill Hall Floor (varnished wood)	<12
635-11	9/5/2013	Field Blank	<12

µg/ft^2 = micrograms per square foot of area

< = less than the laboratory reporting limit

APPENDIX C

Laboratory Analytical Results - Lead

ANALYTICAL REPORT

Report Date: September 11, 2013

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

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

Workorder: 34-1324968
Client Project ID: AL137635
Purchase Order: AL137635
Project Manager: Non-Responsive

Analytical Results

Sample ID: 635-01	Media: Lead Dust Wipe		Collected: 09/05/2013
Lab ID: 1324968001	Sampling Location: Cedar City Utah IFR		Received: 09/06/2013
Method: NIOSH 7300 Mod.	Sampling Parameter: Area 100 cm²		Prepared: 09/09/2013 Analyzed: 09/10/2013

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

Sample ID: 635-02	Media: Lead Dust Wipe		Collected: 09/05/2013
Lab ID: 1324968002	Sampling Location: Cedar City Utah IFR		Received: 09/06/2013
ethod: NIOSH 7300 Mod.	Sampling Parameter: Area 100 cm²		Prepared: 09/09/2013 Analyzed: 09/10/2013

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

Sample ID: 635-03	Media: Lead Dust Wipe		Collected: 09/05/2013
Lab ID: 1324968003	Sampling Location: Cedar City Utah IFR		Received: 09/06/2013
Method: NIOSH 7300 Mod.	Sampling Parameter: Area 100 cm²		Prepared: 09/09/2013 Analyzed: 09/10/2013

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

Sample ID: 635-04	Media: Lead Dust Wipe		Collected: 09/05/2013
Lab ID: 1324968004	Sampling Location: Cedar City Utah IFR		Received: 09/06/2013
Method: NIOSH 7300 Mod.	Sampling Parameter: Area 100 cm²		Prepared: 09/09/2013 Analyzed: 09/10/2013

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

ANALYTICAL REPORT

Workorder: 34-1324968
Client Project ID: AL137635
Purchase Order: AL137635
Project Manager: Non-Responsive

Analytical Results

Sample ID: 635-05	Media: Lead Dust Wipe	Collected: 09/05/2013
Lab ID: 1324968005	Sampling Location: Cedar City Utah IFR	Received: 09/06/2013
Method: NIOSH 7300 Mod.	Sampling Parameter: Area 100 cm²	Prepared: 09/09/2013 Analyzed: 09/10/2013

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

Sample ID: 635-06	Media: Lead Dust Wipe	Collected: 09/05/2013
Lab ID: 1324968006	Sampling Location: Cedar City Utah IFR	Received: 09/06/2013
Method: NIOSH 7300 Mod.	Sampling Parameter: Area 100 cm²	Prepared: 09/09/2013 Analyzed: 09/10/2013

Analyte	ug/sample	ug/ft²	RL (ug/sample)
Lead	**1.5**	**14**	1.3

Sample ID: 635-07	Media: Lead Dust Wipe	Collected: 09/05/2013
Lab ID: 1324968007	Sampling Location: Cedar City Utah IFR	Received: 09/06/2013
ethod: NIOSH 7300 Mod.	Sampling Parameter: Area 100 cm²	Prepared: 09/09/2013 Analyzed: 09/10/2013

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

Sample ID: 635-08	Media: Lead Dust Wipe	Collected: 09/05/2013
Lab ID: 1324968008	Sampling Location: Cedar City Utah IFR	Received: 09/06/2013
Method: NIOSH 7300 Mod.	Sampling Parameter: Area 100 cm²	Prepared: 09/09/2013 Analyzed: 09/10/2013

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

Sample ID: 635-09	Media: Lead Dust Wipe	Collected: 09/05/2013
Lab ID: 1324968009	Sampling Location: Cedar City Utah IFR	Received: 09/06/2013
Method: NIOSH 7300 Mod.	Sampling Parameter: Area 100 cm²	Prepared: 09/09/2013 Analyzed: 09/10/2013

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

Sample ID: 635-10	Media: Lead Dust Wipe	Collected: 09/05/2013
Lab ID: 1324968010	Sampling Location: Cedar City Utah IFR	Received: 09/06/2013
ethod: NIOSH 7300 Mod.	Sampling Parameter: Area 100 cm²	Prepared: 09/09/2013 Analyzed: 09/10/2013

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

ANALYTICAL REPORT

Workorder: 34-1324968
Client Project ID: AL137635
Purchase Order: AL137635
Project Manager: Non-Responsive

Analytical Results

Sample ID: 635-11	Media: Lead Dust Wipe	Collected: 09/05/2013
Lab ID: 1324968011	Sampling Location: Cedar City Utah IFR	Received: 09/06/2013
Method: NIOSH 7300 Mod.	Sampling Parameter: Area 100 cm²	Prepared: 09/09/2013 Analyzed: 09/10/2013

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

Report Authorization

Method	Analyst	Non-Responsive
NIOSH 7300 Mod.	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

ANALYTICAL REPORT

Workorder: 34-1324968
Client Project ID: AL137635
Purchase Order: AL137635
Project Manager: Non-Responsive [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.

1324968

DATA CHEM LABORATORIES, INC. (ALS)

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES
Environmental Division

ANALYTICAL REQUEST FORM

1. ☐ REGULAR Status

☐ RUSH Status Requested - ADDITIONAL CHARGE
RESULTS REQUIRED BY _____ DATE
CONTACT ALS DATACHEM LABS PRIOR TO SENDING SAMPLES

2. Date: 9/6/13 Purchase Order No.: AL137635

3. Company Name; IHI Environmental
Address: 640 East Wilmington Avenue
Salt Lake City, Utah 84106
Person to Contact: Non-Responsive
Telephone (801) 466-2223
Fax Telephone (801) 466-9616
E-mail Address: Non-Responsive
Billing Address (if different from above)

4. Quote No. _____
ALS Project Manager: Non-Responsive

5. Sample Collection
Sampling Site: Cedar City, Utah IFR
Industrial Process _____
Date of Collection: September 5, 2013
Time Collected _____
Date of Shipment; September 6, 20123
Chain of Custody No. _____

6. How did you first learn about ALS DataChem?

7. REQUEST FOR ANALYSES

Laboratory Use Only	Client Sample Number	Matrix*	Sample Volume	ANALYSES REQUESTED - Use method number if known	Units**
	635-01	Lead Wipe	100 cm^2	Lead	$\mu g/ft^2$
	635-02	Lead Wipe	100 cm^2	Lead	$\mu g/ft^2$
	635-03	Lead Wipe	100 cm^2	Lead	$\mu g/ft^2$
	635-04	Lead Wipe	100 cm^2	Lead	$\mu g/ft^2$
	635-05	Lead Wipe	100 cm^2	Lead	$\mu g/ft^2$
	635-06	Lead Wipe	100 cm^2	Lead	$\mu g/ft^2$
	635-07	Lead Wipe	100 cm^2	Lead	$\mu g/ft^2$
	635-08	Lead Wipe	100 cm^2	Lead	$\mu g/ft^2$
	635-09	Lead Wipe	100 cm^2	Lead	$\mu g/ft^2$
	635-10	Lead Wipe	100 cm^2	Lead	$\mu g/ft^2$
	635-11	Lead Wipe	100 cm^2	Lead	$\mu g/ft^2$

* Specify: Solid sorbent tube, e.g. Charcoal; Filter type; Impinger solution; Bulk sample; Blood; Urine; Tissue; Soil; Water; Other

** 1. µg/sample 2. mg/m^3 3. ppm 4. % 5. $\mu g/m^3$ 6. ____ (other) Please indicate one or more units in the column entitled Units**

Comments _____

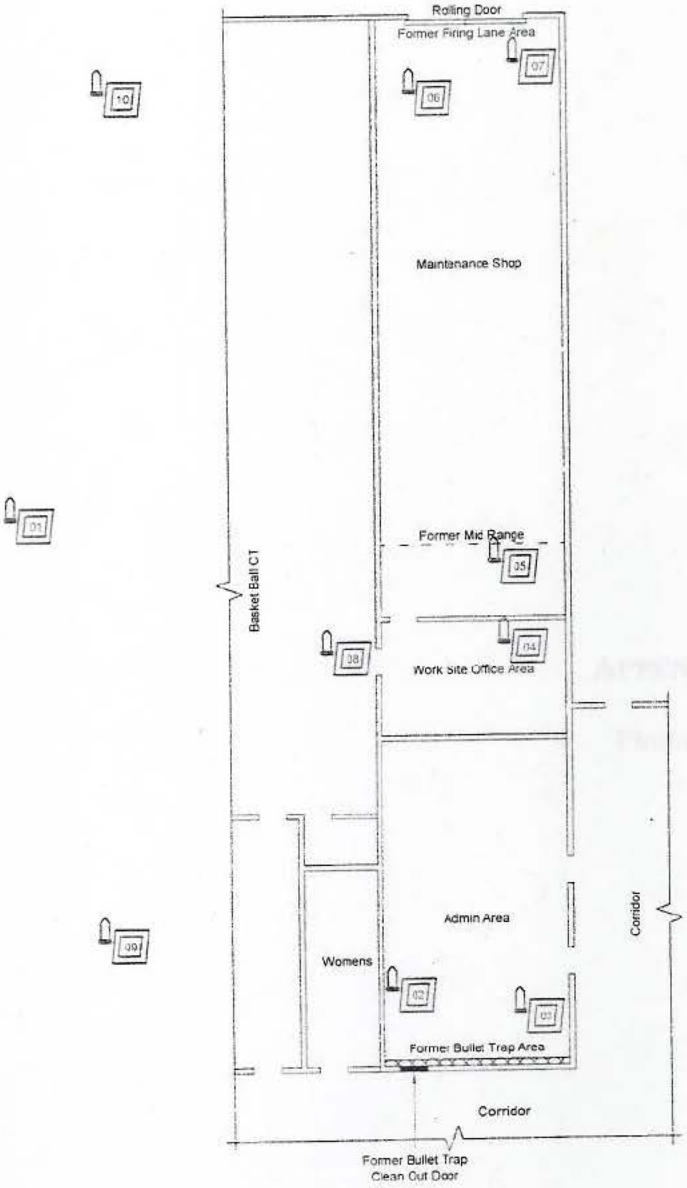
Possible Contamination and/or Chemical Hazards _____

7. Chain of Custody (Optional)

Relinquished by Non-Responsive Date/Time: September 6, 2013 / 12:30
Received by Date/Time 09/06/13 11:30
Relinquished by Date/Time
Received by Date/Time

960 West LeVoy Drive / Salt Lake City, UT 84123 800-356-9135 or 801-266-7700 / FAX: 801-268-9992

ALS DataChem



Explanation

Lead Wipe Sample Locations & Numbers

Lead Wipe Sample Locations		
Sample Number	Sample Name	Location
01	635-01	Center of Supply Room # 121 - Floor
02	635-02	Former Range Bullet Trap - Wall
03	635-03	Former Range Bullet Trap - Floor (under carpet)
04	635-04	Work Site Office - Floor
05	635-05	Former Range Mid Range Line - Floor
06	635-06	Former Range Firing Line - Floor
07	635-07	Former Range Firing Line - Northwest Wall
08	635-08	Entrance to Former Range - Floor
09	635-09	Southeast corner of Gym - Floor
10	635-10	Southwest corner of Gym - Floor

NOTE: All Wipe Sample Sizes are 100 cm^2

N

1" = 20' - 0"

0 10' 20'

IHI ENVIRONMENTAL
Terracon

Utah Army National Guard
Converted Indoor Firing Range
1065 North Airport Road
Cedar City, Utah

Lead Wipe Sample Locations

PROJECT No:	AL137635
SHEET NO:	1 of 1
DRAWN BY:	Non-Responsive
DATE:	09-09-2013
REVIEWED BY:	JDM
DATE:	09-09-2013

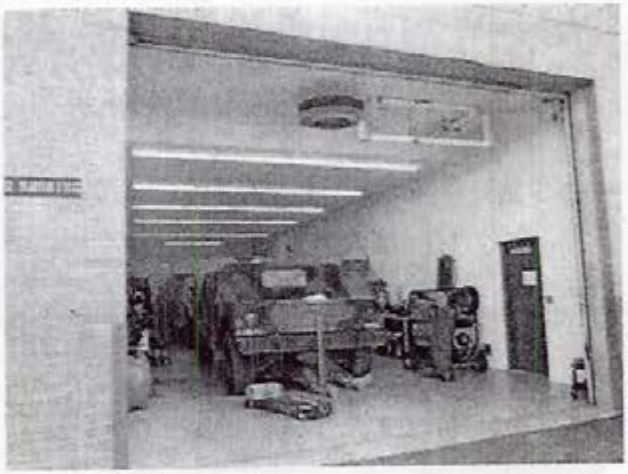
N:\Projects\635\Working Files\Diagrams-Drawings-Figures\AL137635.dwg, lead wipe, 9/9/2013 12:36:05 PM, kfarrell, ANSI full bleed A (8.50 x 11.00

Photograph 1
Cedar City, Utah Armory, front entrance, exterior

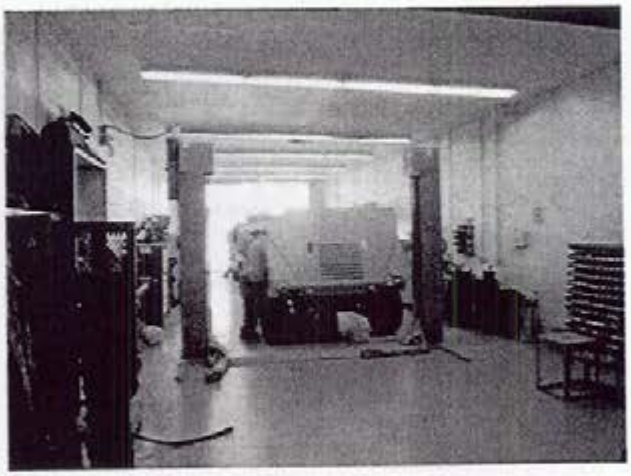
Photograph 2
Cedar City, Utah Armory, front view, exterior

Photograph 3
Cedar City, Utah Armory, rear view, exterior, showing former range at open door to maintenance bay

Photograph 4
Drill hall floor with door leading to former indoor firing range

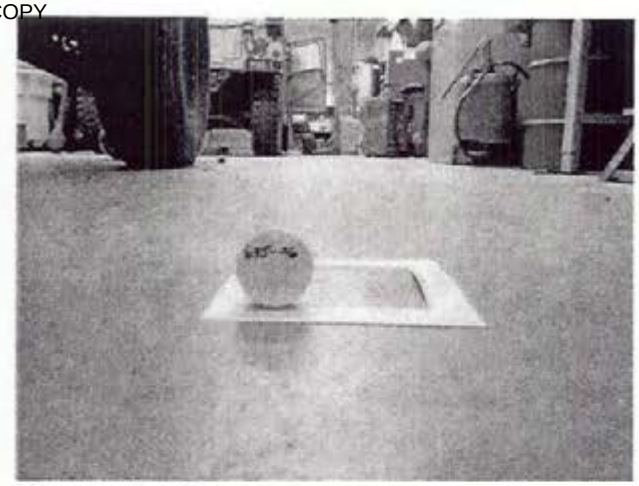


Photograph 5
Exterior entrance to maintenance bay where firing line of former indoor firing range was located



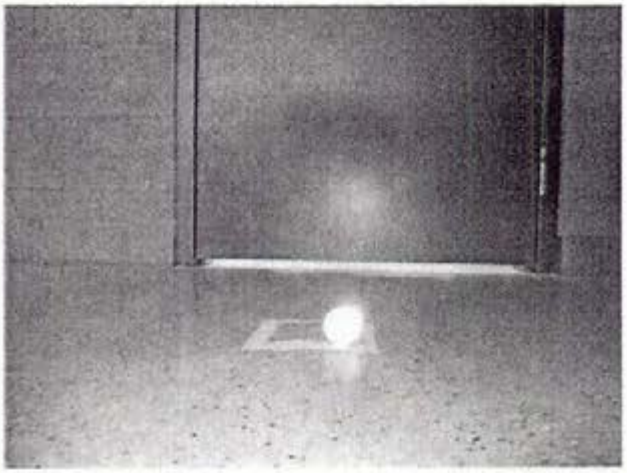
Photograph 6
Interior maintenance bay where former indoor firing range was located

Photograph 7
Sample location 635-05, floor, midrange area of former IFR (painted concrete)

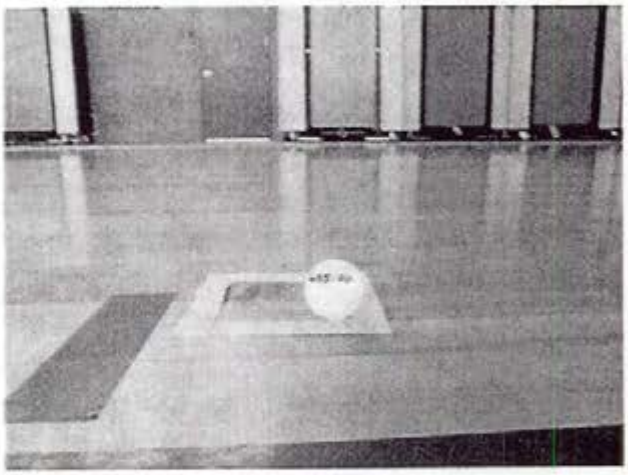


Photograph 8
Sample location 635-06, floor, firing line area of former IFR (painted concrete)

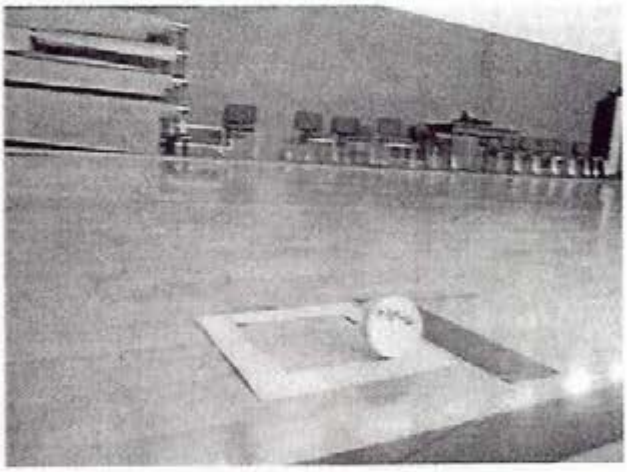
Photograph 9
Sample location 635-07, former shooting line area wall (painted concrete block)



Photograph 10
Sample location 635-08, interior entrance to former IFR leading to the work site office area



Photograph 11
Sample location 635-09, southeast area of drill hall floor



Photograph 12
Sample location 635-10, southwest area of drill hall floor

APPENDIX F

Field Notes (Facility Background Info Worksheet)

FACILITY INFORMATION

(Information listed in First Section)

1. Date Prepared: September 5, 2013

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: Utah Army National Guard – Cedar City, Utah Armory – Former Indoor Firing Range

4. Facility Address: 1065 North Airport Road Cedar City, Utah 84720

5. Primary Unit Assigned to Facility (Ensure to capture and provide Unit Identification Code (UIC)): HHB 2nd BN 222nd FAR, UIC: Non-Responsive

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

7. Square Ft. Area of Facility: ~17,250 ft^2

8. Work Schedule: Mon-Thurs 0600-1700 hours

9. Number of work bays: One

10. Equipment Density and Type:
    Wheeled vehicles;
    HUMVES,
    LMTVs (2.5 and 5 ton), and
    some 1068 Command Track Posts

    a. List Equipment Nomenclature Serviced or Maintained at Facility:

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

11. Total Number of Personnel: 15 full-time + Recruiter

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

13. No. of Maintenance Personnel (Include Status – AGR, Fed. Tech., IDT, State or Contract Employee): 3 Tech

14. Total Number of Personnel Enrolled in the Hearing Conservation Program: 2

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

19. Safety Officer: Non-Responsive

    a. Email Address, Commercial Telephone Number and Unit Assigned to: Non-Responsive Draper UTARNG Headquarters, Draper, UT

20. Facility Telephone Number: (435) 867-6500

BEST AVAILABLE COPY

APPENDIX G

Lead Clean-up SOP

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: **<u>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</u>**.

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.

<u>Recommended Follow-up Housekeeping Practices</u> *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.

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.**

29 Sept 14

ARMY NATIONAL GUARD
INDUSTRIAL HYGIENE – SOUTHWEST

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

Industrial Hygiene Site Assistance Visit

Cedar City Armory

1065 North Airport Road
Cedar City, UT 84721

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

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

ARNG-CSG-P

19 OCT 2014

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

FOR Commander, Cedar City Armory 1065 North Airport Road Cedar City, UT 84721

SUBJECT: Executive Summary for Industrial Hygiene Site Assistance Visit (IHSAV) for Cedar City Armory 1065 North Airport Road Cedar City, UT on 29 SEP 2014

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

2. **General.**

a. At the request of the NGB Industrial Hygiene, Southwest (IHSW) Region, an Industrial Hygiene Site Assistance Visit and cursory review of safety related items and programs was conducted at the Cedar City Armory 1065 North Airport Road Cedar City, UT on 29 SEP 2014

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

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

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

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

4. **Commendable.**

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

5. **Observations / Recommendations.**

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

a. Thorough cleaning of armory should be accomplished and especially in identified areas with higher lead dust accumulation identified during this IHSAV. Thoroughly clean areas identified above 40 ug/ft2. Utilize Armory Cleanup SOP accompanying this report for clean-up, especially after weapons cleaning

episodes to help prevent accumulation and migration of this heavy metal. (para. 3.1) (**RAC 3**)

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

c. Properly mount a fire extinguisher 10ft from the POL shed door opening on the outside of the shed. (para. 3.5) (**RAC 4**)

d. Increase illumination in identified areas to the necessary 50 foot candles. Replace unserviceable light bulbs, clean fixtures, paint walls a lighter color, reposition detailed work or use supplemental task lighting as needed. (para. 3.8) (**RAC 4**)

e. A permanent vehicle exhaust system should be installed if maintenance is to be continued in this armory maintenance bay. In the interim, utilize the portable exhaust system, open doors and do prolonged engine running outside. (para. 3.5) (**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.

SUBJECT: Executive Summary for Industrial Hygiene Site Assistance Visit (IHSAV) for Cedar City Armory 1065 North Airport Road Cedar City, UT on 29 SEP 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 provided an appendix with Hazard Assessments (HA) examples of some of this facilities operations. Additional operations can utilize this format to design HA not observed during this IHSAV.

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

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

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

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

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

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

Non-Responsive

NGB, IHSW, CIV
Regional Industrial
Hygiene Manager

Industrial Hygiene Southwest

Violation Inventory Log

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

CEDAR CITY ARMORY,UTAH 84721

CONTROL NUMBER CLOSED [X]	HAZARD DESCRIPTION	SITE	RAC	CORRECTIVE ACTIONS (Abatement Plan)	SUSPENSE DATE	ACTION OIC/NCOIC	Estimated Cost(s)	DATE CORRECTED	REFERENCES
UTCC-09292014-3.1	Lead levels exceded the minimun requirements.	Armory	3	Upgrade housekeeping practices throughout this facility to help prevent migration of lead dust. Thoroughly clean areas identified above 40 ug/ft2. Utilize Armory Clean-up SOP in future cleaning episodes.					Occupational Safety and Health Administration (OSHA) standard for lead; 1910.1025 (h)(1)
UTCC-09292014-3.2 ☐	There was no Asbestos Management plan in place.	Armory	3	Conduct a facility survey to identify Asbestos Containing Material (ACM) within the facility and develop ACM Management Plan. Conduct awareness training to all personnel who occupy the facility regarding the finding and the ACM Management Plan. The survey may have been completed, however, at the time of this assistance visit, awareness training, ACM identification, or an ACM Management Plan was not available.					AR 420-1, 5-24b,c and d; 29 CFR 1910.1001
UTCC-10012014-3.5	Armory hasn't converted to new SDS format	Armory	4	Update all MSDS for the facility with the new SDS format by Jun 2016					29 CFR 1910.1200
UTCC-09292014-3.5	There was not a fire Extinguisher within 10ft of the door for the POL shed.	Armory	4	Properly mount a fire extinguisher 10ft from POL shed door opening on the outside of the shed.					1910.106 (d)(7)(i)(a)

Industrial Hygiene Southwest

Violation Inventory Log

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

CEDAR CITY ARMORY,UTAH 84721

CONTROL NUMBER CLOSED [X]	HAZARD DESCRIPTION	SITE	RAC	CORRECTIVE ACTIONS (Abatement Plan)	SUSPENSE DATE	ACTION OIC/NCOIC	Estimated Cost(s)	DATE CORRECTED	REFERENCES
UTCC-09292014-3.8 [ ]	Levels were below recommended minimum standards in some areas of the facility.	Armory	4	Replacing burnt out luminaries, cleaning fixtures, cleaning windows, painting walls a lighter color, repositioning detailed work to higher illuminated areas, and using supplemental lighting would improve some areas. Utilize task lighting, as needed to help prevent eye strain in the work place.					DG 415-2 and Lighting Handbook, Illuminating Engineering Society (IES) of North America]

ARMORY

CLEANUP & FOLLOW-UP HOUSEKEEPING RECOMMENDATIONS

Materials Needed:

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

Disposal of Waste Water and Cleaning Materials:

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

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

3. Disposable gloves should be treated as hazardous waste.

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

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

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

Post-Cleanup Precautionary Measures:

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

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

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

Initial Armory Cleanup:

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

UTAH ARMY NATIONAL GUARD

CEDAR CITY ARMORY

1065 N Airport Rd.
Cedar City, UT 84721
(435) 867 6510

Submitted to:

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

Table of Contents

INDUSTRIAL HYGIENE ASSISTANCE VISIT
CEDAR CITY ARMORY
CEDAR CITY, UTAH

1.0. Introduction and Background

1.1. This report summarizes the results of the Industrial Hygiene (IH) Survey conducted at the Cedar City Armory in Cedar City, UT on September 29, 2014. The Army National Guard of Industrial Hygiene Southwest Regional Manager (ARNG-IHSW) requested Aloha World to visit the Cedar City 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 Cedar City Armory supports the HHB 2-222 FA. The Armory has 13 full time guard members (**Appendix F**) and approximately 60 guardsmen and women on drill weekend. This armory was constructed in the early 1960's and was renovated in 2011. The armory has offices used for administrative purposes and also contains a drill floor, arms room, supply room, classroom, maintenance shop and an unattached storage garage.

There is a Converted Indoor Firing Range (CIFR) in this facility. The CIFR is now a maintenance shop. Weapons are cleaned in the drill hall and outside.

Vehicle maintenance is done at this facility; there are 2 full time mechanics.

2.0. Survey Procedures

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

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

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

Equipment Used

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

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

3.0. Findings and Recommendations

3.1. **Lead wipe sampling-** Analytical results from the lead wipe sampling obtained from the armory are found in Table 3.1.A. A graphical and written representation of sampling locations can be found in ***Appendix E*** along with analytical reports. Photographs were taken of each sample point and are presented in ***Appendix C***. There are currently no 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*
092714-1	Control	NA	BDL
092714-2	North drill hall	2	BDL
092714-3	Center drill hall	3	BDL
092714-4	South drill hall	4	BDL
092714-5	West drill hall	5	BDL
092714-6	East drill hall	6	BDL
092714-7	North CFR	7	74.5
092714-8	Center CFR	8	BDL
092714-9	South CFR	9	40.0
092714-10	West CFR	10	59.1
092714-11	East CFR	11	136

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

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

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

3.2. **Asbestos Survey-** Non-Responsive was asked during this survey about the presence of asbestos and he advised all asbestos was removed before the 2011 remodel.

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

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

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

Limitations and Exclusions of Findings

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

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

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

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

3.3 **Indoor air quality and HVAC Systems-** The armory is heated and cooled through a central air system that was replaced in 2011. The ventilation system runs underneath the armory and was recently serviced by FMO. There was water drainage running through the tunnels, mud was found in the ventilation system but has been cleaned. The FMO maintains the HVAC system.

Building air temperature, within this facility, was in the comfort range for the occupants during this survey period. The day of the survey it was 62 degrees Fahrenheit outside. Inside air temperature is recommended to be between 68-75 degrees Fahrenheit and the relative humidity is to range from 30-60%. The indoor temperature was 72-75 degrees Fahrenheit. Humidity levels above 60 percent can result in proliferation of bacteria and fungi, while levels below 30 percent can cause dry eyes, skin, and mucous membranes. There were no signs of water leakage.

3.4. **Exhaust and Ventilation Systems-** The Cedar City Armory contains a functional maintenance bay. There are no retractable exhaust ducts in this maintenance bay. Non-Responsive advised the mechanics bring a portable exhaust duct in from storage when vehicles are being run, the one bay door is open and the general exhaust system on the ceiling is turned on. No exhaust air flow measurements were taken on this survey in the maintenance bay.

Air flow was measured in the industrial kitchen under the hood of the oven. Air flow was measured at 620 fpm. This kitchen exhaust duct meets the 2011 National Fire Protection Association Standard 96, Section 8.2.1.1, which requires exhaust fan ducts used in commercial cooking equipment to have a duct velocity of not less than 500 fpm.

3.5. **Hazardous Materials Use and Storage-** All Hazmat and POL's are stored and maintained in a flammable cabinet located outside. The POL is stored on top of containment pallets pictured in Appendix C. There are no fire extinguishers mounted outside of the flammable cabinet. FMS 6 maintains all POL waste. Initial HazCom and annual training is kept on file for employees. Chemicals for equipment maintenance and janitorial uses are maintained at the facility in minimal quantities. A copy of this list can be found in **Appendix H**. The SDS file is still listed as MSDS since the Globally Harmonized System (GHS) Classification of Labeling Chemicals has just taken effect this year and the documents are still MSDS documents.

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

Recommendation: a. Properly mount a fire extinguisher 10ft from the POL door opening on the outside of the POL shed. 1910.106(d)(7)(i)(a) **b.** A vehicle exhaust system should be installed if maintenance is to be continued in this armory bay. In the interim, utilize the portable exhaust system, open doors and do prolonged engine running outside. DG 415-5 & Prudent Industrial Hygiene Practice. **c.** Update all MSDS for the facility with the new SDS format by June 2016 (CFR 1910.120)

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

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

The eye wash station in the maintenance bay was in working condition and documentation of weekly testing was noted.

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

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

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

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

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

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

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

Army and National Guard Safety and Occupational Health Regulations, AR 385.
First aid.

Hazcom, hearing conservation, Army substance abuse and suicide awareness

3.10. Recurring event –We were unable to obtain any previous surveys for this armory.

4.0 Industrial Hygienist Certification and Project Limitations

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

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

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

5.0 Technical Assistance

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

Non-Responsive
Aloha World Environmental

Appendix A: References

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

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

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

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

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

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

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

DA PAM 40-ERG, Ergonomics

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

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

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

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

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

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

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

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

Appendix B: Assessment Criteria

A. Ventilation Standards

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

B. Illumination Standards

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

C. Noise

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

D. Air Sampling

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

E. Risk Assessment Codes

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

Appendix C

Photograph Log

Photo Log

Photo #1 – Cedar City Armory

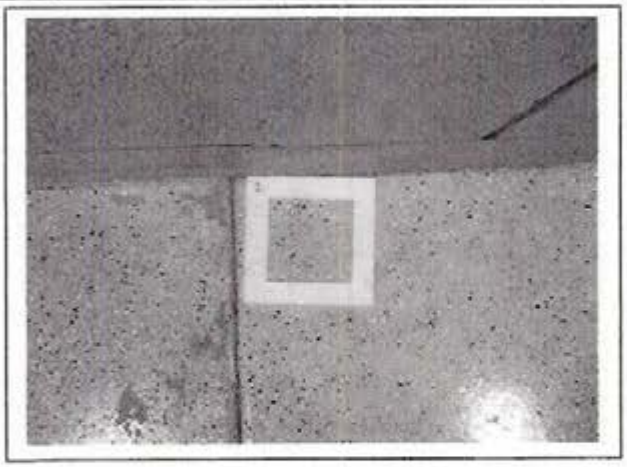


Photo #2- North drill hall wipe

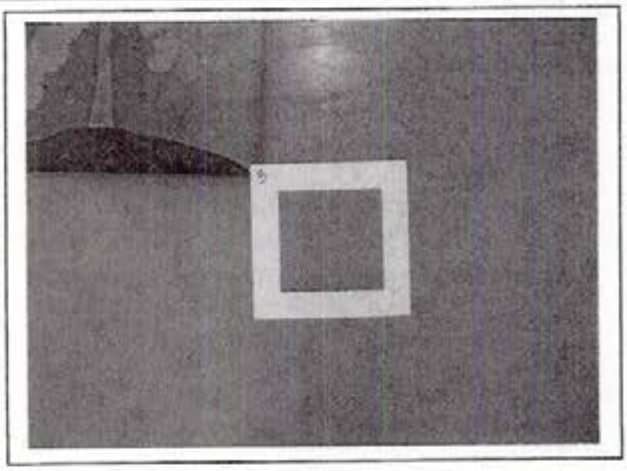


Photo #3- Center drill hall wipe

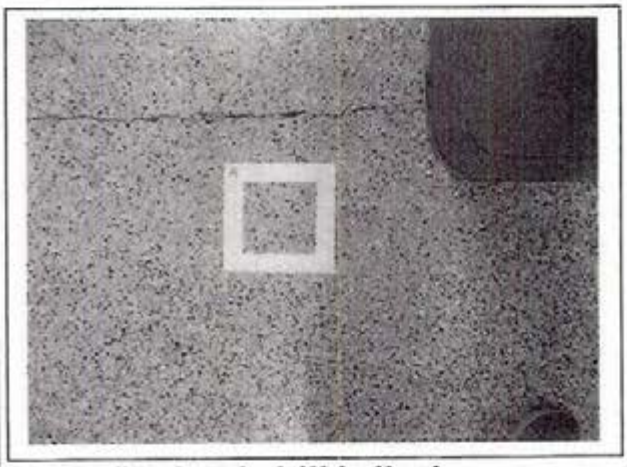


Photo #4- South drill hall wipe

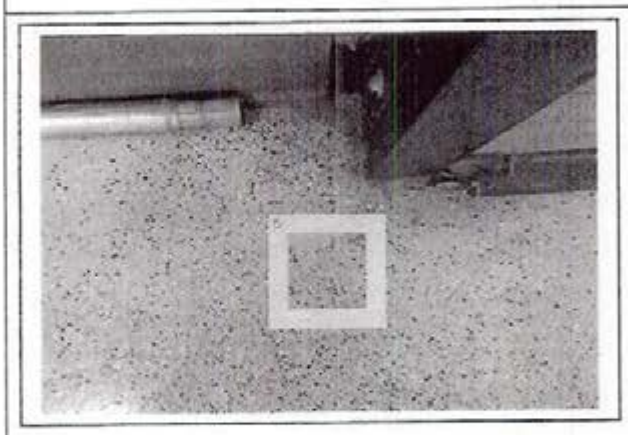


Photo #5 –West drill hall wipe

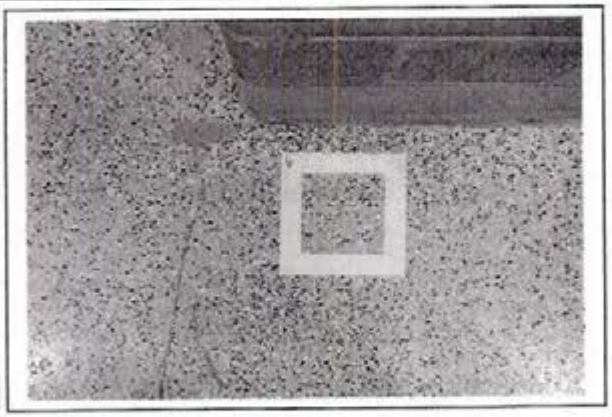


Photo #6 – East drill hall wipe

Photo Log

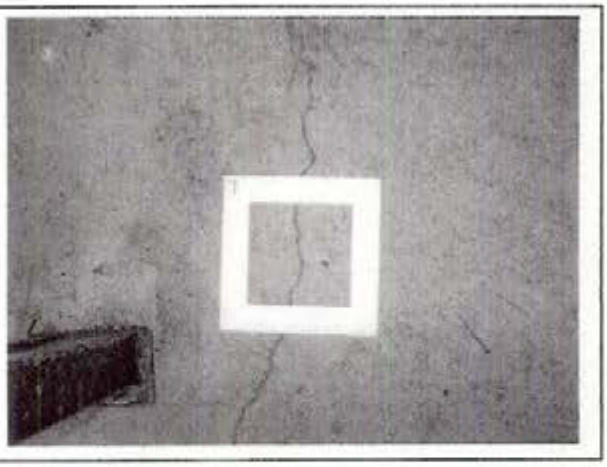


Photo #7 – North CIFR wipe

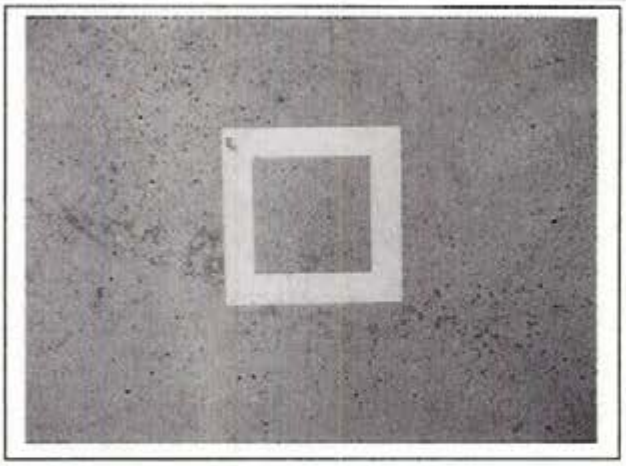


Photo #8- Center CIFR wipe

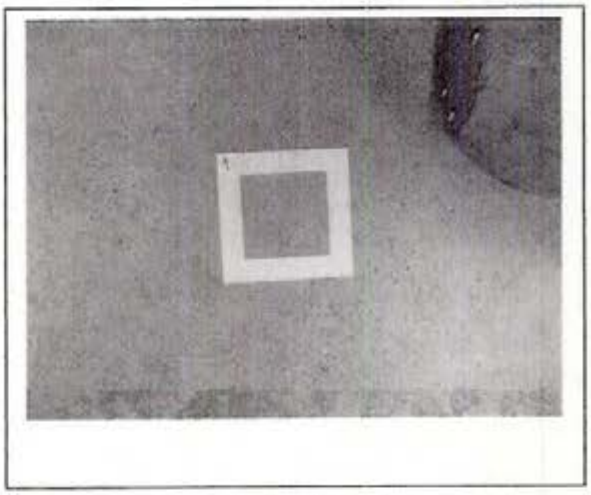


Photo #9 – South CIFR wipe

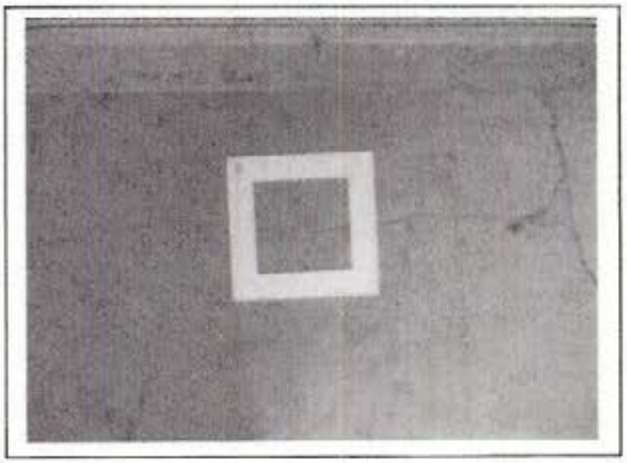


Photo #10 – West CIFR wipe

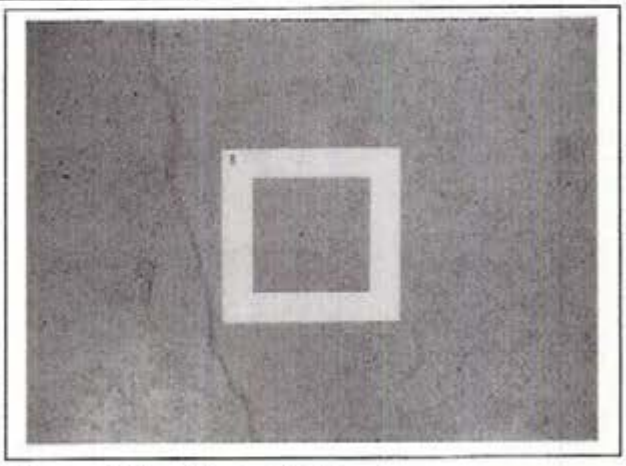


Photo #11 –East CIFR wipe

Photo #12 –CIFR

Photo Log

Photo #13 – Eye wash

Photo #14- Eye wash weekly tags

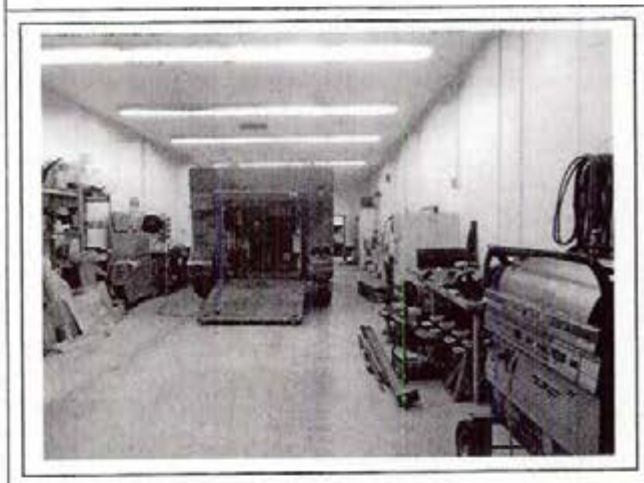


Photo #15- Maintenance shop

Photo #16- Kitchen

Photo #17 –Mech/Electrical

Photo #18 – POL shed

Photo Log

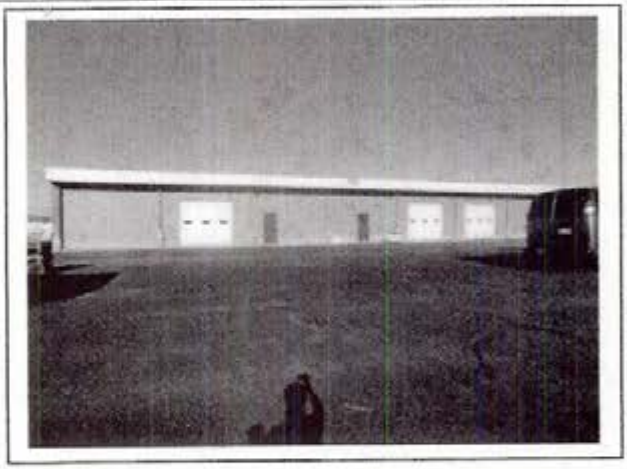


Photo #19 – Storage

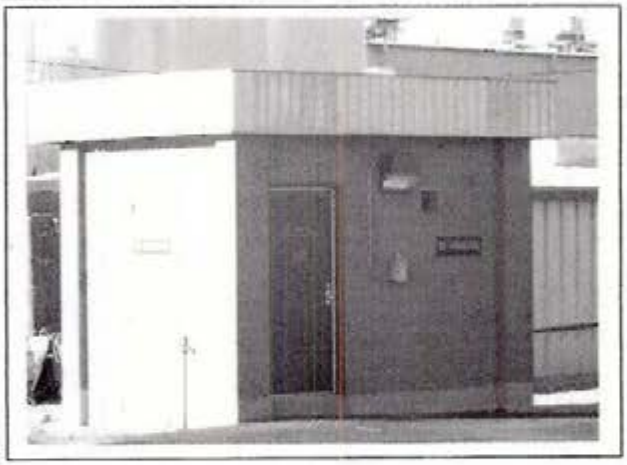
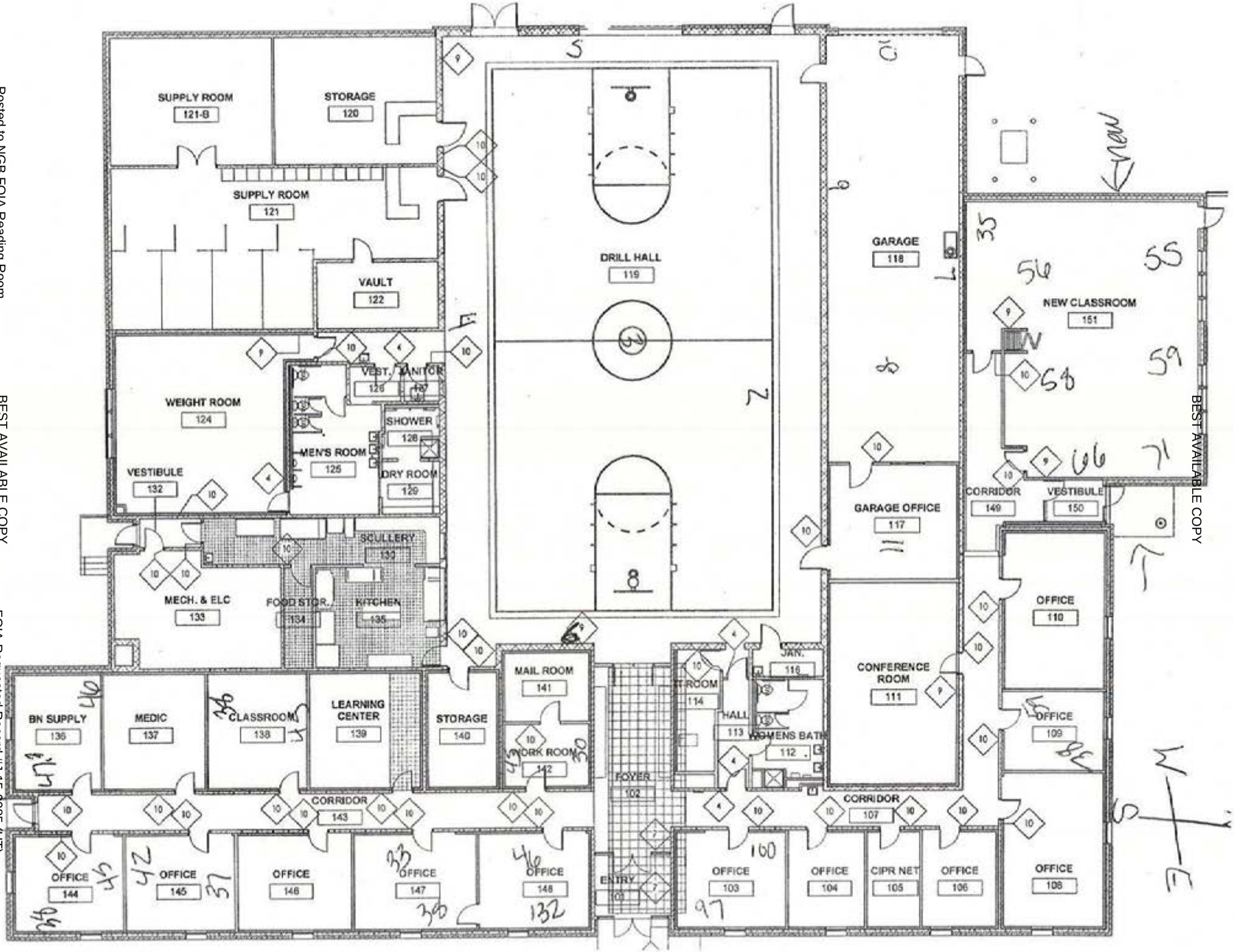


Photo #20-Outside POL shed

Photo #21-Janitorial closet

Appendix D

Floor Plan/Illumination Survey



Appendix E

Laboratory Analysis Reports
Sample Location & Log

RESERVOIRS ENVIRONMENTAL, INC.

