

Industrial Hygiene Survey Report

At

Alaska Army National Guard
Kenai Armory
105 South Forest Avenue
Kenai, Alaska

Survey date: July 12, 2010

For

Department of the Army
National Guard Bureau
Region West Industrial Hygiene Office
NGB-AVN-S1

Performed by
U.S. Public Health Service
Federal Occupational Health

November 15, 2010

Table of Contents

- I. Executive Summary
- II. Findings and Recommendations Summary Table
- III. Introduction
- IV. Site Description
- V. Scope of Work
- VI. Findings, Discussion, and Recommendations

Appendices

- A. Point of Contact (POC) List.
- B. Methodology and Assessment Criteria.
- C. Laboratory Result Reports and Chain of Custody Sheets.
- D. Occupational Health Risk Assessment Codes (RACs)

I. Executive Summary

At the request of the National Guard Bureau Region West Industrial Hygiene Office, field personnel representing the U.S. Public Health Service, Division of Federal Occupational Health (FOH) conducted an industrial hygiene survey at the Alaska Army National Guard, Kenai Armory, located in Kenai, Alaska. This survey was conducted as part of the Army National Guard occupational safety and health program to evaluate potential personnel exposure to contaminants generated during typical activities performed at this facility.

The Kenai Armory was built in 1970. The armory was renovated and an addition was added in 2009. The facility has about 14,000 square feet of floor space that encompasses a drill floor, supply room, offices, classroom, kitchen, library, shower room, mechanical room, latrine, exercise room, locker room, maintenance bay and arms room. The armory had a firing range in the rear of the building that was closed in 1987. Site personnel reported that a lead abatement project was performed in the former firing range area in 2005. The former firing range area has been converted to a maintenance bay. The Kenai Armory is the base of operations for Bravo Troop 1 – 297th Reconnaissance and Surveillance. Site personnel reported that no vehicle maintenance is performed in the armory.

The industrial hygiene survey included a walkthrough of the facility and interviews with employees. The survey also included collecting surface wipe samples for heavy metal contamination and a lighting survey.

A bulk paint chip sample was collected from peeling paint on the outside of an exit door. The sample was analyzed for lead. The results were below the limit of detection for lead (<0.005 % by weight).

Five samples were collected on representative surfaces in the facility and analyzed for three heavy metals (lead, cadmium and chromium). At present, there are no regulated or recommended levels for surface levels of heavy metals in military facilities. There are no OSHA regulated levels for these heavy metals on surfaces. For purposes of this report, any level of any metal that exceeds 200 ug/ft² is considered significant. One of the surface wipe sample results exceeded the above criteria. Sample AKKEW14 which was collected on an overhead HVAC duct in the drill floor area had a lead concentration of 350 ug/ft². The Kenai Armory should continue to prohibit the presence of food and drink in work areas, stress the importance of hand washing prior to the consumption of food items and continue to clean the horizontal surfaces in work and storage areas. When weapons are cleaned, special attention should be given to cleaning up the work area to prevent potential lead contamination from ammunition.

A lighting survey was conducted in the offices and storage areas in the Kenai Armory. Most of the areas surveyed did not meet minimum illumination requirements. Illumination levels should be improved in some office and storage areas.

II. Table of Findings and Recommendations

<i>Findings</i>	<i>Recommendations</i>	<i>RAC</i>
<i>Bulk Paint/Surface Samples</i>		
A bulk paint chip sample was collected from peeling paint on the outside of an exit door. The sample was analyzed for lead. The results were below the limit of detection for lead (<0.005 % by weight).	Continue to prohibit the presence of food and drink in work areas and stress the importance of hand washing prior to the consumption of food items.	4
Five samples were collected on representative surfaces in the facility and analyzed for three heavy metals (lead, cadmium and chromium). At present, there are no regulated or recommended levels for surface levels of heavy metals in military facilities. There are no OSHA regulated levels for these heavy metals on surfaces. For purposes of this report, any level of any metal that exceeds 200 ug/ft ² is considered significant. One of the surface wipe sample results exceeded the above criteria. Sample AKKEW14 which was collected on an overhead HVAC duct in the drill floor area had a lead concentration of 350 ug/ft ² .	Continue to clean the horizontal surfaces in work and storage areas.	4
	When weapons are cleaned, special attention should be given to cleaning up the work area to prevent potential lead contamination from ammunition.	2
<i>Lighting</i>		
A lighting survey was conducted in the offices and storage areas in the Kenai Armory. Most of the areas surveyed did not meet minimum illumination requirements.	Illumination levels should be improved in some office and storage areas.	4

III. Introduction

An Occupational Health and Industrial Hygiene Evaluation was conducted by the USPHS, FOH at the Alaska Army National Guard, Kenai Armory, located in Kenai, Alaska. This work was conducted under the Interagency Agreement between The U.S. Public Health Service (USPHS) Federal Occupational Health (FOH) and the West Region of the Army National Guard. This survey was conducted in order to identify exposure levels to hazardous chemical, physical, and biological agents occurring to Army National Guard employees while engaged in a full range of work responsibilities and tasks. **Non-Responsive**, Certified Industrial Hygienist (CIH), Certified Professional Ergonomist (CPE) conducted this survey on July 12, 2010.

FOH conducted this survey in the interest of preventing employee illness and in meeting legal obligations where applicable. Based on information provided, every effort was made to conduct a comprehensive survey covering the parameters considered. Results and recommendations are based on information provided, field measurements, and conditions observed during the survey.

IV. Site Description

The Kenai Armory was built in 1970. The armory was renovated and an addition was added in 2009. The facility has about 14,000 square feet of floor space that encompasses a drill floor, supply room, offices, classroom, kitchen, library, shower room, mechanical room, latrine, exercise room, locker room, maintenance bay and arms room. The drill floor and maintenance bay areas have a concrete floor, concrete block walls that are 14 feet high, and steel beams supporting a sloped roof. The exterior of the building is masonry. The armory had a firing range in the rear of the building that was closed in 1987. Site personnel reported that a lead abatement project was performed in the former firing range area in 2005. The former firing range area has been converted to a maintenance bay. The Kenai Armory is the base of operations for Bravo Troop 1 – 297th Reconnaissance and Surveillance. Site personnel reported that no vehicle maintenance is performed in the armory.

V. Scope of Work

The industrial hygiene survey included a walkthrough of the facility and interviews with employees. The survey also included collecting surface wipe samples for heavy metal contamination and a lighting survey. Photographs were taken, as appropriate.



Figure 1 – Kenai Armory

VI. Findings, Discussion, and Recommendations

The Kenai Armory is the base of operations for Bravo Troop 1 – 297th Reconnaissance and Surveillance. Site personnel reported that no vehicle maintenance is performed in the armory.

Paint Chip Sample

A bulk paint chip sample was collected from peeling paint on the outside of an exit door (Figure 2). The sample was analyzed for lead. The results were below the limit of detection for lead (<0.005 % by weight).

Recommendation:

None

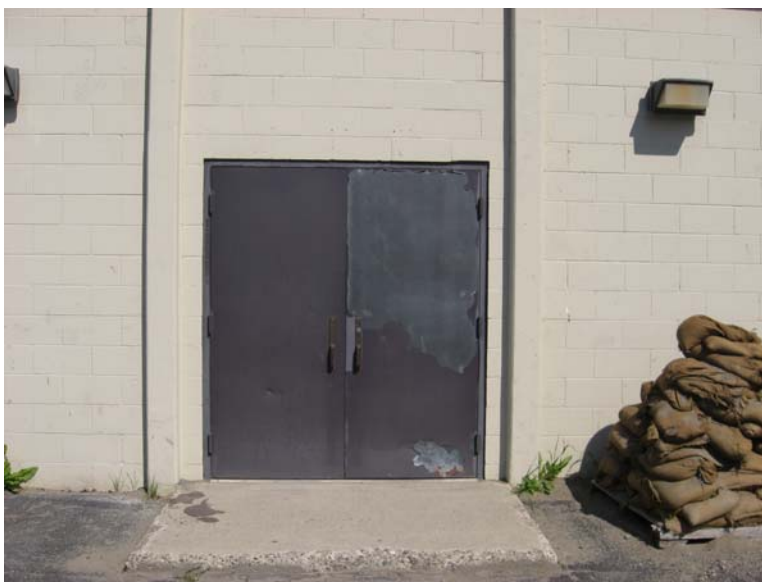


Figure 2 – Paint Chip Sample Location

Surface Wipe Samples

Five samples were collected on representative surfaces in the facility and analyzed for three heavy metals (lead, cadmium and chromium). Some of the sample results were below the limit of detection for the metals and other results indicated that metals were detected, mostly at lower levels. The results are contained in Table 1.

