EXECUTIVE SUMMARY	
MEMORANDUM FOR	3
SUBJECT	3
BACKGROUND	3
INTRODUCTION	
SITE DESCRIPTION	
SCOPE OF WORK	
METHODOLOGY	4
FINDINGS AND DISCUSSION	
LEAD WIPE SAMPLES	5
ASBESTOS SUSPECT BUILDING MATERIAL	6
Noise Survey	6
ILLUMINATION SURVEY	6
BUILDING CONDITION	8
HAZARD COMMUNICATION	8
RADIATION PROTECTION PROGRAM	9
ERGONOMICS	9
PERSONAL PROTECTIVE EQUIPMENT	9
RECOMMENDATIONS	
TECHNICAL ASSISTANCE	14

### **EXECUTIVE SUMMARY**

An initial baseline industrial hygiene survey was conducted at the Conway Armory on 3 May 2005 as part of the South Carolina Army National Guard Occupational Health Program to identify potential health hazards in the workplace. The survey consisted of collecting lead wipe samples and bulk asbestos samples as needed, conducting a noise and illumination survey and an evaluation of the condition of the building as it related to indoor air quality. A review of the Hazard communication program, ergonomics, and personal protective equipment was also performed.

The following table summarizes the survey findings and recommendations for each topic surveyed.

TOPIC	SUMMARY OF FINDINGS	RECOMMENDATIONS
Lead Wipe Samples	0 to 918 micrograms. Lead results in the converted Indoor firing range area are significantly above required limits. Motor pool and drill hall areas also show higher than recommended levels of lead contamination.	Clean surfaces in the motor pool and drill hall areas, decontaminate all contaminated items, and follow good hygiene and housekeeping practices. Clean IFR area in accordance with Army National Guard All States Log Number P01-0075, Policies and Responsibilities for Inspection, Evaluation, and Operation of ARNG Indoor Firing Ranges (IFR) and Guidelines for IFR Rehabilitation, Conversion, and Cleaning
Asbestos Bulk Samples	Floor tile and ceiling tile in the classroom has been damaged and is in poor condition. The floor tile contains 10% chrysotile asbestos in the tile and 5% chrysotile asbestos in the mastic.	Do not dry sweep or mechanically disturb tile. A complete inventory of asbestos containing materials should be obtained and a plan for care and remediation should be made.
Noise Survey	Under 85 dBA	A noise survey should be performed on equipment used and maintained in the motor pool area.
Illumination Survey	3.9 to 84.5 foot-candles	Upgrade lighting to appropriate levels.
Building Condition	Building in poor condition. Extensive water damage. Pipe insulation, floor and ceiling tiles in poor condition.	Develop a housekeeping schedule to identify, repair, and prevent any leaks or standing water. Immediately address any items that have gotten wet by cleaning or discarding.
Hazard Communication	Material Safety Data Sheets were not available. Supply sergeant was not present to provide information or access to supply areas.	Material Safety Data Sheets should be updated for cleaning supplies used by facility and easily available in case of emergency.
Ergonomics	Poor workstations design in some offices	Complete ergonomics survey on all personnel and offer ergonomic

		training or awareness to employees who spend the majority of their time working on a computer terminal
Personal Protective Equipment	No findings	No action

Environmental Management Solutions Report Date: 18 May 2005

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### MEMORANDUM FOR

South Carolina Army National Guard

Conway Armory
Non-Responsive
16th Ave & Ward Circle

Conway, South Carolina 29526-0793

### SUBJECT

Initial Baseline Industrial Hygiene Survey of the Conway Armory performed 3 May 2005 in Conway, South Carolina.

### BACKGROUND

### INTRODUCTION

At the request of Non-Responsive of the National Guard Bureau Region South Industrial Hygiene Office, an initial baseline industrial hygiene survey was performed at the Conway Armory in Conway, South Carolina. Environmental Management Solutions conducted the survey on 3 May 2005. Non-Responsive Industrial Hygiene technician NGB, assisted with the survey. The purpose of the survey was to perform an initial baseline industrial hygiene survey to evaluate potential health hazards present at the armory.

# SITE DESCRIPTION

The facility houses Co C 1/263rd Armor. The single story building contains several administrative offices, a classroom, a drill hall, and a kitchen. An indoor firing range is present and is currently being used for storage. The range still has the original sand and bullet trap from when the range was still active. Fixtures from original range are also present and have not been encapsulated. Refer to Building layout in Appendix C. The supply officer was not present at the time of the survey and access to the supply areas, vault, and indoor firing range was prohibited. Lead wipe samples, lighting samples, and a visual inspection of these areas were not possible. Soldiers perform weapons cleaning once every two months in the maintenance shop for an hour at a time. The armory is rented out to the city for private functions up to two times per month.

### SCOPE OF WORK

The work included collecting wipe samples for lead, bulk samples for suspect asbestos containing building material, noise readings, illumination levels, and an evaluation of the ventilation system as it pertains to indoor air quality. A list of occupational health programs and procedures were verbally covered with the armory personnel where applicable.

Environmental Management Solutions Report Date: 18 May 2005

### METHODOLOGY

Lead wipe samples were collected from surfaces that showed signs of lead contamination in armories that have a renovated, inactive, or closed indoor firing range (IFR), kitchen or mess hall storage areas, indoor drill halls, and storage rooms with weapons vaults. The samples were collected in accordance to instructions published by Region South National Guard Bureau, which required the use of unscented baby wipes to wipe one square foot of surface. Samples were then placed in a sealed plastic bag and sent to an American Industrial Hygiene Associations (AIHA) accredited laboratory for analysis. Asbestos bulk samples and lead paint chips were collected from suspect friable and damaged building material when indicated. Each bulk sample was placed in a sealed bag and sent to an AIHA laboratory for analysis. All instruments used for assessment were factory calibrated and calibrated prior to the survey as applicable. Illumination readings were taken on work surfaces and approximately four feet from the floor.

Environmental Management Solutions Report Date: 18 May 2005

# FINDINGS AND DISCUSSION

### LEAD WIPE SAMPLES

Ten wipe samples were collected from areas of the kitchen, motor pool, drill hall, and converted indoor firing range areas as listed in the table below.

SAMPLE	SAMPLE	MICROGRAMS OF LEAD (μg) PER
NUMBER	LOCATION	SQUARE FOO1'
CW-01	Kitchen in back near door under table	21
CW-02	Kitchen behind door from drill hall in corner	26
CW-03	Middle of motor pool area	785
CW-04	Motor pool office area	766
CW-05	Left wall middle close to bullet trap	BRL
CW-06	IFR back of room behind door to drill hall	106
CW-07	IFR floor in middle of room along left wall	402
CW-08	IFR floor on left side of front bullet trap	918
CW-09	Drill hall floor near wall by classroom door	221

**Environmental Management Solutions** 

Report Date: 18 May 2005

	CW-010	Drill Hall floor outside left of IFR door	33
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Items listed in bold are above regulated limit.

The Army National Guard All States Log Number P01-0075, Policies and Responsibilities for Inspection, Evaluation, and Operation of ARNG Indoor Firing Ranges (IFR) and Guidelines for IFR Rehabilitation, Conversion, and Cleaning requires a limit of 200 micrograms per square foot for surface contamination in and around indoor firing ranges closed or converted for other uses. Lead results in these areas were elevated and above required limit.

The Environmental Protection Agency standards (40 CFR 745) indicate lead in dust levels above 40 micrograms per square foot on bare and carpeted floors is considered dangerous for common areas. Lead results in the motor pool and drill hall areas were above regulated standards.

### ASBESTOS SUSPECT BUILDING MATERIAL

Sampling for asbestos was limited to damaged material or material that could pose an exposure risk. Both ceiling tiles and floor tiles were damaged in the classroom area due to water damage and age. No inventory of asbestos containing materials has been completed. The boiler was recently replaced due to presence of asbestos containing materials.

CW-011	Ceiling Tile	None determined
CW-012	Floor Tile	10 % Chrysotile asbestos—tile 5% Chrysotile asbestos—mastic

### **NOISE SURVEY**

Area noise levels are well within the Army National Guard limit of 85 dBA and the Occupational Safety and Health Administration (OSHA) regulated limit of 90 dBA over an eight-hour period. A noise survey should be performed on equipment used and maintained in the maintenance area.

### ILLUMINATION SURVEY

Lighting levels throughout the armory ranged between 3.9 foot-candles to 84.5 foot-candles. Specific readings are listed in the table below.

Environmental Management Solutions Report Date: 18 May 2005

AREA	AVERAGE FOOT-	RECOMMENDED	MEETS
	CANDLES	FOOTCANDLES	STANDARD?
Office A	Office A 29.6		Y
Office B	72.4	50-75	Y
Office C	46.1	50-75	N
Officer Latrine	16.0	10-15	Y
Storage (office)	3.9	20-30	N
Ladies Restroom	6.2	10-15	N
Storage (Other)	3.7	10-15	N
Recruiter's Office	23.9	50-75	N
IFR	9.3	20-30	N
Locker Room	14.5	10-15	Y
Office Hallway	81.9	5-7.5	Y
Boiler Room B	6.2	10-15	N
Entrance to Boiler B	9.5	10-15	Y
Enlister Latrine	8.9	10-15	N

Environmental Management Solutions Report Date: 18 May 2005

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Kitchen	22.9	50-75	N	
TNG Room/Office	37.4	50-75	N	;
Classroom	84.5	50-75	Y	
Drill Hall	36.5	10-15	Y	
Maintenance Bay Office	41.7	50-75	N	
Maintenance Bay	12.8	50-75	N	

Readings in bold-faced type do not meet the American National Standard Institute/Industrial Engineering Society (ANSI/IES) minimum illumination requirements. See recommendations for appropriate action.

### **BUILDING CONDITION**

The building was constructed in the late 1950s to early 1960s. The building is in poor condition and the housekeeping is fair. Extensive water damage was seen in throughout the armory in administrative, classroom, drill hall, and firing range areas. Training room and classroom areas were very musty and had extensive signs of water damage. Ceiling tiles and flooring tiles in the classroom area and in other areas of the building were cracked, buckling, and deteriorating. In the indoor firing range/storage space, several stored items including dry brooms floor sweeping were found. Bottled water was also observed stacked to one side and office area for personnel. The bullet trap, sand, and other original fixtures were still present. Additional, extensive damage to the ceiling could be seen. Also, personnel complain of the smelling the bathroom exhaust in the office area and indicate that the sewer line backs up periodically.

The maintenance area is used during drill weekends. No ventilation system was present, and personal protective equipment was not observed. No eyewashes or showers were present. A flammable storage area is also present and was clean and in good order. No lighting is present in the room however, making it hard to see when inside. Vents exist in the building to allow in fresh air.

# HAZARD COMMUNICATION

The supply sergeant in charge of Material Safety Data Sheets was not available for the survey. Hazardous Materials information could not be reviewed. It could not be located by other personnel.

Environmental Management Solutions Report Date: 18 May 2005

### RADIATION PROTECTION PROGRAM

Supply sergeant was unavailable for questioning regarding radioactive inventory

### **ERGONOMICS**

The full time employees in the supply or office areas did not express any ergonomic concerns. However, many workstations were not set up to provide neutral postures and appropriate ergonomically correct positions. Consideration should be given to providing all full time employees that spend the majority of their working time at a computer terminal ergonomic training or awareness. Such awareness should emphasize the importance of proper posture and set-up of the workstation to fit the user.

### PERSONAL PROTECTIVE EQUIPMENT

Normal duties of full time employees at the armory do not require the use of personal protective equipment (PPE). However, personnel working in maintenance training areas should be provided the appropriate PPE.

Environmental Management Solutions Report Date: 18 May 2005

### RECOMMENDATIONS

- 1) All items that are contaminated with lead should be thoroughly decontaminated with a detergent and water solution. Care should be taken to wipe down tables where weapons are issued and cleaned. Kitchen areas should be thoroughly cleaned on a regular basis and especially before serving personnel.
- 2) Personnel should be prohibited from eating, drinking, smoking, chewing tobacco or gum, or applying cosmetics in supply areas and should be instructed to clean hands with soap and water before doing any of these. Remove all refrigerators, cups, and other eating utensils from supply areas.
- 3) Annual monitoring of the converted indoor firing range should be performed to ensure that lead levels remain below 200 micrograms per square foot. Consult the Army National Guard All States Log Number P01-0075, Policies and Responsibilities for inspection, Evaluation, and Operation of ARNG Indoor Firing Ranges (IFR) and Guidelines for IFR Rehabilitation, Conversion, and Cleaning on guidelines for monitoring, cleaning and converting Indoor Firing Range.
- 4) All items stored in range should be decontaminated before removal. No additional items should be placed in this area. Personnel should only enter this area as necessary and should be limited to essential persons.
- 5) Remove personnel office from the storage area.
- 6) Prohibit all dry sweeping of the range.
- 7) Upgrade lighting measurements as required. Lighting can be upgraded in the following ways:
  - Replace blown or broken lighting
  - Paint walls and floors white or similar light color
  - Clean existing light fixtures
  - Rearrange furniture to make better used of available light
  - Provide supplemental or task lighting
- 8) Develop a housekeeping schedule to **immediately** identify, repair, and prevent any leaks or standing water. Proper and immediate repairs and maintenance of the building infrastructure and interior surfaces can prevent water damage and moisture

Environmental Management Solutions Report Date: 18 May 2005

buildup which may lead to further indoor air quality issues. Include provisions for care or replacement of older items.

- 9) Fix all leaks and water-damaged areas that allow water to get into the ventilation system or building surfaces, and materials. Prevent buildup of moisture in occupied spaces and in HVAC components. Remove stagnant water and slime from mechanical equipment.
- 10) Find and discard microbial-damaged furnishings and equipment. Ceiling tiles should be discarded and replaced. Floor should be cleaned and sealed. Clean and disinfect all contaminated surfaces such as the supply diffusers with a 10 percent Clorox<sup>TM</sup> solution during off hours.
- 11) When water damage occurs:
  - a. Inventory all water damaged areas, building materials, and furnishings.
  - b. Remove and dispose of all wet ceiling tiles within 24-48 hours of water damage. Spray the back of the water damaged tile with a dilute bleach solution. Place tile in garbage bag. If the ceiling tile has become wet due to a small stream leak and the shape of the tile has not been altered, the ceiling tile can be air-dried and reused.
  - c. Upholstered furniture that has become wet due to floods; roof leaks sewage backup and ground water infiltration should be disposed.
  - d. Hardwood furniture or laminate furniture whole laminate is intact should be air dried and cleaned with a solution of 1/4 to 1/2 cup bleach per gallon of water.
  - e. Laminate furniture whole laminate has become delaminated should be disposed of as pressed wood under the laminate absorbs water readily and is hard to dry.
  - f. Furniture made of particleboard or pressed wafer board should be discarded after water damage.
- 12) If carpet is wet for less than 48 hours:
  - Remove all materials such as furniture, file cabinets, paperwork form the carpet.
  - Use a wet vacuum to remove as much water from the carpet as possible
  - Shampoo the carpet with a dilute surfactant.
  - Soak with a ¼ to ½ cup bleach/water solution. The maximum concentration should not exceed 1 part bleach to 10 parts water.

Environmental Management Solutions

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Report Date: 18 May 2005

- Rinse and extract the carpet with clean water to remove detergent/bleach residues.
- Commercial steam cleaning can be used in place of bleach as long as the water used to steam the carpet is heated above the boiling point.
- Dry the carpet within 12-24 hours of treatment. After work is completed, increase the room temperature, and use commercial dehumidifiers, floor and or exhaust fans to aid in drying the carpet.
- If carpet is wet for more than 45 hours during the wintertime, the above protocol can be used to manage the carpet and salvage it, provided it became wet with relatively clean water.
- If carpet is wet for more than 48 hours during the summertime, disposal of waterdamaged carpets especially in humid environments is often the best option.
- 13) Bricks and concrete material, specifically at building entrances should be cleaned with a bleach and water solution. DO NOT follow with a clear water rinse in order to allow the bleach to remain and thoroughly decontaminate the surface.
- 14) Obtain all specifications and drawings of the HVAC system and have the system properly balanced.
- 15) Improve air filtration by using efficient filters to remove spores, pollen, dirt, and other particles, which may be distributed through the HVAC system. High efficiency style filters should be included in the HVAC filter section. It is essential that all supply air pass through a pre-filter and a high efficiency final filter. Use filters with at least a 50-70 percent collection efficiency rating. Ensure that filters are the appropriate size for the HVAC system. Develop a maintenance schedule for ensuring that filters are properly changed, any leaks or standing water are identified, repaired, and prevented. Provide pigeon screens on intakes and exhausts.
- 16) Provide preventative maintenance of HVAC systems. Institute a comprehensive and practical preventative maintenance plan to check, clean, and/or repair, HVAC system components, lined ductwork, and ceiling plenums at least quarterly.
- 17) Maintain relative humidity between 30 to 60%
- 18) Consult State Environmental Office for approval of an appropriate pesticide to prevent rodent and insect infiltration.
- 19) Consult State Safety and Occupational Health Office and Environmental Office to perform an inventory of asbestos containing material. The resulting management plan should include ways to care for, maintain, or remove asbestos containing materials.

Environmental Management Solutions Report Date: 18 May 2005

- 20) Reroute bathroom exhaust fan to the outside to prevent odors from entering office area.
- 21) Material Safety Data Sheets (MSDS) are required to be kept at the primary workplace facility and to be easily accessible in case of emergency. Material Safety Data Sheets for cleaning materials should be kept by the facility. Personnel responsible for these items should receive annual training in the requirements of the Hazardous Communication Program and the appropriate keeping and storage of all MSDS.
- 22) Complete noise dosimetry and a noise survey on all maintenance equipment and mark equipment and areas as noise hazardous, where appropriate.
- 23) Install a carbon monoxide monitor in the motor pool area to warn personnel about dangerous levels of carbon monoxide from vehicles idling in or around the area. The maintenance bay door should be left open while vehicles or running or left idling in order to provide adequate ventilation during these times.
- 24) An eyewash and shower should be acquired for the motor pool area, due to the types of chemicals commonly used in this area. An eye lavage should be made accessible within 10 seconds traveling distance of a possible eye hazard. Use portable eyewashes only if a plumbed eyewash cannot be installed.
- 25) Personal protective equipment should be provided, used, and maintained in a sanitary and reliable condition. Ensure that unit commanders provide appropriate personal protective equipment during maintenance procedures. If damaged or defective, PPE should be replaced immediately.
- 26) An ergonomics survey should be completed for all supply and administrative personnel as a preventative measure to document and address any and all ergonomic concerns or problems. Provide ergonomics training and awareness to all employees who spend the majority of their time working at a computer terminal.

Environmental Management Solutions Report Date: 18 May 2005

### TECHNICAL ASSISTANCE

For technical assistance regarding information found in this report or the performed survey please contact Non-Responsive Regional Industrial Hygienist at the National Guard Bureau Region South Industrial Hygiene Office at Non-Responsive



Environmental Management Solutions

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Report Date: 18 May 2005

# APPENDICES

APPENDIX A

American conference of Governmental Industrial Hygicist (ACGIH), Industrial Ventilation, A Manual of Recommended Practice, 23rd Edition, 1998. American National Standards Institute (ANSI), /Illuminating Engineering Society (IES), Industrial Lighting, 1991.
 Army Regulation (AR) 11-34, The Army Respiratory Protection Program, 1990.
 Army Regulation (AR) 40-5, Preventative Medicine, 15 October 1990.
 Army Regulation (AR) 385-10, The Army Safety Program, 29 Feb 2000.
 NGR 385-10, Army National Guard Safety and Occupational Health Program, 7 October 1988.
 TB MED 503, The Army Industrial Hygiene Program, February 1985.
 Title 29, Code of Federal Regulations (CFR), 1999, revision, Part 1910, Occupational Safety and Health Standards.
 TG 022, US Army Environmental Hygiene Agency (YSAEHA), Industrial Hygiene Evaluation Guide, October 1975.
 TG 141, US Army for Health Promotion and Preventative Medicine (USACHPPM)

Industrial Hygiene Air Sampling Guide, November 1997.

APPENDIX B

This operation was explained to the overlisters, but was not actually dispetual.  There is a noise data sheet attached to this form There is There is a noise data sheet attached to this form.			Personnel data provided by the facility is attached to this form  Comments  Operation described is ADMANISTRATURE COMMENTAL PRODUCTIONS TO IMPORTANT ACCURATIONS.	PONOISECO P C U D T X X X X X A POFLYPRÓJ POEYEHAZA POFLYPRÓJ P C U F T I N A A POFLAMINAZ POLIFTINO POSHARPOB POHOTOBJE POELSHOCK COLUBEON Social Sacurity Number er Unique Identifie  Su Regionnel List	HHIMS Industrial Hyg
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Comments continued on all action of the poly of the po	Ba, Jpage



# POL INVENTORY AND OR REQUEST FOR ORDER

DATE:

INVENTORIED BY:

REQUEST FOR ORDER BY:

STOCK NUMBER	ITEM DESCRIPTION	UNIT OF ISSUE	QTY. ON HAND	DATE EXPIRES	QTY. REQUEST
	HYDRAULIC FLUID	LOSUE	ON HAND	EAPIRES	TO ORDER
9150-00-657-4959	AUTO (OHA)	GAL			
9150-00-935-9807	HYDRAULIC FLUID (OHT)	QТ			
9150-00-698-2382	HYDRAULIC FLD DENTRON II	QT			
9150-00-843-1636	FLUID AUTO TRANS	GAL			<u> </u>
8010-00-181-8079	THINNER ATRCRAFT	5 GAL			
6850-00-926-2275	WINDSHEILD CLEANING	BX (12)			
8010-01-234-2934	(SAND) POLYURETHANE COATING	ОТ			
8010-01-234-2935	(SAND) POLYURETHANE COATING	GAL			
8010-00-848-9272	PAINT (OD GREEN)	PT			·
8010-00-584-3150	PAINT (WHITE)	PT			
8010-00-935-7079	PAINT (BLACK LACQUER)	PT			
8010-00-582-4743	COATING COMPOUND	PT			
8010-00-702-1053	PAINT (YELLOW)	PT			
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Unit Quarterly Hazardous Waste/Materials Status Report

TITLE UNIT QUARTERLY HAZARDOUS
WASTE/MATERIALS STATUS REPORT

Purpose Summarize quarterly hazardous materials inventory and hazardous

waste accumulation

Frequency Quarterly

Materials Checklist, Hazardous Materials Inventories, Hazardous Waste

Accumulation Inventories

References Module 3, HAZMAT Employee Training

Module 4, HAZMAT Employee Training

TEAM Guide, Section 3, Hazardous Materials Management TEAM Guide, Section 4, Hazardous Waste Management

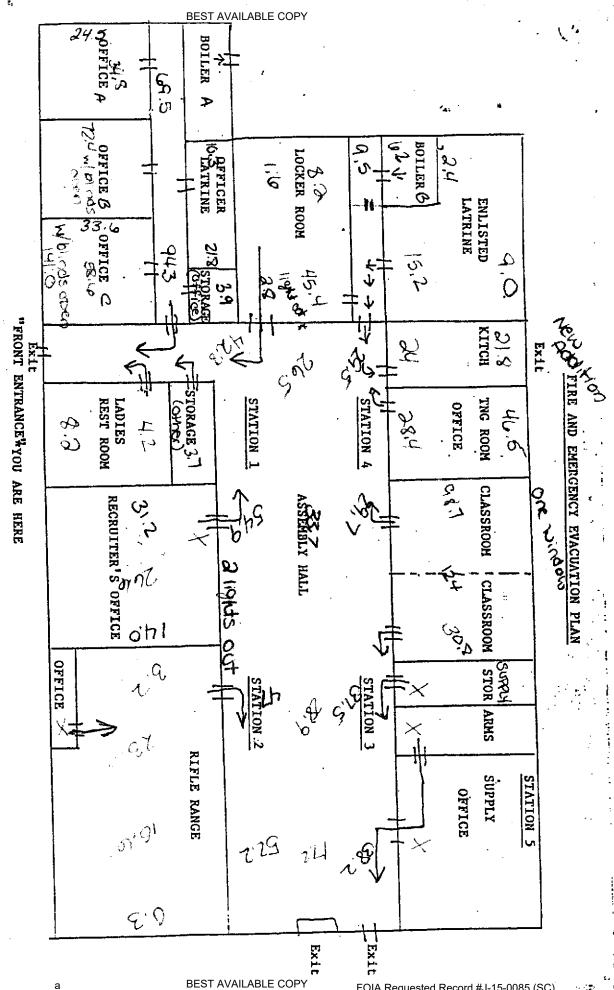
Instructions This is a status report to allow each Unit to track hazardous

waste/materials generation rates and to show identified requirements. It is not intended as a request form. Appropriate requests must be

initiated by the unit for identified needs and services.

Unit/Location	Ca C. 1/2020 Acres 1	CANWIGH S.C	e een n <sup>1</sup> u.
Prepared by	Non-Responsive	Date	

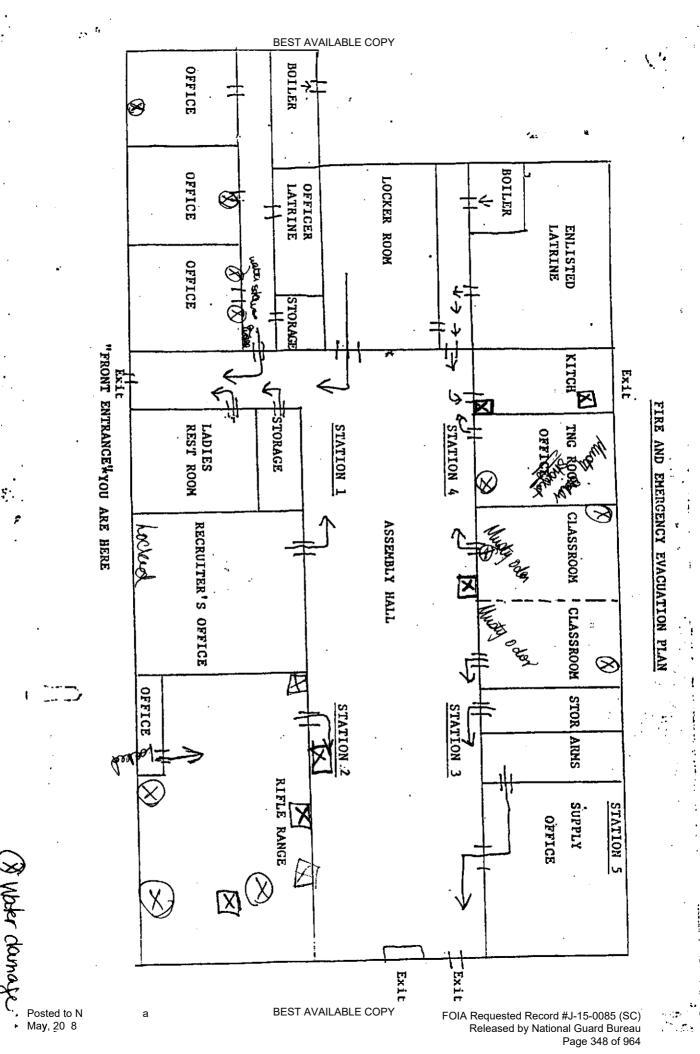
Item	Material	NSN	Container	Weight
1	CLEANING COMPLUID OVEN CLEANER (AFROSAL)	7930-41-454-220	13 BWES 120ELCASE	
2 (	PAINT) BLACK		054	
3	" OUNE GREEN		ary	
4	" WHITE		0.74	
5	() SAND		ary	
6	11 YELLOW		ary	
7	PAINT THIMMER ALECRAFT / OTY	\$010-64-181-\$675	GAL CN	88
8	SAND COLOR PAINT	Kalo - 0 - 234-2984	ary	। (स्ट
9,	SAY) PAINT	Fan -01-274-245	QTY	2 SAL
10	LIKE NU (WHIE) TILE RESTLED		QTY	
lt.	SUPER - DRY	7570-60-265-0272	QTY	50165



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May, 20 8

FOIA Requested Record #J-15-0085 (SC)
Released by National Guard Bureau Page 347 of 964



APPENDIX C



# Conway Armory

**HVAC** vent













Storage with electrical equipment







Dirty HVAC vent in hallway







Administrative area







IFR storage -- storage cages, office

on left, bottled water



Water damage Indoor Firing Range



Sand in bullet trap

Water damage IFR wall



Water damage to indoor firing range floor



Water damage to ceiling



converted to storage...note storage

cages and tables

Indoor firing range has been





Sand in bullet trap has not been removed



Ceiling damage and storage materials IFR



Drill Hall





Classroom

Dry brooms in storage cages





Stored items in bullet trap



Ceiling water damage, indoor firing



Suspected asbestos tile



Drop ceiling below suspect asbestos tile...extensive water damage



**HVAC** vent



Suspected asbestos tile



Suspect asbestos tile



Suspect asbestos tile above drop ceiling



Classroom



Water damage to ceiling tiles





Ceiling water damage, plastic bin used to catch water



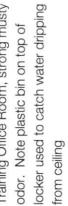


**HVAC** vent



Kitchen

Training Office Room, strong musty







Water damage to side wall IFR



Training room office





Ceiling damage



Kitchen addition





Maintenance Area



Damaged kitchen addition torn out







Kitchen addition



by personnel







Solvent tanks



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APPENDIX D

Environmental Management Solutions

# Analytical Environmental Services, Inc.

Date: 5/16/2005

TOTAL LEAD IN WIPE SAMPLES N7082

**CLIENT:** 

National Guard Bureau Region-South IH

Project: Conway Armory

**Delivery Order:** 

PO No:

Lab Order: 0505381

Date Received:

5/5/2005 8:00:00

Matrix:

Wipe

<del></del>								
Laboratory	Client Sample	Results	Units	Report	DF	Date	Date	Analyst
ID	ID			Limit.		Collected	Analyzed	-
0505381-001A	CW-01	21	μg, Total	20	1	5/3/2005	5/10/2005	EM
0505381-002A	CW-02	26	μg, Total	20	1	5/3/2005	5/10/2005	EM
0505381-003A	CW-03	785	μg, Total	20	1	5/3/2005	5/10/2005	EM
0505381-004A	CW-04	766	μg, Total	20	1	5/3/2005	5/10/2005	EM
0505381-005A	CW-05	BRL	μg, Total	20	1	5/3/2005	5/10/2005	EM
0505381-006A	CW-06	106	μg, Total	20	1	5/3/2005	5/10/2005	EM
0505381-007A	CW-07	402	μg, Total	20	1	5/3/2005	5/10/2005	EM
0505381-008A	CW-08	918	μg, Total	20	1	5/3/2005	5/10/2005	EM
0505381-009A	CW-09	21	μg, Total	20	l	5/3/2005	5/10/2005	EM
0505381-010A	CW-10	33	μg, Total	20	1	5/3/2005	5/10/2005	EM

Qualifiers:

BRL - Not Detected at the Reporting Limit

DF - Dilution Factor

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## ANALYTICAL ENVIRONMENTAL SERVICES, INC.

Bulk Sample Summary Report

Client Name: Nation
Project Name: Conwi

National Guard Bureau Region-South IH Conway Armory

Project Number:

nalvē

Lab ID# 102082-0

AES Job Number: 0505316

Wednesday, May 11, 2005

Page 1 of 1

Client ID	AES ID	Location	Asbestos Mineral Percentage					Comments	
5,8000			СН	AM	CR	AN	TR	AC	
CW-11	0505316 -001A	Ceiling Tile- Classroom	ND	ND	ND	ND	ND	ND	Paint included as binder
Layer: 1									
CW-12	0505316 -002A	Floor Tile- Classroom	10	ND	ND	ND	ND	ND	Tile
Layer: 1									
CW-12	0505316 -002A	Floor Tile- Classroom	5	ND	ND	ND	NĐ	ND	Black Mastic
Layer: 2									

Note: CH=chrysotile, AM=amosite, CR=crocidolite, AC=actinolite, TR=tremolite, AN=anthophylite For comments on the samples, see the individual analysis sheets.

ND = None Detected

PLM is not consistently reliable in detecting small concentrations of asbestos in floor tiles and similar nonfriable materials. Quantitative TEM is currently the only method that can be used to determine the conclusive asbestos content.

It is certified by the signatures below that the laboratory identified is accredited by the National Institute of Standards and Technology for Polarized Light Microscopy (PLM) analysis under the EPA Interim Asbestos Bulk Sample Quality Assurance Program, Laboratory ID 102082-0. All percentages given are by visualty estimated volume, All analyses are performed in accordance with the EPA "Method for the Determination of Asbestos in Bulk Building Materials. EPA/600/R-93/116. July 1993." This report must not be reproduced except in full without the approval of Analytical Environmental Service, Inc. These test results apply only to the samples actually tested.

Microanalyst:

Non-Responsive

## NATIONAL GUARD REGION SOUTH INDUSTRIAL HYGIENE OFFICE 510 PLAZA DRIVE, SUITE 1530 COLLEGE PARK, GA 30349

NGB-AVN-SI

17 March 2003

MEMORANDUM FOR The South Carolina Army National Guard, ATTN: Non-Responsive Armory Supervisor, C Company 163<sup>rd</sup> Support Battalion, 1764 Harry Byrd Hwy Ave, Darlington, South Carolina 29532.