5801 Logan St., Suite 100
Denver CO 80216

TABLE ANALYSIS: LEAD BY WIPE SAMPLING

RES Job Number:	**RES 302223-1**
Client:	**Aloha World**
Client Project Number / P.O.:	**092714**
Client Project Description:	**Cedar City Armory**
Date Samples Received:	**October 4, 2014**
Analysis Type:	**USEPA SW846 3050B / AA (7420)**
Turnaround:	**3-5 Day**
Date Samples Analyzed:	**October 13, 2014**

Client ID Number	Lab ID Number	Sample Area (sq.ft.)	LEAD (µg)	Reporting Limit (µg/ft^2)	LEAD CONCENTRATION (µg/ft^2)
092714-1	EM 1270438	0.11	BRL	22.7	BRL
092714-2	EM 1270439	0.11	BRL	22.7	BRL
092714-3	EM 1270440	0.11	BRL	22.7	BRL
092714-4	EM 1270441	0.11	BRL	22.7	BRL
092714-5	EM 1270442	0.11	BRL	22.7	BRL
092714-6	EM 1270443	0.11	BRL	22.7	BRL
092714-7	EM 1270444	0.11	8.2	22.7	74.5
092714-8	EM 1270445	0.11	BRL	22.7	BRL
092714-9	EM 1270446	0.11	4.4	22.7	40.0
092714-10	EM 1270447	0.11	6.5	22.7	59.1
092714-11	EM 1270448	0.11	15.0	22.7	136

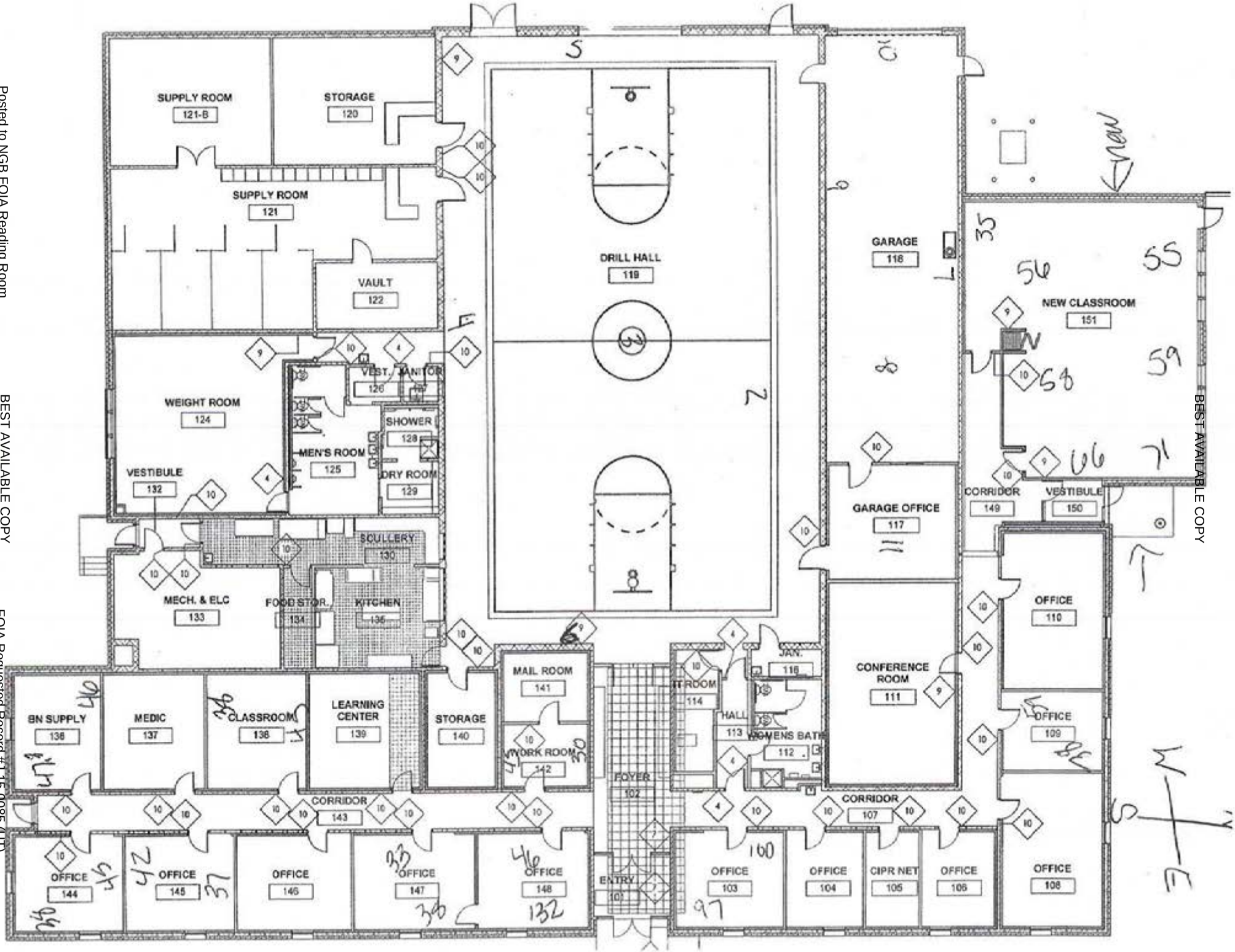
***Calculations Based On A 1 sq.ft. Sample Area Unless Otherwise Noted**
*** Unless otherwise noted all quality control samples performed within specifications established by the laboratory.**

Non-Responsive

BRL = Below Reporting Limit

Data Q

P: 303-964-1986
F: 303-477-4275
5801 Logan Street, Suite 100 Denver, CO 80216
1-866-RESI-ENV
www.reilab.com

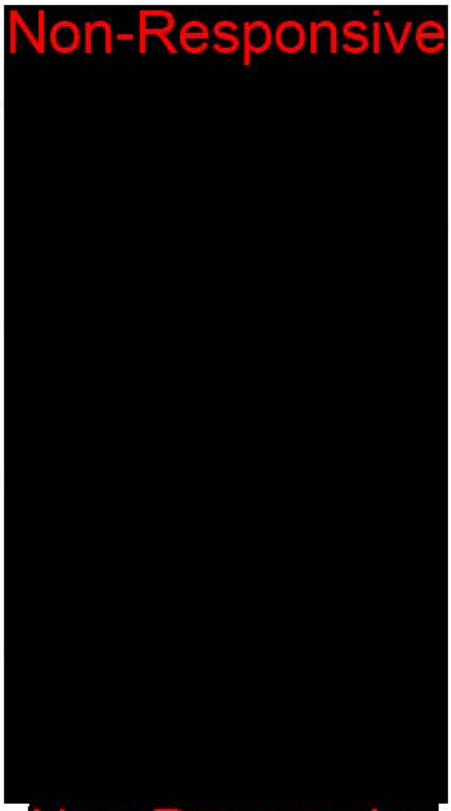


Appendix F

Full-Time Personnel Listing

Aloha World

CEDAR CITY FULL TIME ROSTER



Appendix G

ARNG Survey Checklist

Aloha World

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

Five **lead wipe** samples collected from drill floor (take samples from dusty horizontal floor surfaces)	✓
Are any **weapons cleaned** in the facility, if yes where are they cleaned?	yes, 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.	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.	removed - cleaned out 2011
Quality of housekeeping	great
HVAC maintenance plan in place?	PFCM - FMO
Overall condition of HVAC system	good - new in remodel
Obtained **CO2, Temp, RH** monitoring	good
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	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)	yes
Egress routes accessible and properly marked - -noted on Fire Evacuation Plan	yes
Training programs in place; Hazcom, Respiratory Protection, Confined Spaces, Hearing conservation, PPE (if applicable)	Hazcom & hearing annual
Any Photo labs	no
Any hazardous **noise** sources	n/a
Light levels checked throughout building	✓
Breaker panels properly labeled with no exposed wiring	good
Check **building occupancy** 1. How many military personnel, how many civilian personnel 2. What types of units occupy facility, i.e. Administrative, Maintenance, etc.?	13 full time 60 guardsmen
Any **civilian activities** in armory (cub scouts, classes, day care, parties etc)	yes
Obtain two **lead air samples**	On IHSW Request Only

Evaluate Kitchen Stove Hood Flow if Present IAW NFPA Standard 96.	✓ 120
Collect Source Noise Measurements of Kitchen Appliances and Document Using DD 2214	n/a
Conduct a safety walkthrough of entire facility document any safety deficiencies found.	✓
Take photos of outside of **building**, all **sample points** and any **pertinent hazards** or concerns.	✓
Name of Armory, **POC, phone #, address** and **organizations** in Armory **(Add Checklist to Report)**	Cedar City 1065 N Airport Rd Cedar City, UT 84721 **(Add Checklist to Report)**

Non-Responsive

Appendix H

Chemical List

Aloha World

If there is no NSN present, MSDS will be listed in alphabetical order by product name in back of book.

NIIN	CHEMICAL NAME	MANUFACTURER NAME
00-003-5295	CLEANING COMPOUND	CHEMTRONICS INC
00-081-2335	ANAEROBIC ADHESIVE	HERNON MANUFACTURING INC.
00-081-2338	SEALING COMPOUND (YELLOW)	HERNON MANUFACTURING INC.
00-109-2481	WEATHER STRIP ADHESIVE	3M
00-111-6254	OIL LUBRICANT 770 TYPE 1&2	ROYAL LUBRICANTS INC
00-111-6256	OIL LUBRICANT 770 TYPE 1&2	ROYAL LUBRICANTS INC
00-117-8791	OIL LUBRICATING 2-CYCLE	GARD CORP.
00-138-8324	BUFFING SOLUTION	PANG RUBBER CO.
01-149-7431	HYD FLUID, FIRE RESISTANT 83282	HULS AMERICA INC.
00-152-3245	BOILED LINSEED OIL	CARGILL INC.
00-160-5787	PAINT THINNER	PRATT & LAMBERT
00-160-5788	PAINT THINNER	NCP COATINGS
00-160-5794	THINNER, SYNTHETIC RESIN ENAMEL	CHEMICAL SPECIALISTS DEVL INC
00-181-7761	FOAMFAST ADHESIVE	3M
00-181-8080	THINNER, POLYURETHANE	HOME OIL CO.
00-181-7940	ANTIFREEZE	OLD WORLD INDUSTRIES
00-186-6668	OIL 10W, MIL-L-2104F OE10	IMPERIAL OIL CO.
00-190-0905	GREASE GAA	BATTENFIELD GREASE & OIL CORP.
00-201-0907	DENATURED ETHYL ALCOHOL	HOME OIL CO.
00-233-4134	OHA	TECHNOLUBE PRODUCTS DIVISION
00-224-6663	RIFLE BORE CLEANER	INTERNATION LUBRICANTS INC.
00-225-8563	HAND CLEANER	MAKOOR PRODUCTS MFG CO.
00-249-9354	BATTERY ACID	AMERICAN BATTERY ACID CORP.
00-251-3980	ANTI-SEIZE COMPOUND	JET-LUBE
00-256-5526	ZIPPER LUBRICANT	AMERICAN GREASE STICK CO.
00-262-8567	SODIUM CARBONATE-ANHYDROUS	TIMMONS AND CHARLES INC.
00-264-6751	ACETYLENE	UNITED STATES WELDING INC.
00-269-1272	ABSORBENT FLOOR DRI	OIL-DRI CORP.
00-272-9802	DUPLICATING FLUID TYPE 1	REPEAT-O-TYPE
00-290-6983	PAINT AEROSOL (WHITE)	SPRAYON PRODUCTS
00-297-9540	BATTERY WATER	HOC INDUSTRIES
00-348-7715	PAINT AEROSOL (BROWN)	PLASTI-KOTE CO.
00-356-4963	REGENT WATER	NATIONAL INDUSTRIAL PRODUCTS
00-357-7386	DETERGENT, GENERAL PURPOSE	LIGHTHOUSE OF HOUSTON BLIND
00-529-7518	PENETRATING OIL TYPE 2	AMERICAN WRITING INC
00-530-8371	SEALER, SURFACE FLOOR	BARRIER INDUSTRIES INC
00-546-8621	UNDERCOATING SPRAY	AEROSOL SYSTEMS INC.
00-582-4743	PAINT, OBLITERATING LACQUER	PLASTI-KOTE CO.
00-582-5382	PAINT, FLAT BLACK AEROSOL	NEW YORK BRONZE POWDER INC.
00-584-3041	PROPANE	TURNER-DIV OF COOPER TOOLS
00-616-9143	PAINT, BLACK ENAMEL AEROSOL	LHB INDUSTRIES
00-637-6142	SULFURIC ACID POWDER	OCTAGIN PROCESS INC
00-646-9727	STARTING FLUID	QUICK START PRODUCTS LTD
00-656-1426	GASKET SEALING COMPOUND	STEVEN INDUSTRIES
00-657-4959	DEXRON 6	CITIES SERVICE CO.
00-721-6055	DEODORANT GENERAL PURPOSE	MALTER INTERNATIONAL
00-721-9743	PAINT, AEROSOL (RED)	PLASTI-KOTE CO.
00-721-9744	PAINT, AEROSOL (YELLOW)	PLASTI-KOTE CO.
00-721-9746	PAINT, AEROSOL (BLUE)	PLASTI-KOTE CO.
00-721-9747	PAINT, AEROSOL (BLUE)	PLASTI-KOTE CO.

00-721-9748	PAINT, AEROSOL (BLUE)	PLASTI-KOTE CO.
00-721-9749	PAINT, AEROSOL (GRAY)	EVERFROST INC.
00-721-9750	PAINT, AEROSOL (GRAY)	NATIONAL AEROSOL PRODUCTS CO.
00-721-9751	PAINT, AEROSOL (SILVER)	SPRAYON PRODUCTS
00-721-9752	PAINT, AEROSOL (GOLD)	SPRAYON PRODUCTS
00-721-9753	PAINT, AEROSOL (BLUE)	NATIONAL AEROSOL PRODUCTS CO.
00-753-5061	INHIBITOR, ICING FUEL SYSTEM	OCTAGIN PROCESS INC
00-754-2597	MOLYBENDUM GREASE	ROYAL LUBRICANTS INC
00-823-7861	STARTING FLUID	PYTOIL CO.
00-850-7076	PRIMER METAL	PRATT & LAMBERT
00-880-7617	SILICONE GREASE	NOVAGARD
00-889-3479	FLOOR SOAP	CONTINENTAL CHEMICAL CORP.
0-899-8825	PAINT, AEROSOL (GREEN)	KOP-COAT INC.
00-926-2275	WINDSHIELD CLEANER	CONTINENTAL CHEMICAL CORP.
00-935-7079	ACRYLIC LACQUER, AEROSOL (BLACK)	LHB INDUSTRIES
00-935-9809	HYDRAULIC FLUID 783D	ROYAL LUBRICANTS INC
00-938-6860	SPRAY ADHESIVE	CAMIE-CAMPBELL INC.
00-948-7388	ENAMEL AEROSOL (GREEN)	LHB INDUSTRIES
01-035-5393	GEAR OIL 80W90	CITGO PETROLEUM CORP
01-041-1596	CORROSION PREVENTATIVE COMPOUND	BAKER SEALANTS & COATINGS
01-053-6688	CLP LIQUID	BREAK-FREE DIV OF SAN/BAR CORP
01-054-6453	CLP LIQUID	BREAK-FREE DIV OF SAN/BAR CORP
01-067-2137	INSECTICIDE D-TRANS ALLETHRIN	BULK CHEMICALS DIST INC
01-085-1423	CARB & CHOKE CLEANER	RADIATOR SPECIALTY CO.
01-102-9455	SILICONE BRAKE FLUID	DOW CORNING CORP
01-131-3323	FIRE RESISTANT HYD FLUID	ROYAL LUBRICANTS INC
01-134-6513	MINERAL SPIRITS	SCHARPF GROUP INC.
01-152-4117	OIL, LUBRICATING 15/40	SAFETY-KLEEN CORP
01-167-0678	BRAKE PARTS CLEANER	CRC INDUSTRIES INC
01-197-7689	GREASE GAA	BATTENFIELD GREASE & OIL CORP.
01-197-7692	LUBRICATING GREASE MIL-G-1092	SUMMIT LUBRICANTS
01-197-7693	LUBRICATING GREASE MIL-G-1092	SUMMIT LUBRICANTS
01-229-7540	CARC PAINT (BLACK)	HENTZEN COATINGS INC.
01-229-7543	CARC PAINT (BROWN)	HENTZEN COATINGS INC.
01-229-7546	CARC PAINT (GREEN)	HENTZEN COATINGS INC.
01-229-9561	CARC PAINT (GREEN)	HENTZEN COATINGS INC.
01-234-2934	CARC PAINT (SAND)	HENTZEN COATINGS INC.
01-326-8110	GLASS CLEANER	LIGHTHOUSE OF HOUSTON BLIND
01-331-6105	PAINT, AEROSOL (GLOSS WHITE)	CARDINAL INDUSTRIAL FINISHES
01-331-6107	PAINT, AEROSOL (GLOSS BLACK)	CARDINAL INDUSTRIAL FINISHES
01-331-6110	PAINT, AEROSOL (RED)	CARDINAL INDUSTRIAL FINISHES
01-332-3745	PAINT, AEROSOL (YELLOW)	CARDINAL INDUSTRIAL FINISHES
01-336-3980	PAINT, AEROSOL (GREEN)	CARDINAL INDUSTRIAL FINISHES
01-336-7198	DEGREASER CLEANER	COOKE INDUSTRIES INC
01-350-4984	SEAM SEALER	KENYON CONSUMER PRODUCTS
01-353-4799	DEXRON 3&6	WARREN DISTRIBUTION INC
01-378-0666	BREAKTHROUGH SOLVENT	INLAND TECHNOLOGY
01-423-1065	CITRUS CLEANER/DEGREASER	INTEGRATED CHEMISTRIES INC
01-436-7887	ID RED CLEANING COMPOUND	ZEP MANUFACTURING CO.
01-436-6076	OIL, LUBRICATING 15/40	SAFETY-KLEEN CORP
01-438-6079	OIL, LUBRICATING 15/40	SAFETY-KLEEN CORP

01-438-6082	OIL, LUBRICATING 15/40	SAFETY-KLEEN CORP
01-439-0681	WD-40 LUBRICANT	WD-40 CO.
01-441-3221	ANTIFREEZE	STARTREX CHEMICAL
01-441-5940	PAINT THINNER	STARTREX CHEMICAL
01-464-9125	ANTIFREEZE	PITT PENN OIL CO.
01-464-9137	ANTIFREEZE	PITT PENN OIL CO.
PN:C02671	BATTERY CORROSION PREVENTATIVE	THE NOCO CO.
PN: 03050, 73050	CHAIN & WIRE ROPE LUBRICANT	CRC INDUSTRIES INC
PN: 79040	CLEANER CHISEL, GASKET REMOVER	LOCTITE CORP.
NO PN	DOUBLE BUBBLE RED ADHESIVE	ROYAL ADHESIVES & SEALANTS LLC
PN: 04001	EPOXY DOUBLE BUBBLE RED/WHITE	HARDMAN INC.
PN: 16-450	FAST DRY SELF VULCANIZING CEMENT	PATCH RUBBER CO.
PN: 81160	HIGH TEMP RTV SILICONE GASKET MAKER	PERMATEX
NO PN	JB STEEL STIK	J-B WELD CO.
PN: 1075/1079	MILITARY DIGITAL PATTERN CAMO PAINT	AERVOE INDUSTRIES INC.
PN: 58730	SUPERFLEX ULTRA BLUE SILICONE	LOCTITE CORP.
NO PN	LIQUID WRENCH	RADIATOR SPECIALTY CO.
PN: 42128	SIMPLE GREEN HAND CLEANER GEL	SUNSHINE MAKERS INC
PN: 90134	WINDEX GLASS CLEANER	DRACKETT PRODUCTS CO.

Appendix I

Recommendations

RECOMMENDATIONS

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

2. Conduct a facility survey to identify Asbestos Containing Material (ACM) within the facility and develop ACM Management Plan. Conduct awareness training to all personnel who occupy the facility regarding the finding s and the ACM Management Plan. The survey may have been completed, however, at the time of this assistance visit awareness training, ACM identification, or an ACM Management Plan was not available. 29 CFR 1910.1001
10.106(d)(7)(i)(a)

3. Properly mount a fire extinguisher 10ft from door opening 1910.106(d)(7)(i)(a)

4. A vehicle exhaust system should be installed if maintenance is to be continued in this armory bay. In the interim, utilize the portable exhaust system, open doors and do prolonged engine running outside. DG 415-5 & Prudent Industrial Hygiene Practice.

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

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

Appendix J

Violation Inventory Log

Aloha World

Industrial Hygiene Southwest

Violation Inventory Log

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

CEDAR CITY ARMORY,UTAH 84721

CONTROL NUMBER CLOSED [X]	HAZARD DESCRIPTION	SITE	RAC	CORRECTIVE ACTIONS (Abatement Plan)	SUSPENSE DATE	ACTION OIC/NCOIC	Estimated Cost(s)	DATE CORRECTED	REFERENCES
UTCC-09292014-3.1	Lead levels exceded the minimun requirements.	Armory	3	Upgrade housekeeping practices throughout this facility to help prevent migration of lead dust. Thoroughly clean areas identified above 40 ug/ft2. Utilize Armory Clean-up SOP in future cleaning episodes.					Occupational Safety and Health Administration (OSHA) standard for lead; 1910.1025 (h)(1)
UTCC-09292014-3.2 [ ]	There was no Asbestos Management plan in place.	Armory	3	Conduct a facility survey to identify Asbestos Containing Material (ACM) within the facility and develop ACM Management Plan. Conduct awareness training to all personnel who occupy the facility regarding the finding and the ACM Management Plan. The survey may have been completed, however, at the time of this assistance visit, awareness training, ACM identification, or an ACM Management Plan was not available.					AR 420-1, 5-24b,c and d; 29 CFR 1910.1001
UTCC-09292014-3.5	The portable vehicle exhaust system was inadequate.	Armory	3	A vehicle exhaust system should be installed if maintenance is to be continued in this armory bay. In the interim, utilize the portable exhaust system, open doors and do prolonged engine running outside.					DG 415-5 & Prudent Industrial Hygiene Practice.

Industrial Hygiene Southwest

Violation Inventory Log

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

CEDAR CITY ARMORY,UTAH 84721

CONTROL NUMBER CLOSED [X]	HAZARD DESCRIPTION	SITE	RAC	CORRECTIVE ACTIONS (Abatement Plan)	SUSPENSE DATE	ACTION OIC/NCOIC	Estimated Cost(s)	DATE CORRECTED	REFERENCES
UTCC-09292014-3.5	The SDS file is still listed as MSDS since the Globally Harmonized System (GHS) Classification of Labeling Chemicals has just taken effect this year and the documents are still MSDS documents.	Armory	4	Update all MSDS for the facility with the new SDS format by June 2016					(CFR 1910.120)
UTCC-09292014-3.5	There was not a fire Extinguisher within 10ft of the door for the POL shed.	Armory	4	Properly mount a fire extinguisher 10ft from POL shed door opening on the outside of the shed.					1910.106(d)(7)(i)(a)
UTCC-09292014-3.8 [ ]	Levels were below recommended minimum standards in some areas of the facility.	Armory	4	Replacing burnt out luminaries, cleaning fixtures, cleaning windows, painting walls a lighter color, repositioning detailed work to higher illuminated areas, and using supplemental lighting would improve some areas. Utilize task lighting, as needed to help prevent eye strain in the work place.					DG 415-2 and Lighting Handbook, Illuminating Engineering Society (IES) of North America]

29Sept 14

ARMY NATIONAL GUARD
INDUSTRIAL HYGIENE – SOUTHWEST

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

Industrial Hygiene Site Assistance Visit

Cedar City Armory-Converted Indoor Firing Range (CIFR)

1065 North Airport Road
Cedar City, UT 84721

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

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

ARNG-CSG-P

19 OCT 2014

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

FOR Commander, Cedar City Armory Indoor Firing Range (IFR) 1065 North Airport Road Cedar City, UT 84721

SUBJECT: Executive Summary for Industrial Hygiene Site Assistance Visit (IHSAV) for Cedar City Armory Indoor Firing Range (IFR) 1065 North Airport Road Cedar City, UT on 29 SEP 2014

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

2. **General.**

a. At the request of the NGB Industrial Hygiene, Southwest (IHSW) Region, an Industrial Hygiene Site Assistance Visit and cursory review of safety related items and programs was conducted at the Cedar City Armory Indoor Firing Range (IFR) 1065 North Airport Road Cedar City, UT on 29 SEP 2014

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

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

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

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

4. **Commendable.**

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

5. **Observations / Recommendations.**

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

a. Thorough cleaning of armory should be accomplished and especially in identified areas with higher lead dust accumulation identified during this IHSAV. Thoroughly clean areas identified above 40

ug/ft2. Utilize Armory Cleanup SOP accompanying this report for clean-up, especially after weapons cleaning episodes to help prevent accumulation and migration of this heavy metal. (para. 3.1) **(RAC 4)**

6. Violation Correction Log.

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

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

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

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

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

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

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

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

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

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

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

ARNG-CSG-P

SUBJECT: Executive Summary for Industrial Hygiene Site Assistance Visit (IHSAV) for Cedar City Armory Indoor Firing Range (IFR) 1065 North Airport Road Cedar City, UT on 29 SEP 2014

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

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

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

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

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

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

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

NGB, IHSW, CIV
Regional Industrial
Hygiene Manager

Industrial Hygiene Southwest

Violation Inventory Log

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

CEDAR CITY ARMORY CIFR,UTAH 84721

CONTROL NUMBER CLOSED [X]	HAZARD DESCRIPTION	SITE	RAC	CORRECTIVE ACTIONS (Abatement Plan)	SUSPENSE DATE	ACTION OIC/NCOIC	Estimated Cost(s)	DATE CORRECTED	REFERENCES
UTCC-09292014-3.1	Lead levels exceded the minimun requirements.	Armory	3	Upgrade housekeeping practices throughout this facility to help prevent migration of lead dust. Thoroughly clean areas identified above 40 ug/ft2. Utilize Armory Clean-up SOP in future cleaning episodes.					Occupational Safety and Health Administration (OSHA) standard for lead; 1910.1025 (h)(1)

Reference DA FORM 4754
VER: 1 T 2009

Indoor Firing Range

Decontamination and Cleaning Protocol

(Periodic Cleaning and Conversion)

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

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

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

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

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

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

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

4. **Order of Cleaning**

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

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

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

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

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

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

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

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

5. Decontamination of Stored Items

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

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

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

6. Medical Surveillance

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

7. Air Monitoring

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

8. Hazard Training

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

ARMORY

CLEANUP & FOLLOW-UP HOUSEKEEPING RECOMMENDATIONS

Materials Needed:

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

Disposal of Waste Water and Cleaning Materials:

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

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

3. Disposable gloves should be treated as hazardous waste.

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

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

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

Post-Cleanup Precautionary Measures:

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

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

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

Initial Armory Cleanup:

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

UTAH ARMY NATIONAL GUARD

CEDAR CITY ARMORY

1065 N Airport Rd.
Cedar City, UT 84721
(435) 867 6510

Submitted to:

Non-Responsive

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

Table of Contents

INDUSTRIAL HYGIENE ASSISTANCE VISIT
CEDAR CITY ARMORY
CEDAR CITY, UTAH

1.0 Introduction and Background

1.1. This report summarizes the results of the Industrial Hygiene (IH) Site Assistant Visit (SAV) conducted at the Cedar City Armory in Cedar City, Utah on September 29, 2014. The Army National Guard Industrial Hygiene Southwest (ARNG-IHSW) requested Aloha World to visit the Cedar City Armory to follow-up and evaluate potential high lead. This IH SAV also includes interviews with Non-Responsive regarding industrial hygiene issues as well as any change in operations in the work area that might affect the workers health and safety. Non-Responsive from Aloha World completed this survey.

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

1.3. The Cedar City Armory supports the HHB 2-222 FA. The Armory has thirteen full time guard members. This armory was constructed in the 1960's. The armory has offices used for administrative purposes and also contains a drill floor, arms room, classrooms, industrial kitchen and an unattached storage building. Maintenance service is done at this site and overseen by FMS 6 in St George, UT.

1.4 There is a Converted Indoor Firing Range (CIFR) in this facility. The ventilation system, firing lines, lighting and bullet stop have all been removed. The firing range was converted into a maintenance shop. Lead samples were taken in the CIFR and in the Drill Hall. Lead wipe samples results could not be obtained from the time of conversion.

2.0 Survey Procedures and Equipment Used

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

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

3.0. Findings and Recommendations

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

Table 3.1.A.
Lead Wipe

Sample ID	AREA	Photo #	Result ug/ft2
092714-1	Control	NA	BDL
092714-2	North drill hall	2	BDL
092714-3	Center drill hall	3	BDL
092714-4	South drill hall	4	BDL
092714-5	West drill hall	5	BDL
092714-6	East drill hall	6	BDL
092714-7	North CFR	7	74.5
092714-8	Center CFR	8	BDL
092714-9	South CFR	9	40.0
092714-10	West CFR	10	59.1
092714-11	East CFR	11	136

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

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

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

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

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

This 1960's building is of concrete block and brick construction with a metal roof over the drill hall, with tar and rock composite on remaining roof area. No water leakage was detected.

A fire evacuation plan was posted throughout the armory.

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

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

4.0 Industrial Hygienist Certification/Project Limitations

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

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

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

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

5.0 Technical Assistance

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

Non-Responsive
Aloha World

Aloha World

Appendix A
References

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

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

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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

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Appendix B

Recommendations

Recommendations

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

Appendix C

Photograph Log

Photo Log

Photo #1 – Cedar City Armory

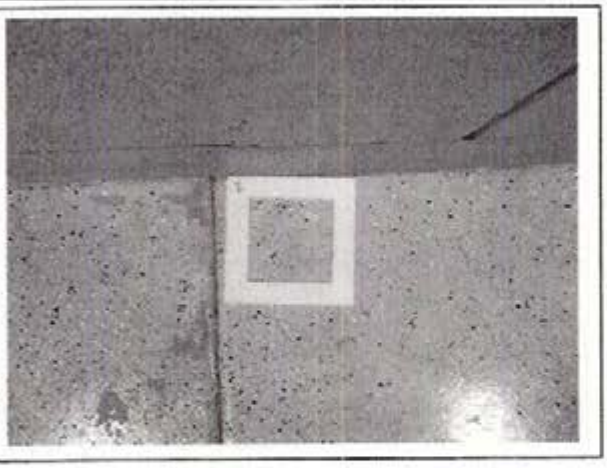


Photo #2- North drill hall wipe

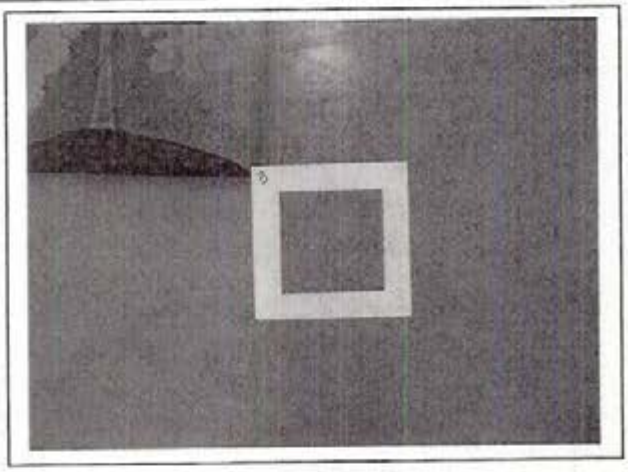


Photo #3- Center drill hall wipe

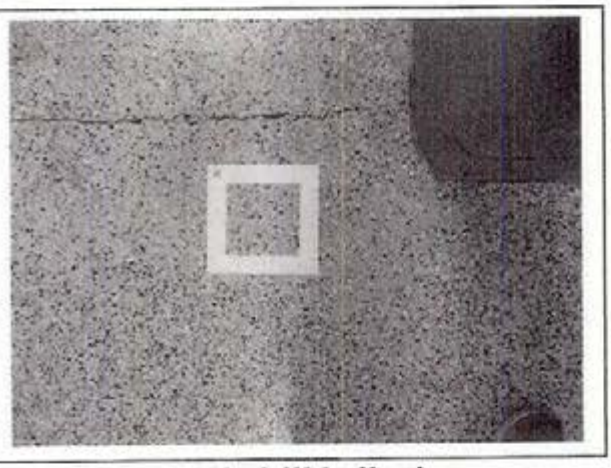


Photo #4- South drill hall wipe

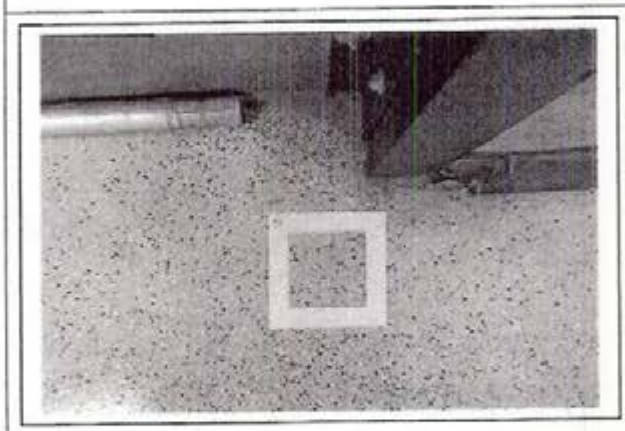


Photo #5 –West drill hall wipe

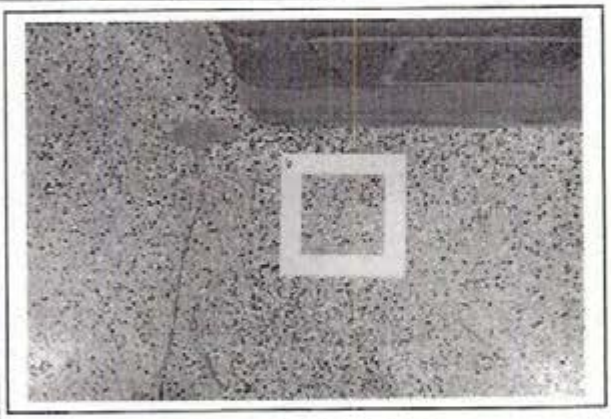


Photo #6 – East drill hall wipe

Photo Log

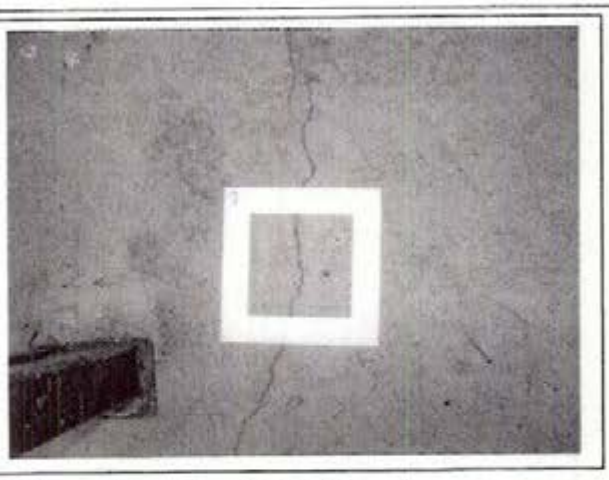


Photo #7 – North CIFR wipe

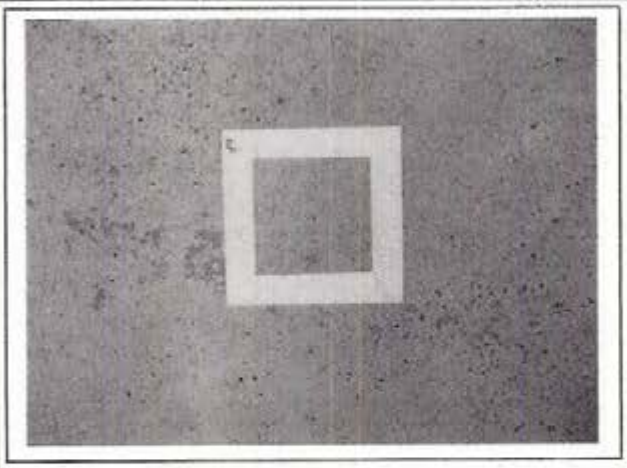


Photo #8- Center CIFR wipe

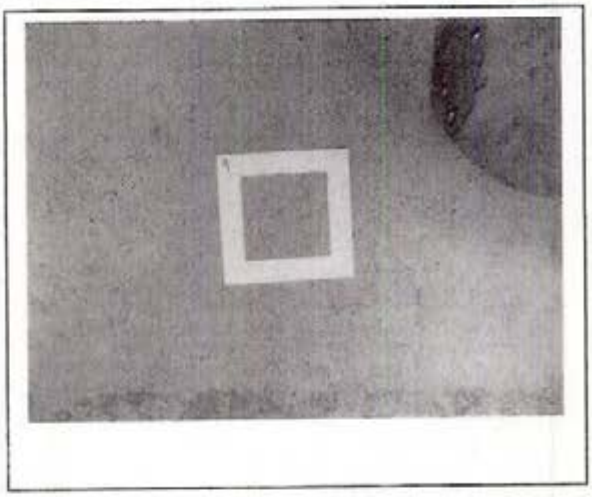


Photo #9 – South CIFR wipe

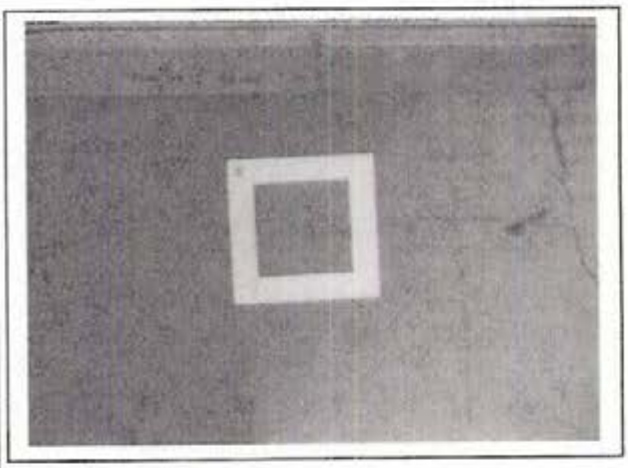


Photo #10 – West CIFR wipe

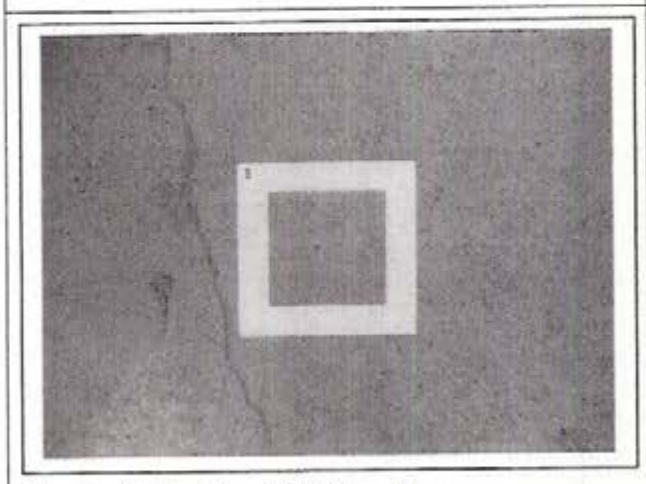


Photo #11 –East CIFR wipe

Photo #12 –CIFR

Photo Log

Photo #13 – Eye wash

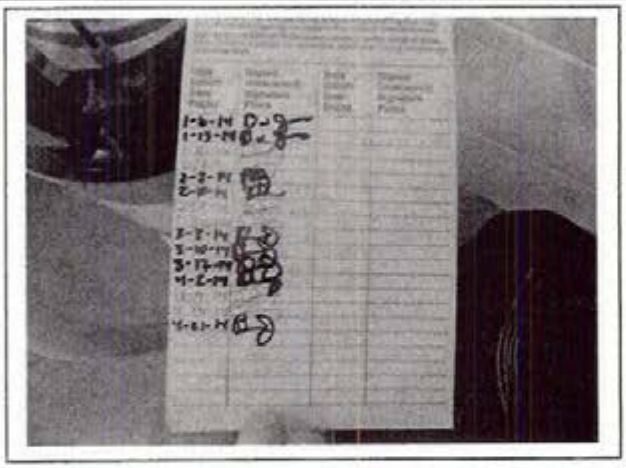


Photo #14- Eye wash weekly tags

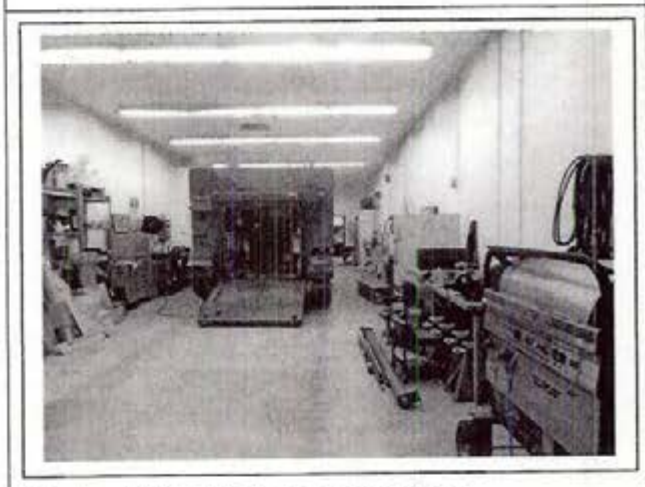


Photo #15- Maintenance shop

Photo #16- Kitchen

Photo #17 –Mech/Electrical

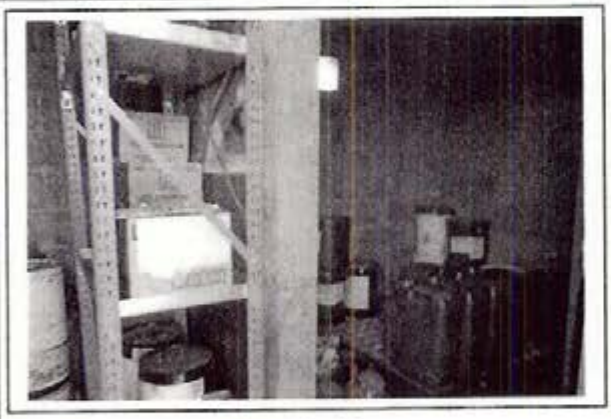


Photo #18 – POL shed

Photo Log

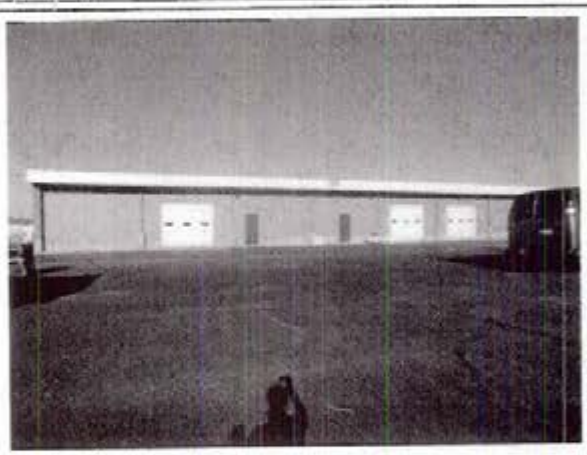


Photo #19 – Storage

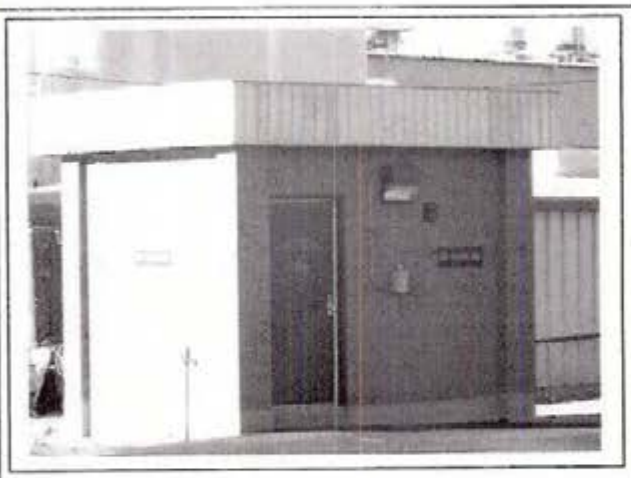


Photo #20-Outside POL shed

Photo #21-Janitorial closet

Appendix D

Laboratory Analysis Reports
Sample Location & Log

RESERVOIRS ENVIRONMENTAL, INC.

