

**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: SFO
P.O. BOX 458, Abbeville, SC 29620.

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

1. References.

- a. Report submitted 5 October 2005, Industrial Hygiene Survey,
- 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. 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. **Discuss the high lead samples taken inside of the inactive converted indoor firing range with the Safety and Occupational Health Office, the Facility Management Office and the Environmental Office. This is and always will be an IFR until the backstop and sand is removed.** Help in eliminating possible employee lead exposures. 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. **Submit a request to the SC Safety and Occupational Health Office for further lead sampling to determine extent 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.**

5. If additional information is needed about the contractors report, please contact **Non-Responsive** Regional Industrial Hygienist, ARNG-IHS, **Non-Responsive** OR **Non-Responsive** COMMERCIAL **Non-Responsive**

Non-Responsive

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

Non-Responsive

September 22, 2005

Non-Responsive

SC Army National Guard Armory
P.O. Box 458
Abbeville, SC 29620

RE: Baseline Industrial Hygiene Survey

FINAL REPORT

FOR

BASELINE INDUSTRIAL HYGIENE SURVEY

SOUTH CAROLINA ARMY NATIONAL GUARD

ABBEVILLE ARMORY

ABBEVILLE, SC

DATE:

SEPTEMBER 6, 2005

PREPARED BY

Non-Responsive

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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 Abbeville 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, A/C-Heating System, illumination survey and to make recommendations regarding health hazards associated with the work at the Abbeville Armory.

The building was built in 1979. The facility houses the Co. A 111th Signal. The armory is used by the troops of the Co. A 111th Signal for their monthly weekend drills.

The Co. A 111th Signal with about 75 troops had 3 full time personnel at the time of the survey. The AGR employees are assigned to perform administrative duties Monday-Friday 7:30am-5:00pm with one day off every other week. The facility houses administrative areas, a drill hall, a classroom, a supply room, a weapons vault, a boiler room, a kitchen, and a deactivated Indoor Firing Range. The kitchen was used to cook for the troops before the troops were deployed on Jan. 2004. The unit has not drilled since they have been back so the kitchen has not been used in more than a year. It was clean the day of the survey with a new refrigerator. It has a window A/C unit. Personnel reported that the paint is peeling off from the ceiling of the drill hall (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.

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 measurements were above IES guidelines at all the areas tested. Even though the average lighting was above the minimum in the Drill Hall, light bulbs were partially covered or blocked in the center of the room. This is due to the parachutes that are spread and suspended from the ceiling. Personnel reported they were placed there to cover the peeling of the paint at the ceiling of the Drill Hall (See pictures). 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, six to seven hours per day. This continuous use of computers can in the long run lead to eyestrain and hand/wrist soreness. Personnel reported no health problems associated with the job at this time.

Motor Pool

The motor pool is located behind the building. It is fenced and locked. There were only three vehicles in the motor pool the day of the survey and one of them belongs to another unit. The rest of the vehicles are still in Fort Gordon. They are expected back at the facility in the next two months. PMCS are performed at the armory on weekend drills when the vehicles are in. The unit has technicians who perform and direct this operator level maintenance. When major repairs are needed the vehicles are taken to the CSMS facility in Columbia.

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 three times a year. Air exhaust ventilation fans, located at the roof at each end of the room, are turned on. At the time of the survey both air exhaust ventilation fans were working. Tables are used to clean the weapons. Disposable covers are placed on top of the tables when the weapons are cleaned. Occasionally a designated member of the unit cleans the weapons in the vault. Rags with CLP and rubber gloves are used in the process of cleaning weapons. The dirty rags are placed in a container and are picked up by an outside contractor for their disposal. The Drill Hall is rented three or four times a year to social groups (women and community clubs). If they bring food, they do not use the kitchen. There are five parachute tops spread and suspended from the ceiling. Personnel reported that they placed

them there to cover the peeling of the paint at the ceiling (See pictures). Some of the light bulbs in the middle are blocked by the parachutes.

Boiler Room

There is a metal boiler in the room. It uses natural gas. It is used to heat the areas of the armory that are not heated by the A/C-Heating units. Personnel stated that it works well during the winter months. There is a water heater in this room also.

Deactivated Indoor Firing Range

A deactivated Indoor Firing Range (IFR) has been converted into a maintenance and storage area. The area where the backstop is has been separated from the rest of the room by a wall. There is a space (door size), that communicates between the two on the right side. A camouflage mesh covers the entrance. The backstop and sand are still present. Personnel reported that the IFR was cleaned about ten to twelve years ago and that nobody ever goes inside the room where the backstop and sand are. Personnel reported that the IFR was probably cleaned about 10 or 12 years ago. Inside the area there are work benches, metal cages, a riding mower, a push lawn mower, metal cabinets and shelves, portable tables, an air compressor, a large fan and boxes (See pictures). Seven wipe samples were taken from the IFR. Three of the seven samples were above the clearance level of 200ug/ft². See table 1 for results.

Table 1

Sample Number	Sample Location	Results
5	Bullet backstop, right side	735ug
6	Bullet backstop, left side	2600ug
7	Floor in front of bullet backstop	84ug
8	Floor in front of wall that separate the backstop from the maint. area	605ug
9	Item 1 stored in IFR, metal shelf next to entrance to backstop	120ug
10	Item 2 stored in IFR, top of wood table at room just outside of where backstop is	156ug

11	Wall next to entrance/exit door	29ug
12	Blank	BLR

Weapons Vault

The Abbeville 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 once three times a year in the Drill Hall with the air exhaust ventilators turned on. The procedure to clean weapons is described in the Drill Hall section above. The dehumidifier in the weapons vault was working the day of the survey. There were no weapons in the racks at the time of the survey. The unit returned from Iraq about three months before and the weapons have not placed back in the vault. 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 2

Sample Number	Sample Location	Results
1	Weapons Vault Racks (A)	25ug
2	Weapons Vault Racks (B)	30ug
3	Weapons Vault Racks (C)	58ug
4	Weapons Vault Racks (D)	BRL
12	Blank	BRL

A/C System

Central A/C units are used to cool the administration offices and the classroom. The supply room has a window A/C unit. Personnel reported that the filters were recently changed. No filter was seen in one of the units. Using a flashlight, a filter

was found fallen way down from where it should be located. It was too small for the unit. Seven wipe samples were collected from the supply air grills in the offices occupied by personnel of the armory and the filter. All samples were below the clearance level of 200 ug/ft².

Table 3

Sample Number	Sample Location	Results
13	Training NCO Office (SSG Rodgers)	30ug
14	Recruiter Office	BRL
15	Readiness NCO Office (SFC Rita)	BRL
16	Adm. NCO Office (SSG Cook)	BLR
17	Supply Sgt. Office (SSG Mc Curry)	BLR
18	A/C filter Supply side	BLR
19	A/C filter Fan side	BRL
20	Blank	BLR

Material Safety Data Sheets

Personnel reported that there is an MSDS Book located in the supply room. There are two flammables cabinets at the facility. One, located in the supply room contains several household chemicals, WD 40 and CLP. There is a binder book with MSDS forms. There is no Hazardous Materials Inventory List at the door. The other flammables cabinet was found in the maintenance area. It contains lubricating oil, brake fluid, penetrating oil, small paint cans, glass cleaner and adhesive. There is a Hazardous Materials Inventory List attached to the outside of the door. There was no sign found at the facility to inform personnel and troops about the location of the MSDS book or sheets in case of emergency. The supply Sgt. was not present the day of the survey.

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 4.

Table 4

Location	Light Reading (footcandles)	IES Recommendation (footcandles)
ADO Readiness NCO Office (SFC Smith)	66-97 (Avg. 82)	50-100
ADO Training NCO Office (SGT Porter)	54-67 (Avg. 67)	50-100
ADO Supply Sgt. Office	47-70 (Avg. 57)	50-100
ADO Supply Room (Storage)	21-27 (Avg. 24)	20
Library	73-82 (Avg. 76)	50-100
Classroom	56-101 (Avg. 67)	50-100
Training Room	61-81 (Avg. 71)	50-100
Commander Office	61-88 (Avg. 71)	50-100
1SG Office	62-92 (Avg. 79)	50-100
Drill Hall	9-166 (Avg. 44)	30

Light measurements were above IES guidelines at all the areas tested. Even though the average lighting was above the minimum in the Drill Hall, light bulbs were partially covered or blocked in the center of the room. This is due to the parachutes that are spread and suspended from the ceiling. Personnel reported they were placed there to cover the peeling of the paint at the ceiling of the Drill Hall (See pictures). 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, 4th 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.

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RECOMMENDATIONS

- Consider rearranging the parachutes suspended from ceiling in the Drill Hall so the light bulbs in the middle of the room are no blocked by them.
- 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.
- A request should be submitted to the appropriate state office to repaint the ceiling in the Drill Hall and subsequent removal of suspended parachutes from the room.
- Recommend that the correct size filter be placed in the unit that had lost it due to using the wrong size if it has not been done yet.
- An MSDS book should be developed from the MSDS forms and kept at the facility if one is not present.
- A Hazardous Materials Inventory List should be developed from the MSDS book (forms) and be placed in the flammables cabinet in the supply room.
- 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 wipe clearance sample results of this facility to determine if the IFR will need further decontamination and/or the room where the backstop and sand are should be completely enclosed.

BEST AVAILABLE COPY

SECTION 1. DEMOGRAPHIC DATA

a. ARLOC _____ b. INSTALLATION Abbeville SC Amory c. BLDG/RM NUMBER Readings NCO Office
 d. LOCATION/CODE AA e. OPERATION/CODE AD f. DESCRIPTION work about 6-8 hrs/day. some Adm. Computer
 g. MACOM/CODE NG h. SUBMACOM/CODE _____ i. SUPERVISOR _____
 j. TELEPHONE/AUTOVON NUMBER _____ k. RAC _____ l. FREQUENCY (Hrs Per Day) _____
 m. NO CIV(S) _____ n. NO MIL _____ o. NO CONTRACTOR(S) _____ p. NO LOC(S) _____ q. NO OTHER _____

Non-Responsive

SECTION 2. IH STAFFING DATA

a. LAB HOODS _____ b. VAPOR DEGREASERS _____ c. MAINTENANCE BAYS _____ d. SPRAY BOOT-S _____
 e. OPEN SURFACE TANKS _____ f. VENTILATION UNITS _____

SECTION 3. SURVEY DATA

a. SURVEY DATE 9-6-05 b. EVALUATOR (INITIALS) _____

Non-Responsive

c. CONTROLS PRESENT	d. EVALUATION	e. UNIT CODE	f. CONTROLS REQUIRED	g. STATUS
<u>Lighting</u>	<u>66-97, Avg: 82</u>	<u>PC</u>	<u>50-100</u>	<u>Adgt</u>

h. PERSONAL PROTECTIVE EQUIPMENT (R=REQUIRED; A=AVAILABLE)**1. RESPIRATOR**

DISPOSABLE

w/ FACE AIR PURIFYING

w/ FACE AIR PURIFYING

FULL FACE AIR PURIFYING

POWERED AIR PURIFYING

AIRLINE

SELF-CONTAINED

ABRASIVE BLASTING HOOD

MANUFACTURER

NIOSH TC NO

R/A

2. GLOVES	R/A	3. EYES/FACE	R/A	4. HEARING	R/A	5. BODY	R/A	6. HEAD/FOOT	R/A
ACID	/	CHEMICAL/SPLASH	/	MUFFS	/	APRONS	/	HARD HATS	/
OIL	/	SAFETY/IMPACT	/	EARPLUGS	/	COVERALLS	/	IMPERMEABLE BOOTS	/
SOLVENTS	/	CHEMICAL/SAFETY	/	CANAL CAPS	/	FULL BODY SUIT	/	SAFETY CONDUCT SHOES	/
HOT SURFACES	/	FULL FACE SHIELD	/	HELMETS	/	SAFETY BELT/HARNES	/	SAFETY/NONCONDUCTIVE SHOES	/
COLD SURFACES	/	WELDING HELMET	/			HEAT REFLECT VEST/SUIT	/		
NBC AGENTS	/								