SUBJECT: Industrial Hygiene Survey of the Darlington National Guard Armory, Darlington, South Carolina.

- References.
  - a. Report submitted 14 March 2003, Industrial Hygiene Survey, OSHEA II Consulting.
- b. OSHA Standards 29 CFR (Code of Federal Regulations), General Industry, revised 1988.
  - c. AR 40-5, Preventive Medicine, October 1990.
  - d. AR 11-34, 15 February 1990, The Army Respiratory Protection Program.
  - e. AR 385-10, 23 May 1988, Army Safety Program.
- f. Department of the Army Pamphlet (DA PAM) 40-501, 27 August 1991, Hearing Conservation.
  - g. TB MED 530, The Army Industrial Hygiene Program.
- h. Title 29 Code of Federal regulation (CFR), 1989 rev, Part 1910.94 (c) (6) Table G-10, Ventilation.
- i. Industrial Ventilation, 21st ed, 1992, American Conference of Governmental Industrial Hygienist, Cincinnati, Ohio.
- j. IES Lighting Handbook, Application Volume, 1981, Illumination Engineering Society of North America.
- 2. General.
- a. At the request of the South Carolina State Safety and Occupational Health Office and the Region South Industrial Hygiene Office a Service Contract was put together to conduct Health Hazard Information module (HHIM) Field surveys and IH surveys at the South Carolina National Guard Armories.
  - b. Non-Responsive of OSHEA II Consulting conducted the survey.

- 3. Findings. All HHIM field survey forms and survey findings of the report are enclosed. (See ENCL. 1)
- Recommendations.
- a. Follow all recommendations made in reference 1. a., requesting industrial hygiene (IH) services where needed to complete the recommendations.
- b. Clean lead hot spots (see sample results) in Indoor Firing Range following NG PAM's 385-15 and 385-16. Keep in mind that EPA and your state may have lead reduction levels lower than the levels recommend in the 385-15 and 385-16.
- c. Request the Facility Maintenance Office (FMO) repair leaks and replace all water damaged items in the Armory. Ignoring this problem could lead to Indoor Air Quality and mold problems.
  - d. Use the report to help in correcting all deficiencies noted by the contractor.
- e. Consider additional Industrial Hygiene services to monitor operations that were not looked at or surveyed during the contract visit, especially if this will help eliminate health hazards and reduce medical surveillance cost.
- f. To execute your responsibilities in correcting all deficiencies and meeting all standards coordinate with the FMO, Occupational Health Nurse and the Occupational Safety and Health Office for technical guidance.



CF: Safety and Occupational Health Office, ATTN: Non-Responsive 1 National Guard Road, Columbia, SC 29201-4766

Safety and Occupational Health Office, ATTN: Non-Responsive 1 National Guard Road, Columbia, SC 29201-4766

OSHEA 99 Industrial Hygiene Consulting

> South Carolina Army National Guard Darlington Armory Darlington, South Carolina

OSHEA II\* Industrial Hygiene Consulting \* P.O. Box 35669 \* Fayetteville, N.C. \* 28303

MEMORANDUM FOR: South Carolina Army National Guard: ATTN: Non-Responsive Armory Supervisor, C Company 163<sup>rd</sup> Support Battalion, Darlington, South Carolina 29532

SUBJECT: Baseline Industrial Hygiene Health Hazard Information Module (HHIM) Survey of C Company 163<sup>rd</sup> Support Battalion, 1764 Harry Byrd Hwy, Darlington, South Carolina 29532 10, February 2003

#### REFERENCES

- a. Title 29 Code of Federal Regulations (CFR) part 1910, Occupational Safety and Health Administration (OSHA).
  - b. Army Regulation 385-10, The Army Safety Program.
- c. Army Regulation 11-34, February 1990, The Army Respiratory Protection Program
  - d. Technical Bulletin (TB MED) 503, 1 February 1985, The Army Industrial Hygiene Program
- e. Industrial Ventilation, 22nd Edition, The American Conference of Governmental Industrial Hygienist (ACGIH), Cincinnati, Ohio.
- f. National Guard Regulation 385-10, 20 December 1989, Army National Guard Safety and Occupational Health Program.
- g. IES Lighting Handbook, Application Volume 2000, Illumination and Engineering Society of North America.
- h. Department of the Army Pamphlet (DA PAM) 40-501, 27 August 1991, Hearing Conservation Program.
- i. Technical Bulletin (TB MED) 503, 1 February 1985, The Army Industrial Hygiene Program.
  - j. Army Regulation (AR) 40-5, 15 October 1990, Preventive Medicine.

Oshea II Industrial Hygiene Consulting IH Survey 10 Feb 03 Darlington Armory Darlington, South Carolina

- 2 .GENERAL: At the request of Non-Responsive National Guard Bureau South Regional Industrial Hygienist, Atlanta, Georgia, a Health Hazard Information Module Baseline Survey was performed at C Company 163<sup>rd</sup> Support Battalion, Darlington, 10 February 2003. The purpose of this survey was to evaluate health hazards, existing controls in the work site, perform ventilation surveys, illumination surveys, perform a baseline study, determine atmospheric sampling protocol during all maintenance operations in accordance with (IAW) references 1a through 1j and collect bulk samples.
- 3. **INSTRUMENTATION:** The following survey instrumentation was provided by the National Guard Bureau and was utilized to obtain noise, illumination or ventilation measurements. All equipment was used according to manufacturer/ manual recommendations. All equipment was calibrated prior to and after use.

Nomenclature	Model No.	Serial No.
Bruel & Kajer sound Analyzer 10/10/02	2236	1942775 CAL
Bruel & Kajer Sound Analyzer Calibrator CAL 02/03/02	4231	C19403
Alnor Velometer Jr. Meter CAL 09/10/02	V81001	4398
Sper Scientific light meter CAL 03/08/02	840020	025433

Oshea II Industrial Hygiene Consulting IH Survey 10 Feb 03 Darlington Armory Darlington, South Carolina

#### 4. FINDINGS:

- a. Armory Site Description: The armory is occupied by C Company 163<sup>rd</sup> Support Battalion. There are three full time individuals, who perform administrative duties. The armory was constructed in 1986. It is approximately 22,858 square feet in size. It contains offices, administrative areas, one combined kitchen/mess hall, supply rooms, and weapons room/vault. This armory was found in good condition. There was some evidence of water damage on ceiling tile and in hallways. There was no visual evidence of friable ceiling or floor tile. The floors of the armory were tiled with the exception of the drill hall floor, which appeared to be concreted. The floor tile was in very good condition. Outside, behind the building is a Petroleum, Oil, Lubricant (POL) storage Room. A list of its contents is located on the door of the shed. Enclosure No. 2 contains a drawing of the Armory's floor plan. The armory contained a converted indoor firing range which was converted to a storage area. The armory contained a boiler room which had pipes wrapped in a fiberglass wrap. There was no friability in this wrap.
  - **b. Scope of Survey:** The armory was visually observed. Interfacing with the armory's NCO was necessary to fully assess all potential health hazards. Enclosure No. 1 contains pictures of the facility's interior and exterior.
- c. **Material Safety Data Sheets:** Material Safety Data Sheets (MSDS) were available and readily assessable for hazardous materials used at this facility. Documentation of materials in the POL shed was listed on the cabinets and MSDS sheets were available as well. A list of hazardous materials/chemicals used at this facility is contained in Enclosure No. 3. It was stated that HAZCOM training had been performed prior to this survey.
- d. **Hearing Conservation Program:** All employees are enrolled in the Hearing Conservation Program and receive annual audiograms.
- e. **Illumination**: Illumination levels were recorded in all administrative areas, classrooms, training rooms and supply areas throughout the Armory. In every area bulbs were found blown, missing or fuse problems existed. See chart for specific location of measurements.

Oshea II Industrial Hygiene Consulting IH Survey 10 Feb 03 Darlington Armory Darlington, South Carolina

### Illumination levels

Location	Reading in Foot candles	At, Above or Below Standard
Administrative Area	as 28.330.3	Below
Hallway areas	18.0—25.1	Below
Kitchen	31.9—36.4	Below
Food Prep Area	35.5—38.1	Below
Food Pantry	29.5—35.6	Below
NBC Room	17.4—20.3	Below
Drill Hall	17.5—19.4	Below
Classroom	33.8—34.0	Below
Large Classroom	29.7—33.1	Below

The readings are below the recommended IES lighting standard of 50 to 100 foot candles.

- e. **Administrative Areas:** Personnel perform administrative duties that consist of reading, handling and generating paper work. Employees use computers and answer phones also.
- f. Wipe sampling was performed of the drill hall and the kitchen area near the drill hall floor. Wipe sampling was also performed in the weapons vault because SSG Robinson expressed concerned that there may be lead residue in the vault from fired weapons which had been placed in vault without being cleaned. The results of all sampling will be disclosed later in this report.
- g.. **Motor Pool Area:** The motor pool is a fenced-secured area outside. Vehicles are lined up in rows and started up periodically. They are used to run errands or transport supplies. Personnel at this armory perform no maintenance operations or repairs on vehicles. The OMS shop mechanics come to the armory and perform maintenance and repairs on the armory's vehicles at the shop located behind the facility.
- f. Indoor Firing Range: The firing range was converted over ten years ago according to personnel at the armory. The bullet backstop had been removed. A chain link style of fences was used to fabricate cages from ceiling to floor to store equipment. Samples were collected by wipe method from dusty surfaces of equipment stored there. Result of that sampling are disclosed later in this report.

Oshea II Industrial Hygiene Consulting IH Survey 10 Feb 03 Darlington Armory Darlington, South Carolina

- g. A noise level survey was not performed of the vehicles because they are a part of OMS and a noise level survey will be performed during the annual survey of that shop. Noise hazard caution signs are posted on vehicles and hearing protection is available and easily assessable for personnel and visitors.
- h. **Arms Room/Weapons Vault:** Weapons are stored in the armory's vault. It is reported that no weapon's cleaning is performed inside of the weapons storage vault. It was also stated that weapons are usually cleaned before being placed in the arm's vault
- i. Weapons Solvent Bath: During drill training the solvent bath is used. The fluid in the solvent bath tank is warmed and weapons are cleaned on the drill hall floor. Full time Personnel place their weapon in the cleaning solution for a few minutes, remove it and finish the cleaning process. It is stated that it is a two- part process. The cleaning process takes less than thirty minutes.
- j. All sample results taken in the armory are listed in the chart below.

Sample No.S	Location taken	Results
<b>1</b> 210039	Kitchen (supply side)	BRL
0210040	Kitchen ( fan side)	BRL
0210041	Drill Hall (DHS)	BRL
0210042	Drill Hall (DHS)	BRL
0210043	Office (supply air vent)	BRL
0210044	Arms Vault (alpha rack)	125
0210045	Arms Vault (9 mil rack)	162

These samples were taken in relation as to the armory's ventilation system for the analysis of lead. All (BRL) readings were Below Reading Limits. The sample results from the weapons vault revealed the presence of lead. Sampling was performed of the weapons rack where the weapons are stored. The results revealed the presence of lead.

Oshea II Industrial Hygiene Consulting
Survey 10 Feb 03 Darlington Armory
arlington. South Carolina

## 5. RECOMMENDATIONS

- a. Hearing Conservation Program: Continue with annual audiometric testing for relevant personnel exposed to noise levels above 85 dBA in accordance with reference 1h.
- Hazardous communication or HAZCOM refresher training: Continue with annual HACOM training. Dated and signed records should be maintained of all HAZCOM training administered.
- c. Fluorescent bulbs need to be replaced immediately after they have become blown to give the maximum amount of light in classroom, offices, and training areas in accordance with reference 1h. A work order should be submitted to the appropriate office requesting repair/ replacement of fuses in non-functioning light fixtures.
- f. Weapons are never to be cleaned inside the weapon's storage vault or any other enclosed area without adequate ventilation in accordance with references 1a and 1c. Personal Protective equipment, such as goggles, should be worn to protect eyes from splash hazards and gloves should be worn to prevent solvent absorption through the skin.
- g. Based on the limited, short duration, nature, of contact cleaners, and solvents used at this armory, there is no need for a Respiratory Protection Program, neither is there a need to perform atmospheric monitoring during weapons cleaning if windows and doors are open to circulate air during weapons cleaning.

#### 6. Technical Assistance:



shea II Industrial Hygiene Consulting Survey 10 Feb 03 Darlington Armory Darlington, South Carolina CF: State Safety and Occupational Health Office ATTN: Non-Responsive 1225 Bluir Road Columbia, South Carolina 29170

CF: State Safety and Occupational Health Office Non-Responsive
1255 Bluff Road
Columbia, South Caroling 29170

OSHEA II INDUSTRIAL HYGIENE CONSULTING SURVEY OF: Darlington Armory, Daarlington, South Carolina

## **Table of Contents**

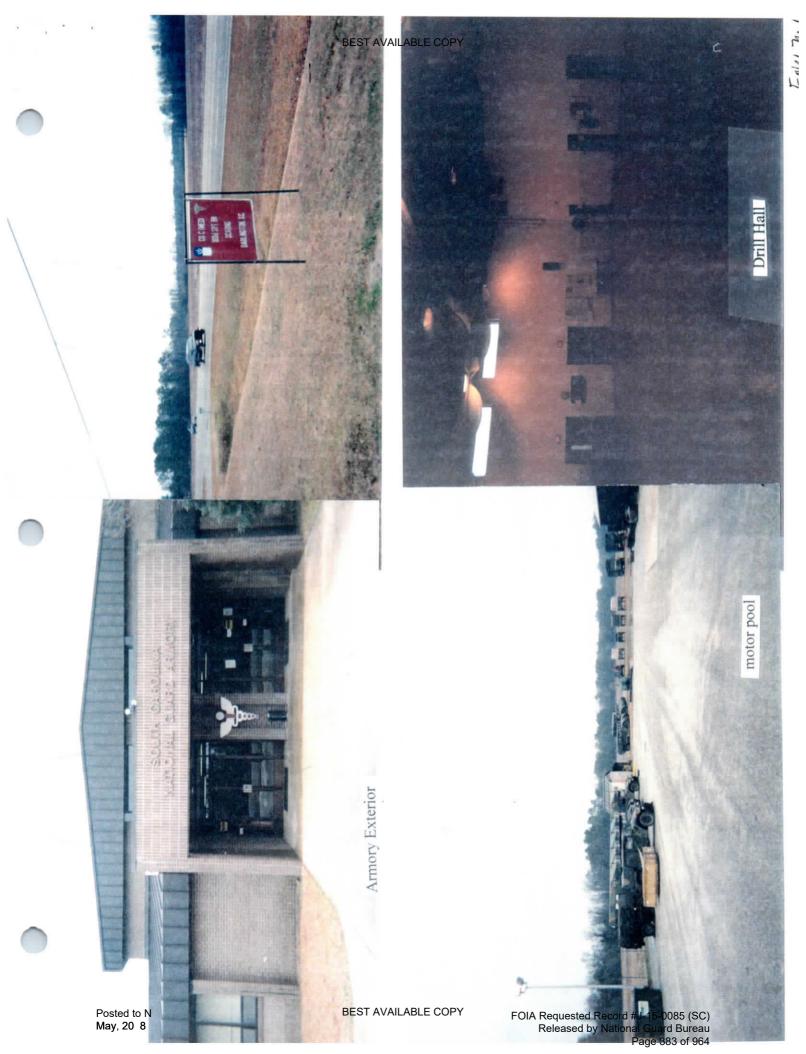
Enclosure No.1 Interior and exterior photographs With identified areas

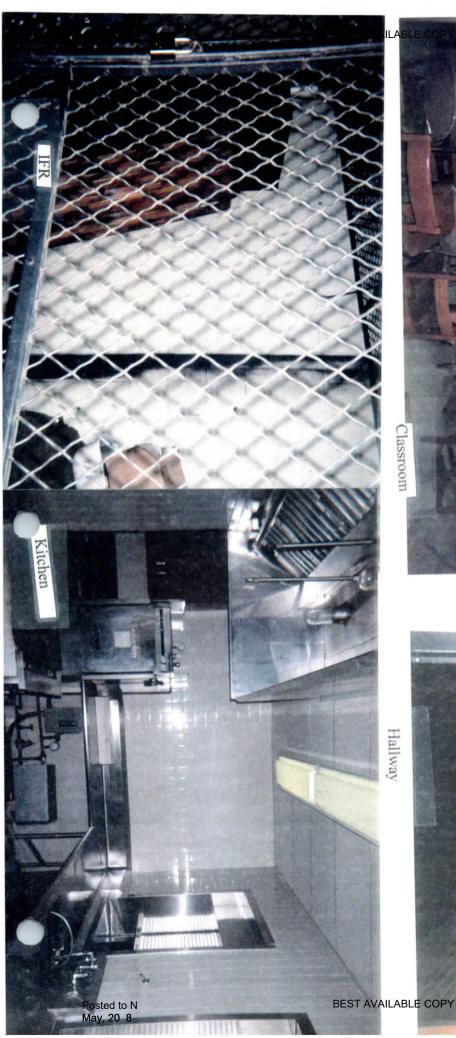
**Enclosure No.2** Armory's Floor Plan

Enclosure No. 3 Hazardous Material Inventory

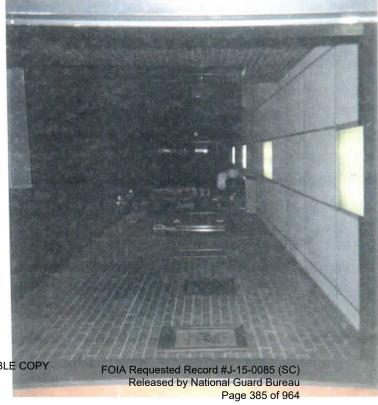
Enclosure No. 4 Full time Personnel

Enclosure No. 5 **HHIM Sheets** 



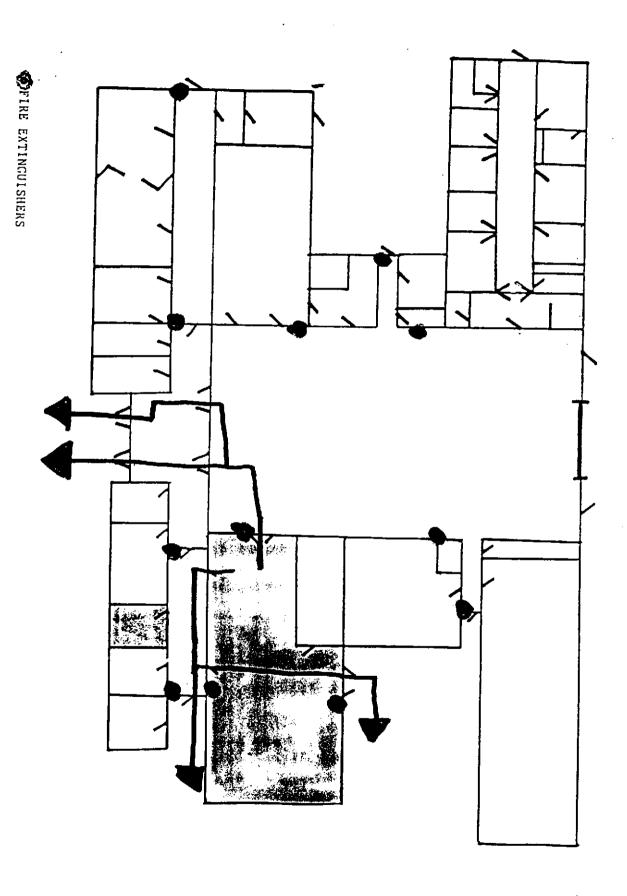








LUURIngtin Sie



# Hazardous Material inventory

Scouring powder

Floor wax

Floor Stripper

Hand cleaner

Simple green

Pine oil

Enclosure No. 3

## COMPANY C (MEICALD) 163<sup>rd</sup> SPT BN SOUTH CAROLINA ARMY NATIONAL GUARD 1764 HARRY BYRD HWY DARLINGTON, SOUTH CAROLINA 29532

### **HAZARDOUS MATERIALS INVENTORY LIST**

### FLAMMABLE CABINET # 2

<u>ITEM</u>	TRADE MANE	STOCK#	TYPE	QUANITY
1-	ISOPROYL ALCOHOL	6505-00-261-7256		40
2-	DIALDEHYDE	6040-00-926-9117		I
3-	TINCTURE BENSZOIN			21
4-	INSECTICIDE	6840-01-067-2137	AROSOL	8
5-	FOAMED ALCOHOL		AROSOL	10

FOIA Requested Record #J-15-0085 (SC)
Released by National Guard Bureau
Page 393 of 964

## COMPANY C (MEICALD) 163<sup>rd</sup> SPT BN SOUTH CAROLINA ARMY NATIONAL GUARD 1764 HÄRRY BYRD HWY DARLINGTON, SOUTH CAROLINA 29532

## HAZARDOUS MATERIALS INVENTORY LIST

### POL SHED

<u>ITEM</u>	TRADE MANE	STOCK #	TYPE	QUANITY
				VORITI
1-	HYDRAULIC FLUID	9150-00-252-6383	CAN	
2-	HYDRAULIC, AUTO	9150-00-698-2382	ÇAN	
3-	WATER REAGENT	6910-00-682-6867	CAN	·
4-	BRAKE FLUID	9150-01-102-9455	CAN	
5-	GREASE	9150-01-197-7690		
6-	GREASE	9150-00-119-7769		
7-	LUBE OIL	9150-01-152-4117		·
8-	CLEANER LUBE	9150-01-054-6453		
9-	HYDRAULIC TRANMISSION FLUID	9150-01-353-4799		
10-	SILICONE COMPOUND	6850-01-159-4844		
11-	OIL	9150-01-152-4118		
12-	HYDRAULIC FLUID	9150-00-065-4959	. •	
13-	BREAK FREE CLP	9150-01-054-6453		

BEST AVAILABLE COPY

## COMPANY C (MEICALD) 163<sup>rd</sup> SPT BN SOUTH CAROLINA ARMY NATIONAL GUARD 1764 HARRY BYRD HWY DARLINGTON, SOUTH CAROLINA 29532

## HAZARDOUS MATERIALS INVENTORY LIST

## FLAMMABLE CABINET # 1

ITE	M TRADE MANE	STOCK #	TVDE	
		STOCK #	TYPE	QUANITY
1-	CLEANING COMPOUND, WINDSHIELD	0 6850-00-926-2275	AROSOL	29
2-	COATING, POLYURETHANE	8010-01-276-3635	AROSOL	25
3-	ADHESIVE	8040-00-273-8717		2
4-	MULTI-PURPOSE SURFACE CLEANER			.1
5-	BRIGHT TOUCH GENERAL PURPOSE PA	AINT		1
6-	SO SURE ENAMEL	8010-00-584-3149	AROSOL	8
7-	KIBOSH WASP KILLER		AROSOL	1
3-	KILZ PRIMER			1
)_	CEMENT, LIQUID	8040-00-266-0850		1
0-	THINNER	8010-00-181-8079		1

FOIA Requested Record #J-15-0085 (SC)
Released by National Guard Bureau

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### ull time Personnel



Enclosure No. 4

# HHIMS Industrial Hy Ine Survey Form

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**BEST AVAIL** 

Posted

May, 20

HHIMS Industrial . Igiene Survey Form

Requested Release<u>d b</u>y

# HHIMS Industrial H. Lene Survey Form

Hazard Description  NO18e, Continuous  EVE HAZARA  HIGING PREJECTIFES	Scommendations, and needed control frame.  **Commendations, and needed control frame.**  **Commendations, and need	temments continued on 1 ac. There is a ventilation data sheet attached to this form
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<u> </u>		tually obs
CAS code  P O N O   S E E O  P O E U E H A 2 A  P O E L U P R O T	Personnel data provided by the facility is attached to this form Commants  Operation described is (Trade Commant Comma	This operation was explained to the evaluators, but was not actually observed.  There is a noise data sheet attached to this form
PONOISECO POFOOTHAZ POFLYPROJ POFLAMHAZ POFLAMHAZ POFLAMHAZ POFLSHOGE POSHARPOB POHOTOBJE POELSHOCK	Comments	

# HHIMS Industrial hygiene Survey Form

Front page

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cold weather boots/hat hard hats hard hats safety shoes (conductive) asfety (nonconductive) other other other posts and the safety shoes (conductive) as the safety (nonconductive) as the		Controls Required (25 charecters mex)()  OP  ABLE OP	Room Number    Delicity   Delicit

Reminders: ergonomics - dermatitis - physical agents - flammable storage EYE (permanent) \_\_\_\_\_\_ - EYE (portable) \_\_\_\_\_ - SHW - GMV - LEV

ACO ADM OSA OSN LAB LCK HAD ECB EPL RHS SPR WEL

HHIMS Industrial Hygiene Survey Form

Front page

EYE (permanent) ... EYE (portable) . SHW . GMV . LEV

RAD ECB EPL RHS SPR WEL

# HHIMS Industrial Hygiene Survey Form

Front page

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Reminders: ergonomics - dermatitis - physical agents - flaminable storage EYE (permanent) \_\_\_\_\_\_\_ - EYE (portable) \_\_\_\_\_\_ - SHW - GMV - LEV

RAD EUB EPL HHS SPH WEL

### NATIONAL GUARD REGION SOUTH INDUSTRIAL HYGIENE OFFICE 510 PLAZA DRIVE, SUITE 1530 COLLEGE PARK, GA 30349

NGB-AVN-SI

13 June 2005

MEMORANDUM FOR the South Carolina Army National Guard, ATTN Non-Responsive Armory Supervisor, Co. B 1/263<sup>rd</sup> Armor, 119 Hwy 34 West, Dillon, SC 29536-0272.

SUBJECT: Industrial Hygiene Survey of the Dillon National Guard Armory, Dillon, South Carolina.

- References.
- a. Report submitted 19 May 2005, Industrial Hygiene Survey, Environmental Management Solutions, Non-Responsive.
- b. OSHA Standards 29 CFR (Code of Federal Regulations), General Industry, revised 1988.
  - c. AR 40-5, Preventive Medicine, October 1990.
  - d. AR 11-34, 15 February 1990, the Army Respiratory Protection Program.
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- b. Non-Responsive conducted the survey.
- 3. Findings. All HHIM field survey forms and survey findings of the report are enclosed. (See ENCL. 1)
- Recommendations.
- a. Follow all recommendations made in reference 1. a., requesting industrial hygiene (IH) services where needed to complete the recommendations.
- b. Request help in eliminating possible employee lead exposures. Be prepared to educate personnel on proper housekeeping procedures of the range. Follow NG PAM 385-16, Guidelines for converting indoor firing ranges to other uses and NG PAM 385-15, Policy, Responsibilities and guidelines for housekeeping, rehabilitation and/or conversion of indoor firing ranges.
  - c. Use the report to help in correcting all deficiencies noted by the contractor.
- d. Consider additional Industrial Hygiene services to monitor operations that were not looked at or surveyed during the contract visit, especially if this will help eliminate health hazards and reduce medical surveillance cost.
- e. To execute your responsibilities in correcting all deficiencies and meeting all standards coordinate with the FMO, the Environmental Office the Occupational Health Nurse and the Occupational Safety and Health Office for technical guidance.
- f. Ensure that the FMO and the Environmental Offices receive a copy of this report.

5. If additional information is needed about the contractors report, please contact

Non-Responsible

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The second of the second

CF: Safety and Occupational Health Office, ATTN: Non-Responsive National Guard Road, Columbia, SC 29201-4766

## ENVIRONMENTAL MANAGEMENT SOLUTIONS INDUSTRIAL HYGIENE CONSULTING

## SOUTH CAROLINA ARMY NATIONAL GUARD

## DILLON ARMORY DILLON, SOUTH CAROLINA

247 MARY LANE, DALLAS, GEORGIA 30157 PHONE: 404.425.3103 • FAX: 770.234.6297

SUBJECT	3
BACKGROUND	3
INTRODUCTION	
SITE DESCRIPTION	3
SCOPE OF WORK	
METHODOLOGY	
FINDINGS AND DISCUSSION	5
LEAD WIPE SAMPLES	5
ASBESTOS SUSPECT BUILDING MATERIAL	
NOISE SURVEY	
ILLUMINATION SURVEY	
BUILDING CONDITION	8
HAZARD COMMUNICATION	9
RADIATION PROTECTION PROGRAM	9
ERGONOMICS	9
PERSONAL PROTECTIVE EQUIPMENT	9
RECOMMENDATIONS	10
TECHNICAL ASSISTANCE	

**Environmental Management Solutions** 

### **EXECUTIVE SUMMARY**

An initial baseline industrial hygiene survey was conducted at the Dillon Armory on 5 May 2005 as part of the South Carolina Army National Guard Occupational Health Program to identify potential health hazards in the workplace. The survey consisted of collecting lead wipe samples and bulk asbestos samples as needed, conducting a noise and illumination survey and an evaluation of the condition of the building as it related to indoor air quality. A review of the Hazard communication program, ergonomics, and personal protective equipment was also performed.

The following table summarizes the survey findings and recommendations for each topic surveyed.

TOPIC	SUMMARY OF FINDINGS	RECOMMENDATIONS
Lead Wipe Samples	0 to 392 micrograms. Lead results in the converted Indoor firing range area are above requirements. Kitchen areas also show higher than recommended levels of lead contamination.	Clean surfaces in the kitchen areas, decontaminate all contaminated items, and follow good hygiene and housekeeping practices. Continued monitoring of the indoor firing range area should be conducted annually and in accordance with Army National Guard All States Log Number P01-0075, Policies and Responsibilities for Inspection, Evaluation, and Operation of ARNG Indoor Firing Ranges (IFR) and Guidelines for IFR Rehabilitation, Conversion, and Cleaning
Asbestos Bulk Samples	Floor tile from the drill hall area was sent in for lab analysis The floor tile contains 5% chrysotile asbestos in the tile and 5% chrysotile asbestos in the mastic.	Do not dry sweep or mechanically disturb tile. A complete inventory of asbestos containing materials should be obtained and a plan for care and remediation should be made.
Asbestos Bulk Samples	No findings	No action
Noise Survey	Under 85 dBA	No action
Illumination Survey	2.8 to 74.1 foot-candles	Upgrade lighting to appropriate levels.
Building Condition	Building in poor condition. Water damage t floor and ceiling tiles was observed as well as problems with water leaks and pests.	Develop a housekeeping schedule to identify, repair, and prevent any leaks or standing water. Immediately address any items that have gotten wet by cleaning or discarding.
Hazard Communication	Material Safety Data Sheets were not available. Supply sergeant was not present to provide information or access to supply areas.	Material Safety Data Sheets should be updated and easily available in case of emergency.
Ergonomics	Poor workstations design in some	Complete ergonomics survey on all

Dillon Armory Survey Date: 5 May 2005

	offices	personnel and offer ergonomic
		training or awareness to employees
		who spend the majority of their
		time working on a computer
		terminal
Personal Protective Equipment	No findings	No action

Environmental Management Solutions Report Date: 18 May 2005

### MEMORANDUM FOR

South Carolina Army National Guard



Dillon, South Carolina 29536-0272

### SUBJECT

Initial Baseline Industrial Hygiene Survey of the Dillon Armory performed 5 May 2005 in Dillon, South Carolina.

### BACKGROUND

### INTRODUCTION

At the request of Mr. Etienne Rodriguez of the National Guard Bureau Region South Industrial Hygiene Office, an initial baseline industrial hygiene survey was performed at the Dillon Armory in Dillon, South Carolina. Environmental Management Solutions conducted the survey on 5 May 2005. Ms. Jenice Christophe, Industrial Hygiene technician NGB, assisted with the survey. The purpose of the survey was to perform an initial baseline industrial hygiene survey to evaluate potential health hazards present at the armory.

### SITE DESCRIPTION

The facility houses Co B 1/263<sup>rd</sup> Armor. The building has been recently reopened after having been vacant for over a year and a half. The single story building contains several administrative offices, a classroom, a drill hall, and a kitchen. An indoor firing range is present and is currently being used for storage. The room behind the bullet trap is also used for storage. The original sand was removed and the bullet trap is still present although it and all of the interior surfaces have been covered at least twice in the last ten years with paint. Refer to Building layout in Appendix C. Soldiers perform weapons cleaning outside utilizing portable vats very rarely. The armory is rented out to the city for private functions once every three to four months.

### SCOPE OF WORK

The work included collecting wipe samples for lead, bulk samples for suspect asbestos containing building material, noise readings, illumination levels, and an evaluation of the ventilation system as it pertains to indoor air quality. A list of occupational health programs and procedures were verbally covered with the armory personnel where applicable.

Environmental Management Solutions Report Date: 18 May 2005

Dillon Armory Survey Date: 5 May 2005

### **METHODOLOGY**

Lead wipe samples were collected from surfaces that showed signs of lead contamination in armories that have a renovated, inactive, or closed indoor firing range (IFR), kitchen or mess hall storage areas, indoor drill halls, and storage rooms with weapons vaults. The samples were collected in accordance to instructions published by Region South National Guard Bureau, which required the use of unscented baby wipes to wipe one square foot of surface. Samples were then placed in a sealed plastic bag and sent to an American Industrial Hygiene Associations (AIHA) accredited laboratory for analysis. Asbestos bulk samples and lead paint chips were collected from suspect friable and damaged building material when indicated. Each bulk sample was placed in a sealed bag and sent to an AIHA laboratory for analysis. All instruments used for assessment were factory calibrated and calibrated prior to the survey as applicable. Illumination readings were taken on work surfaces and approximately four feet from the floor.