5801 Logan St., Suite 100
Denver CO 80216

TABLE ANALYSIS: LEAD BY WIPE SAMPLING

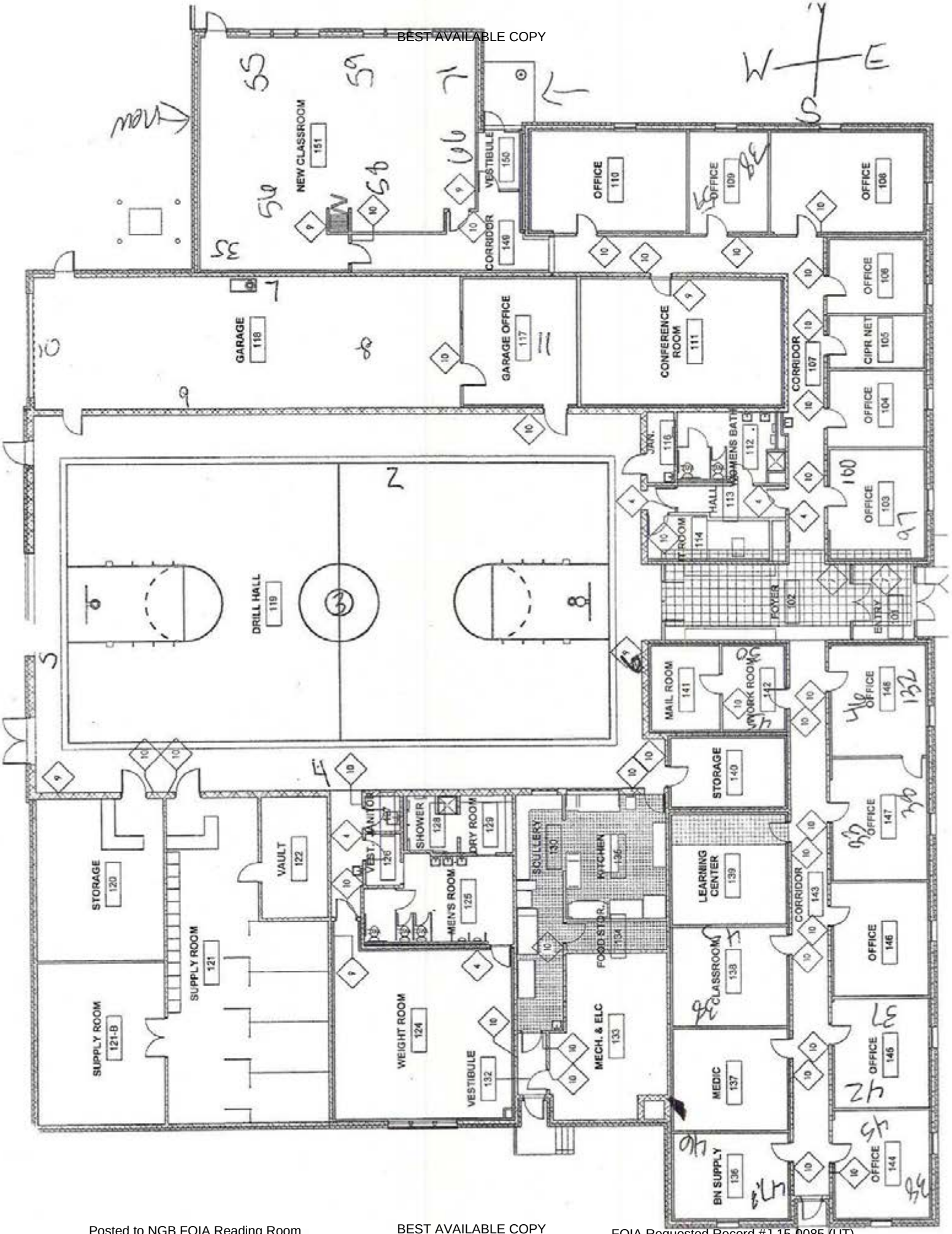
RES Job Number:	**RES 302223-1**
Client:	**Aloha World**
Client Project Number / P.O.:	**092714**
Client Project Description:	**Cedar City Armory**
Date Samples Received:	**October 4, 2014**
Analysis Type:	**USEPA SW846 3050B / AA (7420)**
Turnaround:	**3-5 Day**
Date Samples Analyzed:	**October 13, 2014**

Client ID Number	Lab ID Number	Sample Area (sq.ft.)	LEAD (µg)	Reporting Limit (µg/ft^2)	LEAD CONCENTRATION (µg/ft^2)
092714-1	EM 1270438	0.11	BRL	22.7	BRL
092714-2	EM 1270439	0.11	BRL	22.7	BRL
092714-3	EM 1270440	0.11	BRL	22.7	BRL
092714-4	EM 1270441	0.11	BRL	22.7	BRL
092714-5	EM 1270442	0.11	BRL	22.7	BRL
092714-6	EM 1270443	0.11	BRL	22.7	BRL
092714-7	EM 1270444	0.11	8.2	22.7	74.5
092714-8	EM 1270445	0.11	BRL	22.7	BRL
092714-9	EM 1270446	0.11	4.4	22.7	40.0
092714-10	EM 1270447	0.11	6.5	22.7	59.1
092714-11	EM 1270448	0.11	15.0	22.7	136

***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.**

BRL = Below Reporting Limit

Data QA [redacted] Non-Responsive



Appendix E

Violation Inventory Log

Industrial Hygiene Southwest

Violation Inventory Log

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

CEDAR CITY ARMORY CIFR,UTAH 84721

CONTROL NUMBER CLOSED [x]	HAZARD DESCRIPTION	SITE	RAC	CORRECTIVE ACTIONS (Abatement Plan)	SUSPENSE DATE	ACTION OIC/NCOIC	Estimated Cost(s)	DATE CORRECTED	REFERENCES
UTCC-09292014-3.1	Lead levels exceded the minimun requirements.	Armory	3	Upgrade housekeeping practices throughout this facility to help prevent migration of lead dust. Thoroughly clean areas identified above 40 ug/ft2. Utilize Armory Clean-up SOP in future cleaning episodes.					Occupational Safety and Health Administration (OSHA) standard for lead; 1910.1025 (h)(1)

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

Industrial Hygiene Site Assistance Visit

Draper Armory
Converted Indoor Firing Range (CIFR)

12953 South Minuteman Drive
Draper, UT 84020

24 April 2014

10510 Superfortress Avenue, Suite C, Mather CA 95655 (916) 854-1492

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

28 JUN 2014

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

FOR Commander, Draper Armory Converted Indoor Firing Range (CIFR) 12953 South Minuteman Drive Draper, UT 84020

SUBJECT: Executive Summary for Industrial Hygiene Site Assistance Visit (IHSAV) for Draper Armory Converted Indoor Firing Range (CIFR) 12953 South Minuteman Drive Draper, UT on 24 APR 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 Draper Armory Converted Indoor Firing Range (CIFR) 12953 South Minuteman Drive Draper, UT on 24 APR 2014.

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

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

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

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

4. **Commendable.**

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

SUBJECT: Executive Summary for Industrial Hygiene Site Assistance Visit (IHSAV) for Draper Armory Converted Indoor Firing Range (CIFR) 12953 South Minuteman Drive Draper, UT on 24 APR 2014

a. The following are corrective actions that shall be taken in this Converted Indoor Firing Range: (para. 4.3) (**RAC 2**)

(1) Conduct a "Wall-to-Wall" lead assessment of the CIFR space to assess the elevated lead levels present; includes above & below the drop-in ceiling.

(2) Prohibit public access into the offices and spaces that make up the CIFR space; Public meaning any non-National Guard personnel.

(3) Avoid any maintenance, repair, remodel, cleaning, and any other activities that may disturb existing lead on surfaces above the drop-in ceiling tiles.

(4) Develop a plan and implement to clean / remediate elevated lead dust levels in a manner that prevents continued reintegration and spreading of lead dust.

b. Conduct a facility survey to identify and assess extent of the asbestos hazard. Develop and implement an Asbestos Hazard Management Plan. (para. 5.3) (**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.

ARNG-CSG-P

SUBJECT: Executive Summary for Industrial Hygiene Site Assistance Visit (IHSAV) for Draper Armory Converted Indoor Firing Range (CIFR) 12953 South Minuteman Drive Draper, UT on 24 APR 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 provided an appendix with Hazard Assessments (HA) examples of some of this facilities operations. Additional operations can utilize this format to design HA not observed during this SAV.

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

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

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

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

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

10. For additional information please conta[redacted]e at (916) 854-1491 or via email at [redacted]

[redacted]
NGB, IHSW, CIV
Regional Industrial
Hygiene Manager

Industrial Hygiene Southwest

Violation Inventory Log

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

IFR (Converted) - Draper, UT

CONTROL NUMBER CLOSED ☐	HAZARD DESCRIPTION	SITE	RAC	CORRECTIVE ACTIONS (Abatement Plan)	SUSPENSE DATE	ACTION OIC/NCOIC	Estimated Cost(s)	DATE CORRECTED	REFERENCES
UTDRIFR-04242014-4.3	Lead concentrations exceed established criteria	Converted IFR	2	See 4 Recommended Corrective Actions Below					29 CFR 1910.1025 (h)(1)
UTDRIFR-04242014-5.3	Asbestos Building Materials: inspection, re-inspection and Asbestos Hazard Management Plan. ☐	Facility	3	1) Conduct a facility survey to identify & assess extent of asbestos hazards 2) Develop & implement an Asbestos Hazard Management Plan					AR 420-1, 5-24b, c, & d

RECOMMENDED CORRECTIVE ACTIONS FOR UTDRIFR-04242014-4.3

1) Conduct a "Wall-to-Wall" lead assessment of the CIFR space to assess the extent of lead contamination present; includes above & below the drop-in ceiling.
2) Prohibit public access into the offices and spaces that make up the CIFR space; Public meaning any non-National Guard personnel.
3) Avoid any maintenance, repair, remodel, cleaning, and any other activities that may disturb existing lead contamination on surfaces above the drop-in ceiling tiles.
4) Clean / remediate contaminated surfaces in a manner that prevents spreading of lead dust / contamination.

Referer ?A FORM 4754

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.

Industrial Hygiene Site Assistance Visit
Draper / IFR
Draper, UT
April 24, 2014

NES
www.nesglobal.net

ARMY NATIONAL GUARD

INDUSTRIAL HYGIENE SITE ASSISTANCE VISIT (IHSAV)

CONVERTED INDOOR FIRING RANGE
12953 SOUTH MINUTEMAN DRIVE
DRAPER, UT 84020

April 24, 2014

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

Prepared by:
NES, Inc.
1141 Sibley Street
Folsom, California 95630

***NES* Job Number: 013.IH1716.06**

Prepared by:

Non-Responsive

Industrial Hygiene Specialist

Non-Responsive

Senior Industrial Hygienist

Non-Responsive

Principle-In-Charge

TABLE OF CONTENTS

EXECUTIVE SUMMARY

On April 24, 2014, Non-Responsive Certified Industrial Hygienist (CIH) Non-Responsive and Non-Responsive Industrial Hygiene Specialists, of Network Environmental Systems, Inc. (*NES*), conducted an Industrial Hygiene Site Assistance Visit (IHSAV) at the converted Indoor Firing Range (IFR) located at 12953 South Minuteman Drive in Draper, Utah. The primary point of contact (POC) for information gathered during this survey was Non-Responsive the Utah ARNG Facilities Coordinator, who may be reached by phone at (801) 716-9201 or by email at Non-Responsive

The objectives of this IHSAV were to:

- Obtain historical information regarding the conversion of the IFR;
- Inspect & assess the converted IFR space & HVAC system;
- Collect metal surface wipe samples;
- Measure illumination levels;
- Collect indoor air quality data;
- Evaluate existing safety hazards;
- Inspect & evaluate the paint booth operation and systems (if present); and
- Evaluate the facility for potential asbestos, lead, and mold hazards.

Significant findings for this IHSAV can be found in the Industrial Hygiene Southwest (IHSW) – Violation Inventory Log located in Appendix L 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 methodologies, results, findings, regulatory requirements, and recommendations. Appendices may be left blank where information has been requested from the facility and not yet received.

Commendables Non-Responsive deserve accolades for assisting with this IHSAV. Mr. Borg was cooperative with questions asked, was knowledgeable regarding site history and the IFR conversion, provided access into the necessary areas, and provided assistance obtaining information Non-Responsive provided additional history regarding the IFR conversion. The details within this report are a direct result of the assistance provided by both Non-Responsive

1.0 INTRODUCTION

On April 24, 2014, Non-Responsive Industrial Hygiene Specialists, of *NES*, conducted an IHSAV at the converted IFR located at 12953 South Minuteman Drive in Draper, Utah. The primary POC for information gathered during this survey was Non-Responsive the Utah ARNG Facilities Coordinator, who may be reached by phone at (801) 716-9201 or by email at Non-Responsive

1.1 Objectives

The primary objective of the IHSAV was to evaluate the occupational environment of the areas within the Draper converted IFR in order to determine the presence of health and safety risks. Processes and activities at the facilities were evaluated and recommendations to control the existence and extent of potentially hazardous operations or conditions at the Army National Guard (ARNG) facility were documented accordingly. This IHSAV will serve to establish a baseline Hazard Assessment (HA) / Job Safety Analysis (JSA) of workplace and process conditions or update/validate a previous HA/JSA so a worker's history of exposures, or potential exposures is provided for each civilian and military employee.

1.2 Scope of Work

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

- Obtain historical information regarding the conversion of the IFR;
- Inspect & assess the converted IFR space & HVAC system;
- Collect metal surface wipe samples;
- Measure illumination levels;
- Collect indoor air quality data;
- Evaluate existing safety hazards;
- Inspect & evaluate the paint booth operation and systems (if present); and
- Evaluate the facility for potential asbestos, lead, and mold hazards.

2.0 PROCESS DESCRIPTION

The Draper converted IFR facility is located within the 350,000 square foot (ft^2) Utah National Guard Headquarters building. The Headquarters building contains a myriad of offices used for administrative support purposes. The building was constructed in the 1950's and contained a formerly active IFR used by National Guard personnel. The IFR was reportedly shut down and converted into a laser target system approximately 15 years ago (~2000). In approximately 2010 the converted IFR was renovated into office spaces and the current configuration. There was no documentation of the conversion or renovation available during the IHSAV. Personnel on-site did not know whether asbestos was present, inspected, or abated during the renovations. There were no records (building material survey or Asbestos Hazard Management Plan) available on-site.

The converted IFR space measured roughly 2,000 square feet (ft^2) and consisted of the following: administrative offices, conference room, electrical room, computer shop, and two copy rooms. The primary units occupying the converted IFR space included the Defense Movement Office/State Movement Control Center (SMCC), Sustainment Automation Support Management Office (SASMO), and Recruiting Retention.

NES observed the IFR's exterior walls, or shell, which were composed of cinder block walls on all sides and a roof deck that remained intact. New partition walls and finished drywall were installed during the 2010 renovation along with a drop-in ceiling and flooring (carpeting and vinyl floor tiles). Ventilation systems, conduits and electrical wiring above the drop ceiling appeared to have been installed during the renovation and were not part of the former IFR.

NES identified three (3) current building components that were likely in place while the IFR was active, including: the cinder block shell walls, metal cable trays, and the roof decking. Nothing below the drop ceiling appeared to have been in place when the IFR was active. The concrete subfloor was inaccessible as it was covered by carpeting and vinyl floor tile.

3.0 METHODS

NES assessed multiple conditions and operations using quantitative means. The methods used to conduct these assessments are detailed in this section. Results of these assessments are detailed in Section 4.0.

3.1 Indoor Air Quality

Carbon dioxide (CO_2) measurements are often used as a screening technique to evaluate whether adequate quantities of outdoor air are being introduced and evenly distributed to interior occupied spaces. Human occupants produce CO_2, water vapor, and other bio effluents during respiration. The American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE), in their Standard 62.1-2010, *Ventilation for Acceptable Air Quality*, recommend maintaining CO_2 below a concentration that is 700 parts per million (ppm) above outdoor levels. Outside CO_2 concentrations are typically about 350 ppm. Providing sufficient ventilation to maintain steady-state CO_2 concentrations at this level will assure that a substantial majority of people entering a space will be satisfied with respect to human bio effluents (body odors).

Temperature is commonly measured during IAQ assessments to determine comfort of occupants. Indoor temperatures are recommended to range 68-74° Fahrenheit (F) during the winter and 72.5-80 °F in the summer. Relative humidity indicates the amount of moisture in the air. Typically, interior humidity levels above 65-70% can be conducive to fungal conditions.

Carbon dioxide, temperature, and relative humidity were measured using a Gray Wolf IAQ Meter, model IQ-410. A copy of the current annual calibration certificate for this instrument is located in Appendix H.

3.2 Air Monitoring – Carbon Monoxide

Carbon monoxide is a colorless, odorless, poisonous gas. It is produced by the incomplete burning of solid, liquid, and gaseous fuels. Appliances fueled with natural gas, liquefied petroleum (LP gas), oil, kerosene, coal, or wood may produce CO. Through the use of ventilation, it is uncommon to find elevated concentrations of CO indoors. The health effects of CO depend on the concentration of CO and length of exposure, as well as each individual's health condition. The concentration of CO is measured in ppm. Health effects from exposure to CO levels of approximately 1 to 70 ppm are uncertain, but most people will not experience any symptoms. Air monitoring for carbon monoxide (CO) was performed

throughout the facility using a Gray Wolf IAQ Meter, model IQ-410. A copy of the annual calibration certificate for this instrument is located in Appendix H.

3.3 Metal Wipe Sampling

Lead dust may be introduced into a facility from work processes, facility finishes, consumer products, or other sources. In facilities with converted IFRs, residual lead contamination may be present as a result of insufficient decontamination prior to conversion. Lead wipe samples were collected from horizontal surfaces in various locations throughout the converted IFR to evaluate the potential presence of lead-contaminated dust and provide insight as to whether the space may have been decontaminated prior to being re-purposed.

Ghost Wipe™ brand wipes were used to wipe a four (4) square inch (in^2) or one (1) square foot (ft^2) areas. In sample locations where these area sizes could not be obtained, the sample area size was recorded. All sample results were converted to micrograms per square foot ($\mu g/ft^2$) to allow for easier and better data evaluation. The collected wipe samples were placed in clean and labeled plastic centrifuge tubes and promptly sealed upon collection. Sampling personnel donned a clean pair of Nitrile gloves for each sample collected. Samples were submitted to ALS Environmental Laboratory, located in Salt Lake City, Utah, to be analyzed for lead in accordance with NIOSH Method 7300. The wipes used conform to American Standards for Testing Materials (ASTM) E1792, Standard Specification for Wipe Sampling Materials for Lead in Surface Dust. See Appendix I for a summary of sample results and Appendix J for laboratory reports.

3.4 Painted Surface Evaluation

Based on the age of most National Guard facilities, it is possible that lead paint could be present on walls and other surfaces. If kept intact, the potential hazard of lead paint is minor. Paint that is peeling or otherwise degraded could potentially result in lead-contaminated dust and increases the risk of exposure. Thus, an identification and assessment of deteriorating paint was conducted as part of this IHSAV.

The painted surfaces within the converted IFR were in good and intact condition. Peeling paint was not identified within the converted IFR.

3.5 Illumination Level Monitoring

Illumination measurements were taken throughout the facility using a Konica Minolta Light Meter, Model TL-1. Measurements in office areas were taken at typical work locations, such as the tops of desks and near workstations. To provide information on the overall lighting

conditions in the remainder of the facility, measurements were taken from the surfaces of typical work locations and at waist level from selected locations. A copy of the annual calibration certificate for this instrument is located in Appendix H.

3.6 Equipment Used

The following equipment was used for this survey:

Type	Model Number	Serial Number	Calibration Date
Gray Wolf IAQ Meter	IQ-410	01-936	January 2014
Konica Minolta Light Meter	TL-1	90480719	May 2013

Please see Appendix H for a complete inventory of calibration certificates of equipment used during this IHSAV.

3.7 Quality Assurance

NES employs, at a minimum, the following methods to help assure quality of field investigations and reports:

- Using appropriately educated & experienced staff who receive continuing education;
- Documentation of pertinent field and sampling information;
- Peer review of sampling strategy, field methods, calculations, and reports;
- Strict adherence to documented method requirements, in particular to NIOSH & OSHA methods, & 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 SAMPLING RESULTS

4.1 Indoor Air Quality

The facility has methods and engineering controls in place to provide adequate IAQ. General dilution ventilation is provided throughout most areas within the facility. The HVAC system was able to provide general dilution by removing indoor contaminants and displacing them outdoors. Also the HVAC system was able to provide temperature controls, relative humidity controls and air cleaning. The outdoor CO_2 concentration was measured to be 454 ppm; therefore, the maximum indoor CO_2 concentration recommended by ASHRAE was 1,154 ppm. The CO_2 concentrations from inside the converted IFR ranged between 470 and 505 ppm. The areas measured were within the ASHRAE recommended range for CO_2.

ASHRAE recommends maintaining temperatures between 68 and 75°F and relative humidity between 30% and 60% to minimize the potential for growth of allergenic or pathogenic organisms. Temperatures inside the building ranged between 69.6 and 72.5°F. Relative humidity ranged from 18.9 to 20.1%. The areas measured were within the ASHRAE recommended range for temperature, but were found to be below the recommended range for relative humidity.

A table of the sample locations and summary of corresponding IAQ measurements is available in Appendix E of this report.

4.2 Air Monitoring – Carbon Monoxide

Carbon monoxide concentrations were measured at a total of eight (8) locations throughout the converted IFR using a Gray Wolf IAQ Meter, model IQ-410. The concentration of CO inside the facility ranged from 1.4 to 1.6 ppm, each below the outdoor background concentration measured (3.8 ppm). These concentrations are also below the exposure limit ceiling of 200 ppm set forth by OSHA. A summary of CO measurements collected is provided in Appendix E.

4.3 Metal Wipe Sampling

Wipe samples for lead dust were collected from horizontal surfaces in selected areas of the Draper converted IFR facility to determine if lead contamination was present from the former IFR. Samples were collected from building materials believed to be installed during the renovation of the IFR and from building components that could have been present when the IFR was active (cinder block shell walls and metal cable trays). *NES* could not access the roof deck to collect samples as it was 25 – 30 feet high.

The US Department of Housing and Urban Development (HUD) recommends 40 micrograms per square foot ($\mu g/ft^2$) as a clearance level for floors (includes carpeted and uncarpeted floors). This guideline was established to prevent lead exposure to children in domestic and public facilities. The Army National Guard has applied this criterion to any areas of a facility that may be used by the public for nonmilitary functions, including: administrative offices, restrooms, classrooms, and hallways. *NES* was informed that some of the spaces within the area of the converted IFR, specifically the recruitment retention and conference rooms, can be occupied by public and nonmilitary personnel. Thus, all surfaces sampled during this IHSAV were compared to the 40 $\mu g/ft^2$ criteria.

A total of sixteen (16) lead wipe samples were collected during the IHSAV to be analyzed in accordance with NIOSH Method 7300, modified for Ghost Wipes™. Samples were collected from the following locations: copy room attached to the conference room, conference room, electrical room, SMCC office area, office entryway and hallway, the copy room (G-26) and from various surfaces above the drop-in ceiling. Photographs were taken of each sampling location and are presented in Appendix C (Photo Log). The analytical results are summarized in Table 1. Laboratory results are attached in Appendix J.

Table 1: Summary of Lead Wipe Sample Results

Sample Number	Sample Description	Sample Area (ft^2)	Analytical Result ($\mu g/ft^2$)	Adjusted Results ($\mu g/ft^2$)[1]	ARNG/HUD Standard
042414-IFR-W-01	Copy Room (DOL-14); top of light fixture above DC	1	15	15	≤ 40
042414-IFR-W-02	Copy Room (DOL-14); top of metal cabinet	1	30	30	≤ 40
042414-IFR-W-03	Conference Room (DOL-14); east wall & conduit above DC	1	15	15	≤ 40
042414-IFR-W-04	**Conference Room (DOL-14); top of metal duct above DC**	**0.5**	**120**	**240**	**≤ 40**
042414-IFR-W-05	**Conference Room (DOL-14); maroon cable tray above DC**	**0.33**	**2,800**	**8,485**	**≤ 40**
042414-IFR-W-06	Electrical Room; floor	1	8.6	8.6	≤ 40
042414-IFR-W-07	**SMCC Office Area (DOL-15); maroon cable tray above DC**	**0.33**	**7,900**	**23,940**	**≤ 40**
042414-IFR-W-08	Office Entryway; top of light fixture above DC	1	23	23	≤ 40
042414-IFR-W-09	**Copy Room (G-26); metal stud above DC**	**0.5**	**45**	**90**	**≤ 40**

042414-IFR-W-10	**Copy Room (G-26); top of ducting above DC**	**0.33**	**29**	**88**	**≤ 40**
042414-IFR-W-11	Copy Room (G-26); HVAC return vent	1	1.6	1.6	≤ 40
042414-IFR-W-12	Office Hallway; floor (carpet)	1	<1.3	<1.3	≤ 40
042414-IFR-W-13	SMCC Office Area (DOL-15); HVAC return vent (north)	1	1.4	1.4	≤ 40
042414-IFR-W-14	SMCC Office Area (DOL-15); HVAC return vent (south)	1	2.1	2.1	≤ 40
042414-IFR-W-15	SMCC Office Area (DOL-15); floor (carpet)	1	<1.3	<1.3	≤ 40
042414-IFR-W-16	Conference Room (DOL-14); floor (carpet)	1	<1.3	<1.3	≤ 40

[1] = Analytical results were corrected for the actual area sampled so all results were in $\mu g/ft^2$
DC = Drop ceiling
Bold = Denotes sample results were greater than the allowable level set by ARNG

Analytical results for samples which exceed the acceptable concentration are shown in bold. The analytical results indicate acceptable lead concentrations for each of the surfaces sampled that were below the drop-in ceiling. Elevated lead concentrations were identified impacting new building materials (ducting and metal stud) and building components that are likely to have been in place when the IFR was active (maroon cable tray). The highest concentrations were observed on the maroon cable trays, which are believed to have provided support to the ceiling of the IFR when it was active.

Sample results indicate that the IFR was not fully decontaminated prior to being converted. It appears that lead dust may be migrating within the plenum space and impacting newer building materials. Sample results from surfaces below the drop-in ceiling suggest that lead dust is not currently impacting occupied spaces. However, lead dust migration into the occupied spaces could potentially result in the future due to: the configuration and function of the HVAC systems, personnel accessing the plenum and disturbing settled dust, future renovations within the space, or other activities conducted within the plenum.

The plenum and surfaces within the plenum should be remediated to prevent future migration of lead contamination into the office locations below. A remediation work plan should be developed to control potential employee exposures during remediation and to prevent inadvertent spreading of lead dust from within the converted IFR to outside areas. Follow-up sampling should be conducted following remediation efforts to evaluate whether cleaning was sufficient.

4.4 Painted Surface Evaluation

Peeling paint was not identified within the converted IFR facility during this IHSAV.

4.5 Illumination Level Monitoring

Illumination levels were measured throughout the areas of the converted IFR. Measurements were collected in foot-candles (FC). In general, the measurements were taken at task surface level, such as on desks or work benches. Measurements not taken on a desk or workbench were taken at waist level. The illumination measurements were compared with recommendations made by the Industrial Engineering Society (IES)/American National Standards Institute (ANSI) RP7-1991 and 41 CFR 101-20-107, Energy Conservation Rule, Federal Property Management Regulations. In general, 50 FC is the minimum lighting requirements for the performance of tasks where reading is required, 30 FC is required for work areas where reading is not required, 10 FC is required for non-work areas, such as aisles and corridors, and 5 FC is required for walking surfaces, such as mechanical spaces.

Lighting measurements were collected in a total of twelve (12) locations. Based on the measurements collected in comparison to the above criteria, lighting was sufficient in each of the locations measured. See Appendix E for a summary of illumination measurements.

5.0 FACILITY SYSTEMS & HAZARDS

5.1 Facility/Building HVAC System

An evaluation of the heating, ventilation, and air-conditioning (HVAC) systems that serve the converted IFR was conducted. This evaluation consisted of a visual inspection of the system. The HVAC system helped to provide the facility with proper indoor air quality (IAQ); temperature, humidity and CO_2 levels.

It was reported that the HVAC system serving the converted IFR area was installed after the conversion and was not a part of the former IFR ventilation system. The condition of the ducting and HVAC components supported the report of the HVAC system being newer. The system was contained within the IFR walls and did not join with other HVAC systems, which served other areas of the Headquarters building. The south half of the converted IFR was equipped with ducted supply and return vents. The north side was equipped with an open plenum return and ducted supply vents.

5.2 Water Damage and Limited Fungal Growth Evaluation

The interior of the facility was visually inspected for water damage and subsequent fungal growth resulting from moisture. There were no visual signs of fungal growth, active or former water intrusion observed during this IHSAV.

5.3 Asbestos Evaluation

Personnel on-site did not know whether asbestos was present, inspected, or abated during the renovations of the IFR. A cursory evaluation of the converted IFR interior spaces was made to identify the presence of building materials suspected to contain asbestos. Building materials suspected to contain asbestos were identified during the IHSAV, but there was no asbestos survey report and/or Asbestos Hazard Management Plan available on-site. Suspect building materials identified in the converted IFR included: base cove mastic, 2x4 foot ceiling tiles, 12x12 inch vinyl floor tiles and associated mastic, and drywall tape and joint compound.

No bulk samples were collected during this IHSAV due to variability in State regulations regarding certification and sampling requirements. Having asbestos-containing materials (ACM) in a building does not constitute a hazard in of itself. However, if the ACM is or were to become damaged, asbestos fibers could be released and made airborne, which could result in potential exposure to asbestos fibers. Thus, ACM should be managed in a manner to protect them from becoming damaged.

6.0 OBSERVATIONS AND QUALITATIVE ASSESSMENTS

NES assessed multiple conditions and operations using qualitative means and observations. Our methods and findings of qualitative assessments made are detailed in this section.

6.1 Observations of Converted IFR

NES visually inspected the accessible spaces within the concerted IFR space and select access points into the plenum. The converted IFR was made up of offices for multiple units, an electrical room, and a conference room. The majority of spaces were in good and clean condition. *NES* observed mild to moderate dust accumulation atop metal cabinets in the copy room and deterioration in the carpet in some offices and hallways.

NES accessed the plenum in six (6) locations in order to assess whether IFR building components (walls, ceiling, ventilation system, or other components) may still exist. No building components that could be attributed to the IFR were identified. In fact, the ducting, metal studs, and ceiling support wiring all appeared to be newer construction. Additionally, there was not significant dust buildup on top of the surfaces of the plenum. Pictures of some conditions observed within the plenum are provided in Appendix C (Photo Log). The location of the plenum access points are shown in a Figure provided in Appendix G.

6.2 Contract (Non-DoD) Operations

Contract (Non-DoD) operations were reportedly performed at this facility. However, the converted IFR made up only a small portion of the overall Headquarter facilities and thus, this information was not obtained during this IHSAV.

6.3 Safety Walk-Through

NES conducted a walk-through of the converted IFR to identify existing conditions and whether safety hazards or regulatory deficiencies were present. Some of the conditions observed were documented in photographs, attached in Appendix C (Photo Log).

1. Overall surfaces and supply areas were clean and well-maintained. Heavy dust accumulation was observed on horizontal surfaces in the Electrical Room.

7.0 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, *NES*' professional opinions are based in part on the interpretation of data from discrete sampling locations that may not represent conditions at non-sampled locations. *NES* assumes no responsibility for omissions or errors resulting from inaccurate information or data provided by sources outside of *NES*, 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 *NES* 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.

8.0 PROJECT APPROVAL

This IHSAV was reviewed and approved by:

Non-Responsive

June 17, 2014
Date

Senior Industrial Hygienist

Non-Responsive

June 27, 2014
Date

Principle-In-Charge

Technical Assistance: For technical assistance regarding information found in this report or the performed survey; please contact *NES* at 916-353-2360 or Non-Responsive of the Southwest Regional Industrial Hygiene Office, 916-854-1491. 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).

PHOTO LOG
DRAPER IFR (CONVERTED)
DRAPER, UT
APRIL 24, 2014

Photo 1: Front of Draper IFR facility.

Photo 2: Draper IFR facility signage; front entryway.

PHOTO LOG
DRAPER IFR (CONVERTED)
DRAPER, UT
APRIL 24, 2014

Photo 3: Office hallway.

Photo 4: Conference Room; DOL-14.

PHOTO LOG
DRAPER IFR (CONVERTED)
DRAPER, UT
APRIL 24, 2014

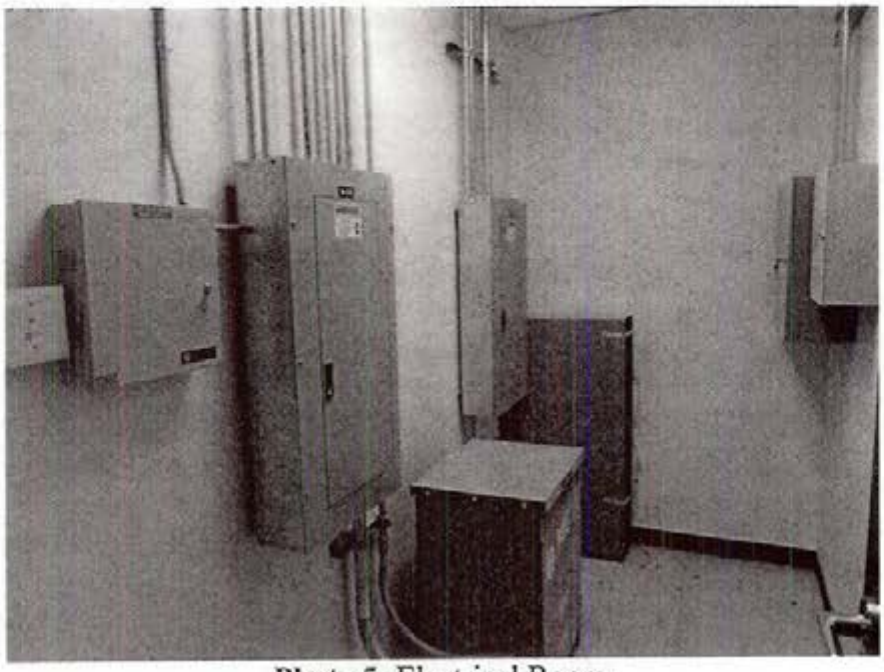


Photo 5: Electrical Room.

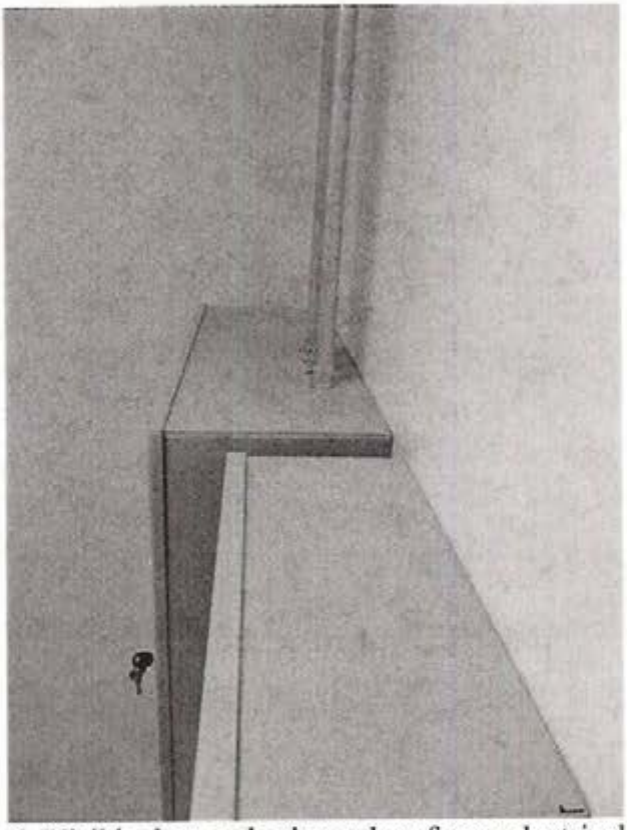


Photo 6: Visible dust on horizontal surfaces; electrical room.

PHOTO LOG
DRAPER IFR (CONVERTED)
DRAPER, UT
APRIL 24, 2014

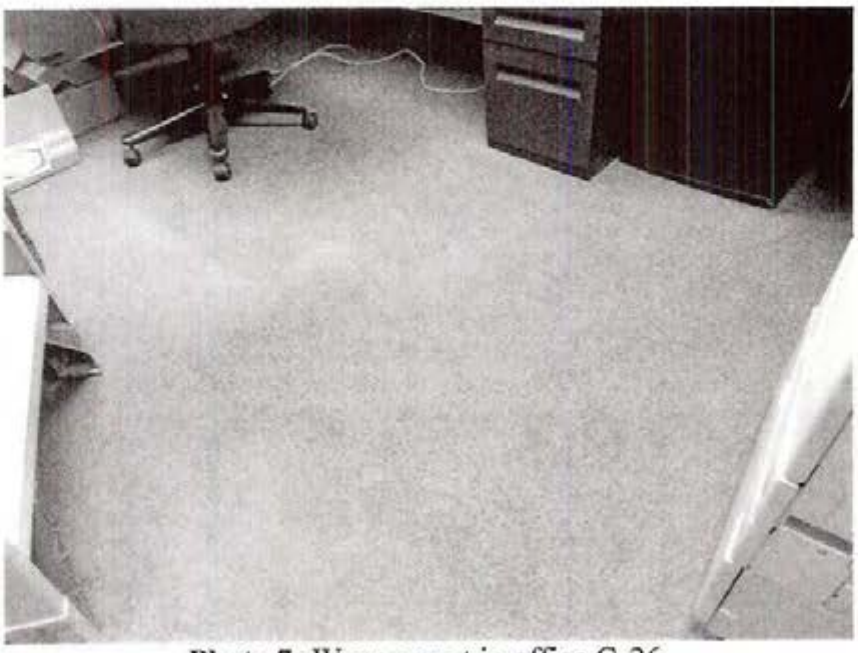


Photo 7: Worn carpet in office G-26.

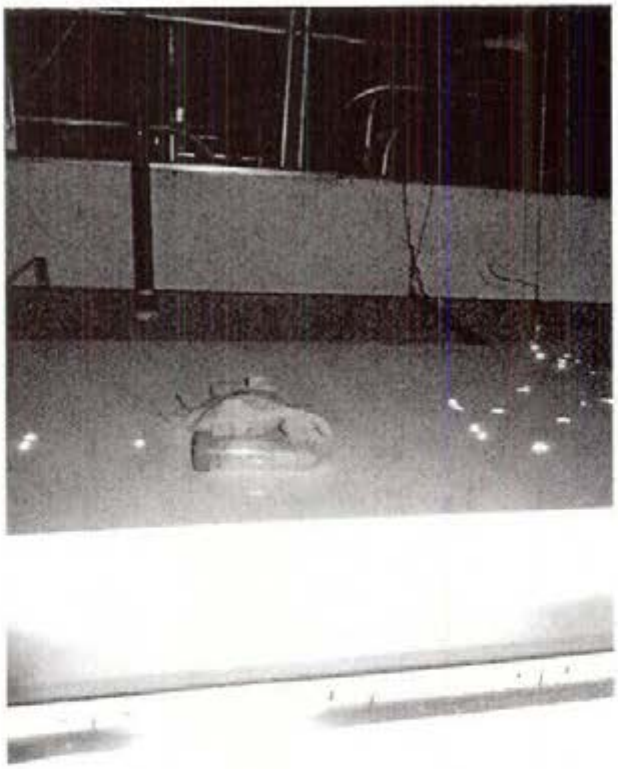


Photo 8: Lead wipe sample (042414-IFR-W-01) collected from the top of a fluorescent light fixture; above the drop ceiling of the copy room.

PHOTO LOG
DRAPER IFR (CONVERTED)
DRAPER, UT
APRIL 24, 2014

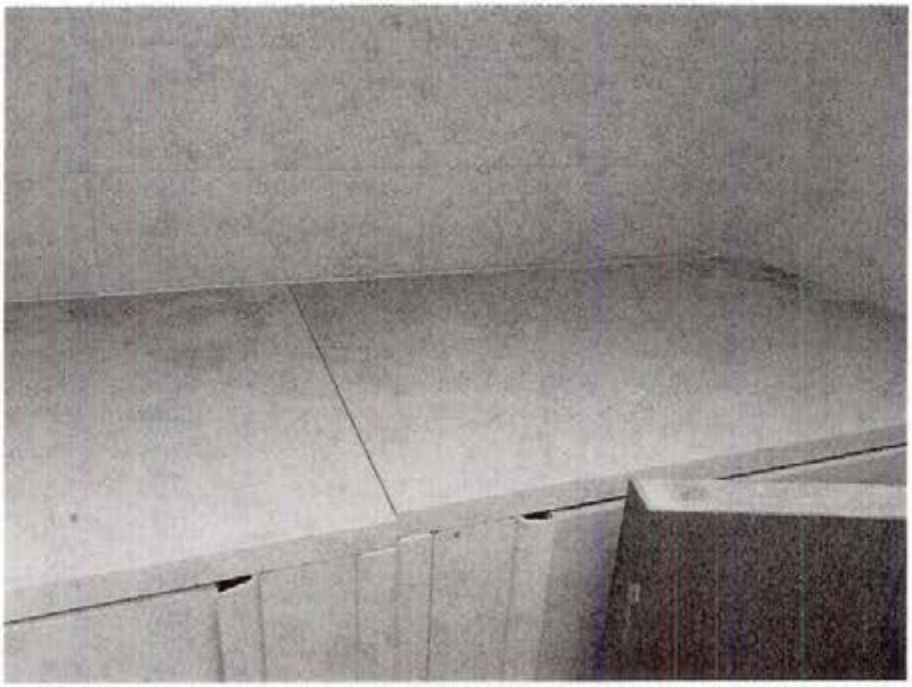


Photo 9: Lead wipe sample (042414-IFR-W-02) collected from the top of the metal cabinets in the copy room.

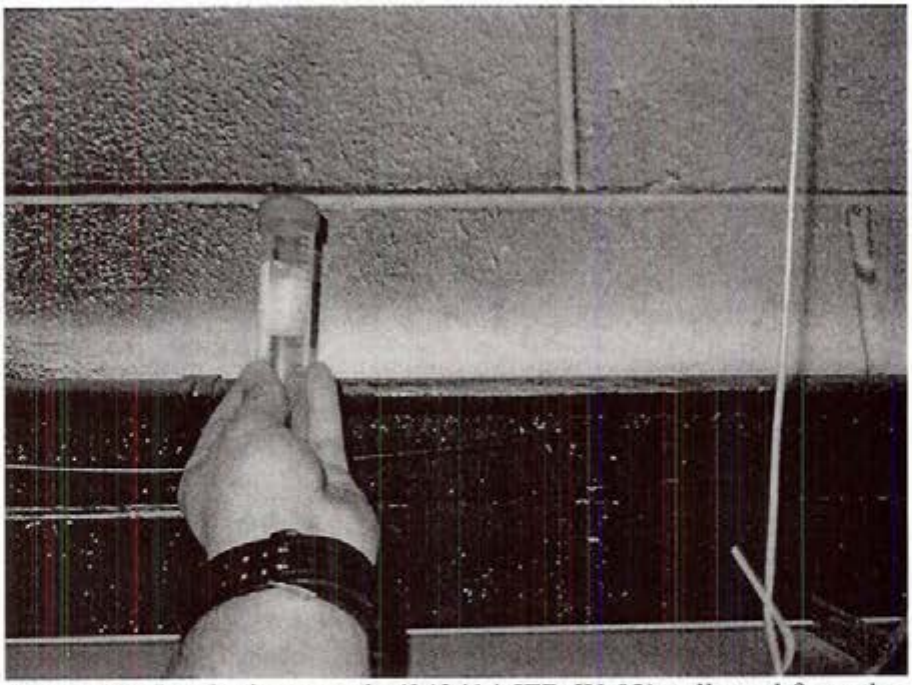


Photo 10: Lead wipe sample (042414-IFR-W-03) collected from the shell wall and attached conduit; above the drop ceiling of the east wall of the conference room.

PHOTO LOG
DRAPER IFR (CONVERTED)
DRAPER, UT
APRIL 24, 2014

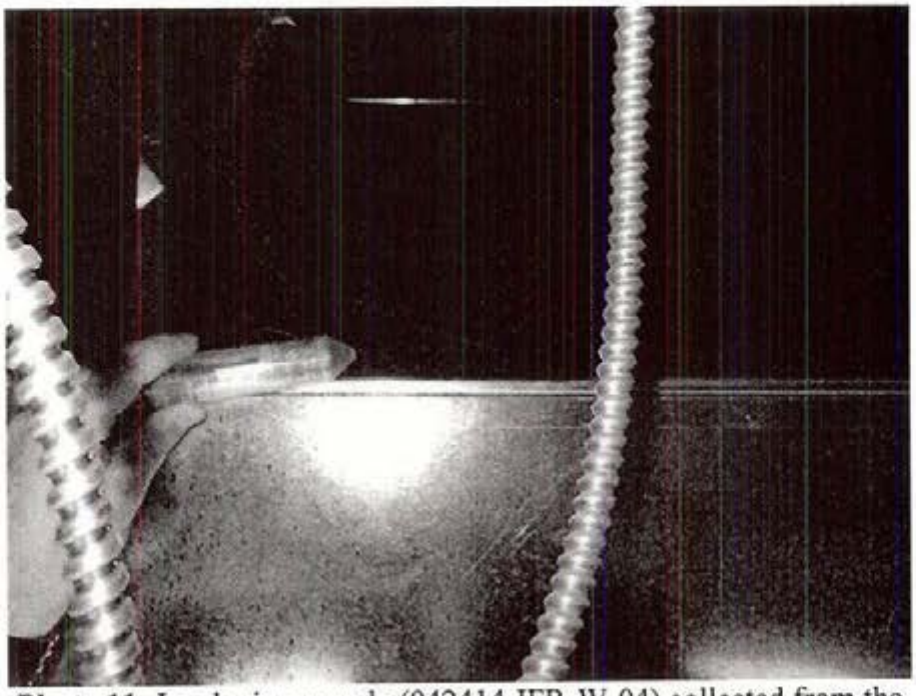


Photo 11: Lead wipe sample (042414-IFR-W-04) collected from the top of a metal duct; above the drop ceiling of the east wall of the conference room.

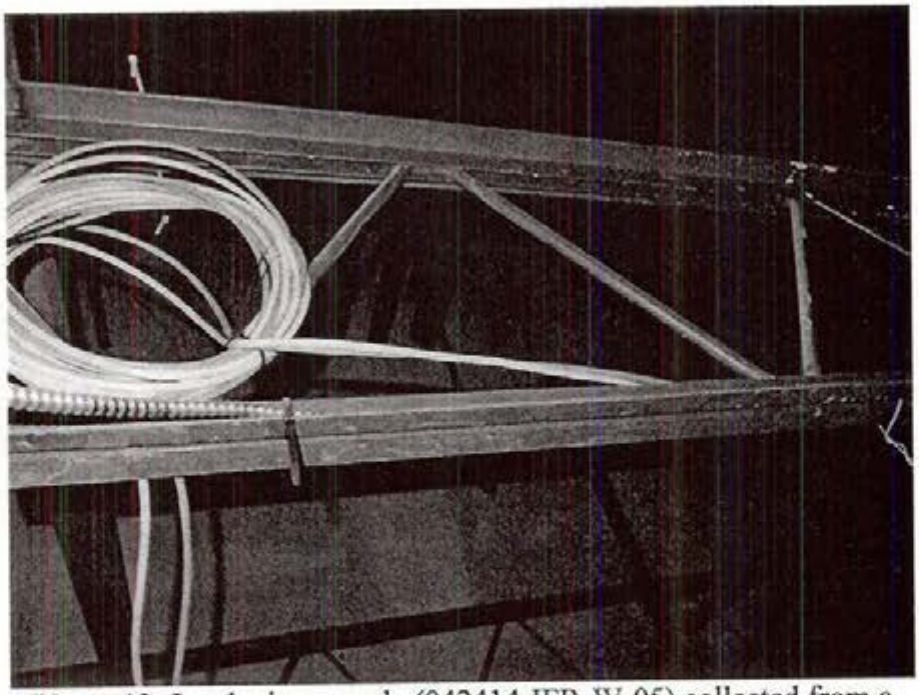


Photo 12: Lead wipe sample (042414-IFR-W-05) collected from a metal cable tray; above the drop ceiling of the west wall of the conference room.