SECTION 4. HAZARD INVENTORY DATA

a. CAS CODE	b. HAZARD DESCRIPTION	c. PAC or EPC	d. MEDICAL SURVEILLANCE RECOMMENDED (YES or NO)
<u>PO VDT</u>	<u>Computer use for long periods of time</u>	<u>3</u>	

SECTION 1. DEMOGRAPHIC DATA

a. ARLOC _____ b. INSTALLATION Abbeville & Army c. BLDG/RM NUMBER Adm. NCO office
d. LOCATION/CODE AA e. OPERATION/CODE ADD f. DESCRIPTION _____
Administration NCO

g. MACOM/CODE NG h. SUBMACOM/CODE _____ i. SUPERVISOR Non-Responsive

j. TELEPHONE/AUTOVON NUMBER 807 806 1735 k. RAC _____ l. FREQUENCY (Hrs Per Day) _____

m. NO CIV(S) _____ n. NO MIL _____ o. NO CONTRACTOR(S) _____ p. NO LOC(S) _____ q. NO OTHER _____

SECTION 2. IH STAFFING DATA

a. LAB HOODS _____ b. VAPOR DEGREASERS _____ c. MAINTENANCE BAYS _____ d. SPRAY BOOT-S _____
e. OPEN SURFACE TANKS _____ f. VENTILATION UNITS _____

SECTION 3. SURVEY DATA

a. SURVEY DATE 9-6-05

b. EVALUATOR (INITIALS) Non-Responsive

c. CONTROLS PRESENT	d. EVALUATION	e. UNIT CODE	f. CONTROLS REQUIRED	g. STATUS
<u>Lighting</u>	<u>5467; Aug. 61</u>	<u>FC</u>	<u>50-100</u>	<u>Adgt</u>

h. PERSONAL PROTECTIVE EQUIPMENT (R=REQUIRED; A=AVAILABLE)

1. RESPIRATOR

MANUFACTURER

NIOSH TC NO

R/A

DISPOSABLE

FACE AIR PURIFYING

FACE AIR PURIFYING

FULL FACE AIR PURIFYING

POWERED AIR PURIFYING

AIRLINE

SELF-CONTAINED

ABRASIVE BLASTING HOOD

2. GLOVES	R/A	3. EYES/FACE	R/A	4. HEARING	R/A	5. BODY	R/A	6. HEAD/FOOT	R/A
ACID	/	CHEMICAL/SPLASH	/	MUFFS	/	APRONS	/	HARD HATS	/
OIL	/	SAFETY/IMPACT	/	EARPLUGS	/	COVERALLS	/	IMPERMEABLE BOOTS	/
SOLVENTS	/	CHEMICAL/SAFETY	/	CANAL CAPS	/	FULL BODY SUIT	/	SAFETY CONDUCT SHOES	/
HOT SURFACES	/	FULL FACE SHIELD	/	HELMETS	/	SAFETY BELT/HARNESS	/	SAFETY/NONCONDUCTIVE SHOES	/
COLD SURFACES	/	WELDING HELMET	/			HEAT REFLECT VEST/SUIT	/		
NBC AGENTS	/								

SECTION 4. HAZARD INVENTORY DATA

a. CAS CODE	b. HAZARD DESCRIPTION	c. PAC or EPC	d. MEDICAL SURVEILLANCE RECOMMENDED (YES or NO)
<u>Povert</u>	<u>Computer work for long periods of time</u>	<u>3</u>	

Analytical Environmental Services, Inc.

Date: 9/15/2005

TOTAL LEAD IN WIPE SAMPLES
N7082CLIENT: **Non-Responsive**

Lab Order: 0509506

Project: Abbeville, SC Armory

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

Delivery Order:

Matrix: Wipe

PO No:

Laboratory ID	Client Sample ID	Results	Units	Report Limit.	DF	Date Collected	Date Analyzed	Analyst
0509506-001A	1	25	µg, Total	20	1	9/6/2005	9/14/2005	VA
0509506-002A	2	30	µg, Total	20	1	9/6/2005	9/14/2005	VA
0509506-003A	3	58	µg, Total	20	1	9/6/2005	9/14/2005	VA
0509506-004A	4	BRL	µg, Total	20	1	9/6/2005	9/14/2005	VA
0509506-005A	5	735	µg, Total	20	1	9/6/2005	9/14/2005	VA
0509506-006A	6	2600	µg, Total	47	2.34	9/6/2005	9/14/2005	VA
0509506-007A	7	84	µg, Total	20	1	9/6/2005	9/14/2005	VA
0509506-008A	8	605	µg, Total	20	1	9/6/2005	9/14/2005	VA
0509506-009A	9	120	µg, Total	20	1	9/6/2005	9/14/2005	VA
0509506-010A	10	156	µg, Total	20	1	9/6/2005	9/14/2005	VA
0509506-011A	11	29	µg, Total	20	1	9/6/2005	9/14/2005	VA
0509506-012A	12	BRL	µg, Total	20	1	9/6/2005	9/14/2005	VA
0509506-013A	13	30	µg, Total	20	1	9/6/2005	9/14/2005	VA
0509506-014A	14	BRL	µg, Total	20	1	9/6/2005	9/14/2005	VA
0509506-015A	15	BRL	µg, Total	20	1	9/6/2005	9/14/2005	VA
0509506-016A	16	BRL	µg, Total	20	1	9/6/2005	9/14/2005	VA
0509506-017A	17	BRL	µg, Total	20	1	9/6/2005	9/14/2005	VA
0509506-018A	18	BRL	µg, Total	20	1	9/6/2005	9/14/2005	VA
0509506-019A	19	BRL	µg, Total	20	1	9/6/2005	9/14/2005	VA
0509506-020A	20	BRL	µg, Total	20	1	9/6/2005	9/14/2005	VA