Environmental Management Solutions Report Date: 18 May 2005

### FINDINGS AND DISCUSSION

### LEAD WIPE SAMPLES

Fourteen wipe samples were collected from areas of the kitchen, drill hall, and converted indoor firing range areas as listed in the table below.

SAMPLE NUMBER	SAMPLE LOCATION	MICROGRAMS OF LEAD (μg) PER SQUARE FOOT
DL-01	Drill hall floor under water fountain to the right of commo door	BRI.
DL-02	Drill Hall floor in front of door to Maint. Bay/IFR	35
DL-03	Drill Hall floor right side of supply room door	36
DL-04	Center of drill hall floor	BRL
DL-05	Platoon Storage, Back of bullet trap	177
DL-06	Platoon storage, middle of floor	121
DL-07	Left bottom corner of desk in Platoon StorageDesk is on left when entering room	84
DL-08	Floor in Platoon storage next to cage along outer wall	392

Environmental Management Solutions

Report Date: 18 May 2005

Dillon Armory Survey Date: 5 May 2005

DL-09	Kitchen left side stove	BRI.
DL-010	Kitchen in front of door to outside left of door	126
DL-011	Left side (facing bullet) in front of lockers	231
DL-012	IFR Desk	66
DL-013	IFR Middle in front of roll up door	92
DL-014	IFR Right side in front of shelving	92

Items listed in bold are above regulated limit.

The Army National Guard All States Log Number P01-0075, Policies and Responsibilities for Inspection, Evaluation, and Operation of ARNG Indoor Firing Ranges (IFR) and Guidelines for IFR Rehabilitation, Conversion, and Cleaning requires a limit of 200 micrograms per square foot for surface contamination in and around indoor firing ranges closed or converted for other uses. Lead results in these areas were above the required limit.

The Environmental Protection Agency standards (40 CFR 745) indicate lead in dust levels above 40 micrograms per square foot on bare and carpeted floors is considered dangerous for common areas. Lead results in the kitchen areas were above regulated standards.

### ASBESTOS SUSPECT BUILDING MATERIAL

Sampling for asbestos was limited to damaged material or material that could pose an exposure risk. Damaged floor tiles were found in the drill hall area. Personnel are concerned that they may contain asbestos. A sample of the floor tile was taken for analysis.

DL-015	Drill Hall floor tile	5% Chrysotile Asbestos—Tile 5% Chrysotile Asbestos—Tile

Environmental Management Solutions Report Date: 18 May 2005

### **NOISE SURVEY**

Area noise levels are well within the Army National Guard limit of 85 dBA and the Occupational Safety and Health Administration (OSHA) regulated limit of 90 dBA over an eight-hour period.

### ILLUMINATION SURVEY

Lighting levels throughout the armory ranged between 2.8 foot-candles to 74.1 foot-candles. Specific readings are listed in the table below.

AREA	AVERAGE FOOT-	RECOMMENDED	MEETS
	CANDLES	FOOTCANDLES	STANDARD?
Drill Hall	18.5	10-15	Y
IFR	2.5	50-75	N
Platoon Storage	19.0	5-7.5	Y
Classroom #1	37.0	50-75	N
Classroom #2	49.7	50-75	Y
Locker Room	2.0	10-15	N
Men's Room	8.4	10-15	N
Kitchen	40.3	50-75	N
Commo	25.4	20-30	Y
Kitchen Storage	2.8	50-75	N
Library	59.8	50-75	Y

Environmental Management Solutions

Report Date: 18 May 2005

Dillon Armory Survey Date: 5 May 2005

Recruiting	49.6	50-75	Y	
Mechanical Room	9.0	10-15	N	:
Ladies Restroom	20.5	10-15	Y	
NBC Room	12.0	20-30	N	
Officer's Restroom	24.1	10-15	Y	
Commander	74.1	50-75	Y	:
RNCO	63.8	50-75	Y	
TNCO	38	50-75	N	
Hallway	14.6	5-7.5	Y	

Readings in bold-faced type do not meet the American National Standard Institute/Industrial Engineering Society (ANSI/IES) minimum illumination requirements. See recommendations for appropriate action.

### **BUILDING CONDITION**

The building was constructed in the late 1960s. The building is in fair condition. Extensive water damage was seen in the library, administrative areas, and IFR area. The HVAC room near the drill hall had a dead bird near the drain. No standing water, leaks, or maintenance problems were seen in this room off of the drill hall. The second HVAC area, near the kitchen, did have a leak from the roof. Standing water was observed ad a trash can was being used to catch water. Leaks were also seen coming from the roof in the indoor firing range. Several areas of floor tile damage were also seen, due to moisture coming up through floors, causing the tiles to crack in the drill hall and administrative areas. Several urinals in the bathroom area were not in working order.

There is no physical maintenance area in this building.

Environmental Management Solutions Report Date: 18 May 2005

### HAZARD COMMUNICATION

The supply sergeant in charge of Material Safety Data Sheets was not available for the survey. Hazardous Materials information could not be reviewed. It could not be located by other personnel.

### RADIATION PROTECTION PROGRAM

Supply sergeant was unavailable for questioning regarding radioactive inventory

### **ERGONOMICS**

The full time employees in the supply or office areas did not express any ergonomic concerns. However, many workstations were not set up to provide neutral postures and appropriate ergonomically correct positions. Consideration should be given to providing all full time employees that spend the majority of their working time at a computer terminal ergonomic training or awareness. Such awareness should emphasize the importance of proper posture and set-up of the workstation to fit the user.

### PERSONAL PROTECTIVE EQUIPMENT

Normal duties of full time employees at the armory do not require the use of personal protective equipment (PPE).

Environmental Management Solutions Report Date: 18 May 2005

### RECOMMENDATIONS

- All items that are contaminated with lead should be thoroughly decontaminated with a detergent and water solution. Care should be taken to wipe down tables where weapons are issued and cleaned. Kitchen areas should be thoroughly cleaned on a regular basis and especially before serving personnel.
- 2) Personnel should be prohibited from eating, drinking, smoking, chewing tobacco or gum, or applying cosmetics in supply areas and should be instructed to clean hands with soap and water before doing any of these. Remove all refrigerators, cups, and other eating utensils from supply areas.
- 3) Annual monitoring of the converted indoor firing range should be performed to ensure that lead levels remain below 200 micrograms per square foot. Consult the Army National Guard All States Log Number P01-0075, Policies and Responsibilities for inspection, Evaluation, and Operation of ARNG Indoor Firing Ranges (IFR) and Guidelines for IFR Rehabilitation, Conversion, and Cleaning on guidelines for monitoring, cleaning and converting Indoor Firing Range.
- 4) All items stored in range should be decontaminated before removal. No additional items should be placed in this area. Personnel should only enter this area as necessary and should be limited to essential persons.
- 5) Remove desk areas from the storage area.
- 6) Prohibit all dry sweeping of the range.
- Upgrade lighting measurements as required. Lighting can be upgraded in the following ways:
  - Replace blown or broken lighting
  - Paint walls and floors white or similar light color
  - Clean existing light fixtures
  - Rearrange furniture to make better used of available light
  - Provide supplemental or task lighting
- 8) Develop a housekeeping schedule to **immediately** identify, repair, and prevent any leaks or standing water. Proper and immediate repairs and maintenance of the building infrastructure and interior surfaces can prevent water damage and moisture buildup which may lead to further indoor air quality issues.

Environmental Management Solutions

Report Date: 18 May 2005 Page 10

- 9) Fix all leaks and water-damaged areas that allow water to get into the ventilation system or building surfaces, and materials. Prevent buildup of moisture in occupied spaces and in HVAC components. Remove stagnant water and slime from mechanical equipment.
- 10) Find and discard microbial-damaged furnishings and equipment. Ceiling tiles should be discarded and replaced. Floor should be cleaned and sealed. Clean and disinfect all contaminated surfaces such as the supply diffusers with a 10 percent Clorox<sup>TM</sup> solution during off hours.
- 11) When water damage occurs:
  - Inventory all water damaged areas, building materials, and furnishings.
  - Remove and dispose of all wet ceiling tiles within 24-48 hours of water damage. Spray
    the back of the water damaged tile with a dilute bleach solution. Place tile in garbage
    bag. If the ceiling tile has become wet due to a small stream leak and the shape of the
    tile has not been altered, the ceiling tile can be air-dried and reused.
  - Upholstered furniture that has become wet due to floods; roof leaks sewage backup and ground water infiltration should be disposed.
  - Hardwood furniture or laminate furniture whole laminate is intact should be air dried and cleaned with a solution of 1/4 to 1/2 cup bleach per gallon of water.
  - Laminate furniture whole laminate has become delaminated should be disposed of as pressed wood under the laminate absorbs water readily and is hard to dry.
  - Furniture made of particleboard or pressed wafer board should be discarded after water damage.
- 12) If carpet is wet for less than 48 hours:
  - Remove all materials such as furniture, file cabinets, paperwork form the carpet.
  - Use a wet vacuum to remove as much water from the carpet as possible
  - Shampoo the carpet with a dilute surfactant.
  - Soak with a ¼ to ½ cup bleach/water solution. The maximum concentration should not exceed 1 part bleach to 10 parts water.
  - Rinse and extract the carpet with clean water to remove detergent/bleach residues.

Environmental Management Solutions Report Date: 18 May 2005

- Commercial steam cleaning can be used in place of bleach as long as the water used to steam the carpet is heated above the boiling point.
- Dry the carpet within 12-24 hours of treatment. After work is completed, increase the room temperature, and use commercial dehumidifiers, floor and or exhaust fans to aid in drying the carpet.
- If carpet is wet for more than 45 hours during the wintertime, the above protocol can be
  used to manage the carpet and salvage it, provided it became wet with relatively clean
  water.
- If carpet is wet for more than 48 hours during the summertime, disposal of waterdamaged carpets especially in humid environments is often the best option.
- 13) Bricks and concrete material, specifically at building entrances should be cleaned with a bleach and water solution. DO NOT follow with a clear water rinse in order to allow the bleach to remain and thoroughly decontaminate the surface.
- 14) Obtain all specifications and drawings of the HVAC system and have the system properly balanced.
- 15) Improve air filtration by using efficient filters to remove spores, pollen, dirt, and other particles, which may be distributed through the HVAC system. High efficiency style filters should be included in the HVAC filter section. It is essential that all supply air pass through a pre-filter and a high efficiency final filter. Use filters with at least a 50-70 percent collection efficiency rating. Ensure that filters are the appropriate size for the HVAC system. Develop a maintenance schedule for ensuring that filters are properly changed, any leaks or standing water are identified, repaired, and prevented. Provide pigeon screens on intakes and exhausts.
- 16) Provide preventative maintenance of HVAC systems. Institute a comprehensive and practical preventative maintenance plan to check, clean, and/or repair, HVAC system components, lined ductwork, and ceiling plenums at least quarterly.
- 17) Maintain relative humidity between 30 to 60%
- 18) Consult State Environmental Office for approval of an appropriate pesticide to prevent rodent and insect infiltration.
- 19) Material Safety Data Sheets (MSDS) are required to be kept at the primary workplace facility and to be easily accessible in case of emergency. Material Safety Data Sheets for cleaning materials should be kept by the facility. Personnel responsible for these items should receive annual training in the requirements of the Hazardous Communication Program and the appropriate keeping and storage of all MSDS.

Environmental Management Solutions Report Date: 18 May 2005

20) An ergonomics survey should be completed for all supply and administrative personnel as a preventative measure to document and address any and all ergonomic concerns or problems. Provide ergonomics training and awareness to all employees who spend the majority of their time working at a computer terminal.

### TECHNICAL ASSISTANCE

For technical assistance regarding information found in this report or the performed survey please contact Non-Responsive gional Industrial Hygienist at the National Guard Bureau Region South Industrial Hygiene Office at Non-Responsive



Environmental Management Solutions Report Date: 18 May 2005

## APPENDICES

Posted to N May, 20 8

### BEST AVAILABLE COPY

APPENDIX A

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### **BEST AVAILABLE COPY**

- ☐ American conference of Governmental Industrial Hygieist (ACGIH), Industrial Ventilation, A Manual of Recommended Practice, 23<sup>rd</sup> Edition, 1998.American National Standards Institute (ANSI), /Illuminating Engineering Society (IES), Industrial Lighting, 1991.
- Army Regulation (AR) 11-34, The Army Respiratory Protection Program, 1990.
- Army Regulation (AR) 40-5, Preventative Medicine, 15 October 1990.
- Army Regulation (AR) 385-10, The Army Safety Program, 29 Feb 2000.
- NGR 385-10, Army National Guard Safety and Occupational Health Program, 7 October 1988.
- TB MED 503, The Army Industrial Hygiene Program, February 1985.
- ☐ Title 29, Code of Federal Regulations (CFR), 1999, revision, Part 1910, Occupational Safety and Health Standards.
- □ TG 022, US Army Environmental Hygiene Agency (YSAEHA), Industrial Hygiene Evaluation Guide, October 1975.
- □ TG 141, US Army for Health Promotion and Preventative Medicine (USACHPPM) Industrial Hygiene Air Sampling Guide, November 1997.

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APPENDIX B

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NIOSH TC # or Foreign equivalent (10 characters masky Adoo TC # or Foreign equivalent (10 characters masky) 46. LOCs 0 Fron' Jage Controls Required (25 characters max) Œ ACO ADM DSA DSN LAB LCK RAD FOR FRE title con ..... Shorase (Achnin) hard hets Impermeable boots Unit / Organization (45) cold weather boots/hat sefety shoes (conductive) safety inonconductive) Contractors 0 Head and Feet \$0-1C3 B Roorn Number other other other No. MIL **Vamufacturar's Description (10 characters max)** No. CIVE RAC Submaçor Unit code 4 cold weather clothing tuil body suit heat reflective vest/sult salety bett/harness pecial purp. clothing coveralls HHIMS Industrial Hyr Yne Survey Form Reminders: ergonomics - dermatitis - physical agents - flammable storage requency (hruiday <u>8</u> EYE (pormenent) - EYE (parteble) - SHW - GMV - LEV 100 Body Evaluation (25 characters max) Evaluato Commercial 3.8 - 74. Bullding SS powered at putitying (108-118 multiesplug comb stresive blasting hood disposable full lace air puritying 1/2 face air puritying 1/4 face of purifying self-contained >86-108 dBA steady) sarpluge canal capa with time fight helmets w/ muffs mulis and earphass श्र ØØ (118 or >) Respirator Hearing N. C. other other Survey Date Installation Controls Present ( # >6 , continue in comments)[25] 0 Ø Œ 00 Operation  $C_i$ welding goggles/plasses HID hot surfaces NBC spents solvents cold surfaces 픙 surgical gloves sunglasses full face shield chem/selety Impact salety impact welding helmet laser eye protection chemical splash e' = evaluator's recommendation 0 leather / collon Eyes and Face 219795 CHIPMFRINT.XLS Supervisor 0 ocation. SA ARLOC Gloves other or agreement **BEST AVAILABLE COPY** Posted to N FOIA Requested Record #J-15-0085 (SC)

MIOSH TC 8 or Foreign equivalent (10 characters master COO) No. LOCs 0 Controls Required (25 characters max) ACO ADM DSA DSN LAB LCK 50-75 FRC Unit / Organization (45) Impermeable boots cold weather boots/hat hard hats sefaty shoes (conductive) selety fronconductive) Contractors Head and Feet Room Number \$.5 other of her of her 17 Manufacturer's Description (10 characters max) No. CIVE Submacon PAC Unit code 1 HHIMS Industrial Hy Jene Survey Form cold weather clothing full body suit sefety betthamess hest reflective vest/sult Coverails pecial purp. clothing requency (haviday) Ç Raminders: ergonomics - dermatitis - physical agents - flammable storage EYE (parmenent) . EYE (portable) . SHW - GMV - LEV Macor other Evaluation (25 characters max) Evaluator Ommerche! 12-8.8 Bullding SSO ebresive biasting hood full face air purifying powered air putitying 1/4 face ole purifying self-contained (108-118 mult/asphug comb canal caps helmets w/ muffs (>85-108 dBA steady) eerplugs with time time mulis and earplugs 1/2 face air purifyle day S AMMON 00 Respirator [118 or >] Hearing Dillon Survey Date Installation comments (25) 0 Controls Present ( If >6, continue in Operation 00 0 acha % cold surfaces hot turinces NBC agents tolventa turgical gloves chem/safety impact full face shield safety impact wolding popples/plasses chemical splash welding helmer sucellasses laser eye protection c = evaluator's recommendation leather / cotton Eyes and Face Supervisor ocation B ARLOC Gloves or agreement

NIOSH TC # or Foreign equivalent (10 characters mak) Vo. Locs Fro, Apage Controls Required (25 characters max) ACO ADM DSA DSN LAB LCK 50-TS, FRC salety (nonconductive) / Organization (45) hard hats Impermeable boots Contractors sefety shoes (conductive) cold weather boots/hat 0 Head and Feel Room Mumber B No. MIL Manufacturer's Description (10 characters max) \$0. C[Ve RAC Unit code HHIMS Industrial Hy Jene Survey Form cold weather clothing full body suit heat reflective Coverails vest/sult solety behinsmess special purp. clothing Reminders: ergonomics - dermattils - physical agents - lismmable storage EYE (permanent) .... EYE (portable) ..... SHW . GMV . LEV Macom other Evaluation (25 characters max) Evaluator 171-88 sbrashva blasting hood disposable full face air purifying 1/2 face air purifying Powered at purifying 1/4 face air purifying self-contained (>85-108 dBA steady) escplugs helmets w/ mults with time limit mulfs and earplugs Q E Amond menth 20 Respirator [118 or >] Hearing Dillon Survey Date Installation gher 120 Controls Present (III > 6 . continue in chimments) [25] 20 Operation 0 00 cold surfaces NBC agents hot surfaces tolvents eurgical gloves laser eye protection chemical spinsh full face shield chem/sefety impact salety Impact welding helmet sunglasses wolding goggles/glasses = evaluator's recommendation leather / cotton Supervisor Eyes and Face Ø -ocation Gloves other of agreement

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ched to this form    Comments continued on attack to N May, 20 8	BEST AVAILABLE COPY FOA Requested Record #J-15-0085 (SC) Released by National Guard Bureau Page 434 of 964	Back Jage

### COMPANY B 1ST BATTALION 263RD ARMOR SOUTH CAROLINA ARMY NATIONAL GUARD 1119 HWY 34 WEST DILLON, SOUTH CAROLINA 29536

5 May 5, 2005

SUBJECT: FULL TIME PERSONNEL LIST



# SCARNG HAZARDOUS MATERIAL/WASTE INVENTORY

For use of this form, see 385-6. The proponent agency is TAG-OH/TAG-FM

Date: 28 JAN 2005

LOCATION: DILLON, S.C. ARMORY

ACTIVITY NAME AND ADDRESS:

CO B 1/263RD ARMOR 1119 HWY 34 WEST DILLON, S.C 29536

35.00	DISPOSITON	CONTAINER LIFE, SHELF LIFE	EXP.DATE)							- 1																	(Previous editions are obsolete)
		STORAGE	LIFE																								
at-Responsit	SIZE OF CONTAINER			5Lb Cn	1 Gal Cn	5 Gal Cn	1 Gal	5 Gal Cn	ð	ō	ð	5 Gal Cn	ā		5 Gal Cn	1 Gal		£	1 Gal Cn	¥	Pt	ť	Gal	Gal			
	QUANITY	PROCURED/	GENERATED	<b>*</b>	32		6	10	84	48	134	-	32	30	-	37	89	9	3	17	5	9	2	3			
JMBER:		NSN OR LSN		9150-00-145-0268	9150-00-111-6254	6850-01-464-9137	6850-01-4644125	9150-01-152-4118	9150-01-421-1427	9150-00-186-6681	9150-00-985-7099	9150-01-035-5391	9150-01-353-4799	9150-01-197-7693	9150-01-197-7692	9150-01-053-6688	9150-01-054-6453	6850-00-926-2275	9150-01-102-9455	8010-00-582-4743	8010-00-848-9272	8010-00-935-6609	8010-00-286-2292	8010-00-286-7731			00
ACTIVITY POC AND PHONE NUMBER:	CHEMICAL OR TRADE NAME/	DESCRIPTION OF MATERIAL		Aircraft Grease	Hydraulic FRH	Antifreeze		Oii 15W40	Oil 15W40	Oil 30W	o Shaft	Gear Oil 75W	Fluid		Grease GAA	ree		her Fluid	Brake Fluid Silcone	300	Drab		Paint Olive Drab				AGSC Form 7-E, 11 February 2000

# SCARNG HAZARDOUS MATERIAL/WASTE INVENTORY

For use of this form, see 385-6, The proponent agency is TAG-CH/TAG-FM

Date: 28 JAN 2005

LOCATION: DILLON, S.C. ARMORY

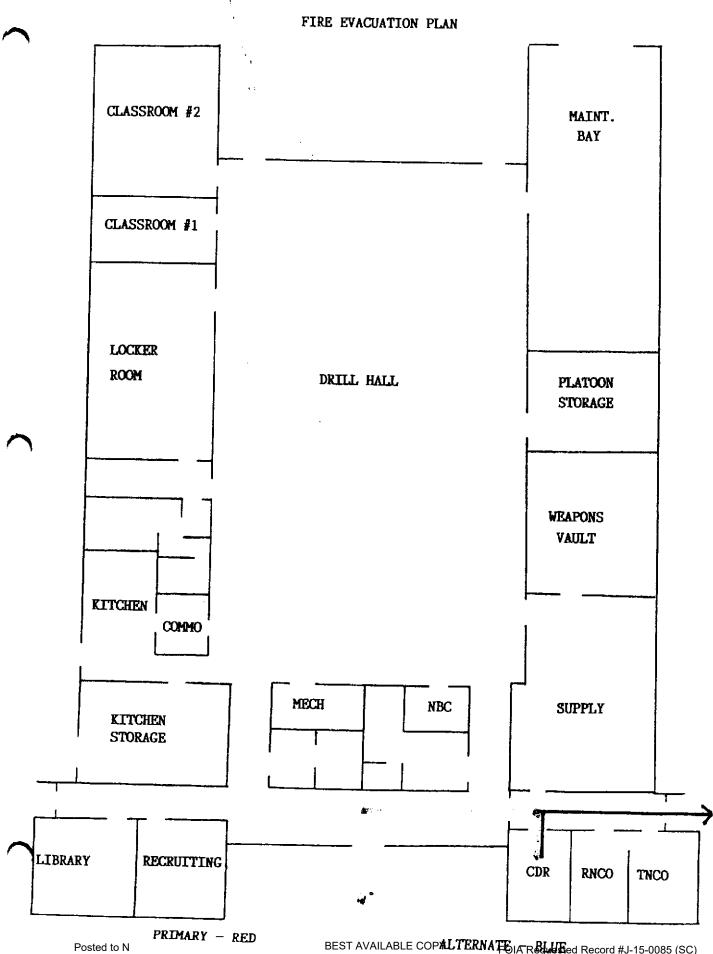
ACTIVITY NAME AND ADDRESS:

CO B 1/263RD ARMOR

1119 HWY 34 WEST DILLON, S.C 29536

ACTIVITY POC AND PHONE NUMBER:

NOTISPOSITON	STORAGE (CONTAINER LIFE, SHELF LIFE	LIFE EXP.DATE)																							
SIZE OF CONTAINER			5Lb Cn	1 Gal Ch	5 Gal Cn	1 Gal	5 Gal Cn	ŏ	ŏ	ŏ	5 Gal Cn	ŏ	Tube	5 Gal Cn	1 Gal	Ę.	¥	1 Gal Cn	Pt	£	đ.	Gal	Gal		
QUANITY	PROCURED/	GENERATED	-	32		6	10	84	48	134	1	32	30	-	37	89	9	6	17	ŀΩ	9	2	3		
	NSN OR LSN		9150-00-145-0268	9150-00-111-6254	6850-01-464-9137	6850-01-4644125	9150-01-152-4118	9150-01-421-1427	9150-00-186-6681	9150-00-985-7099	9150-01-035-5391	9150-01-353-4799	9150-01-197-7693	9150-01-197-7692	9150-01-053-6688	9150-01-054-6453	6850-00-926-2275	9150-01-102-9455	8010-00-582-4743	8010-00-848-9272	8010-00-935-6609	8010-00-286-2292	8010-00-286-7731		
CHEMICAL OR TRADE NAME/	DESCRIPTION OF MATERIAL		Aircraft Grease	FRH				Oil 15W40				ans Fluid					Fluid	е	1970	Drab	ite	Drab	Paint Grey		The second secon



May, 20 8

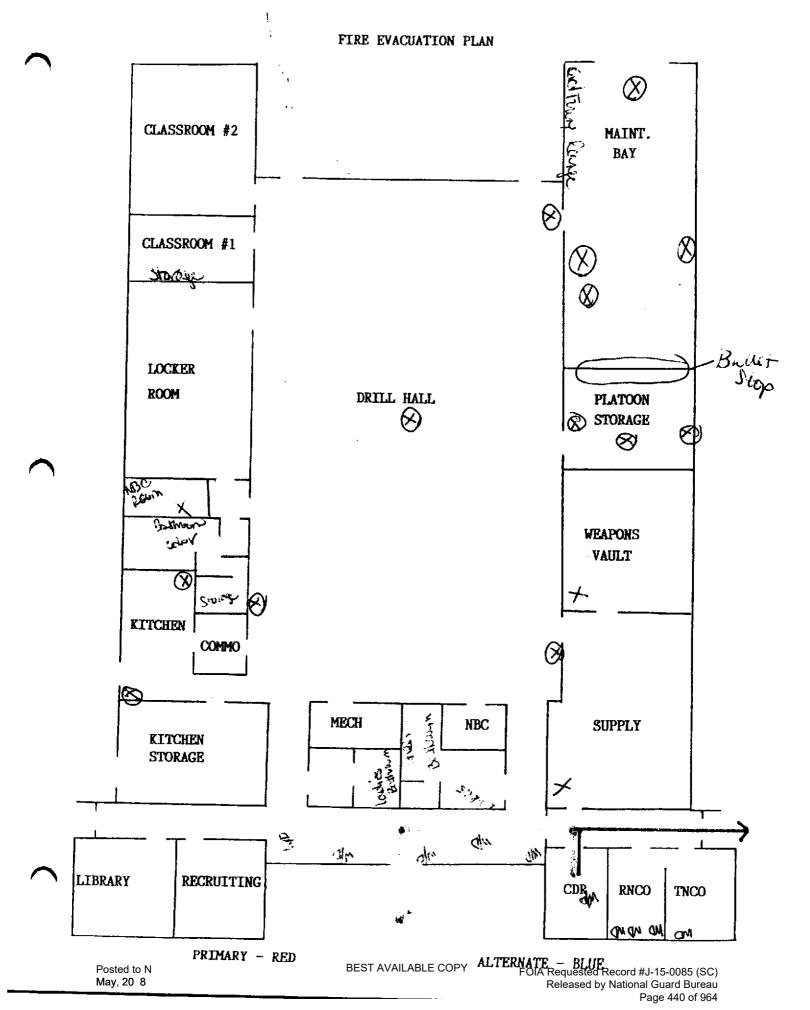
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Released by National Guard Bureau

Page 438 of 964

FIRE EVACUATION PLAN

### 64.6 2.0 CLASSROOM #2 MAINT. 35.3 BAY 49,2 3.3 CLASSROOM #1 29.8 2.1 <sub>ろ</sub>、\ 2,0 LOCKER ROOM DRILL HALL PLATOON STORAGE 8'5 10.5 NBC 11.3 gren's rem as **WEAPONS** VAULT δ, 43.8 KITCHEN 84 COMMO MECH b SUPPLY KITCHEN STORAGE 5.2 $A_{\mathcal{O}}$ 14.4 4 45.1 LIBRARY RECRUITING TNCO RNCO 72.4 41.9 PRIMARY - RED

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Released by National Guard Bureau
Page 439 of 964



APPENDIX C

**Environmental Management Solutions** 



## Dillon Armory

HVAC supply vents...dirty













Boiler room, dead bird near drain

Administrative area





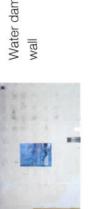
HVAC supply vents





Posted to N May, 20 8

Water damage, classroom area side



Water damage to side wall



Air conditioning unit



Water damaged ceiling tiles

Water damaged ceiling tiles and side





Pipes HVAC room

Water damage to side wall





Ceiling tile water damage

Posted to N May, 20 8



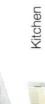
Hallway, HVAC room ro right,

kitchen straight ahead









Roof leak HVAC room, trash can to

catch water

HVAC room





Kitchen





water from roof leak

### Mens bathroom...broken urinals



Water damaged ceiling tiles



Moisture coming through floor tiles



Water damaged ceiling tiles, classroom/storage



Missing ceiling tiles, classroom



Classroom



Storage area



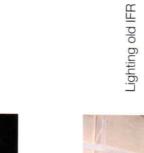






















Bullet trap has been painted twice



Drill Hall





Old IFR



Stored items against bullet trap

Water leaking from roof into range

Brooms stored in old IFR







Room behind the bullet trap...stored items are resting against bullet trap

Roof leak



Solvent tank old IFR







Flammable storage unit outside











Damaged piping insulation old IFR

Flammable storage

Gasoline and stored cylinders











APPENDIX D

Environmental Management Solutions



Page: 1/3

Date: 5/11/2005 4:19:28 PM

### **BEST AVAILABLE COPY**

### Analytical Environmental Services, Inc.

Date: 5/11/2005

### TOTAL LEAD IN WIPE SAMPLES N7082

CLIENT:

PO No:

National Guard Bureau Region-South IH

Dillon Armory

**Delivery Order:** 

Project:

Lab Order:

0505382

Date Received:

5/5/2005 8:00:00

Matrix:

Wipe

Laboratory	Client Sample	Results	Units	Report	DF	Date	Date	Analyst
Ю	TD			Limit.		Collected	Analyzed	
0505382-001A	DL-01	BRL	μg, Total	20	1	5/5/2005	5/10/2005	EM
0505382-002A	DL-02	35	μ <b>g</b> , Total	20	1	5/5/2005	5/10/2005	EM
0505382-003A	DL-03	36	μ <b>g</b> , Total	20	1	5/5/2005	5/10/2005	EM
0505382-004A	DL-04	BRL	μ <b>g</b> , Total	20	1	5/5/2005	5/10/2005	EM
0505382-005A	DL-05	177	μg, Total	20	1	5/5/2005	5/10/2005	EM
0505382-006A	Dt06	121	μg, Total	20	1	5/5/2005	5/10/2005	EM
0505382-007A	DL-07	84	μg, Total	20	1	5/5/2005	5/10/2005	EM
0505382-008A	DL-08	392	μg, Total	20	1	5/5/2005	5/10/2005	EM
0505382-009A	DL-09	BRL	μg, Total	20	1	5/5/2005	5/10/2005	EM
0505382-010A	DL-10	126	ug, l'otal	20	I	5/5/2005	5/10/2005	EM
0505382-011A	DL-11	231	μg, Total	20	1	5/5/2005	5/10/2005	EM
0505382-012A	DL-12	66	μg, Total	20	1	5/5/2005	5/10/2005	EM
0505382-013A	DL-13	92	μg, Total	20	1	5/5/2005	5/10/2005	EM
0505382-014A	DL-14	97	ug, Total	20	1	5/5/2005	5/10/2005	ЕМ

BRL - Not Detected at the Reporting Limit

DF - Dilution Factor

Posted to N

May, 20 8

From: A.E.S, Inc.



Page: 2/2

Date: 5/11/2005 4:10:29 PM





### ANALYTICAL ENVIRONMENTAL SERVICES, INC.

Bulk Sample Summary Report

Client Name: National Guard Bureau Region-South IH

Project Name: Dillon

Project Number:

MARVA

Lab ID# 102082-0

AES Job Number: 0505317

Wednesday, May 11, 2005

Page 1 of 1

Client ID	AESID	Location	Ast	estos	Mine	Comments					
			CH	AM	CR	AN	TR	AC	1.60.91 (0.00.00.00.00.00.00.00.00.00.00.00.00.0		
DL-15	0505317 -001A	Drill Hall Floor Tile	5	ND	ND	ΝD	ND	ND	Tile		
Layer: 1		20,00									
DL-15	0505317 -001A	Drill Hall Floor Tile	5	ND	ND	ND	ND	ND	Black Mastic		
Layer: 2											

Note: CH=chrysotile, AM=amosite, CR≠crocidolite, AC=actinolite, TR=tremolite, AN=anthophylite

For comments on the samples, see the individual analysis sheets.

ND = None Detected

PLM is not consistently reliable in detecting small concentrations of asbestos in floor tiles and similar nonfriable materials. Quantitative TEM is currently the only method that can be used to determine the conclusive asbestos content.

It is certified by the signatures below that the laboratory identified is accredited by the National Institute of Standards and Technology for Polarized Light Microscopy (PLM) analysis under the EPA Interim Asbestos Bulk Sample Quality Assurance Program, Laboratory ID 102082-0. All percentages given are by visually estimated volume. All analyses are performed in accordance with the EPA "Method for the Determination of Asbestos in Bulk Building Materials, EPA/600/R-93/116, July 1993." This report must not be reproduced except in full without the approval of Analytical Environmental Service, Inc. These test results apply only to the samples actually tested.