PHOTO LOG
DRAPER IFR (CONVERTED)
DRAPER, UT
APRIL 24, 2014

Photo 13: Lead wipe sample (042414-IFR-W-06) collected from the electrical room floor.

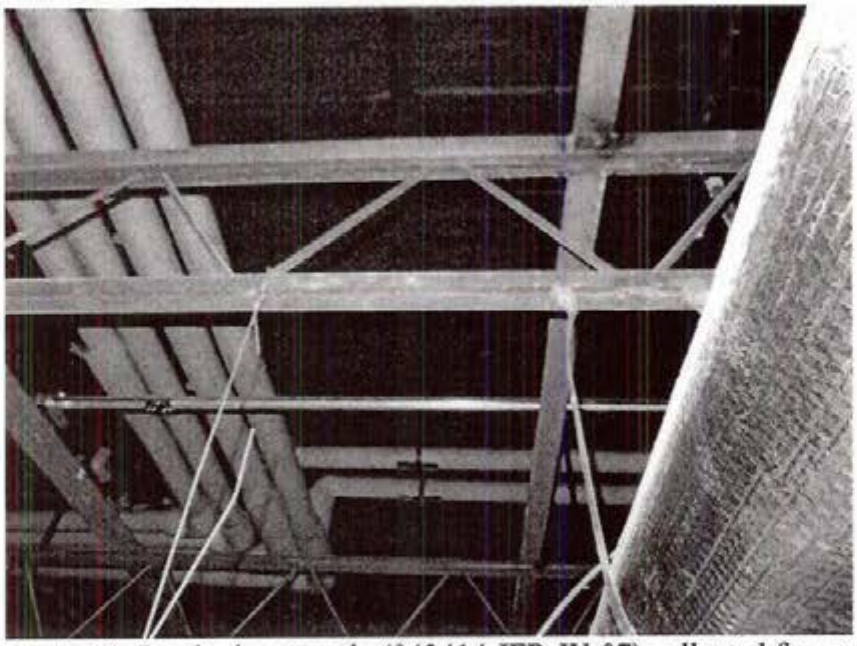


Photo 14: Lead wipe sample (042414-IFR-W-07) collected from a metal cable tray; above the drop ceiling of DOL-15.

PHOTO LOG
DRAPER IFR (CONVERTED)
DRAPER, UT
APRIL 24, 2014

Photo 15: Lead wipe sample (042414-IFR-W-08) collected from the top of a fluorescent light fixture; above the drop ceiling of the office entryway.

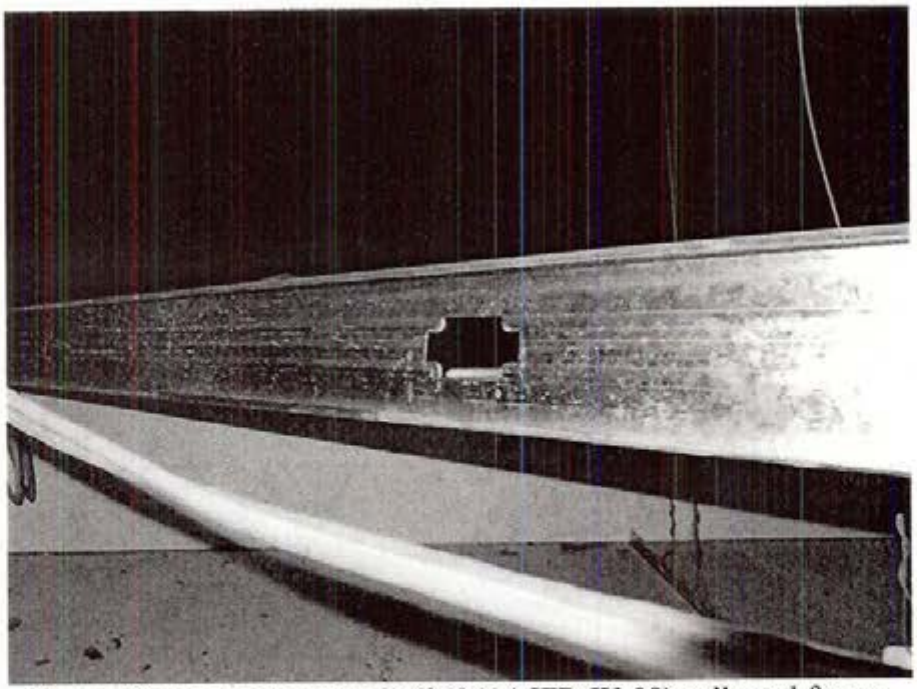


Photo 16: Lead wipe sample (042414-IFR-W-09) collected from a metal stud support; above the drop ceiling of the copy room.

PHOTO LOG
DRAPER IFR (CONVERTED)
DRAPER, UT
APRIL 24, 2014

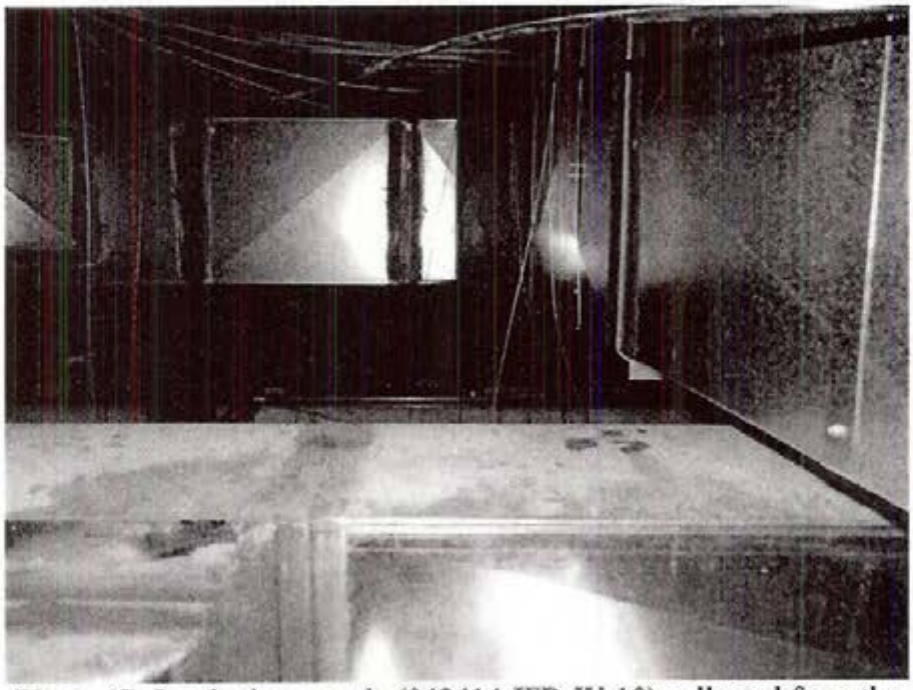


Photo 17: Lead wipe sample (042414-IFR-W-10) collected from the top of a metal duct; above the drop ceiling of the copy room.

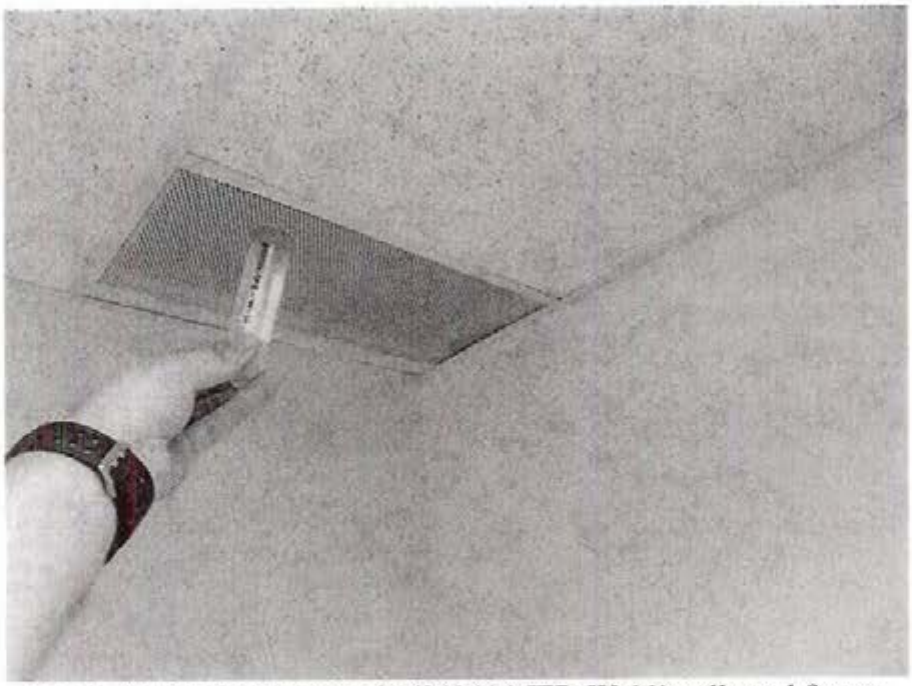


Photo 18: Lead wipe sample (042414-IFR-W-11) collected from a return air vent in the copy room.

PHOTO LOG
DRAPER IFR (CONVERTED)
DRAPER, UT
APRIL 24, 2014

Photo 19: Lead wipe sample (042414-IFR-W-12) collected from the carpet in the hallway outside G-29.

Photo 20: Lead wipe sample (042414-IFR-W-13) collected from the north return air vent in DOL-15.

PHOTO LOG
DRAPER IFR (CONVERTED)
DRAPER, UT
APRIL 24, 2014

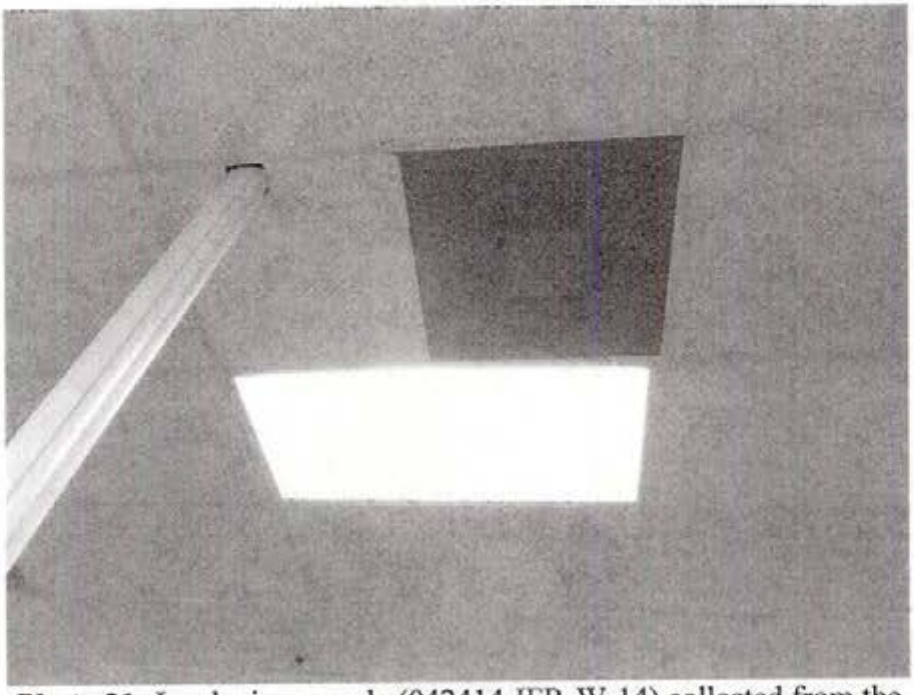


Photo 21: Lead wipe sample (042414-IFR-W-14) collected from the south return air vent in DOL-15.

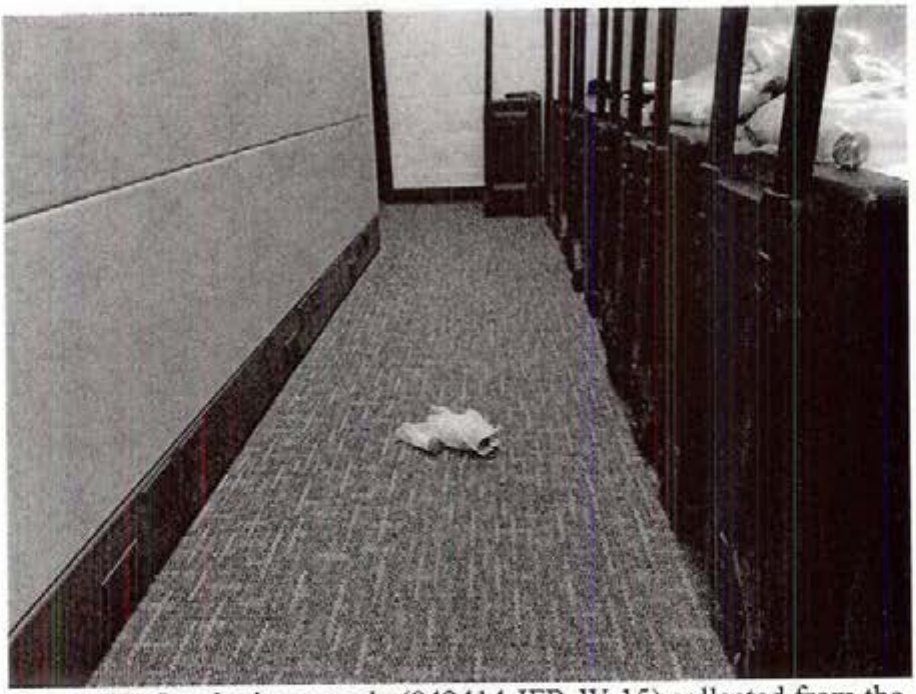


Photo 22: Lead wipe sample (042414-IFR-W-15) collected from the carpet in DOL-15.

PHOTO LOG
DRAPER IFR (CONVERTED)
DRAPER, UT
APRIL 24, 2014

Photo 23: Lead wipe sample (042414-IFR-W-16) collected from the carpet in the conference room; DOL-14.

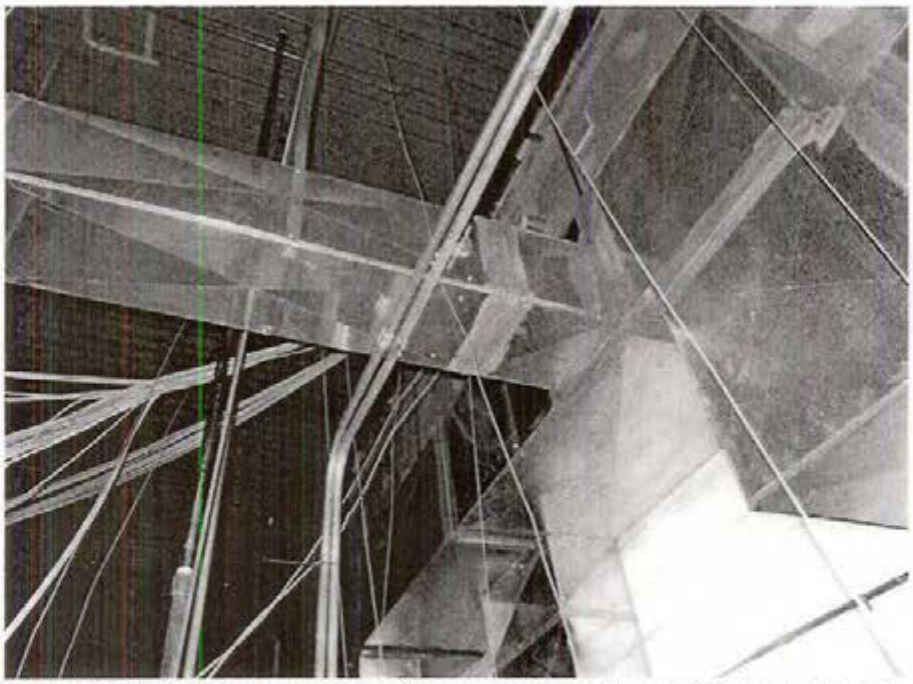


Photo 24: Metal ducting, wiring and conduit in roof deck; northeast view of Plenum Access Point #1.

PHOTO LOG
DRAPER IFR (CONVERTED)
DRAPER, UT
APRIL 24, 2014

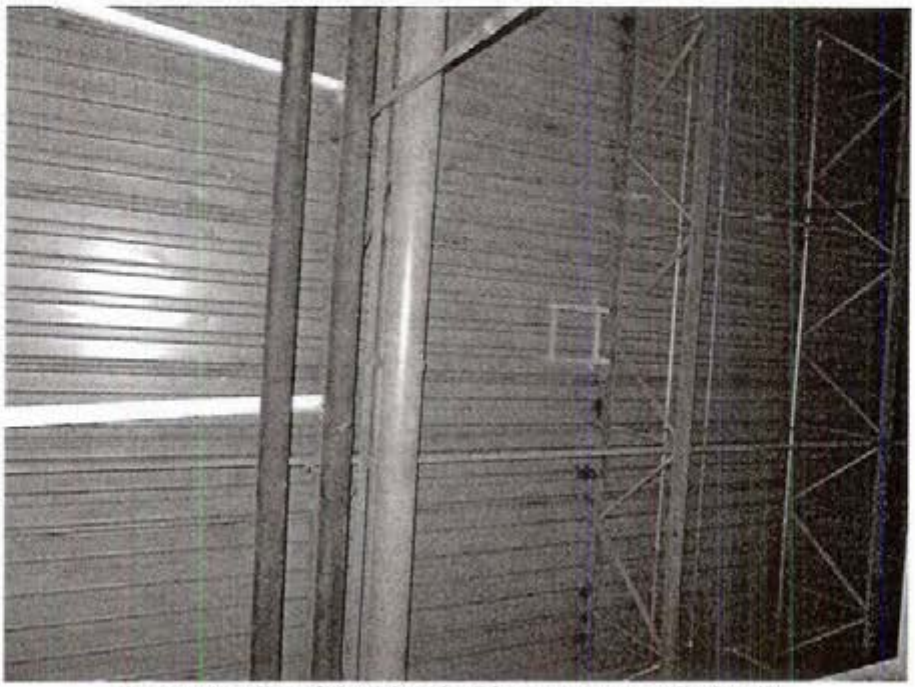


Photo 27: Roof decking in Plenum Access Point #3.

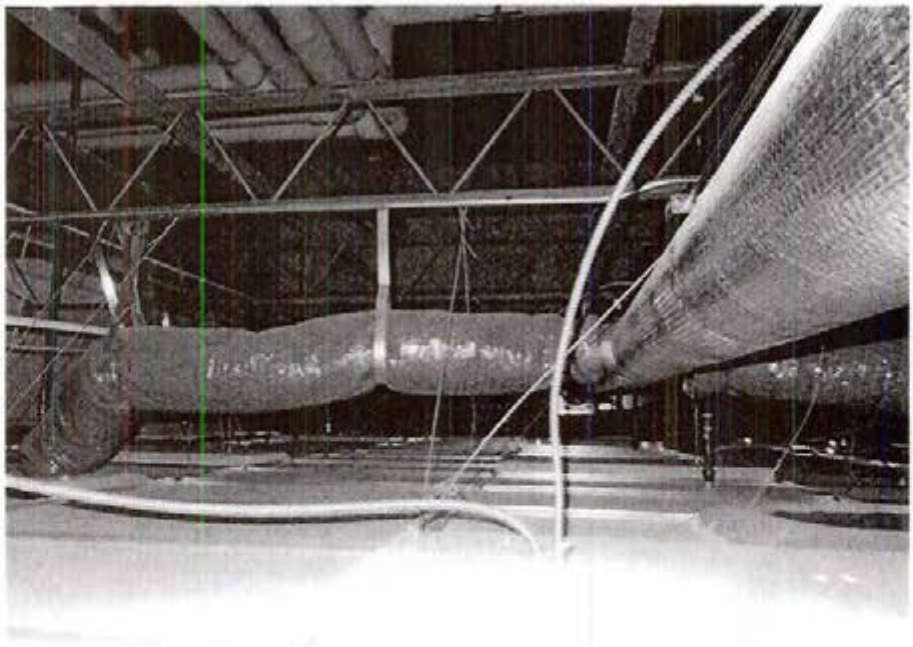


Photo 28: Plenum Access Point #4; view to the north.

PHOTO LOG
DRAPER IFR (CONVERTED)
DRAPER, UT
APRIL 24, 2014

Photo 29: Plenum Access Point #5; view to the south.

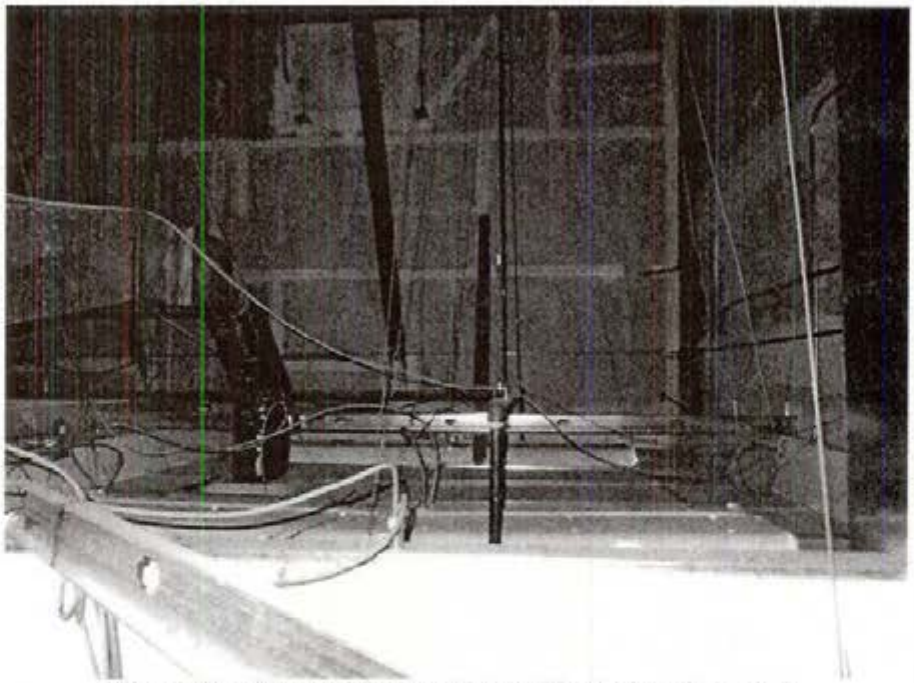


Photo 30: Plenum Access Point #6; view to the north.

PHOTO LOG
DRAPER IFR (CONVERTED)
DRAPER, UT
APRIL 24, 2014

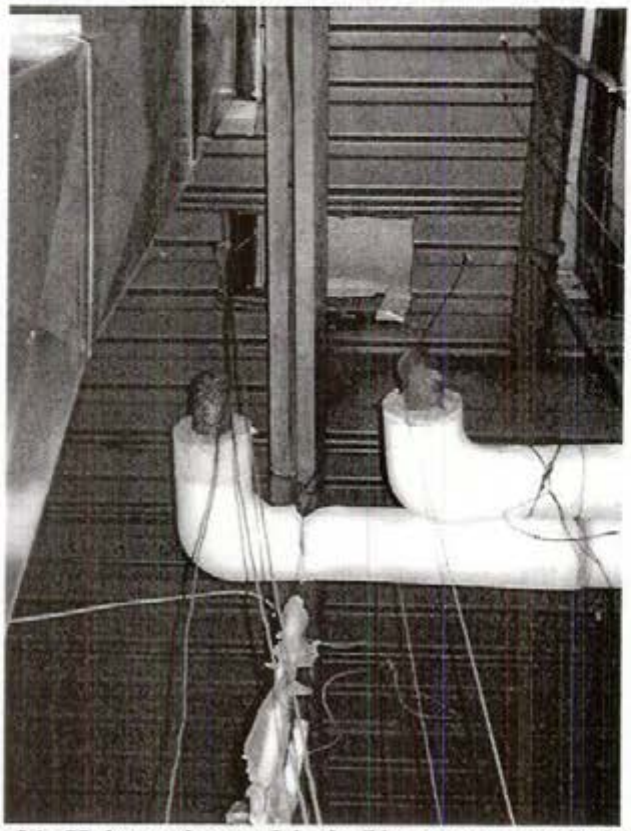


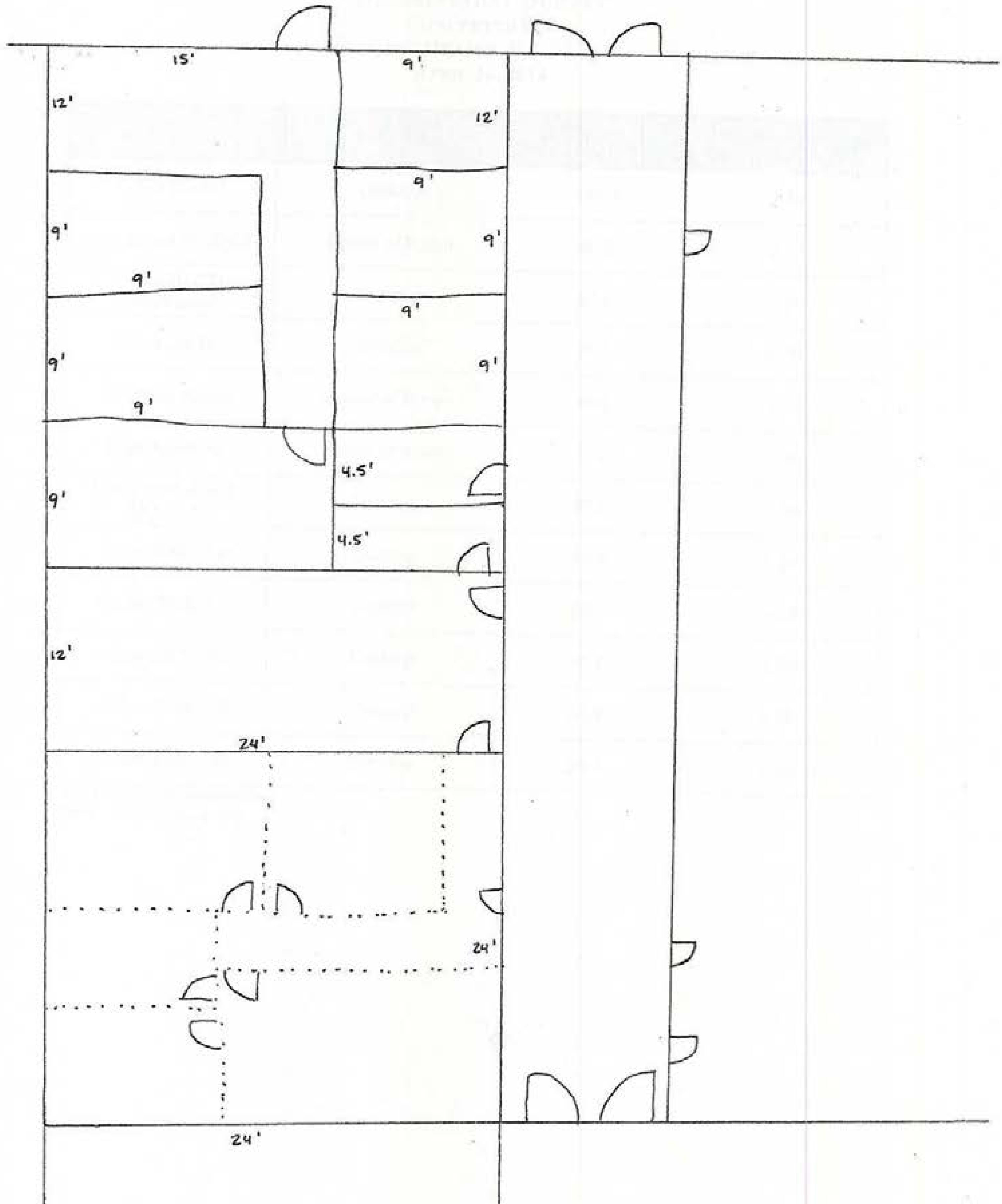
Photo 31: Hole on the roof deck; Plenum Access Point #6.

IFR(c) Dimensions:

24' x 75' => ~2,000ft²

IFR(c) - Draper

N ↑



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IAQ MEASUREMENTS
CONVERTED IFR
DRAPER, UT
APRIL 24, 2014

Location	CO_2 max permissible level 1,154 ppm	Temperature permissible range 68 - 75°F	RH% permissible range 30-60%	CO Max permissible 200 ppm STEL
Office (G-25)	470	69.8	**20.1**	1.6
Copy Room #1 (G-26)	494	69.7	**19.8**	1.5
Office (G-27) Unoccupied	471	69.6	**19.8**	1.4
Office (G-28)	504	70.4	**19.7**	1.5
Electrical Room	504	72.5	**19.6**	1.5
Copy Room #2	480	71.6	**19.1**	1.6
Conference Room (DOL-14)	493	71.1	**19.2**	1.6
SMCC Office Area (DOL-15)	505	72.5	**18.9**	1.6
Outdoor Control	454	61.7	16.6	3.8

BOLD = Outside of permissible range
CO_2 = Carbon Dioxide
CO = Carbon Monoxide
°F = Fahrenheit
RH = Relative Humidity

Facility Information Form

Revised: September 19, 2013

General Facility Information Date(s) of Previous IHSAVs: _____

IH(s): Non-Responsive Date(s) of IHSAV: 4/24/14

Facility Name: IER (converted) Draper

Address: 12953 S. Minuteman Drive, Draper, UT

Facility Commander: Non-Responsive
Name / Phone Number / email

Safety Officer: Non-Responsive
Name / Phone Number / email

No Person(s): NA Admin: NA Maint: NA Work Sched: M-TH 0600 1630 Size of Facility: 350,000 ft²

Unit(s): Myrind UT ARNG Co-Tenant(s): _____
Include UIC if available List All

Primary work activities at Facility: _____

Written Health & Safety Programs / SOPs

Program	Program Needed	Have Program	Date of Last Training	# Enrolled	Comments
Bloodborne Pathogen					
Confined Space					
Emergency Preparedness					
Hazard Communication					
Hearing Protection					
Lock Out / Tag Out					
PPE					
Respiratory Protection					
Vision					

Y = Yes N = No NA = Not Applicable to this site

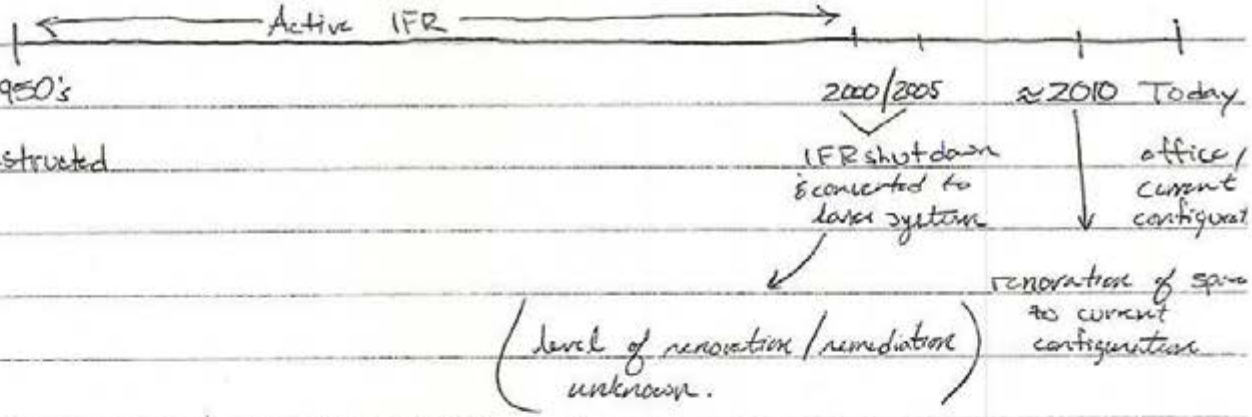
Documents / Records to Obtain

- [x] Facility floor plan / evacuation map
- [NA] List of equipment serviced / maintained
- [NA] Previous IH reports
- [NA] Hazardous Materials inventory
- [NA] Personnel list
- [ ] Others (List):

NA = Not Applicable to this site

Summary

- Overall appears that area was completely gutted & reconstructed
- Nothing present above or below drop-in ceiling that looks like it existed when IFR was operational
- Collected wipe samples from surfaces that could be indicative of historic lead contamination
- Could not access the roof deck as it was 25-30' high
- HVAC system is all newer & serves just those spaces within IFR shell.
- Historical records & knowledge of conversion was not available, but able to piece together this timeline



South of Fire wall

Drop cieling couple feet higher

West wall has a dark coloring

Wiring, Ducting and conduit still appear new

PAP #3 - Similar observations

PAP #4 - Similar observations

IFR Draper Photo Log Cont. 04/24/14

53) Wipe (-05) Maroon colored metal being used as cable tray west side of conference room above ceiling
54) Wipe (-06) on electrical Room floor
55) Picture of visible dust on electrical Room horizontal surfaces
56) PAP #4 North
57) " " East
58) " " South
59) " " West
60) Wipe (-07) Maroon colored metal being used as cable tray in DOL-15
61) PAP #05 South
62) " " West
63) " " North
64) " " East
65) Wipe (-08) on top of light fixture above ceiling in office entry way
66) Worn carpet in office & hallway outside of G-27
67) Worn carpet in office G-26
68) PAP #06 North
69) " " East
70) " " South
71) " " West
72) PAP #06 Duct protruding from ceiling. unknown if supply or exhaust
73) Wipe (-09) Metal Stud support Above ceiling room G-26
74) Wipe (-10) Top of metal decking Above ceiling room G-26
75) Hole in roof deck next to a possible air return
76) Wipe (-11) Return air vent room G-26
77) Wipe (-12) Carpet in Hallway outside G-29

Equipment List

Facility: IFR(C) - Draper .06

Date: 4/24/14

Revised: September 18, 2013

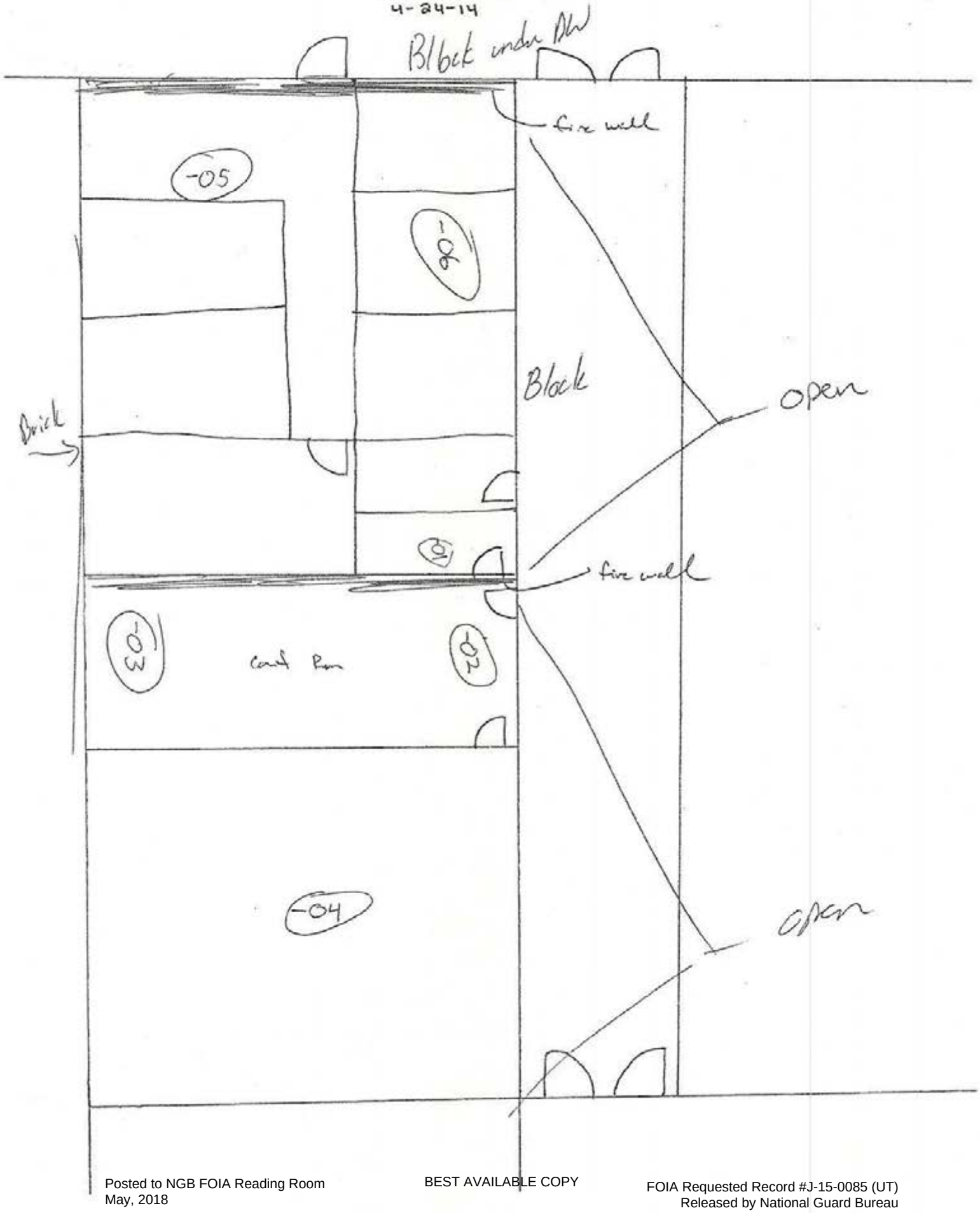
Type	Model Number	Serial Number	Calibration Date
Gray Wolf IAQ Meter	IQ-410	01-936	January 2014
~~TSI VelociCalc Plus~~	~~8385A~~	~~02110331~~	~~July 2013~~
Konica Minolta Light Meter	TL-1	90480719	May 2013
~~Quest Sound Level Meter~~	~~2900~~	~~CDG060006~~	~~June 2013~~
~~Quest Acoustic Calibrator~~	~~QC-10~~	~~QIF010094~~	~~July 2013~~
~~Gil Ari-5/Basie Pump~~	~~N/A~~	~~13520 / 13517~~	~~N/A~~

..pe Sampling Summary Forı.

Facility: (FB(c) - Draper .06
Collected By: JW
Date & Time:
Revised: September 18, 2013

	Sample Information		Sample Area	Area Units	Analyte(s)
1	Sample Number:	-14	1	ft²	lead
	Sample Location:	HVAC return vent (south) DOL-15 area			
2	Sample Number:	-15	↓	↓	↓
	Sample Location:	Carpet in DOL-15 area hallway			
3	Sample Number:	-16	1	ft²	Lead
	Sample Location:	Carpet in Conference Rm			
4	Sample Number:				
	Sample Location:				
5	Sample Number:				
	Sample Location:				
6	Sample Number:				
	Sample Location:				
7	Sample Number:				
	Sample Location:				
8	Sample Number:				
	Sample Location:				
9	Sample Number:				
	Sample Location:				
10	Sample Number:				
	Sample Location:				
11	Sample Number:				
	Sample Location:				
12	Sample Number:				
	Sample Location:				
13	Sample Number:				
	Sample Location:				

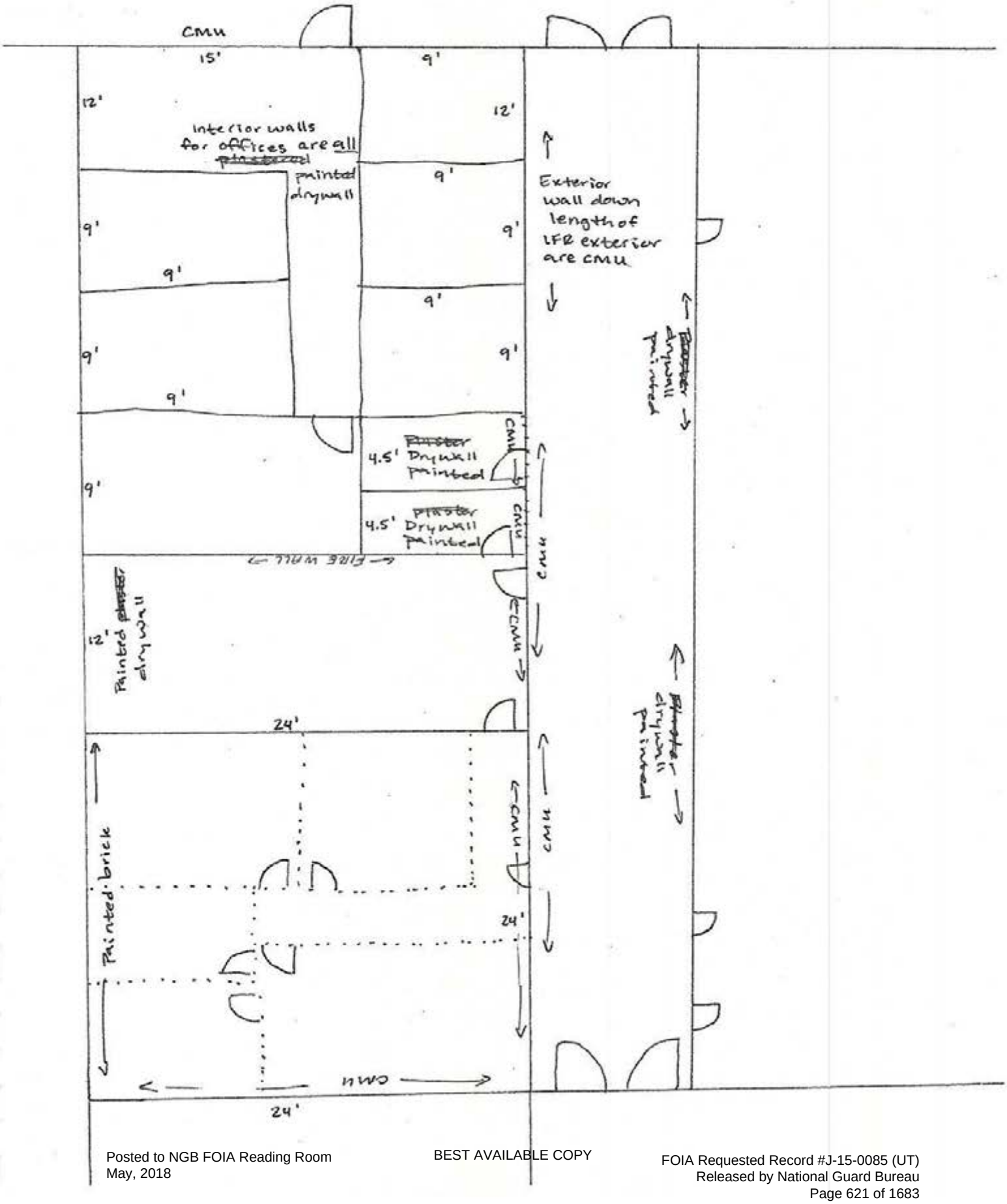
IFR(c)- Draper
Plenum Access Points
013.1H1716.06
4-24-14



IFR(C) Dimensions:
24' x 75'

IFR(C) - Draper
013.1H1716.06
wall types

N



APPENDIX I

AIR SAMPLING & METAL/LEAD WIPE TABLES

BEST AVAILABLE COPY

TABLE 1
LEAD WIPE SAMPLE RESULTS
CONVERTED IFR
DRAPER, UT
APRIL 24, 2014

Sample Number	Sample Description	Sample Area (ft^2)	Analytical Result ($\mu g/ft^2$)	Adjusted Results ($\mu g/ft^2$)[1]	ARNG/HUD Standard
042414-IFR-W-01	Copy Room (DOL-14); top of light fixture above DC	1	15	15	≤ 40
042414-IFR-W-02	Copy Room (DOL-14); top of metal cabinet	1	30	30	≤ 40
042414-IFR-W-03	Conference Room (DOL-14); east wall & conduit above DC	1	15	15	≤ 40
042414-IFR-W-04	**Conference Room (DOL-14); top of metal duct above DC**	**0.5**	**120**	**240**	**≤ 40**
042414-IFR-W-05	**Conference Room (DOL-14); maroon cable tray above DC**	**0.33**	**2,800**	**8,485**	**≤ 40**
042414-IFR-W-06	Electrical Room; floor	1	8.6	8.6	≤ 40
042414-IFR-W-07	**SMCC Office Area (DOL-15); maroon cable tray above DC**	**0.33**	**7,900**	**23,940**	**≤ 40**
042414-IFR-W-08	Office Entryway; top of light fixture above DC	1	23	23	≤ 40
042414-IFR-W-09	**Copy Room (G-26); metal stud above DC**	**0.5**	**45**	**90**	**≤ 40**
042414-IFR-W-10	**Copy Room (G-26); top of ducting above DC**	**0.33**	**29**	**88**	**≤ 40**
042414-IFR-W-11	Copy Room (G-26); HVAC return vent	1	1.6	1.6	≤ 40
042414-IFR-W-12	Office Hallway; floor (carpet)	1	<1.3	<1.3	≤ 40
042414-IFR-W-13	SMCC Office Area (DOL-15); HVAC return vent (north)	1	1.4	1.4	≤ 40
042414-IFR-W-14	SMCC Office Area (DOL-15); HVAC return vent (south)	1	2.1	2.1	≤ 40
042414-IFR-W-15	SMCC Office Area (DOL-15); floor (carpet)	1	<1.3	<1.3	≤ 40
042414-IFR-W-16	Conference Room (DOL-14); floor (carpet)	1	<1.3	<1.3	≤ 40

[1] = Analytical results were corrected for the actual area samples so all results were in $\mu g/ft^2$
DC = Drop ceiling
$\mu g/ft^2$ = micrograms per square foot
ARNG = Army National Guard
Bold = Denotes sample results were greater than the allowable level set by ARNG

1411985

ANALYTICAL REQUEST FORM 1411985

1. ☒ REGULAR Status

☐ RUSH Status Requested - ADDITIONAL CHARGE
RESULTS REQUIRED BY _____ DATE
CONTACT ALS SALT LAKE PRIOR TO SENDING SAMPLES

2. Date 4/24/14 Purchase Order No. 013.1H1716.06

3. Company Name NES
Address 1141 Sibley St.
Folsom, CA 95630
Person to Contact [redacted]
Telephone (916) [redacted]
Fax Telephone ([redacted]
E-mail Address [redacted]
Billing Address (if different from above)

4. Quote No.
ALS Project Manager [redacted]

5. Sample Collection
Sampling Site IFR(c)-Draper, UT
Industrial Process
Date of Collection 4/24/14
Time Collected
Date of Shipment
Chain of Custody No.