At present, there are no regulated or recommended levels for surface levels of heavy metals in military facilities. There are no OSHA regulated levels for these heavy metals on surfaces. For purposes of this report, any level of any metal that exceeds 200 ug/ft^2 is considered significant. One of the surface wipe sample results exceeded the above criteria. Sample AKKEW14 which was collected on an overhead HVAC duct in the drill floor area had a lead concentration of 350 ug/ft^2 . The Kenai Armory should continue to prohibit the presence of food and drink in work areas, stress the importance of hand washing prior to the consumption of food items and continue to clean the horizontal surfaces in work and storage areas. When weapons are cleaned, special attention should be given to cleaning up the work area to prevent potential lead contamination from ammunition.

Table 1
Area Wipe Sampling Results for Metals
Alaska National Guard
Kenai Armory
Kenai, Alaska
July 12, 2010

Analyte	AKKEW11 (ug/ft ²) Platoon Leader's Office Desktop	AKKEW12 (ug/ft ²) Kitchen on Range	AKKEW13 (ug/ft ²) Maintenance Bay – 2 nd Floor on Floor
Lead	<91	<91	<91
Cadmium	<9.1	<9.1	91
Chromium	<91	<91	<91

Analyte	AKKEW14 (ug/ft ²) Drill Floor on Overhead HVAC	AKKEW15 (ug/ft ²) Vault – on Weapons Rack	AKKEW16 (ug/ft ²) Field Blank
Lead	350	<91	ND
Cadmium	39	<9.1	ND
Chromium	<91	<91	ND

Note:

- 1) ug/ft² = micrograms per square foot of surface area. 2) **Bold** indicates that concentration was “significant.”
3) ND = None Detected

Recommendations:

1. Continue to prohibit the presence of food and drink in work areas and stress the importance of hand washing prior to the consumption of food items. (**RAC 4**)
2. Continue to clean the horizontal surfaces in work and storage areas. (**RAC 4**)
3. When weapons are cleaned, special attention should be given to cleaning up the work area to prevent potential lead contamination from ammunition. (**RAC 2**)

Figure 3 – Wipe Sample Locations (below)

Sample AKKEW11



Sample AKKEW12



Sample AKKEW13



Sample AKKEW14



Sample AKKEW15

Lighting Survey

A lighting survey was conducted in the offices and storage areas in the Kenai Armory. The results are contained in Table 2. ANSI lighting standards are contained in Table 3.

Table 2
Lighting Survey
Alaska National Guard
Kenai Armory
Kenai, Alaska
July 12, 2010

Location	Illumination (foot candles)
Drill Floor – NE quadrant	23
Drill Floor – NW quadrant	23
Drill Floor – SE quadrant	71
Drill Floor – SW quadrant	88
Exercise room	25
Office at front door	100
Office with three desks	62
Day room	35
Kitchen	49
Supply room	21
Vault	34
Mechanical room	35
Storage room – north	37
Storage room – south	37

Table 3
Lighting Standards
ANSI Standard RP7 "Practice for Lighting" Table 6-1

Location	Minimum foot candles required
Office/library/general areas	100
Any maintenance areas	100
Battery room (or any electrical equipment areas)	100
Break room	100
Supply or storage rooms/area	20
Corridors	20
Inactive areas	5

Most of the areas surveyed did not meet minimum illumination requirements. Illumination levels should be improved in some office and storage areas.

Recommendation:

Increase the illumination levels in the areas that did not meet minimum illumination requirements. **(RAC 4)**

This survey was conducted by, and report written by **Non-Responsive**, CIH, CPE as a representative of Federal Occupational Health. This survey report was reviewed by **Non-Responsive**, Regional Industrial Hygienist at the NGB ARNG Region West Industrial Hygiene Office.

Technical Assistance: For technical assistance regarding information found in this report or the performed survey please contact the Regional Industrial Hygienist at the NGB ARNG Region West Industrial Hygiene Office.

Appendix A

Alaska Army National Guard State Points of Contact

CW4 **Non-Responsive**
State Safety Officer

SGT **Non-Responsive**
Industrial Hygiene Technician

SGT **Non-Responsive**
Industrial Hygiene Technician

Kenai Armory Point of Contact

Non-Responsive – POC

Appendix B

Methodology and Assessment Criteria

Methods used in this survey to collect surface wipe samples are listed below. The sampling strategy used in this survey was designed to characterize employee exposure to the various contaminants that could be generated from the various activities/tasks performed in the facility. It was based, in part, on information provided by site personnel.

Surface sampling reported in this survey represents the work conditions existing at the time of the survey. Changes in work practices and/or processes may change employee exposure levels. Use of different materials may result in exposure to a different air contaminant.

Surface Sampling – Heavy Metals

Surface samples were collected from representative areas using Environmental Express Ghost™ Wipes and templates that encompassed 100 centimeters squared (cm²) of surface area. The entire area was wiped using an “S” configured motion, the Ghost™ Wipe was then folded in half and the area was again wiped in a direction 90⁰ to the first using an “S” motion. The wipe was folded again and the perimeter of the area was wiped. The wipe was then placed into a plastic cylinder, the cylinder was capped and sealed and the samples were sent to the FOH Laboratory in Chicago, Illinois, for analysis for multiple metals. The cadmium, chromium and lead samples were analyzed on a Perkin Elmer 200 flame atomic absorption spectrophotometer using the OSHA ID-121 method. At present there are no regulated or recommended levels for surface levels of heavy metals in military facilities. For purposes of this report, any level of any metal that exceeds 200 ug/ft² is considered excessive (or significant).

A bulk sample of peeling paint was collected and sent to the FOH Laboratory in Chicago, Illinois, for analysis for lead. This sample was analyzed on a Perkin Elmer 200 flame atomic absorption spectrophotometer using the OSHA ID-121 method.

Lighting Levels

Illumination levels were measured with a Sper Scientific 840022 Broad Range Lux/FC Meter that had been calibrated according to the manufacturer’s instructions. Illumination levels were recorded as foot candles.

Appendix C



FOH ENVIRONMENTAL LABORATORY

638 S. CLARK STREET CHICAGO, IL 60605 PHONE: (312) 886-0413 FAX: (312) 886-0434

ANALYTICAL REPORT

Submitted To: USPHS / Federal Occupational Health
Denver Federal Center
Denver, CO 80225

Attention: **Non-Responsive**

Submitted By: **Non-Responsive**

Reference Data: Lead, Cadmium, and Chromium
Sampling Site: NGB: Kenai, AK
Sample Media: Ghost Wipe(s)® and Paint
Method Reference: OSHA ID-121
Project ID: Project 9642
DFOH Lab Nos.: TM-10-48919 through TM-10-48925
Date Received: 08/02/10
Data Analyzed: 08/12/10 through 08/25/10
Date Issued: 08/03/10

The wipe samples were hot plate digested and the paint sample was microwave digested. The samples were run on a Perkin Elmer 200 flame atomic absorption spectrophotometer (AA).

General Lab Comments:

All quality control criteria have been met.

* All samples received in condition acceptable for analysis unless otherwise noted.

** Sample results have not been corrected for contamination based on the field blank or other analytical blank unless otherwise noted.