Microanalyst:

### Non-Responsive

Posted to 1 May, 20 8

5 (SC) Bureau of 964

### NATIONAL GUARD REGION SOUTH INDUSTRIAL HYGIENE OFFICE 510 PLAZA DRIVE, SUITE 1530 COLLEGE PARK, GA 30349

**NGB-ARS-SEIH** 

28 February 2007

MEMORANDUM FOR: The South Carolina Army National Guard, ATTN: Facility Supervisor, A, B, D, E and HHC Company 1/151 Battalion, 10311 Garners Ferry Road, Eastover, South Carolina 29044.

THRU Non-Responsive Deputy State Surgeon, South Carolina Army National Guard, 1 National Guard Road, TAG-MP-MSS, Columbia, SC 29201.

SUBJECT: Industrial Hygiene Survey of the, 151st Battalion.

- 1. References.
- a. Report submitted 28 January 2007, Industrial Hygiene Survey, OSHEA II Consulting.
- b. OSHA Standards 29 CFR (Code of Federal Regulations), General Industry, revised 1988.
  - c. AR 40-5, Preventive Medicine, October 1990.
  - d. AR 11-34, 15 February 1990, The Army Respiratory Protection Program.
  - e. AR 385-10, 23 May 1988, Army Safety Program.
- f. Department of the Army Pamphlet (DA PAM) 40-501, 27 August 1991, Hearing Conservation.
  - g. TB MED 530, The Army Industrial Hygiene Program.
- h. Title 29 Code of Federal regulation (CFR), 1989 rev, Part 1910.94 (c) (6) Table G-10, Ventilation.
- i. Industrial Ventilation, 21st ed, 1992, American Conference of Governmental Industrial Hygienist, Cincinnati, Ohio.
- j. IES Lighting Handbook, Application Volume, 1981, Illumination Engineering Society of North America.
- 2. General.
- a. At the request of the South Carolina State Safety and Occupational Health Office and the Region South Industrial Hygiene Office a Service Contract was put together to conduct Health Hazard Information module (HHIM) Field surveys and IH surveys at South Carolina National Guard Facilities.

- Non-Responsive of OSHEA II Consulting conducted the survey.
- 3. Findings. All HHIM field survey forms and survey findings of the report are enclosed. (See ENCL. 1)
- 4. Recommendations.
  - a. Hearing Conservation Program. Continue with annual audiometric testing for relevant personnel in accordance with reference 1h. AR 40-501 RAC 3
  - Hazardous communication or HAZCOM refresher training. Continue with Annual HACOM training. Dated and signed records should be maintained of all HAZCOM training administered.
  - c. Halogen light bulbs need to be replaced immediately after they have become blown to give the maximum amount of light in classroom, offices, and training areas in accordance with reference 1h. A work order should be submitted to the appropriate office requesting repair/replacement of fuses in non-functioning light fixtures.
  - d. Weapons are never to be cleaned inside the weapon's storage vault or any other enclosed area without adequate ventilation in accordance with references 1a and 1c. Personal Protective equipment, such as goggles, should be worn to protect eyes from splash hazards and gloves should be worn to prevent solvent absorption through the skin. 29 CFR 1910, 132, and AR 385-10
  - e. A work order along with a copy of this report should be sent to the brigade Facility Maintenance office for access to control heating and cooling in the armory as well as a way to stop the air handler from running continuously.
  - f. Based on the limited, short duration, nature, of contact cleaners, and solvents used at this armory, there is no need for a Respiratory Protection Program, neither is there a need to perform atmospheric monitoring during weapons cleaning if windows and doors are open to circulate air during weapons cleaning.

5. If additional information is/needed about the contractors report, please contact

CF: State Safety and Occupational Health Office ATTN: TAG-AV-SS (LTC. D. Burton), 1 National Guard Road, Columbia, SC 29201-4766

### OSHEA II IH CONSULTING

South Carolina Army National Guard Eastover Armory



OSHEA II IH CONSULTING PO BOX 35669 FAYETTEVILLE, NC 28303

### OSHEA II IH CONSULTING

PO Box 35669

Fayetteville, NC 28303

South Carolina Army National Guard Supervisor, A, B, D, E and HHC 10311 Garners Ferry Road Eastover, SC 29044

Dear (Non-Responsive

These are the recommendations in lieu of the report of the Health Hazard Information Module (HHIM) survey performed at Eastover Armory, Chester, South Carolina.

Questions regarding this report can be addressed through Non-Responsive Atlanta NGB office at Non-Responsive



### RECOMMENDATIONS

- a. Hearing Conservation Program. Continue with annual audiometric testing for relevant personnel in accordance with reference 1h. AR 40-501 RAC 3
- b. Hazardous communication or HAZCOM refresher training. Continue with Annual HACOM training. Dated and signed records should be maintained of all HAZCOM training administered. RAC 3 29 CFR 1910.1200
- c. Halogen light bulbs need to be replaced immediately after they have become blown to give the maximum amount of light in classroom, offices, and training areas in accordance with reference 1h. A work order should be submitted to the appropriate office requesting repair/replacement of fuses in non-functioning light fixtures.
- d. Weapons are never to be cleaned inside the weapon's storage vault or any other enclosed area without adequate ventilation in accordance with references 1a and 1c. Personal Protective equipment, such as goggles, should be worn to protect eyes from splash hazards and gloves should be worn to prevent solvent absorption through the skin. 29 CFR 1910, 132, and AR 385-10
- e. A work order along with a copy of this report should be sent to the brigade Facility Maintenance office for access to control heating and cooling in the armory as well as a way to stop the air handler from running continuously.
- e. Based on the limited, short duration, nature, of contact cleaners, and solvents used at this armory, there is no need for a Respiratory Protection Program, neither is there a need to perform atmospheric monitoring during weapons cleaning if windows and doors are open to circulate air during weapons cleaning.

Enclosure No. 1

MEMORANDUM FOR: South Carolina Army National Guard: Non-Responsive Supervisor, A, B, D. E and HHC Company 1/151 Battalion, Eastover, South Carolina 29044

SUBJECT: Baseline Industrial Hygiene Health Hazard Information Module (HHIM) Survey A, B, D. E and HHC Company 1/151 Battalion, 10311 Garners Ferry Road, Eastover, South Carolina 29044

January 30, 2006

### REFERENCES

- a. Title 29 Code of Federal Regulations (CFR) part 1910, Occupational Safety and Health Administration (OSHA).
  - b. Army Regulation 385-10, The Army Safety Program.
- c. Army Regulation 11-34, February 1990, The Army Respiratory Protection Program
- d. Technical Bulletin (TB MED) 503, 1 February 1985, The Army Industrial Hygiene Program
- e. Industrial Ventilation, 22nd Edition, The American Conference of Governmental Industrial Hygienist (ACGIH), Cincinnati, Ohio.
- f. National Guard Regulation 385-10, 20 December 1989, Army National Guard Safety and Occupational Health Program.
- g. IES Lighting Handbook, Application Volume 2000, Illumination and Engineering Society of North America.
- h. Department of the Army Pamphlet (DA PAM) 40-501, 27 August 1991,
   Hearing Conservation Program.
- i. Technical Bulletin (TB MED) 503, 1 February 1985, The Army Industrial Hygiene Program.
  - j. Army Regulation (AR) 40-5, 15 October 1990, Preventive Medicine.

Oshea II Industrial Hygiene Consulting IH Survey, SCARNG January 2007

- 2. General: At the request of Non-Responsive Regional Industrial Hygienist, National Guard Bureau South at Atlanta, Georgia, a Health Hazard Information Module Baseline Survey was performed at A, B, D. E and HHC Company 1/151 Battalion, Eastover, South Carolina.
- 3. **Background**: The purpose of this survey was to evaluate health hazards, existing controls in the work site to perform a baseline survey in accordance with references 1a through 1j and collect bulk samples.

### 4. Findings:

**Site Description:** A, B, D. E, and HHC Company 1/151 Battalion, is located in Eastover Armory. Construction of this facility was completed in 1977. It is approximately 25,948 square feet. Ten full time people perform administrative duties. The facility contains thirteen offices, a class/conference room, kitchen, drill hall, Supply room and weapons vault. The floors were tiled with no signs of friability. A hallway adjacent to the storage area contained old brown colored tile. It was stated that tile had been installed when the armory was being built.

Ceiling tile contained water circles in the halls and a few of the offices. Both halls contained brown dried water circles. The hallway of Echo Company contained the most water circles. Three of the tiles in that hall had some mold spore growth, but were completely intact.

The kitchen was undergoing renovations. There had been a termite infestation in the cabinets. Cabinets had been removed from the wall and the wall painted. New wood had been placed on lower cabinets. It was not in service during this survey, however; Chief Cordova stated that the kitchen was being renovated for use again. State engineers were present during this survey making plans and assessing/repairing the kitchen and as well as other things in the armory. The water fountain in the foyer was broken. The drain had been removed.

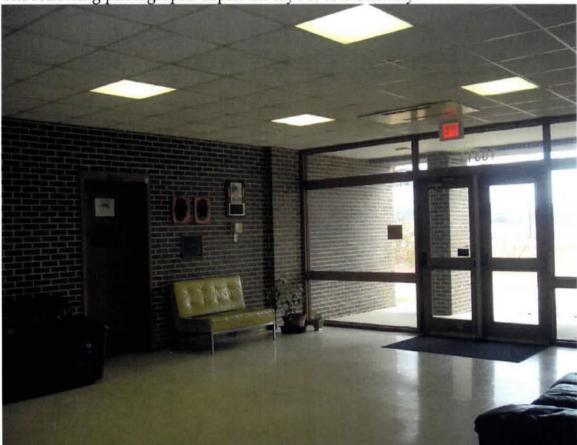
The converted range had been remodeled and a room made up stairs. This area was fabricated by the state. That area contained lockers. Safety issue: Note: the floor had not been weight tested. Four offices were located down under the area containing the wall lockers. There was no place to obtain samples. Chief Cordova stated that clearance sampling had been performed after the conversion. He stated that the floor tile in the area adjacent to the firing range had been tested for asbestos and provided a copy of the report and laboratory analysis. The copy is included in enclosure No. 2 behind the *facility layout*.

The air handler installed in the armory is electronically controlled. It is set/controlled by computer and there were no control buttons/knobs to change any settings. Some offices were uncomfortably warm. It ran constantly during the survey. The constant running of the air handler runs produces nuisance noise levels below 60 decibels. It was very annoying for personnel who have their desk directly under vents. Rearranging the offices would not make a difference because of their sizes.

Mon-Responsive did not have the keys to open the vault and supply room. One individual keeps the keys and was off during the survey. No samples could be collected in vault. A solvent bath tank was noted during the survey. It was located in the corner of the drill hall leading to the exit. It is used during only when weapons are cleaned during drill. It remains closed otherwise.

In the drill hall two large exhaust fans were on the wall and used during the summer to cool the area. The fans were extremely dirty. Debris covered the openings. There were thirty halogen lights. One bulb was blown.

The following photographs depict the layout of the facility.



Foyer

Hallway of office in Echo Company



Hallway of offices of Alpha, Bravo and Delta Company.





A Company administrative offices



The drill hall had the right side partly caged.



Two exhaust fans are located in the ceiling of the drill hall. It was noted that they were dirty and full of spider webs. The photo shows how dirty they were. It was stated that they had been unplugged.



This is the converted range. The caged area is used to store supplies. Above it is the room containing the lockers.



Locker room (up stairs)



This photograph shows the steps that lead to the upstairs room.

The photographs that follow depict other findings in the facility.



Ceiling tile in an office of Echo Company Mold was noted on this tile.



The mold on these tiles were noted in the hall of Echo Company



The vents were dirty in several offices also.

Posted to N May, 20 8



A new handler had been installed in the armory. It constantly runs.

does not have the ability to shut it down. It was 80 degrees in some of the offices. There was no way to access controls to lower the temperature. They run over the weekend as well it was stated.

- b. **Hearing Conservation Program:** All employees are enrolled in the state Hearing Conservation Program and receive annual audiograms.
- c. HAZCOM: It was stated that training had been performed.
- d. **Illumination:** Illumination levels were recorded in all administrative areas. See chart below for specific location of measurements.

Location	Illumination level (FTC)	IES Standard (FTC)
Chief Cordova's office	72.882.3	50100
Room 103	77.978.7	50100
Room 104	38.850.3	50100
Room 107	20.921.0	50100
Room 109	55.673.4	50100
Room 111	46.366.1	50100
Room 113	51.663.3	50100
Drill hall	11.513.1	50100
Kitchen	29.130.2	50100
Storage	13.423.7	1020

The majority of readings are at the IES lighting standard for foot-candles for each area.

#### 5. Technical Assistance:

For further assistance concerning this survey, you may contact Non-Responsive NGB Regional Industrial Hygienist at Non-Responsive



CF: State Occupational Health Office

ATTN: Non-Responsive

1 National Guard Road

Columbia, South Carolina 29201-4766

CF: State Safety Office

ATTN:

1 National Guard Road

Columbia, South Carolina 29201-4766

# METHODOLOGY/INSTRUMENTATION:

The following survey instrumentation was utilized to obtain illumination measurements. All equipment was used according to manufacturer/manual recommendations. All equipment was calibrated prior to and after use.

Nomenclature	Serial No.

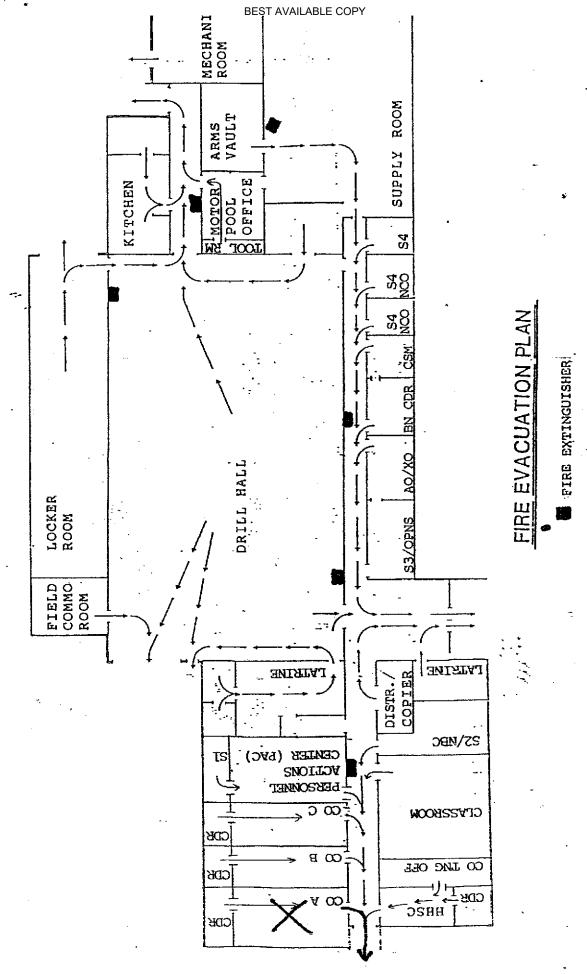
Extech Light Meter L595339

Enclosure No. 1

Facility layout &

Tile report for Asbestos

Enclosure No. 2



# STATE BUILDING ASBESTOS REQUEST FORM Davis & Floyd, Inc.

P.O. Drawer 428
Greenwood, South Carolina 29648
(803) 229-5211

					EASTOVER ARMORY
		.27	•		Building Sampled (Name/Description)
				-	RT 1 Box 96B
					Building Location (Address)
					Eastoner, S.C.
					102638
					Building ID # (000000)
					£24.
					State Agency Code
No	on-Re	spons	sive		Davis a Floyd
Coll			*****		Company/Agency Affiliation

RETURN TO SENDER A PHOTOCOPY OF THIS FORM(S) AND OF CHAIN OF CUSTODY FORM(S) RELATING TO SAMPLES HEREIN WHEN ANALYSIS IS COMPLETED. RETURN ORIGINAL OF IS FORM.

DO NOT WRITE BELOW THE LINE

FOR LABORATORY USE ONLY						
Assigned Analyst _	Non-Res	ponsive	Dar	te Received <u>)</u>	ecember 18, 1989	
(000000-00) Building Sample #	Lab ID#	Sample Appearance*	Asbestos Present?	Percent Asbestos	Other Sample Constituents	
102638- 01	8910176	Vin Flor Tile	Charadile	mostic - 29. Tile - 5%	Birder Quarte	
102638-02	8910177	Vinyl Floor Tile	None	No mastic	Binder, Quartz	
102638-03	8710178	Viryl Flore Tile	Chrysolile	Mastic 3%	Binder, Quartz	
102638-04	8910179	Vinul Basehard	None		Binder	
107638-05	8910180	Viryl Baseboard	None	-	Binder	
162638-06	8910181	Suspended Acoustical Tile			Pear liter Bridge	
102638-07	8910182	Suspended Acousting Tile			Rachter Binder	
10 26 38 - 08	8910183	Duct Scalant +	Chrysolile	169.	Calminde Mineral	
102638-09	8910184	Pice Insulation Scalet		15%	Wal Birder	
102638-10	8910185	Dust Sealant +	Charsolile	15%	Meilier Mineral	

NOTE: All testing is done using polarized light microscopy (PLM) and dispersion staining techniques.

# Davis & Floyd, Inc.

Environmental Services Division P.O. Drawer 428 Greenwood, South Carolina 29648 (803) 229-5211

					EASTOVER ARMORY
	a.e.	*			Building Sampled (Name/Description)
					RT 1 Box 96B
					Building Location (Address)
					EastoNER, S.C.
					102638
					Building ID # (000000)
	· · . ·	· .			1 £ 24
No	on-Resp	onsive	20.25.5		State Agency Code
			100mm	28	Davis & Floyd
Colle					Company/Agency Affiliation

RETURN TO SENDER A PHOTOCOPY OF THIS FORM(S) AND OF CHAIN OF CUSTODY FORM(S) RELATING TO SAMPLES HEREIN WHEN ANALYSIS IS COMPLETED. RETURN ORIGINAL OF U.S. FORM.

DO NOT WRITE BELOW THE LINE

		FOR LABORATORY	USE ONLY		
Assigned Analyst _	Non-Res	ponsive	Da	te Received )	ecember 18, 1589
(000000-00) Building Sample #	Lab ID#	Sample Appearance*	Asbestos Present?	Percent Asbestos	Other Sample Constituents
102638-11	8910181	Suspended Acadia Til		-	wal Pearlie Binder
102638-12	8910187	Dust Includion Scale at	Chrysotile	10%	Wal, Binder
102638-13	8910188	Sugarded Acards a) Tile	Nme	_	Mineral Worl,
102638-14	8910189	Suspended Academ Tile	None	_	Pearlite Birder Callulace, mineral wood, Poorlite, Birder
107638-15	8910190	Suspended Andral Tile	None		Cellulex Biodec
102638-16	8910191	Hard Jaint	None	_	Cellulase, Glass Fibers, Bindor
10 2638-17	8910192	Pipe Insulation	Nme		Cellalose, Bigder
102638-18	89/0/93	Boiler Stack Insublin	-Nmc		Cellulose, Binder Pocks
102638-19	8910194	Ceiling Tile	None		Pearlite, Binder
D 4					

Remarks: Analyzed on December 20, 1989

\*NOTE: All testing is done using polarized light microscopy (PLM) and dispersion staining techniques.

## Abatement Recommendations

Asbestos-containing floor tile was found in Rooms 06, 06A, 07, 08, 12, 13, 14, 15, 16, 17, 18, Halls 1, 2, 3, and the Foyer. This material was in good condition and was nonfriable. Therefore, this report recommends that an O&M program be implemented to prevent the ACBM from deteriorating and creating an exposure problem. This type of maintenance program involves training maintenance personnel about the hazards of asbestos and about the procedures for keeping the asbestos from contaminating surrounding areas. Another function of an O&M program is to set up periodic visual inspections of all asbestos-containing materials. Periodic inspections insure that if there is an exposure problem, it will be recognized and corrected before any major contamination occurs. Asbestos-containing pipe joint sealant and duct insulation sealant were found above the suspended ceiling throughout the building. The material was nonfriable, in good condition, and should be included in the O&M program established for the building.

Again, this report does not recommend asbestos abatement actions that involve total immediate removal of the asbestos from the building. However, it should be emphasized that this is only a temporary solution based on immediate economics and exposure potential. Eventually, all of the asbestos will have to be removed from this building to comply with paragraph 61.147 of the Environmental Protection Agency's regulations on National Emission Standards for Hazardous Air Pollutants (40 CFR Part 61), which requires removal of all friable or potentially friable asbestos materials (in excess of 260 linear feet or 160 square feet) prior to building demolition or major renovation that would disturb the material. The fact that materials are not recommended for immediate removal does not indicate that the materials do not present exposure problems. It does suggest that there does not appear to be an existing condition resulting in a significant release of asbestos fibers to the atmosphere. However, any damage to the material (vandalism, water damage, accidental physical damage through maintenance activities, etc.) could result in significant fiber release.

### Hazardous Material inventory

Floor wax stripper Floor cleaner Roach, ant & wasp cleaner Hand soap Glass cleaner

Enclosure No. 3

# Full time Personnel



Enclosure No. 4

HHIMS	INDUSTRIA	AL HYGIENE SU	RVEY FORM		
ARLOC_45000	INSTALLATION_A	ARNG	BLDG		ROOM
LOCATION	OPERATION	SURVEY DATE	EVALU	ATOR	MACOM
AV	ADO	YR 07/ 01/29	9 KJS		NG
SUPERVISOR	ORGA	NIZATION	-		RAC
Non-Responsive	A, B,	D, E HHc 1/151 A	vn Battalion. Eas	tover. SC	
	COMMERICAL/DSN		Y # CIV #MIL		CONTRACT # LOC
	x /	6-8 hours/ day	10 /		/
TAR HOODS	APOR/DEGREASERS		SANDBLASTING	BOOTH	OPEN SURFACE
0 0	<u> </u>	0	0	. 550111	0
NO VENTIL	ATION UNITS			-,0	1.
CONTROLS PRESE		LINIT	CODE	CONTR	OLS REQUIRED
	- LVALOATION	CIVIT	CODE	CONTR	OLS REQUIRED
-	<del>- +</del>	<u> </u>	<u> </u>		
	<del>   </del>		<u> </u>		
T = 1.1					
7 777					
			400		
				340 43	
0					
PPE (	REQUIRED UTILIZED				
GLOVES	R U <u>RESPI</u>	RATOR	RU	EYES/FA	CE RU
ACID	/ AIRL	INE	1	CHEM/SI	
<b>COLD SURFACE</b>	/_ ABRASIV	E BLASTING HOOE			E SHIELD
HOT SURFACE		OSABLE			AF IMPACT_X_/_x_
NBC AGENTS		E AIR PURFYING		SAFETY	49 No Takan belgi Nigara (m. 1940)
OIL		AIR PURFYING			G HELMET/_
SOLVENTS		D AIR PURFYING			
SURGICAL GLOVES	J <del> </del>	AIR PURIFYING			GOGGLES/
OTHER	/_ SCBA	AIR FURIFTING _	-0.00		PROTECT/
VIIIEI(	/ 3CDA	<del>-</del>		THER	
EARS/ HEARING	Rυ	DODY	B.U.		
CANAL CAPS		BODY	RU		ND FEET RU
>85-108 STDY EPL		PRONS			ER BT&HAT/_
		OLD WEATHER CL		D HAT	<b>_</b> /_
" "HLMT/PL		ERALLS _			LE BOOTS/_
" " MUFF ONE		BODY SUIT _			CONDUCT/_
108-118 MUFF/PL		REFLECTIVE	_/ SAFE	TY NON C	CONDUCT_X_/_X_
118 OR> MUFF/PL		r/suit _	_/ OTHER_		
W/ TIME LIMIT		BELT/ HARNESS _		10 <u>7</u>	/
SPECIAL PURPOSE	CLO/	OTHER_BDU_	<u>x/_x</u>		
9 (44.75) 4751-4751	CAS CODE	PAC	EPC	HAZARD	DESCRIPTION
PONOISECO	P0noiseco	2	0		intinuous
POFOOTHAZ	POstress	3	0		physical stress
POFLYPROJ	Polifting	3	D	Heavy lif	
POEYEHAZA	P0eyehaza	2	A	Eye Haz	ards
POFLAMMHAZ POLIFTING				-	- 100 m
POSHARPOBJE					Addition!
POELSHOCK		<u> </u>	<del>-</del>		

Administrative duties are performed six to eight hours a day and consists of answering phones, using computers, generating paper work and running errands.

PERSONNEL LIST ATTACHED

Enclosure No. 5

COLUBEOIL

DESCRIBED OPERATION

#### NATIONAL GUARD REGION SOUTH INDUSTRIAL HYGIENE OFFICE 510 PLAZA DRIVE, SUITE 1530 COLLEGE PARK, GA 30349

NGB-AVN-SI

6 October 2005

MEMORANDUM FOR the South Carolina Army National Guard, ATTN: Non-Responsive 225 Augusta Road, Edgefield, West Columbia, SC 29824.

SUBJECT: Industrial Hygicne Survey of the Edgefield National Guard Armory, Edgefield, South Carolina.

- 1. References.
- a Report submitted 5 October 2005, Industrial Hygiene Survey, Non-Responsive
- b. OSHA Standards 29 CFR (Code of Federal Regulations), General Industry, revised 1988.
  - c. AR 40-5, Preventive Medicine, October 1990.
  - d. AR 11-34, 15 February 1990, the Army Respiratory Protection Program.
  - e. AR 385-10, 23 May 1988, Army Safety Program.
- f. Department of the Army Pamphlet (DA PAM) 40-501, 27 August 1991, Hearing Conservation.
  - g. TB MED 530, the Army Industrial Hygiene Program.
- h. Title 29 Code of Federal regulation (CFR), 1989 rev, Part 1910.94 (c) (6) Table G-10, Ventilation.
- i. Industrial Ventilation, 21st ed, 1992, American Conference of Governmental Industrial Hygienist, Cincinnati, Ohio.
- j. IES Lighting Handbook, Application Volume, 1981, Illumination Engineering Society of North America.
- 2. General.
- a. At the request of the South Carolina State Safety and Occupational Health Office and the Region South Industrial Hygiene Office a Service Contract was put together to conduct Health Hazard Information module (HHIM) Field surveys and IH surveys at the South Carolina National Guard Armories.
  - b. Non-Responsive conducted the survey.

- 3. Findings. All HHIM field survey forms and survey findings of the report are enclosed. (See ENCL. 1)
- 4. Recommendations.
- a. Follow all recommendations made in reference 1. a., requesting industrial hygiene (IH) services where needed to complete the recommendations.
- b. Use the report to help in correcting all deficiencies noted by the contractor.
- c. The insulated wrapping around the boiler contains Asbestos containing material. Take all proper precautions when dispose of or repairing the boiler.
- d. Resubmit a request to FMO to repair the leak in the locker room. Use this report to show documentation of problem.
- e. Consider additional Industrial Hygiene services to monitor operations that were not looked at or surveyed during the contract visit, especially if this will help eliminate health hazards and reduce medical surveillance cost.
- f. To execute your responsibilities in correcting all deficiencies and meeting all standards coordinate with the FMO, the Environmental Office the Occupational Health Nurse and the Occupational Safety and Health Office for technical guidance.
  - g. Ensure that the FMO receive a copy of this report.



CF: Safety and Occupational Health Office, ATTN: Non-Responsive National Guard Road, Columbia, SC 29201-4766



September2, 2005

# Non-Responsive

SC Army National Guard Armory 225 Augusta Rd. Edgefield, SC 29824

RE: Baseline Industrial Hygiene Survey

#### FINAL REPORT

#### **FOR**

#### **BASELINE INDUSTRIAL HYGIENE SURVEY**

#### SOUTH CAROLINA ARMY NATIONAL GUARD

**EDGEFIELD ARMORY** 

**EDGEFIELD, SC** 

DATE:

**AUGUST 9, 2004** 

PREPARED BY

Non-Responsive

#### **CONTENTS**

1.	A	INTR	OD	1167	TON
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#### 2.0 INSTRUMENTATION

#### 3.0 FINDINGS

#### 4.0 REFERENCES

Attachment 1 HHIM Forms

Attachment 2 Laboratory Reports: Deactivated Indoor Firing Range Weapons Vault Racks

Attachment 3 Laboratory Reports: Kitchen

Attachment 4 Laboratory Reports: Boiler, Asbestos Bulk Sample

Attachment 4 Photographs of the Facility

Attachment 5 Schematic Drawing of Facility

#### 1.0 INTRODUCTION

At the request of the National Guard Bureau South Region Industrial Hygiene Office, Non-Responsive performed a Baseline Industrial Hygiene Survey at the SC ARNG Edgefield Armory. The purpose of the survey was to perform a baseline survey to evaluate health hazards, controls present in the work site, collect lead swipe samples from renovated/inactive or closed Indoor Firing Ranges, Weapons Vault racks, A/C-Heating System, illumination survey and to make recommendations regarding health hazards associated with the work at the Edgefield Armory.

Personnel do not know when the building was finished. The offices were remodeled a while back. The facility houses the HHC 122<sup>nd</sup> Engineer BN. The armory is used by the troops of the HHC 122<sup>nd</sup> Engineer BN for their monthly weekend drills.

The HHC 122<sup>nd</sup> Engineer BN with about 98 troops had nine full time AGR personnel at the time of the survey. The AGR employees are assigned to perform administrative duties, Monday-Friday 7:30am-5: 00pm with every other Monday off. The facility houses administrative areas, a drill Hall, classrooms, a supply room, a weapons vault, a kitchen at a small building behind armory, a dining at another building behind armory and a deactivated Indoor Firing Range used now as a classroom, library and weight room. The kitchen is used to cook for the troops on weekend drills at the time of the survey. It was clean and organized the day of the survey. The facility has only window A/C units. They are dual units that are also used to heat the offices and supply room. Personnel reported that the window units are working well. They have been repaired recently. Personnel also reported that there is not enough parking area for the troops on weekend drills and there is a water leak with stained ceiling tiles in the locker room (See pictures). Work orders have been sent to the state for the repair of the roof leak. A schematic drawing of the facility can be found in Attachment 5.

The facility was visually examined and personnel consulted to assess potential hazards present. Health Hazard Information Modules were completed. Illumination survey was performed throughout the facility. There is generalized poor lighting through out the facility.

#### 2.0 INSTRUMENTATION/CALIBRATION

The following instrumentation was used to obtain light measurements. The instrument used has been calibrated and was operated according to the manufacturer's recommendations:

EXTECH Light Meter

#### 3.0 FINDINGS

#### Illumination

Illumination levels were recorded in administration offices, classroom, library, copy room, training room, the drill hall and the supply room. Light measurements were below IES guidelines at the Readiness NCO office, SGT Timmerman office with low readings at computers (41FC) and at the Copy room with a light fixture out. There are no windows in any of the above mentioned rooms. Consideration should be given to provide supplemental lighting at the locations that were below the recommended standard and to replace burnout light bulbs in the copy room. See Light Readings Table at the end of this section.

#### Administration

Personnel perform administrative duties that consist of reading, handling and generating paper work. Computer use comprises a large portion of the working day, four to seven hours per day. This continuous use of computers can in the long run lead to eyestrain and hand/wrist soreness. One AGR reported he was treated for a left shoulder injury about two or three years ago. It only bothers him some when he does push-ups on PT tests. No health problems reported by personnel at the time of the survey.

#### **Motor Pool**

The motor pool is located in a fenced and locked area behind the building. PMCS is performed at the motor pool on weekend drills. A maintenance crew from the unit performs the maintenance and required services. Major and other repairs are for the vehicles are performed at the CSMS in Columbia.

#### Drill Hall

The Drill Hall is located in the center at the rear of the building. It is used primarily for formation on weekend drills. The Drill Hall is used to clean weapons about once a year. The tables that are used for this purpose are cleaned after the job is finished. Rags with CLP are used during this procedure. Bay (Roll-up) door is raised, weather permitting, when the weapons are cleaned. There are four air exhaust ventilators located one at each corner of the drill hall high close to the roof. They are turn on when weapons are cleaned or when it is too hot. All four ventilators were working on the day of the survey. No vehicles were stored in the Drill Hall. The Drill Hall is rented occasionally for outside activities such as wedding receptions and birthday parties. Renters bring their own food. They may use the kitchen to keep the food before it is served.

#### **Boiler Room**

The facility has boiler room located at the rear of the building with access from outside. There is and old boiler (See pictures) that is not used anymore. The facility now uses a metal water heater located next to old boiler to provide hot water to the facility. There was a small fracture of the wrapping of the old boiler at the lower front section. A bulk sample, to test for asbestos, was taken from this area. The sample result was positive for asbestos (See attachment 4).

#### **Deactivated Indoor Firing Range**

There is a deactivated Indoor Firing Range (IFR) at the facility. Personnel reported that they do not know when the IFR was cleaned (sanitized). There is a wall where the backstop used to be. The room was converted and remodeled, from front to back, into a library, a classroom and a weight room (See pictures). The floor of the library is about 10 inches above the floor of the rest of the area. This room (where backstop was located) has bookshelves and metal cabinets. Wipe samples were taken from these rooms. Six wipe samples were taken from the IFR. None of the six samples were above the clearance level of 200ug/ft2. See table 1 for results.