6. How did you first learn about ALS?

7. REQUEST FOR ANALYSES

Laboratory Use Only	Client Sample Number	Matrix*	Sample Volume	ANALYSES REQUESTED - Use method number if known	Units**
	042414-IFR-W-Blank	Wipe	-	NIOSH 7300 Lead	µg/ft²
	-01		1ft²		
	-02		1ft²		
	-03		1ft²		
	-04		0.5ft²		
	-05		0.33ft²		
	-06		1ft²		
	-07		0.33ft²		
	-08		1ft²		
	-09		0.5ft²		
	-10		0.33ft²		
	-11		1ft²		
	-12		1ft²		
	-13		1ft²		

* Specify: Solid sorbent tube, e.g. Charcoal; Filter type; Impinger solution; Bulk sample; Blood; Urine; Tissue; Soil; Water; Other

** 1. µg/sample 2. mg/m³ 3. ppm 4. % 5. µg/m³ 6. µg/ft² (other) Please indicate one or more units in the column entitled Units**

Comments

Possible Contamination and/or Chemical Hazards

7. Ch [redacted]

Relin [redacted] Date/Time 4/25/14; 3:00pm

Rece [redacted] Date/Time 04/29/14 0930

Relinquished by Date/Time

Received by Date/Time

960 West LeVoy Drive / Salt Lake City, UT 84123 800-356-9135 or 801-266-7700 / F [redacted]

ALS Environmental

[For lab use only]

ANALYTICAL REQUEST FORM

1. ☒ REGULAR Status

☐ RUSH Status Requested - ADDITIONAL CHARGE
RESULTS REQUIRED BY _____ DATE
CONTACT ALS SALT LAKE PRIOR TO SENDING SAMPLES

2. Date 4/24/14 Purchase Order No. 013.1H1716.06

3. Company Name NES
Address 1141 Sibley St.
Folsom, CA 95630
Person to Contact [redacted]
Telephone (916) [redacted]
Fax Telephone ( )
E-mail Address [redacted]
Billing Address (if different from above)

4. Quote No.
ALS Project Manage [redacted]

5. Sample Collection
Sampling Site IFR(c)-Draper, UT
Industrial Process
Date of Collection 4/24/14
Time Collected
Date of Shipment
Chain of Custody No.

6. How did you first learn about ALS?

7. REQUEST FOR ANALYSES

Laboratory Use Only	Client Sample Number	Matrix*	Sample Volume	ANALYSES REQUESTED - Use method number if known	Units**
	042414-IFR-W-14	Wipe	1 ft²	NIOSH 7300 Lead	µg/ft²
	-15	↓	↓	↓	↓
	-16	↓	↓	↓	↓

* Specify: Solid sorbent tube, e.g. Charcoal; Filter type; Impinger solution; Bulk sample; Blood; Urine; Tissue; Soil; Water; Other

** 1. µg/sample 2. mg/m³ 3. ppm 4. % 5. µg/m³ 6. µg/ft² (other) Please indicate one or more units in the column entitled Units**

Comments

Possible Contaminat [redacted]

7. Chain of Custod [redacted]

Relinquished by		Date/Time	4/25/14; 3:00 P.M.
Received by		Date/Time	04/29/14 0930
Relinquished by		Date/Time	
Received by		Date/Time	

960 West LeVoy Drive / Salt Lake City, UT 84123 800-356-9135 or 801-266-7700 / FAX: 801-268-9992
ALS Environmental

ANALYTICAL REPORT

Report Date: May 07, 2014

Non-Responsive
Network Environmental Systems, Inc.
1141 Sibley Street
Folsom, CA 95630

Phone: (916) 353-2370 x 20
Non-Responsive

Workorder: 34-1411985
Client Project ID: 013.IH1716.06/IFR (C)-Draper,
Purchase Order: 013.IH1716.06
Project Manager: Non-Responsive

Analytical Results

Sample ID: **042414-1FR-W-Blank**
Lab ID: 1411985001 — Sampling Location: IFR (C)-Draper, UT
Collected: 04/24/2014
Received: 04/29/2014

Method: **NIOSH 7300 Mod.** — Media: Ghost Wipe — Sampling Parameter: **Area Not Applicable**
Prepared: 05/05/2014
Analyzed: 05/06/2014

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

Sample ID: **042414-1FR-W-01**
Lab ID: 1411985002 — Sampling Location: IFR (C)-Draper, UT
Collected: 04/24/2014
Received: 04/29/2014

Method: **NIOSH 7300 Mod.** — Media: Ghost Wipe — Sampling Parameter: **Area 1 ft²**
Prepared: 05/05/2014
Analyzed: 05/06/2014

Analyte	ug/sample	ug/ft²	RL (ug/sample)
Lead	**15**	**15**	1.3

Sample ID: **042414-1FR-W-02**
Lab ID: 1411985003 — Sampling Location: IFR (C)-Draper, UT
Collected: 04/24/2014
Received: 04/29/2014

Method: **NIOSH 7300 Mod.** — Media: Ghost Wipe — Sampling Parameter: **Area 1 ft²**
Prepared: 05/05/2014
Analyzed: 05/06/2014

Analyte	ug/sample	ug/ft²	RL (ug/sample)
Lead	**30**	**30**	1.3

Sample ID: **042414-1FR-W-03**
Lab ID: 1411985004 — Sampling Location: IFR (C)-Draper, UT
Collected: 04/24/2014
Received: 04/29/2014

Method: **NIOSH 7300 Mod.** — Media: Ghost Wipe — Sampling Parameter: **Area 1 ft²**
Prepared: 05/05/2014
Analyzed: 05/06/2014

Analyte	ug/sample	ug/ft²	RL (ug/sample)
Lead	**15**	**15**	1.3

ANALYTICAL REPORT

Workorder: 34-1411985
Client Project ID: 013.IH1716.06/IFR (C)-Draper,
Purchase Order: 013.IH1716.06
Project Manager: [redacted]

Analytical Results

Sample ID: 042414-1FR-W-04
Lab ID: 1411985005
Sampling Location: IFR (C)-Draper, UT
Collected: 04/24/2014
Received: 04/29/2014

Method: NIOSH 7300 Mod.
Media: Ghost Wipe
Sampling Parameter: Area 0.5 ft²
Prepared: 05/05/2014
Analyzed: 05/06/2014

Analyte	ug/sample	ug/ft²	RL (ug/sample)
Lead	60	120	1.3

Sample ID: 042414-1FR-W-05
Lab ID: 1411985006
Sampling Location: IFR (C)-Draper, UT
Collected: 04/24/2014
Received: 04/29/2014

Method: NIOSH 7300 Mod.
Media: Ghost Wipe
Sampling Parameter: Area 0.33 ft²
Prepared: 05/05/2014
Analyzed: 05/06/2014

Analyte	ug/sample	ug/ft²	RL (ug/sample)
Lead	930	2800	1.3

Sample ID: 042414-1FR-W-06
Lab ID: 1411985007
Sampling Location: IFR (C)-Draper, UT
Collected: 04/24/2014
Received: 04/29/2014

Method: NIOSH 7300 Mod.
Media: Ghost Wipe
Sampling Parameter: Area 1 ft²
Prepared: 05/05/2014
Analyzed: 05/06/2014

Analyte	ug/sample	ug/ft²	RL (ug/sample)
Lead	8.6	8.6	1.3

Sample ID: 042414-1FR-W-07
Lab ID: 1411985008
Sampling Location: IFR (C)-Draper, UT
Collected: 04/24/2014
Received: 04/29/2014

Method: NIOSH 7300 Mod.
Media: Ghost Wipe
Sampling Parameter: Area 0.33 ft²
Prepared: 05/05/2014
Analyzed: 05/06/2014

Analyte	ug/sample	ug/ft²	RL (ug/sample)
Lead	2600	7900	3.8

Sample ID: 042414-1FR-W-08
Lab ID: 1411985009
Sampling Location: IFR (C)-Draper, UT
Collected: 04/24/2014
Received: 04/29/2014

Method: NIOSH 7300 Mod.
Media: Ghost Wipe
Sampling Parameter: Area 1 ft²
Prepared: 05/05/2014
Analyzed: 05/06/2014

Analyte	ug/sample	ug/ft²	RL (ug/sample)
Lead	23	23	1.3

Sample ID: 042414-1FR-W-09
Lab ID: 1411985010
Sampling Location: IFR (C)-Draper, UT
Collected: 04/24/2014
Received: 04/29/2014

Method: NIOSH 7300 Mod.
Media: Ghost Wipe
Sampling Parameter: Area 0.5 ft²
Prepared: 05/05/2014
Analyzed: 05/06/2014

Analyte	ug/sample	ug/ft²	RL (ug/sample)
Lead	23	45	1.3

ANALYTICAL REPORT

Workorder: 34-1411985
Client Project ID: 013.IH1716.06/IFR (C)-Draper,
Purchase Order: 013.IH1716.06
Project Manager: Non-Responsive

Analytical Results

Sample ID: 042414-1FR-W-10				Collected: 04/24/2014
Lab ID: 1411985011	Sampling Location: IFR (C)-Draper, UT			Received: 04/29/2014
Method: NIOSH 7300 Mod.	Media: Ghost Wipe Sampling Parameter: Area 0.33 ft²			Prepared: 05/05/2014 Analyzed: 05/06/2014
Analyte	ug/sample	ug/ft²	RL (ug/sample)	
Lead	9.7	29	1.3	

Sample ID: 042414-1FR-W-11				Collected: 04/24/2014
Lab ID: 1411985012	Sampling Location: IFR (C)-Draper, UT			Received: 04/29/2014
Method: NIOSH 7300 Mod.	Media: Ghost Wipe Sampling Parameter: Area 1 ft²			Prepared: 05/05/2014 Analyzed: 05/06/2014
Analyte	ug/sample	ug/ft²	RL (ug/sample)	
Lead	1.6	1.6	1.3	

Sample ID: 042414-1FR-W-12				Collected: 04/24/2014
Lab ID: 1411985013	Sampling Location: IFR (C)-Draper, UT			Received: 04/29/2014
thod: NIOSH 7300 Mod.	Media: Ghost Wipe Sampling Parameter: Area 1 ft²			Prepared: 05/05/2014 Analyzed: 05/06/2014
Analyte	ug/sample	ug/ft²	RL (ug/sample)	
Lead	<1.3	<1.3	1.3	

Sample ID: 042414-1FR-W-13				Collected: 04/24/2014
Lab ID: 1411985014	Sampling Location: IFR (C)-Draper, UT			Received: 04/29/2014
Method: NIOSH 7300 Mod.	Media: Ghost Wipe Sampling Parameter: Area 1 ft²			Prepared: 05/05/2014 Analyzed: 05/06/2014
Analyte	ug/sample	ug/ft²	RL (ug/sample)	
Lead	1.4	1.4	1.3	

Sample ID: 042414-1FR-W-14				Collected: 04/24/2014
Lab ID: 1411985015	Sampling Location: IFR (C)-Draper, UT			Received: 04/29/2014
Method: NIOSH 7300 Mod.	Media: Ghost Wipe Sampling Parameter: Area 1 ft²			Prepared: 05/05/2014 Analyzed: 05/06/2014
Analyte	ug/sample	ug/ft²	RL (ug/sample)	
Lead	2.1	2.1	1.3	

Sample ID: 042414-1FR-W-15				Collected: 04/24/2014
Lab ID: 1411985016	Sampling Location: IFR (C)-Draper, UT			Received: 04/29/2014
thod: NIOSH 7300 Mod.	Media: Ghost Wipe Sampling Parameter: Area 1 ft²			Prepared: 05/05/2014 Analyzed: 05/06/2014
Analyte	ug/sample	ug/ft²	RL (ug/sample)	
Lead	<1.3	<1.3	1.3	

ANALYTICAL REPORT

Workorder: 34-1411985
Client Project ID: 013.IH1716.06/IFR (C)-Draper,
Purchase Order: 013.IH1716.06
Project Manager: Non-Responsive

Analytical Results

Sample ID: **042414-1FR-W-16**
Lab ID: 1411985017
Sampling Location: IFR (C)-Draper, UT
Collected: 04/24/2014
Received: 04/29/2014

Method: **NIOSH 7300 Mod.**
Media: Ghost Wipe
Sampling Parameter: **Area 1 ft²**
Prepared: 05/05/2014
Analyzed: 05/06/2014

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

Comments

Sample: **1411985008**

Lead was reported from 3X dilution data for this sample in order to obtain a response within the linear range for lead. The reporting limit was raised proportionately to the reported dilution level.

Report Authorization

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

Laboratory Contact Information

ALS Environmental
960 W Levoy Drive
Salt Lake City, Utah 84123

Phone: (801) 266-7700
Email: alslt.lab@ALSGlobal.com
Web: www.alsslc.com

ANALYTICAL REPORT

Workorder: 34-1411985
Client Project ID: 013.IH1716.06/IFR (C)-Draper,
Purchase Order: 013.IH1716.06
Project Manager: Non-Responsive [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.
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.

Industrial Hygiene Southwest

Violation Inventory Log

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

IFR (Converted) - Draper, UT

CONTROL NUMBER CLOSED ☐	HAZARD DESCRIPTION	SITE	RAC	CORRECTIVE ACTIONS (Abatement Plan)	SUSPENSE DATE	ACTION OIC/NCOIC	Estimated Cost(s)	DATE CORRECTED	REFERENCES
UTDRIFR-04242014-4.3	Lead concentrations exceed established criteria	Converted IFR	2	See 4 Recommended Corrective Actions Below					29 CFR 1910.1025 (h)(1)
UTDRIFR-04242014-5.3	Asbestos Building Materials: inspection, re-inspection and Asbestos Hazard Management Plan.	Facility	3	1) Conduct a facility survey to identify & assess extent of asbestos hazards 2) Develop & implement an Asbestos Hazard Management Plan					AR 420-1, 5-24b, c, & d

RECOMMENDED CORRECTIVE ACTIONS FOR UTDRIFR-04242014-4.3

1) Conduct a "Wall-to-Wall" lead assessment of the CIFR space to assess the extent of lead contamination present; includes above & below the drop-in ceiling.
2) Prohibit public access into the offices and spaces that make up the CIFR space; Public meaning any non-National Guard personnel.
3) Avoid any maintenance, repair, remodel, cleaning, and any other activities that may disturb existing lead contamination on surfaces above the drop-in ceiling tiles.
4) Clean / remediate contaminated surfaces in a manner that prevents spreading of lead dust / contamination.

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Reference DA FORM 4754

APPENDIX–N: CONCLUSIONS AND RECOMMENDATIONS

N.1 **Introduction** – This section provides conclusions and recommendations for the findings and observations described in the previous sections of the IHSAV report for the Converted IFR, in Draper, UT The paragraphs are numbered to correspond to the sections where first noted. (i.e., N.4.1 describes the following: the N is Conclusions & Recommendations and the 4.1 corresponds back to Section 4 – Sampling Results; Item 1 – Indoor Air Quality).

N4.3 **Lead Wipe Sampling** – Recommendations to address the identified lead contamination include:

A) Conduct a "Wall-to-Wall" lead assessment of the CIFR space to assess the extent of lead contamination present; includes above & below the drop-in ceiling.
B) Prohibit public access into the offices and spaces that make up the CIFR space; Public meaning any non-National Guard personnel.
C) Avoid any maintenance, repair, remodel, cleaning, and any other activities that may disturb existing lead contamination on surfaces above the drop-in ceiling tiles.
D) Clean / remediate contaminated surfaces in a manner that prevents spreading of lead dust / contamination.

N5.3 **Asbestos Facility Survey** – Develop and implement an Asbestos Hazard Management Plan.

FY 14 Installation Status Report (ISR) Services Documentation	Intellicode	Q1	Q2	Q3	Q4 Annual
Breathing Zone samples collected above Occupational Exposure Limit (OEL), with no controls	953-01-04			0	
Breathing Zone samples collected above Occupational Exposure Limit (OEL)	953-01-04			0	
Number of Personal Noise Dosimetry samples collected >= 85 dBA with no controls	953-01-05			0	
Number of Personal Noise Dosimetry samples collected >= 85 dBA	953-01-05			0	
Number of Noise Sound Level samples collected >= 140 dBP with no controls	953-01-06			0	
Number of Noise Sound Level samples collected >= 140 dBP	953-01-06			0	
Number of Noise Sound Level samples collected >= 140 dBP not controlled, that are recommended for control	953-01-07			0	
Number of Noise Sound Level samples collected >= 140 dBP not controlled	953-01-07			0	
Number of Breathing Zone samples collected above Occupational Exposure Limit (OEL) not controlled, that are recommended for control	953-01-08			0	
Number of Breathing Zone samples collected above Occupational Exposure Limit (OEL) not controlled	953-01-08			0	
Number of Personal Noise Dosimetry samples collected >= 85 dBA not controlled, that are recommended for control	953-01-09			0	
Number of Personal Noise Dosimetry samples collected >= 85 dBA not controlled	953-01-09			0	
Total number of DOEHRS-IH shops coded as Priority 1 which have at least one task performed in the past 12 months	953-02-10	IHT	IHT	IHT	IHT
Total number of DOEHRS-IH shops coded as Priority 1	953-02-10	IHT	IHT	IHT	IHT
Number of buildings for which all processes requiring a basic industrial hygiene characterization have received one within the last 12 months	953-02-11	IHT	IHT	IHT	IHT
Number of buildings requiring a basic industrial hygiene characterization within the last 12 months	953-02-11	IHT	IHT	IHT	IHT
Number of buildings for which all processes requiring a basic industrial hygiene characterization have received one within the last 12 months	953-02-12	IHT	IHT	IHT	IHT
Number of buildings requiring an industrial hygiene exposure assessment within the last 12 months	953-02-12	IHT	IHT	IHT	IHT
Number of processes that were assessed for potential inhalation exposure to employees during this IH Visit	953-02-13	IHT	IHT	IHT	IHT
Number of processes that require an assessment for potential inhalation exposure to employees during this IH Visit	953-02-13	IHT	IHT	IHT	IHT

FY 14 Installation Status Report (ISR) Services Documentation	Intellicode	Q1	Q2	Q3	Q4 Annual
Number of processes that were assessed for potential inhalation exposure to employees within the last 12 months.	953-02-14	IHT	IHT	IHT	IHT
Number of processes that require an assessment for potential inhalation exposure to employees within the last 12 months.	953-02-14	IHT	IHT	IHT	IHT
Number of personnel who were reassessed by industrial hygiene within the last 12 months.	953-02-15	IHT	IHT	IHT	IHT
Number of personnel who required reassessment by industrial hygiene within the last 12 months.	953-02-15	IHT	IHT	IHT	IHT
Number of processes which have been measured for potential hazardous noise levels with a sound level meter within the last 12 months.	953-02-16	IHT	IHT	IHT	IHT
Number of processes which require measurement for potential hazardous noise levels using a sound level meter within the last 12 months.	953-02-16	IHT	IHT	IHT	IHT
Number of personnel for which noise dosimetry was collected during their complete work shift to quantify their daily noise exposures within the last 12 months.	953-02-17	IHT	IHT	IHT	IHT
Number of personnel who require work shift dosimetry to quantify their daily noise exposures within the last 12 months.	953-02-17	IHT	IHT	IHT	IHT
Number of ventilation systems (e.g., spray paint booths, tailpipe exhausts, etc.) which were inspected and measured for airflow rates	953-02-18			0	
Number of ventilation systems (e.g., spray paint booths, tailpipe exhausts, etc.) which require inspection and measurement of airflow rates	953-02-18			0	
Number of ventilation systems which require corrective action based on deficiencies identified during an IH survey	953-02-19			0	
Number of ventilation systems which were evaluated by an IH	953-02-19			0	
Number of design review packages evaluated and addressed by an IH with recommendations applicable to occupational health concerns	953-02-20	IHT	IHT	IHT	IHT
Number of design review packages which required IH evaluation and recommendations applicable to occupational health concerns	953-02-20	IHT	IHT	IHT	IHT

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Facility Information Form

Revised: September 26, 2013

General Facility Information Date(s) of Previous IHSAVs: Unknown

IH(s): [redacted] Date(s) of IHSAV: 4/24/2014

Facility Name: IFR (Converted) Draper

Address: 12953 S. Minuteman Drive, Draper, Utah

Facility Commander: [redacted]

Name / Phone Number / email

Safety Officer: [redacted]

Name / Phone Number / email

No Person(s): NA Admin: NA Maint: NA Work Sched: M-Th 600-1630 Size of Facility: 350,00 ft²

Unit(s): Myriad UTARNG Co-Tenant(s):

Include UIC if available List All

Primary work activities at Facility:

Written Health & Safety Programs / SOPs

Program	Program Needed	Have Program	Date of Last Training	# Enrolled	Comments
Confined Space	NA				
.mergency Preparedness	NA				
Hazard Communication	NA				
Hearing Conservation	NA				
PPE	NA				
Respiratory Protection	NA				
Bloodborne Pathogens	NA				
Others (Bloodborne Pathogens, Lock Out / Tag Out, Lifting Devices, Radiation, SOPs, etc.) – List on back					

Y = Yes N = No NA = Not Applicable to this site

Documents / Records to Obtain

X	Facility floor plan / evacuation map	NA	Hazardous Materials inventory
NA	List of equipment serviced / maintained	NA	Personnel list
None	Previous IH reports		Others (List):

NA = Not Applicable to this site

Non – DoD Contractors - NA

Service	Provider	Service	Provider
Oil / Water Separator		Laundry	
Tools		Pest Control	
Rags		Hazardous Waste	
Refuse		Crane Maintenance	
Others:			

29 Sept 14

ARMY NATIONAL GUARD
INDUSTRIAL HYGIENE – SOUTHWEST

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

Industrial Hygiene Site Assistance Visit

Fillmore Armory-Converted Indoor Firing Range (CIFR)

45 West Center Street
Fillmore, UT 84022

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

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

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

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

ARNG-CSG-P

19 OCT 2014

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

FOR Commander, Fillmore Armory Indoor Firing Range (IFR) 45 West Center Street, Fillmore, UT 84022

SUBJECT: Executive Summary for Industrial Hygiene Site Assistance Visit (IHSAV) for Fillmore Armory Indoor Firing Range (IFR) 45 West Center Street, Fillmore, UT on 29 SEP 2014

1. References. See survey report.

2. General.

a. At the request of the NGB Industrial Hygiene, Southwest (IHSW) Region, an Industrial Hygiene Site Assistance Visit and cursory review of safety related items and programs was conducted at the Fillmore Armory Indoor Firing Range (IFR) 45 West Center Street, Fillmore, UT on 29 SEP 2014.

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

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

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

3. Findings. See survey report.

4. Commendable.

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

5. Observations / Recommendations.

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

a. Thorough cleaning of armory should be accomplished and especially in identified areas with higher lead dust accumulation, sampled during this SAV. Thoroughly clean areas identified above 40 ug/ft2.

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

ARNG-CSG-P

SUBJECT: Executive Summary for Industrial Hygiene Site Assistance Visit (IHSAV) for Fillmore Armory Indoor Firing Range (IFR) 45 West Center Street, Fillmore, UT on 29 SEP 2014

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

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

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

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

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

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

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

[redacted]
NGB, IHSW, CIV
Regional Industrial
Hygiene Manager

Industrial Hygiene Southwest

Violation Inventory Log

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

FILLMORE ARMORY CIFR,UTAH 84022

CONTROL NUMBER CLOSED [X]	HAZARD DESCRIPTION	SITE	RAC	CORRECTIVE ACTIONS (Abatement Plan)	SUSPENSE DATE	ACTION OIC/NCOIC	Estimated Cost(s)	DATE CORRECTED	REFERENCES
UTFA-09292014-3.1	Lead levels exceded the minimun requirements.	Armory	3	Upgrade housekeeping practices throughout this facility to help prevent migration of lead dust. Thoroughly clean areas identified above 40 ug/ft2. Utilize Armory Clean-up SOP in future cleaning episodes.					Occupational Safety and Health Administration (OSHA) standard for lead; 1910.1025 (h)(1)

Indoor Firing Range

Decontamination and Cleaning Protocol

(Periodic Cleaning and Conversion)

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

   The range ventilation system must be in operation during all cleaning activities. If no ventilation system is available all doors and windows must keep sealed to prevent contamination of other areas.
3. **Materials**
   - I. A High Efficiency Particulate Air (HEPA) filtered vacuum system is the preferred method of cleanup. If a HEPA vacuum cannot be obtained a wet method, detailed below, should be utilized. **A high-pressured water system or dry sweeping may not be used.**
   - II. A cleaning solution containing detergent and water is recommended. New solutions of detergent and water should be mixed frequently.
   - III. Two containers should be used; one for wetting the applicator (rags, sponge, mop) and the other for rinsing once the dust has been wiped from the surfaces.

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

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

4. Order of Cleaning

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

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

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

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

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

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

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

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

5. Decontamination of Stored Items

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

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

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

6. Medical Surveillance

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

7. Air Monitoring

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

8. Hazard Training

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

ARMORY

CLEANUP & FOLLOW-UP HOUSEKEEPING RECOMMENDATIONS

Materials Needed:

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

Disposal of Waste Water and Cleaning Materials:

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

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

3. Disposable gloves should be treated as hazardous waste.

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

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

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

Post-Cleanup Precautionary Measures:

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

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

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

Initial Armory Cleanup:

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

UTAH ARMY NATIONAL GUARD

FILLMORE ARMORY

45 West Center St.
Fillmore, UT 84721
(435) 743 5470

Submitted to:

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

Table of Contents

INDUSTRIAL HYGIENE ASSISTANCE VISIT
FILLMORE ARMORY
FILLMORE, UTAH

1.0 Introduction and Background

1.1. This report summarizes the results of the Industrial Hygiene (IH) Site Assistant Visit (SAV) conducted at the Fillmore Armory in Fillmore, Utah on September 29, 2014. The Army National Guard Industrial Hygiene Southwest (ARNG-IHSW) requested Aloha World to visit the Fillmore Armory to follow-up and evaluate potential high lead. This IH SAV also includes interviews with Non-Responsive regarding industrial hygiene issues as well as any change in operations in the work area that might affect the workers health and safety. Non-Responsive from Aloha World completed this survey.

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

1.3. The Fillmore Armory has four full time guard members. Two fulltime employees at the armory and 2 full time employees that are from FMS 6, but work in the maintenance bay that is attached to the armory. This armory was constructed in 1924. The armory has offices used for administrative purposes and also contains a drill floor, arms room, classrooms, industrial kitchen and storage. Maintenance service is done at this site and overseen by FMS 6 in St George, UT.

1.4 There is a Converted Indoor Firing Range (CIFR) in this facility. The ventilation system, firing lines, lighting and bullet stop have all been removed. The firing range was converted, then torn down and renovated into the drill hall in 2011. Lead samples were taken in the maintenance

bay and in the Drill Hall. Lead wipe samples results could not be obtained from the time of conversion.

2.0 Survey Procedures and Equipment Used

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

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

3.0. Findings and Recommendations

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

Table 3.1.A.
Lead Wipe

Sample ID	AREA	Photo #	Result ug/ft2
092814-1	Control	NA	BDL
092814-2	North drill hall	2	BDL
092814-3	Center drill hall	3	BDL
092814-4	South drill hall	4	BDL
092814-5	West drill hall	5	BDL
092814-6	East drill hall	6	BDL
092814-7	North CFR	7	90.0
092814-8	Center CFR	8	31.8
092814-9	South CFR	9	31.8
092814-10	West CFR	10	647
092814-11	East CFR	11	92.7

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

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

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

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

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

This 1924 building is of concrete block and brick construction with a metal roof over the drill hall, with tar and rock composite on remaining roof area. No water leakage was detected.

A fire evacuation plan was posted throughout the armory.

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

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

4.0 Industrial Hygienist Certification/Project Limitations

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

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

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

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

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

Non-Responsive
Aloha World

Appendix A

References

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

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

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

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

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

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

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

DA PAM 40-ERG, Ergonomics

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

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

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

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

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

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

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

Appendix B

Recommendations

Recommendations

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

Appendix C

Photograph Log

Photo Log

Photo #1 – Fillmore Armory

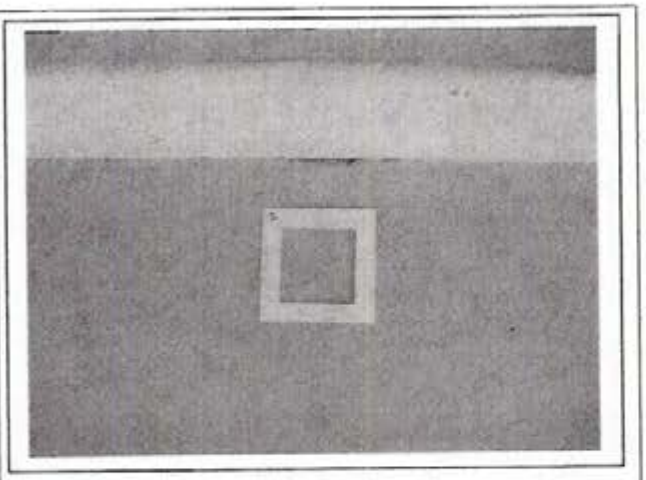


Photo #2- North drill hall wipe

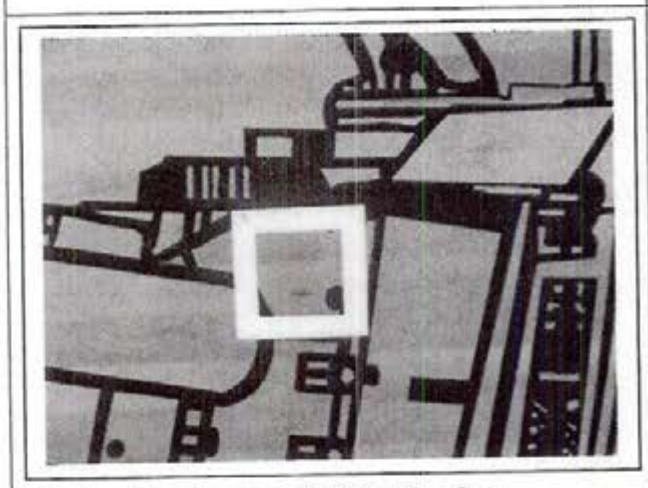


Photo #3- Center drill hall wipe

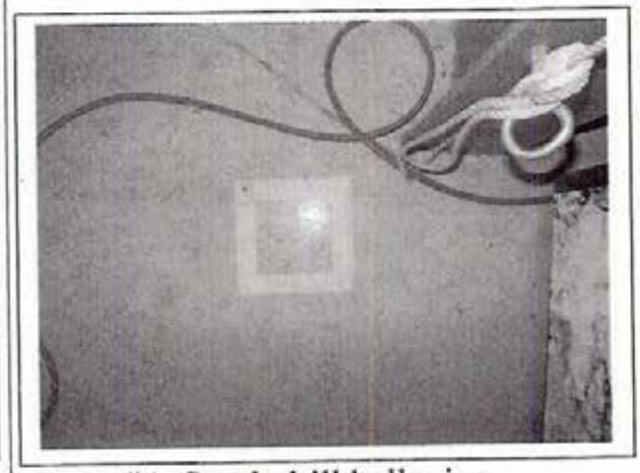


Photo #4- South drill hall wipe

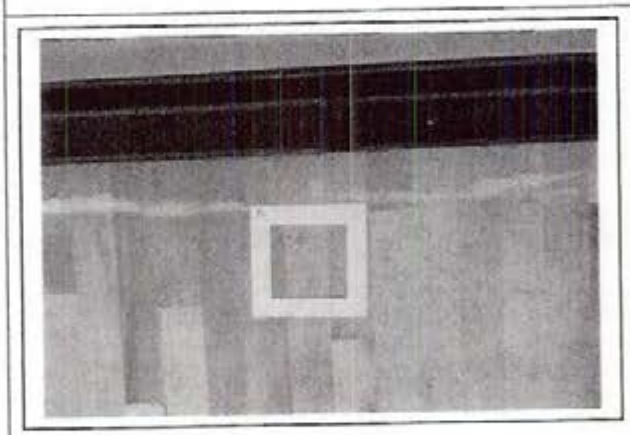


Photo #5 –West drill hall wipe

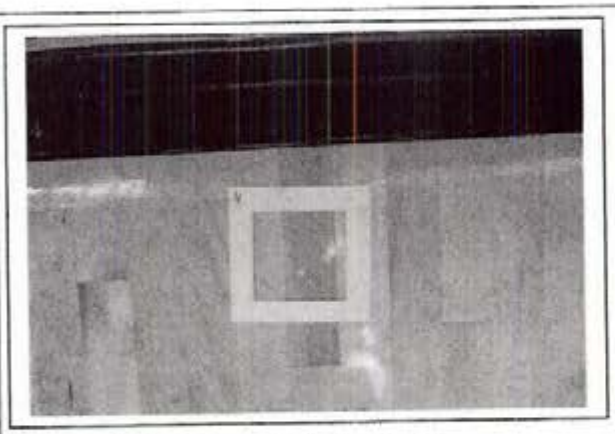


Photo #6 – East drill hall wipe

Photo Log

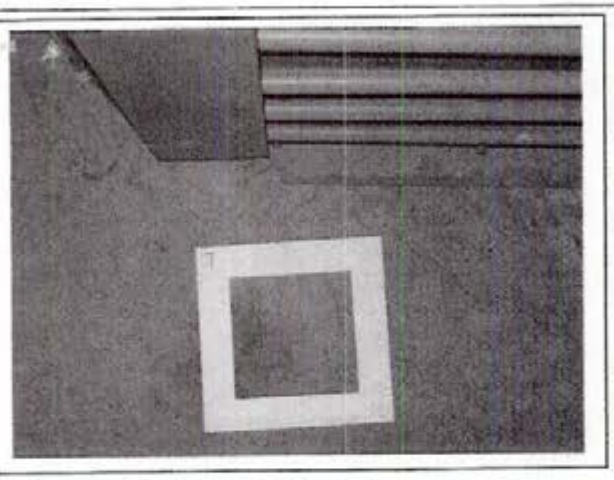


Photo #7 – North Maintenance wipe

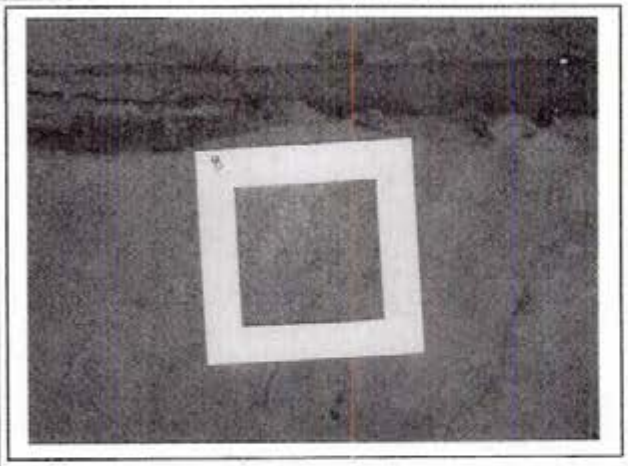


Photo #8- Center Maintenance wipe

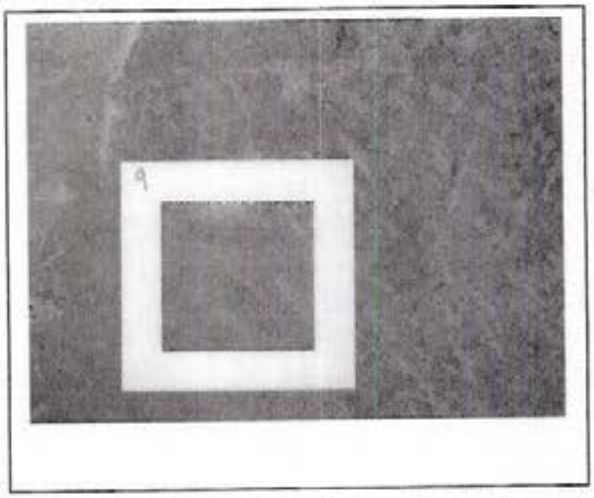


Photo #9 – South Maintenance wipe

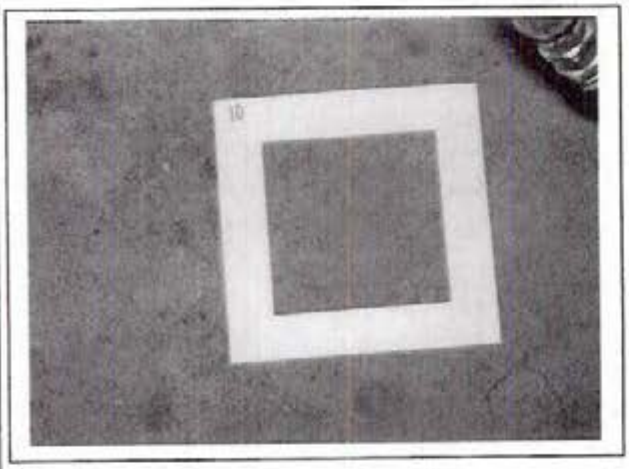


Photo #10 – West Maintenance wipe

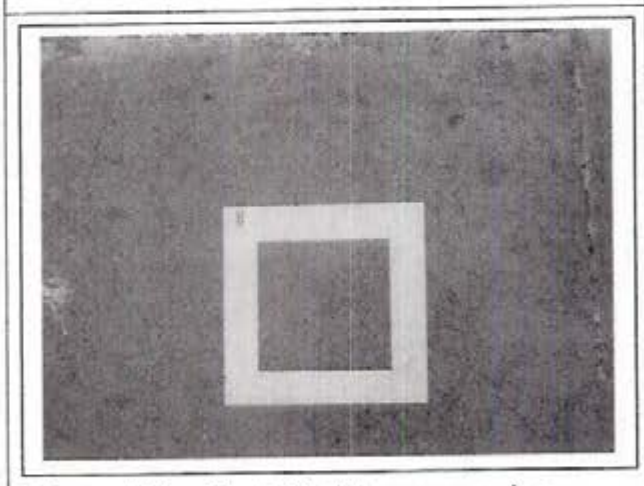


Photo #11 –East Maintenance wipe

Photo #12 –Drill Hall/ CIFR

Photo Log

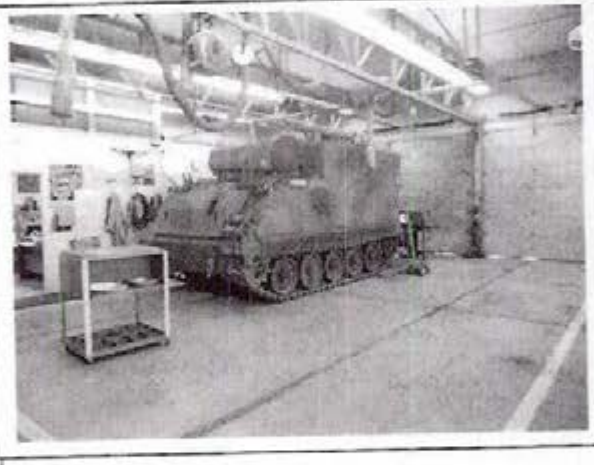


Photo #13-Maintenance shop

Photo #14-Flammable locker

Photo #15-Flammable storage outside

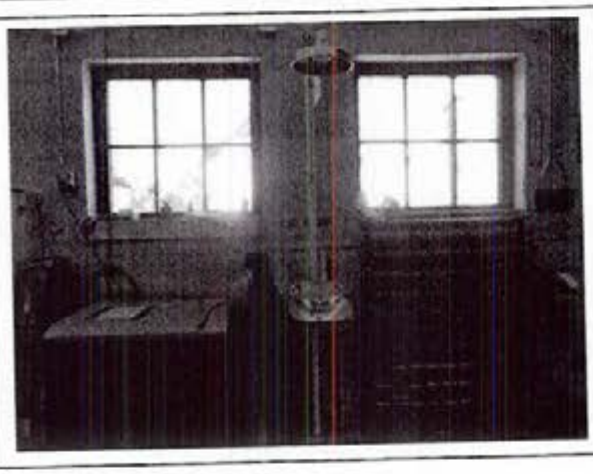


Photo #16-Eye wash/shower

Phot #17-Janitorial storage

Photo #18

RESERVOIRS ENVIRONMENTAL, INC.

5801 Logan St., Suite 100
Denver CO 80216

TABLE ANALYSIS: LEAD BY WIPE SAMPLING

RES Job Number:	**RES 302218-1**
Client:	**Aloha World**
Client Project Number / P.O.:	**092814**
Client Project Description:	**Fillmore Armory**
Date Samples Received:	**October 4, 2014**
Analysis Type:	**USEPA SW846 3050B / AA (7420)**
Turnaround:	**3-5 Day**
Date Samples Analyzed:	**October 8, 2014**

Client ID Number	Lab ID Number	Sample Area (sq.ft.)	LEAD (µg)	Reporting Limit (µg/ft^2)	LEAD CONCENTRATION (µg/ft^2)
092814-1	EM 1270393	0.11	BRL	22.7	BRL
092814-2	EM 1270394	0.11	BRL	22.7	BRL
092814-3	EM 1270395	0.11	BRL	22.7	BRL
092814-4	EM 1270396	0.11	BRL	22.7	BRL
092814-5	EM 1270397	0.11	BRL	22.7	BRL
092814-6	EM 1270398	0.11	BRL	22.7	BRL
092814-7	EM 1270399	0.11	9.9	22.7	90.0
092814-8	EM 1270400	0.11	3.5	22.7	31.8
092814-9	EM 1270401	0.11	3.5	22.7	31.8
092814-10	EM 1270402	0.11	71.2	22.7	647
092814-11	EM 1270403	0.11	10.2	22.7	92.7

***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

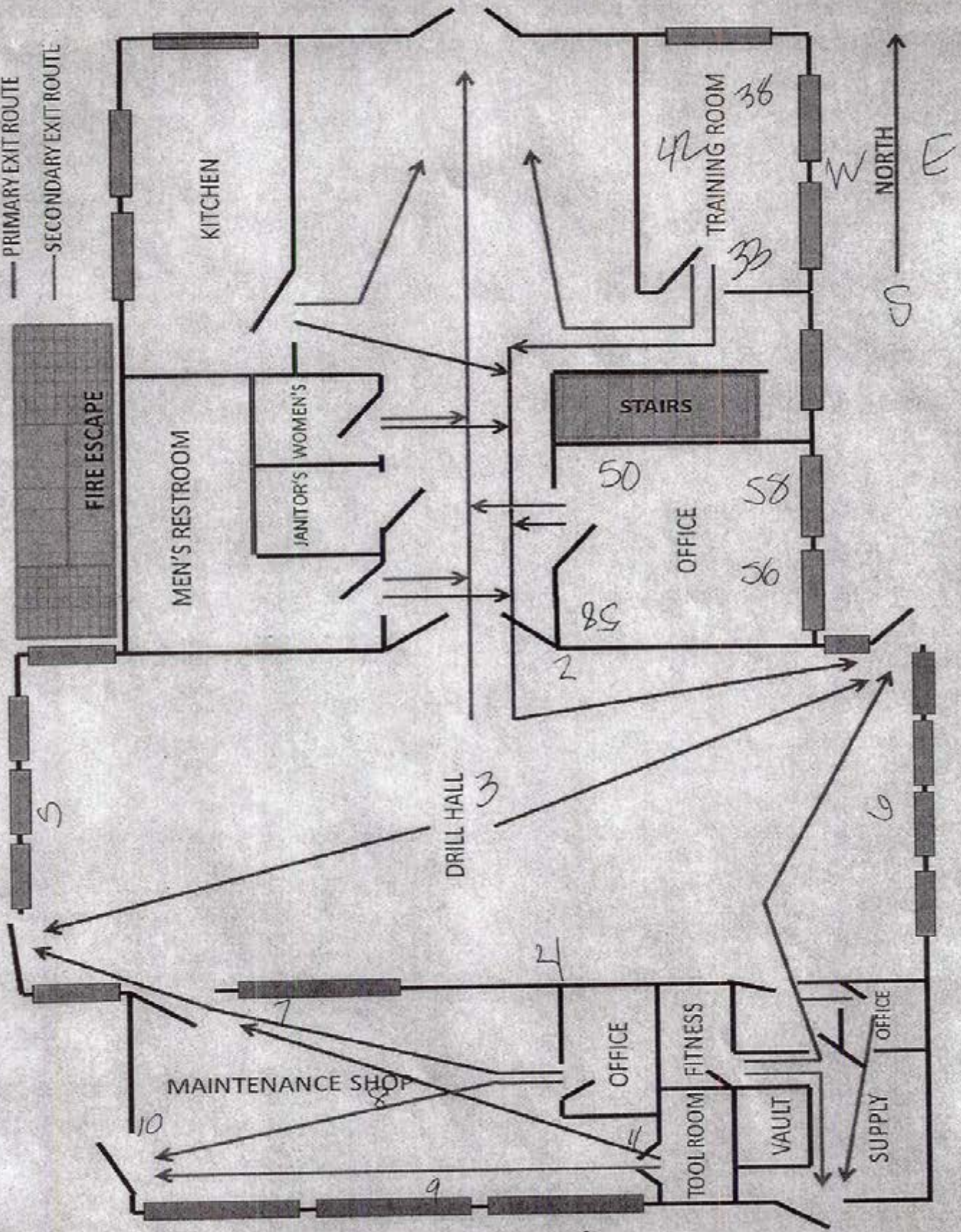
Data [redacted]

BRL = Below Reporting Limit

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

5801 Logan Street, Suite 100 Denver, CO 80216

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



Appendix E

Violation Inventory Log

BEST AVAILABLE COPY

Industrial Hygiene Southwest

Violation Inventory Log

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

FILLMORE ARMORY CIFR,UTAH 84022

CONTROL NUMBER CLOSED [X]	HAZARD DESCRIPTION	SITE	RAC	CORRECTIVE ACTIONS (Abatement Plan)	SUSPENSE DATE	ACTION OIC/NCOIC	Estimated Cost(s)	DATE CORRECTED	REFERENCES
UTFA-09292014-3.1	Lead levels exceded the minimun requirements.	Armory	3	Upgrade housekeeping practices throughout this facility to help prevent migration of lead dust. Thoroughly clean areas identified above 40 ug/ft2. Utilize Armory Clean-up SOP in future cleaning episodes.					Occupational Safety and Health Administration (OSHA) standard for lead; 1910.1025 (h)(1)

Industrial Hygiene Southwest

Violation Inventory Log

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

FILLMORE ARMORY,UTAH 84022

CONTROL NUMBER CLOSED [x]	HAZARD DESCRIPTION	SITE	RAC	CORRECTIVE ACTIONS (Abatement Plan)	SUSPENSE DATE	ACTION OIC/NCOIC	Estimated Cost(s)	DATE CORRECTED	REFERENCES
UTFA-09292014-3.5	There was not a fire Extinguisher within 10ft of the door for the POL shed.	Armory	3	Properly mount a fire extinguisher 10ft from door opening					1910.106(d)(7)(i)(a)
UTFA-09292014-3.8 [ ]	Levels were below recommended minimum standards in some areas of the facility.	Armory	4	Replacing burnt out luminaries, cleaning fixtures, cleaning windows, painting walls a lighter color, repositioning detailed work to higher illuminated areas, and using supplemental lighting would improve some areas. Utilize task lighting, as needed to help prevent eye strain in the work place.					DG 415-2 and Lighting Handbook, Illuminating Engineering Society (IES) of North America]

29Sept 14

ARMY NATIONAL GUARD
INDUSTRIAL HYGIENE – SOUTHWEST

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

Industrial Hygiene Site Assistance Visit

Fillmore Armory

45 West Center Street
Fillmore, UT 84022

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

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

ARNG-CSG-P

19 OCT 2014

MEMORANDUM THRU Non-Responsive 12953 Minuteman Dr., ATTN: Deputy State Surgeon, Draper, UT 84020-1776

FOR Commander, Fillmore Armory 45 West Center Street, Fillmore, UT 84022

SUBJECT: Executive Summary for Industrial Hygiene Site Assistance Visit (IHSAV) for Fillmore Armory 45 West Center Street, Fillmore, UT on 29 SEP 2014

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

2. **General.**

a. At the request of the NGB Industrial Hygiene, Southwest (IHSW) Region, an Industrial Hygiene Site Assistance Visit and cursory review of safety related items and programs was conducted at the Fillmore Armory 45 West Center Street, Fillmore, UT on 29 SEP 2014.