Analytical results are given on the enclosed tables. Results relate only to items tested. If you have any questions about these results, feel free to phone the Laboratory at (312) 886-0413.

Non-Responsive

Technical Manager

Non-Responsive

Laboratory Director



Project 9642
Page 1 of 3

**FOH ENVIRONMENTAL LABORATORY**

538 S. CLARK STREET CHICAGO, IL 60605 PHONE: (312) 888-0413 FAX: (312) 888-0434

LEAD on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (μg)	CONCENTRATION ($\mu\text{g}/\text{ft}^2$)
AKKEW11	TM-10-46919	<10	<91
AKKEW12	TM-10-46920	<10	<91
AKKEW13	TM-10-46921	<10	<91
AKKEW14	TM-10-46922	39	350
AKKEW15	TM-10-46923	<10	<91
AKKEW16	TM-10-46924	<10	None Detected

CADMIUM on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (μg)	CONCENTRATION ($\mu\text{g}/\text{ft}^2$)
AKKEW11	TM-10-46919	<1.0	<9.1
AKKEW12	TM-10-46920	<1.0	<9.1
AKKEW13	TM-10-46921	10	91
AKKEW14	TM-10-46922	4.3	39
AKKEW15	TM-10-46923	<1.0	<9.1
AKKEW16	TM-10-46924	<1.0	None Detected

CHROMIUM on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (μg)	CONCENTRATION ($\mu\text{g}/\text{ft}^2$)
AKKEW11	TM-10-46919	<10	<91
AKKEW12	TM-10-46920	<10	<91
AKKEW13	TM-10-46921	<10	<91
AKKEW14	TM-10-46922	<10	<91
AKKEW15	TM-10-46923	<10	<91
AKKEW16	TM-10-46924	<10	None Detected

AGENCY	FLOORS	INTERIOR WINDOW SILLS	WINDOW TROUGHS
EPA	40 $\mu\text{g}/\text{ft}^2$	250 $\mu\text{g}/\text{ft}^2$	400 $\mu\text{g}/\text{ft}^2$

Metals in Wipe Limits
(based on one ft² sampled area)

Analyte	Analytical Method	Method Detection Limit	Minimum Reporting Limit
Lead	OSHA ID-121	5.0 $\mu\text{g}/\text{ft}^2$	10 $\mu\text{g}/\text{ft}^2$
Cadmium	OSHA ID-121	0.5 $\mu\text{g}/\text{ft}^2$	1.0 $\mu\text{g}/\text{ft}^2$
Chromium	OSHA ID-121	5.0 $\mu\text{g}/\text{ft}^2$	10 $\mu\text{g}/\text{ft}^2$

Project 9642
Page 2 of 3



FOH ENVIRONMENTAL LABORATORY

638 S. CLARK STREET CHICAGO, IL 60605 PHONE: (312) 888-0413 FAX: (312) 888-0434

LEAD in PAINT RESULTS

SAMPLE NUMBER	LABORATORY NUMBER	CONCENTRATION (%weight)	CONCENTRATION (mg/g)
AKKEB1	TM-10-46925	<0.006	<0.06

** NOTE: The Department of Housing and Urban Development classifies paint containing more than 0.5% lead by weight as being lead-based.

Lead in Paint Limits

ANALYTICAL METHOD	METHOD DETECTION LIMIT (%)	REPORTING LIMIT (%)
OSHA-ID 121	0.003 @ 0.10 gram sample	0.005 @ 0.10 gram sample

Non-Responsive

Technical Manager



Project 9642
Page 3 of 3

Kenai Armory
Kenai, Alaska

¹2. *Effect of temperature on the growth of *Y. enterocolitica* in various media*

Appendix D

Occupational Health Risk Assessment Codes
(Reference: DOD Letter of Instructions 6055 1)

Occupational health risk assessment codes (RACs) are included in this report to quantify health risks to personnel. Risk assessment is an expression of health hazard severity and mishap probability, described in terms of route of exposure, actual exposure, exposure limit standards, potential health effects, duration of exposure, and number of exposed personnel. The following procedure is used to determine the RACs:

STEP 1: This step assesses points to determine the health hazard severity category (HHSC). The HHSC reflects the magnitude of exposure to a physical, chemical, or biological agent and the medical effects of exposure.

A Exposure Points Assessed

Alternate Route of Exposure		Exposure Conditions			
		<CT	Occasionally >CT	>CT	>STD
AER Possible	NO	0	3	5	7
	YES	1-2	4	6	8

Notes: 1) AER = Alternate exposure route, such as skin absorption or ingestion. 2) CT = DoD component threshold that triggers surveillance actions, such as action level. 3) STD = DoD exposure limit, such as TLV or PEL. 4) > = Greater than. 5) < = Less than. 6) ≤ = Less than or equal to.

B Medical Effects Points Assessed

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

C The HHSC is determined by totaling the points assessed and using the following guide:

Total Points*	HHSC
13-16	I
9-12	II
5-8	III
0-4	IV

* Sum of A and B above

STEP 2: This step uses the following guidelines to assess points to determine the mishap probability category (MPC) for health hazards. The probability of mishap reflects the duration of exposure and the number of exposed personnel.

A. Duration of Exposure Points Assessed

Type of Exposure	Length of Exposure		
	1-8 hr/wk	>8 hr/wk/not continuous	Continuous
Irregular/Intermittent	1-2	4-6	NA
Regular/Periodic	2-3	5-7	8

B. Number of Exposed personnel Points Assessed

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

C. The MPC for health hazards is determined by totaling the points assessed and using the following guide:

Total Points*	MPC
14-16	A
10-13	B
5-9	C
<5	D

* Sum of A and B above

STEP 3: The RAC is determined using the following matrix:

HHSC	MPC			
	A	B	C	D
I	1	1	2	3
II	1	2	3	4
III	2	3	4	5
IV	3	4	5	5

Industrial Hygiene Survey Report

At

Alaska Army National Guard

Ketchikan Armory

Ketchikan, Alaska

Survey date: July 20, 2010

For

Department of the Army

National Guard Bureau

Region West Industrial Hygiene Office

Performed by

U.S. Public Health Service

Federal Occupational Health

September 13, 2010

Table of Contents

- I. Executive Summary
- II. Introduction
- III. Site Description
- IV. Scope of Work
- V. Findings, Discussion, and Recommendations
- VI. Point of Contact List

Laboratory Result Reports and Chain of Custody Sheets.

I. Executive Summary

At the request of the National Guard Bureau Region West Industrial Hygiene Office, field personnel representing the U.S. Public Health Service, Division of Federal Occupational Health (FOH) conducted an industrial hygiene survey at the Alaska Army National Guard Army, Armory located in Ketchikan, Alaska. This survey was conducted as part of the ARNG occupational safety and health program to evaluate potential exposure to lead on facility surfaces. Surface wipe samples were collected for lead dust.

The NGB-ARS Memorandum for the Chiefs of Staff dated February 2, 2006 provides guidance for potential lead hazard exposure in Army National Guard child occupied facilities. The memorandum defines a child occupied facility as a building, or portion of a building, visited on a regular basis by the same child, six years of age or under. Child occupied facilities may include, but are not limited to, day-care centers, preschools, and kindergarten classrooms. The memorandum states that, "For all areas used/occupied on a regular basis by children ages six and under clean all floors accessible to said children to the EPA dust-lead standard of 40 ug/ft². Clean all other surfaces in accordance with USACHPPM recommendations for lead in dust of 200 ug/ft² on frequent contact surfaces."

For purposes of this report any surface lead level that exceeds 40 ug/ft² in a child occupied area is considered significant. Any surface lead level that exceeds 200 ug/ft² in any other area of the armory is considered significant.