Qualifiers: BRL - Not Detected at the Reporting Limit

DF - Dilution Factor



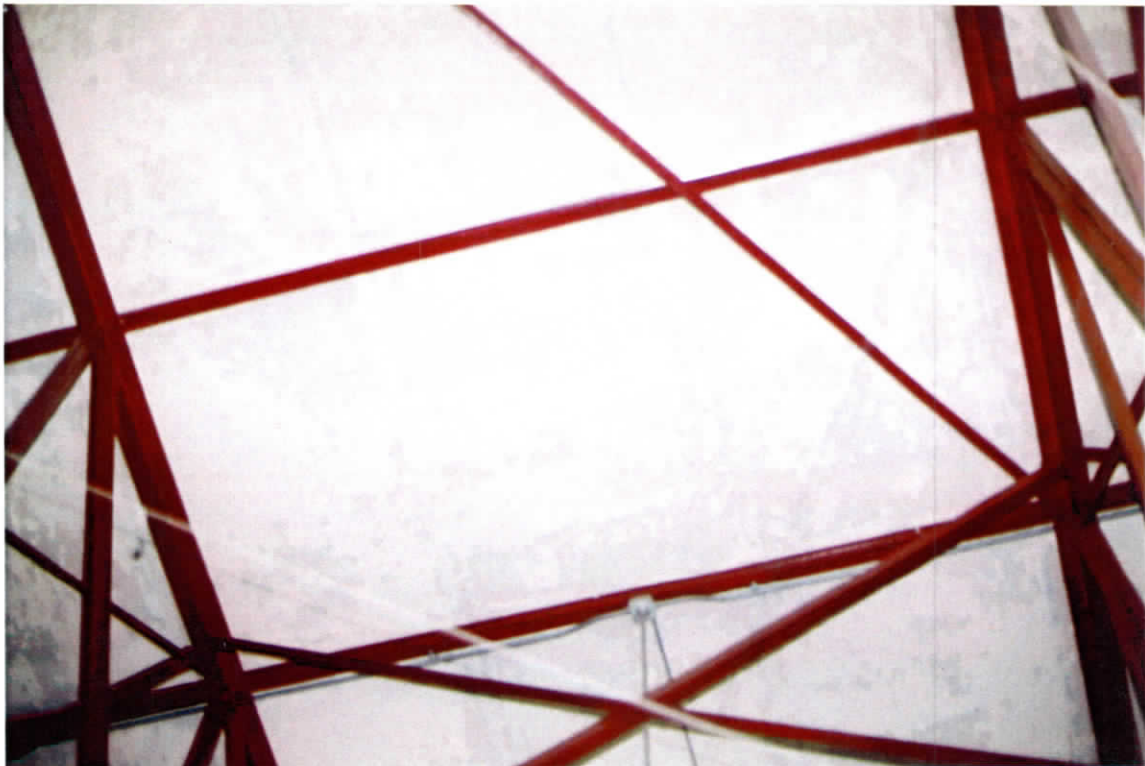
**ABBEVILLE, SC
ARMORY**

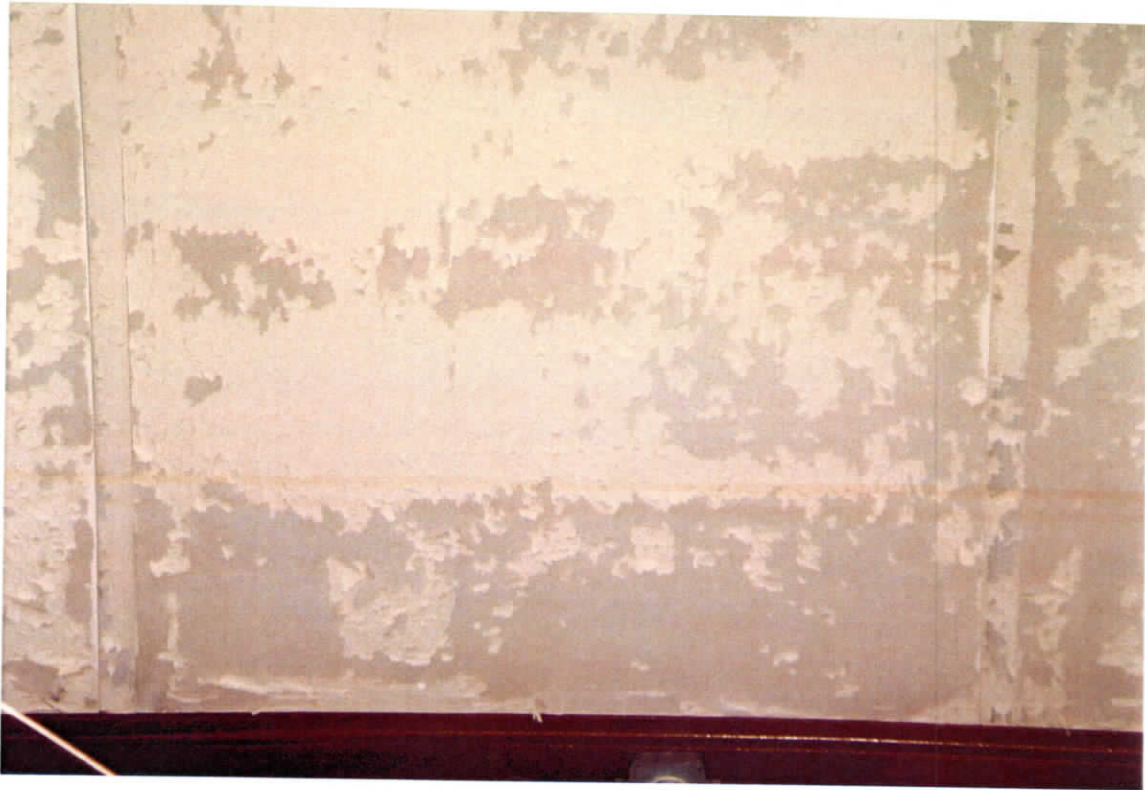




DRILL HALL

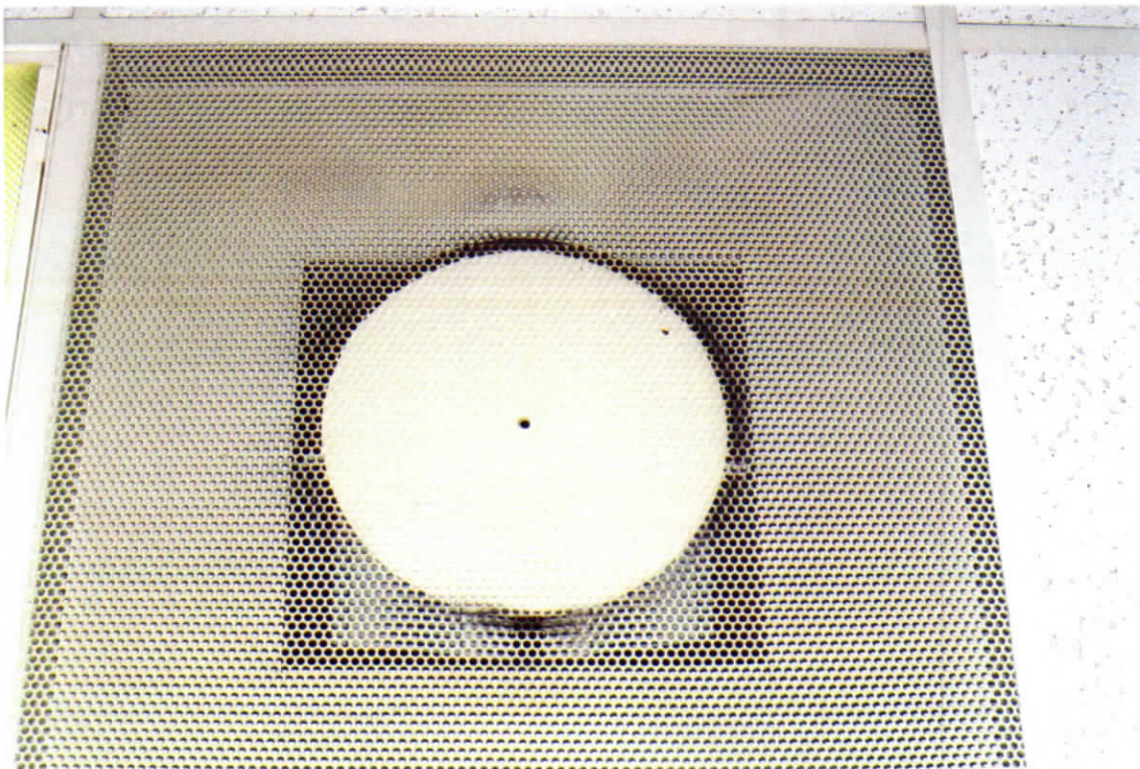
**DRILL HALL, PAINT
PEELING OFF, CEILING**





**DRILL HALL, PAINT
PEELING OFF, CEILING**

**A/C-HEATING OUTLET
GRILL, OFFICES**

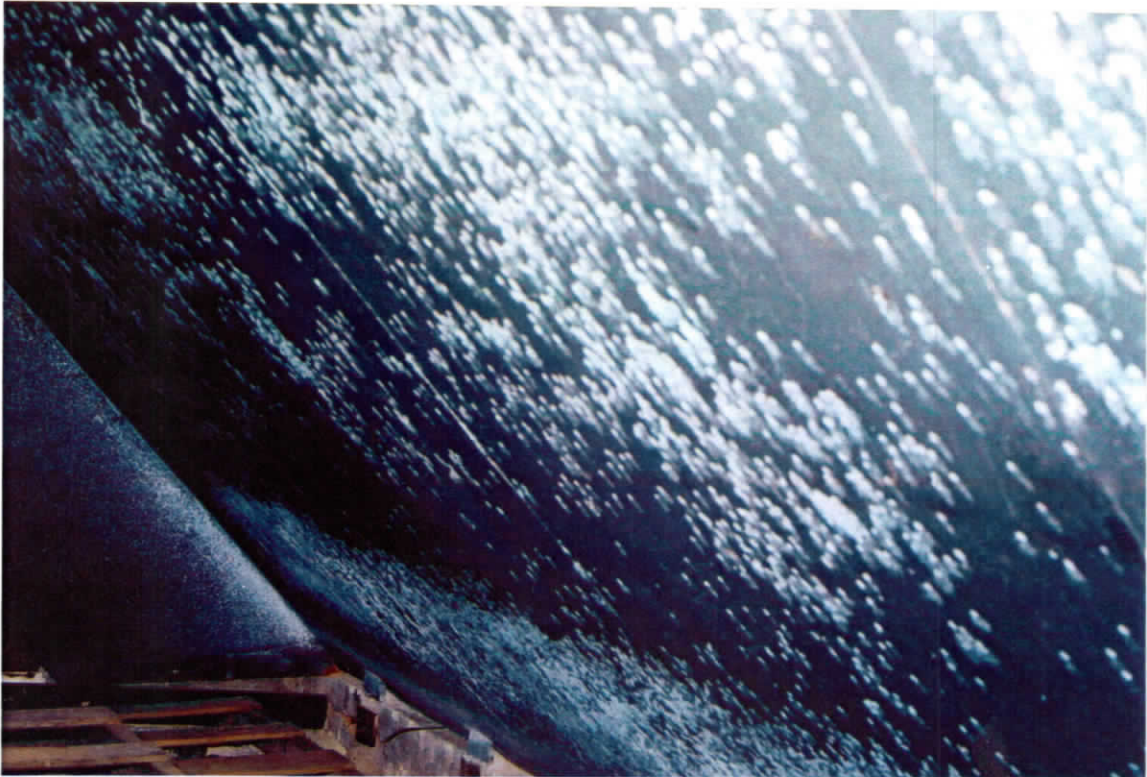




IFR, FRONT VIEW

IFR, REAR VIEW





**IFR, BULLET
BACKSTOP**

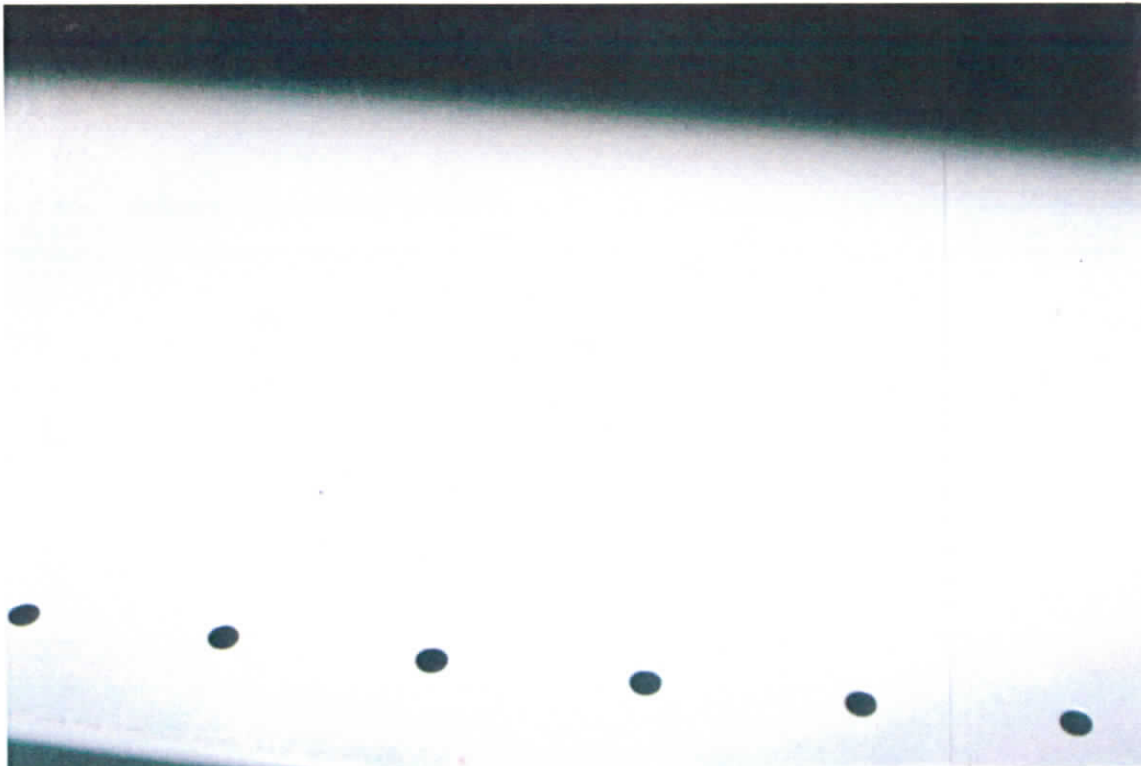
**IFR, FLOOR IN FRONT OF
BACKSTOP (SAND)**





**IFR, CAMOUFLAGE
COVERING ENTRANCE
TO BACKSTOP AREA**

IFR, SAMPLE AREA





IFR, SAMPLE AREA

MOTOR POOL





FLAMMABLES CABINET,
SUPPLY ROOM

FLAMMABLES CABINET,
INSIDE





**FLAMMABLES CABINET,
INSIDE**

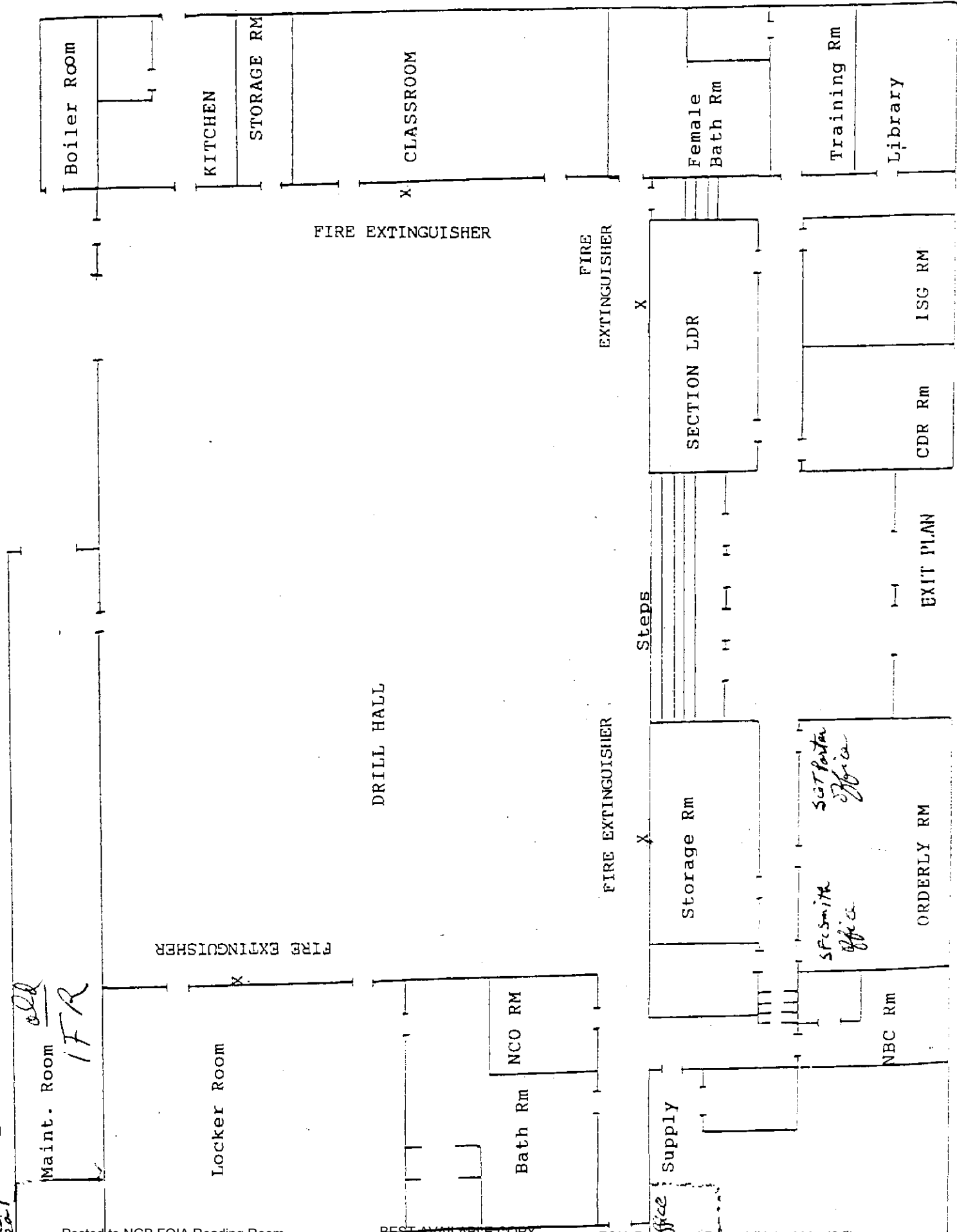
**FLAMMABLES CABINET,
MAINTENANCE AREA**



Abbeville SC Army

MOTOR POOL AREA

Buckstop



**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]
[Non-Responsive] Armory Supervisor, Battery A 4th BN 178th FA, 401 W. Main Street, P.O. BOX 136, Andrews, SC 29510.