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

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

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

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

4. **Commendable.**

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

5. **Observations / Recommendations.**

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

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

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

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

c. Repair or replace kitchen exhaust fan motor located above the kitchen stove hood so it will meet the required 500 fpm. (para. 3.4) **(RAC 2)**

d. Properly mount a fire extinguisher within 10 ft of the POL shed door. (para. 3.5) **(RAC 3)**

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

6. Violation Correction Log.

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

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

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

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

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

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

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

ARNG-CSG-P

SUBJECT: Executive Summary for Industrial Hygiene Site Assistance Visit (IHSAV) for Fillmore Armory 45 West Center Street, Fillmore, UT on 29 SEP 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 provided an appendix with Hazard Assessments (HA) examples of some of this facilities operations. Additional operations can utilize this format to design HA not observed during this IHSAV.

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

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

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

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

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

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

Non-Responsive

NGB, IHSW, CIV
Regional Industrial
Hygiene Manager

Industrial Hygiene Southwest

Violation Inventory Log

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

FILLMORE ARMORY,UTAH 84022

CONTROL NUMBER CLOSED [X]	HAZARD DESCRIPTION	SITE	RAC	CORRECTIVE ACTIONS (Abatement Plan)	SUSPENSE DATE	ACTION OIC/NCOIC	Estimated Cost(s)	DATE CORRECTED	REFERENCES
UTFA-09292014-3.1	Lead levels exceded the minimun requirements.	Armory	3	Upgrade housekeeping practices throughout this facility to help prevent migration of lead dust. Thoroughly clean areas identified above 40 ug/ft2. Utilize Armory Clean-up SOP in future cleaning episodes.					Occupational Safety and Health Administration (OSHA) standard for lead; 1910.1025 (h)(1)
UTFA-10012014-3.5	Armory hasn't converted to new SDS format	Armory	4	Update all MSDS for the facility with the new SDS format by Jun 2016					29 CFR 1910.1200
UTFA-09292014-3.2 ☐	There was no Asbestos Management plan in place.	Armory	3	Conduct a facility survey to identify Asbestos Containing Material (ACM) within the facility and develop ACM Management Plan. Conduct awareness training to all personnel who occupy the facility regarding the finding and the ACM Management Plan. The survey may have been completed, however, at the time of this assistance visit, awareness training, ACM identification, or an ACM Management Plan was not available.					29 CFR 1910.1001
UTFA-09292014-3.4	The average velocity of the kitchen hood exhaust is 380 fpm.	Armory	2	Repair or replace fan motor to be able to obtain a duct velocity of not less than 500 fpm.					2011 National Fire Protection Association Standard 96, Section 8.2.1.1

Industrial Hygiene Southwest

Violation Inventory Log

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

FILLMORE ARMORY,UTAH 84022

CONTROL NUMBER CLOSED [X]	HAZARD DESCRIPTION	SITE	RAC	CORRECTIVE ACTIONS (Abatement Plan)	SUSPENSE DATE	ACTION OIC/NCOIC	Estimated Cost(s)	DATE CORRECTED	REFERENCES
UTFA-09292014-3.5	There was not a fire Extinguisher within 10ft of the door for the POL shed.	Armory	3	Properly mount a fire extinguisher 10ft from door opening					1910.106(d)(7)(i)(a)
UTFA-09292014-3.8 ☐	Levels were below recommended minimum standards in some areas of the facility.	Armory	4	Replacing burnt out luminaries, cleaning fixtures, cleaning windows, painting walls a lighter color, repositioning detailed work to higher illuminated areas, and using supplemental lighting would improve some areas. Utilize task lighting, as needed to help prevent eye strain in the work place.					DG 415-2 and Lighting Handbook, Illuminating Engineering Society (IES) of North America]

ARMORY

CLEANUP & FOLLOW-UP HOUSEKEEPING RECOMMENDATIONS

Materials Needed:

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

Disposal of Waste Water and Cleaning Materials:

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

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

3. Disposable gloves should be treated as hazardous waste.

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

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

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

Post-Cleanup Precautionary Measures:

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

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

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

Initial Armory Cleanup:

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

UTAH ARMY NATIONAL GUARD

FILLMORE ARMORY

45 W Center St.
Fillmore, UT 84022
(435) 743 5470

Submitted to:

Non-Responsive

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

Table of Contents

INDUSTRIAL HYGIENE ASSISTANCE VISIT
FILLMORE ARMORY
FILLMORE, UTAH

1.0. Introduction and Background

1.1. This report summarizes the results of the Industrial Hygiene (IH) Survey conducted at the Fillmore Armory in Fillmore, UT on September 29, 2014. The Army National Guard of Industrial Hygiene Southwest Regional Manager (ARNG-IHSW) requested Aloha World to visit the Fillmore 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 Fillmore Armory has 2 full time guard members in the armory and 2 full time guardsmen in the attached maintenance shop, maintained by FMS 6 (**Appendix F**). There are approximately 60 guardsmen and women on drill weekend. This armory was constructed in 1924 and was renovated in 2011. The armory houses the Charlie Battery Detachment. The armory has offices used for administrative purposes and also contains a drill floor, arms room,

supply room, maintenance shop and storage on the main level. They have a classroom and a bunk room upstairs and storage in the unfinished basement.

There is a Converted Indoor Firing Range (CIFR) in this facility. The CIFR was located were the Drill Hall is. Weapons are cleaned in the drill hall and outside.

Vehicle maintenance is done at this facility. The maintenance bay is attached to the Armory but operated by FMS 6 in St George, UT.

2.0. Survey Procedures

2.1. Lead wipe samples were collected on dusty horizontal floor surfaces in the facility including but not limited to the drill hall floor and the maintenance bay. "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 1924 constructed building was performed. All accessible areas of the facility were visually inspected to identify suspect asbestos-containing materials (ACM).

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

Air flow measurements were taken in the industrial kitchen and maintenance bay.

Equipment Used

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

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

3.0. Findings and Recommendations

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

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*
092814-1	Control	NA	BDL
092814-2	North drill hall	2	BDL
092814-3	Center drill hall	3	BDL
092814-4	South drill hall	4	BDL
092814-5	West drill hall	5	BDL
092814-6	East drill hall	6	BDL
092814-7	North CFR	7	90.0
092814-8	Center CFR	8	31.8
092814-9	South CFR	9	31.8
092814-10	West CFR	10	647
092814-11	East CFR	11	92.7

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

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

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

3.2. **Asbestos Survey-** Non-Responsive was asked during this survey about the presence of asbestos and he advised asbestos was present in the basement but was removed before the 2011 remodel. There is no ACM maintenance plan in place.

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

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

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

Limitations and Exclusions of Findings

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

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

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

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

3.3 **Indoor air quality and HVAC Systems-** The armory is heated and cooled through a central air system that was replaced in 2011. The ventilation system runs underneath the armory and was recently serviced by FMO. There was water drainage running through the tunnels, mud was found in the ventilation system but has been cleaned. The FMO maintains the HVAC system.

Building air temperature, within this facility, was in the comfort range for the occupants during this survey period. The day of the survey it was 62 degrees Fahrenheit outside. Inside air temperature is recommended to be between 68-75 degrees Fahrenheit and the relative humidity

is to range from 30-60%. The indoor temperature was 72-75 degrees Fahrenheit. Humidity levels above 60 percent can result in proliferation of bacteria and fungi, while levels below 30 percent can cause dry eyes, skin, and mucous membranes. There were no signs of water leakage.

3.4. **Exhaust and Ventilation Systems-** The Fillmore Armory contains a functional maintenance bay.

The exhaust ducts reportedly reach all exhaust ports on all the equipment serviced in this armory as required by AR 385-55, Section 2-14(b).

The following table lists volumetric flow rates measured in each duct (all ducts open for survey).

Location	CFM
TP-01	910
TP -02	896
TP -03	974

Per memorandum from Army National Guard received on November 13, 2013 a minimum duct velocity of 850 was obtained.

Air flow was measured in the industrial kitchen under the hood of the oven. Air flow was measured at 380 fpm. This kitchen exhaust duct does not meet 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 Replace the fan motor to be able to obtain a duct velocity of not less than 500 fpm. [2011 National Fire Protection Association Standard 96, Section 8.2.1.1]

3.5. **Hazardous Materials Use and Storage-** All Hazmat and POL's are stored and maintained in a flammable cabinet located outside. The POL is stored on top of containment pallets pictured in Appendix C. The fire extinguisher was not mounted 10ft from POL door opening.

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

Recommendation: a. Properly mount a fire extinguisher 10ft from the POL door opening on the outside of the POL shed. 1910.106(d)(7)(i)(a) **b.** Update all MSDS for the facility with the new SDS format by June 2016 CFR 1910.120.

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

This 1924 building is of concrete block and brick construction with a concrete roof over the drill hall, tar and rock composite on remaining roof area.

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

3.7. **Sound Level Survey-** A noise survey was not conducted in the Fillmore 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 spaces but inadequate in the classroom upstairs and the Northeast corner office. 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.

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

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

Army and National Guard Safety and Occupational Health Regulations, AR 385.
First aid.

3.10. Recurring event –We were unable to obtain any previous surveys for this armory.

4.0 Industrial Hygienist Certification and Project Limitations

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

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

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

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

5.0 Technical Assistance

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

Non-Responsive
Aloha World Environmental

Appendix A: References

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

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

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

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

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

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

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

DA PAM 40-ERG, Ergonomics

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

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

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

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

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

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

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

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

Appendix B: Assessment Criteria

A. Ventilation Standards

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

B. Illumination Standards

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

C. Noise

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

D. Air Sampling

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

E. Risk Assessment Codes

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

Appendix C

Photograph Log

Photo Log

Photo #1 – Fillmore Armory

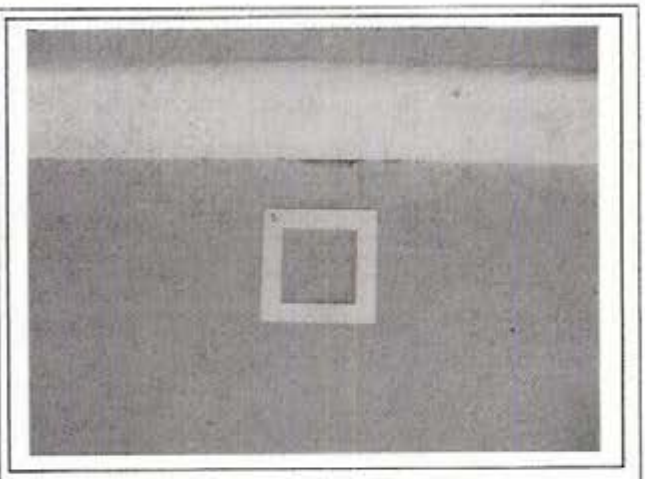


Photo #2- North drill hall wipe

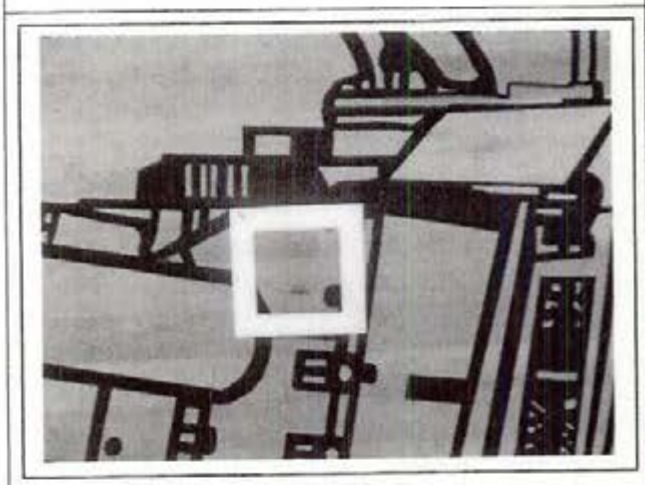


Photo #3- Center drill hall wipe

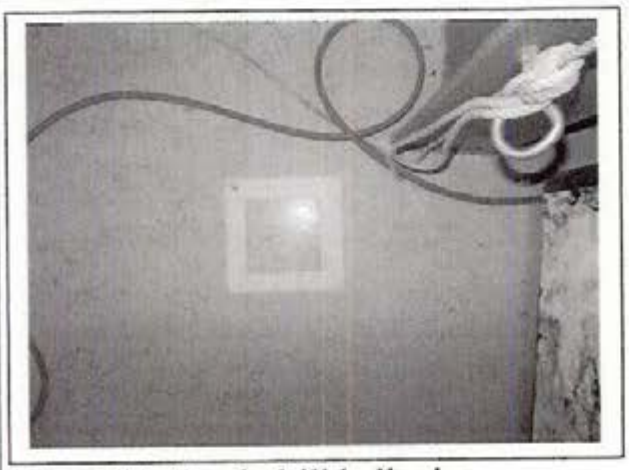


Photo #4- South drill hall wipe

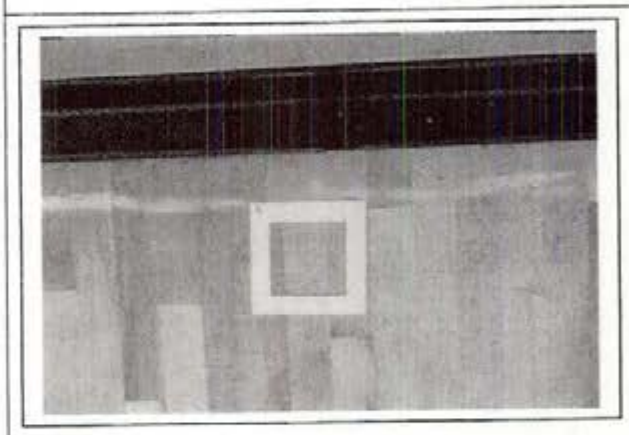


Photo #5 –West drill hall wipe

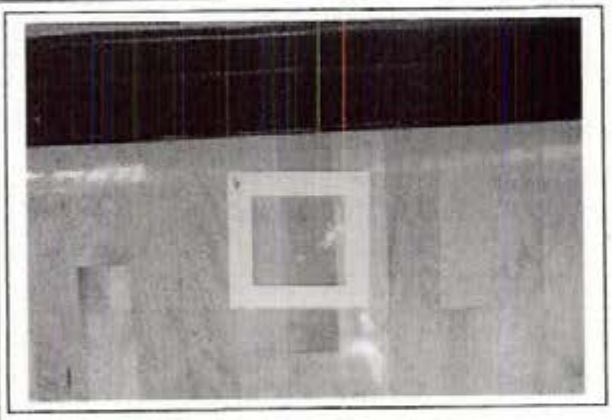


Photo #6 – East drill hall wipe

Photo Log

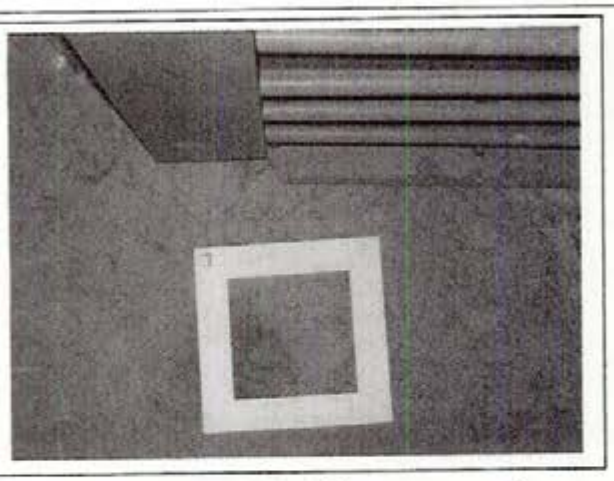


Photo #7 – North Maintenance wipe

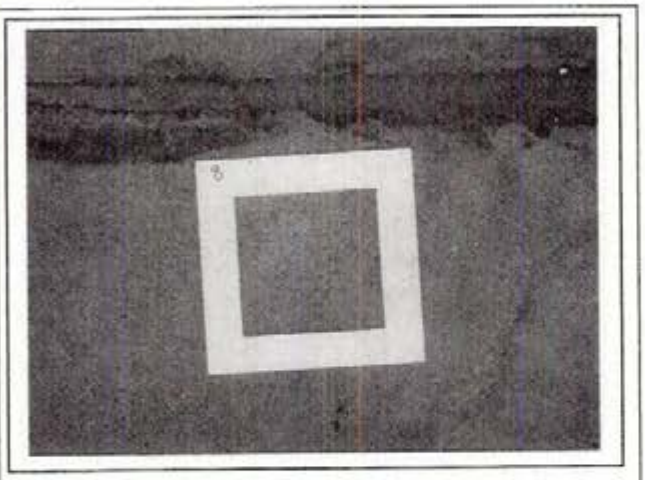


Photo #8- Center Maintenance wipe

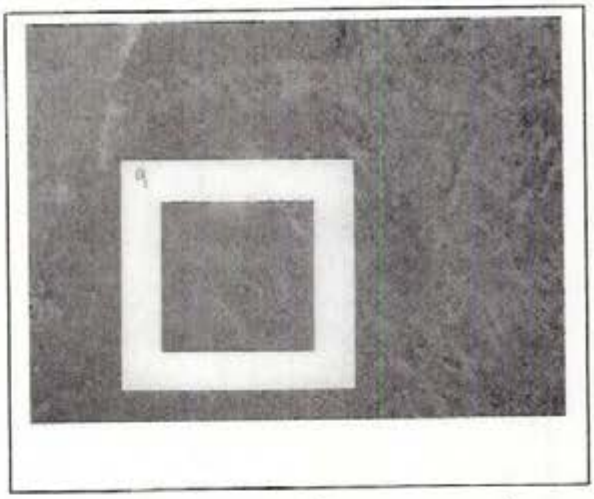


Photo #9 – South Maintenance wipe

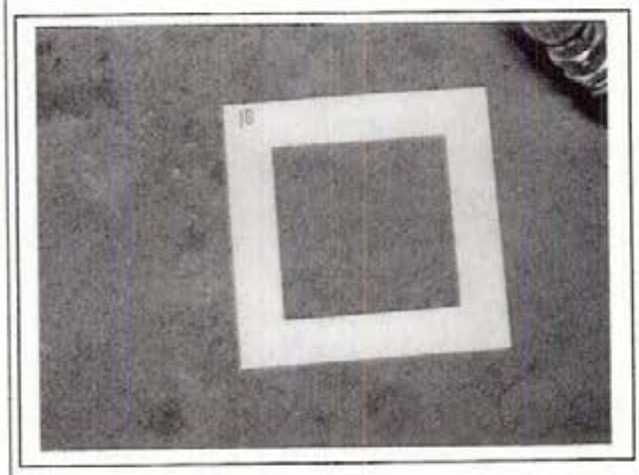


Photo #10 – West Maintenance wipe

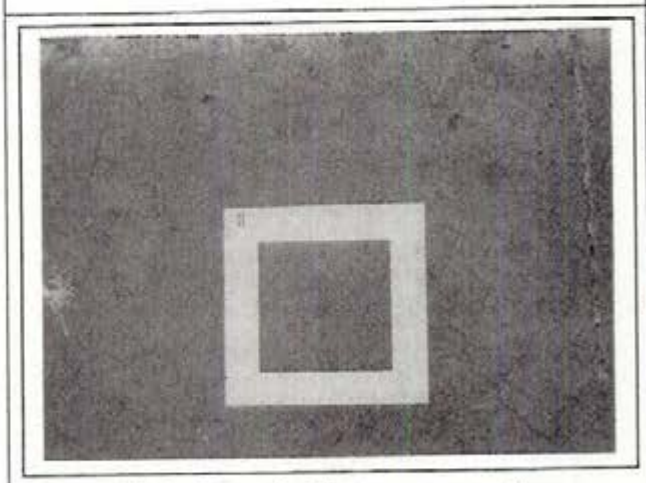


Photo #11 –East Maintenance wipe

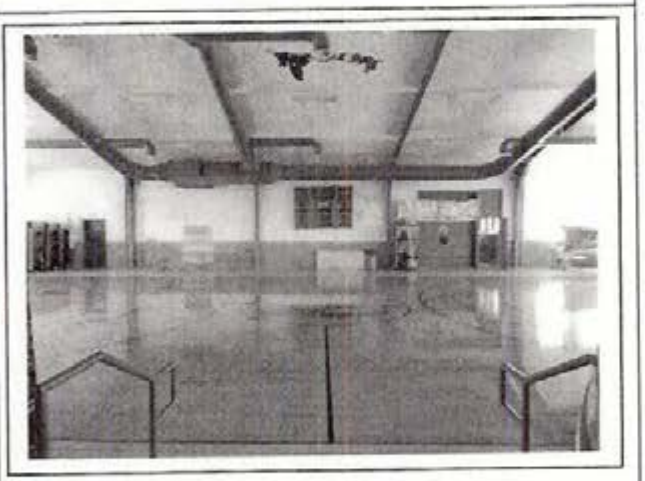


Photo #12 –Drill Hall/ CIFR

Photo Log

Photo #13-Maintenance shop

Photo #14-Flammable locker

Photo #15-Flammable storage outside

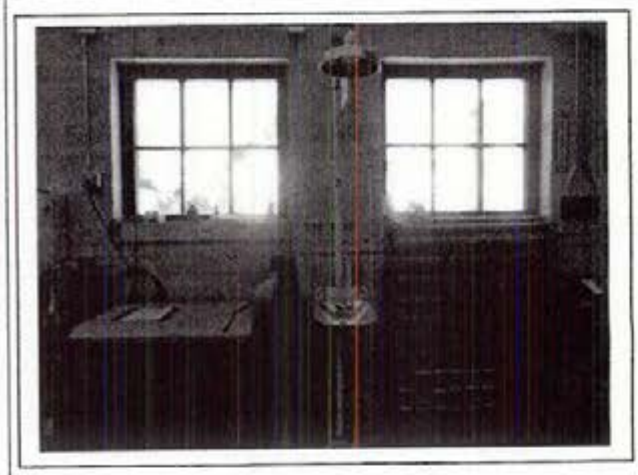


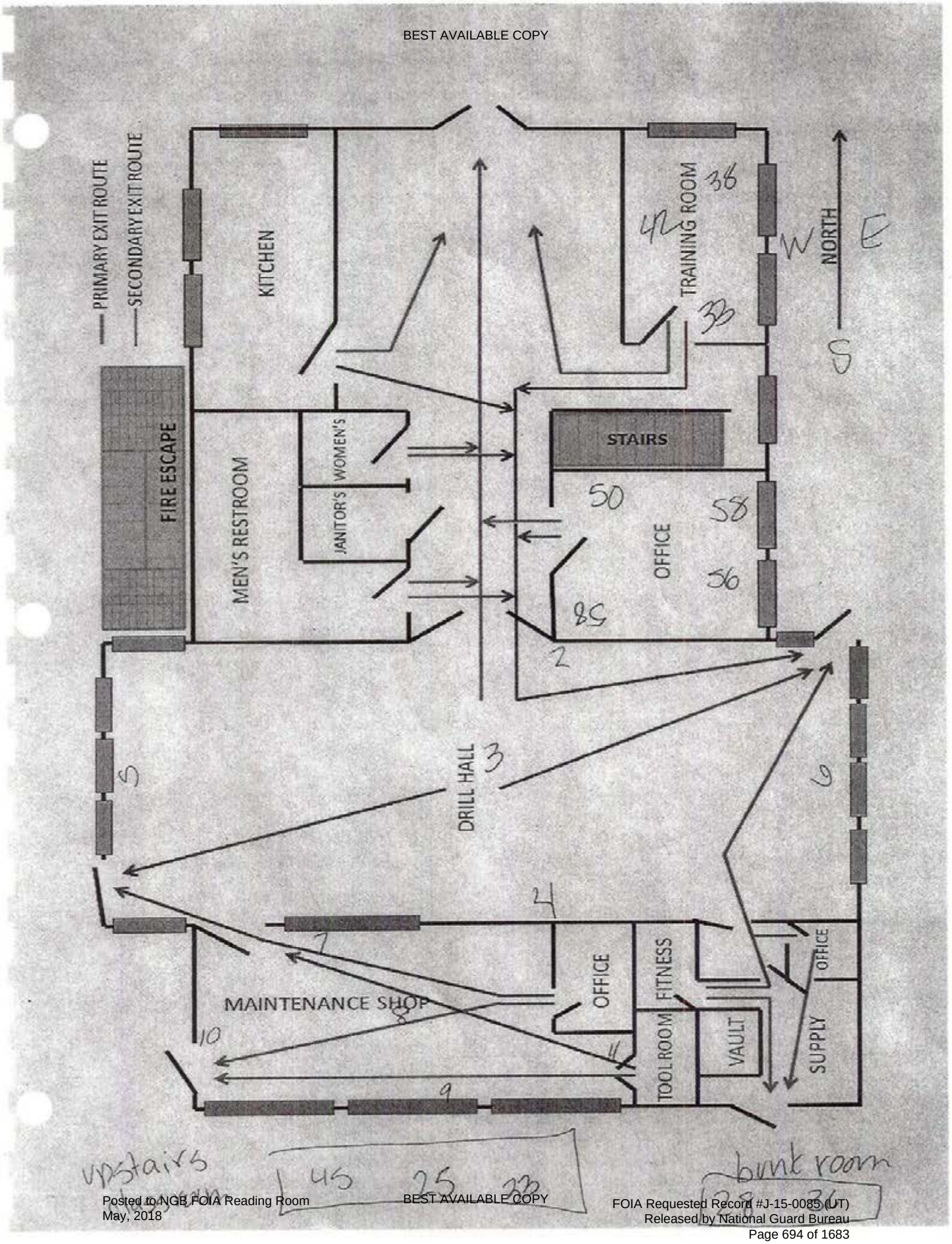
Photo #16-Eye wash/shower

Phot #17-Janitorial storage

Photo #18

Appendix D

Floor Plan/Illumination Survey



Appendix E

Laboratory Analysis Reports
Sample Location & Log

RESERVOIRS ENVIRONMENTAL, INC.

5801 Logan St., Suite 100
Denver CO 80216

TABLE ANALYSIS: LEAD BY WIPE SAMPLING

RES Job Number:	**RES 302218-1**
Client:	**Aloha World**
Client Project Number / P.O.:	**092814**
Client Project Description:	**Fillmore Armory**
Date Samples Received:	**October 4, 2014**
Analysis Type:	**USEPA SW846 3050B / AA (7420)**
Turnaround:	**3-5 Day**
Date Samples Analyzed:	**October 8, 2014**

Client ID Number	Lab ID Number	Sample Area (sq.ft.)	LEAD (µg)	Reporting Limit (µg/ft^2)	LEAD CONCENTRATION (µg/ft^2)
092814-1	EM 1270393	0.11	BRL	22.7	BRL
092814-2	EM 1270394	0.11	BRL	22.7	BRL
092814-3	EM 1270395	0.11	BRL	22.7	BRL
092814-4	EM 1270396	0.11	BRL	22.7	BRL
092814-5	EM 1270397	0.11	BRL	22.7	BRL
092814-6	EM 1270398	0.11	BRL	22.7	BRL
092814-7	EM 1270399	0.11	9.9	22.7	90.0
092814-8	EM 1270400	0.11	3.5	22.7	31.8
092814-9	EM 1270401	0.11	3.5	22.7	31.8
092814-10	EM 1270402	0.11	71.2	22.7	647
092814-11	EM 1270403	0.11	10.2	22.7	92.7

***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.**

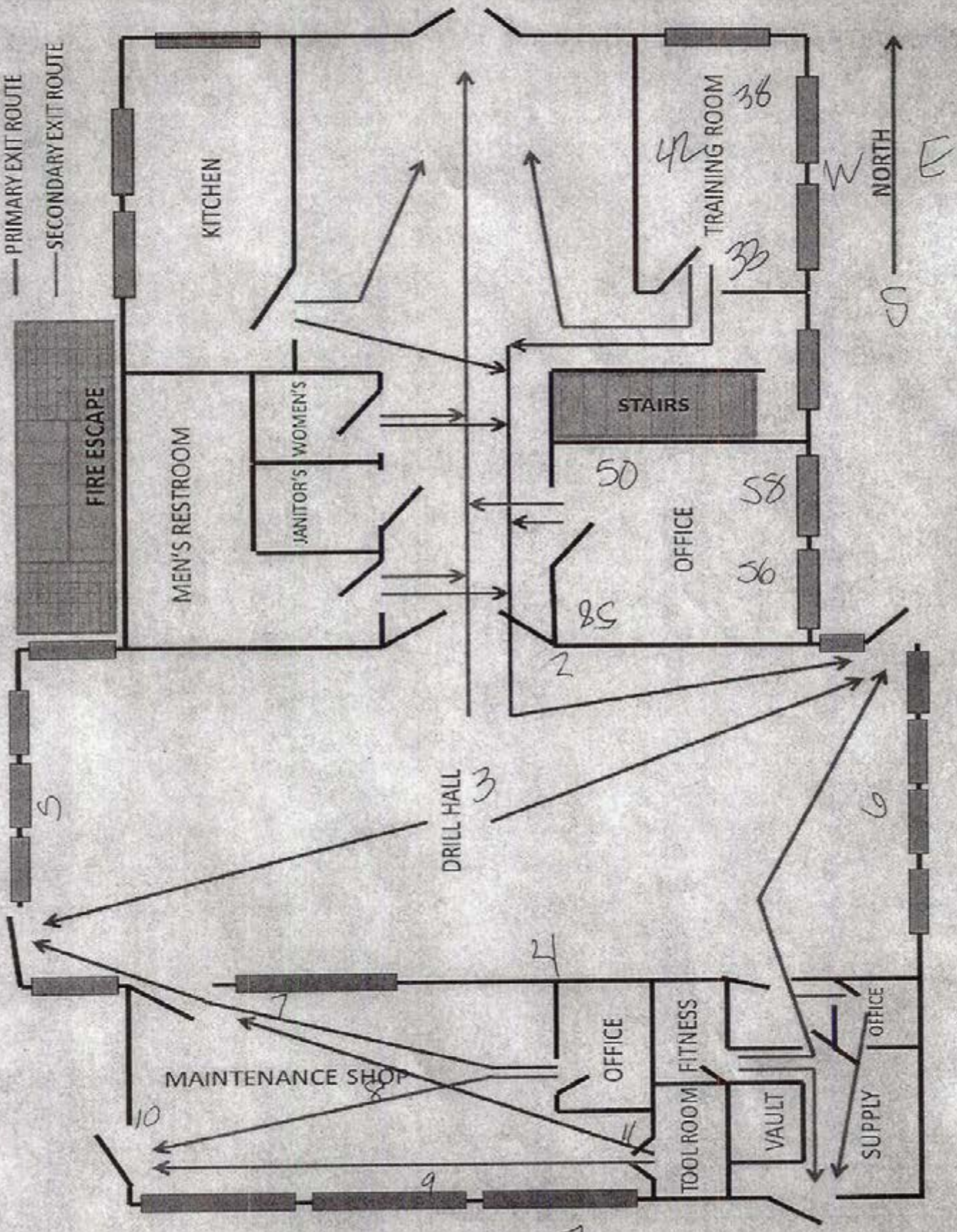
Non-Responsive

BRL = Below Reporting Limit

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

5801 Logan Street, Suite 100 Denver, CO 80216

www.reilab.com



Appendix F

Full-Time Personnel Listing

Fillmore Armory Full Time Roster

BEST AVAILABLE COPY

Appendix G

ARNG Survey Checklist

Aloha World

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

Five **lead wipe** samples collected from drill floor (take samples from dusty horizontal floor surfaces)	✓
Are any **weapons cleaned** in the facility, if yes where are they cleaned?	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.	Drill Hall
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.	2060 removed - no plan
Quality of housekeeping	great
HVAC maintenance plan in place?	yes FMO
Overall condition of HVAC system	new 2011
Obtained **CO2, Temp, RH** monitoring	good
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 ext mounted inside

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)	FMS 5 - W.S. checked weekly
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)	PPE/Resp through FMS 6
Any Photo labs	no
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.?	4 Full 6 drill
Any **civilian activities** in armory (cub scouts, classes, day care, parties etc)	Yes
Obtain two **lead air samples**	On IHSW Request Only

Evaluate Kitchen Stove Hood Flow if Present IAW NFPA Standard 96.	✓
Collect Source Noise Measurements of Kitchen Appliances and Document Using DD 2214	n/a
Conduct a safety walkthrough of entire facility document any safety deficiencies found.	✓
Take photos of outside of **building**, all **sample points** and any **pertinent hazards** or concerns.	✓
Name of Armory, **POC, phone #, address** and **organizations** in Armory **(Add Checklist to Report)**	Fillmore Armory 45 W Center St Fillmore, UT 84022 **(Add Checklist to Report)**

Appendix H

Chemical List

1	floor sweep	7930-00-269-1272		150 lbs
2	Acetylene	6830-00-264-6751		1 bt
3	adhesive Parma Lock HM	8030-00-148-9833		1 bt
4	adhesive Sealers 3M	8040-00-109-2481		9
5	adhesive silicone	8040-00-865-8991		14 kt
6	adhesive super glue	8030-00-142-9193		0 bt
7	alcohol isopropyl	6810-00-286-5435	home oil co	2 gl
8	alcohol denatured	6810-00-201-0907	shell chem	1 cn
9	antiseize compound	8030-00-251-3980	Armite	1 cn
10	Antifreeze	6850-01-4649125	Leader auto	15 gl
11	bonding compound tire repair	6240-00-922-6917	pemco adhesives	1 cn
12	battery lead	6135-00-643-1310		2 ea
13	carb cleaner	6850-01-085-1423	gunk	6 cn
14	carbon removing compound	6850-00-965-2332	eldorado chem co	1 cn
15	cleaner bore	6850-00-224-6663	bulk chem dist co	1 cn
16	cleaner hand waterless	8520-00-225-8563		2
17	cleaner windshield compound	6850-00-926-2275		12 pt
18	cleaning and lube elect	6850-00-003-5295	chemtronics inc	0
19	coating alphnitc	8010-01-227-7543	hantzen	0
20	corrosion preventive	6850-01-287-8067	green globe	6 cn
21	compound antiseize	8030-00-087-8630	makoor produckts co	1 lb
22	compound sealer	8030-01-350-4984	abain ind	2 gl
23	epoxy repair kit	8010-01-060-7176	sheel oil co	14 pk
24	degreaser	7930-01-469-2824		1 cn
25	fiber glass kit	1560-00-372-6064	bonded products	1 kt
26	fire ext carbon dioxide	4210-00-202-7858		
27	fire ext purple k	4210-01-149-1356	flag fire inc	
28	brake fluid silicone	9150-01-102-9455	dow corning	2 gl
29	fluid hyd 783	9150-00-935-9807	lub specialties co	29 gl
30	fluid vulcanizing	2640-00-242-3467		1 pt
31	flux	3439-00-255-4577	sepiear flux	1 cn
32	gas colman	6860-01-368-1396	colman	12 cn
33	general purpose degreaser	7930-00-282-9669	so sure co	1 gl
34	grease graphite	9150-00-190-0917		
35	grease gaa	9150-00-197-7693		9 tubes
36				
37	gmd tube & can	9150-00-754-2595		4 cn 8 tb
38	grease silicone	9150-00-257-5383		2 tb
39	hand cleaner	8520-01-425-5328	double play	1 cn
40	cleaner lubricant	9150-01-054-6453		4 cn
41	inhibitor corrosion	6850-01-160-3868	continental chen	4 gl
42	inhibitor icing fuel	6850-00-753-5061		1 cn
43	lube tire rubber	2640-00-256-5527	murphys	1 gl
44	lube tire and rim	2640-01-282-2849	murphys	20 lbs
45	oil aircraft turbo shaft	9150-00-108-6266	haatco corp	3
46	oil aircraft turbo shaft	9150-00-985-7099	haatco corp	4 qt
47	oil break free clp ALL SIZES	9150-01-054-6453	royal lube co	5 gl

48	oil engine 15w40 ALL	9150-01-438-6076	safety kleen	15 gl	
49	oil gear lube all purpose 80/90	9150-01-035-5393		8 cn	
50	FRH	9150-00-111-6256	royal lube co	5 gl	
51	oil lube low temp	9150-00-292-9689	braycote	1 qt	
52	oil lube hyd	9150-01-131-3325		5 gl	
53	oil penetrating ALL	9150-00-529-7518		2 cn	
54	dextrin 3	9150-01-353-4799	pitt penn	12 qt	
55	wd-40	8030-00-938-1947	alox corp	6 cn	
56	LSA	9150-00-687-4241		2 ea	
57	paint flat black	8010-00-582-5382		4 cn	
58	paint alkyd camo	8010-00-111-8005		4 cn	
59	paint alkyd green	8010-00-598-5464			0
60	paint carc black	8010-01-229-7540			0
61	paint carc green	8010-01-229-7546		1 qt	
62	paint carc sand	8010-01-234-2934			0
63	paint flat black	8010-01-331-6108	lighthouse	2 cn	
64	paint olive drab	8010-01-331-6113	lighthouse	7 cn	
65	paint yellow	8010-01-229-7543	lighthouse	4 cn	
66	paint brown	8010-01-337-3969	lighthouse	2 cn	
67	paint red	8010-00-284-5448	lighthouse	4 cn	
68	paint silver	8010-00-721-9751	lighthouse	2 cn	
69	paint tan	8010-00-582-4743	lawson	2 cn	
70	primer gray	8010-00-619-9181		3 cn	
71	repair kit	1506-00-198-3747		2 kt	
72	sealant pipe w/Teflon	8030-00-889-3535		4 rolls	
73	sealing compound	8030-00-598-7311	bars leak	12 bt	
74	soda baking	6810-00-290-5574	allied chem corp	5 gl	
75	solvent dry cleaning	6850-00-114-3038	breakthrough	35 gl	
76	spray dimethysilione	9150-00-823-7860	sherwin willams	2 cn	
77	spray brakleen	6850-01-167-0678	kunk	4 cn	
78	stabilizer additive diesel	6850-01-377-5074	quality service inc	4 gl	
79	silicone compound	6850-00-880-7616	caterpiller	6 tubes	
80	starter fluid cyl	2910-01-128-9537	quick start		4
81	starter fluid can	2910-00-823-7861	quick start	24 cn	
82	thinner t-t-266 d	8010-00-160-5788	stic-adhesive products	3 cn	
83	water battery	6810-00-297-9540	national	5 gl	
84	welding rod ALL	3439-00-165-4186	fire power	13 lbs	
85	take charge		battery spray	1 cn	
86	simple green hand cleaner		simple green	2 gl	
87	zep id red		gunk	1 cn	
88	fuel stabile		gunk	1 bt	
89	paint gloss blue	01-331-6118	lighthouse	2 cn	
90	spra-ment adhesive		m3	8 cn	
91	americoat 370 cure&resin			1 kt	
92	zep 40	01-249-5523		1 cn	
93	tuff coat			1qt	

Non-Responsive

Hazard Communications
Chemical Inventory

Unit:
Det-1 C Battery 2-222nd FA
Inventory Supervisor:
[redacted]
Address:
45 West Center Street
Phone:
435-743-5470

Building Name:	Fillmore Armory
Building Number:	
Location/Room:	Janitor Closet
Date of Inventory	19 May 2014

Act Count	Max Amt	Chemical Name	Common Name	Container Size	Container Type	PS	CAS Number	Manufacturer	N.F.P.A. Rating H	F	R	S	MSDS? Yes	No
1	2	1L	Glass Cleaner											
			Concentrate	½ gl	LQ			3M					X	
1	1	4L	Disinfectant											
			Cleaner Con.	½ gl	LQ			3M					X	
1	1	5L	Quat Disinfectant											
			Cleaner Con.	½ gl	LQ			3M					X	
1	1	6H	Speed Stripper											
			Concentrate	½ gl	LQ			3M					X	
1	1	8L	General Purpose											
			Cleaner	½ gl	LQ			3M					X	
1	1	14L	Deodorizer											
			Concentrate	½ gl	LQ			3M					X	
1	6		Windshield											
			De-Icer	15oz	AR			ZEP					X	
3	6		Non-Streaking											
			Cleaner	15oz	AR			ZEP					X	
1	1		Easy Packet											
			Bowl Cleaner	3lb	PD			Diversey					X	
1	6		Stainless Steel											
			Cleaner	15oz	AR			Genuine Joe					X	
1	1		Upholstery Clnr	1qt	LQ			Rug Doctor					X	
1	1		Carper Cleaner	½ gl	LQ			Rug Doctor						

Appendix I

Recommendations

RECOMMENDATIONS

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

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

3. Replace fan motor to be able to obtain a duct velocity of not less than 500 fpm.[2011 National Fire Protection Association Standard 96, Section 8.2.1.1]

4. Properly mount a fire extinguisher 10ft from door opening 1910.106(d)(7)(i)(a)

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

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

Appendix J

Violation Inventory Log

Industrial Hygiene Southwest

Violation Inventory Log

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

FILLMORE ARMORY,UTAH 84022

CONTROL NUMBER CLOSED [x]	HAZARD DESCRIPTION	SITE	RAC	CORRECTIVE ACTIONS (Abatement Plan)	SUSPENSE DATE	ACTION OIC/NCOIC	Estimated Cost(s)	DATE CORRECTED	REFERENCES
UTFA-09292014-3.1	Lead levels exceded the minimun requirements.	Armory	3	Upgrade housekeeping practices throughout this facility to help prevent migration of lead dust. Thoroughly clean areas identified above 40 ug/ft2. Utilize Armory Clean-up SOP in future cleaning episodes.					Occupational Safety and Health Administration (OSHA) standard for lead; 1910.1025 (h)(1)
UTFA-09292014-3.2 ☐	There was no Asbestos Management plan in place.	Armory	3	Conduct a facility survey to identify Asbestos Containing Material (ACM) within the facility and develop ACM Management Plan. Conduct awareness training to all personnel who occupy the facility regarding the finding and the ACM Management Plan. The survey may have been completed, however, at the time of this assistance visit, awareness training, ACM identification, or an ACM Management Plan was not available.					29 CFR 1910.1001
UTFA-09292014-3.4	The average velocity of the kitchen hood exhaust is 360 fpm.	Armory	4	Repair or replace fan motor to be able to obtain a duct velocity of not less than 500 fpm.					2011 National Fire Protection Association Standard 96, Section 8.2.1.1
UTFA-09292014-3.5	The SDS file is still listed as MSDS since the Globally Harmonized System (GHS) Classification of Labeling Chemicals has just taken effect this year and the documents are still MSDS documents	Armory	4	Update all MSDS for the facility with the new SDS format by June 2016					(CFR 1910.120)

Industrial Hygiene Southwest

Violation Inventory Log

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

FILLMORE ARMORY,UTAH 84022

CONTROL NUMBER CLOSED [X]	HAZARD DESCRIPTION	SITE	RAC	CORRECTIVE ACTIONS (Abatement Plan)	SUSPENSE DATE	ACTION OIC/NCOIC	Estimated Cost(s)	DATE CORRECTED	REFERENCES
UTFA-09292014-3.5	There was not a fire Extinguisher within 10ft of the door for the POL shed.	Armory	3	Properly mount a fire extinguisher 10ft from door opening					1910.106(d)(7)(i)(a)
UTFA-09292014-3.8 ☐	Levels were below recommended minimum standards in some areas of the facility.	Armory	4	Replacing burnt out luminaries, cleaning fixtures, cleaning windows, painting walls a lighter color, repositioning detailed work to higher illuminated areas, and using supplemental lighting would improve some areas. Utilize task lighting, as needed to help prevent eye strain in the work place.					DG 415-2 and Lighting Handbook, Illuminating Engineering Society (IES) of North America]

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

Fort Douglas Military Museum
31-32 Potter Street
Salt Lake City, UT 84113

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 Utah Army National Guard, Deputy State Surgeon (DSS), 12953 S. Minuteman Drive, Draper, UT 84020-1776

FOR Commander, Fort Douglas Military Museum 31-32 Potter Street, Salt Lake City, UT 84113

SUBJECT: Executive Summary for Industrial Hygiene Site Assistance Visit (IHSAV) for the Fort Douglas Military Museum 31-32 Potter Street, Salt Lake City, UT conducted on 29 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 Fort Douglas Museum, Salt Lake City, UT on 29 AUG 2012.