Six surface wipe samples were collected on representative surfaces throughout the facility and analyzed for lead. One sample from the top of a locker in the former firing range contained lead levels of 140 ug/ft². This level is below the recommended surface lead level of 200 ug/ft². A second sample collected on a metal support for a basketball hoop in the Drill room also had 140 ug/ft² of lead. The concern with the lead levels on the basketball hoop and ceiling rafters in the Drill room is the potential for the lead containing dust to fall to the floor below if disturbed by wind or vibration. Unlike the former firing range, the assembly room is used by the public and Guard employees. It is recommended that the upper surfaces in the assembly room be cleaned of the lead-containing dust.

A bulk sample of material was collected from the floor in the mechanical room. The sample contained 5 to 10 percent chrysotile asbestos and 3 to 6 percent amosite asbestos. An asbestos building inspection should be conducted in the facility to identify all asbestos containing building materials and all friable asbestos material should be removed or encapsulated.

A lighting survey was conducted in the shops and offices in the Armory. Most of the areas surveyed did not meet minimum illumination requirements.

II. Introduction

An industrial hygiene survey was conducted by the U.S. Public Health Service (USPHS) Federal Occupational Health (FOH) at the Alaska Army National Guard Armory, Ketchikan Armory located in Ketchikan, Alaska. This work was conducted under the Interagency Agreement between the USPHS, FOH and the West Region of the Army National Guard. This survey was conducted in order to identify lead levels on surfaces within the Armory. [Non-Responsive], Certified Industrial Hygienist (CIH); and [Non-Responsive], CIH conducted the survey on July 20, 2010. This report was prepared by [Non-Responsive].

FOH conducted this survey in the interest of preventing employee illness and in meeting legal obligations where applicable. Based on information provided, every effort was made to conduct a comprehensive survey covering the parameters considered. Results and recommendations are based on information provided, field measurements, and conditions observed during the survey.

III. Site Description

The Ketchikan Armory was constructed in the late 1960s. A former firing range is located in the basement and now used as a locker room. The range has been cleaned of lead dust but may need additional cleaning. The building also includes; offices, classroom, vault, break room, workout room, supply room, storage rooms, mechanical room, and janitor closet.

The Armory is staffed by one full-time employee and 15 part-time Guard employees. The Drill hall or assembly room is used by Guard employees and the public. Approximately 30 to 40 children ages 7 to 18 years old use the Drill room each week to play basketball.

Figure 1



IV. Scope of Work

Lead dust from firing ranges and the cleaning of fire arms can contaminate surfaces within a building. Therefore, six surface wipe samples were collected and analyzed for the presence of lead. A surface area of either 16 or 144 square inches was wiped with a Ghost Wipe, place in a plastic coin tube and shipped to the FOH Analytical Laboratory in Chicago, Illinois. The samples were then analyzed by flame atomic absorption spectrophotometer (AA) according to OSHA Analytical Method ID-121.

A bulk sample of material was collected from the floor of the mechanical room and tested for fiber content.

V. Assessment Criteria, Findings, Discussion, and Recommendations

Assessment Criteria for Surface Lead

The NGB-ARS Memorandum for the Chiefs of Staff dated February 2, 2006 provides guidance for potential lead hazard exposure in Army National Guard child occupied facilities. The memorandum defines a child occupied facility as a building, or portion of a building, visited on a regular basis by the same child, six years of age or under. Child occupied facilities may include, but are not limited to, day-care centers, preschools, and kindergarten classrooms. The memorandum states that, "For all areas used/occupied

on a regular basis by children ages six and under clean all floors accessible to said children to the EPA dust-lead standard of 40 ug/ft². Clean all other surfaces in accordance with USACHPPM recommendations for lead in dust of 200 ug/ft² on frequent contact surfaces.”

For purposes of this report any surface lead level that exceeds 40 ug/ft² in a child occupied area is considered significant. Any surface lead level that exceeds 200 ug/ft² in any other area of the armory is considered significant.

Surface Samples

Six surface wipe samples were collected on representative surfaces throughout the facility and analyzed for lead. One sample from the top of a locker in the former firing range contained lead levels of 140 ug/ft². This level is below the recommended surface lead level of 200 ug/ft². A second sample collected on a metal support for a basketball hoop in the Drill room also had 140 ug/ft² of lead. The concern with the lead levels on the basketball hoop and ceiling rafters in the Drill room is the potential for the lead containing dust to fall to the floor below if disturbed by wind or vibration. Unlike the former firing range, the assembly room is used by the public and Guard employees. It is recommended that the upper surfaces in the assembly room be cleaned of the lead-containing dust. The results are contained in Table 1.

Table 1
Area Wipe Sampling Results for Lead Dust
Alaska Army National Guard
Ketchikan Armory
Ketchikan, Alaska
July 20, 2010

Sample Number	Location	Lead Concentration ug/ft ²
W-1	Top of locker in former firing range	140
W-2	Top of locker outside Drill hall	<91
W-3	On basketball hoop support in Drill hall	140
W-4	Floor in the Drill hall	<10
W-5	Classroom table next to Drill hall	<91
W-6	Floor inside the vault	<91

Note:

ug/ft²= micrograms per square foot of surface area. 2) **Bold** indicates that concentration was “significant.”

Wipe sample locations

Figure 2 – Sample W-1



Figure 3 – Sample W-2



Figure 4 – Sample W-3



Figure 5 – Sample W-4



Figure 6 – Sample W-5



Figure 7 – Sample W-6



The former firing range was ventilated with a wall mounted general ventilation fan. The fan (pictured in Figure 8) vented air from the firing range to the outdoors. There is the possibility that soil in the vicinity of the exhaust fan may be contaminated with lead.

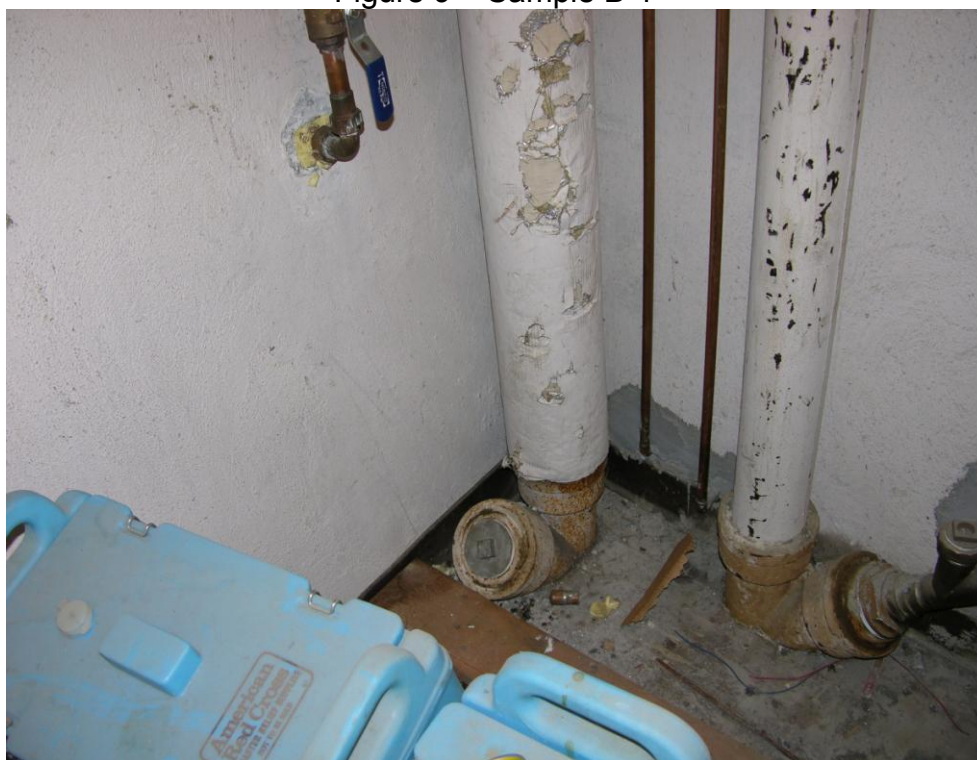
Figure 8



Bulk Sample

A bulk sample of material was collected from the floor in the mechanical room (Figure 9). The sample was analyzed at the FOH National Environmental Reference Laboratory in Denver, Colorado for constituents. The sample contained 5 to 10 percent chrysotile asbestos and 3 to 6 percent amosite asbestos.