SUBJECT: Industrial Hygiene Survey of the Andrews National Guard Armory, Andrews, 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.
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a. Follow all recommendations made in reference 1. a., requesting industrial hygiene (IH) services where needed to complete the recommendations.

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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.

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

Non-Responsive

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

Non-Responsive

June 16, 2003

Non-Responsive

SC Army National Guard Armory
401 W Main Street
P. O. Box 136
Andrews, SC 29510

RE: Baseline Industrial Hygiene Survey

FINAL REPORT

FOR

BASELINE INDUSTRIAL HYGIENE SURVEY

SOUTH CAROLINA ARMY NATIONAL GUARD

ANDREWS ARMORY

ANDREWS, SC

DATE:

MAY 20,2003

PREPARED BY

Non-Responsive

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Attachment 4 Laboratory Reports: Bulk Sample Floor tiles kitchen

Attachment 5 Photographs of the Facility

Attachment 6 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 Andrews 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 Andrews Armory.

The building was finished in 1976. The facility houses the Battery A 4th BN 178th Field Artillery. The armory is used by the troops of Battery A 4th BN 178th Field Artillery for their monthly weekend drills.

The Battery A 4th BN 178th Field Artillery with 88 troops has 2 full time AGR and one civilian personnel at the time of the survey. The civilian and 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 6.

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 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 Supply Room and the Drill Hall. There were light fixtures out in the Supply room (with a light reading of only 9FC at the computer) and the classroom (with many light fixtures missing two bulbs each). 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 a fenced area in the rear of the building. The motor pool consists of 2.5T and 5T trucks, four PLS vehicles, and several M 998 vehicles. PMCS services are performed at the armory.

Drill Hall

The Drill Hall is located in the center of the building. It is used primarily for formation and classes on weekend drills. Only about five or six drills are conducted in the armory per year. The Drill Hall is used to clean weapons a few times a year. Tables are set up with a cover and about 10 to 12 troops at a time. Roll-up door is opened and air exhaust ventilation fans turned on. The Drill Hall is rented about 8-10 times mainly for wedding receptions. 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. Several floor tiles are coming off. A work order has been placed for the last two years for the replacing of broken or missing floor tiles. So far they have not been replaced. A bulk sample for asbestos was taken from the broken floor tiles in the kitchen. The analysis shows the presence 5% asbestos fibers. See result in attachment No. 4.

Boiler Room

There is no boiler in the armory. The armory uses an electric heating system to heat the Drill Hall and the latrines. It is located at the ceiling. 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. There were two riding lawn mowers and a vehicle located in this area too. The IFR was used very little as such. Personnel reported that the bullet backstop was removed about 10 years ago. Also that about two or three years ago the IFR was "sanitized" by a special crew. The original IFR had no sand (it is a solid concrete floor) and a two-bullet backstop system according to personnel. Survey of the area shows no bullet backstop. Six swipe samples were taken from the IFR. One of the six samples was above the clearance level of 200ug/ft². See table 1 for results.

Table 1

Sample Number	Sample Location	Results
61	Bullet backstop	145ug
62	Floor in front of bullet backstop	125ug
63	Item stored in IFR (top of wood box)	173ug
64	Item stored in IFR (wood base)	284ug
65	Wall next to entrance/exit door	BRL
66	Blank	BLR

Weapons Vault

The Andrews 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 in the weapons vault is on all the time.

A/C System

Central A/C heating units are used to cool the administration offices and the classroom and the supply room. 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
71	Readiness NCO Office	BRL
72	Training NCO Office	BRL
73	Classroom-1	45ug
74	CO Office	BRL
75	Classroom - 2	92ug
76	Blank	BLR

Material Safety Data Sheets

The MSDS Book is located in the Supply Room. The Supply Sgt. was out of the armory the day of the survey. I was Unable to locate MSDS book. The oil shed is located outside the building. The flammables cabinet was located in the Supply Room. 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	77-84 (Avg. 124)	50-100
ADO Training NCO Office	74-170 (Avg. 120)	50-100
Classroom	36-150 (Avg. 84)	50-100
ADO Supply Room (Storage)	9-16 (Avg. 12)	20
CO Office	128-190 (Avg. 151)	50-100
Drill Hall	9-25 (Avg. 16)	30

Light measurement was below IES guidelines at the Supply Room and the Drill Hall. There were light fixtures out in the Supply room (with a light reading of only 9FC at the computer) and the classroom (with many light fixtures missing two bulbs each). 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, 4th 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.

Non-Responsive



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 well-ventilated area. Continue to practice good personal hygiene by washing hands after handling and cleaning weapons.
- A work request should be re-submitted to the appropriate state office for the removal and replacement of broken and missing floor tiles.
- The A/C filter should be replaced in a timely manner according to the manufacturer recommendation.
- Ensure that the Hazardous Materials Inventory List in the oil house and the flammables cabinet is updated.
- 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.

*SEE PRIVATE INFORMATION MODULE FOR BEST AVAILABLE STUDENT ON REVERSE.
(For use of this form, see FIHM User's Instructions.)

1. AR LOC _____
2. LOCATION/CODE LA
3. OPERATION/CODE ADG
4. DESCRIPTION _____
5. INSTALLATION Andrews SC Armory
6. BLDG/RM NUMBER 100
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100. _____

Non-Responsive

8. LAB HOODS _____ b. VAPOR DEGREASERS _____ c. MAINTENANCE BAYS _____ d. SPRAY BOOTS _____
9. OPEN SURFACE TANKS _____ f. VENTILATION UNITS _____

A. SURVEY DATE 5-28-03 B. EVALUATOR (INITIALS) _____

c. CONTROLS PRESENT	d. EVALUATION	e. UNIT CODE	f. CONTROLS REQUIRED	g. STATUS
Lighting	77-184, 107/24	FC	50-100	Adg f

1. RESPIRATOR	MANUFACTURER	NIOSH TC NO	R. 2
DISPOSABLE			
1/2 FACE AIR PURIFYING			
3/4 FACE AIR PURIFYING			
FULL FACE AIR PURIFYING			
POWERED AIR PURIFYING			
AIRLINE			
SELF-CONTAINED			
ABRASIVE BLASTING HOOD			

2. GLOVES	R/A	3. EYES/FACE	R/A	4. HEARING	R/A	5. BODY	R/A	6. HEAD/FOOT
ACID	/	CHEMICAL/SPLASH	/	MUFFS	/	APRONS	/	HARD HATS
OIL	/	SAFETY/IMPACT	/	EARPLUGS	/	COVERALLS	/	IMPERMEABLE BOOTS
SOLVENTS	/	CHEMICAL/SAFETY	/	CANAL CAPS	/	FULL BODY SUIT	/	SAFETY CONDUCT SHOES
HOT SURFACES	/	FULL FACE SHIELD	/	HELMETS	/	SAFETY BELT/ HARNES	/	SAFETY/NONCONDUCTIVE SHOES
COLD SURFACES	/	WELDING HELMET	/			HEAT REFLECT VEST/SUIT	/	
NBC AGENTS	/							

A. CAS CODE	B. HAZARD DESCRIPTION	C. PAC or EPC	SURVEILLANCE RECOMMENDED YES or NO
10101	10101	10101	YES or NO

[illegible]

HEALTH HAZARD INFORMATION MODULE FIELD SURVEY

BEST AVAILABLE COPY
*SEE PREVIOUS ACT STATEMENT ON REVERSE.
(For use of this form, see IHIM User's Instructions.)

SECTION 1. DEMOGRAPHIC DATA

a. ARLOC _____ d. INSTALLATION Andrews SC Army e. BLOG/RM NUMBER Training NSC 8/68
f. LOCATION/CODE Training, Transmittal g. OPERATION/CODE Troop for school Computer work 6 hr/day
h. MACOM/CODE NG i. SUBMACOM/CODE _____ j. SUPERVISOR Non-Responsive
k. TELEPHONE/AUTOVON NUMBER _____ l. RAC _____ m. FREQUENCY (Hr Per Day) _____
n. NO CIV(S) _____ o. NO MIL _____ p. NO CONTRACTOR(S) _____ q. NO LOC(S) _____ r. NO OTH= _____

SECTION 2. IH STAFFING DATA

a. LAB HOODS _____ b. VAPOR DEGREASERS _____ c. MAINTENANCE BAYS _____ d. SPRAY BOOT-S _____
e. OPEN SURFACE TANKS _____ f. VENTILATION UNITS _____

SECTION 3. SURVEY DATA

a. SURVEY DATE 5-26-03

b. EVALUATOR (INITIAL) Non-Responsive

f. CONTROLS PRESENT	g. EVALUATION	h. UNIT CODE	i. CONTROLS REQUIRED	j. STATUS
<u>Lighting</u>	<u>74-170, Aug 100</u>	<u>FC</u>	<u>50-100</u>	<u>Light</u>

k. PERSONAL PROTECTIVE EQUIPMENT (H=REQUIRED; A=AVAILABLE)

1. RESPIRATOR

MANUFACTURER

NIOSH FC NO

R/A

DISPOSABLE

* FACE AIR PURIFYING

* FACE AIR PURIFYING

FULL FACE AIR PURIFYING

POWERED AIR PURIFYING

AIRLINE

SELF-CONTAINED

ABRASIVE BLASTING HOOD

2. GLOVES	R/A	3. EYES/FACE	R/A	4. HEARING	R/A	5. BODY	R/A	6. HEAD/FOOT	R/A
ACID	/	CHEMICAL/SPLASH	/	MUFFS	/	APRONS	/	HARD HATS	/
OIL	/	SAFETY/IMPACT	/	EARPLUGS	/	COVERALLS	/	IMPERMEABLE BOOTS	/
SOLVENTS	/	CHEMICAL/SAFETY	/	CANAL CAPS	/	FULL BODY SUIT	/	SAFETY CONDUCT SHOES	/
HOT SURFACES	/	FULL FACE SHIELD	/	HELMETS	/	SAFETY BELT/HARNES	/	SAFETY/NONCONDUCTIVE SHOES	/
COLD SURFACES	/	WELDING HELMET	/			HEAT REFLECT VEST/SUIT	/		
NBC AGENTS	/								

SECTION 4. HAZARD INVENTORY DATA

a. CAS CODE	b. HAZARD DESCRIPTION	c. PAC or EPC	d. MEDICAL SURVEILLANCE RECOMMENDED (YES or NO)
<u>PO 137</u>	<u>Daily use of computers for long periods of time</u>	<u>3</u>	

SECTION 5.

SAMPLING DATA

BEST AVAILABLE COPY

a. HAZARD	b. SAMPLE TYPE	c. RESULTS	d. REMARKS

SECTION 6.

PERSONNEL DATA

a. LAST NAME	b. FIRST NAME	c. MI/SSN	d. CATEGORY
Non-Responsive			

SECTION 7.

COMMENTS (Add blank sheet of paper if necessary)

- ① Training NCC
- ② Has been doing this job for 9 months
- ③ Before was a welder & work in construction
- ④ Computer work about 6 hrs/day
- ⑤ Should take breaks when working in computer for long periods
- ⑥ No health problem so far

• 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 purpose of this information is to identify and monitor data relating each DA civilian employee exposed to a hazardous workplace at operation. The use of this information is to provide historical 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 monitoring.