Table 1

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Sample Number	Sample Location	Results
15	Bullet backstop area, Where it was located: right	BRL
16	Bullet backstop area, Where it was located: left	BRL
17	Floor in front of where backstop was: library	BRL
18	Floor in front of where backstop was: classroom	BRL
19	Wall next to entrance/exit rear door	BRL
20	Wall next to entrance/exit door	25
28	Blank	BRL

#### Kitchen

The kitchen is located in a separate small building behind the armory. The mess section uses the kitchen to cook for the troops on weekend drills. It was clean at the time of the survey. There is also a separate larger building that is used as dining room. It is kept clean. Three samples for lead were taken from the kitchen. The results are found on Table 2 below.

#### Weapons Vault

The Edgefield Armory has a weapon storage vault located in the Supply Room. Personnel stated that accountability and issuing of weapons are performed in this area, at the door of the weapons vault. Weapons are cleaned about once a year in the Drill Hall with the air exhaust ventilators turned on, in the Drill Hall. CLP is used to clean the weapons, using rags. The dehumidifier in the weapons vault was working the day of the survey. It drains to the outside. Four wipe samples were taken from the weapons vault racks. None of the samples were above the clearance level of 200ug/ft2. See table 2 for results. Table two also includes three wipe samples taken from the kitchen.

Table 2

Sample Number	Sample Location	Results
21	Weapons Vault Racks (A)	38ug
22	Weapons Vault Racks (B)	21ug
23	Weapons Vault Racks (C)	BRL
24	Weapons Vault Racks (D)	33ug
25	Kitchen, Countertop next to Sink	BRL
26	Kitchen, counter where coffeemaker is	BRL
27	Kitchen, stove top	BRL
28	Blank	BRL

#### A/C Heating System

Individual A/C window units are used to cool the administration offices throughout the facility. These are dual units that also heat the offices during the winter. The supply room also has one of the dual A/C-Heating units. Personnel reported that the units are working well. Some have been repaired. The old heat radiators are not used any more to heat the building

#### Material Safety Data Sheets

No MSDS book was found at the facility the day of the survey. The supply Sgt. was away at school. MSDS forms should be use to create an MSDS book. There is no sign anywhere where the troops can read about the location of the MSDS book (forms) in case of an emergency. There is a separate POL shed located behind the armory. It is kept locked all the time. It contains paint in gallon and five gallon containers, WD 40 and CLP. There was no Hazardous Materials Inventory List present in the shed. Personnel stated that the supply Sgt. has attended Hazardous Material Training.

#### **Light Readings**

Light measurements were taken in various locations throughout the facility. The results were compared to guidelines recommended by the Illuminating Engineering Society (IES). The results of the survey are shown in Table 3.

Table 3

Location	Light Reading (footcandles)	IES Recommendation (footcandles)
ADO Readiness NCO Office	39-45 (Avg. 42)	50-100
ADO SGT Timmerman Office	43-47 (Avg. 44)	50-100
ADO Supply Room Office	33-71 (Avg. 50)	50-100
Supply Room Storage	56-118 (Avg. 70)	20
ADO Senior PSNCO Office Non-Responsive	53-104 (Avg. 78)	50-100
ADO PSNCO Office Non-Responsive	50-241 (Avg. 127)	50-100
ADO BN (RET) NCC	49-96 (Avg. 71)	50-100
ADO S-4 Office	48-67 (Avg. 58)	50-100

Copy Room	17-48 (Avg. 32)	50-100
Training Room	49-150 (Avg. 94)	50-100
Classroom	20-68 (Avg. 58)	50-100
Library	37-68 (Avg. 58)	50-100
Drill Hall	43-81 (Avg. 65)	30

Light measurements were below IES guidelines at the Readiness NCO office with low readings at the computer (41FC), Non-Responsive office and at the Copy room. There are no windows in any of the above mentioned rooms. Consideration should be given to provide supplemental lighting at the locations that were below the recommended standard. ANSI RP7-1991.

#### 4.REFERENCES

- Guide to Occupational Exposure 2000, American Conference of Governmental Industrial Hygienists (ACGIH), Cincinnati, Ohio.
- American National Standards Institute (ANSI), /Illuminating Engineering Society (IES), Industrial Lighting 1991.
- Title 29, Code of Federal Regulations (CFR). 1999, revision, Part 1910.
   Occupational Safety and Health Standards
- · AR 40-5, Preventative Medicine, 15 October 1990.
- AR 385-10, The Army Safety Program, 23 May 1988.
- National Safety Council, Fundamentals of Industrial Hygiene, 4<sup>th</sup> edition, 1996.
- AR 385-16, National Guard Pamphlet, Safety Guidelines for Converting Indoor Firing Ranges to Other uses.
- TB MED 503, The Army Industrial Hygiene Program, February 1985.
- Department of the Army Pamphlet (DA PAM) 40-501,27 August 1991, Hearing Conservation.
- Title 29 CFR, Part 1910.1200, The Hazard 0



#### RECOMMENDATIONS

- Consideration should be given to provide supplemental lighting at locations that were below the recommended standard and to replace burnout bulbs or fixtures (See Light Readings Measurement section).
- Recommend that when using computers for extended periods of time, personnel should take occasional breaks and change position to minimize the possibility of eyes and/or hands/wrist injury.
- Continue to ensure that weapon maintenance and cleaning is done in a wellventilated area. Continue to practice good personal hygiene by washing hands after handling and cleaning weapons and ammunition. Ensure that the weapons racks are well cleaned before placing them back in the vault.
- Ensure that after weapons cleaning, the used rags should be properly disposed of.
- A request should be made to the appropriate state agency to evaluate the
  possibility of increasing the parking area for the troops on weekend drills.
- If there is not an MSDS book present at the facility, one should be developed using the MSDS forms. It should be updated periodically as new products are received.
- A Hazardous Materials Inventory List should be developed from the MSDS book (forms) and be placed in the POL shed.
- Ensure that personnel and troops have knowledge of the location of the MSDS book. And is enrolled hazardous materials safety training.
- Another request should be made to the appropriate state agency for the repair
  of the roof leak in the locker room and the replacement of the stained ceiling
  tiles.
- Explore the possibility, through the appropriate state agency, for the removal of the old boiler if it has not been done yet.

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# · PRIVACY ACT STATEMENT

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Disclosure of your Social Security Number is not mandetary; however, nondisclosure may result in untimaly provision of proper medical monitoring.

Signature

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# · PRIVACY ALT STATEMENT

Title & U.S. Code. Section 301: Rescutive Order 9397 authorizes the use of your Social Security Number as a identification number. The purpose of this information is to identify and monitor data relating each DA cirilion amployee exposed to a hexardum workplace or operation. The use of this information is to provide histories of exposure fugency given worker.

Disclosure of your Social Security Number is not mandatory; however, nondisclosure may result in antimely provides of proper medical munitories.

Sienature

# Analytical Environmental Services, Inc.

Date: 8/18/2005

### TOTAL LEAD IN WIPE SAMPLES N7082

CLIENT:

Non-Responsive

Project:

Edgereid, SC Adinory

Delivery Order:

PO No:

Lab Order:

0508741

Date Received:

8/12/2005 3:15 PM

Matrix:

Wipe

Laboratory ID	Client Sample ID	Results	Units	Report Limit.	DF	Date Collected	Date Analyzed	Analyst
0508741-001A	#15	BRL	μg, Total	20	1	8/9/2005	8/16/2005	VA
0508741-002A	#16	BRL	μg, Total	20	1	8/9/2005	8/16/2005	VA
0508741-003A	#17	BRL	μg, Total	20	1	8/9/2005	8/16/2005	VA
0508741-004A	#18	BRL	μg, Total	20	1	8/9/2005	8/16/2005	VA
0508741-005A	#19	BRL	μg, Total	20	1	8/9/2005	8/16/2005	VA
0508741-006A	#20	25	μg, Total	20	1	8/9/2005	8/16/2005	VA
0508741-007A	#21	38	μg, Total	20	1	8/9/2005	8/16/2005	VA
0508741-008A	#22	21	μg, Total	20	1	8/9/2005	8/16/2005	VA
0508741-009A	#23	BRL	μg, Total	20	1	8/9/2005	8/16/2005	VA
0508741-010A	#24	33	μg, Total	20	1	8/9/2005	8/16/2005	VA
0508741-011A	#25	BRL	μg, Total	20	1	8/9/2005	8/16/2005	VA
0508741-012A	#26	BRL	μg, Total	20	1	8/9/2005	8/16/2005	VA
0508741-013A	#27	BRL	μg, Total	20	1	8/9/2005	8/16/2005	VA
0508741-014A	#28	BRL	μg, Total	20	1	8/9/2005	8/16/2005	VA

Qualifiers:

BRL - Not Detected at the Reporting Limit

DF - Dilution Factor



#### **BEST AVAILABLE COPY** ANALYTICAL ENVIRONMENTAL SERVICES, INC.

Bulk Sample Summary Report

Client Name:

(espons

Project Name: EDGEFIELD SC ARMORY

Project Number.

AES Job Number; 0508771

Thursday, August 18, 2005

Page 1 of 1

Client ID	AES ID	Location	Ast	estos	Mine	ral Per	Comments		
			CH	AM	CR	AN	TR	AC	
29		Loose Piece- Boiler Wrapping	40	ND	ND	ND	ND	ND	Paint included as binder, Iron oxide included as binder
Layer: 1									

Note: CH=chrysotile, AM=amosite, CR=crocicolite, AC=actinolite, TR=tremoite, AN=anthophylite For comments on the samples, see the individual analysis sheets

ND = None Detected

PLM is not consistently reliable in detecting small concentrations of asbestos in floor tiles and similar horifinable materials. Quantitative TEM is currently the only method that can be used to determine the conclusive asbestos content.

It is certified by the signatures below that the laboratory identified is accredited by the National Institute of Standards and Technology for Polarized Light Microscopy (PLM) analysis under the EPA Interim Assestos Bulk Sample Quality Assurance Program, Laboratory ID 102C82-0. All percentages given are by visually estimated volume. All analyses are performed in accordance with the EPA "Method for the Determination of Asbestos in Bulk Building Materials, EPA/800/R-83/115, July 1993." This report must not be reproduced except in full without the approval of Analytical Environmental Service, Inc. These test results apply only to the samples actually tested.

Microanalyst:



## EDGEFIELD, SC ARMORY





## **DRILL HALL**

## A/C-HEATING WALL UNIT

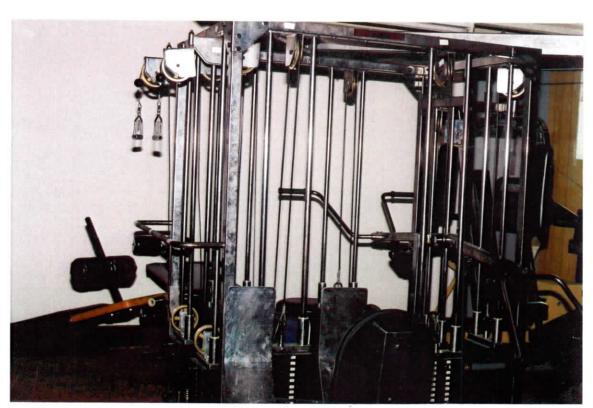


Posted to N May, 20 8



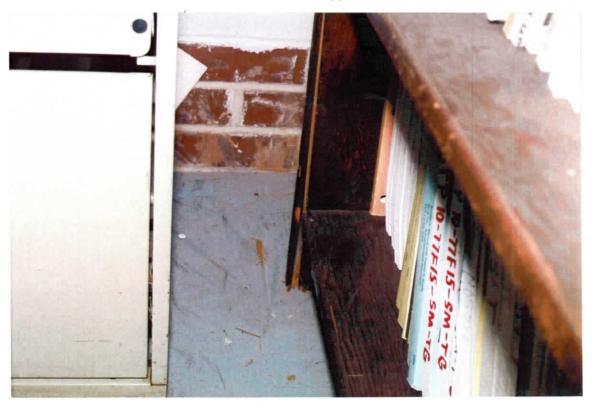
## IFR, FRONT VIEW

## IFR, REAR VIEW



Posted to N May, 20 8

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IFR, WHERE BACKSTOP WAS

### STAINED CEILING TILES, LOCKER ROOM



Posted to N May, 20 8

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## **MOTOR POOL**

## **KITCHEN**

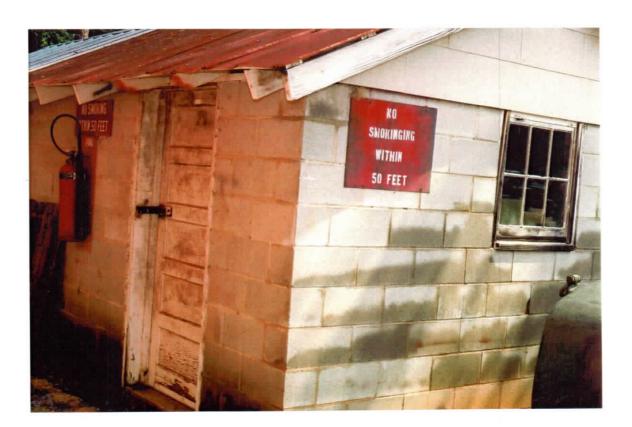


Posted to N May, 20 8



## **DINING ROOM**

## **POL SHED**



Posted to N May, 20 8



## POL SHED, INSIDE

## POL SHED, INSIDE





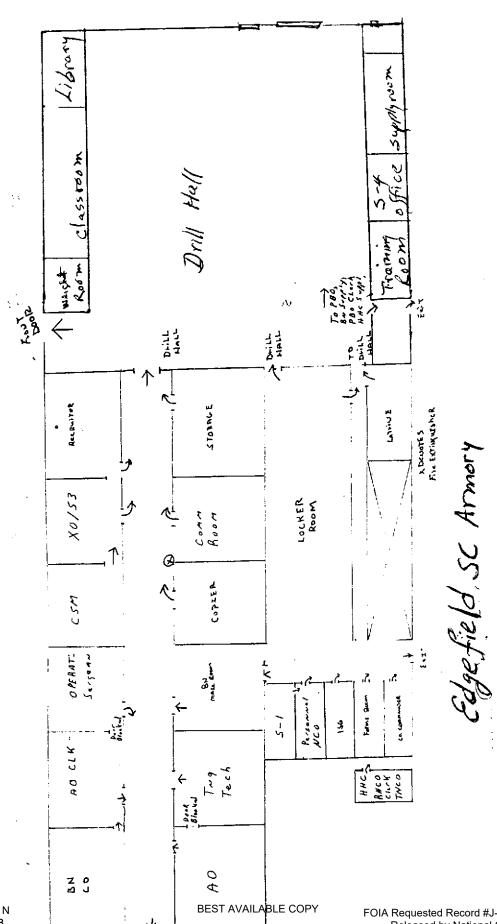
## **BOILER**

# BOILER, BROKEN SECTION



Posted to N May, 20 8

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Posted to N May, 20 8

FOIA Requested Record #J-15-0085 (SC) Released by National Guard Bureau Page 509 of 964

#### NATIONAL GUARD REGION SOUTH INDUSTRIAL HYGIENE OFFICE 510 PLAZA DRIVE, SUITE 1530 COLLEGE PARK, GA 30349

NGB-AVN-SI

6 October 2005

MEMORANDUM FOR the South Carolina Army National Guard, ATTN:

Armory Supervisor, 365 Bettis Academy Road, Graniteville, SC 29829.

SUBJECT: Industrial Hygiene Survey of the Graniteville National Guard Armory, Graniteville, South Carolina.

- 1. References.
- a. Report submitted 5 October 2005, Industrial Hygiene Survey, Non-Responsive
- b. OSHA Standards 29 CFR (Code of Federal Regulations), General Industry, revised 1988.
- c. AR 40-5, Preventive Medicine, October 1990.
- d. AR 11-34, 15 February 1990, the Army Respiratory Protection Program.
- e. AR 385-10, 23 May 1988, Army Safety Program.
- f. Department of the Army Pamphlet (DA PAM) 40-501, 27 August 1991, Hearing Conservation.
  - g. TB MED 530, the Army Industrial Hygiene Program.
- h. Title 29 Code of Federal regulation (CFR), 1989 rev, Part 1910.94 (c) (6) Table G-10, Ventilation.
- i. Industrial Ventilation, 21st ed, 1992, American Conference of Governmental Industrial Hygienist, Cincinnati, Ohio.
- j. IES Lighting Handbook, Application Volume, 1981, Illumination Engineering Society of North America.
- 2. General.
- a. At the request of the South Carolina State Safety and Occupational Health Office and the Region South Industrial Hygiene Office a Service Contract was put together to conduct Health Hazard Information module (HHIM) Field surveys and IH surveys at the South Carolina National Guard Armories.
  - b. Non-Responsive conducted the survey.

- 3. Findings. All HHIM field survey forms and survey findings of the report are enclosed. (See ENCL. 1)
- Recommendations.
- a. Follow all recommendations made in reference 1. a., requesting industrial hygiene (IH) services where needed to complete the recommendations.
- b. Use the report to help in correcting all deficiencies noted by the contractor. Present report as documented proof of the roof leak problems.
- c. Take extra care when cleaning the Weapons Vault and the Weapon Vault Racks.
- d. The deactivated IFR will always be a firing range until the backstop is removed. Remove the backstop.
- e. Consider additional Industrial Hygiene services to monitor operations that were not looked at or surveyed during the contract visit, especially if this will help eliminate health hazards and reduce medical surveillance cost.
- f. Ensure that the FMO and the Environmental Offices receive a copy of this report.
- g. To execute your responsibilities in correcting all deficiencies and meeting all standards coordinate with the FMO, the Environmental Office the Occupational Health Nurse and the Occupational Safety and Health Office for technical guidance.



CF: Safety and Occupational Health Office, ATTN Guard Road, Columbia, SC 29201-4766

Non-Responsive

1 National

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# Non-Responsive Non-Responsive

September 23, 2005

## Non-Responsive

365 Bettis Academy Rd. Graniteville, SC 29829

RE: Baseline Industrial Hygiene Survey

#### FINAL REPORT

#### **FOR**

#### BASELINE INDUSTRIAL HYGIENE SURVEY

#### **SOUTH CAROLINA ARMY NATIONAL GUARD**

**GRANITEVILLE ARMORY** 

**GRANITEVILLE, SC** 

DATE:

SEPTEMBER 8, 2005

PREPARED BY



#### **CONTENTS**

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1.	H	INTR	<b>{ ) () (</b> )	CTION

#### 2.0 INSTRUMENTATION

#### 3.0 FINDINGS

#### 4.0 REFERENCES

Attachment 1 HHIM Forms

Attachment 2 Laboratory Reports: Deactivated Indoor Firing Range Weapons Vault Racks

Attachment 3 Laboratory Reports: Kitchen and Drill Hall

Attachment 4 Photographs of the Facility

Attachment 5 Schematic Drawing of Facility

#### 1.0 INTRODUCTION

At the request of the National Guard Bureau South Region Industrial Hygiene Office, Non-Responsive performed a Baseline Industrial Hygiene Survey at the SC ARNG Graniteville Armory. The purpose of the survey was to perform a baseline survey to evaluate health hazards, controls present in the work site, collect lead swipe samples from renovated/inactive or closed Indoor Firing Ranges, Weapons Vault racks, A/C-Heating System, illumination survey and to make recommendations regarding health hazards associated with the work at the Graniteville Armory.

The armory was built in 1975. The roof was changed to a metal one a while back. The roof started leaking after the metal roof was installed. The facility houses the Company C 122<sup>nd</sup> ENGR BN. The armory is used by the troops of the Company C 122<sup>nd</sup> ENGR BN for their monthly weekend drills.

The Company C 122<sup>nd</sup> ENGR BN with about 80 troops had three full time AGR personnel at the time of the survey. The AGR employees are assigned to perform administrative duties, Monday-Friday 7:30am-5: 00pm with every other Monday off. The facility houses administrative areas, a drill hall, a classroom, supply room, a weapons vault, a kitchen, and a deactivated Indoor Firing Range which was converted to unit equipment and supplies storage. The kitchen is used to cook for troops on weekend drills. The kitchen was clean the day of the survey. Wipe samples were taken from the kitchen. The facility has only wall or window A/C-Heating units. Personnel reported that the roof leaks in many places in the armory like the Readiness NCO and Commander office, the Supply room, the locker room and men's latrine and showers areas. There is a mold build-up at a wall in the commander office. Personnel reported that work orders have been sent in the past to request the repair of the roof. They are concerned about the mold problem. Several offices have stained ceiling tiles due to water leaks. Ceiling paint and plaster are peeling off in latrine and showers. See pictures. A schematic drawing of the facility can be found in Attachment 5.

The facility was visually examined and personnel consulted to assess potential hazards present. Health Hazard Information Modules were completed. Illumination survey was performed throughout the facility. There is generalized poor lighting through out the facility.

#### 2.0 INSTRUMENTATION/CALIBRATION

The following instrumentation was used to obtain light measurements. The instrument used has been calibrated and was operated according to the manufacturer's recommendations:

EXTECH Light Meter

#### 3.0 FINDINGS

#### Illumination

Illumination levels were recorded in administration offices and the supply room. Light measurements were below IES guidelines at the Readiness NCO office (with two fixtures out caused by water leak and two other fixtures with two bulbs out each), the Training NCO office (with three fixtures out and two others with two bulbs out each, the Supply Sgt. office side (Very high ceiling and not enough lights), the Commander office (with two fixtures out, one with two bulbs out and no windows) and the 1 SG office (two fixtures out and two other with two bulbs out). The other areas tested were within IES guidelines although the classroom and the Recruiter office 2 both have light fixtures out. The other areas tested were within IES guidelines. Consideration should be given to provide supplemental lighting at the locations that were below the recommended standard and to replace burned out bulbs as listed above. See Light Readings Table at the end of this section.

#### Administration

Personnel perform administrative duties that consist of reading, handling and generating paper work. Computer use comprises a large portion of the working day, four to six hours per day. This continuous use of computers can in the long run lead to eyestrain and hand/wrist soreness. The lighting should be improved in all the AGR offices. No health problems reported by personnel at the time of the survey.

#### **Motor Pool**

The motor pool is located in a fenced and locked area on the left side and behind the building. PMCS maintenance is performed at the motor pool on weekend drills. The operator level maintenance is mostly performed in the maintenance building located to the left side of the armory. The building is divided with metal cages used by platoon and maintenance sections. When major and other repairs for the vehicles are needed, they are performed at the OMS facility in Edgefield.

#### **Drill Hall**

The Drill Hall is located in the center of the building. It is used primarily for formation, drills and unit assembly on weekend drills. There were eleven bulbs out in the room. They are very high. The lighting measurement was helped by the roll up door been raised when they were taken. The Drill Hall is used to clean weapons about two or three times a year. A parts-weapons cleaning machine may be used with rags with CLP to clean the weapons. Sometimes the weapons are clean on tables set up on the Drill Hall floor. The tables are not covered. They are cleaned after. The used rags are collected and placed in a container. An

independent contractor comes to the armory to pick-up the container for its disposal. Weapons are distributed from the vault in the Supply Room. The Bay door should be opened, weather permitting, when the weapons are cleaned. There are two air exhaust ventilators located in separate room that connects directly to the Drill Hall through a door. Both work. One was turned on at the time of the survey. They are turned on when it is hot in the Drill Hall. The louvers at the fans do not open automatically so Personnel have to do it manually. Tables and chairs are stored in the room where the fans are located. The Drill Hall is rented out about once or twice a year for wedding receptions or social activities. The renters bring their own food using catering services. The kitchen is not used by renters.

#### **Boiler Room**

There is a boiler room or boiler in the armory. The facility uses electric heaters. Two water heaters are used at the facility, one for the kitchen and one for the rest of the armory.

#### **Deactivated Indoor Firing Range**

There is a deactivated Indoor Firing Range (IFR) at the facility. Personnel reported that it was "cleaned" around 1996 by a crew from an outside contractor. The sand was removed for disposal and the space the space where the sand was located was filled with concrete. The backstop is present and is painted. Metal cages were built inside the room. The room is now used for equipment and supply storage. Six wipe samples were taken from the IFR. None of the six samples was above the clearance level of 200ug/ft2. See table 1 for results.

Table 1

Sample Number	Sample Location	Results
39	Bullet backstop right	BRL
40	Bullet backstop left	31ug
41	Floor in front of the backstop, concrete floor	44ug
42	Item 1 stored in IFR, top of plastic case	BRL
43	Item 2 stored in IFR, top of plastic box	BRL
44	Wall next to entrance/exit door	50ug

50 Blank BRL	5(1)	Blank	BRL
--------------	------	-------	-----

#### Weapons Vault

The Graniteville Armory has a weapon storage vault located in the Supply Room. Personnel stated that accountability and issuing of weapons are performed in this area, at the door of the Supply Room. Weapons are cleaned at the maintenance building. There is a parts-weapons cleaning machine that is used to clean the weapons. The weapons are cleaned using rags with CLP. The used rags are placed in a container and are picked up by a contractor for disposal. The dehumidifier in the weapons vault was working the day of the survey. It drains to the outside through a hose connector. Five wipe samples were taken from the weapons vault racks. Two of the samples were above the clearance level of 200ug/ft2. See table 2 for results. Table two also includes wipe sampling taken from the kitchen and the Drill Hall.

Table 2

Sample Number	Sample Location	Results
45	Weapons Vault Racks (A)	155ug
46	Weapons Vault Racks (B)	184ug
47	Weapons Vault Racks (C)	296ug
48	Weapons Vault Racks (D)	150ug
49	Weapons Vault Racks (E)	295ug
51	Drill Hall, Top of Water Cooler	BRL
52	Drill Hall, Top of table where microwave is	BRL
53	Kitchen, Top of metal counter	BRL

54	Kitchen, Top of wood counter	BRL
50	Blank	BRL

#### A/C-Heating System

Individual A/C window/wall units are used to cool and heat the administration offices throughout the facility. The classroom and the supply room also have A/C window units. These units were working well at the time of the survey. The unit in the supply room is not large enough to cool the area where the ceiling is high and the room is large. Personnel reported that they were told a central A/C system will be installed in the supply room. It has not been done so far.

#### **Material Safety Data Sheets**

An MSDS book was found in SFC Weisert the day of the survey. It is a binder with only two MSDS forms. There was a Hazardous Materials Inventory List inside this binder. There is a POL shed behind the armory. There is a still visible no smoking sign at the door. Stored inside are penetrating oil, lubricants, transmission fluid, break fluid, WD 40 and engine oil. There was a Hazardous Materials Inventory List in the POL shed. It was very warm inside this room. It would help if an air exhaust fan can be installed inside.

#### Water leaks

Roof leaks are a big problem at the armory. The leaks have caused light fixtures to go out at offices. There is a water leak in the supply room where exhaust should have been located (fans were never installed). When it rains personnel have to place empty buckets to catch the water. A piece of wood covers the space. It still leaks down to the room. There is a leak in the locker room due to the same problem (two places). As seen in the pictures, several offices have stained ceiling tiles due to the leak. As mentioned before, mold was found at a wall in the Commander office.

#### Light Readings

Light measurements were taken in various locations throughout the facility. The results were compared to guidelines recommended by the Illuminating Engineering Society (IES). The results of the survey are shown in Table 3.

Table 3

Location	Light Reading (footcandles)	IES Recommendation (footcandles)
ADO ReadinessNCO Office	23-57 (Avg. 46)	50-100
ADO Training RoomOffice	19-80 (Avg. 45)	50-100
ADO Supply Room Office Side	23-43 (Avg. 32)	50-100
ADO Supply Room Storage	19-44 (Avg. 25)	20
Classroom	30-105 (Avg. 77)	50-100
Recruiter Office 1	49-92 (Avg. 69)	50-100
Recruiter Office 2	45-69 (Avg. 57)	50-100
Commander Office	40-81 (Avg. 47)	50-100
1 SG Office	25-60 (Avg. 48)	50-100
Drill Hall	15-118(Avg. 36)	30

Light measurements were below IES guidelines at the Readiness NCO office (with two fixtures out caused by water leak and two other fixtures with two bulbs out each), the Training NCO office (with three fixtures out and two others with two bulbs out each, the Supply Sgt. office side (Very high ceiling and not enough lights), the Commander office (with two fixtures out, one with two bulbs out and no windows) and the 1 SG office (two fixtures out and two other with two bulbs out). The other areas tested were within IES guidelines although the classroom and the Recruiter office 2 both have light fixtures out. Consideration should be given to provide supplemental lighting at the locations that were below the recommended standard and to replace burned out bulbs as listed above. ANSI RP7-1991.

#### 4.REFERENCES

- Guide to Occupational Exposure 2000, American Conference of Governmental Industrial Hygienists (ACGIH), Cincinnati, Ohio.
- American National Standards Institute (ANSI), /Illuminating Engineering Society (IES), Industrial Lighting 1991.

#### **BEST AVAILABLE COPY**

- National Institute for Occupational Safety and Health (NIOSH), (76-130)
   Technical Information, Lead Exposure and Design Considerations for Indoor Firing Ranges GPO, 1975.
- Title 29, Code of Federal Regulations (CFR). 1999, revision, Part 1910.
   Occupational Safety and Health Standards
- AR 40-5, Preventative Medicine, 15 October 1990.
- AR 385-10, The Army Safety Program, 23 May 1988.
- National Safety Council, Fundamentals of Industrial Hygiene, 4<sup>th</sup> edition, 1996.
- AR 385-16, National Guard Pamphlet, Safety Guidelines for Converting Indoor Firing Ranges to Other uses.
- TB MED 503, The Army Industrial Hygiene Program, February 1985.
- Department of the Army Pamphlet (DA PAM) 40-501,27 August 1991, Hearing Conservation.
- Title 29 CFR, Part 1910.1200, The Hazard Communication Standard.



#### RECOMMENDATIONS

- Consideration should be given to provide supplemental lighting at locations
  that were below the recommended standard, and to replace burned out bulbs in
  the offices as well as in the Drill Hall. The lighting should be improved in all
  the AGR offices (See Light Readings section).
- Recommend that when using computers for extended periods of time, personnel should take occasional breaks and change position to minimize the possibility of eyes and/or hands/wrist injury.
- Continue to ensure that weapon maintenance and cleaning is done in a well-ventilated area. Continue to practice good personal hygiene by washing hands after handling and cleaning weapons and ammunition. Ensure that the weapons racks are well cleaned before placing them back in the vault.
- Recommend that a request be made to the appropriate state agency to repair
  the roof and the replacement of the stained ceiling tiles once the roof leaks
  have been repaired and to clean the mold from the Commander room.
- Recommend that a request should be made to the appropriate state agency to
  evaluate the possibility to close and seal the spaces leaking in the supply
  room, locker room and shower area.
- A request should be made to the appropriate state agency for the possibility of installing an A/C system in the supply room.
- Recommend that an MSDS book should be developed using the MSDS forms. It should be updated periodically as new products are received.
- Ensure that personnel and troops have knowledge of the location of the MSDS book. And is enrolled hazardous materials safety training.

	SECTION I		22.4								
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FOIA Requested Record #J-15-0085 (SC) Released by National Guard Bureau Page 523 of 964

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PRIVACY ACT STATEMENT

Title & U.S. Code, Section 301; Executive Order 9397 authorizes the use of your Social Security Number at a identification number. The purpose of this information is to identify and monitor data relating each DA civilian employee exposed to a heterdata workplace at operation. The use si this information is to provide histories of exposure fuceny given worker.

Disclusure of your Social Security Number is not meadstory; however, nondisclusure may result in antimely you lawn of proper medical monitoring

Signature

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a. HAZARD	b. SAMPLE TYPE	C RESULTS	d. REMARKS
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SECTION 6.

PERSONNEL DATA

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SECTION 7.	OMMENTS AND MORE			
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Dischware of your Social Security Number is not mendatory; however, nondisclusive mey result in untimely you issue of proper medical munitories.

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	SOLVENTS .	-	CHEMICAL/SAFETY	1	CANAL CAPS	-	COVERALLS	-	IMPERMEABI	E POOTS
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SECTION 5. SAMPLING DATA BEST AVAILABLE COPY

a. HAZARD	b. SAMPLE TYPE	4 RESULTS	d. REMARKS
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SECTION 6.

PERSONNEL DATA

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	SECTION 7. COMMENTS (Add blank sheet of paper if necessary)	
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#### · PRIVACY ACT STATEMENT

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Disclosure of your Social Security Number is not mendatory; however, nondisclosure may result in untimely provision of proper medical munitoring.