Figure 9 – Sample B-1



Recommendations:

An asbestos building inspection should be conducted in the facility to identify all asbestos containing building materials and all friable asbestos material should be removed or encapsulated.

Lighting Survey

A lighting survey was conducted in the shops and offices in the Armory. The results are contained in Table 2. ANSI lighting standards are contained in Table 3.

Table 2
Lighting Survey
Alaska National Guard
Ketchikan
Ketchikan, Alaska
July 20, 2010

Location	Illumination in footcandles
Day room	65
Break room	35
Office next to break room	47
Recruiters office	62
NCO office	47
Drill room	14
Workout room	34
Shower	33
Janitors closet	42
Supply room	15
Vault	26
Storage room	25
Classroom	58
Basement locker room	10
Mechanical room	14
Maintenance bay	32
Basement break room	3
Basement storage room	23
Basement office	35

Table 7
Lighting Standards
ANSI Standard RP7 "Practice for Lighting" Table 6-1

Location	Minimum foot candles required
Office/library/general areas	100
Any maintenance areas	100
Battery room (or any electrical equipment areas)	100
Break room	100
Supply or storage room	20
Corridors	20
Inactive areas	5

Most of the areas surveyed did not meet minimum illumination requirements.

Recommendation: Illumination levels should be improved in some office areas, shops, and bays.

Technical Assistance: For technical assistance regarding information found in this report or the performed survey please contact the Regional Industrial Hygienist at the NGB ARNG Region West Industrial Hygiene Office.

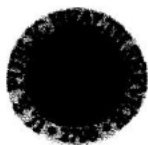
This report written by Non-Responsive, CIH, as a representative of Federal Occupational Health, U. S. Public Health Service

VI. Point of Contact List

Alaska Army National Guard State Points of Contact

CW4 Non-Responsive
Occupational Health Nurse

Ketchikan Armory
SSG Non-Responsive



FOH ENVIRONMENTAL LABORATORY

536 S. CLARK STREET CHICAGO, IL 60605 PHONE: (312) 886-0413 FAX: (312) 886-0434

ANALYTICAL REPORT

Submitted To: USPHS / Federal Occupational Health
Denver Federal Center
Denver, CO 80225

Attention: **Non-Responsive**

Submitted By: **Non-Responsive**

Reference Data: Lead
Sampling Site: NGB: Ketchikan, AK
Sample Media: Ghost Wipe(s)®
Method Reference: OSHA ID-121
Project ID: Project 9657
DFOH Lab Nos.: TM-10-47013 through TM-10-47018
Date Received: 08/05/10
Data Analyzed: 08/20/10
Date Issued: 08/20/10

The samples were microwave digested using a CEM MDS-2000. The samples were run on a Perkin Elmer 200 flame atomic absorption spectrophotometer (AA).

General Lab Comments:

All quality control criteria have been met.

* All samples received in condition acceptable for analysis unless otherwise noted.

** Sample results have not been corrected for contamination based on the field blank or other analytical blank unless otherwise noted.

Analytical results are given on the enclosed tables. Results relate only to items tested. If you have any questions about these results, feel free to phone the Laboratory at (312) 886-0413.

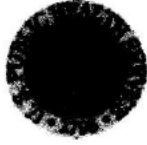
Non-Responsive

Technical Manager

Laboratory Director



Project 9657
Page 1 of 2



FOH ENVIRONMENTAL LABORATORY

536 S. CLARK STREET CHICAGO, IL 60605 PHONE: (312) 886-0413 FAX: (312) 886-0434

LEAD on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µg/ft²)
W-1	TM-10-47013	16	140
W-2	TM-10-47014	<10	<91
W-3	TM-10-47015	140	140
W-4	TM-10-47016	<10	<10
W-5	TM-10-47017	<10	<91
W-6	TM-10-47018	<10	<91

AGENCY	FLOORS	INTERIOR WINDOW SILLS	WINDOW TROUGHS
EPA	40 µg/ft²	250 µg/ft²	400 µg/ft²

Metals in Wipe Limits (based on one ft² sampled area)

Analyte	Analytical Method	Method Detection Limit	Minimum Reporting Limit
Lead	OSHA ID-121	5.0 µg/ft²	10 µg/ft²

Non-Responsive

Technical Manager



10/11/2004

Project 9657
Page 2 of 2

US PUBLIC HEALTH SERVICE, FEDERAL OCCUPATIONAL HEALTH CHAIN-OF-CUSTODY / FIELD DATA SHEET

Environmental Laboratory 536 S. Clark Street South, Suite 714 Chicago, IL 60605-1521 Tel: (312)-886-0413 Fax: (312)-886-0434				PROJECT REFERENCE Agreement No.: A 106644 Statement of Work No.: S 149497				For Lab Use Only 9657 Conditions on Receipt with Name & Date Project/Report #: 8/19/10 Due Date: 8/19/10 Samples Received Chilled? YES <input checked="" type="checkbox"/> (circle one)							
Non-Responsive Contact Information Non-Responsive				Project No.: P 149591 Agency/Project: ARRG-AK Name: Armory Location: Ketchikan, AK				Container Types: P-Plastic, G-Glass, V-VOC Preservatives: A-None, B-H ₂ SO ₄ , C-HNO ₃ , D-NaOH				Water Sample Codes ¹ Turn Around Time Codes ² Analysis Requested STD- Standard R- Rush ³ 2D- Two Day Rush ⁴ ND- Next Day Rush ⁵ SD- Same Day Rush ⁶ WH- Weekend/Holiday ⁷			
Sample ID # Type ⁸ Media ⁹ Collected Date Time W-1 7 12 7-20-2010 W-2 " " " " " W-3 " " " " " W-4 " " " " " W-5 " " " " " W-6 " " " " "				Sample Location / Description Old firing room - locker Top of van Locker top outside drill hall Drill Hall on basketball support Drill Hall floor Classroom table next to drill hall Vault on floor				Air Flow (LPM) Time (Min) Volume (Liters) Wipe Area (in ²) Volume (Liters) Water Code ¹⁰ Turn Around Time ¹¹ Lab ID # 16 16 144 144 16 16 TH-10-47013 47014 47015 47016 47017 47018							
Sample Type Codes 1-Air 2-Water 3-Point 4-Soil 5-Dust 6-Bulk 7-Wipe 8-Contact Plate 9-Tape 10-Spore Trap (Zefon & others) 11-Other				Sample Media Codes 1-Charcoal 2-XAD 3-Matched Weight 4-Preweighted 5-MEA 6-CCA 7-R2A/TSA 8-Air-O Cell Cassette 9-MCE Cassette (0.45) 10-MCE Cassette (0.8) 11-MCE Filter 12-Other				Relinquished By: Non-Responsive Date & Time: 8-2-10				Date & Time: 8/9/10			
COMMENTS: Samples W-3 and W-4 collect from 144 square inch surface.															

* Applied to non-viable microbiological samples only¹² Applied to asbestos samples, SD: 2-hour PLM/PCM, 6-hour TEM; ND: 24-hour; R: 3-5 business days.



DEPARTMENT OF HEALTH & HUMAN SERVICES

Program Support Center

August 26, 2010

Federal Occupational Health Service
 PO Box 25145
 Bldg 41, Ent E-1, Rm 190
 Denver Federal Center
 Denver Co 80225-0145
 Phone: 303-236-0076 x 603
 Fax: 303-236-3440

LGN B1080594

Bruce Hills, CSP
 Federal Occupational Health
 Building 41, Room 190, DFC
 Denver, CO 80225-0145

Dear Mr. Hills:

Enclosed are the results of the analysis of 1 bulk material from ARNG, Ketchikan AK, submitted to the Division of Federal Occupational Health (DFOH) National Environmental Reference Laboratory (NERL) Asbestos/Fine Particle Analytical Division in Denver, Colorado, for asbestos analysis. The sample was received at NERL on August 24, 2010. The methods used for this evaluation involve stereo- and polarized-light microscopy (PLM) in compliance with guidelines established by EPA in its Method For The Determination Of Asbestos In Bulk Building Materials (EPA-600/R-93-116). The DFOH laboratory services are currently accredited for bulk asbestos analysis by the National Voluntary Laboratory Accreditation Program (NVLAP) of the National Institute of Standards and Technology (NIST). This report may not be used to claim product endorsement by NVLAP or other U.S. Government agency. This report may not be reproduced except in full, without the written approval of NERL. The NERL NVLAP laboratory code number is 101593-0.