Signature

Analytical Environmental Servs, Inc.

Date: 5/30/2003

TOTAL LEAD IN WIPE SAMPLES
N7082CLIENT: **Non-Responsive**

Lab Order: 0305741

Project: Andrews SC Armory

Date Received: 5/23/2003 12:00:

Project No: Andrews SC Ar

Matrix: Wipe

PO No:

Analyst: CDW

Laboratory ID	Client Sample ID	Results	Units	MDL	DF	Date Collected	Date Analyzed
0305741-001A	61	145	µg, Total	2.83	1	5/20/2003	5/29/2003
0305741-002A	62	125	µg, Total	2.83	1	5/20/2003	5/29/2003
0305741-003A	63	173	µg, Total	2.83	1	5/20/2003	5/29/2003
0305741-004A	64	284	µg, Total	2.83	1	5/20/2003	5/29/2003
0305741-005A	65	BRL	µg, Total	2.83	1	5/20/2003	5/29/2003
0305741-006A	66	BRL	µg, Total	2.83	1	5/20/2003	5/29/2003
0305741-007A	71	BRL	µg, Total	2.83	1	5/20/2003	5/29/2003
0305741-008A	72	BRL	µg, Total	2.83	1	5/20/2003	5/29/2003
0305741-009A	73	45.0	µg, Total	2.83	1	5/20/2003	5/29/2003
0305741-010A	74	BRL	µg, Total	2.83	1	5/20/2003	5/29/2003
0305741-011A	75	92.0	µg, Total	2.83	1	5/20/2003	5/29/2003
0305741-012A	76	BRL	µg, Total	2.83	15.56	5/20/2003	5/29/2003

Qualifiers:

MDL - Method Detection Limit

DF - Dilution Factor

ND - Not Detected at the Reporting Limit



ANALYTICAL ENVIRONMENTAL SERVICES, INC.
 3785 Presidential Parkway
 Atlanta, GA 30340
 Tel: (770) 457-8177
 Fax: (770) 457-8188

AES Job Number: **B14427**
 Page 1 of 1 Total Samples
 Friday, May 30, 2003

NVLAP
 Lab # 102082-0

BULK SAMPLE ANALYSIS

Client Name: **Non-Responsive**
 Project Name: **Andrews SC Armory** Project Number:
 Client Sample ID: 77 AES Lab ID: 146741
 Location: Floor tile - kitchen

Sample Description: Light gray hard compact partly granular with fibers and bitumen

All percentages given below are visually estimated by volume

ASBESTOS FIBERS

Chrysotile: 5
 Amosite:
 Crocidolite:
 Anthophyllite:
 Tremolite:
 Actinolite:

NON-ASBESTOS FIBERS

Synthetics:
 Mineral Wool:
 Fiberglass:
 Cellulose:
 Animal Hair:
 Antigorite:

NON-FIBROUS MATERIALS

Vermiculite:
 Biotite:
 Mica:
 Perlite:
 Aggregates: 40
 Styrofoam:

OTHERS

Aluminum:
 Bitumen: 2
 Resilient Material:
 Glue:
 Binders: 53

COMMENTS: Floor tile contains 5% chrysotile. Bitumen contains 5% chrysotile.

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 102082-0.

Microanalyst:

Non-Responsive

All percentages given are visually estimated. 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 with the approval of Analytical Environmental Services, Inc. These test results apply only to the samples actually tested. The refractive index was determined by using "Rapidly and Accurately Determining Refractive Indices of Asbestos Fibers by Using Dispersion Staining Method" by Shu-Chun Su, Ph.D.



Andrews, SC Armory



BEST AVAILABLE COPY



Drill Hall

**Burned Out Light
Fixtures, Classroom**





IFR, Front View

IFR, Rear View





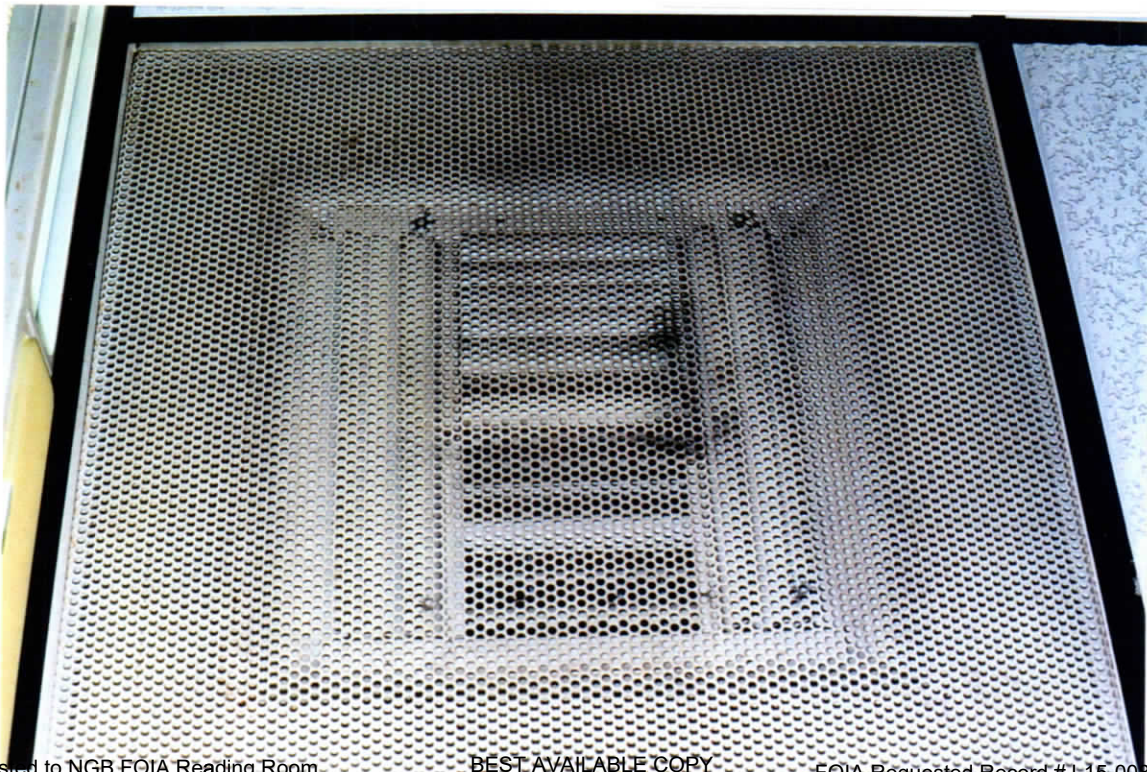
IFR, Sampling Areas





**IFR, Bullet
Backstop**

A/C Grill





Oil House

**Flammables
Cabinet**

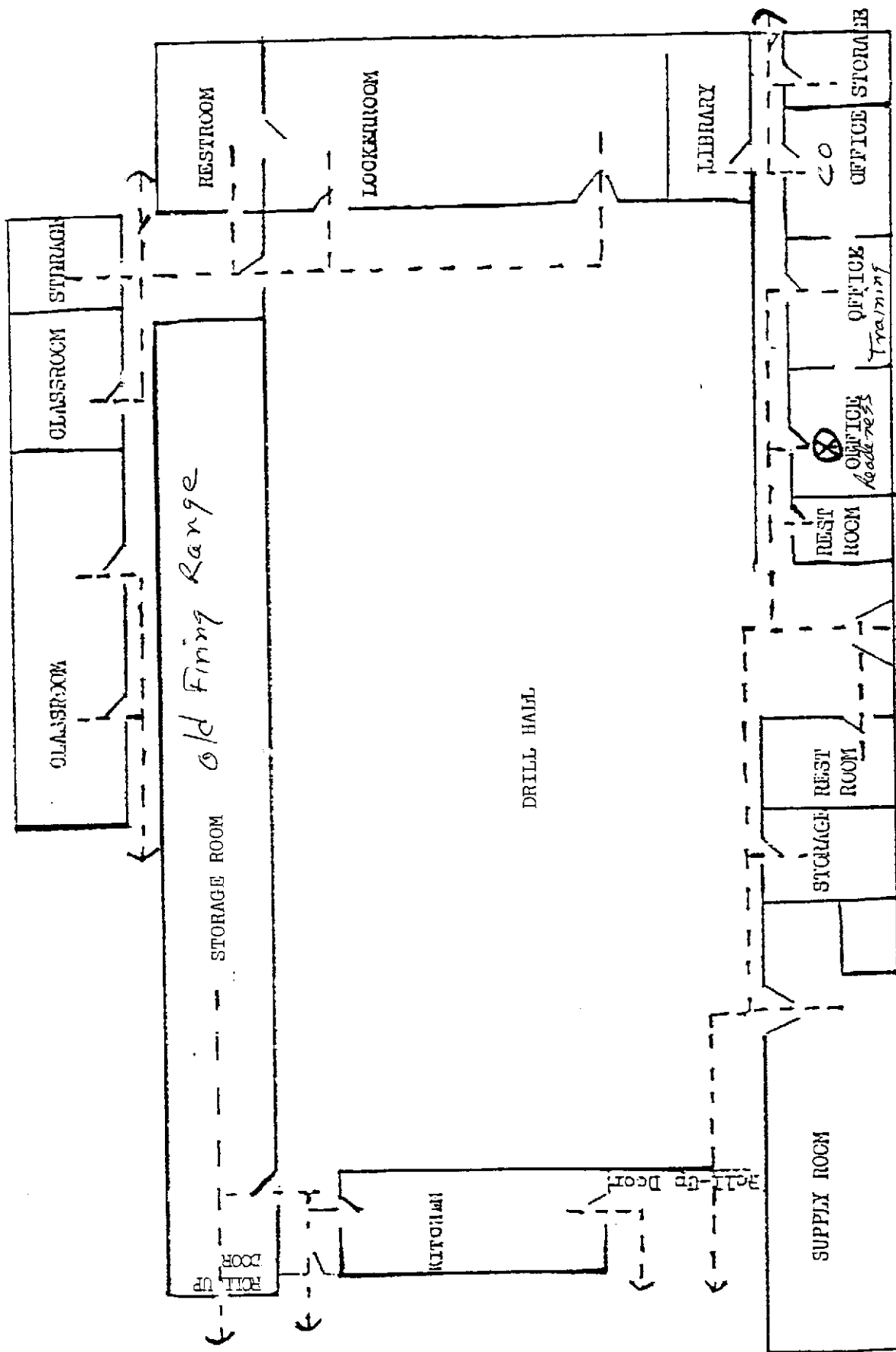




Motor Pool



FIRE EDUCATION PLAN



⊗ INDICATES YOUR LOCATION

Andrews SC Armory

FIRE Dept 264-8111

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

NGB-AVN-SI

August 9, 2005

MEMORANDUM FOR the South Carolina Army National Guard, ATTN: **Non-Responsive**
Non-Responsive Armory Supervisor, 2505 N. Main Street, Bamberg, SC 29003.

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

1. References.

- a. Report submitted 28 July 2005, Industrial Hygiene Survey, Armor Inspection Services, **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., attachment 1 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 and the motor pool 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, 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-Responsive

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



SFC Edgar, Driggers SC National Guard, 2505 N. Main Street,

Bamberg, SC 2003

Thru

Non-Responsive

Region South Industrial Hygiene Office, 510 Plaza
Drive, Suite 1530, College Park, GA 30349

RE

Baseline Industrial Hygiene Survey

Prepared By

Non-Responsive



July 28, 2005

1.0 INTRODUCTION

At the request of **Non-Responsive** of the National Guard Bureau Region South Industrial Hygiene Office, **Non-Responsive** Certified Industrial Hygienist (CIH), of Armor Environmental Services, Inc (Armor) conducted a Baseline Industrial Hygiene Survey and walkthrough evaluation at the South Carolina ARNG armory located at 2505 N. Main Street, Bamberg, SC 29003 on June 30th, 2005. The purpose of the survey was to evaluate health hazards and controls present in the workplace, collect asbestos bulk samples and or wipe samples to determine lead and or asbestos exposures, perform illumination, ventilation, and noise surveys, and make recommendations regarding health hazards associated with work at the Bamberg SC Armory (the armory).