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

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

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

3. Findings. See survey report.

4. Commendable.

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

5. Observations / Recommendations.

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

a. Lead Paint was found within the hallway of 32 Potter and garage of 31 Potter areas. Construction personnel must follow the requirements of the OSHA Lead in Construction Standard 29 CFR 1926.62 before performing construction activities that affect this painted surface.(para. 4.2) **(RAC 3)**

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

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

d. Clean and decontaminate the lead dust in front of the electrical room 31 Potter by utilizing Armory Clean-Up SOP. Improve housekeeping practices so migration of heavy metals will be prevented. (para. 4.1) **(RAC 3)**

6. Violation Correction Log.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Non-Responsive

NGB, IHSW, CIV
Industrial Hygiene

Industrial Hygiene Southwest

Violation Inventory Log

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

Fort Douglas Military Museum, Utah

CONTROL NUMBER CLOSED ☐	HAZARD DESCRIPTION	SITE	RAC	CORRECTIVE ACTIONS (Abatement Plan)	SUSPENSE DATE	ACTION OIC/NCOIC	Estimated Cost(s)	DATE CORRECTED	REFERENCES
UTFDMM-082812-4.2 ☐	The analytical result for both paint chips samples collected indicates that they contains 11 and 28% lead by weight, which is considered lead-containing by OSHA.	Fort Douglas Military Museum	3	1. Hire a qualified lead abatement contractor to repair the peeling and cracking lead containing paint in the hallway of 32 Potter and garage of 31 Potter. 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.					1. Recommended Practice 2. 29 CFR 1926.62
UTFDMM-082812-4.4 ☐	An asbestos survey could not be located during this IH Assistance Visit.	Fort Douglas Military Museum	3	Either locate the asbestos survey for this building or contract with a licensed firm to perform an asbestos survey and assessment.					Recommended Practice
UTFDMM-082812-4.4 ☐	Personnel have not been provided with asbestos awareness training.	Fort Douglas Military Museum	4	Based on the findings of this survey, provide awareness training to assigned personnel for the specific types of asbestos in this Armory.					Recommended Practice
UTFDMM-082812-4.10 ☐	Few fire evacuation routes are posted in both buildings.	Fort Douglas Military Museum	4	Ensure fire evacuation routes are posted throughout the facility if the direction of travel to the exit or exit discharge is not immediately apparent.					29 CFR 1910.37 (c)
UTFDMM-082812-4.10 ☐	Electrical outlets in the men's and women's restrooms in 31 Potter are within six feet of a water source without GFCI protection.	Fort Douglas Military Museum	4	Install GFCI outlets in the men's and women's restrooms at 31 Potter Street.					NFPA 70, Article 210-8

Industrial Hygiene Southwest

Violation Inventory Log

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

Fort Douglas Military Museum, Utah

CONTROL NUMBER CLOSED ☐	HAZARD DESCRIPTION	SITE	RAC	CORRECTIVE ACTIONS (Abatement Plan)	SUSPENSE DATE	ACTION OIC/NCOIC	Estimated Cost(s)	DATE CORRECTED	REFERENCES
UTFDMM-082812-4.1 ☐	The analytical results for lead on the basement floor in front of the electrical room of 31 Potter was 320 µg/ft2.	Fort Douglas Military Museum	3	1. Decontaminate the floor in front of the basement electrical room at 31 Potter so lead levels are below 200 µg/ft2, and use the attached SOPs in Appendix N for guidance on cleaning. 2. Perform post-cleanup wipe sampling to ensure lead levels are within the criterion outlined in the IHSW SOP for Armory Cleanup.					1. OSHA Compliance Directive CPL 02-02-058 (Dec. 13, 1993) 2. IHSW SOP Lead, 29 CFR 1910.1025 (h)(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

Utah Army National Guard
Fort Douglas Military Museum
31 and 32 Potter Street
Salt Lake City, Utah 84113

November 21, 2012

Prepared for:

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

Prepared by:

Non-Responsive

Industrial Hygiene Technician

Reviewed by:

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J. Rush Bowers, MSPH, CIH, CSP
Industrial Hygiene Services Manager

Project #AL127226

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APPENDICES

EXECUTIVE SUMMARY

On August 29, 2012, Kathryn White of IHI Environmental (IHI) conducted an IH Assistance Visit at the Fort Douglas Military Museum in Salt Lake City, Utah. The primary point of contact for information gathered during this survey was Su Richards, (801) 581-1251, su.richards@fortdouglas.org.

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 29, 2012, Kathryn White of IHI Environmental (IHI) conducted an IH Assistance Visit at the Fort Douglas Military Museum located at 31 and 32 Potter Street, Salt Lake City, Utah 84113. The primary point of contact for information gathered during this survey was Su Richards, (801) 581-1251, su.richards@fortdouglas.org.

1.1 Objectives

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

1.2 Scope of Work

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

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

2.0 PROCESS DESCRIPTION

There are two main buildings that make up the Fort Douglas Military Museum. These two buildings contain exhibits of military artifacts for public viewing, administrative offices, storage areas, mechanical rooms, restrooms, workshops, and a vault. Both buildings have areas that have been recently remodeled or are in the process of being remodeled.

These buildings are not occupied by Army National Guard personnel and are used daily by civilians. Weapons are cleaned throughout this facility by volunteer reenactment groups about 2-3 times per year.

3.0 METHODS AND APPLICABLE REGULATIONS AND STANDARDS

3.1 Lead Wipe Sampling

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

Since this facility is not occupied by Utah Army National Guard personnel, the IHSW Standard Operating Procedure for Lead, which outlines a 40 microgram per square foot ($\mu g/ft^2$) criterion for lead residue, does not apply to this facility. Instead the Occupational Safety and Health Administration (OSHA) has issued a Compliance Directive (CPL 02-02-058, dated Dec. 13, 1993), that outlines an acceptable decontamination of 200 $\mu g/ft^2$ for floors in evaluating cleanliness of change areas, storage facilities, and lunchroom/eating areas. The 200 $\mu g/ft^2$ criterion was used to evaluate this facility.

3.2 Painted Surface Evaluation

The interior of the museum 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 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.

3.4 Asbestos Management

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

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

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

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

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

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

3.6 Hazard Communication and Hazardous Material Storage

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

3.7 Safety Training and Record Keeping

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

3.8 Kitchen Ventilation Survey

Duct velocity measurements were collected on facility kitchen exhaust hoods (when present) using a TSI VelociCalc, Model 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) were measured using a Sound Level Meter in the dBA and dBC ranges, with the meter set on slow response.
DD Forms 2214 are provided in Appendix M.

3.10 General Safety Walk-Through

A limited Fire Life Safety Code walk-through evaluation of the 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 museum.

3.11 Equipment Used

The following equipment was used for this survey.

Type	Model Number	Serial Number	Calibration Date
TSI IAQ Calc™	8732	54100272	03/19/2012

The calibration certificate for this instrument is attached in Appendix H.

3.12 Quality Assurance

IHI employs, at a minimum, the following methods to help assure quality of field investigations and reports:

- Use of appropriately educated and experienced personnel;
- Documentation of pertinent field and sampling information

- Continuing education of technical personnel through attendance at training sessions and conferences, and literature review;
- Peer and supervisory review of sampling strategy, field methods, calculations, and reports;
- Strict adherence to method requirements, in particular to NIOSH and OSHA standard methods, including strict chain-of-custody protocol;
- Use of accredited laboratories, or, in cases where specific accreditation is not available, choice of laboratories of good reputation, having strong QA/QC programs.
- Calibration of instruments, including field calibration via manufacturers' recommended procedures and routine (typically annual) off-site calibration of equipment via certified third parties.

4.0 FINDINGS AND RECOMMENDATIONS

4.1 Lead Wipe Sampling

The laboratory analytical results indicate that one of the lead wipe samples collected was above the 200 $\mu g/ft^2$ standard outlined in the OSHA Compliance Directive CPL 02-02-058 (Dec. 13, 1993). The measured lead concentration for the lead wipe sample on the floor in front of the basement electrical room at 31 Potter was 320 $\mu g/ft^2$.

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.

Recommendations

1. Decontaminate the floor in front of the basement electrical room at 31 Potter so lead levels are below 200 $\mu g/ft^2$, and use the attached SOPs in Appendix N for guidance on cleaning.

2. Perform post-cleanup wipe sampling to ensure lead levels are within the criterion outlined in the IHSW SOP for Armory Cleanup.

4.2 Painted Surface Evaluation

Peeling paint was noted in both buildings. One paint chip sample was collected from the garage wall in 31 Potter Street and one paint chip sample was collected from the hallway wall in 32 Potter Street.

The analytical result for both paint chip samples collected indicated that they contain 11 and 28 % lead by weight, more than the HUD standard of 0.5% for lead. Since there is measureable lead in the sample, OSHA's Lead in Construction Standard applies when renovation work that may affect this paint is conducted. See Appendix I for a data table and a drawing showing sample locations and Appendix J for the laboratory reports. Photographs were taken of each sampling point and are presented in Appendix C.

Recommendation

1. Hire a qualified lead abatement contractor to repair the peeling and cracking lead containing paint in the hallway of 32 Potter and garage of 31 Potter.
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 Moisture Intrusion and Limited Visual Fungal Growth Evaluation

Visual evidence of water damage, moisture intrusion, and fungal growth were not observed either building.

Recommendation

None

4.4 Asbestos Management

An asbestos survey report could not be located during this visit, but personnel believe the State of Utah's DFCM may have one for each building. Personnel have not been provided with asbestos awareness training.

Recommendations

1. Locate the asbestos survey report for this building or contract with a licensed firm to perform an asbestos survey and assessment.
2. Once asbestos-containing materials have been identified and assessed, provide awareness training to assigned personnel for the specific material types and locations of asbestos in this museum.

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

The building located at 31 Potter Street is heated and cooled by five dual-purpose roof-mounted units. The building located at 32 Potter Street is heated and cooled by three dual-purpose roof-mounted units. All units were installed about four years ago.

The average outdoor CO_2 concentration at the time of the survey was 374 ppm. The highest CO_2 concentration measured inside the buildings was 380 ppm, which should not result in indoor air quality complaints.

Building air temperatures ranged from 71.4 to 74.1°F in the buildings and relative humidity was between 34 and 40 percent during the testing period. Air temperatures were within the recommended comfort range of 68-75°F, and the relative humidity was within the recommended comfort range of between 30 and 60 percent. Low relative humidity is common in Utah during the majority of the year. Humidity levels above 60 percent can result in proliferation of bacteria and fungi, while levels below 30 percent can cause dry eyes, skin, and mucous membranes.

Utah DFCM personnel maintain all HVAC units in this facility.

Recommendation

None

4.6 Hazard Communication and Hazardous Material Storage

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

No building maintenance products or flammable materials were noted during this IH Assistance Visit.

This facility does not have any chemicals that would warrant hazardous materials inventory or MSDSs.

Recommendation

None

4.6.2 Flammable Storage Cabinets

There are no flammable storage cabinets located in this facility or chemicals that would require one.

Recommendation

None

4.7 Safety Training and Record Keeping

Safety training and records are not kept at this facility since there are no military personnel.

Recommendation

1. At a minimum, provide hazard communications 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 facility does not have an industrial kitchen; therefore, a ventilation survey was not performed.

Recommendation

None

4.9 Kitchen Appliance Sound-Level Measurements

This facility does not have an industrial kitchen; therefore, a noise survey was not performed.

Recommendation

None

4.10 General Safety Walk-Through

1. Housekeeping throughout the facility was good.
2. There is a fire alarm in place at this facility, and it is serviced by Peak Alarm.
3. Fire extinguishers are up to date for annual and monthly inspections.
4. There are no eyewash stations in this facility and no chemical use that would require one.
5. Fire evacuation routes are posted in some areas of the buildings but more are recommended.
6. Electrical panel boxes were inspected and were found to contain exposed wiring in the garage of 31 Potter.
7. Electrical outlets in the Men's and Women's restrooms are not protected with ground fault circuit interrupters (GFCIs).

Recommendations

1. Ensure fire evacuation routes are posted throughout the facility if the direction of travel to the exit or exit discharge is not immediately apparent.
2. Fix the wiring in the garage of 31 Potter so that no hot wiring is exposed.
3. Install GFCI outlets in the men's and women's restrooms at 31 Potter Street.

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 _____ 11/20/2012

H, CSP — Date

Industrial Hygiene Services Manager

Technical Assistance: For technical assistance regarding information found in this report or the performed survey, please contact Non-Responsive from or Mr. J. Rush Bowers 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.

BEST AVAILABLE COPY

Appendix A

References

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

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

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

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

AR 40-5, Preventative Medicine

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

AR 385-10, The Army Safety Program

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

DA PAM 40-ERG, Ergonomics

DA PAM 40-501, Hearing Conservation.

National Safety Council, Fundamentals of Industrial Hygiene

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

TB MED 503, The Army Industrial Hygiene Program

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

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

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

Appendix B

Assessment Criteria

A. Ventilation Standards

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

B. Illumination Standards

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

C. Noise

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

D. Air Sampling

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

Occupational Safety and Health Administration (OSHA)

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

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

American Conference of Governmental Industrial Hygienists (ACGIH)

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

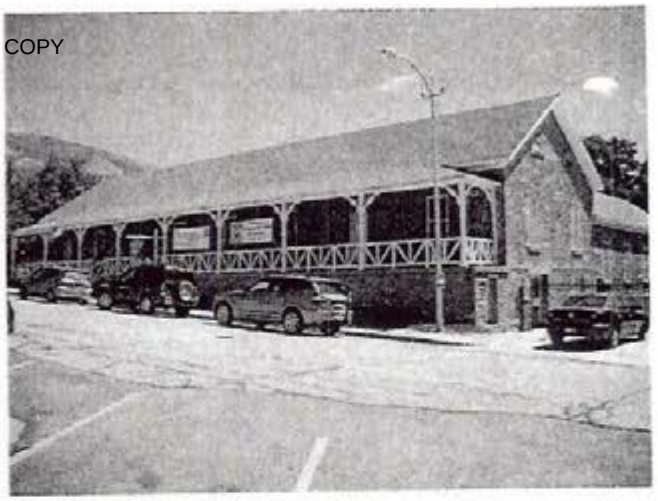
Occupational Exposure Limit

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

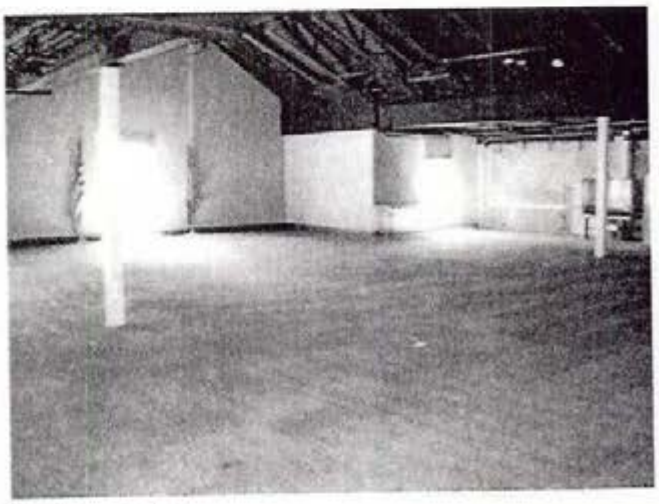
Appendix C

Photo Log

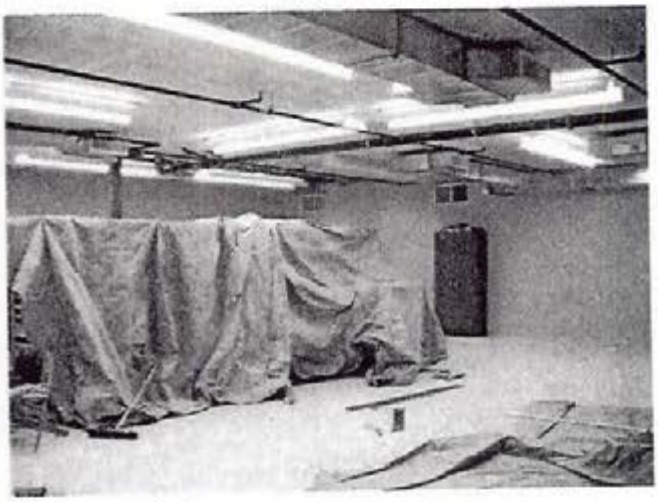
Photograph 1
Exterior of building at 31 Potter Street



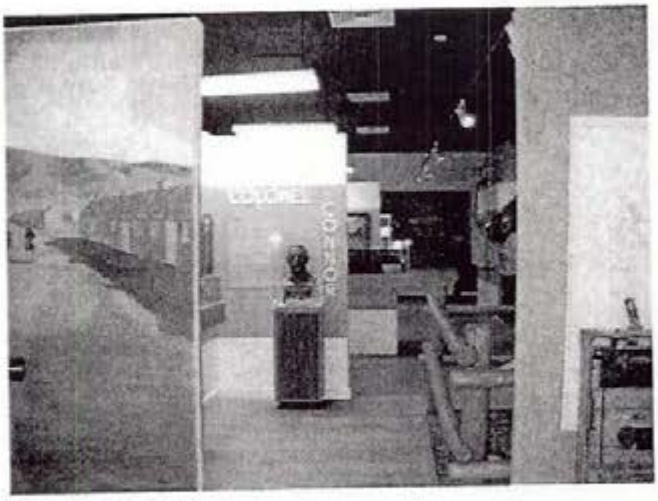
Photograph 2
Exterior of building at 32 Potter Street



Photograph 3
View of main floor at 31 Potter



Photograph 4
Basement of building at 31 Potter



Photograph 5
View of main floor of building at 32 Potter

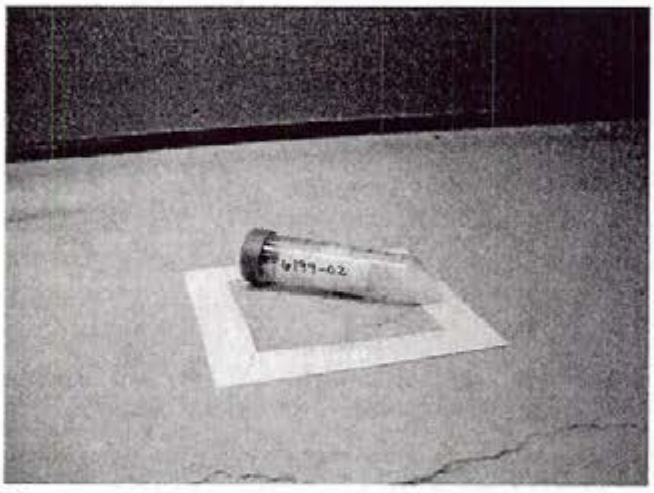
Photograph 6
Vault in basement of building at 32 Potter

Photograph 7
Blocked fire extinguisher in the basement of 32 Potter

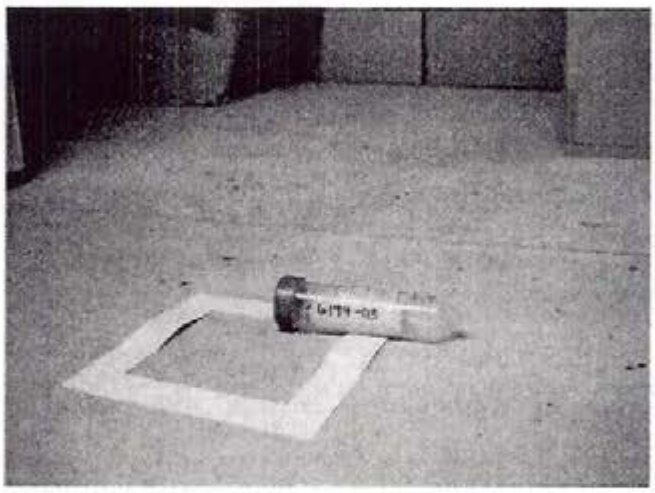
Photograph 8
Fire extinguishers in both buildings have not had annual inspections.

Photograph 9
Non-GFCI protected outlet within 6 feet of water source in Building at 31 Potter

Photograph 10
Location of lead wipe sample number 6169-01

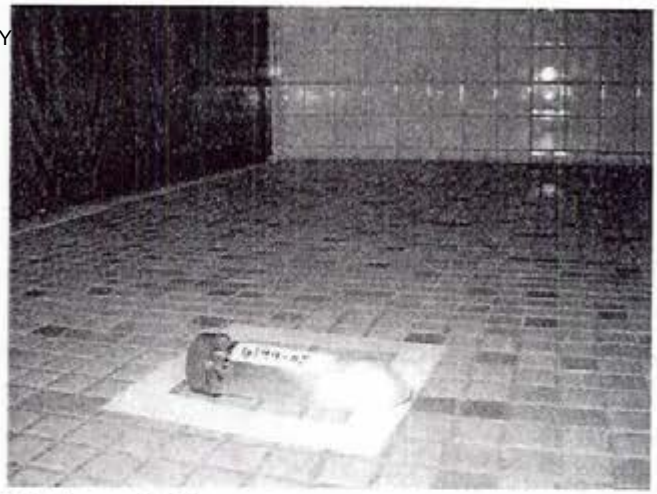


Photograph 11
Location of lead wipe sample number 6169-02



Photograph 12
Location of lead wipe sample number 6169-03

Photograph 13
Location of lead wipe sample number 6169-04

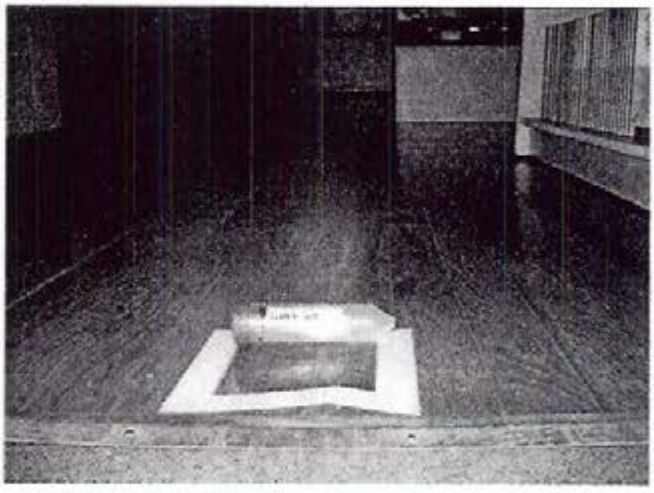


Photograph 14
Location of lead wipe sample number 6169-05

Photograph 15
Location of paint chip sample number 6169-06

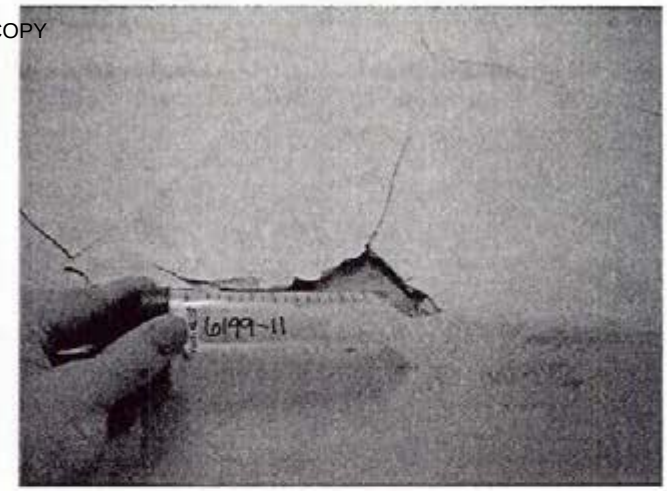
Photograph 16
Location of paint chip sample number 6169-07

Photograph 17
Location of paint chip sample number 6169-08



Photograph 18
Location of paint chip sample number 6169-09

Photograph 19
Location of paint chip sample number 6169-10



Photograph 20
Location of paint chip sample number 6169-11

Appendix D

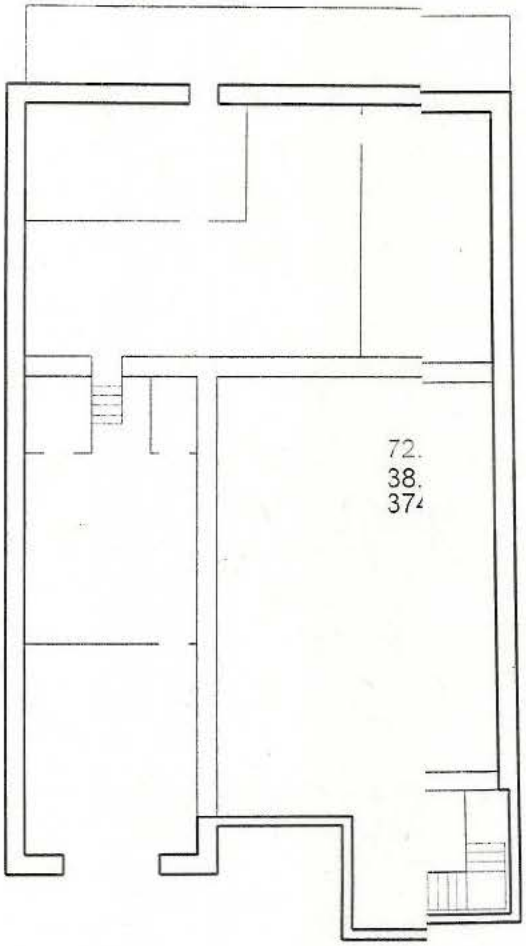
Chemical Inventory

A chemical inventory did not exist at either building at the Fort Douglas Military Museum.

Appendix E

Floor Plan/IAQ - Temp, RH, & CO_2 Monitoring

IHI ENVIRONMENTAL
640 E. Wilmington Ave
Salt Lake City, UT 84106
801.466.2223
ihi@ihi-env.com



asement

University of Utah
Fort Douglas Army Reserve Museum
31 Potter Street
Salt Lake City, Utah

Indoor Air Quality Sample Locations

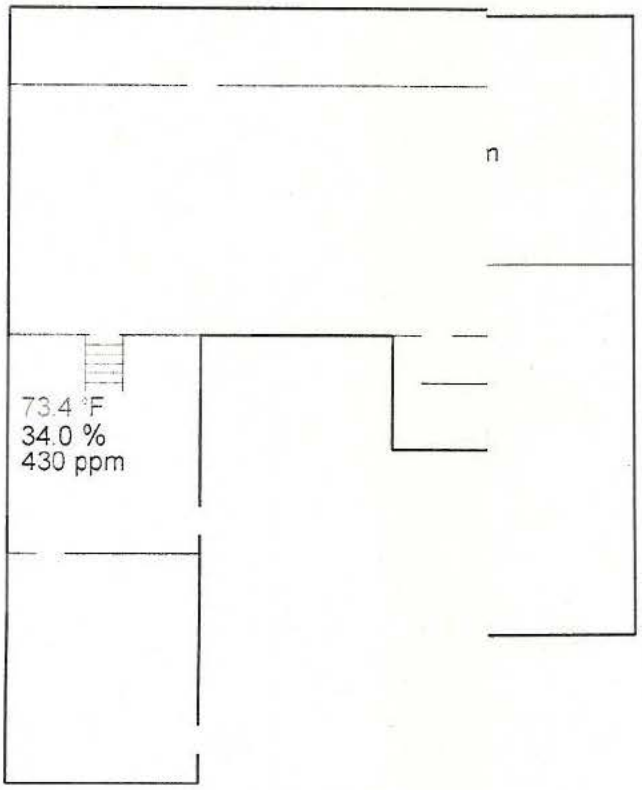
0 10' 20'

PROJECT No:	12U-I6166
SHEET:	4 of 5
DRAWN BY:	Non-Responsive
DATE:	09-06-2012
REVISED BY:	
DATE:	
REVIEWED BY:	
DATE:	

IHI ENVIRONMENTAL
640 E. Wilmington Ave.
Salt Lake City, UT 84106
801.466.2223
ihi@ihi-env.com

University of Utah
Fort Douglas Army Reserve Museum
32 Potter Street
Salt Lake City, Utah

Indoor Air Quality Sample Locations



Basement

Temperature (°F)
Relative Humidity (%)
Carbon Dioxide (ppm)

0 10' 20'

PROJECT No:	12U-I6166
SHEET:	2 of 5
DRAWN BY:	Non-Responsive
DATE:	09-06-2012
REVISED BY:	
DATE:	
REVIEWED BY:	
DATE:	

Appendix F

Ventilation Data

The Fort Douglas Military Museum does not have an industrial kitchen; therefore, a ventilation survey was not performed.

Appendix G

Field Notes

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)	9 wipe samples taken throughout two buildings
Are any **weapons cleaned** in the facility, if yes where are they cleaned?	yes - by volunteer reenactor groups. 2 or 3 x per year - could be anywhere w/i the facility
Additional lead **wipe** samples taken from 25% of the rest of the building - -(**on floor areas only**)	See above
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.	one in hallway to bathroom one in garage
Are there any signs of water damage or **mold**?	no.
Any suspected **ACM**? Where and what condition is it in. Bulk sample if able.	survey previously done - cleaned about 10 yrs ago.
Quality of housekeeping	good.
HVAC maintenance plan in place?	State of Utah.
Overall condition of HVAC system	good ~ 9 yrs old.
Obtained **CO2, Temp, RH** monitoring	yes
HAZMAT inventory on hand (make copies for the report), **MSDS** available for all materials.	none.
HAZMAT storage, Condition of lockers, if outside storage building is used is it ventilated and does it meet OSHA standards.	none.

Central Air & Heat - 3 in Main Bldg throughout Bldg.
5 in 2nd Bldg.

Fire alarm in working condition - -not usually in place in older armories	Yes - Peak Alarm
Fire extinguishers in place and properly identified and mounted	Yes
Evidence of **monthly fire extinguisher inspections**	Non-Responsive Ephriam, the curator.
Annual fire extinguisher inspections tags current	AAA
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	more fire evac. plans needed throughout both buildings.
Training programs in place; Hazcom, Respiratory Protection, Confined Spaces, Hearing conservation, PPE (if applicable)	none - this is not staffed by any units.
Any Photo labs	N/A
Any hazardous **noise** sources	N/A
Light levels checked throughout building	N/A
Breaker panels properly labeled with no exposed wiring	yes.
Check **building occupancy** 1. How many military personnel, how many civilian personnel 2. What types of units occupy facility, i.e. Administrative, Maintenance, etc.?	6 Admin
Any **civilian activities** in armory (cub scouts, classes, day care, parties etc)	Yes - this is a public museum where public frequents.
Obtain two **lead air samples**	On IHSW Request Only

Evaluate Kitchen Stove Hood Flow if Present IAW NFPA Standard 96.	N/A
Collect Source Noise Measurements of Kitchen Appliances and Document Using DD 2214	N/A
Conduct a safety walkthrough of entire facility document any safety deficiencies found.	yes. GFCI outlet not in bathroom (@ 31 potter)
Take photos of outside of **building**, all **sample points** and any **pertinent hazards** or concerns.	yes.
Name of Armory, **POC, phone #, address** and **organizations** in Armory **(Add Checklist to Report)**	Non-Responsive (801) 581-1251 32 Potter Street. Salt Lake City, UT 84113 **(Add Checklist to Report)**

FACILITY INFORMATION

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

1. Date Prepared: **8/29/2012**

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: **Fort Douglas Military Museum – a museum open to the public**

4. Facility Address: **31 and 32 Potter Street, Salt Lake City, UT 84113**

5. Primary Unit Assigned to Facility: **None**

6. Co-Tenant Units Assigned or Working Within Facility (LIST ALL): **N/A**

7. Square Ft. Area of Facility: **31 Potter Street is about 10,000 square feet and 32 Potter Street is about 9,000 square feet**

8. Work Schedule: **Tuesday through Saturday, 0930 - 1700**

9. Number of work bays: **N/A**

10. Equipment Density and Type: **N/A**

    a. List Equipment Nomenclature Serviced or Maintained at Facility: **N/A**

    b. List Total # for Each Nomenclature Serviced or Maintained at Facility: **N/A**

11. Total Number of Personnel: **5 Admin and 25 Volunteers**

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

13. No. of Maintenance Personnel (Include Status – AGR, Fed. Tech., IDT, State or Contract Employee): **N/A**

14. Total Number of Personnel Enrolled in the Hearing Conservation Program: **N/A**

15. Total Number of Personnel Enrolled in the Respiratory Protection Program: **N/A**

16. Total Number of Personnel Enrolled in the Medical Surveillance Program: **N/A**

17. Total Number of Personnel Enrolled in the Vision Program: **N/A**

18. Facility Commander: **Robert S Voyles**

    a. Email address, Commercial Telephone Number and Unit Assigned to: voyles@fortdouglas.org **801-581-1251**

19. Safety Officer: **Terry O'Hara**

    a. Email Address, Commercial Telephone Number and Unit Assigned to: tohara@fortdouglas.org **801-581-1251**

20. Facility Telephone Number: **(801) 581-1251**

Appendix H

Calibration Certificates

TSI CERTIFICATE OF CALIBRATION AND TESTING

TSI Model 8732 TSI Serial No. 02100504

Description IAQ Meter with CO2

Calibration Standard Multi-Gas Calibration Bench #127

CALIBRATION VERIFICATION RESULTS

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

Tolerance Limits:

CO2: 50PPM or 3% of reading

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

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

Non-Responsive

Calibrated by

☑ Final Function Check

Mar 19, 2012
Calibration Date

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

TSI CERTIFICATE OF CALIBRATION AND TESTING

TSI Model 8732 TSI Serial No. 02100504

Description IAQ Meter with CO2

Calibration Standard Multi-Gas Calibration Bench #127

CALIBRATION VERIFICATION RESULTS

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

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

Tolerance Limits:

CO2: 50PPM or 3% of reading

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

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

Non-Responsive

Calibrated by

☐ Final Function Check

Mar 19, 2012
Calibration Date

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

1086173

Appendix I

Lead Wipe and Lead Paint Chip Table and Drawing

Fort Douglas Military Museum - Lead Wipe and Paint Chip Sample Results

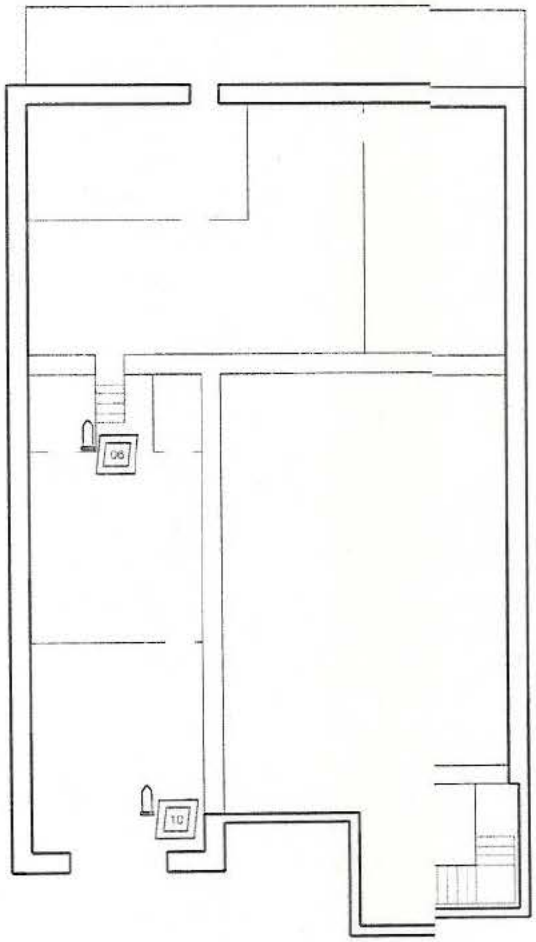
Lead Wipe Sample Results

Sample Number	Collection Date	Location	Result $\mu g/ft^2$
6199-01	8/29/2012	Vault Floor (at address 32 Potter)	**76**
6199-02	8/29/2012	SE Basement Floor (at address 32 Potter)	**74**
6199-03	8/29/2012	Electrical Room Entryway Floor (at address 31 Potter)	**320**
6199-04	8/29/2012	Archaeology Storage Room Floor (at address 31 Potter)	**34**
6199-05	8/29/2012	Main Level Women's Bathroom Floor (at address 31 Potter)	<23
6199-06	8/29/2012	Work Room Floor (at address 31 Potter)	<23
6199-07	8/29/2012	POC's Desk (at address 32 Potter)	**29**
6199-08	8/29/2012	NW Main Level Floor (at address 32 Potter)	**37**
6199-09	8/29/2012	SE Main Level Floor (at address 32 Potter)	<23

Paint Chip Sample Results

6199-10	8/29/2012	Cream Paint from Wall in Garage (at address 31 Potter)	**28%**
6199-11	8/29/2012	Cream Paint from Wall in Hallway (at address 32 Potter)	**11%**

IHI ENVIRONMENTAL
640 E. Wilmington Ave.
Salt Lake City, UT 84106
801.466.2223
ihi@ihi-env.com



asement

Entryway Floor
orage Room Floor
men's Restroom Floor
oor
iple in Workshop

University of Utah
Fort Douglas Army Reserve Museum
31 Potter Street
Salt Lake City, Utah

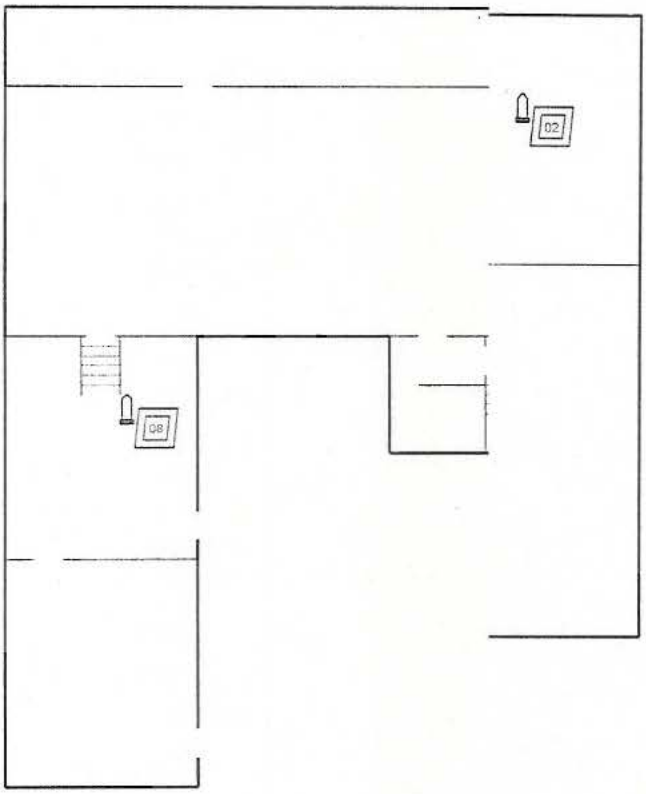
Lead Wipe Sample Locations

N

0 10' 20'

PROJECT No:	12U-I6166
SHEET:	3 of 5
DRAWN BY:	Non-Responsive
DATE:	09-06-2012
REVISED BY:	
DATE:	
REVIEWED BY:	
DATE:	

IHI ENVIRONMENTAL
640 E. Wilmington Ave.
Salt Lake City, UT 84106
801.466.2223
ihi@ihi-env.com



Basement

umbers

n
Location
Vault Floor
SE Basement Floor
POC's Desk
NW Main Level Floor
SE Main Level Floor
Paint Chip Sample in SE Ma

University of Utah
Fort Douglas Army Reserve Museum
32 Potter Street
Salt Lake City, Utah

Lead Wipe Sample Locations

N

0 10' 20'

PROJECT No:	12U-I6166
SHEET:	1 of 5
DRAWN BY:	Non-Responsive
DATE:	09-06-2012
REVISED BY:	
DATE:	
REVIEWED BY:	
DATE:	

Appendix J

Laboratory Reports

ANALYTICAL REPORT

Report Date: September 07, 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: 34-1224340
Client Project ID: Douglas Army Reserve Museum
Purchase Order: NA
Project Manager: Non-Responsive

Analytical Results

Sample ID: 6199-01 | Media: Lead Dust Wipe | Collected: 08/30/2012
Lab ID: 1224340001 | Sampling Location: Douglas Army Reserve | Received: 08/30/2012
Method: NIOSH 7300 Mod. | Sampling Parameter: Area 100 cm² | Prepared: 09/04/2012 Analyzed: 09/04/2012

Analyte	ug/sample	ug/ft²	RL (ug/sample)
Lead	8.2	76	2.5

Sample ID: 6199-02 | Media: Lead Dust Wipe | Collected: 08/30/2012
Lab ID: 1224340002 | Sampling Location: Douglas Army Reserve | Received: 08/30/2012
Method: NIOSH 7300 Mod. | Sampling Parameter: Area 100 cm² | Prepared: 09/04/2012 Analyzed: 09/04/2012

Analyte	ug/sample	ug/ft²	RL (ug/sample)
Lead	7.9	74	2.5

Sample ID: 6199-03 | Media: Lead Dust Wipe | Collected: 08/30/2012
Lab ID: 1224340003 | Sampling Location: Douglas Army Reserve | Received: 08/30/2012
Method: NIOSH 7300 Mod. | Sampling Parameter: Area 100 cm² | Prepared: 09/04/2012 Analyzed: 09/04/2012

Analyte	ug/sample	ug/ft²	RL (ug/sample)
Lead	34	320	2.5

Sample ID: 6199-04 | Media: Lead Dust Wipe | Collected: 08/30/2012
Lab ID: 1224340004 | Sampling Location: Douglas Army Reserve | Received: 08/30/2012
Method: NIOSH 7300 Mod. | Sampling Parameter: Area 100 cm² | Prepared: 09/04/2012 Analyzed: 09/04/2012

Analyte	ug/sample	ug/ft²	RL (ug/sample)
Lead	3.6	34	2.5

ANALYTICAL REPORT

Workorder: 34-1224340
Client Project ID: Douglas Army Reserve Museum
Purchase Order: NA
Project Manager: Non-Responsive

Analytical Results

Sample ID: 6199-05 | Media: Lead Dust Wipe | Collected: 08/30/2012
Lab ID: 1224340005 | Sampling Location: Douglas Army Reserve | Received: 08/30/2012
Method: NIOSH 7300 Mod. | Sampling Parameter: Area 100 cm² | Prepared: 09/04/2012 Analyzed: 09/04/2012

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

Sample ID: 6199-06 | Media: Lead Dust Wipe | Collected: 08/30/2012
Lab ID: 1224340006 | Sampling Location: Douglas Army Reserve | Received: 08/30/2012
Method: NIOSH 7300 Mod. | Sampling Parameter: Area 100 cm² | Prepared: 09/04/2012 Analyzed: 09/04/2012

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

Sample ID: 6199-07 | Media: Lead Dust Wipe | Collected: 08/30/2012
Lab ID: 1224340007 | Sampling Location: Douglas Army Reserve | Received: 08/30/2012
Method: NIOSH 7300 Mod. | Sampling Parameter: Area 100 cm² | Prepared: 09/04/2012 Analyzed: 09/04/2012

Analyte	ug/sample	ug/ft²	RL (ug/sample)
Lead	**3.1**	**29**	2.5

Sample ID: 6199-08 | Media: Lead Dust Wipe | Collected: 08/30/2012
Lab ID: 1224340008 | Sampling Location: Douglas Army Reserve | Received: 08/30/2012
Method: NIOSH 7300 Mod. | Sampling Parameter: Area 100 cm² | Prepared: 09/04/2012 Analyzed: 09/04/2012

Analyte	ug/sample	ug/ft²	RL (ug/sample)
Lead	**4.0**	**37**	2.5

Sample ID: 6199-09 | Media: Lead Dust Wipe | Collected: 08/30/2012
Lab ID: 1224340009 | Sampling Location: Douglas Army Reserve | Received: 08/30/2012
Method: NIOSH 7300 Mod. | Sampling Parameter: Area 100 cm² | Prepared: 09/04/2012 Analyzed: 09/04/2012

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

ANALYTICAL REPORT

Workorder: 34-1224340
Client Project ID: Douglas Army Reserve Museum
Purchase Order: NA
Project Manager: Non-Responsive

Analytical Results

Sample ID: 6199-10	Media: Paint Chip		Collected: 08/30/2012
Lab ID: 1224340010	Sampling Location: Douglas Army Reserve		Received: 08/30/2012
Method: **NIOSH 7300 Mod.**	Sampling Parameter: **Weight 0.1004 grams**		Prepared: 09/05/2012 Analyzed: 09/06/2012

Analyte	%	RL (%)
Lead	**28**	0.050

Sample ID: 6199-11	Media: Paint Chip		Collected: 08/30/2012
Lab ID: 1224340011	Sampling Location: Douglas Army Reserve		Received: 08/30/2012
Method: **NIOSH 7300 Mod.**	Sampling Parameter: **Weight 0.1007 grams**		Prepared: 09/05/2012 Analyzed: 09/06/2012

Analyte	%	RL (%)
Lead	**11**	0.025

Comments

Sample: 1224340010

Lead was reported from 20X dilution data for this sample in order to obtain a lead response within the linear range of the instrument. The reporting limit has been raised in proportion to the reported dilution level.

Sample: 1224340011

Lead was reported from 10X dilution data for this sample in order to obtain a lead response within the linear range of the instrument. The reporting limit has been raised in proportion to the reported dilution level.

Report Authorization

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

Laboratory Contact Information

ALS Environmental
960 W Levoy Drive
Salt Lake City, Utah 84123

Phone: (801) 266-7700
Email: alslt.lab@ALSGlobal.com
Web: www.alsslc.com

ANALYTICAL REPORT

Workorder: **34-1224340**
Client Project ID: Douglas Army Reserve Museum
Purchase Order: NA
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.

Appendix K

IHSW Violation Inventory Log

Industrial Hygiene Southwest

Violation Inventory Log

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

Fort Douglas Military Museum, Utah

CONTROL NUMBER CLOSED ☐	HAZARD DESCRIPTION	SITE	RAC	CORRECTIVE ACTIONS (Abatement Plan)	SUSPENSE DATE	ACTION OIC/NCOIC	Estimated Cost(s)	DATE CORRECTED	REFERENCES
UTFDMM-08282012;4.1 ☐	The measured lead concentration for the lead wipe sample on the floor in front of the basement electrical room at 31 Potter was 320 mg/ft2.	Basement Electrial Room	3	Decontaminate the floor in front of the basement electrical room at 31 Potter so lead levels are below 200 µg/ft2, and use the attached SOPs in Appendix N for guidance on cleaning.					IHSW SOP - Lead
UTFDMM-082812-4.2 ☐	The analytical result for both paint chips samples collected indicates that they contains 11 and 28% lead by weight, which is considered lead-containing by OSHA.	Fort Douglas Military Museum	3	1. Hire a qualified lead abatement contractor to repair the peeling and cracking lead containing paint in the hallway of 32 Potter and garage of 31 Potter. 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.					1. Recommended Practice 2. 29 CFR 1926.62
UTFDMM-082812-4.4 ☐	An asbestos survey could not be located during this IH Assistance Visit.	Fort Douglas Military Museum	3	Either locate the asbestos survey for this building or contract with a licensed firm to perform an asbestos survey and assessment.					Recommended Practice
UTFDMM-082812-4.4 ☐	Personnel have not been provided with asbestos awareness training.	Fort Douglas Military Museum	4	Based on the findings of this survey, provide awareness training to assigned personnel for the specific types of asbestos in this Armory.					Recommended Practice
UTFDMM-082812-4.10 ☐	Few fire evacuation routes are posted in both buildings.	Fort Douglas Military Museum	4	Ensure fire evacuation routes are posted throughout the facility if the direction of travel to the exit or exit discharge is not immediately apparent.					29 CFR 1910.37 (c)

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Industrial Hygiene Southwest

Violation Inventory Log

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

Fort Douglas Military Museum, Utah

CONTROL NUMBER CLOSED ☐	HAZARD DESCRIPTION	SITE	RAC	CORRECTIVE ACTIONS (Abatement Plan)	SUSPENSE DATE	ACTION OIC/NCOIC	Estimated Cost(s)	DATE CORRECTED	REFERENCES
UTFDMM-082812-4.10 ☐	Electrical outlets in the men's and women's restrooms in 31 Potter are within six feet of a water source without GFCI protection.	Fort Douglas Military Museum	4	Install GFCI outlets in the men's and women's restrooms at 31 Potter Street.					NFPA 70, Article 210-8

The Fort Douglas Military Museum does not have an industrial kitchen; therefore, a noise survey was not performed.

Appendix L

Recommendations

4.1 Lead Wipe Sampling

1. Decontaminate the floor in front of the basement electrical room at 31 Potter so lead levels are below 200 $\mu g/ft^2$, and use the attached SOPs in Appendix N for guidance on cleaning.
2. Perform post-cleanup wipe sampling to ensure lead levels are within the criterion outlined in the IHSW SOP for Armory Cleanup.

4.2 Painted Surface Evaluation

1. Hire a qualified lead abatement contractor to repair the peeling and cracking lead containing paint in the hallway of 32 Potter and garage of 31 Potter.
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.

4.4 Asbestos Management

1. Locate the asbestos survey report for this building or contract with a licensed firm to perform an asbestos survey and assessment.
2. Once asbestos-containing materials have been identified and assessed, provide awareness training to assigned personnel for the specific material types and locations of asbestos in this museum.