The results given, which pertain only to the materials submitted for testing, are listed in Table 1. Details of this report will not be issued to any person or agency not associated with you or ARNG. The EPA method guidelines were developed for use in evaluating friable materials. Point-count reanalysis of materials is recommended to confirm trace or low-percentage PLM results. If you have questions regarding the content of this report, analytical procedures or methods, asbestos evaluation or abatement, please contact NERL directly at (303) 236-3455 ext 603.

LABORATORY COORDINATOR

LABORATORY DIRECTOR

MARK A. STEINER MS
 Geologist/Microscopist

LCDR ROBERT A. GIBBS MS REHS
 Senior Program Manager

TABLE 1

DIVISION OF FEDERAL OCCUPATIONAL HEALTH
NERL/AFPAD POLARIZED LIGHT MICROSCOPY (PLM) BRANCH

LGN: B1080594

PROJECT I.D.: ARNG
AK Armory
Ketchikan, Alaska

REPORT DATE: August 25, 2010

NVLAP LAB CODE: 101593-0

SAMPLE NUMBER	ASBESTOS PRESENT?	-----Estimated % Composition-----		
		ASBESTIFORM MINERAL FIBERS	OTHER FIBROUS CONSTITUENTS	TOTAL % ASBESTOS
B-1:	Yes			
Insulation: light gray, homogeneous, friable, fibrous		Chrysotile 5-10 Amosite 3-6	None	8-16
END OF DOCUMENT				

* Applied to non-viable microbiological samples only. ^o Applied to asbestos samples, SD: 2-hour PLM/PCM, 6-hour TEM; ND: 24-hour; R: 3-5 business days.

Industrial Hygiene Survey Report

At

Alaska Army National Guard
Kenai Armory
105 South Forest Avenue
Kenai, Alaska

Survey date: July 27, 2009

For

Department of the Army
National Guard Bureau
Region West Industrial Hygiene Office
NGB-AVN-S1

Performed by
U.S. Public Health Service
Federal Occupational Health

October 24, 2009

Table of Contents

- I. Executive Summary
- II. Findings and Recommendations Summary Table
- III. Introduction
- IV. Site Description
- V. Scope of Work
- VI. Findings, Discussion, and Recommendations

Appendices

- A. Point of Contact (POC) List.
- B. Methodology and Assessment Criteria.
- C. Laboratory Result Reports and Chain of Custody Sheets.
- D. Occupational Health Risk Assessment Codes (RACs)

I. Executive Summary

At the request of the National Guard Bureau Region West Industrial Hygiene Office, field personnel representing the U.S. Public Health Service, Division of Federal Occupational Health (FOH) conducted an industrial hygiene survey at the Alaska Army National Guard, Kenai Armory, located in Kenai, Alaska. This survey was conducted as part of the Army National Guard occupational safety and health program to evaluate potential personnel exposure to contaminants generated during typical activities performed at this facility.

The Kenai Armory was built in 1970. The facility has 10,800 square feet of floor space that encompasses a drill floor, supply room, offices, classroom, kitchen, library, shower room, mechanical room, latrine, weight room, locker room, maintenance bay and arms room. The drill floor and maintenance bay areas have a concrete floor, concrete block walls that are 14 feet high, and steel beams supporting a sloped roof. The exterior of the building is masonry. On the day of the survey a 12.5 foot wide addition was being added to the front of the armory. The armory had a firing range in the rear of the building that was closed in 1987. Site personnel reported that a lead abatement project was performed in the former firing range area in 2005. The former firing range area has been converted to a maintenance bay. The Kenai Armory is the base of operations for Headquarters Company B 3rd Battalion Scout 297th Infantry and Bravo Troop 1 – 297th Reconnaissance and Surveillance. Site personnel reported that light vehicle maintenance may be performed in the armory.

The industrial hygiene survey included a walkthrough of the facility and interviews with employees. The survey also included: collecting surface wipe samples for heavy metal contamination and a lighting survey.

Five samples were collected on representative surfaces in the facility and analyzed for three heavy metals (lead, cadmium and chromium). Some of the sample results were below the limit of detection for the metals and other results indicated that metals were detected, mostly at lower levels. At present, there are no regulated or recommended levels for surface levels of heavy metals in military facilities. There are no OSHA regulated levels for these heavy metals on surfaces. For purposes of this report, any level of any metal that exceeds 200 ug/ft² is considered significant. One of the surface wipe sample results exceeded the above criteria. Sample AKEW5 which was collected on a gun rack in the vault had a lead concentration of 314 ug/ft². The Kenai Armory should continue to prohibit the presence of food and drink in work areas, stress the importance of hand washing prior to the consumption of food items and continue to clean the horizontal surfaces in work and storage areas. When weapons are cleaned, special attention should be given to cleaning up the work area to prevent potential lead contamination from ammunition.

A lighting survey was conducted in the offices and storage areas in the Kenai Armory. Most of the areas surveyed did not meet minimum illumination requirements. Illumination levels should be improved in some office and storage areas.

II. Table of Findings and Recommendations

<i>Findings</i>	<i>Recommendations</i>	<i>RAC</i>
<i>Surface Samples</i>		
Five samples were collected on representative surfaces in the facility and analyzed for three heavy metals (lead, cadmium and chromium). Some of the sample results were below the limit of detection for the metals and other results indicated that metals were detected, mostly at lower levels. At present, there are no regulated or recommended levels for surface levels of heavy metals in military facilities. There are no OSHA regulated levels for these heavy metals on surfaces. For purposes of this report, any level of any metal that exceeds 200 ug/ft ² is considered significant. One of the surface wipe sample results exceeded the above criteria. Sample AKEW5 which was collected on a gun rack in the vault had a lead concentration of 314 ug/ft ² .	Continue to prohibit the presence of food and drink in work areas and stress the importance of hand washing prior to the consumption of food items.	4
	Continue to clean the horizontal surfaces in work and storage areas.	4
	When weapons are cleaned, special attention should be given to cleaning up the work area to prevent potential lead contamination from ammunition.	2
<i>Lighting</i>		
A lighting survey was conducted in the offices and storage areas in the Kenai Armory. Most of the areas surveyed did not meet minimum illumination requirements.	Illumination levels should be improved in some office and storage areas.	4

III. Introduction

An Occupational Health and Industrial Hygiene Evaluation was conducted by the USPHS, FOH at the Alaska Army National Guard, Kenai Armory, located in Kenai, Alaska. This work was conducted under the Interagency Agreement between The U.S. Public Health Service (USPHS) Federal Occupational Health (FOH) and the West Region of the Army National Guard. This survey was conducted in order to identify exposure levels to hazardous chemical, physical, and biological agents occurring to Army National Guard employees while engaged in a full range of work responsibilities and tasks. **Non-Responsive**, Certified Industrial Hygienist (CIH), Certified Professional Ergonomist (CPE) conducted this survey on July 27, 2009.

FOH conducted this survey in the interest of preventing employee illness and in meeting legal obligations where applicable. Based on information provided, every effort was made to conduct a comprehensive survey covering the parameters considered. Results and recommendations are based on information provided, field measurements, and conditions observed during the survey.