The facility was visually examined and site personnel interviewed regarding work activities, and types of materials/chemicals used during typical/atypical workdays, or stored on site.

2.0 FACILITY DESCRIPTION

The armory (Appendix 1, photo # 1) was constructed in 1947. The flooring throughout is a combination of exposed slab concrete, carpeting on slab concrete, carpeting on vinyl floor tiles, and 12 inch squared (12 in²) vinyl floor tiles on slab concrete. The ceilings in the classrooms and offices are 2 feet X 4 feet suspended ceiling tiles, some of which had mold growth and discolorations (Appendix 1, photo # 2).

A schematic of the facility's layout is enclosed as Appendix 2

Out buildings on site are; a - fuel rack, chemical shed (Appendix 1, photos # 3), kitchen (Appendix 1, photo # 4), storage shed (Appendix 1, photo # 5), oil storage shed (Appendix 1, photo # 6), chemical shed (Appendix 1, photo # 7), water treatment house (Appendix 1, photo # 8), and a maintenance shop (Appendix 1, photo # 9).

Fuel is stored on site in a 5,000 gallon diesel fuel storage tank that sits on a POD (Appendix 1, photo # 10). The POD contains spilled fuel for reclamation by the appropriate SC state authority.

The main building houses a- kitchen (Appendix 1, photo # 11), training room (Appendix 1, photo # 12), Classroom, offices, NBC room, supply room and a retired indoor firing range (rifr) that has been converted into a classroom.

Records regarding deactivation of the rifr were not available for review.

The armory has 67 personnel on its roster, and 3 fulltime ANG staff personnel whose duties are administrative, minor vehicle repairs such as tire changes, oil changes, replacement of broken auto parts and maintenance of the facility.

Brake pads removal and or replacement are not done on site. All major vehicular repairs are done offsite in Barnesville-, or Columbia SC. Consequently there are no major noise sources on site. At the time of the survey five ANG personnel were on site performing administrative and inventorying duties.

Non-Responsive are the designated Site Safety Representatives. Both individuals were scheduled to attend formal safety training in Leesburg SC in July, 2005. Monthly safety meetings are led by **Non-Responsive** and attendance is not recorded. Respirators, hearing protectors, and gloves are used as needed, however the site does not have a respiratory protection program, or a hearing conservation program in effect.

The site does not have a hearing conservation program, hazardous materials communications program, or a respiratory protection program, and personnel do not use personnel protective equipments (PPEs) since site activities are primarily administrative.

3.0 INSTRUMENTATION

The following instrumentation and/or sampling media were provided by the contractor and were used to obtain lead wipe dust samples, asbestos bulk samples, paint chip samples, and illumination measurements.

- EXTECH Foot Candle/ Lux Meter, Serial # K61660, calibrated 6/24/05 (Appendix 3).
- "Ghost Wipe" lead dust wipes; Expiration date: None
- One foot square (1ft²) plastic template.
- Alcohol Swabs (to decontaminate template between each sampling event)

Instrumentation and sampling media were used/operated in accordance with manufacturers' recommendations.

4.0 FINDINGS

4.1 Main Building

4.1.1 Retired Indoor Firing Range

The retired indoor firing range (rifr) has been converted into offices (Appendix 1, photo # 13), and storage spaces (Appendix 1, photo # 14). The bullet backstop is located in an enclosed area that is accessed through a door. The door was closed at the time of the survey (appendix 1, photo # 15). The

enclosed bullet backstop area was used for storage (Appendix 1, photos # 16, & 17).

Six wipe samples of settled dust were collected from surfaces inside the rifle and submitted to Analytical Environmental services, Inc (AES) for quantitative analysis for lead. Two of the six samples contained lead in concentrations that exceeded the clearance lead level of $200\mu\text{g}/\text{ft}^2$, and three samples exceeded NG PAM 385-16 acceptable surface lead clearance level of $40\mu\text{g}/\text{ft}^2$ for rifles. Table 1 below summarizes the laboratory analytical results and sample locations, See Appendix 1 for referenced photographs, and Appendix 4 for laboratory report and Chain-of-Custody form.

Table 1

Sample No.	Sample Location	Photo	($\mu\text{g}/\text{ft}^2$)
Bmb-Pb-02	Settled dust on book shelf in rifle	13	136
Bmb-Pb-03	Floor in front of vault in -storage area in rifle	18	230
Bmb-Pb-04	Surface-box in vicinity of bullet backstop in rifle	17	35
Bmb-Pb-05	Floor-entrance into rifle bullet backstop enclosure	19	1710
Bmb-Pb-06	Settled -office furniture in rifle	20	BRL
Bmb-Pb-07	Entrance into/exit from storage area in rifle	21, & 22	55

4.1.2 Latrine

The suspended ceiling tiles in the latrine are damaged and exhibit signs of mold growth and water and/or moisture intrusion (Appendix 1, photo # 23). The damaged and/or discolored suspended ceiling tiles should be replaced after the source of moisture/water intrusion has been identified and repaired.

4.1.3 Kitchen

The light fixture in the kitchen has blown bulbs that should be replaced. Sample Bmb-ASB-02 of the red speckled 9 inches X 9 inches (9 in^2) vinyl floor tiles and mastic (Appendix 1, photo # 24) in the kitchen (Appendix 1, photo # 25) was collected and submitted to AES for Polarized light Microscopic (PLM) analysis for asbestos. The laboratory results (Appendix 4) are that the floor tiles contain 10% Chrysotile asbestos and are Asbestos Containing Materials (ACMs) by definition.

4.1.4 Training Room

The suspended ceiling tiles are damaged and exhibit signs of mold growth which is indicative of water leak and/or moisture intrusion (Appendix 1, photo # 26). The damaged and/or discolored suspended ceiling tiles should be replaced.

The 9 in² red speckled vinyl floor tiles and mastic (Appendix 1, photo # 27) are ACMs because they are similar to those found in the kitchen, and are homogeneous materials by definition.

4.1.5 Classroom

Two wall mounted A/C units are the only source of fresh air supply into this room and several light bulbs are blown and need replacing.

4.1.6 NBC Room

Entry into the NBC room was restricted.

4.1.7 Supply Room

The suspended ceiling tiles are damaged and exhibit signs of mold growth and water leak and/or moisture intrusion. The damaged and discolored suspended ceiling tiles should be replaced after the moisture intrusion source(s) have been identified and repaired.

4.2 Out Buildings

4.2.1 Chemical Shed

Chemicals for potable water treatment (Appendix 1, photos # 28, & 29) are stored in the chemical shed. PPEs, MSDS and HazCom materials and safety devices such as emergency showers and/or eye wash fountains were not observed inside this building.

4.2.2 Storage Shed

Miscellaneous and non-hazardous materials are stored in steel cages in this building (Appendix 1, photo # 30). PPEs, MSDS and HazCom materials and safety devices such as emergency showers and/or eye wash fountains were not observed inside this building.

4.2.3 Oil Storage Shed

Lubricating oils and engine oils (Appendix 1, photo # 31, 32, & 33) are stored in this building. PPEs, MSDS and HazCom materials and safety devices such as emergency showers and/or eye wash fountains were not observed inside this building.

Sample Bmb-Asb-01 of the green speckled 9 in² floor tile and mastic in the oil storage shed (Appendix 1, photo # 36) was collected and submitted to AES for PLM analysis for asbestos. The laboratory results (Appendix 4) are that the vinyl

floor tiles contain 10% Chrysotile and are ACMs by definition. The mastic is non asbestos containing but must be handled as ACM because it is adhered to the ACM.

4.2.4 Kitchen and Mess Hall

The mess hall (Appendix 1, photo # 34) adjoins the kitchen. Both of these locations appeared clean and well kept at the time of the survey. The kitchen is used on weekends only.

Sample Bmb-pb-01 of the flaking wall paint in the kitchen (Appendix 1, photo # 35) was collected and submitted to AES for quantitative analysis for lead. The laboratory reported that the paint is not lead-based paint by definition, but the paint chip contained 0.00992 weight %, (Appendix 4) or 99.2 parts per million lead.

Bmb-ASB-03 of the red speckled 9 in² vinyl floor tiles and mastic was collected and submitted to AES for PLM analysis for asbestos. The laboratory results (Appendix 4) are that the floor tile contains 10% Chrysotile and is ACM by definition. The mastic throughout is non asbestos containing. The lab results confirm that 9 in² red speckled vinyl floor tiles throughout the armory are ACMs.

5.0 Illumination

Illumination levels were measured in the training room, SFC Driggers' office, classroom #s 1 and 2, the kitchen, the drill hall, the storage room, the mechanical storage room, the locker room, the men's latrine, and the retired indoor firing range. Table 2 below summarizes measured illumination levels and the status of each location with regards to satisfying IES guidelines. Consideration should be given to provide supplemental lighting in those areas that were below the recommended standard and to replace burnt-out bulbs.

Table 2

Location	Foot Candles	IES Recommended values
offices	37.6-27.3 (Avg. 32.45)	50-75
Common office hallway	3.7-1.3 (Avg. 2.5)	50-75
Classroom # 1, & 2	104.9 (Avg. 104.9)	50-75
Library	27.7 (Avg. 27)	50-75
Drill hall	64.9-67.4 (Avg. 66)	10-15
Break room	28 (Avg. 28)	10-15
Room north of break room	40.4 (Avg. 40.4)	50-75
Men's latrine	17.2-29.3 (Avg. 23.25)	10-15
Ladies restroom	27.8 (Avg. 27.8)	10-15
Training room	(Avg. 29.4)	50-75

6.0 CONCLUSIONS AND RECOMMENDATIONS

Conclusions and recommendations to address health and safety concerns observed or noted during this initial baseline inspection and survey are included in this report as Attachment 1.

At his time the combined effects of the Bamberg SC ANG facility's on-site inventories, site population and site activities are such that the absence of PPEs, is not critical. However a change in any of these variables will necessitate consideration of the health and safety implications of those changes.

High concentrations of lead in settled dust was confirmed on surfaces (bookshelf, floor areas at the entrance to the bullet stop, the vault, and the entrance to/exit from the closed-off bullet stop area) in the rifr.

Personnel should be discouraged from entering the rifr without wearing proper PPEs.

The area should be posted as a "Lead Hazard Area" and entry restricted pending remediation, and compliance with ANG's and HUD's clearance testing requirements.

7.0. TECHNICAL ASSISTANCE

For technical assistance regarding information found in this report, please contact **Non-Responsive** of the Southeast Regional Industrial Hygiene Office at **Non-Responsive**

8.0 References

Lighting Handbook, Illuminating Engineering Society of North America, 8th Ed 1993.

Industrial Lighting, ANSI/IES RP7, 1991

USACHPPM Technical Guide 277, *Army Facilities Management*

Information Document on Mold remediation Issues, February 2002

American Conference of Governmental Industrial hygienist (ACGIH)

Bioaerosols: Assessment and Control

American Industrial Hygiene Association, *Report of microbial Growth Taskforce*, May, 2001

OSHA Lead Standard, 29 CFR 1910.1025

NG Pamphlet 385-16, *Guidelines For Converting Indoor Firing Ranges To Other Uses*.