Signature

## Analytical Environmental Services, Inc.

Date: 9/15/2005

#### TOTAL LEAD IN WIPE SAMPLES N7082

CLIENT:

Lab Order:

0509502

Wipe

Project:

Graniteville SC Armory

Date Received:

Matrix:

9/12/2005 11:00 AM

**Delivery Order:** 

PO No:

Laboratory	Client Sample	Results	Units	Report	DF	Date	Date	Analyst
ID	ID			Limit.		Collected	Analyzed	•
0509502-001A	39	BRL	μg, Total	20	1	9/8/2005	9/14/2005	VA
0509502-002A	40	31	μg, Total	20	1	9/8/2005	9/14/2005	VA
0509502-003A	41	44	μg, Total	20	1	9/8/2005	9/14/2005	VA
0509502-004A	42	BRL	μg, Total	20	1	9/8/2005	9/14/2005	VA
0509502-005A	43	BRL	μg, Total	20	1	9/8/2005	9/14/2005	VA
0509502-006A	44	50	μg, Total	20	1	9/8/2005	9/14/2005	VA
0509502-007A	45	155	μg, Total	20	1	9/8/2005	9/14/2005	VA
0509502-008A	46	184	μg, Total	20	1	9/8/2005	9/14/2005	VA
0509502-009A	47	296	μg, Total	20	1	9/8/2005	9/14/2005	VA
0509502-010A	48	150	μg, Total	20	ı	9/8/2005	9/14/2005	VA
0509502-011A	49	295	μg, Total	20	1	9/8/2005	9/14/2005	VA
0509502-012A	50	BRL	μg, Total	20	1	9/8/2005	9/14/2005	VA
0509502-013A	51	BRL	μg, Total	20	1	9/8/2005	9/14/2005	VA
0509502-014A	52	BRL	μg, Total	20	1	9/8/2005	9/14/2005	VA
0509502-015A	53	BRL	μg, Total	20	1	9/8/2005	9/14/2005	VA
0509502-016A	54	BRL	μg, Total	20	1	9/8/2005	9/14/2005	VA

## Analytical Environmental Services, Inc.

Date: 9/15/2005

TOTAL LEAD IN PAINT PAINT

CLIENT:

Lab Order: 0509502

Project:

Graniteville SC Armory

Date Received: 9/12/2005 11:00 AM

Delivery Order:

Matrix:

Paint

PO No:

Laboratory	Client Sample ID	Results	Units	Report Limit.	DF	Date Collected	Date Analyzed	Analyst
0509502-017A	55	BRL	wt%	0.00975	1	9/8/2005	9/14/2005	VA



GRANITEVILLE, SC ARMORY

## DRILL HALL



Page 530 of 964

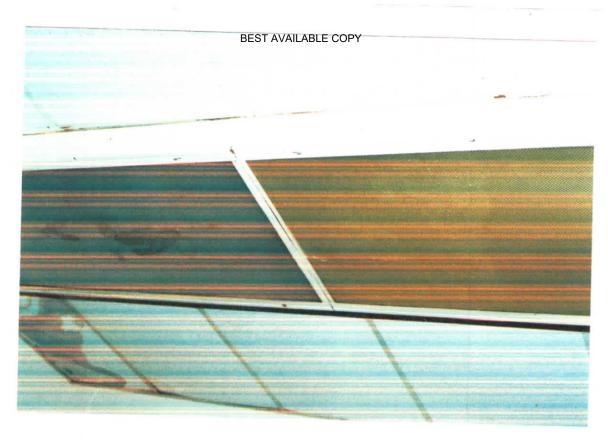


DRILL HALL EXHAUST FANS, IN ADJACENT ROOM AT FLOOR LEVEL

### STAINED CEILING TILE, READINESS NCO OFFICE

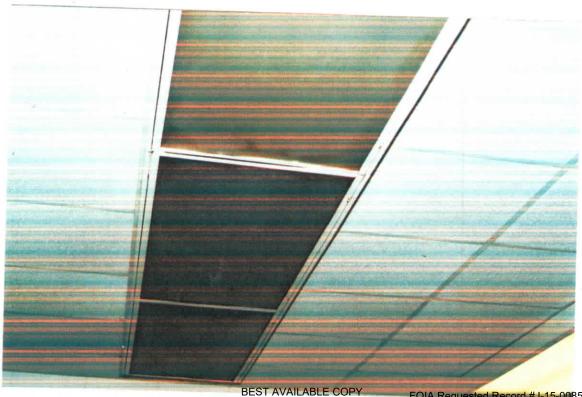


FOIA Requested Record #J-15-0085 (SC) Released by National Guard Bureau Page 531 of 964



LIGHT FIXTURES OUT, READINESS NCO OFFICE

## LIGHT FIXTURES OUT, TRAINING NCO OFFICE

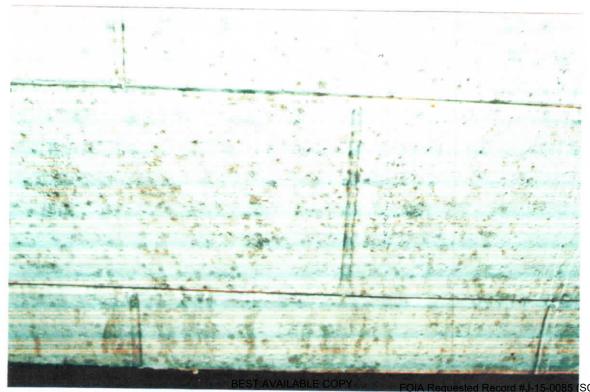


May 2018

FOIA Requested Record #J-15-0085 (SC) Released by National Guard Bureau Page 532 of 964

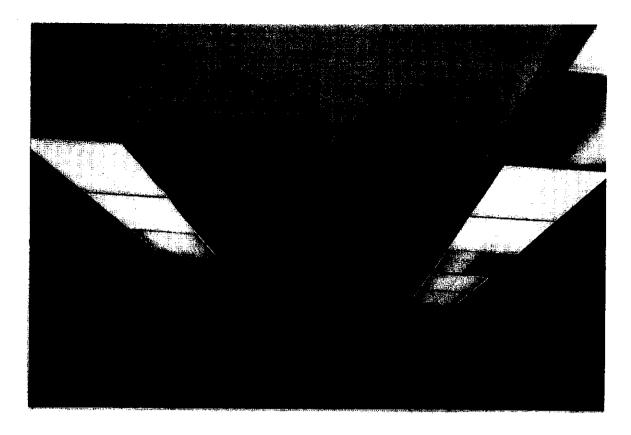


## MOLD AT WALL, COMMANDER OFFICE



May 2018

Requested Record #J-15-0085 (SC) Released by National Guard Bureau Page 533 of 964



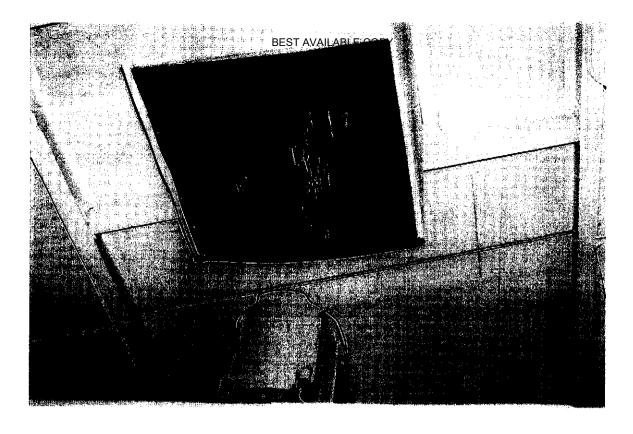
MULTIPLE LIGHT FIXTURES OUT, CLASSROOM

## STAINED CEILING TILES, CLASSROOM



May 2018

Released by National Guard Bureau Page 534 of 964



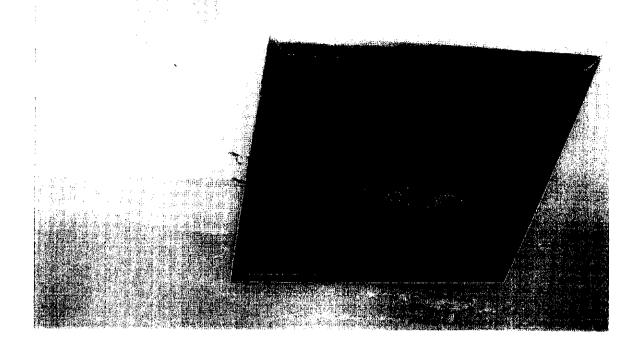
SUPPLY ROOM, ROOF WATER LEAK

## SUPPLY ROOM, CONTAINERS TO COLLECT WATER

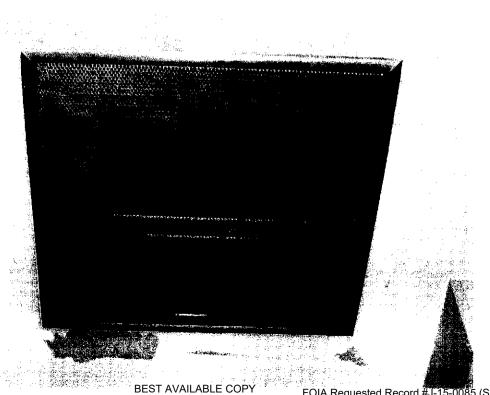


May 2018

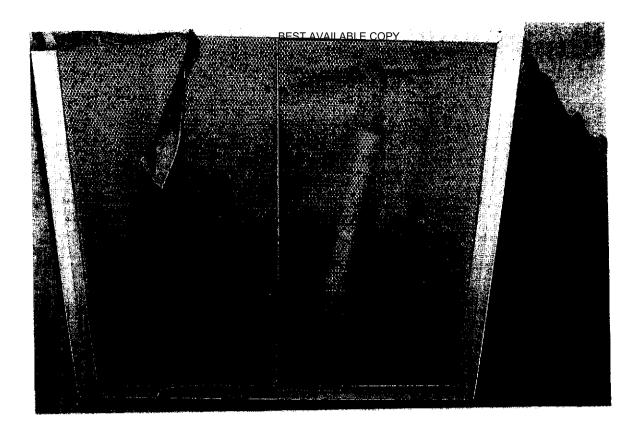
FOIA Requested Record #J-15-0085 (SC) Released by National Guard Bureau Page 535 of 964



#### MALE SHOWER AND LATRINE WATER LEAK, PAINT & PLASTER PEELING **OFF**

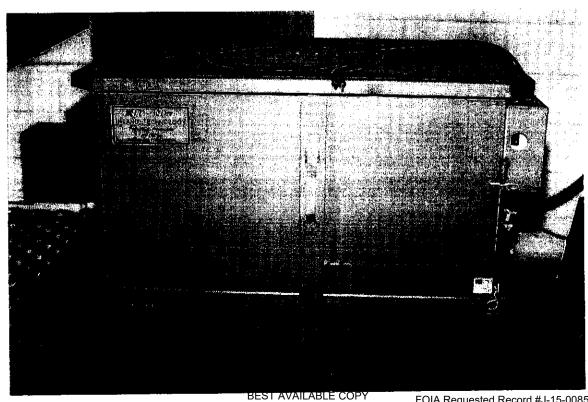


FOIA Requested Record #J-15-0085 (SC) Released by National Guard Bureau Page 536 of 964

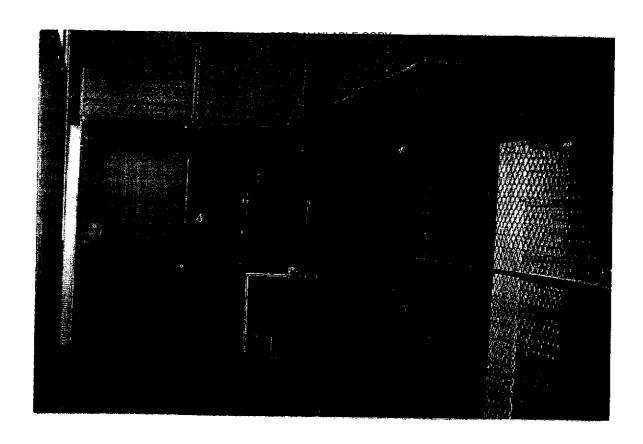


LOCKER ROOM, ROOF WATER LEAK

## **WEAPONS-PARTS CLEANING MACHINE**



FOIA Requested Record #J-15-0085 (SC) Released by National Guard Bureau Page 537 of 964

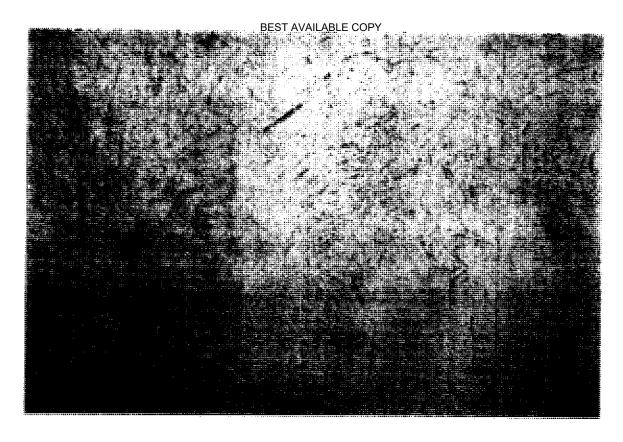


IFR, FRONT VIEW

# IFR, REAR VIEW

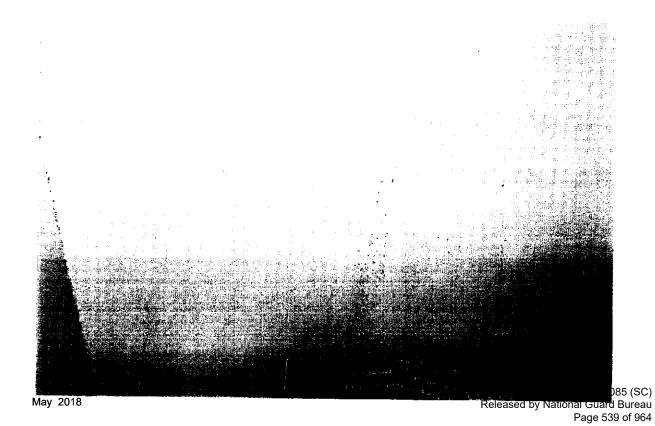


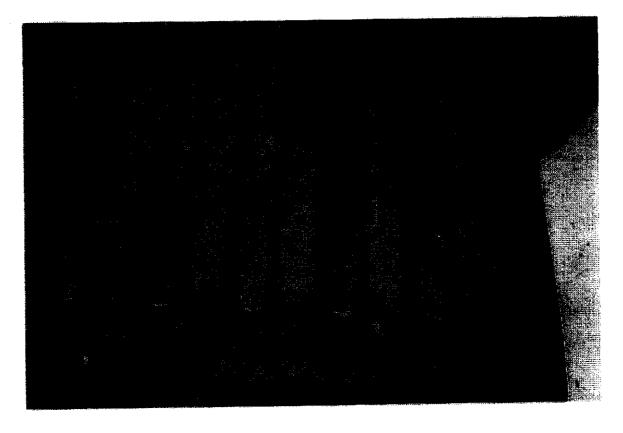
May 2018



IFR, FLOOR IN FRONT OF BACKSTOP

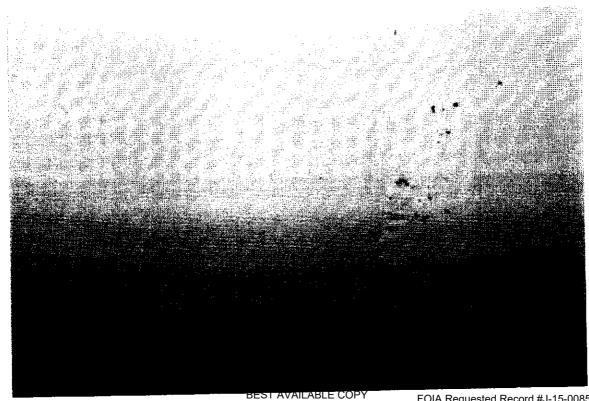
# IFR BACKSTOP, PAINTED





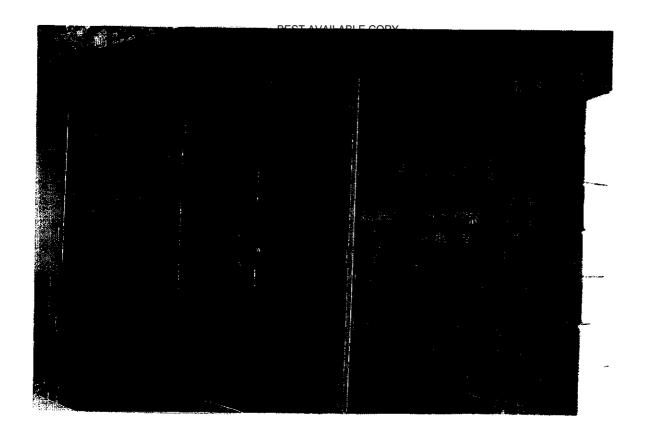
IFR SAMPLE AREA, TOP OF PLASTIC BOX

# IFR SAMPLE AREA, BACKSTOP



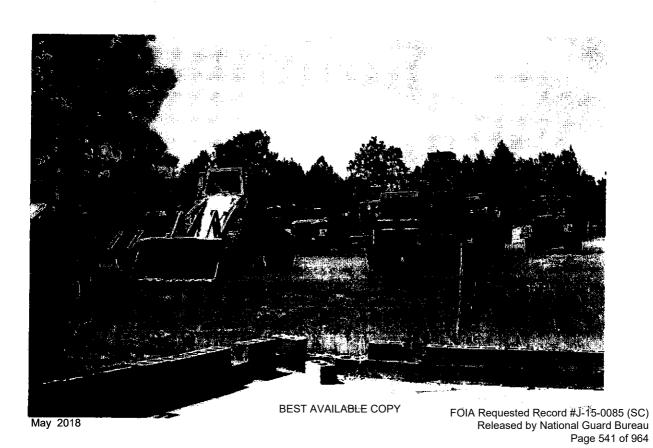
May 2018

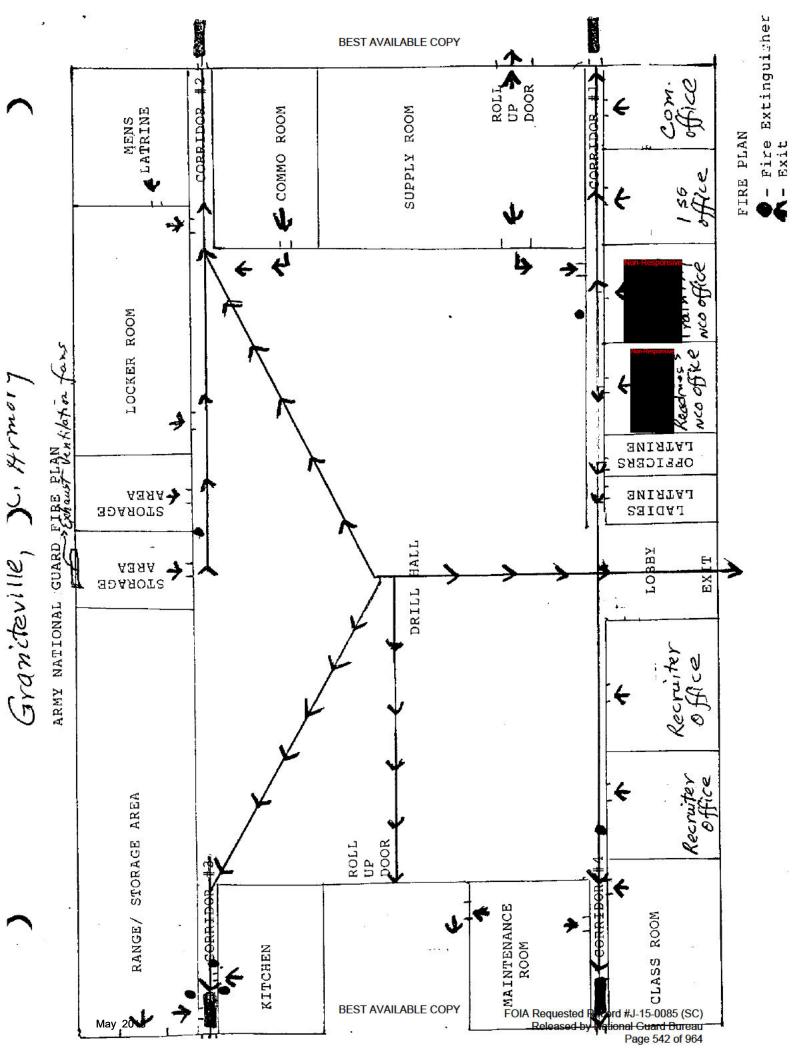
FOIA Requested Record #J-15-0085 (SC)
Released by National Guard Bureau
Page 540 of 964



# **POL SHED**

# **MOTOR POOL**





### NATIONAL GUARD REGION SOUTH INDUSTRIAL HYGIENE OFFICE 510 PLAZA DRIVE, SUITE 1530 COLLEGE PARK, GA 30349

NGB-AVN-SI

08 February 2000

MEMORANDUM FOR THE OFFICE OF THE ADJUTANT GENERAL, Safety and Occupational Health Office, ATTN: Non-Responsive, 1 National Guard Road, Columbia, SC 29201-4766

SUBJECT: Lead swipe sample results taken 26 February 2000 at Hampton/Varnville Armory Indoor Firing Range (IFR).

- 1. References.
  - a. AR 40-5, Preventive Medicine, October 1990.
  - b. AR 385-10 Army Safety Program.
- 2. Purpose.
  - a. At the request of Non-Responsive clearance swipe samplings was conducted at Hampton/Varnville Armory Indoor Firing Range (IFR).
  - b. The sampling was conducted to see if sample results were below 200ug on the walls and 100ug on the floor as directed in Environmental clean-up contract.
- 3. Findings. The sample results revealed the following results:

Sample 1	Location	Results ug	Remarks
1	Top left wall	BRL	2-10-11
2	Middle left wall	BRL	
3	Bottom left wall	BRL	***************************************
4	Top left bullet stop end	109	
5	Middle bullet stop end	BRL	11- 21-3
6	Bottom right bullet stop end	BRL	
7	Top right wall	BRL	

8	Middle right wall	BRL	
9	Bottom right wall	20.0	
10	Bottom Rear wall	BRL	
11	Middle rear wall	BRL	
12	Top rear wall	BRL	
13	Floor right bullet	6,320	>200 ug
	stop		
14	Floor center	20	
15	Floor left rear wall	BRL	
16	Ceiling left bullet	BRL	
	stop		
17	Ceiling center	BRL	
18	Ceiling right rear	BRL	
	wall		
19	Middle rear wall	BRL	
20	Blank (control	BRL	
	sample)		
21	Left light fixture	BRL	
	near back stop		
22	Top of back stop at	BRL	
	ceiling		
23	Rear right side of	BRL	
	second baffle		
24	Light fixture in front	102	>100 ug
	of heater left side		
25	Top of filing cabinet	BRL	
26	Top of weight Gym	BRL	
	set		
27	Top of flammable	BRL	
	storage cabinet		
28*	Target back stop in	34,300	Target back stop
	Drill Hall		was being trashed
29*	Exhaust louver and	9,160	Not in contract to
	fan		clean
30	Blank	BRL	

BRL = below record able level

### 4. Recommendations.

- a. Have contractor clean light fixture.
- b. Remove exhaust Louver and fan and seal opening
- c. Do not allow the contractor to conduct clearance sampling.

5. If additional information is needed please contact Non-Responsive Regional Industrial Hygienist, ARNG-IHS, Non-Responsive Regional Industri

1 Inc

### NATIONAL GUARD REGION SOUTH INDUSTRIAL HYGIENE OFFICE 510 PLAZA DRIVE, SUITE 1530 COLLEGE PARK, GA 30349

NGB-AVN-SI

17 March 2003

MEMORANDUM FOR The South Carolina Army National Guard, ATTN: Armory Supervisor, B Company 178<sup>th</sup> FA, 700 14<sup>th</sup> Street, Hartsville, South Carolina 29550.

SUBJECT: Industrial Hygiene Survey of the Hartsville National Guard Armory, Hartsville, South Carolina.

- References.
  - a. Report submitted 14 March 2003, Industrial Hygiene Survey, OSHEA II Consulting.
- b. OSHA Standards 29 CFR (Code of Federal Regulations), General Industry, revised 1988.
  - c. AR 40-5, Preventive Medicine, October 1990.
  - d. AR 11-34, 15 February 1990, The Army Respiratory Protection Program.
  - e. AR 385-10, 23 May 1988, Army Safety Program.
- f. Department of the Army Pamphlet (DA PAM) 40-501, 27 August 1991, Hearing Conservation.
  - g. TB MED 530, The Army Industrial Hygiene Program.
- h. Title 29 Code of Federal regulation (CFR), 1989 rev, Part 1910.94 (c) (6) Table G-10, Ventilation.
- i. Industrial Ventilation, 21st ed, 1992, American Conference of Governmental Industrial Hygienist, Cincinnati, Ohio.
- j. IES Lighting Handbook, Application Volume, 1981, Illumination Engineering Society of North America.
- 2. General.
- a. At the request of the South Carolina State Safety and Occupational Health Office and the Region South Industrial Hygiene Office a Service Contract was put together to conduct Health Hazard Information module (HHIM) Field surveys and IH surveys at the South Carolina National Guard Armories.
  - b. Non-Responsive of OSHEA II Consulting conducted the survey.

- 3. Findings. All HHIM field survey forms and survey findings of the report are enclosed. (See ENCL. 1)
- 4. Recommendations.
- a. Follow all recommendations made in reference 1. a., requesting industrial hygiene (IH) services where needed to complete the recommendations.
- b. Request the Facility Maintenance Office (FMO) repair leaks and replace all water damaged items in the Armory. Ignoring this problem could lead to Indoor Air Quality and mold problems.
  - c. Use the report to help in correcting all deficiencies noted by the contractor.
- d. Consider additional Industrial Hygiene services to monitor operations that were not looked at or surveyed during the contract visit, especially if this will help eliminate health hazards and reduce medical surveillance cost.
- e. To execute your responsibilities in correcting all deficiencies and meeting all standards coordinate with the FMO, Occupational Health Nurse and the Occupational Safety and Health Office for technical guidance.



CF: Safety and Occupational Health Office, ATTN: Non-Responsive, 1 National Guard Road, Columbia, SC 29201-4766

Safety and Occupational Health Office, ATTN: Non-Responsive 1 National Guard Road, Columbia, SC 29201-4766

OSHEA 99 Industrial Hygiene Consulting

> South Carolina Army National Guard Hartsville Armory Hartsville, South Carolina

OSHEA II\* Industrial Hygiene Consulting \* P.O. Box 35669 \* Fayetteville, N.C. \* 28303

MEMORANDUM FOR: South Carolina Army National Guard: ATTN: Non-Responsive Armory Supervisor, B Company 178th Field Artillery, Hartsville, South Carolina 29550

SUBJECT: Baseline Industrial Hygiene Health Hazard Information Module (HHIM) Survey of B Company 178<sup>th</sup> Field Artillery, 700 14<sup>th</sup> Street, Hartsvillle, South Carolina 29550 11, February 2003

### 1. REFERENCES

- a. Title 29 Code of Federal Regulations (CFR) part 1910, Occupational Safety and Health Administration (OSHA).
  - b. Army Regulation 385-10, The Army Safety Program.
- c. Army Regulation 11-34, February 1990, The Army Respiratory Protection Program
  - d. Technical Bulletin (TB MED) 503, 1 February 1985, The Army Industrial Hygiene Program
- e. Industrial Ventilation, 22nd Edition, The American Conference of Governmental Industrial Hygienist (ACGIH), Cincinnati, Ohio.
- f. National Guard Regulation 385-10, 20 December 1989, Army National Guard Safety and Occupational Health Program.
- g. IES Lighting Handbook, Application Volume 2000, Illumination and Engineering Society of North America.
- h. Department of the Army Pamphlet (DA PAM) 40-501, 27 August 1991, Hearing Conservation Program.
- i. Technical Bulletin (TB MED) 503, 1 February 1985, The Army Industrial Hygiene Program.
  - j. Army Regulation (AR) 40-5, 15 October 1990, Preventive Medicine.

Oshea II Industrial Hygiene Consulting IH Survey 11 Feb 03 Hartsville Armory Hartsville, South Carolina

- 2 .GENERAL: At the request of Non-Responsive National Guard Bureau South Regional Industrial Hygienist, Atlanta, Georgia, a Health Hazard Information Module Baseline Survey was performed at B Company 178<sup>th</sup> Field Artillery, February 2003. The purpose of this survey was to evaluate health hazards, existing controls in the work site, perform ventilation surveys, illumination surveys, perform a baseline study, determine atmospheric sampling protocol during all maintenance operations in accordance with (IAW) references 1a through 1j and collect bulk samples.
- 3. **INSTRUMENTATION:** The following survey instrumentation was provided by the National Guard Bureau and was utilized to obtain noise, illumination or ventilation measurements. All equipment was used according to manufacturer/ manual recommendations. All equipment was calibrated prior to and after use.

Nomenclature	Model No.	Serial No.					
Bruel & Kajer sound Analyzer 10/10/02	2236	1942775 CAL					
Bruel & Kajer Sound Analyzer Calibrator CAL 02/03/02	4231	C19403					
Alnor Velometer Jr. Meter CAL 09/10/02	V81001	4398					
Sper Scientific light meter CAL 03/08/02	840020	025433					

Oshea II Industrial Hygiene Consulting IH Survey 11 Feb 03 Hartsville Armory Hartsville, South Carolina

### 4. FINDINGS:

- a. **Armory Site Description:** The armory is occupied by B Company 178<sup>th</sup> Field Artillery. There are two full time individuals, who perform administrative duties. The armory was constructed in 1980. It is approximately 15,404 square feet in size. It contains offices, administrative areas, one combined kitchen/mess hall, supply rooms, and weapons room/vault. This armory was found in good condition. Administrative area of the armory have carpeted floors. Tile was located in hallways and the class rooms. There was little evidence of water damage on ceiling tile or in hallways. There was no visual evidence of friable ceiling or floor tile. Outside, behind the building is a Petroleum, Oil, Lubricant (POL) storage Room. A list of its contents is located on the door of the shed. Enclosure No. 2 contains a drawing of the Armory's floor plan. The armory contained a converted indoor firing range which was converted to a storage area. The armory contained a furnance room which had pipes wrapped in a fiberglass wrap. There was no friability in this wrap.
  - **b. Scope of Survey:** The armory was visually observed. Interfacing with the armory's NCO was necessary to fully assess all potential health hazards. Enclosure No. 1 contains pictures of the facility's interior and exterior.
- c. **Material Safety Data Sheets:** Material Safety Data Sheets (MSDS) were available and readily assessable for hazardous materials used at this facility. Documentation of materials in the POL shed was listed on the cabinets and MSDS sheets were available as well. A list of hazardous materials/chemicals used at this facility is contained in Enclosure No. 3. It was stated that HAZCOM training had been performed prior to this survey.
- d. **Hearing Conservation Program:** All employees are enrolled in the Hearing Conservation Program and receive annual audiograms.
- e. **Illumination:** Illumination levels were recorded in all administrative areas, classrooms, training rooms and supply areas throughout the Armory. In every area bulbs were found blown, missing or fuse problems existed. See chart for specific location of measurements.

Oshea II Industrial Hygiene Consulting IH Survey 11 Feb 03 Hartsville Armory Hartsville, South Carolina

Reading in Foot candles At, Above or Below Standard

### Illumination levels

Location

Administrative Areas	48.4—50.1	At standard
Hallway areas	18.0—25.1	Below
Kitchen	13.8—14.9	Below
Food Prep Area	16.5—27.1	Below
Operations	20.5—21.1	Below
Supply Room	24.2—30.4	Below
Drill Hall	34.9—47.8	Below
Classroom	58.4—60.8	At standard

The readings are below the recommended IES lighting standard of 50 to 100 foot candles. The classroom illumination levels were above the recommended standard.

- e. **Administrative Areas:** Personnel perform administrative duties that consist of reading, handling and generating paper work. Employees use computers and answer phones also.
- f. Wipe sampling was performed of the drill hall and the kitchen area near the drill hall floor. Wipe sampling was not performed in the converted indoor firing range, because the key to that area had been checked out by another employee and was not be returned during this survey.
- g. **Motor Pool Area:** The motor pool is a fenced-secured area outside which is the OMS shop. Personnel at this armory perform no maintenance operations or repairs on vehicles. The OMS shop mechanics perform maintenance and repairs on the armory's vehicles. The shop is located behind the armory.
- h. A noise level survey was not performed of the vehicles because they are a part of OMS and a noise level survey will be performed during the annual survey of that shop. Noise hazard caution signs are posted on vehicles and hearing protection is available and easily assessable for personnel and visitors.

Oshea II Industrial Hygiene Consulting IH Survey 11 Feb 03 Hartsville Armory Hartsville, South Carolina

- i. **Indoor Firing Range:** The firing range was converted years ago according to personnel at the armory. The bullet backstop had been removed. A chain link style of fences was used to fabricate cages from ceiling to floor to store equipment. Samples could not be collected from the converted indoor firing range area because SSG Sowell did not have the keys to unlock the door.
- j. **Arms Room/Weapons Vault:** Weapons are stored in the armory's vault. It is reported that no weapon's cleaning is performed inside of the weapons storage vault. It was also stated that weapons are cleaned before being placed in the arm's vault
- k. **Weapons Solvent Bath:** During drill training the solvent bath is used. The fluid in the solvent bath tank is warmed and weapons are cleaned on the drill hall floor. Full time Personnel place their weapon in the cleaning solution for a few minutes, remove it and finish the cleaning process. It is stated that it is a two- part process. The cleaning process takes less than thirty minutes.
- I. All sample results taken in the armory are listed in the chart below.