IV. Site Description

The Kenai Armory was built in 1970. The facility has 10,800 square feet of floor space that encompasses a drill floor, supply room, offices, classroom, kitchen, library, shower room, mechanical room, latrine, weight room, locker room, maintenance bay and arms room. The drill floor and maintenance bay areas have a concrete floor, concrete block walls that are 14 feet high, and steel beams supporting a sloped roof. The exterior of the building is masonry. On the day of the survey a 12.5 foot wide addition was being added to the front of the armory. The armory had a firing range in the rear of the building that was closed in 1987. Site personnel reported that a lead abatement project was performed in the former firing range area in 2005. The former firing range area has been converted to a maintenance bay. The Kenai Armory is the base of operations for Headquarters Company B 3rd Battalion Scout 297th Infantry and Bravo Troop 1 – 297th Reconnaissance and Surveillance. Site personnel reported that light vehicle maintenance may be performed in the armory.

V. Scope of Work

The industrial hygiene survey included a walkthrough of the facility and interviews with employees. The survey also included: collecting surface wipe samples for heavy metal contamination and a lighting survey. Photographs were taken, as appropriate.



Figure 1 – Kenai Armory (rear)



**Figure 2 – Kenai Armory
(Construction in front of building)**

VI. Findings, Discussion, and Recommendations

The Kenai Armory is the base of operations for Headquarters Company B 3rd Battalion Scout 297th Infantry and Bravo Troop 1 – 297th Reconnaissance and Surveillance. Site personnel reported that light vehicle maintenance may be performed in the armory.

Surface Wipe Samples

Five samples were collected on representative surfaces in the facility and analyzed for three heavy metals (lead, cadmium and chromium). Some of the sample results were below the limit of detection for the metals and other results indicated that metals were detected, mostly at lower levels. The results are contained in Table 1.

At present, there are no regulated or recommended levels for surface levels of heavy metals in military facilities. There are no OSHA regulated levels for these heavy metals on surfaces. For purposes of this report, any level of any metal that exceeds 200 ug/ft² is considered significant. One of the surface wipe sample results exceeded the above criteria. Sample AKEW5 which was collected on a gun rack in the vault had a lead concentration of 314 ug/ft². The Kenai Armory should continue to prohibit the presence of food and drink in work areas, stress the importance of hand washing prior to the consumption of food items and continue to clean the horizontal surfaces in work and storage areas. When weapons are cleaned, special attention should be given to cleaning up the work area to prevent potential lead contamination from ammunition.

Table 1
Area Wipe Sampling Results for Metals
Alaska National Guard
Kenai Armory
Kenai, Alaska
July 27, 2009

Analyte	AKEW1 (ug/ft ²) Drill Floor – On Floor in Center of Room	AKEW2 (ug/ft ²) Maintenance Bay – North End – on Floor	AKEW3 (ug/ft ²) Maintenance Bay – South End - on Floor
Lead	<91	96	<91
Cadmium	<9.1	13	<9.1
Chromium	<91	<91	<91

Analyte	AKEW4 (ug/ft ²) Supply Room – on Desktop	AKEW5 (ug/ft ²) Vault – on Metal Gun Rack	AKEW6 (ug/ft ²) Field Blank
Lead	<91	314	ND
Cadmium	<9.1	<9.1	ND
Chromium	<91	<91	ND

Note:

- 1) ug/ft²= micrograms per square foot of surface area.
- 2) **Bold** indicates that concentration was “significant.”
- 3) ND = None Detected

Recommendations:

1. Continue to prohibit the presence of food and drink in work areas and stress the importance of hand washing prior to the consumption of food items. **(RAC 4)**
2. Continue to clean the horizontal surfaces in work and storage areas. **(RAC 4)**
3. When weapons are cleaned, special attention should be given to cleaning up the work area to prevent potential lead contamination from ammunition. **(RAC 2)**

Figure 3 – Wipe Sample Locations (below)



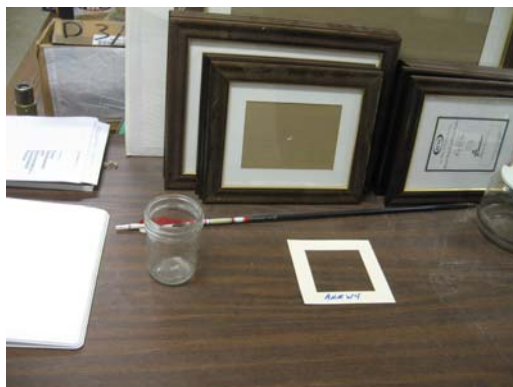
Sample AKEW1



Sample AKEW2



Sample AKEW3



Sample AKEW4



Sample AKEW5

Lighting Survey

A lighting survey was conducted in the offices and storage areas in the Kenai Armory. The results are contained in Table 2. ANSI lighting standards are contained in Table 3.

Table 2
Lighting Survey
Alaska National Guard
Kenai Armory
Kenai, Alaska
July 27, 2009

Location	Illumination (foot candles)
Drill Floor – Center of Room	17
Men's Room	28
Gym	29
Shower Room	54
Supply Room	19
Mechanical Room	32
Janitorial Room	34
Maintenance Bay	20
Arms Room	36

Table 3
Lighting Standards
ANSI Standard RP7 "Practice for Lighting" Table 6-1

Location	Minimum foot candles required
Office/library/general areas	100
Any maintenance areas	100
Battery room (or any electrical equipment areas)	100
Break room	100
Supply or storage rooms/area	20
Corridors	20
Inactive areas	5

Most of the areas surveyed did not meet minimum illumination requirements. Illumination levels should be improved in some office and storage areas.

Recommendation:

Increase the illumination levels in the areas that did not meet minimum illumination requirements. **(RAC 4)**

Technical Assistance: For technical assistance regarding information found in this report or the performed survey please contact the Regional Industrial Hygienist at the NGB ARNG Region West Industrial Hygiene Office. This survey was conducted by, and report written by [REDACTED], CIH, CPE as a representative of Federal Occupational Health.

Appendix A

Alaska Army National Guard State Points of Contact

Captain **Non-Responsive**
Safety and Occupational Health Manager

Kenai Armory Point of Contact

Non-Responsive – POC

Appendix B

Methodology and Assessment Criteria

Methods used in this survey to collect surface wipe samples are listed below. The sampling strategy used in this survey was designed to characterize employee exposure to the various contaminants that could be generated from the various activities/tasks performed in the facility. It was based, in part, on information provided by site personnel.

Surface sampling reported in this survey represents the work conditions existing at the time of the survey. Changes in work practices and/or processes may change employee exposure levels. Use of different materials may result in exposure to a different air contaminant.

Surface Sampling – Heavy Metals

Surface samples were collected from representative areas using Environmental Express Ghost™ Wipes and templates that encompassed 100 centimeters squared (cm²) of surface area. The entire area was wiped using an “S” configured motion, the Ghost™ Wipe was then folded in half and the area was again wiped in a direction 90⁰ to the first using an “S” motion. The wipe was folded again and the perimeter of the area was wiped. The wipe was then placed into a plastic cylinder, the cylinder was capped and sealed and the samples were sent to the FOH Laboratory in Chicago, Illinois, for analysis for multiple metals. The cadmium, chromium and lead samples were analyzed on a Perkin Elmer 200 flame atomic absorption spectrophotometer using the OSHA ID-121 method. At present there are no regulated or recommended levels for surface levels of heavy metals in military facilities. For purposes of this report, any level of any metal that exceeds 200 ug/ft² is considered excessive (or significant).

Lighting Levels

Illumination levels were measured with a Sper Scientific 840022 Broad Range Lux/FC Meter that had been calibrated by the manufacturer. Illumination levels were recorded as foot candles.