29 CFR 1926.62, & 29 CFR 1910.1025

24 CFR 35.61

OSHA Asbestos regulations: 29 CFR 1926.1101, & 1926. 1001

EPA, *Guidance For Controlling asbestos-Containing Materials In Buildings*, June 1985

EPA NESHAP Asbestos Regulation (40 CFR 61, Subpart M)

Tables, Appendices and Attachment

Tables

Table 1, Dust Sampling For Lead Summary

Table 2, Illumination Measurements Summary

Attachments

1 Recommendations and Discussions

Appendices

1 Photographs

2 Schematic drawing of facility layout

3. Extech FootCandle/Lux Meter Certification certificate

4 Laboratory reports and chain-of-Custody Forms (C-O-Cs)

HEALTH HAZARD INFORMATION MODULE

HEALTH HAZARD INFORMATION MODULE: INDUSTRIAL HYGIENE SURVEY

(For use of this form, see HHIM User's Guide)

ARLOC WVBTA0	INSTALLATION NGB, 2505 N. Main Street, Bamberg SC, 29003	BLDG/RM NO.
LOCATION/CODE 163 D SPT BN/AA	OPERATION/CODE ADMINISTRATIVE AND MINOR VEHICULAR MAINTENANCE AND REPAIRS (NOISE & CONFINED SPACES NOT AN ISSUE)	
SURVEY DATE June 30 th , 2005.	EVALUATOR Non-Responsive	
MACOM/CODE NATIONAL GUARD BUREAU/NG	SUBMACOM/CODE ARMY RESERVEVAR	SUPERVISOR Non-Responsive
TELEPHONE/DSN NO. Non-Responsive	UNIT/ORGANIZATION CO A 163 SPT BN/	RAC III C
NO. CIV(S) 0	NO. MIL 3	NO. CONTRACTORS 0
		NO. LOC(S) 0
		FREQUENCY (hrs/day) 8
		NO. OTHER 0

SECTION 2: FACILITY DATA

LAB HOODS 0	VAPOR DEGREASERS 0	SPRAY BOOTHS 0
MAINTENANCE BAYS 6	OPEN SURFACE TANKS 0	VENTILATION UNITS 0

SECTION 3: SURVEY DATA

CONTROLS PRESENT	EVALUATION	UNIT CODE	CONTROLS REQUIRED	STATUS
NONE	ASBESTOS FLOOR TILES	% CHRYSOTILE	O & M PROGRAM	RECMD
NONE	SURFACE DUST WITH HIGH LEAD LEVELS	µg/ft ²	LEAD HAZARD WARNING SIGNS, RESTRICTED ENTRIES, LEAD REMEDIATION,	RECMD

PERSONAL PROTECTIVE EQUIPMENT (R= REQUIRED; U = UTILIZED)

GLOVES	R/U	RESPIRATOR	NIOSH TC NO.	MANUFACTURER	R/U
ACID	/	AIR LINE			/
COLD SURFACES	/	ABRASIZE BLASTING HOOD			/
HOT SURFACES	/	DISPOSABLE			/
NBC AGENTS	X/	FULL FACE AIR PURIFYING			/
OIL	X/	1/2 FACE AIR PURIFYING			/
SOLVENTS	X/	1/4 FACE AIR PURIFYING			/
SURGICAL GLOVES	X/	SELF CONTAINED			/

EYES/FACE	R/U	HEARING	R/U	BODY	R/U	HEAD/FIT	R/U
CHEMICAL SPLASH	/	CANAL CAPS	/	APRONS	/	COLD WEATHER BOOTS/HATS	/
FULL FACE SHEILD	/	EARPLUGS	/	COLD WEATHER CLOTHING	/	HARD HATS	/
CHEMICAL/SAFETY	/	HELMETS	/	COVERALLS	/	IMPERMEABLE BOOTS	/
SAFETY/IMPACT	/	MUFFS	/	FULL BODY SUIT	/	SAFETY/CONDUCTIVE SHOES	/
WELDING HELMET	/	MUFF/EARPLUG COMBO	/	HEAT/FLAME PROTECTIVE VEST/SUIT	/	SAFETY/CONDUCTIVE SHOES	/

SECTION 4: HAZARD INVENTORY DATA

CAS CODE	HAZARD DESCRIPTION	PAC	EPC
12001-29-5	Disturbance of non-friable Chrysotile ACM vinyl floor tiles and mastic to result in release of airborne asbestos fibers.	3	F
7439-92-1 (Lead)	High surface lead concentrations on the bullet backstop and other surfaces in close proximity to, and external to the bullet backstop location.	1	F

SECTION 5: PERSONNEL DATA

LAST NAME	FIRST NAME	MI	SEX	SSN	CATEGORY
Non-Responsive					Readiness NCO
					Supply SGT
					Training NCO

SECTION 6: COMMENTS

☐ No comments

☒ See attached sheet

2

1) Illumination levels throughout are inadequate for type of work performed (per reference f).

2) High concentrations of lead in settled dust was confirmed on surfaces (bookshelf, floor areas at the entrance to the bullet stop, the vault, and the entrance to/exit from the closed-off bullet stop area) in the rifr.

3) Personnel should be discouraged from entering the rifr without wearing proper PPEs.

4) Post the rifr as a "Lead Hazard Area" and restrict entry into the area until the surfaces have been decontaminated.

- 5) Non-friable ACM vinyl floor tiles and mastic (green in break room, white speckled in offices and common office areas), and the window caulking in the break room) should not be rendered friable and should be managed in accordance with EPA's "Operations and Maintenance Plan".
- 6) EPA NEHAP Asbestos Regulation must be complied with prior to commencement, and during renovation or demolition activities that will disturb the ACMs.
- 7) Blown out or missing light bulbs should be replaced, and consideration should be given to installation of supplemental lighting in areas that were below the recommended IES or ANSI RP7-1991 levels
- 8) Discolored ceiling tiles with mold growth should be removed and replaced after the source or sources of the moisture intrusion have been identified and repaired.

ATTACHMENT 1

RECOMMENDATIONS AND DISCUSSION

1. Conduct further surface sampling to establish lead concentrations on surfaces that were not sampled during this baseline industrial hygiene survey. In the meantime identify the rifr as "lead dust contaminated", restrict unnecessary entry into the rifr, and do not disturb settled dust on surfaces that tested positive for lead concentration(s) greater than 40 ($\mu\text{g}/\text{ft}^2$).
2. Advise site personnel of the presence of high levels of lead dust on surfaces in the facility.
3. Develop a plan to remediate identified lead contamination and retain the services of a lead remediation firm.
4. Remediate surface lead contamination in accordance with NG Pamphlet 385-16 (see reference list).
5. Conduct post lead remediated clearance monitoring prior to reoccupying the affected areas. Comply with 29 CFR 1910.25, and 1910. 1025(e)(3) as applicable, and ANG's guidelines.
6. The white flaking in the kitchen (Appendix 1, photo # 36) contains 0.00992 weight %, (Appendix 3) or 99.2 parts per million lead. The paint chips are friable. Disturbance of the paint chips or the damaged surface can result in airborne lead, and subsequent personnel exposure.
7. Retain the services of a licensed lead removal firm to remove, the chips, HEPA vacuum, and wet wipe the affected surfaces with an industrial cleaner using tri-phosphate. Derived wastes must be properly containerized and characterized as to the accepted disposal method.
8. Assume that paint chips throughout contain low lead levels until testing indicates otherwise. Retain the services of a licensed lead removal firm to remove, the chips, HEPA vacuum, and wet wipe the affected surfaces with an industrial cleaner using tri-phosphate.
9. Derived wastes must be properly containerized and characterized as to the accepted disposal method.
10. The 9 in² red speckled vinyl floor tiles and mastic throughout are ACMs. The ACM floor tiles and mastic are intact, undamaged, and not friable in

their present state and will not present a potential health hazard unless they are rendered friable.

11. Develop and implement an asbestos "Operation & Maintenance Plan" in accordance with USEPA guidelines (see reference list), and enforce until all ACMs have been removed from the facility
12. Comply with EPA NEHAP Asbestos Regulation prior to commencement, and/or during renovation or demolition activities (see references).
13. Prepare and post HazMat lists at entrances to storage areas with hazardous materials. Also keep MSDS in storage building(s), and at a central location.
14. Remove/replace damaged, mold infested, discolored and missing ceiling tiles throughout.
15. Replace missing light bulbs throughout
16. Repair water leaks in the locker room.
17. Ensure that fire extinguishers are inspected at specified intervals.

APPENDIX 1

Photographs



Photo # 1



Photo # 2



Photo # 3



Photo # 4



Photo # 5



Photo 6



Photo # 7



Photo # 8



Photo # 9



Photo # 10



Photo # 11



Photo # 12



Photo # 13



Photo # 14



Photo # 15



Photo # 16



Photo # 17



Photo # 18



Photo # 19



Photo # 20



Photo # 21



Photo # 22



Photo # 23



Photo # 24



Photo # 25



Photo # 26



Photo # 27



Photo # 28



Photo # 29



Photo # 30



Photo # 31



Photo # 32



Photo # 33



Photo # 34



Photo # 35

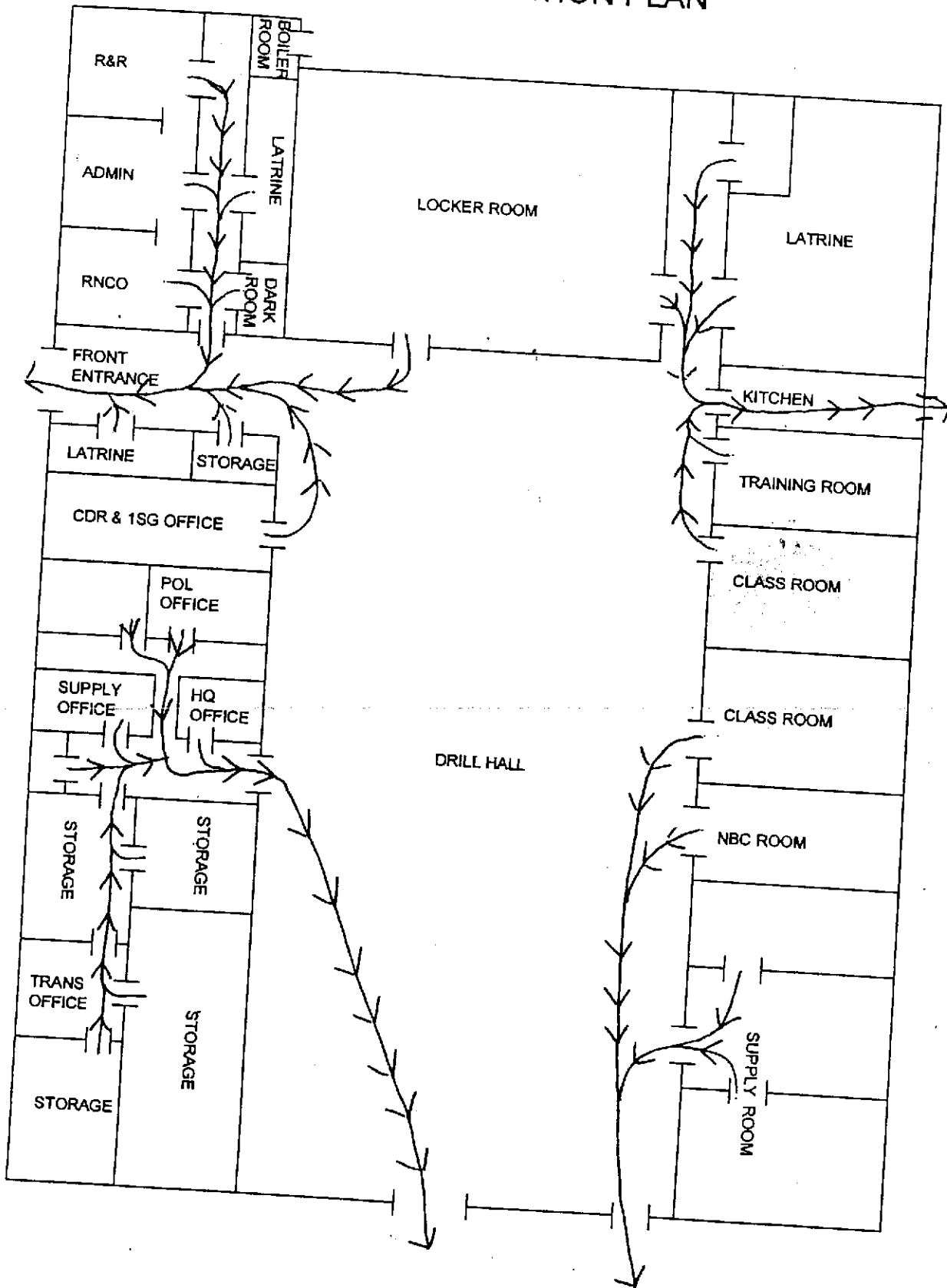


Photo # 36

APPENDIX 2

Schematic of Site Layout

COMPANY A 163D SPT BN FIRE EVACUATION PLAN



APPENDIX 3

Extech FootCandle/Lux Meter Certification certificate



CERTIFICATE OF CALIBRATION

LIGHT METER

Manufacturer: EXTECH Calibration Date: June 24, 2005
 Model Number: FootCandle/Lux Meter Date Due: June 24, 2006
 Serial Number: K61660 Reference Number: CIH-EXTECH-K61660
 Service Order: N/A

Reference (ft-c)

58.4
 127.6
 324.0
 550.0
 1065.0

Actual (ft-c)

57.9
 127.0
 322.0
 551.0
 1060.0

Manufacturer	Description	Model No.	Serial No.	Due Date
TEKTRONIX	LIGHT METER	J16	J6511	2/18/2003

Tests performed with a 200W Tungsten Bulb at a distance of 50cm. Each value listed above is an average of three data points.