Sample No.S	Location taken	Results
J211054	HVAC (supply)	BRL
0211055	HVAC (Fan side)	BRL
0211056	Drill Hall (DHS)	BRL
0211057	Drill Hall (DHS)	BRL
0211058	Drill Hall (DHS)	BRL
0211059	Kitchen (Fan)	BRL
0211060	Kitchen (supply)	BRL
0211061	HVAC #2 (Fan)	BRL
0211062	HVAC #2 (supply)	BRL
0211063	Paint Chips (from class room)	BRL

All readings were Below Reading Limits (BRL) for the presence of lead.

Shea II Industrial Hygiene Consulting Survey 11 Feb 03 Hartsville Armory Hartsville, South Carolina

### 5. RECOMMENDATIONS

- a. Hearing Conservation Program: Continue with annual audiometric testing for relevant personnel exposed to noise levels above 85 dBA in accordance with reference 1h.
- Hazardous communication or HAZCOM refresher training: Continue with annual HACOM training. Dated and signed records should be maintained of all HAZCOM training administered.
- c. Fluorescent bulbs need to be replaced immediately after they have become blown to give the maximum amount of light in classroom, offices, and training areas in accordance with reference 1h. A work order should be submitted to the appropriate office requesting repair/ replacement of fuses in non-functioning light fixtures.
- f. Weapons are never to be cleaned inside the weapon's storage vault or any other enclosed area without adequate ventilation in accordance with references 1a and 1c. Personal Protective equipment, such as goggles, should be worn to protect eyes from splash hazards and gloves should be worn to prevent solvent absorption through the skin.
- g. Based on the limited, short duration, nature, of contact cleaners, and solvents used at this armory, there is no need for a Respiratory Protection Program, neither is there a need to perform atmospheric monitoring during weapons cleaning if windows and doors are open to circulate air during weapons cleaning.



Oshea II Industrial Hygiene Consulting IH Survey 11 Feb 03 Hartsville Armory artsville, South Carolina



CF: Non-Responsive

SHEA II INDUSTRIAL HYGIENE CONSULTING URVEY of Harsville Armory, Hartsville, South Carolina

### **Table of Contents**

Interior and exterior photographs With identified areas **Enclosure No.1** 

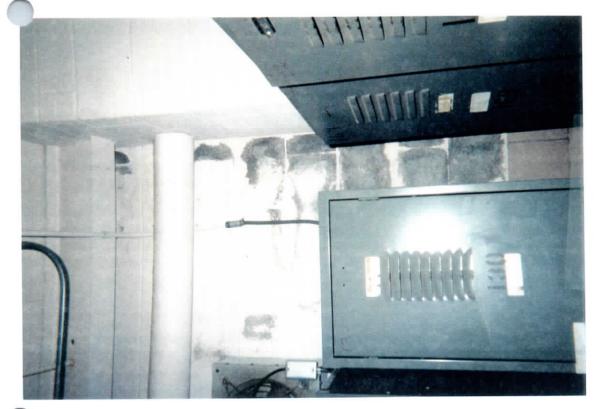
Armory's Floor Plan **Enclosure No.2** 

Enclosure No. 3 Hazardous Material Inventory

Full time Personnel Enclosure No. 4

**HHIM Sheets** Enclosure No. 5





Stg cabinet

H20 damage

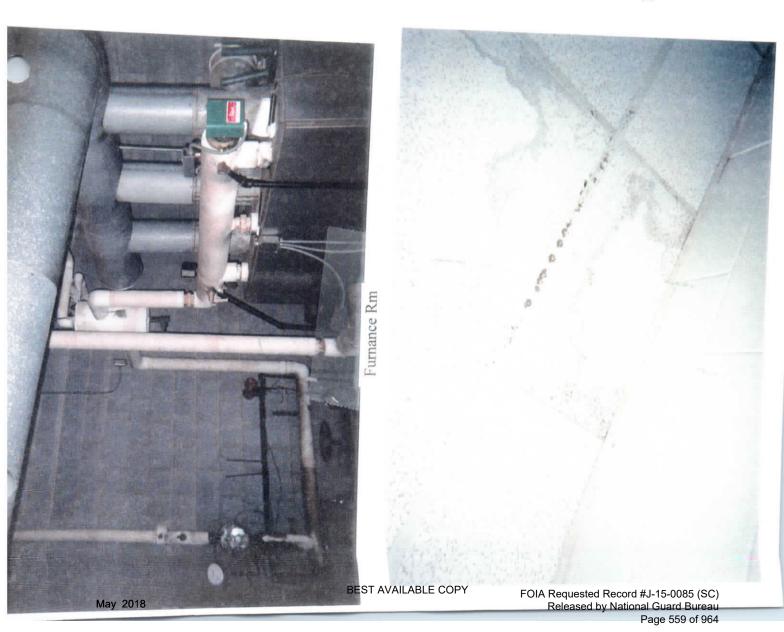


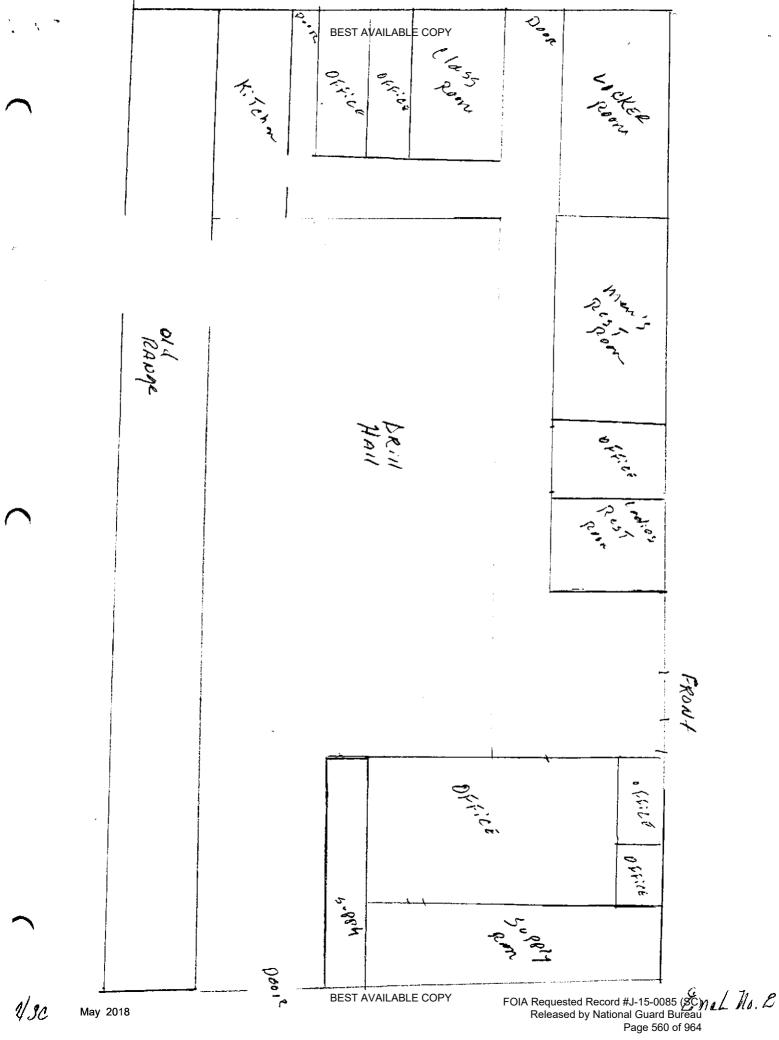
H20 damaged floor tile

May 2018



H20 damaged ceiling tile





# **Hazardous Material inventory**

Scouring powder

Floor wax

Floor Stripper

Hand cleaner

Simple green

Pine oil

break free

Enclosure No. 3

cull time Personnel



Enclosure No. 4

HHIMS Industrial Hygiene Survey Form

Front page

NIOSH TC if or Foreign equivalent (10 characters Tax)

T COOP No. LOC. Controls Required (25 oberacters max) cold weather boots/hat. safety shoes (conductive) hard hats impermeable boots salety (nonconductive) Unit / Organization (45) ARetina Contractors Head and Feet 361 other other 00 Bouth Room Number No. MIL なんたら H X Manufacturer's Description (10 characters max) H No. CIVE Submecom ž m Vest/sult Unit code cold weather clothing special purp. clothing \*Drong full body suit safety belt/harness Coversile heat reflective × other Bou's luency (hraday) Macom Body Evaluation (25 characters max) Evaluator-HNUS with time limit Building full lace air purifying: 1/2 face air purifying powered as purifying Canal caps (>85-108 dBA steady) earplugs helmets w/ muffs muffs slone disposable 1/4 face hir purifying self-contained (108-118 Imuli/serplug comb bosive bissting hood mulis and earplugs and in A.D (118 or >) Respirator Hearing other other o othe) SCAR 4 Survey Date nothellelen Councils Present (14 v6 continue in comments)[25] 0 0 Operation O NBC agents melding googles/glasses = == rol surfaces 5 10lvents chemical splash full face shield chem/safety impact welding helmet \$859E,Buris taser eye protection Cold Surfaces savolp traditions safety impact 7 heatter comon Eyes and Face 0 œ Lucabon Ghypes 17.10

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Reminders: ergonomics - dermatitis - physical agents - flammable storaga · SHW · GMV · LEV · EYE (portable) EYE (permanent)

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# HHIMS Industric Hygiene Survey Form

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Reminders: ergonomics - dermatitis - physical agents - Ilaminable storage SHW GMV LEV EYE (permanent) . EYE (portable)

ACO ADM DSA DSN LAB LCK RAD ECB EPL RHS SPR WEL

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HHIMS Industr )Hygiene Survey Form

Front page

HHIMS Industrial Hygiene Survey Form

NIOSH TC # or Foreign equivalent (10 characters Park)
ACOO STAN 40. LOC. Controls Required (25 cheracters max) Impermeeble boots safety shoes (conductive) sefety (nonconductive) cold weather boots/hat hard hate Unit / Organization (45) ARO! (1) A Contractors Head and Feet n other other other Room Number No. MIL 2011 Manufacturer's Description (10 characters max) No. CIVE 3 Submacon RAC 103/1104 Unit code 3 #Dord# cold weather clothing full body suit salety belt/harness other 150 113 heat reflective Coveraile Frequency (hra/day) ١ Body 7 Evaluation (25 characters max) Commercial Evaluator HINUS  $\supset$ Building 172 face air purifying (108-118 Imuff/earplug comb full face air purifying powered air purifying 1/4 face air punifying canal caps helmets w/ mulfs with time limit DSN disposable self-contained > 85-108 dBA steady) earplugs mulia slone ST. brasive blasting Mood mulis and earplugs À. month (118 or >) Respirator Hearing other athe Survey Date Installation Controls Present ( if \* 6 , continue in comments)[25]  $\supset$ 0 œ T Operation J welding googles/glasses 31.16 hot surfaces INBC agents full face shield chem/salety impact welding helmer Sazzel@nus laser eye protection Solvenis sande of gloves safety impact cold surfaces chemical splash 0 learner corton Eyes and Face ٥ ≥ ₹ n Lacation API OC Gloves 011.00 7

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Reminders: ergonomics - dermatitis - physical agents - flaminable storage

EYE (permanent) - EYE (portable) - SHW - GMV - LEV

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There is a ventilation data sheet attached to this form	paper motor Compu	Non-Responsive Non-Re	Requested Rec	ord #J-15-0 tional Guan Page 5	Mental + Physical Stress

ne Survey Form

Front page

HHIMS Industrial Hygiene Survey Form

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Reminders: ergonomics - dermatitis - physical agents - flaminable storage

evaluator s recommendation

er, agreement

EYE (permanent) - EYE (portable) - SHW - GMV - LEV

This operation was explained to the evaluators, but was not actually observed.  There is a noise data sheet attached to this form	Non-Responsive  Personnal data provided by the facility is attached to this form  Comments  Remarabas to comment on problems  Operation described is Weapons  Non-Responsive	POFOGINAL POFLAMINAL POFLAMINAL POFLAMINAL POSHARPOB POHOTOBJE POELSHOCK COLUBEOIL Social Security Number or Unique identifier
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May 2018		DIA Requested Record #J-15-00B5 (SC) Released by National Guard Burjeau Page 570 of 964

### NATIONAL GUARD REGION SOUTH INDUSTRIAL HYGIENE ÖEFICE 510 PLAZA DRIVE, SUITE 1530 COLLEGE PARK, GA 30349

NGB-AVN-SI

5 August 2003

MEMORANDUM FOR The South Carolina Army National Guard, ATTN: Non-Responsive Armory Supervisor, SVC Battery 4-178th FA, 502 E. Cribb Road Hemmingway, SC 29354.

SUBJECT: Industrial Hygiene Survey of the Hemmingway National Guard Armory, Hemmingway, South Carolina.

- 1. References.
- a Report submitted 4 August 2003, Industrial Hygiene Survey, Non-Resp
- OSHA Standards 29 CFR (Code of Federal Regulations), General Industry, revised 1988.
- c. AR 40-5, Preventive Medicine, October 1990.
- d. AR 11-34, 15 February 1990, The Army Respiratory Protection Program,
- e. AR 385-10, 23 May 1988, Army Safety Program.
- f. Department of the Army Pamphlet (DA PAM) 40-501, 27 August 1991, Hearing Conservation.
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- 2. General.
- a. At the request of the South Carolina State Safety and Occupational Health Office and the Region South Industrial Hygiene Office a Service Contract was put together to conduct Health Hazard Information module (HHIM) Field surveys and IH surveys at the South Carolina National Guard Armories.

# <sup>b</sup>Non-Responsive

- Findings. All HHIM field survey forms and survey findings of the report are enclosed.
   (See ENCL. 1)
- Recommendations.
- a. Follow all recommendations made in reference 1. a., requesting industrial hygiene (IH) services where needed to complete the recommendations.
- b. Discuss the high lead samples taken inside of the inactive indoor firing range with the Safety and Occupational Health Office, the Facility Management Office and the Environmental Office. Request help in eliminating possible employee lead exposures. Be prepared to educate personnel on proper housekeeping procedures of the range. Follow NG PAM 385-16, Guidelines for converting indoor firing ranges to other uses and NG PAM 385-15, Policy, Responsibilities and guidelines for housekeeping, rehabilitation and/or conversion of indoor firing ranges.
  - c Use the report to help in correcting all deficiencies noted by the contractor.
- d. Consider additional Industrial Hygiene services to monitor operations that were not looked at or surveyed during the contract visit, especially if this will help eliminate health hazards and reduce medical surveillance cost.
- e. To execute your responsibilities in correcting all deficiencies and meeting all standards coordinate with the FMO, Occupational Health Nurse and the Occupational Safety and Health Office for technical guidance.



CF: Safety and Occupational Health Office, ATTN: Non-Responsive National Guard Road, Columbia, SC 29201-4766



June 16, 2003

# Non-Responsive

502 E Cribb Rd. Hemingway, SC 29554

RE: Baseline Industrial Hygiene Survey

# FINAL REPORT

# FOR

# BASELINE INDUSTRIAL HYGIENE SURVEY

# SOUTH CAROLINA ARMY NATIONAL GUARD

**HEMINGWAY ARMORY** 

HEMINGWAY, SC

DATE:

MAY 19,2003

PREPARED BY



# **CONTENTS**

1.0	INTRODUCTION	V

# 2.0 INSTRUMENTATION

# 3.0 FINDINGS

# 4.0 REFERENCES

Attachment 1 HHIM Forms

Attachment 2 Laboratory Reports: Deactivated Indoor Firing Range

Attachment 3 Laboratory Reports: Supply air grills offices

Attachment 4 Photographs of the Facility

Attachment 5 Schematic Drawing of Facility

# 1.0 INTRODUCTION

At the request of the National Guard Bureau South Region Industrial Hygiene Office, Non-Responsive performed a Baseline Industrial Hygiene Survey at the SC ARNG Hemingway Armory. The purpose of the survey was to perform a baseline survey to evaluate health hazards, controls present in the work site, collect lead swipe samples from renovated/inactive or closed Indoor Firing Ranges and perform ventilation, illumination and noise survey and to make recommendations regarding health hazards associated with the work at the Hemingway Armory.

The building was finished around 1958. The facility houses SVC BTRY 4-178<sup>th</sup> Field Artillery. The armory is used by the troops of SVC BTRY 4-178<sup>th</sup> Field Artillery for their monthly weekend drills.

The SVC BTRY 4-178<sup>th</sup> Field Artillery with 70 troops has 4 full time AGR personnel at the time of the survey. The AGR employees are assigned to perform administrative duties Monday-Friday 7:30am-5:00pm with every other Monday off. The facility houses administrative areas, a drill hall, classrooms, a supply room, a weapons vault, a boiler room, a kitchen, and a deactivated Indoor Firing Range. A schematic drawing of the facility can be found in Attachment 5.

The facility was visually examined and personnel consulted to assess potential hazards present. Personnel reported that every fall there is an invasion of rats all over the armory. A person from Environmental Compliance came and gave the armory "Glue Board" to catch the rats. Personnel would like to know what might be the permanent solution for getting rid of the rats. One employee gets emotionally affected when he sees these animals all over the armory. Health Hazard Information Modules were completed. Illumination survey was performed throughout the facility. There is generalized poor lighting through out the facility.

# 2.0 INSTRUMENTATION/CALIBRATION

The following instrumentation was used to obtain light measurements. The instrument used has been calibrated and was operated according to the manufacturer's recommendations:

SPER SCIENTIFIC Light Meter

# 3.0 FINDINGS

#### Illumination

Illumination levels were recorded in administration offices, classroom, the drill hall and the supply room. Light measurement was below IES guidelines at the Supply Sgt. Office with 2 light bulbs out in each of the two light fixtures in the office. The other areas tested were within IES minimum standards. However at the library, administration office, and the classroom there were light fixtures with bulbs out. There were 8 light bulbs out in the drill hall. The other areas tested were within IES minimum standards. See Light Readings Table at the end of this section.

#### Administration

Personnel perform administrative duties that consist of reading, handling and generating paper work. Computer use comprises a large portion of the working day, four to five hours per day. This continuous use of computers can in the long run lead to eyestrain and hand/wrist soreness.

#### Motor Pool

The motor pool is located in a fenced area in the rear of the building. The motor pool includes M-998s vehicles, 2.5T, 5T and 10T trucks. Also fuel tankers and PLS trucks. No maintenance services are performed at the armory. All maintenance and repairs are performed at the nearby OMS #16 in Hemingway.

#### Drill Hall

The Drill Hall is located in the center of the building. It is used primarily for formation on weekend drills. The Drill Hall is used to clean weapons about twice a year. Tables are used for this purpose. Bay (Roll-up) door are opened when the weapons are cleaned. Air exhaust ventilators, located on the roof, are turned on. At the time of the survey, one of the four air exhaust ventilators was not working. A bad motor was taken for repair a few years before and has not been returned or replaced. The Drill Hall is rented occasionally for wedding receptions and tool sales. Renters bring their own food.

## **Boiler Room**

The boiler is a metal one that uses diesel fuel from a tank located outside the building. It is used to heat the Drill Hall and the latrines. Personnel stated that the boiler works well. The wrapping was removed about 2 years ago. It has not been replaced. No water leakage observed at the time of the survey.

# **Deactivated Indoor Firing Range**

A deactivated Indoor Firing Range (IFR) has been converted into a storage area with lockers. NBC cages are located in this area too. The floor is concrete. It has not been used as IFR for about 20 years. Personnel stated that the IFR was "sanitized" about 2 years ago. Six swipe samples were taken from the IFR. Two of the six samples were above the clearance level of 200ug/ft2. See table 1 for results.

Table I

Sample Number	Sample Location	Results
21	Bullet backstop	19 <b>7ug</b>
22	Floor in front of bullet backstop	699ug
23	Item stored in IFR (desk top)	1190ug
24	Item stored in IFR metal shelve	61ug
25	Wall next to entrance/exit door	37ug
26	Blank	BLR

# Weapons Vault

The Hemingway Armory has a weapon storage vault located in the Supply Room. Personnel stated that accountability and issuing of weapons are performed in this area. Weapons are cleaned about twice a year in the Drill Hall with the air exhaust ventilators turned on, using tables that are set up in the Drill Hall. The dehumidifier in the weapons vault is on all the time.

## A/C System

Central A/C units are used to cool the administration offices. The classroom and the supply room both use A/C-heating window units. Six swipe samples for Lead (Table 2) were collected from the supply air grills in the offices occupied by

personnel of the Armory and the classrooms. All samples were below the clearance level of 200 ug/ft2.

Table 2

Sample Number	Sample Location	Results
31	Supply Sgt. Office	BRL
32	Training NCO Office	BRL
33	Administration Office	BRL
34	A/C filter supply side	BRL
35	A/C filter fan side	BLR
36	Blank	BLR

# Material Safety Data Sheets

The MSDS Book is located in the Supply Sgt. Office. Supply Sgt. ads MSDS forms when new products come to the armory the flammables cabinet is located in Supply Room. Employees have attended Hazardous Materials Training within the last two years.

# Light Readings

Light measurements were taken in various locations throughout the facility. The results were compared to guidelines recommended by the Illuminating Engineering Society (IES). The results of the survey are shown in Table 3.

Table 3

Location	Light Reading (footcandles)	IES Recommendation (footcandles)
ADO Administration Office	43-59 (Avg. 50)	50-100
ADO CW3 Office	55-89 (Avg. 66)	50-100
Classroom	27-112 (Avg. 77)	50-100
ADO Supply Sgt. Office	47-49 (Avg. 48)	50-100
ADO Supply Room (Storage)	17-70 (Avg. 42)	20
Library	50-101 (Avg. 69)	50-100
Drill Hall	33 58 (Avg. 45)	30

Light measurement was below IES guidelines at the Supply Sgt. Office with 2 light bulbs out in each of the two light fixtures in the office. The other areas tested were within IES minimum standards. However at the library, administration office, and the classroom there were light fixtures with bulbs out. There were 8 light bulbs out in the drill hall. Consideration should be given to provide supplemental lighting in those areas that were below the recommended standard and to replace burned out bulbs. ANSI RP7-1991.

#### 4.REFERENCES

- Guide to Occupational Exposure 2000, American Conference of Governmental Industrial Hygienists (ACGIH), Cincinnati, Ohio.
- American National Standards Institute (ANSI), /Illuminating Engineering Society (IES), Industrial Lighting 1991.
- National Institute for Occupational Safety and Health (NIOSH), (76-130)
   Technical Information, Lead Exposure and Design Considerations for Indoor Firing Ranges GPO, 1975.
- Title 29, Code of Federal Regulations (CFR). 1999, revision, Part 1910.
   Occupational Safety and Health Standards
- AR 40-5, Preventative Medicine, 15 October 1990.
- AR 385-10, The Army Safety Program, 23 May 1988.

#### **BEST AVAILABLE COPY**

- National Safety Council, Fundamentals of Industrial Hygiene, 4<sup>th</sup> edition, 1996.
- AR 385-16, National Guard Pamphlet, Safety Guidelines for Converting Indoor Firing Ranges to Other uses.
- TB MED 503, The Army Industrial Hygiene Program, February 1985.
- Department of the Army Pamphlet (DA PAM) 40-501,27 August 1991, Hearing Conservation.
- Title 29 CFR, Part 1910.1200, The Hazard Communication Standard.



# RECOMMENDATIONS

- Provide supplemental lighting in those areas where light measurements were below the recommended standard (as represented in Table 3). Replace burned out light fixtures and bulbs as stated in the light measurements section.
- Recommend that when using computers for extended periods of time, personnel should take occasional breaks and change position to minimize the possibility of eyes and/or hands/wrist injury.
- Continue to ensure that weapon maintenance and cleaning is done in a wellventilated area. Continue to practice good personal hygiene by washing hands after handling and cleaning weapons and ammunition.
- A request should be re-submitted to the appropriate state office to obtain a
  permanent solution to the yearly invasion of rats in the armory.
- Ensure that personnel and troops have knowledge of the location of the MSDS book. And is enrolled hazardous materials safety training.
- That the state Occupational Safety and Health office review the lead swipe clearance sample results of this facility to determine if the IFR will need further decontamination.

# HEALTH HAZARD INFORMATION MODULE FIELD SURVEY \*SEE PRIVACE STANDARD COPY ON REVERSE. (For use of this form, see IHIM User's Instructions.)

SECTION 1.

DEMOGRAPHIC DATA

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# HEALTH HAZARD INFORMATION MODULE FIELD SURVEY

(For use of this form, see FIRIM User's Instructions.)

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Page 585 of 964

# Analytical Environmental Servs, Inc.

Date: 5/30/2003

# TOTAL LEAD IN WIPE SAMPLES N7082

CLIENT:

Non-Responsive

Project:

Hemingway SC Armory

Project No:

Himingway SC Armor

PO No:

Lab Order:

0305743

Date Received:

5/23/2003 12:00:

Matrix:

Wipe

Analyst:

CDW

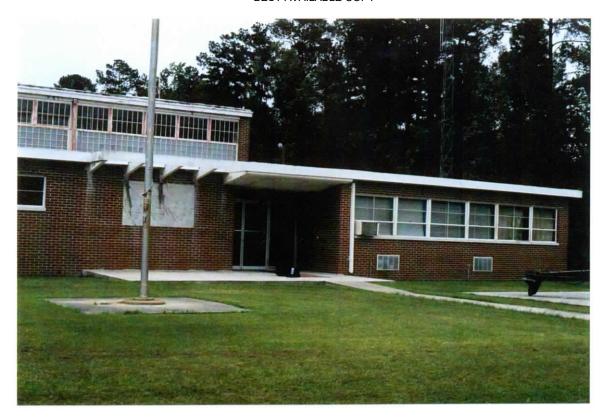
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Laboratory ID	Client Sample ID	Results	Units	MDL	DF	Date Collected	Date Analyzed
0305743-001A	21	197	μg, Total	2.83	1	5/19/2003	5/29/2003
0305743-002A	22	699	μg, Total	2.83	1	5/19/2003	5/29/2003
0305743-003A	23	1190	μg, Total	2.83	1	5/19/2003	5/29/2003
0305743-004A	24	61.0	μg, Total	2.83	1	5/19/2003	5/29/2003
0305743-005A	25	37.0	μg, Total	2.83	1	5/19/2003	5/29/2003
0305743-006A	26	BRL	μg, Total	2.83	1	5/19/2003	5/29/2003
0305743-007A	31	BRL	μg, Total	2.83	1	5/19/2003	5/29/2003
0305743-008A	32	BRL	μg, Total	2.83	1	5/19/2003	5/29/2003
0305743-009A	33	BRL	μg, Total	2.83	1	5/19/2003	5/29/2003
0305743-010A	34	BRL	μg, Total	2.83	1	5/19/2003	5/29/2003
0305743-011A	35	BRL	μg, Total	2.83	1	5/19/2003	5/29/2003
0305743-012A	36	BRL	μg, Total	2.83	1	5/19/2003	5/29/2003

Qualifiers:

MDL - Method Detection Limit

ND - Not Detected at the Reporting Limit

DF - Dilution Factor



# Hemingway, S C Armory





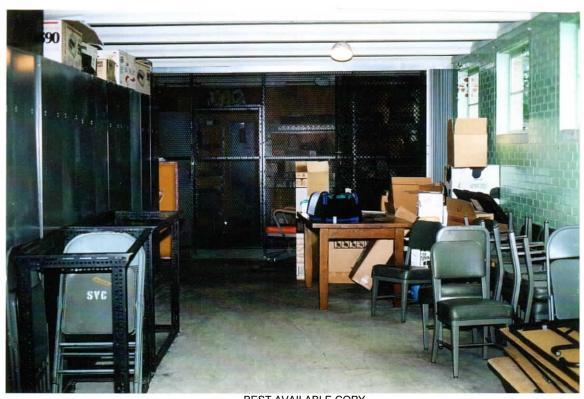
# **Drill Hall**





IFR, Front View

# IFR, Rear View



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FOIA Requested Record #J-15-0085 (SC) Released by National Guard Bureau Page 589 of 964



# IFR, Sampling Areas



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FOIA Requested Record #J-15-0085 (SC) Released by National Guard Bureau Page 590 of 964



A/C Grill Office

# A/C Window Unit



Page 591 of 964



# Flammables Cabinet

**Motor Pool** 



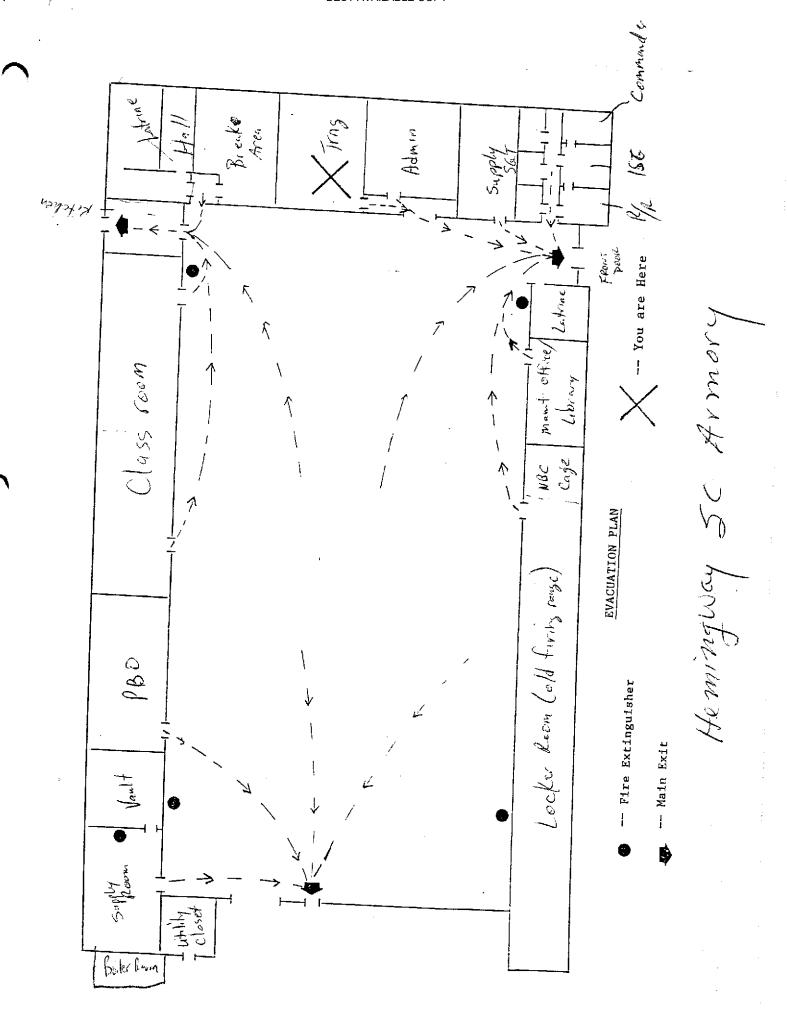


# SPENCEN HEATER DIV. WILLIAMSPORT PA. SPENCER HEATER DIV. WILLIAMSPORT PA

# **Motor Pool**

Boiler

FOIA Requested Record #J-15-0085 (SC) Released by National Guard Bureau Page 593 of 964



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FOIA Requested Record #J-15-0085 (SC)
Released by National Guard Bureau

# NATIONAL GUARD REGION SOUTH INDUSTRIAL HYGIENE OFFICE 510 PLAZA DRIVE, SUITE 1530 COLLEGE PARK, GA 30349

NGB-AVN-SI

5 August 2003

MEMORANDI M. FOR The South Carolina Army National Guard; ATTN: Non-Responsive mory Supervisor, SVC Battery 4-178th FA, 502 E. Cribb Road 4.

SUBJECT: Industrial Hygiene Survey of the Hemmingway National Guard Armory, Hemmingway, South Carolina.

- 1. References.
- a Report submitted 4 August 2003, Industrial Hygiene Survey,

Non-Responsive

- the OSHA Standards 29 CFR (Code of Federal Regulations), General Industry, revised 1988.
- c. AR 40-5, Preventive Medicine, October 1990,
- d. AR 11-34, 15 February 1990, The Army Respiratory Protection Program.
- e. AR 385-10, 23 May 1988, Army Safety Program.
- f. Department of the Army Pamphlet (DA PAM) 40-501, 27 August 1991, Hearing Conservation.
  - g. TB MED 530, The Army Industrial Hygiene Program.
- h. Title 29 Code of Federal regulation (CFR), 1989 rev, Part 1910,94 (c) (6) Table G-10, Ventilation.
- i. Industrial Ventilation, 21st ed. 1992, American Conference of Governmental Industrial Hygienist, Cincinnati, Ohio.
- j. IES Lighting Handbook, Application Volume, 1981, Illumination Engineering Society of North America.
- 2. General.
- a. At the request of the South Carolina State Safety and Occupational Health Office and the Region South Industrial Hygiene Office a Service Contract was put together to conduct Health Hazard Information module (HHIM) Field surveys and IH surveys at the South Carolina National Guard Armories.