Appendix C



FOH ENVIRONMENTAL LABORATORY

536 S. CLARK STREET CHICAGO, IL 60605 PHONE: (312) 886-0413 FAX: (312) 886-0434

ANALYTICAL REPORT

Submitted To: USPHS / Federal Occupational Health
Denver Federal Center
Denver, CO 80225

Attention: **Non-Responsive**

Submitted By: **Non-Responsive**

Reference Data: Lead, Cadmium and Chromium
Sampling Site: NGB: Kenai, AK (Armory)
Sample Media: Ghost Wipe(s)®
Method Reference: OSHA ID-121
Project ID: Project 9039
DFOH Lab Nos.: TM-09-39388 through TM-09-39393
Date Received: 08/06/09
Data Analyzed: 08/11/09 – 08/12/09
Date Issued: 08/14/09

The samples were microwave digested using a CEM MDS-2000. The samples were run on a Perkin Elmer 200 flame atomic absorption spectrophotometer (AA).

General Lab Comments:

All quality control criteria have been met.

* All samples received in condition acceptable for analysis unless otherwise noted.

** Sample results have not been corrected for contamination based on the field blank or other analytical blank unless otherwise noted.

Analytical results are given on the enclosed tables. Results relate only to items tested. If you have any questions about these results, feel free to phone the Laboratory at (312) 886-0413.

Non-Responsive

Technical Manager

Laboratory Director



Accredited by the American Industrial Hygiene Association (AIHA)
Environmental Lead and Industrial Hygiene (Lab ID #102643) programs
See aiha.org for details

Project 9039
Page 1 of 2



FOH ENVIRONMENTAL LABORATORY

536 S. CLARK STREET CHICAGO, IL 60605 PHONE: (312) 886-0413 FAX: (312) 886-0434

LEAD on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µg/ft ²)
AKEW1	TM-09-39388	<10	<91
AKEW2	TM-09-39389	11	96
AKEW3	TM-09-39390	<10	<91
AKEW4	TM-09-39391	<10	<91
AKEW5	TM-09-39392	35	314
AKEW6**	TM-09-39393	<10	None Detected

CADMIUM on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µg/ft ²)
ASMW1	TM-09-39394	<1.0	<9.1
ASMW2	TM-09-39395	1.5	13
ASMW3	TM-09-39396	<1.0	<9.1
ASMW4	TM-09-39397	<1.0	<9.1
ASMW5	TM-09-39398	<1.0	<9.1
ASMW6**	TM-09-39399	<1.0	None Detected

CHROMIUM on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µg/ft ²)
ASMW1	TM-09-39394	<10	<91
ASMW2	TM-09-39395	<10	<91
ASMW3	TM-09-39396	<10	<91
ASMW4	TM-09-39397	<10	<91
ASMW5	TM-09-39398	<10	<91
ASMW6**	TM-09-39399	<10	None Detected

AGENCY	FLOORS	INTERIOR WINDOW SILLS	WINDOW TROUGHS
EPA	40 µg/ft ²	250 µg/ft ²	400 µg/ft ²

Metals in Wipe Limits (based on one ft² sampled area)

Analyte	Analytical Method	Method Detection Limit	Minimum Reporting Limit
Lead	OSHA ID-121	5.0 µg/ft ²	10 µg/ft ²
Cadmium	OSHA ID-121	0.5 µg/ft ²	1.0 µg/ft ²
Chromium	OSHA ID-121	5.0 µg/ft ²	10 µg/ft ²

Non-Responsive

Technical Manager



Accredited by the American Industrial Hygiene Association (AIHA)
Environmental Lead and Industrial Hygiene (Lab ID #102643) programs
See aiha.org for details

Project 9039
Page 2 of 2

Industrial Hygiene Survey
Survey Date: July 27, 2009

Kenai Armory
Kenai, Alaska

US PUBLIC HEALTH SERVICE, FEDERAL OCCUPATIONAL HEALTH CHAIN-OF-CUSTODY / FIELD DATA SHEET

Environmental Laboratory/				PROJECT REFERENCE				For Lab Use Only				Conditions on Receipt with Name & Date			
536 S. Clark Street South, Suite 714 Chicago, IL 60605-1521 Tel: (312)-886-0413 Fax: (312)-886-0434				Agreement No.: A 106644 Statement of Work No.: S 136934 Project No.: P 136935				Project / Report #: 9039 Due Date: 8/20/09 Samples Received Cycled? YES NO (circle one)				Analysis Requested			
Contact Information				Agency/Project Name: ALASKA ARMORY Location: NATIONAL GUARD (City, State): KENAI, AK				Container Types: P-Plastic, G-Glass, V-VOC Preservatives: A-None, B-H ₂ SO ₄ , C-HNO ₃ , D-NaOH				Turn Around Time Codes: STD-Standard R-Rush® 2D-Two Day Rush* ND-Next Day Rush* SD-Same Day Rush* WH-Weekend/Holiday*			
ID #	Type	Media	Collected Date	Sample Location / Descriptor	Flow (LPM)	Time (Min)	Volume (liters)	Wipe Area (in ²)	Water Volume (liters)	Water Code	Turn Around Time	Lab ID #	LEAD CADMIUM CHROMIUM		
AREW1	7	12	7-27-09					100cm ²				7409-39388			
AREW2												39389			
AREW3												39390			
AREW4												39391			
AREW5												39392			
AREW6				FIELD BLANK								39393			
Sample Type Codes: 1-Air 2-Water 3-Print 4-Soil 5-Dust 6-Bulk 7-Wipe 8-Contact Plate 9-Tape 10-Spore Trap (Zetron & others) 11-Other				Sample Media Codes: 1-Charcoal 2-XAD 3-Matched Weight 4-Preweighed 5-MEA 6-CCA 7-RZATSA 8-Air-O-Cell Cassette 9-MCE Cassette (0.4) 10-MCE Cassette (0.8) 11-MCE Filter 12-				Date & Time				Received By			
COMMENTS:				Non-Responsive				Non-Responsive				8/6/09			

* Applied to non-viable microbiological samples only. Applied to asbestos samples, SD: 2-hour PLM/PCM, 6-hour TEM; ND: 24-hour; R: 3-5 business days.

Appendix D

Occupational Health Risk Assessment Codes
(Reference: DOD Letter of Instructions 6055 1)

Occupational health risk assessment codes (RACs) are included in this report to quantify health risks to personnel. Risk assessment is an expression of health hazard severity and mishap probability, described in terms of route of exposure, actual exposure, exposure limit standards, potential health effects, duration of exposure, and number of exposed personnel. The following procedure is used to determine the RACs:

STEP 1: This step assesses points to determine the health hazard severity category (HHSC). The HHSC reflects the magnitude of exposure to a physical, chemical, or biological agent and the medical effects of exposure.

A Exposure Points Assessed

Alternate Route of Exposure		Exposure Conditions			
		<CT	Occasionally >CT	>CT	>STD
AER Possible	NO	0	3	5	7
	YES	1-2	4	6	8

Notes: 1) AER = Alternate exposure route, such as skin absorption or ingestion. 2) CT = DoD component threshold that triggers surveillance actions, such as action level. 3) STD = DoD exposure limit, such as TLV or PEL. 4) > = Greater than. 5) < = Less than. 6) ≤ = Less than or equal to.

B Medical Effects Points Assessed

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

C The HHSC is determined by totaling the points assessed and using the following guide:

Total Points*	HHSC
13-16	I
9-12	II
5-8	III
0-4	IV

* Sum of A and B above

STEP 2: This step uses the following guidelines to assess points to determine the mishap probability category (MPC) for health hazards. The probability of mishap reflects the duration of exposure and the number of exposed personnel.

A. Duration of Exposure Points Assessed

Type of Exposure	Length of Exposure		
	1-8 hr/wk	>8 hr/wk/not continuous	Continuous
Irregular/Intermittent	1-2	4-6	NA
Regular/Periodic	2-3	5-7	8

B. Number of Exposed personnel Points Assessed

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

C. The MPC for health hazards is determined by totaling the points assessed and using the following guide:

Total Points*	MPC
14-16	A
10-13	B
5-9	C
<5	D

* Sum of A and B above

STEP 3: The RAC is determined using the following matrix:

HHSC	MPC			
	A	B	C	D
I	1	1	2	3
II	1	2	3	4
III	2	3	4	5
IV	3	4	5	5