4.7 Safety Training and Record Keeping

1. At a minimum, provide hazard communications 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

1. Ensure fire evacuation routes are posted throughout the facility if the direction of travel to the exit or exit discharge is not immediately apparent.
2. Fix the wiring in the garage of 31 Potter so that no hot wiring is exposed.
3. Install GFCI outlets in the men's and women's restrooms at 31 Potter Street.

Appendix M

DD Form 2214

The Fort Douglas Military Museum does not have an industrial kitchen; therefore, a noise survey was not performed.

Appendix N

IHSW Lead-Cleanup SOP

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

Industrial Hygiene Site Assistance Visit

Logan Armory
590 South 500 West
Logan, UT 84321

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

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

ARNG-CSG-IHSW

6 December 2012

MEMORANDUM THRU Utah Army National Guard, Deputy State Surgeon (DSS), 12953 S. Minuteman Drive, Draper, UT 84020-1776

FOR Commander, Logan Armory 590 South 500 West, Logan UT 84321

SUBJECT: Executive Summary for Industrial Hygiene Site Assistance Visit (IHSAV) for the Logan Armory 590 South 500 West, Logan, Utah conducted on 19 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 Logan Armory, 590 South 500 West, Logan, UT on 19 SEP 2012.

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

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

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

3. Findings. See survey report.

4. Commendable.

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

5. Observations / Recommendations.

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

a. Improve housekeeping practices throughout the armory. Special clean-up, using the Clean-up SOP included in this report, on the boiler room floor to help prevent migration of lead dust. (para. 4.1) **(RAC 4)**

6. Violation Correction Log.

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

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

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

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

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

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

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

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

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

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

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

ARNG-CSG-IHSW

SUBJECT: Executive Summary for Industrial Hygiene Site Assistance Visit (IHSAV) for the Logan Armory 590 South 500 West, Logan, Utah conducted on 19 September 2012.

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

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

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

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

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

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

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

Non-Responsive

FOR

NGB, IHSW, CIV
Industrial Hygiene

Industrial Hygiene Southwest

Violation Inventory Log

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

Logan Armory, Logan, Utah

CONTROL NUMBER CLOSED ☐	HAZARD DESCRIPTION	SITE	RAC	CORRECTIVE ACTIONS (Abatement Plan)	SUSPENSE DATE	ACTION OIC/NCOIC	Estimated Cost(s)	DATE CORRECTED	REFERENCES
UTLA-091912-4.1 ☐	The analytical results for lead on the boiler room floor was 210 µg/ft^2.	Boiler Room	4	1. Clean the floors of the boiler room to a level of less than 200 µg/ft^2 following the guidance in the attached SOPs. 2. Perform post-cleanup wipe sampling to ensure lead levels are within the criterion outlined in the IHSW SOP for Armory Cleanup.					IHSW SOP Lead, 29 CFR 1910.1025 (h)(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

Utah Army National Guard
Logan Armory
590 South 500 West
Logan, Utah 84321

November 13, 2012

Prepared for:

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

Prepared by:

Non-Responsive

Industrial Hygiene Technician

Reviewed by:

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Project #AL127190

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SALT LAKE CITY EMERYVILLE PHOENIX DENVER SEATTLE

TABLE OF CONTENTS

APPENDICES

EXECUTIVE SUMMARY

On September 19, 2012 Non-Responsive f IHI Environmental (IHI) conducted an IH Assistance Visit at the Logan Armory in Logan, Utah. The primary point of contact for information gathered during this survey was Non-Responsive 435) 512-0207, Non-Responsive

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

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

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

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

1.0 INTRODUCTION

On September 19, 2012, Non-Responsive of IHI Environmental (IHI), conducted an IH Assistance Visit at the Logan Armory located at 590 South 500 West, Logan, Utah 84321. The primary point of contact for information gathered during this survey was Non-Responsive Non-Responsive 435) 512-0207, Non-Responsive

1.1 Objectives

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

1.2 Scope of Work

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

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

2.0 PROCESS DESCRIPTION

The Logan Armory has twelve full-time Army National Guard members. The armory has offices used for administrative purposes, a training area, drill floor, two supply rooms and two vaults, storage rooms, restrooms and locker rooms, and a mechanical room. A Field Maintenance Shop (FMS) attached to this armory was not included in the IH Assistance Visit. There is one part-time civilian employee at this armory. Several civilian activities that are occasionally carried out in this armory include use of the Drill Hall for polling stations, blood drives, scouting, and rodeo activities.

At the time of the IH Assistance Visit, the Logan Armory was unoccupied due to a recent renovation of the facility. All areas of the armory were renovated except for the boiler room. Army National Guard members reportedly clean weapons in the supply rooms.

3.0 METHODS AND APPLICABLE REGULATIONS AND STANDARDS

3.1 Lead Wipe Sampling

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

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

3.2 Painted Surface Evaluation

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

3.3 Moisture Intrusion and Limited Visual Fungal Growth Evaluation

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

3.4 Asbestos Management

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

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

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

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

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

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

3.6 Hazard Communication and Hazardous Material Storage

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

3.7 Safety Training and Record Keeping

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

3.8 Kitchen Ventilation Survey

Duct velocity measurements were collected on facility kitchen exhaust hoods (when present) using a TSI VelociCalc, Model 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) were measured using a Sound Level Meter in the dBA and dBC ranges, with the meter set on slow response.
DD Forms 2214 are provided in Appendix M.

3.10 General Safety Walk-Through

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

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

3.11 Equipment Used

The following equipment was used for this survey.

Type	Model Number	Serial Number	Calibration Date
TSI VeloiCalc™ Meter	9515	T95150720007	10/13/2011
TSI IAQ Calc™	8732	54100272	03/19/2012
Greenlee® Sound Level Meter	SM-100	010613107	10/05/2011

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

3.12 Quality Assurance

IHI employs, at a minimum, the following methods to help assure quality of field investigations and reports:

- Use of appropriately educated and experienced personnel;
- Documentation of pertinent field and sampling information
- Continuing education of technical personnel through attendance at training sessions and conferences, and literature review;
- Peer and supervisory review of sampling strategy, field methods, calculations, and reports;
- Strict adherence to method requirements, in particular to NIOSH and OSHA standard methods, including strict chain-of-custody protocol;
- Use of accredited laboratories, or, in cases where specific accreditation is not available, choice of laboratories of good reputation, having strong QA/QC programs.
- Calibration of instruments, including field calibration via manufacturers' recommended procedures and routine (typically annual) off-site calibration of equipment via certified third parties.

4.0 FINDINGS AND RECOMMENDATIONS

4.1 Lead Wipe Sampling

The laboratory analytical results indicate that lead concentrations for all of the lead wipe samples collected were below the 40 $\mu g/ft^2$ standard, except for one sample collected on the boiler room floor. The sample on the boiler room floor indicated that levels were above the 200 $\mu g/ft^2$ standard for boiler room floors, which is outlined in the IHSW Standard Operating Procedure (SOP) for Armory Cleanup. See Appendix I for a data table and a drawing showing sample locations and Appendix J for the laboratory reports. Photographs were taken of each sampling point and are presented in Appendix C.

Recommendations

1. Clean the floors of the boiler room to a lead concentration of less than 200 $\mu g/ft^2$ following the guidance in the attached SOPs.
2. Perform post-cleanup wipe sampling to ensure lead levels are within the criterion outlined in the IHSW SOP for Armory Cleanup.

4.2 Painted Surface Evaluation

No peeling paint was observed in the Logan Armory; therefore, no paint samples were taken.

Recommendation

None

4.3 Moisture Intrusion and Limited Visual Fungal Growth Evaluation

Visual evidence of water damage, moisture intrusion, or fungal growth was not observed in this armory.

Recommendation

None

4.4 Asbestos Management

An asbestos survey report could not be located during this visit; however, personnel on site from the Division of Facilities, Construction, and Management (DFCM) for the state of Utah reported that an asbestos survey was completed about a year ago, before the renovation was performed. Personnel have not been provided with asbestos awareness training.

Recommendations

1. Locate the asbestos survey report for this building or contract with a licensed firm to perform an asbestos survey and assessment.
2. Once asbestos-containing materials have been identified and assessed, provide awareness training to assigned personnel for the specific material types and locations of asbestos in this armory.

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

The armory is heated by two large fan-forced heaters located on the drill hall ceiling, nine fan units in the office areas, and five small radiator heaters in supply rooms and restrooms. Hot water is supplied from two boilers located in the mechanical room. Air conditioning is provided by fan units in the drill hall and throughout the rest of the facility. All heating and cooling equipment has been replaced within the last four years.

The average outdoor CO_2 concentration at the time of the survey was 366 ppm. The highest CO_2 concentration measured inside the building was 436 ppm, which should not result in indoor air quality complaints.

Building air temperatures ranged from 69.9 to 71.2°F and relative humidity was between 29 and 32 percent during the testing period. Air temperatures were within the recommended comfort range of 68-75°F and the relative humidity was close to the recommended comfort range of between 30 and 60 percent. Low relative humidity is common in Utah the majority of the year. Humidity levels above 60 percent can result in proliferation of bacteria and fungi, while levels below 30 percent can cause dry eyes, skin, and mucous membranes.

The DFCM personnel maintain all HVAC units in the armory.

Recommendation

None

4.6 Hazard Communication and Hazardous Material Storage

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

At the time of the IH Assistance Visit, no chemical products were in the Logan Armory due to the recent renovation. A chemical inventory of all custodial products used by the armory along with associated MSDSs is maintained in a master binder located in the boiler room.

Recommendation

None

4.6.2 Flammable Storage Cabinets

No flammable storage cabinets are located in this armory; however, there is a flammable storage cabinet located in the FMS.

Recommendation

None

4.7 Safety Training and Record Keeping

Safety training records were not located at the Logan Armory at the time of the IH Assistance Visit since the armory is not currently occupied.

Recommendation

None

4.8 Kitchen Ventilation Survey

There is one exterior wall-mounted exhaust fan that serves the kitchen appliances. Duct velocity measurements were obtained and an average of 1,898 fpm was measured.

Recommendation

None

4.9 Kitchen Appliance Sound-Level Measurements

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

Recommendation

None

4.10 General Safety Walk-Through

1. Housekeeping throughout the facility was good.
2. There is a fire alarm in this facility that was recently installed in the renovation and will be maintained by the DFCM.
3. Fire extinguishers are strategically located throughout the armory. All extinguishers except one in the kitchen were current on their annual and monthly inspections.
4. There is one eyewash station in the boiler room that does not have evidence of weekly inspections.
5. Fire evacuation routes have not been posted since the recent remodel.
6. Electrical panel boxes were inspected and were found to contain no exposed wiring or openings in the panel.

Recommendations

1. Ensure all fire extinguishers are provided a monthly inspection and document these inspections on the attached inspection cards.
2. Provide weekly inspections for the eyewash station in the boiler room.
3. Ensure fire evacuation routes are posted throughout the facility if the direction of travel to the exit or exit discharge is not immediately apparent.

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

11/13/2012
Date

Industrial Hygiene Services Manager

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

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

Appendix A

References

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

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

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

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

AR 40-5, Preventative Medicine

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

AR 385-10, The Army Safety Program

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

DA PAM 40-ERG, Ergonomics

DA PAM 40-501, Hearing Conservation.

National Safety Council, Fundamentals of Industrial Hygiene

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

TB MED 503, The Army Industrial Hygiene Program

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

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

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

Appendix B

Assessment Criteria

A. Ventilation Standards

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

B. Illumination Standards

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

C. Noise

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

D. Air Sampling

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

Occupational Safety and Health Administration (OSHA)

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

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

American Conference of Governmental Industrial Hygienists (ACGIH)

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

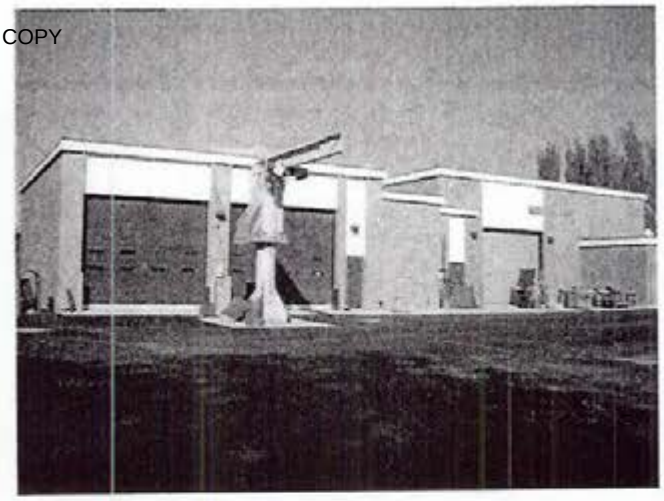
Occupational Exposure Limit

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

Appendix C

Photo Log

Photograph 1
Logan Armory, Front, Exterior

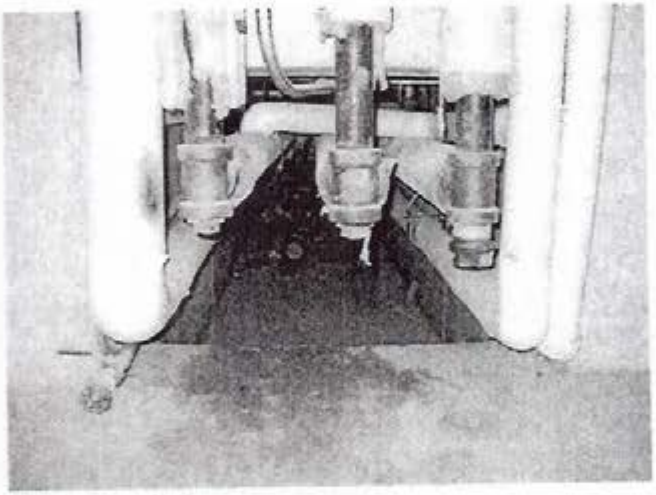


Photograph 2
Logan Armory, Rear, Exterior

Photograph 3
Logan Armory, General View, Interior

Photograph 4
Logan Armory, Fire extinguisher not current on annual inspection in kitchen

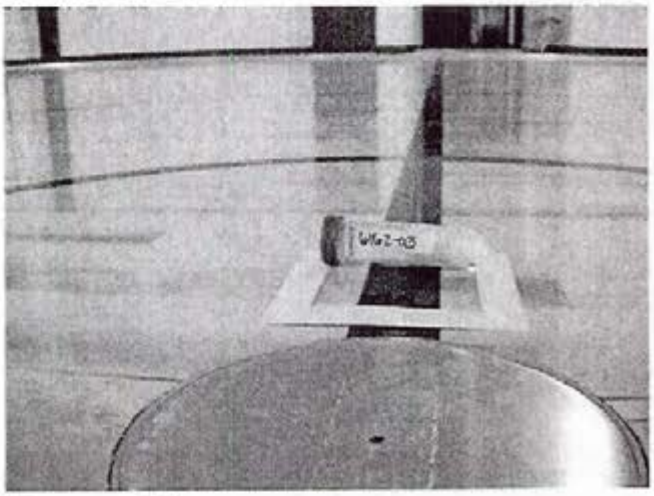
Photograph 5
Logan Armory, Boiler Room



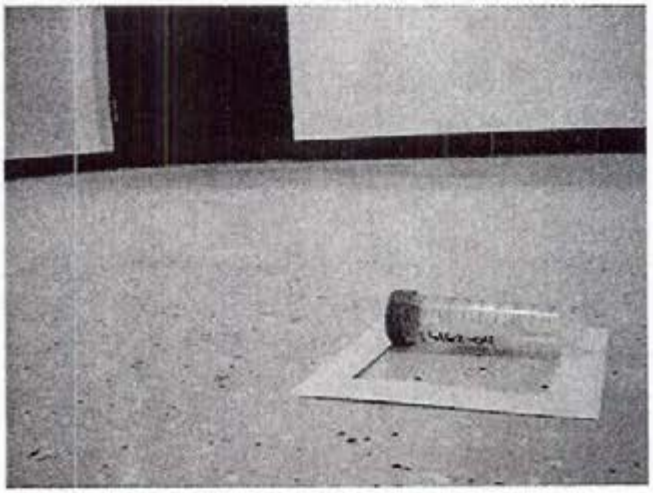
Photograph 6
Logan Armory, Crawl Space leaving Boiler Room

Photograph 7
Location of lead wipe sample number 6162-01

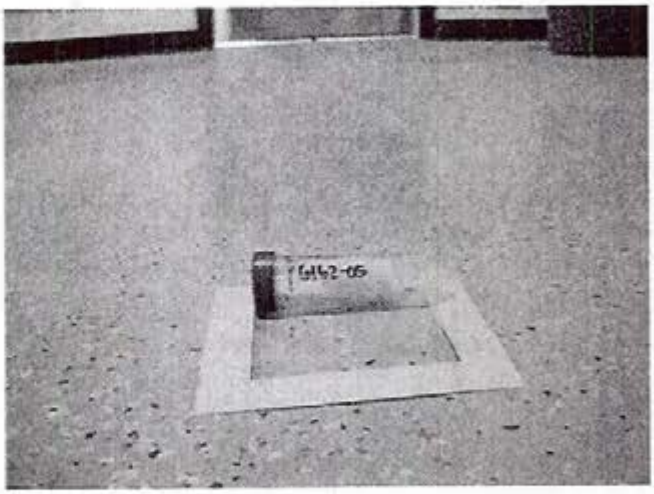
Photograph 8
Location of lead wipe sample number 6162-02



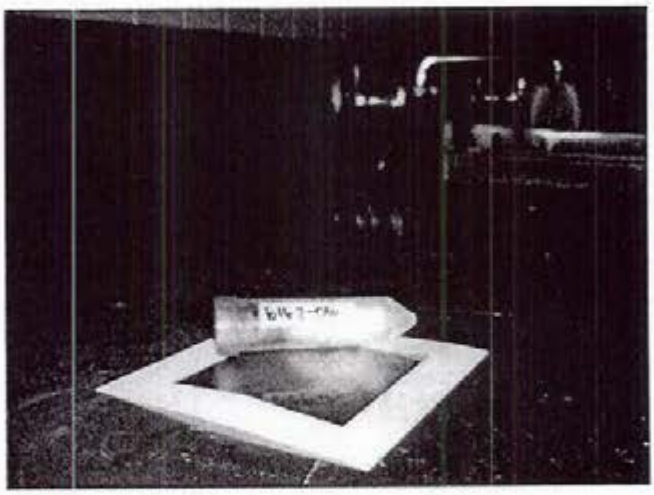
Photograph 9
Location of lead wipe sample number 6162-03



Photograph 10
Location of lead wipe sample number 6162-04

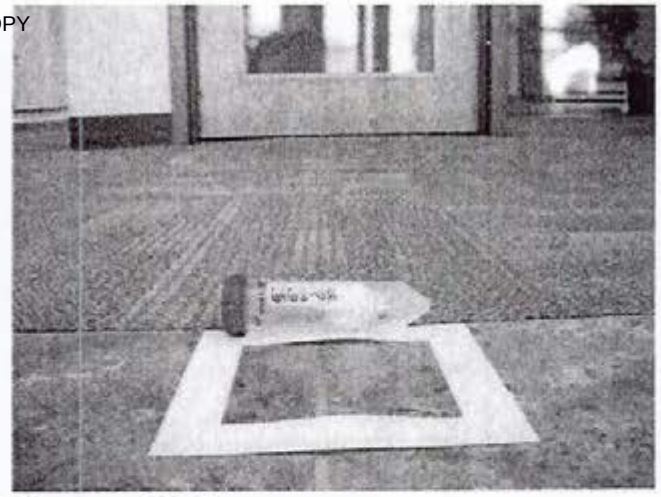


Photograph 11
Location of lead wipe sample number 6162-05

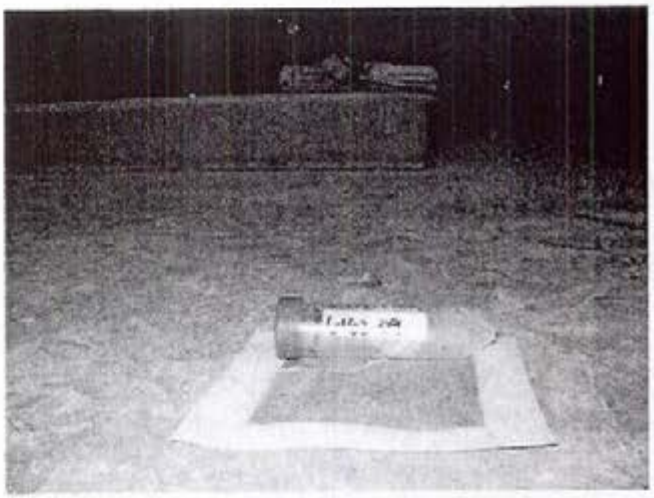


Photograph 12
Location of lead wipe sample number 6162-06

Photograph 13
Location of lead wipe sample number 6162-07



Photograph 14
Location of lead wipe sample number 6162-08

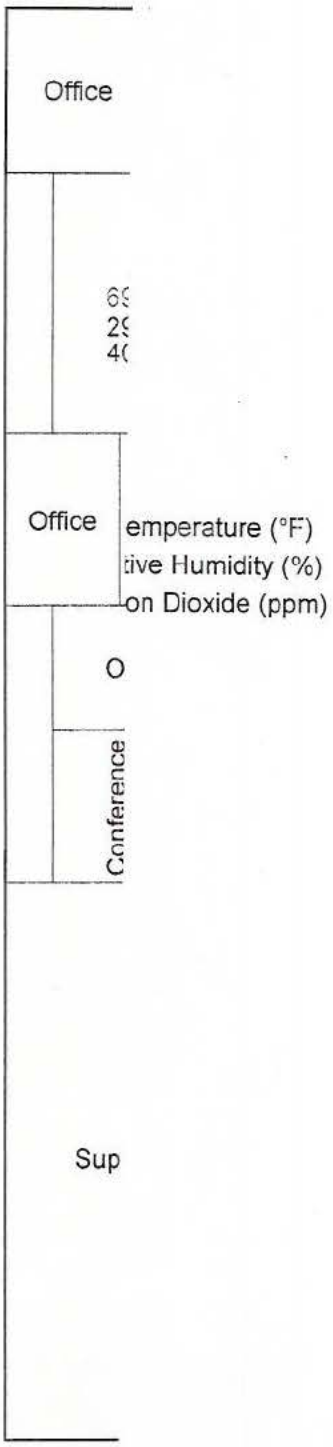


Photograph 15
Location of paint chip sample number 6162-09

Because of a recent remodel the Logan Armory is not currently being occupied. The Logan Armory does not currently have any Hazardous Chemicals inside of the Armory or a Chemical Inventory Log.

Appendix E

Floor Plan/IAQ - Temp, RH, & CO_2 Monitoring



IHI ENVIRONMENTAL
A Terracon COMPANY

Utah Army National Guard
Armory / Field Maintenance Shop
590 South 500 West
Logan, Utah

Indoor Air Quality Measurements

N

0 10' 20'

PROJECT No:	12U-I6162
SHEET:	2 of 2
DRAWN BY:	Non-Responsive
DATE:	10-02-2012
REVISED BY:	
DATE:	
REVIEWED BY:	
DATE:	

Appendix F

Ventilation Data

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

Kitchen Stove/Oven Exhaust Duct Velocity

Duct Dimensions = 14 x 14 inches

Duct Velocity Measurements

2660	2340	1980	2360
1760	2180	1880	1960
740	1330	1820	1770

Average Flow Rate = 1898 fpm

Appendix G

Field Notes

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

Jeremy Hunter (DFCM) was onsite

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, usually in the supply rooms (2) of them
Additional lead **wipe** samples taken from 25% of the rest of the building - -**(on floor areas only)**	yes.
Is there **a converted indoor firing range**? If so collect additional wipe samples IAW the SOW.	no
Is there any peeling **paint**? Take bulk sample if able.	no
Are there any signs of water damage or **mold**?	no → Bob Anderson (DFCM) has report
Any suspected **ACM**? Where and what condition is it in. Bulk sample if able.	Asbestos survey done ~ 1yr ago - before remodel. no asbestos awareness training.
Quality of housekeeping	great
HVAC maintenance plan in place?	Yes DFCM
Overall condition of HVAC system	All brand new in the last four years. (Boilers) - 2 2 fan units in Drill Hall ~ 2 yrs ago 9 fan units in rest of facility in remodel 1 cooling. 5 small heating units in supply rms & W restrooms (~ 20 yrs old)
Obtained **CO2, Temp, RH** monitoring	Yes -
HAZMAT inventory on hand (make copies for the report), **MSDS** available for all materials.	yes - a couple chems in Boiler Rm no chemical inventory - but MSDS's available
HAZMAT storage, Condition of lockers, if outside storage building is used is it ventilated and does it meet OSHA standards.	flam cabinets in attached FMS

Fire alarm in working condition - -not usually in place in older armories	Ansul system checked every 6 mos - yr Yes, just installed. DFCM Maintains & tests annually (Peak Alarm is the monitoring company)
Fire extinguishers in place and properly identified and mounted	yes - ~~DFCM~~ DFCM checks annually July 2012 (a few Aug 2012)
Evidence of **monthly fire extinguisher inspections**	yes - units checks monthly usually but w/ recent remodel have not reoccupied
Annual fire extinguisher inspections tags current	DFCM inspects them every year.
Are **eye wash stations** available in areas where hazardous materials are used and are they inspected weekly (inspections must be documented)	yes - one in Boiler Rm (DFCM will check) - one in FMS
Egress routes accessible and properly marked - -noted on Fire Evacuation Plan	not yet posted b/c of remodel
Training programs in place; Hazcom, Respiratory Protection, Confined Spaces, Hearing conservation, PPE (if applicable)	~~not exact~~ no binders available b/c of remodel. Safety Council Meeting - last July b4 fore remodel
Any Photo labs	no
Any hazardous **noise** sources	no.
Light levels checked throughout building	N/A
Breaker panels properly labeled with no exposed wiring	Yes and 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.?	Military: 12 3 Fed techs Civilian: 1 9 AGR ↳ part time Family Readiness UNITS: 1. A Btry 145 FA: Combat Arms 2. DSO 142 Military Intelligence: Supp (primary) Non-Responsive Non-Responsive
Any **civilian activities** in armory (cub scouts, classes, day care, parties etc)	rarely - poling station for voting Blood Drives Scouting Activities Rodeos ~5 - 6 x total average
Obtain two **lead air samples**	On IHSW Request Only

Evaluate Kitchen Stove Hood Flow if Present IAW NFPA Standard 96.	yes.
Collect Source Noise Measurements of Kitchen Appliances and Document Using DD 2214	yes.
Conduct a safety walkthrough of entire facility document any safety deficiencies found.	yes.
Take photos of outside of **building**, all **sample points** and any **pertinent hazards** or concerns.	yes.
Name of Armory, **POC, phone #, address** and **organizations** in Armory **(Add Checklist to Report)**	Utah National Guard Armory 590 S [redacted] 84321 POC: [redacted] A BTRY 145 FA D Co. 142 MI BN (LING) **(Add Checklist to Report)**

FACILITY INFORMATION

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

1. Date Prepared: **9/19/2012**

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

3. Facility Name and Brief Summary of Primary Activities Conducted at Facility:
Logan Armory, Utah Army National Guard
Primarily Admin and Drills with an attached FMS

4. Facility Address: **590 South 500 West, Logan, UT 84321**

5. Primary Unit Assigned to Facility: Non-Responsive **D Co 142 Military Intelligence Support**

6. Co-Tenant Units Assigned or Working Within Facility (LIST ALL): Non-Responsive **– A btry 145 FA : Combat Arms**

7. Square Ft. Area of Facility: **approximately 21,016 sq. ft**

8. Work Schedule: **0700 – 1600; Monday through Friday**

9. Number of work bays: **FMS Attached**

10. Equipment Density and Type: **N/A**

    a. List Equipment Nomenclature Serviced or Maintained at Facility: **N/A**

    b. List Total # for Each Nomenclature Serviced or Maintained at Facility: **N/A**

11. Total Number of Personnel: **12**

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

13. No. of Maintenance Personnel (Include Status – AGR, Fed. Tech., IDT, State or Contract Employee): **3 Fed Techs**

14. Total Number of Personnel Enrolled in the Hearing Conservation Program: **0**

BEST AVAILABLE COPY

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 **435-512-0207 – Assigned to D Co 142 Military**

19. Safety Officer: Non-Responsive

    a. Email Address, Commercial Telephone Number and Unit Assigned to: Non-Responsive **435-720-1714, assigned to A btry 145 FA**

20. Facility Telephone Number: **435-512-0207 – POC:** Non-Responsive

Appendix H

Calibration Certificates

TSI CERTIFICATE OF CALIBRATION AND TESTING

TSI Model 8732 TSI Serial No. 02100504

Description IAQ Meter with CO2

Calibration Standard Multi-Gas Calibration Bench #127

CALIBRATION VERIFICATION RESULTS

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

Tolerance Limits:

CO2: 50PPM or 3% of reading

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

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

Non-Responsive

☑ Final Function Check

Mar 19, 2012
Calibration Date

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

TSI CERTIFICATE OF CALIBRATION AND TESTING

TSI Model 8732 TSI Serial No. 02100504

Description IAQ Meter with CO2

Calibration Standard Multi-Gas Calibration Bench #127

CALIBRATION VERIFICATION RESULTS

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

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

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

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

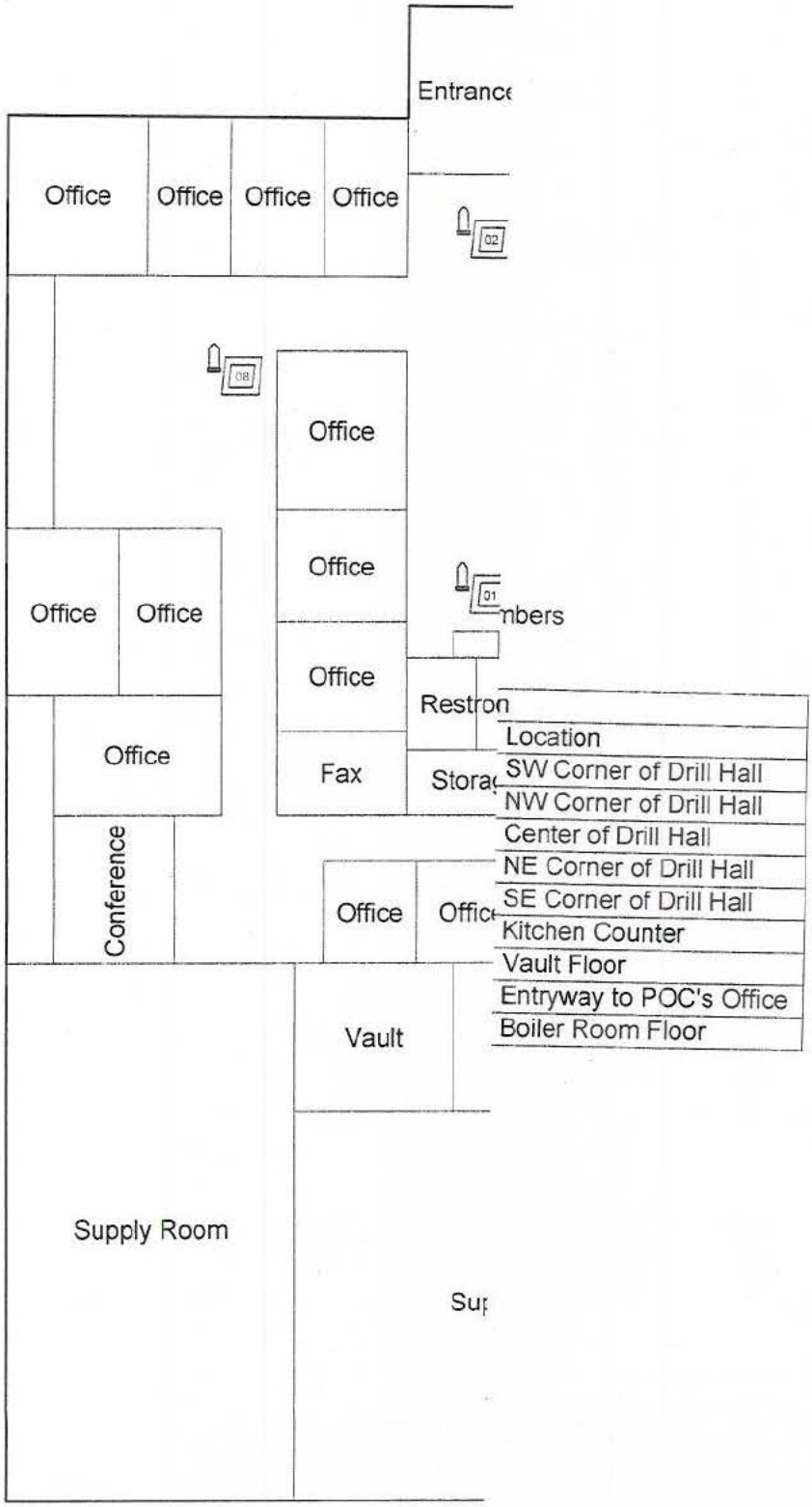
Applicable Test Report	Report Number	Date Last Verified
DC Voltage	E002415	06-21-11
Barometric Pressure	E001992	04-08-11
Pure Nitrogen	UT-230	03-02-12
CO2 1000 PPM in N2	EB0013815	01-21-10
CO2 5000 PPM in N2	EB0020543	02-01-12

Non-Responsive

☐ Final Function Check

Mar 19, 2012
Calibration Date

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



IHI ENVIRONMENTAL
A Terracon COMPANY

Utah Army National Guard
Armory / Field Maintenance Shop
590 South 500 West
Logan, Utah

Lead Wipe Sample Locations

N

0 10' 20'

PROJECT No:	12U-I6162
SHEET:	
DRAWN BY:	
DATE:	10-02-2012
REVISED BY:	
DATE:	

Logan, UT - Lead Wipe Sample Results

Lead Wipe Sample Results

Sample Number	Collection Date	Location	Result µg/ft^2
6162-01	9/19/2012	SW Corner of Drill Hall Floor	<23
6162-02	9/19/2012	NW Corner of Drill Hall Floor	<23
6162-03	9/19/2012	Center of Drill Hall Floor	<23
6162-04	9/19/2012	NE Corner of Drill Hall Floor	<23
6162-05	9/19/2012	SE Corner of Drill Hall Floor	<23
6162-06	9/19/2012	Kitchen Counter	<23
6162-07	9/19/2012	Vault Floor	<23
6162-08	9/19/2012	Entryway to POC's Office	<23
6162-09	9/19/2012	Boiler Room Floor	**210**

Appendix J

Laboratory Reports

ANALYTICAL REPORT

Report Date: September 25, 2012

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

Phone: (801) 466-2223
Fax: (801) 466-0616
E-mail: Non-Responsive

Workorder: 34-1226428
Client Project ID: 12U-I6162/Armory-Logan, UT
Purchase Order: 12U-I6162
Project Manager: Non-Responsive

Analytical Results

Sample ID: 6162-01 | Media: Ghost Wipe | Collected: 09/19/2012
Lab ID: 1226428001 | Sampling Location: Armory-Logan, UT | Received: 09/20/2012
Method: NIOSH 7300 Mod. | Sampling Parameter: Area 100 cm² | Prepared: 09/24/2012 Analyzed: 09/25/2012

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

Sample ID: 6162-02 | Media: Ghost Wipe | Collected: 09/19/2012
Lab ID: 1226428002 | Sampling Location: Armory-Logan, UT | Received: 09/20/2012
Method: NIOSH 7300 Mod. | Sampling Parameter: Area 100 cm² | Prepared: 09/24/2012 Analyzed: 09/25/2012

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

Sample ID: 6162-03 | Media: Ghost Wipe | Collected: 09/19/2012
Lab ID: 1226428003 | Sampling Location: Armory-Logan, UT | Received: 09/20/2012
Method: NIOSH 7300 Mod. | Sampling Parameter: Area 100 cm² | Prepared: 09/24/2012 Analyzed: 09/25/2012

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

Sample ID: 6162-04 | Media: Ghost Wipe | Collected: 09/19/2012
Lab ID: 1226428004 | Sampling Location: Armory-Logan, UT | Received: 09/20/2012
Method: NIOSH 7300 Mod. | Sampling Parameter: Area 100 cm² | Prepared: 09/24/2012 Analyzed: 09/25/2012

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

ANALYTICAL REPORT

Workorder: **34-1226428**
Client Project ID: 12U-I6162/Armory-Logan, UT
Purchase Order: 12U-I6162
Project Manager: Non-Responsive

Analytical Results

Sample ID: 6162-05 | Media: Ghost Wipe | Collected: 09/19/2012
Lab ID: 1226428005 | Sampling Location: Armory-Logan, UT | Received: 09/20/2012
Method: **NIOSH 7300 Mod.** | Sampling Parameter: **Area 100 cm²** | Prepared: 09/24/2012 Analyzed: 09/25/2012

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

Sample ID: 6162-06 | Media: Ghost Wipe | Collected: 09/19/2012
Lab ID: 1226428006 | Sampling Location: Armory-Logan, UT | Received: 09/20/2012
Method: **NIOSH 7300 Mod.** | Sampling Parameter: **Area 100 cm²** | Prepared: 09/24/2012 Analyzed: 09/25/2012

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

Sample ID: 6162-07 | Media: Ghost Wipe | Collected: 09/19/2012
Lab ID: 1226428007 | Sampling Location: Armory-Logan, UT | Received: 09/20/2012
Method: **NIOSH 7300 Mod.** | Sampling Parameter: **Area 100 cm²** | Prepared: 09/24/2012 Analyzed: 09/25/2012

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

Sample ID: 6162-08 | Media: Ghost Wipe | Collected: 09/19/2012
Lab ID: 1226428008 | Sampling Location: Armory-Logan, UT | Received: 09/20/2012
Method: **NIOSH 7300 Mod.** | Sampling Parameter: **Area 100 cm²** | Prepared: 09/24/2012 Analyzed: 09/25/2012

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

Sample ID: 6162-09 | Media: Ghost Wipe | Collected: 09/19/2012
Lab ID: 1226428009 | Sampling Location: Armory-Logan, UT | Received: 09/20/2012
Method: **NIOSH 7300 Mod.** | Sampling Parameter: **Area 100 cm²** | Prepared: 09/24/2012 Analyzed: 09/25/2012

Analyte	ug/sample	ug/ft²	RL (ug/sample)
Lead	**22**	**210**	2.5

ANALYTICAL REPORT

Workorder: **34-1226428**
Client Project ID: 12U-I6162/Armory-Logan, UT
Purchase Order: 12U-I6162
Project Manager: Non-Responsive

Analytical Results

Sample ID: 6162-10 | Media: Ghost Wipe | Collected: 09/19/2012
Lab ID: 1226428010 | Sampling Location: Armory-Logan, UT | Received: 09/20/2012
Method: **NIOSH 7300 Mod.** | Sampling Parameter: **Area Not Provided** | Prepared: 09/24/2012 Analyzed: 09/25/2012

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

Report Authorization

Method	Non-Responsive	Non-Responsive
NIOSH 7300 Mod.		

Laboratory Contact Information

ALS Environmental
960 W Levoy Drive
Salt Lake City, Utah 84123

Phone: (801) 266-7700
Email: alslt.lab@ALSGlobal.com
Web: www.alsslc.com

ANALYTICAL REPORT

Workorder: 34-1226428
Client Project ID: 12U-I6162/Armory-Logan, UT
Purchase Order: 12U-I6162
Project Manager: Non-Responsive

General Lab Comments

The results provided in this report relate only to the items tested.
Samples were received in acceptable condition unless otherwise noted.
Samples have not been blank corrected unless otherwise noted.
This test report shall not be reproduced, except in full, without written approval of ALS.

ALS provides professional analytical services for all samples submitted. ALS is not in a position to interpret the data and assumes no responsibility for the quality of the samples submitted.

All quality control samples processed with the samples in this report yielded acceptable results unless otherwise noted.

ALS is accredited for specific fields of testing (scopes) in the following testing sectors. The quality system implemented at ALS conforms to accreditation requirements and is applied to all analytical testing performed by ALS. The following table lists testing sector, accreditation body, accreditation number and website. Please contact these accrediting bodies or your ALS project manager for the current scope of accreditation that applies to your analytical testing.

Testing Sector	Accreditation Body (Standard)	Certificate Number	Website
Environmental	ACLASS (DoD ELAP)	ADE-1420	http://www.aclasscorp.com
	Utah (NELAC)	DATA1	http://health.utah.gov/lab/labimp/
	Nevada	UT00009	http://ndep.nv.gov/bsdw/labservice.htm
	Oklahoma	UT00009	http://www.deq.state.ok.us/CSDnew/
	Iowa	IA# 376	http://www.iowadnr.gov/InsideDNR/RegulatoryWater.aspx
	Florida (TNI)	E871067	http://www.dep.state.fl.us/labs/bars/sas/qa/
	Texas (TNI)	T104704456-11-1	http://www.tceq.texas.gov/field/qa/lab_accred_certif.html
Industrial Hygiene	AIHA (ISO 17025 & AIHA IHLAP/ELLAP)	101574	http://www.aihaaccreditedlabs.org
Lead Testing:			
CPSC	ACLASS (ISO 17025, CPSC)	ADE-1420	http://www.aclasscorp.com
Soil, Dust, Paint ,Air	AIHA (ISO 17025, AIHA ELLAP and NLLAP)	101574	http://www.aihaaccreditedlabs.org
Dietary Supplements	ACLASS (ISO 17025)	ADE-1420	http://www.aclasscorp.com

Definitions

LOD = Limit of Detection = MDL = Method Detection Limit, A statistical estimate of method/media/instrument sensitivity.
LOQ = Limit of Quantitation = RL = Reporting Limit, A verified value of method/media/instrument sensitivity.
ND = Not Detected, Testing result not detected above the LOD or LOQ.
** No result could be reported, see sample comments for details.
< This testing result is less than the numerical value.
( ) This testing result is between the LOD and LOQ and has higher analytical uncertainty than values at or above the LOQ.

Industrial Hygiene Southwest

Violation Inventory Log

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

Logan Armory, Logan, Utah

CONTROL NUMBER CLOSED ☐	HAZARD DESCRIPTION	SITE	RAC	CORRECTIVE ACTIONS (Abatement Plan)	SUSPENSE DATE	ACTION OIC/NCOIC	Estimated Cost(s)	DATE CORRECTED	REFERENCES
UTLA-091912-4.1 ☐	The analytical results for lead on the boiler room floor was 210 µg/ft^2.	Boiler Room	4	1. Clean the floors of the boiler room to a level of less than 200 µg/ft^2 following the guidance in the attached SOPs. 2. Perform post-cleanup wipe sampling to ensure lead levels are within the criterion outlined in the IHSW SOP for Armory Cleanup.					IHSW SOP Lead, 29 CFR 1910.1025 (h)(1)
UTLA-091912-4.4 ☐	An asbestos survey could not be located during this IH Assistance Visit.	Logan 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)
UTLA-091912-4.4 ☐	Personnel have not been provided with asbestos awareness training.	Logan Armory	4	Based on the findings of this survey, provide awareness training to assigned personnel for the specific types of asbestos in this Armory.					29 CFR 1910.1001 or 1101 or AR 40-5
UTLA-091912-4.10.3 ☐	All extinguishers except one in the kitchen were current on their annual and monthly inspections.	Kitchen	4	Ensure all fire extinguishers are provided a monthly inspection and document these inspections on the attached inspection cards.					29 CFR 1910.157 (c)(1)
UTLA-091912-4.10.4 ☐	There is one eyewash station in the boiler room that does not have evidence of weekly inspections.	Boiler Room	4	Ensure the emergency eyewash/showers undergo a weekly operational test and document the results of these tests.					ANSI Z358.1-2009
UTLA-091912-4.10.5 ☐	Fire evacuation routes have not been posted since the recent remodel.	Logan Armory	4	Ensure fire evacuation routes are posted throughout the facility if the direction of travel to the exit or exit discharge is not immediately apparent.					29 CFR 1910.37 (c)

Appendix L

Recommendations

4.1 Lead Wipe Sampling

1. Improve housekeeping practices within the armory and assure after each weapons cleaning episode the area(s) are cleaned using the SOP included in this report.

2. Clean the floors of the boiler room to a level of less than 200 $\mu g/ft^2$ following the guidance in the attached SOPs.

3. Perform post-cleanup wipe sampling to ensure lead levels are within the criterion outlined in the IHSW SOP for Armory Cleanup.

4.4 Asbestos Management

1. Locate the asbestos survey 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.

4.10 General Safety Walk-Through

Ensure all fire extinguishers are up to date on monthly and annual inspections, the eyewash station in the boiler room is inspected monthly and annually, and fire evacuation routes are posted throughout the facility.

NOISE SURVEY
(Sound Level Meter Survey)

1. DATE (YYYYMMDD)	2. TYPE SURVEY (Enter code)
20120919	1 (1 - INITIAL SURVEY 2 - RE-SURVEY 3 - OTHER)

3. SOUND LEVEL METER		4. MICROPHONE		5. CALIBRATOR	
a. MANUFACTURER		a. MANUFACTURER		a. MANUFACTURER	
Greenlee		Greenlee		Greenlee	
b. MODEL	c. SERIAL NO.	b. MODEL	c. SERIAL NO.	b. MODEL	c. SERIAL NO.
SM-100	010613107	SM-100	010613107	SM-100	010613107
d. LAST ELECTROACOUSTIC CALIB DATE (YYYYMMDD)	20111013	d. LAST ELECTROACOUSTIC CALIB DATE (YYYYMMDD)	20111013	d. LAST ELECTROACOUSTIC CALIB DATE (YYYYMMDD)	20111013

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)
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 (85-106)	c. PLUG AND MUFF (109-118)	d. PLUG + MUFF + TIME LIMIT (Greater than 118)
Overhead Vent Hood	S	72.4	81.1	IVD	X			
					X			
					X			
					X			
					X			
					X			

NOTES: Range of levels noted by /; i.e., 102/109. At operator stations, measure at ear level.
METER ACTION: Enter F for fast meter action and S for slow meter action.

13. REMARKS *(i.e., Area and equipment posted, hearing protection in use, etc.)*

14. MORE DETAILED NOISE EVALUATION REQUIRED: ( ) YES (X) NO *(If "YES," identify type evaluation needed.)*

15. NAME(S) OF PERSON(S) IDENTIFIED FOR AUDIOMETRIC MONITORING *(Use additional sheet if more space is needed and attach to form)*

16. SUPERVISOR OF NOISE-HAZARDOUS AREA OR OPERATION

a. [redacted]	b. TELEPHONE (Include area code)	c. ORGANIZATION
Non-Responsive	(435) 512-0207	UTARNG

17. [illegible] (Last Name, First Name, MI)	18. HEARING CONSERVATION MONITOR (Last Name, First Name, MI)
	Non-Responsive

Appendix N

IHSW Lead Cleanup SOP

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.