# <sup>ы</sup>Non-Responsive

- 3. Findings. All HHIM field survey forms and survey findings of the report are enclosed. (See ENCL. 1)
- Recommendations.
- a. Follow all recommendations made in reference 1. a., requesting industrial hygiene (IH) services where needed to complete the recommendations.
- b. Discuss the high lead samples taken inside of the inactive indoor firing range with the Safety and Occupational Health Office, the Facility Management Office and the Environmental Office. Request help in eliminating possible employee lead exposures. Be prepared to educate personnel on proper housekeeping procedures of the range. Follow NG PAM 385-16, Guidelines for converting indoor firing ranges to other uses and NG PAM 385-15, Policy, Responsibilities and guidelines for housekeeping, rehabilitation and/or conversion of indoor firing ranges.
  - c Use the report to help in correcting all deficiencies noted by the contractor.
- d. Consider additional Industrial Hygiene services to monitor operations that were not looked at or surveyed during the contract visit, especially if this will help eliminate health hazards and reduce medical surveillance cost.
- e. To execute your responsibilities in correcting all deficiencies and meeting all standards coordinate with the FMO, Occupational Health Nurse and the Occupational Safety and Health Office for technical guidance.



CF: Safety and Occupational Health Office, ATTN: Guard Road, Columbia, SC 29201-4766

Non-Responsive

1 National

# Non-Responsive

June 16, 2003

# Non-Responsive

502 E Cribb Rd. Hemingway, SC 29554

RE: Baseline Industrial Hygiene Survey

# FINAL REPORT

# FOR

# BASELINE INDUSTRIAL HYGIENE SURVEY

# SOUTH CAROLINA ARMY NATIONAL GUARD

**HEMINGWAY ARMORY** 

HEMINGWAY, SC

DATE:

MAY 19,2003

PREPARED BY



# **CONTENTS**

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# 2.0 INSTRUMENTATION

# 3.0 FINDINGS

# 4.0 REFERENCES

Attachment 1 HHIM Forms

Attachment 2 Laboratory Reports: Deactivated Indoor Firing Range

Attachment 3 Laboratory Reports: Supply air grills offices

Attachment 4 Photographs of the Facility

Attachment 5 Schematic Drawing of Facility

# 1.0 INTRODUCTION

At the request of the National Guard Bureau South Region Industrial Hygiene Office, Non-Responsive performed a Baseline Industrial Hygiene Survey at the SC ARNG Hemingway Armory. The purpose of the survey was to perform a baseline survey to evaluate health hazards, controls present in the work site, collect lead swipe samples from renovated/inactive or closed Indoor Firing Ranges and perform ventilation, illumination and noise survey and to make recommendations regarding health hazards associated with the work at the Hemingway Armory.

The building was finished around 1958. The facility houses SVC BTRY 4-178<sup>th</sup> Field Artillery. The armory is used by the troops of SVC BTRY 4-178<sup>th</sup> Field Artillery for their monthly weekend drills.

The SVC BTRY 4-178<sup>th</sup> Field Artillery with 70 troops has 4 full time AGR personnel at the time of the survey. The AGR employees are assigned to perform administrative duties Monday-Friday 7:30am-5:00pm with every other Monday off. The facility houses administrative areas, a drill hall, classrooms, a supply room, a weapons vault, a boiler room, a kitchen, and a deactivated Indoor Firing Range. A schematic drawing of the facility can be found in Attachment 5.

The facility was visually examined and personnel consulted to assess potential hazards present. Personnel reported that every fall there is an invasion of rats all over the armory. A person from Environmental Compliance came and gave the armory "Glue Board" to catch the rats. Personnel would like to know what might be the permanent solution for getting rid of the rats. One employee gets emotionally affected when he sees these animals all over the armory. Health Hazard Information Modules were completed. Illumination survey was performed throughout the facility. There is generalized poor lighting through out the facility.

## 2.0 INSTRUMENTATION/CALIBRATION

The following instrumentation was used to obtain light measurements. The instrument used has been calibrated and was operated according to the manufacturer's recommendations:

SPER SCIENTIFIC Light Meter

## 3.0 FINDINGS

# Illumination

Illumination levels were recorded in administration offices, classroom, the drill hall and the supply room. Light measurement was below IES guidelines at the Supply Sgt. Office with 2 light bulbs out in each of the two light fixtures in the office. The other areas tested were within IES minimum standards. However at the library, administration office, and the classroom there were light fixtures with bulbs out. There were 8 light bulbs out in the drill hall. The other areas tested were within IES minimum standards. See Light Readings Table at the end of this section.

## Administration

Personnel perform administrative duties that consist of reading, handling and generating paper work. Computer use comprises a large portion of the working day, four to five hours per day. This continuous use of computers can in the long run lead to eyestrain and hand/wrist soreness.

#### **Motor Pool**

The motor pool is located in a fenced area in the rear of the building. The motor pool includes M-998s vehicles, 2.5T, 5T and 10T trucks. Also fuel tankers and PLS trucks. No maintenance services are performed at the armory. All maintenance and repairs are performed at the nearby OMS #16 in Hemingway.

#### **Drill Hall**

The Drill Hall is located in the center of the building. It is used primarily for formation on weekend drills. The Drill Hall is used to clean weapons about twice a year. Tables are used for this purpose. Bay (Roll-up) door are opened when the weapons are cleaned. Air exhaust ventilators, located on the roof, are turned on. At the time of the survey, one of the four air exhaust ventilators was not working. A bad motor was taken for repair a few years before and has not been returned or replaced. The Drill Hall is rented occasionally for wedding receptions and tool sales. Renters bring their own food.

#### Boiler Room

The boiler is a metal one that uses diesel fuel from a tank located outside the building. It is used to heat the Drill Hall and the latrines. Personnel stated that the boiler works well. The wrapping was removed about 2 years ago. It has not been replaced. No water leakage observed at the time of the survey.

# Deactivated Indoor Firing Range

A deactivated Indoor Firing Range (IFR) has been converted into a storage area with lockers. NBC cages are located in this area too. The floor is concrete. It has not been used as IFR for about 20 years. Personnel stated that the IFR was "sanitized" about 2 years ago. Six swipe samples were taken from the IFR. Two of the six samples were above the clearance level of 200ug/ft2. See table 1 for results.

Table 1

Sample Number	Sample Location	Results
21	Bullet backstop	197ug
22	Floor in front of bullet backstop	699ug
23	Item stored in IFR (desk top)	1190ug
24	Item stored in IFR metal shelve	61ug
25	Wall next to entrance/exit door	37ug
26	Blank	BLR

## Weapons Vault

The Hemingway Armory has a weapon storage vault located in the Supply Room. Personnel stated that accountability and issuing of weapons are performed in this area. Weapons are cleaned about twice a year in the Drill Hall with the air exhaust ventilators turned on, using tables that are set up in the Drill Hall. The dehumidifier in the weapons vault is on all the time.

## A/C System

Central A/C units are used to cool the administration offices. The classroom and the supply room both use A/C-heating window units. Six swipe samples for Lead (Table 2) were collected from the supply air grills in the offices occupied by

personnel of the Armory and the classrooms. All samples were below the clearance level of 200 ug/ft2.

Table 2

Sample Number	Sample Location	Results
31	Supply Sgt. Office	BRL
32	Training NCO Office	BRL
33	Administration Office	BRL
34	A/C filter supply side	BRL
35	A/C filter fan side	BLR
36	Blank	BLR

# **Material Safety Data Sheets**

The MSDS Book is located in the Supply Sgt. Office. Supply Sgt. ads MSDS forms when new products come to the armory the flammables cabinet is located in Supply Room. Employees have attended Hazardous Materials Training within the last two years.

# Light Readings

Light measurements were taken in various locations throughout the facility. The results were compared to guidelines recommended by the Illuminating Engineering Society (IES). The results of the survey are shown in Table 3.

Table 3

Location	Light Reading (footcandles)	IES Recommendation (footcandles)
ADO Administration Office	43-59 (Avg. 50)	50-100
ADO CW3 Office	55-89 (Avg. 66)	50-100
Classroom	27-112 (Avg. 77)	50-100
ADO Supply Sgt. Office	47-49 (Avg. 48)	50-100
ADO Supply Room (Storage)	17-70 (Avg. 42)	20
Library	50-101 (Avg. 69)	50-100
Drill Hall	33 58 (Avg. 45)	30

Light measurement was below IES guidelines at the Supply Sgt. Office with 2 light bulbs out in each of the two light fixtures in the office. The other areas tested were within IES minimum standards. However at the library, administration office, and the classroom there were light fixtures with bulbs out. There were 8 light bulbs out in the drill hall. Consideration should be given to provide supplemental lighting in those areas that were below the recommended standard and to replace burned out bulbs. ANSI RP7-1991.

# 4.REFERENCES

- Guide to Occupational Exposure 2000, American Conference of Governmental Industrial Hygienists (ACGIH), Cincinnati, Ohio.
- American National Standards Institute (ANSI), /Illuminating Engineering Society (IES), Industrial Lighting 1991.
- National Institute for Occupational Safety and Health (NIOSH), (76-130)
   Technical Information, Lead Exposure and Design Considerations for Indoor Firing Ranges GPO, 1975.
- Title 29, Code of Federal Regulations (CFR). 1999, revision, Part 1910. Occupational Safety and Health Standards
- AR 40-5, Preventative Medicine, 15 October 1990.
- AR 385-10, The Army Safety Program, 23 May 1988.

- National Safety Council, Fundamentals of Industrial Hygiene, 4<sup>th</sup> edition, 1996.
- AR 385-16, National Guard Pamphlet, Safety Guidelines for Converting Indoor Firing Ranges to Other uses.
- TB MED 503, The Army Industrial Hygiene Program, February 1985.
- Department of the Army Pamphlet (DA PAM) 40-501,27 August 1991, Hearing Conservation.
- Title 29 CFR, Part 1910.1200, The Hazard Communication Standard.



## RECOMMENDATIONS

- Provide supplemental lighting in those areas where light measurements were below the recommended standard (as represented in Table 3). Replace burned out light fixtures and bulbs as stated in the light measurements section.
- Recommend that when using computers for extended periods of time, personnel should take occasional breaks and change position to minimize the possibility of eyes and/or hands/wrist injury.
- Continue to ensure that weapon maintenance and cleaning is done in a wellventilated area. Continue to practice good personal hygiene by washing hands after handling and cleaning weapons and ammunition.
- A request should be re-submitted to the appropriate state office to obtain a
  permanent solution to the yearly invasion of rats in the armory.
- Ensure that personnel and troops have knowledge of the location of the MSDS book. And is enrolled hazardous materials safety training.
- That the state Occupational Safety and Health office review the lead swipe clearance sample results of this facility to determine if the IFR will need further decontamination.

# HEALTH HAZARD INFORMATION MODULE FIELD SURVEY \*SEE PRIVACESTA VALUE COT ON REVERSE. (Por use of this form, see IHIM User's Instructions.)

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SECTION 6.

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· PRIVACY ACT STATEMENT

Title 5 U.S. Code, Section 301: Executive Order 9397 authorizes the use of your Social Security Number as a identification number. The purps of this information is to identify and monitor data relating each DA civilian employee exposed to a hazardous workplace or operation. The use this information is to provide histories of exposure for any given worker.

Disclosure of your Social Security Number is not mandstory; however, nondisclosure may result in entimely provision of proper medical maniforms.

Signature

# HEALTH HAZARD INFORMATION MODULE FIELD SURVEY \*SEE PRIVATES AND FRENCH ON REVERSE.

(For use of this form, see FIHIM User's Instructions,)

SECTION 1.

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#### · PRIVACY ACT STATEMENT

Title & U.S. Code, Section 301; Executive Order 9397 authorizes the use of your Social Security Number as a identification number. The purple of this information is to identify and monitor data relating each DA civilen employee exposed to a hazardous workplace or operation. The use this information is to provide histories of exposure for any given worker.

Disclosure of your Social Security Number is not mandatory; however, nondisclosure may result in untimely provision of proper medical maniforing.

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Page 611 of 964

#### SECTION 5. SAMPLING DATA

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#### · PRIVACY ACT STATYMENT

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## Analytical Environmental Servs, Inc.

Date: 5/30/2003

#### TOTAL LEAD IN WIPE SAMPLES N7082

CLIENT:

Non-Responsive

Lab Order:

0305743

Project:

Hemingway SC Armory

Date Received:

5/23/2003 12:00:

Project No:

HimingwaySCAr

Matrix: Analyst: Wipe CDW

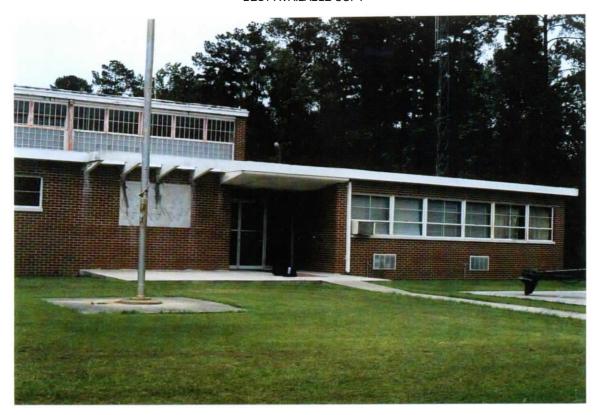
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0305743-002A	22	699	μg, Total	2.83	1	5/19/2003	5/29/2003
0305743-003A	23	1190	μg, Total	2.83	1	5/19/2003	5/29/2003
0305743-004A	24	61.0	μg, Total	2.83	1	5/19/2003	5/29/2003
0305743-005A	25	37.0	μg, Total	2.83	1	5/19/2003	5/29/2003
0305743-006A	26	BRL	μg, Total	2.83	1	5/19/2003	5/29/2003
0305743-007A	31	BRL	μg, Total	2.83	1	5/19/2003	5/29/2003
0305743-008A	32	BRL	μg, Total	2.83	1	5/19/2003	5/29/2003
0305743-009A	33	BRL	μg, Total	2.83	1	5/19/2003	5/29/2003
0305743-010A	34	BRL	μg, Total	2.83	1	5/19/2003	5/29/2003
0305743-011A	35	BRL	μg, Total	2.83	1	5/19/2003	5/29/2003
0305743-012A	36	BRL	μg, Total	2.83	1	5/19/2003	5/29/2003

Qualifiers:

MDL - Method Detection Limit
ND - Not Detected at the Reporting Limit

DF - Dilution Factor



# Hemingway, S C Armory





# **Drill Hall**





IFR, Front View

# IFR, Rear View



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# IFR, Sampling Areas



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A/C Grill Office

# A/C Window Unit



Page 618 of 964



# Flammables Cabinet

## **Motor Pool**





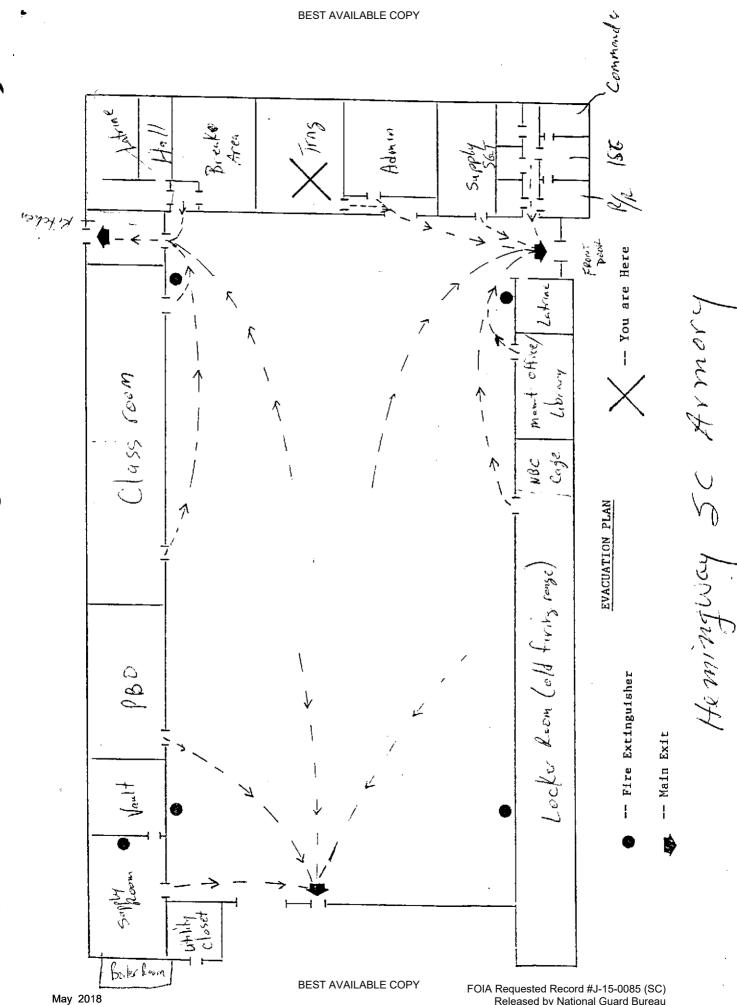
# SPENCER HEATER DIV. WILLIAMSPORT PA. SPENCER HEATER DIV. WILLIAMSPORT PA

May 2018

## **Motor Pool**

# Boiler

FOIA Requested Record #J-15-0085 (SC) Released by National Guard Bureau Page 620 of 964



FOIA Requested Record #J-15-0085 (SC) Released by National Guard Bureau Page 621 of 964

#### NATIONAL GUARD REGION SOUTH INDUSTRIAL HYGIENE OFFICE 510 PLAZA DRIVE, SUITE 1530 COLLEGE PARK, GA 30349

NGB-AVN-SI

5 August 2003

MEMORANDUM FOR The South Carolina Army National Guard, ATTN: Non-Responsive Armory Supervisor, 1052 Transport Co., 747 Eastland Ave, Kingstree, SC 29556.

SUBJECT: Industrial Hygiene Survey of the Kingstree National Guard Armory, Kingstree, South Carolina.

- 1. References.
  - a. Report submitted 4 August 2003, Industrial Hygiene Survey, Non-Responsive
- b. OSHA Standards 29 CFR (Code of Federal Regulations), General Industry, revised 1988.
  - c. AR 40-5, Preventive Medicine, October 1990.
  - d. AR 11-34, 15 February 1990, The Army Respiratory Protection Program.
  - e. AR 385-10, 23 May 1988, Army Safety Program.
- f. Department of the Army Pamphlet (DA PAM) 40-501, 27 August 1991, Hearing Conservation.
  - g. TB MED 530, The Army Industrial Hygiene Program.
- h. Title 29 Code of Federal regulation (CFR), 1989 rev, Part 1910.94 (c) (6) Table G-10, Ventilation.
- i. Industrial Ventilation, 21st ed, 1992, American Conference of Governmental Industrial Hygienist, Cincinnati, Ohio.
- j. IES Lighting Handbook, Application Volume, 1981, Illumination Engineering Society of North America.
- 2. General.
- a. At the request of the South Carolina State Safety and Occupational Health Office and the Region South Industrial Hygiene Office a Service Contract was put together to conduct Health Hazard Information module (HHIM) Field surveys and IH surveys at the South Carolina National Guard Armories.
  - b. Non-Responsive conducted the survey.

- 3. Findings. All HHIM field survey forms and survey findings of the report are enclosed. (See ENCL. 1)
- 4. Recommendations.
- a. Follow all recommendations made in reference 1. a., requesting industrial hygiene (IH) services where needed to complete the recommendations.
- b. Request the Facility Maintenance Office (FMO) repair leaks and replace all water damaged items in the Armory. Ignoring this problem could lead to Indoor Air Quality and mold problems.
- c. Discuss the high lead samples taken inside of the inactive indoor firing range with the Safety and Occupational Health Office, the Facility Management Office and the Environmental Office. Request help in eliminating possible employee lead exposures. Be prepared to educate personnel on proper housekeeping procedures of the range. Follow NG PAM 385-16, Guidelines for converting indoor firing ranges to other uses and NG PAM 385-15, Policy, Responsibilities and guidelines for housekeeping, rehabilitation and/or conversion of indoor firing ranges.
  - d. Use the report to help in correcting all deficiencies noted by the contractor.
- e. Consider additional Industrial Hygiene services to monitor operations that were not looked at or surveyed during the contract visit, especially if this will help eliminate health hazards and reduce medical surveillance cost.
- f. To execute your responsibilities in correcting all deficiencies and meeting all standards coordinate with the FMO, Occupational Health Nurse and the Occupational Safety and Health Office for technical guidance.



CF: Safety and Occupational Health Office, ATTN: Guard Road, Columbia, SC 29201-4766

Non-Responsive<sub>l National</sub>



June 16, 2003

## Non-Responsive

747 Eastland Ave. Kingstree, SC 29556

RE: Baseline Industrial Hygiene Survey

#### FINAL REPORT

#### FOR

## BASELINE INDUSTRIAL HYGIENE SURVEY

### SOUTH CAROLINA ARMY NATIONAL GUARD

KINGSTREE ARMORY

KINGSTREE, SC

DATE:

MAY 21,2003

PREPARED BY

Non-Responsive

#### **CONTENTS**

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#### 2.0 INSTRUMENTATION

#### 3.0 FINDINGS

#### 4.0 REFERENCES

Attachment 1 HHIM Forms

Attachment 2 Laboratory Reports: Deactivated Indoor Firing Range

Attachment 3 Laboratory Reports: A/C System

Attachment 4 Photographs of the Facility

Attachment 5 Schematic Drawing of Facility

#### 1.0 INTRODUCTION

At the request of the National Guard Bureau South Region Industrial Hygiene Office, Non-Responsive performed a Baseline Industrial Hygiene Survey at the SC ARNG Kingstree Armory. The purpose of the survey was to perform a baseline survey to evaluate health hazards, controls present in the work site, collect lead swipe samples from renovated/inactive or closed Indoor Firing Ranges and perform ventilation, illumination and noise survey and to make recommendations regarding health hazards associated with the work at the Kingstree Armory.

The building was finished in 1978. The facility houses the 1052 Transport Co. The armory is used by the troops of the 1052 Transport Co. for their monthly weekend drills.

The Battery 1052 Transport Co. with 171 troops had 3 full time AGR personnel at the time of the survey. The AGR employees are assigned to perform administrative duties Monday-Friday 7:30am-5:00pm. The facility houses administrative areas, a drill hall, classrooms, a supply room, a weapons vault, a boiler room, a kitchen, and a deactivated Indoor Firing Range. A schematic drawing of the facility can be found in Attachment 5.

The facility was visually examined and personnel consulted to assess potential hazards present. There were several missing ceiling tiles and others stained in the locker room. Stained ceiling tiles were also found at the entrance hallway. All these are due to water leakage. Health Hazard Information Modules were completed. Illumination survey was performed throughout the facility.

#### 2.0 INSTRUMENTATION/CALIBRATION

The following instrumentation was used to obtain light measurements. The instrument used has been calibrated and was operated according to the manufacturer's recommendations:

SPER SCIENTIFIC Light Meter

#### 3.0 FINDINGS

#### Illumination

Illumination levels were recorded in administration offices, classroom, the drill hall and the supply room. Light measurement was below IES guidelines at the Readiness NCO Office, the Co Office and the Drill Hall. All four light fixtures in the Readiness NCO office had two bulbs missing each with a low reading at the computer. The Administration office had five light fixtures with two bulbs out each and two with bulbs missing. The Classroom, two light fixtures out and seven missing two bulbs each. The CO office had one light fixture out and two missing bulbs. The Drill Hall readings were very low The other areas tested were within IES minimum standards. See Light Readings Table at the end of this section.

#### Administration

Personnel perform administrative duties that consist of reading, handling and generating paper work. Computer use comprises a large portion of the working day, four to five hours per day. This continuous use of computers can in the long run lead to eyestrain and hand/wrist soreness.

#### **Motor Pool**

The motor pool is located in the rear and the side of the building. The motor pool is very large and 99 trailers, 53 14T trucks, 3 2.5T trucks, three M 998 vehicles, a 500 gal. Tanker, a water buffalo and a kitchen truck. The OMS in Florence assigns technicians to work in the vehicles at the armory. PMCS services are performed on weekend drills. Larger repair jobs like engines and transmissions are performed at the CSMS in McIntyre.

#### Drill Hall

The Drill Hall is located in the center of the building. It is used primarily for formation on weekend drills. The Drill Hall is used to clean weapons only when it is raining or it is cold outside. Otherwise it is done outside. The air exhaust ventilation fans were operational. No vehicles are stored in the Drill Hall. The Drill Hall is rented out for wedding receptions and dances. Renters use catering services to provide food.

#### Kitchen

The mess section uses the kitchen to cook for the troops on weekend drills. It was clean at the time of the survey. The kitchen faucet had a constant steady leak at the time of the survey. There were no screens on windows or doors.

#### **Boiler Room**

The boiler is newer, metal one that uses natural gas. It provides heat for the Drill Hall, Supply Room and hallways. Personnel reported no problems with the heating system at the time of the survey.

#### **Deactivated Indoor Firing Range**

A deactivated Indoor Firing Range (IFR) has been converted into a storage area for section equipment in metal cages along the length of the room. There were several boxes towards the front. Survey of the area shows no bullet backstop. The IFR was "sanitized" (no dates provided) sometime ago. Six swipe samples were taken from the IFR. Four of the six samples were above the clearance level of 200ug/ft2. See table 1 for results.

Table 1

Sample Number	Sample Location	Results
81	Bullet backstop (concrete wall)	10400ug
82	Floor in front of bullet backstop	238000ug
83	Item stored in IFR (wood shelves)	2440ug
84	Item stored in IFR (wood box top)	5290g
85	Wall next to entrance/exit door	113ug
86	Blank	BLR

#### Weapons Vault

The Kingstree Armory has a weapon storage vault located in the Supply Room. Personnel stated that accountability and issuing of weapons are performed in this area. Weapons are cleaned in the Drill Hall with the air exhaust ventilators turned on. The dehumidifier was not working the survey. Personnel was advised on the need to have the dehumidifier working at all times.

#### A/C System

Central A/C heating units are used to cool the administration offices and the classroom. A/C window unit is used to cool the Supply Room. There was no filter in the A/C unit. A/C units were working well at the time of the survey. Six swipe samples for Lead (Table 2) were collected from the supply air grills in the offices occupied by personnel of the Armory and the classrooms. All samples were below the clearance level of 200 ug/ft2.

Table 2

Sample Number	Sample Location	Results
91	Administration Office	BRL
92	CO Office	37ug
93	Readiness NCO Office	BRL
94	Copy Room	25ug
95	Classroom	21ug
96	Blank	BLR

#### Material Safety Data Sheets

The MSDS Book is located in the Supply Room. It has not been updated recently. There was no index. The oil shed is located outside the building. There were MSDS forms inside the oil shed. Supply Sgt. attended Hazardous Materials Training last year.

#### Light Readings

Light measurements were taken in various locations throughout the facility. The results were compared to guidelines recommended by the Illuminating Engineering Society (IES). The results of the survey are shown in Table 3.

Table 3

Location	Light Reading (footcandles)	IES Recommendation (footcandles)
ADO Readiness NCO Office	38-48 (Avg. 42)	50-100
ADO Administration Office	23-95 (Avg. 50)	50-100
Classroom	47-97 (Avg. 74)	50-100
Copy Room	50-55 (Avg. 52)	50-100
ADO Supply Room (Office)	52-57 (Avg.55)	50-100
ADO Supply Room (Storage)	33-72 (Avg. 49)	20
CO Office	18-63 (Avg. 45)	50-100
Drill Hall	13 23 (Avg. 18)	30

Light measurement was below IES guidelines at the Readiness NCO Office, the Co Office and the Drill Hall. All four light fixtures in the Readiness NCO office had two bulbs missing each with a low reading at the computer. The Administration office had five light fixtures with two bulbs out each and two with bulbs missing. The Classroom, two light fixtures out and seven missing two bulbs each. The CO office had one light fixture out and two missing bulbs. The Drill Hall readings were very low. The other areas tested were within IES minimum standards. Consideration should be given to provide supplemental lighting in those areas that were below the recommended standard and to replace burned out bulbs. ANSI RP7-1991.

#### 4.REFERENCES

- Guide to Occupational Exposure 2000, American Conference of Governmental Industrial Hygienists (ACGIH), Cincinnati, Ohio.
- American National Standards Institute (ANSI), /Illuminating Engineering Society (IES), Industrial Lighting 1991.
- National Institute for Occupational Safety and Health (NIOSH), (76-130)
   Technical Information, Lead Exposure and Design Considerations for Indoor Firing Ranges GPO, 1975.
- Title 29, Code of Federal Regulations (CFR). 1999, revision, Part 1910.
   Occupational Safety and Health Standards

- AR 40-5, Preventative Medicine, 15 October 1990.
- AR 385-10, The Army Safety Program, 23 May 1988.
- National Safety Council, Fundamentals of Industrial Hygiene, 4<sup>th</sup> edition, 1996.
- AR 385-16, National Guard Pamphlet, Safety Guidelines for Converting Indoor Firing Ranges to Other uses.
- TB MED 503, The Army Industrial Hygiene Program, February 1985.
- Department of the Army Pamphlet (DA PAM) 40-501,27 August 1991, Hearing Conservation.
- Title 29 CFR, Part 1910.1200, The Hazard Communication Standard.



#### RECOMMENDATIONS

- Provide supplemental lighting in those areas where light measurements were below the recommended standard (as represented in Table 3). Replace burned out light fixtures and bulbs as stated in the light measurements section.
- Recommend that when using computers for extended periods of time, personnel should take occasional breaks and change position to minimize the possibility of eyes and/or hands/wrist injury.
- Continue to ensure that weapon maintenance and cleaning is done in a wellventilated area. Continue to practice good personal hygiene by washing hands after handling and cleaning weapons.
- A work order should be submitted to the appropriate state office for the repair
  of the roof leak and the replacement of missing and stained ceiling tiles.
- A work order should be submitted to the appropriate state office for the repair or replacement of the Weapons Vault dehumidifier if it has not been done yet.
- A work order should be submitted to the appropriate state office for the repair
  of the leaking kitchen faucet.
- The A/C filter should be installed (if it had no been done yet) and replaced in a timely manner according to the manufacturer recommendation.
- Develop, from MSDS forms, a Hazardous Materials Inventory List for the oil shed.
- The MSDS book should updated and indexed. Ensure that personnel and troops have knowledge of the location of the MSDS book. And is enrolled hazardous materials safety training.
- That the state Occupational Safety and Health office review the lead swipe clearance sample results of this facility to determine if the IFR will need further decontamination.

# HEALTH HAZARD INFORMATION MODULE FIELD SURVEY \*SEE PRIVACYDEST AVAITABLE (TOP) REVERSE. (For use of this form, see 1041M User's Instructions.)

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Page 634 of 964

. HAZARD	b. SAMPLE TYPE	C. RESULTS	d. REMARKS
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SECTION 6.

PERSONNEL DATA

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#### · PRIVACY ACT STATEMENT

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Disciosurs of your Social Security Number is not mandatory; however, nundisciosure may result in untimely provision of proper medical monitories.

# \*SEE PRIVACE STANDAM HODULE FIELD SURVEY (For use of the form, see FIHIM User's Instructions.)

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s. HAZARD	L SAMPLE	c. RESULTS	d. REMARKS
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SECTION 6. PERSONNEL DATA

Non-Resp	oonsive		CATECORY

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Signature

# HEALTH HAZARD INFORMATION MODULE FIELD SURVEY \*SEE PRIVACY BAST STATEMENT ON REVERSE. (For use of this form, see FIFTIM User's Instructions.)

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Page 638 of 964

SECTION 5. SAMPLING DATA \*\* · BEST AVAILABLE COPY D. SAMPLE . HAZARD C RESULTS d. REMARKS .7 SECTION 6. PERSONNEL DATA

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Signature

# Analytical Environmental Servs, Inc.

Date: 5/30/2003

#### TOTAL LEAD IN WIPE SAMPLES N7082

CLIENT:

Non-Responsive

Project:

Kingstree SC Armory

Project No:

Kingstree SC Ar

PO No:

Lab Order:

0305739

Date Received:

5/23/2003 12:00:

Matrix:

Wipe

Analyst: CDW

Laboratory ID	Client Sample ID	Results	Units	MDL	DF	Date Collected	Date Analyzed
0305739-001A	81	10400	μg, Total	25.8	9.12	5/21/2003	5/29/2003
0305739-002A	82	238000	μg, Total	444	157	5/21/2003	5/29/2003
0305739-003A	83	2440	μg, Total	6.42	16.64	5/21/2003	5/29/2003
0305739-004A	84	5290	μg, Total	9.00	3.18	5/21/2003	5/29/2003
0305739-005A	85	113	μg, Total	2.83	1	5/21/2003	5/29/2003
0305739-006A	86	BRL	μg, Total	2.83	1	5/21/2003	5/29/2003
0305739-007A	91	BRL	μg, Total	2.83	1	5/21/2003	5/29/2003
0305739-008A	92	37.0	μg, Total	2.83	1	5/21/2003	5/29/2003
0305739-009A	93	BRL	μg, Total	2.83	1	5/21/2003	5/29/2003
0305739-010A	94	25.0	μg, Total	2.83	1	5/21/2003	5/29/2003
0305739-011A	95	21.0	μ <b>g</b> , Total	2.83	1	5/21/2003	5/29/2003
0305739-012A	96	BRL	μg, Total	2.83	1	5/21/2003	5/29/2003



MDL - Method Detection Limit

ND - Not Detected at the Reporting Limit

DF - Dilution Factor