Calibrated By: _____

Non-Responsive

Date: 6-24-05

107-G Dunbar Avenue • Oldsmar, FL 34677 USA • PH: (813) 891-8830 • FX: (813) 854-1544
 Toll Free: (888) 873-2443 • Website: www.cihequip.com

APPENDIX 4

Laboratory reports and chain-of-Custody Forms (C-O-Cs)



LYTICAL ENVIRONMENTAL SERVICES, INC.
3785 Presidential Parkway, Atlanta GA 30340-3704
TEL: (770) 457-8171 / TOLL-FREE (800) 972-4889 / FAX: (770) 457-8188

CHAIN OF CUSTODY

7705 Work Order: 507278
0507237

DATE: 7/6/05 Page 1 of 1

COMPANY:

ARMOR ENVIRONMENTAL SERVICES, INC.
4442 INVERARY BLVD
FORT LIBERTY, MD 21730-1100

ADDRESS:

ANALYSIS REQUESTED

Visit our website
www.aesatlanta.com
to check on the status of
your results, place bottle
orders, etc.

PHONE
FAX
E-MAIL

PRESERVATION (See codes)

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BEST AVAILABLE COPY
ANALYTICAL ENVIRONMENTAL SERVICES, INC.

Bulk Sample Summary Report

Client Name: **National Guard Bureau Region-South IH**
Project Name: **NTL. GRD BASELINE I.H. SURVEY**
Project Number: **1432**

NVLAP

Lab ID# 102082-0
AES Job Number: **0507237**

Page 1 of 1

Client ID	AES ID	Location	Asbestos Mineral Percentage						Comments
			CH	AM	CR	AN	TR	AC	
BMB-ASB-01	0507237-001A	Floor Tile and Mastic	10	ND	ND	ND	ND	ND	Tile
Layer: 1									
BMB-ASB-01	0507237-001A	Floor Tile and Mastic	ND	ND	ND	ND	ND	ND	Black Mastic
Layer: 2									
BMB-ASB-02	0507237-002A	Floor Tile and Mastic	10	ND	ND	ND	ND	ND	Tile
Layer: 1									
BMB-ASB-02	0507237-002A	Floor Tile and Mastic	ND	ND	ND	ND	ND	ND	Black Mastic
Layer: 2									
BMB-ASB-03	0507237-003A	Floor Tile and Mastic	10	ND	ND	ND	ND	ND	Tile
Layer: 1									
BMB-ASB-03	0507237-003A	Floor Tile and Mastic	ND	ND	ND	ND	ND	ND	Black Mastic
Layer: 2									

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

Analytical Environmental Services, Inc.

Date: 12-Jul-05

CLIENT: National Guard Bureau Region-South IH
Project: Ntl. Grd. Baseline I.H. Survey
Lab ID: 0507278-001

Client Sample ID: BMB-PB-01**Collection Date:****Matrix:** PAINT

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed
TOTAL METALS IN PAINT			PAINT		(PAINT)		Analyst: EM
Lead	BRL	0.00992		wt%	59758	1	7/11/2005 8:25 AM

Qualifiers:

- * Value exceeds Maximum Contaminant Level
- BRL Below Reporting Limit
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- B Analyte detected in the associated Method Blank

- E Estimated (Value above quantitation range)
- S Surrogate Recovery outside accepted recovery limits
- Narr See Case Narrative
- NC Not Confirmed

Page 1 of 1

Analytical Environmental Services, Inc.Date: 7/12/2005**TOTAL LEAD IN WIPE SAMPLES
N7082**

CLIENT: National Guard Bureau Region-South IH
Project: Ntl. Grd. Baseline I.H. Survey
Delivery Order: PJMS05041901
PO No:

Lab Order: 0507278
Date Received: 7/7/2005 9:50 AM
Matrix: Wipe

Laboratory ID	Client Sample ID	Results	Units	Report Limit.	DF	Date Collected	Date Analyzed	Analyst
0507278-002A	BMB-PB-02	136	µg, Total	20	1		7/11/2005	EM
0507278-003A	BMB-PB-03	230	µg, Total	20	1		7/11/2005	EM
0507278-004A	BMB-PB-04	35	µg, Total	20	1		7/11/2005	EM
0507278-005A	BMB-PB-05	1710	µg, Total	20	1		7/11/2005	EM
0507278-006A	BMB-PB-06	BRL	µg, Total	20	1		7/11/2005	EM
0507278-007A	BMB-PB-07	55	µg, Total	20	1		7/11/2005	EM

Qualifiers: BRL - Not Detected at the Reporting Limit

DF - Dilution Factor

Results are blank corrected where applicable

Page 1 of 1



SOUTH CAROLINA NATIONAL GUARD
OCCUPATIONAL HEALTH OFFICE
1 NATIONAL GUARD ROAD
COLUMBIA, SC 29201

JFHQ-SC-AV-OH

07 July 2011

SUBJECT: Batesburg National Guard Armory converted Indoor Firing Range, Lead Sampling Survey 17 June 2011. *hcl*

1. References.

- a. Department of Defense Instruction 6055.1, Department of Defense Occupational Safety and Health (OSH) Program, 26 October 1984.
- b. Army Regulation (AR) 40-5, Medical Service, Preventive Medicine, 22 July 2005.
- c. National Guard Regulation (NGR) 385-10, Army National Guard Safety and Occupational Health Program, 1988.
- d. AR 385-10, The Army Safety Program, 29 February 2000.
- e. NGR Pam 420-15, Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges, 3 November 2006.
- f. NGR 385-15, Policy and Responsibilities, Evaluation and Operation of Army National Guard Indoor Firing Ranges, 3 November 2006.
- g. DA PAM 40-503, The Army Industrial Hygiene Program, 30 October 2000.
- h. Industrial Ventilation, 23rd Edition, American Conference of Governmental Industrial Hygienist, Cincinnati, Ohio.
- i. Title 29, Code of Federal Regulations (CFR), 2001 rev., part 1910, Occupational Safety and Health Standards.

2. General.

- a. An Industrial Hygiene survey of the Batesburg National Guard Armory Indoor Firing Range was conducted on 17 June 2011. The objective of the visit was to identify and make recommendations on any occupational health hazards and to

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determine and verify that the converted indoor firing range (IFR) was free of lead.

- b. **Non-Responsive** Industrial Hygiene Technician, South Carolina Safety and Occupational Health Office performed the survey and lead sampling.

3. Findings. The laboratory results indicated there were two lead samples above the IFR post cleaning standard of 200 micro grams per square feet.

The results of the lead dust sampling activities are summarized in the following table.

Sample Number	Sample Location	Laboratory Results ¹
BAT 617-5	Left side floor of converted trap area	232
BAT 617-9	Right side wall near converted trap area	824

¹ Results reported in micrograms per square feet ($\mu\text{g}/\text{ft}^2$)

² BRL = Below Reportable Limits

The laboratory report is attached for review.

4. Discussion.

a. The sample results show that the doorway flooring (BAT 617-5) leading into the converted trap area along with the right side wall outside trap area (BAT 617-9) being the highest of both readings.

b. At the time of sample collection it was noticed that basic housekeeping is needed in the areas of concern.

5. Recommendations.

- Cleaning with a general purpose cleaning solution (Spic and Span) using a double container method (one to wet mop and one to rinse/ring mop out). Ensure that solution is changed frequently as outlined in NG PAM 420-15 (section 3-2; C), Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges.
- Ensure that personnel uses protective gloves (ie..surgical, disposable gloves), protective covering for boots and protective respiratory covering (ie..surgical mask).
- Ensure buckets of water and cleaning solution are allowed to evaporate opposed to dumping out. Mop heads, sponges and rags will be discarded as hazardous waste following clean up (secure in plastic bag to be handled by the state Environmental Office).
- After cleaning, allow area to dry completely.

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6. If additional information is needed about the above report, please contact **Non-Responsive**
Non-Responsive Industrial Hygiene Technician, at **Non-Responsive**, South
Carolina Occupational Health Manager, at **Non-Responsive**

Non-Responsive

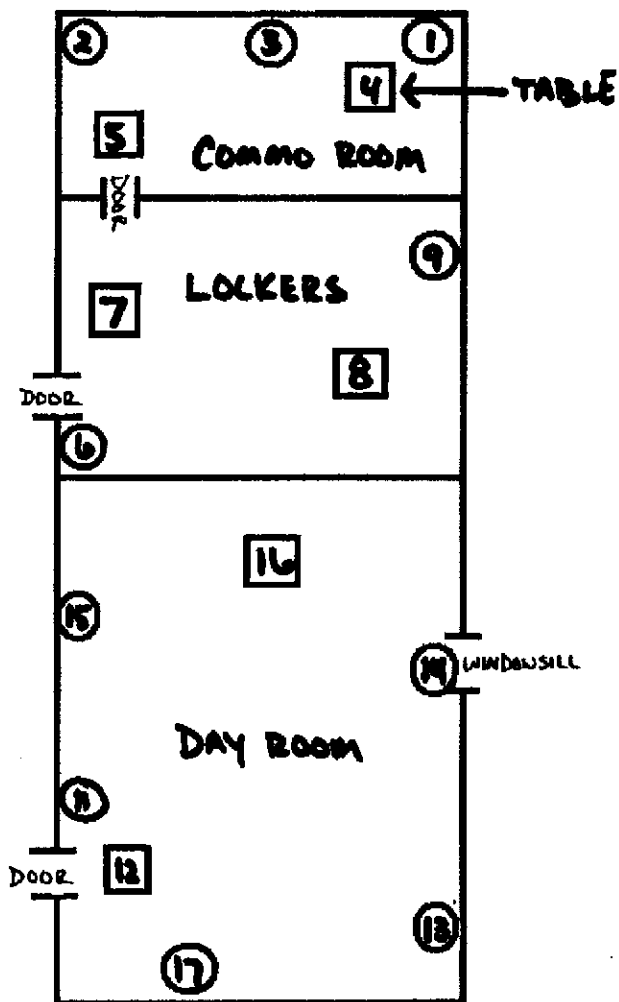
TAG-AV-OH
SCNG Industrial Hygiene Technician

CF: State Safety and Occupational Health Office ATTN: TAG-AV-SS **Non-Responsive**, 1
National Guard Road, Columbia, SC 29201-4766.

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BATESBURG ARMORY IFR 17 JUNE 2011

□ : FLOOR / TABLE
○ : WALL / WINDOW SILL



#10: > CONTROLLED SAMPLE
#18: >

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Analytical Environmental Services, Inc

Date: 1-Jul-11

Lab Order: 1106N30
 Client: South Carolina National Guard
 Project: Batesburg Armory IFR
 Matrix: Wipe
 Date Received: 6/27/2011 10:30:00 AM

LEAD ON WIPES (N9100/7082)
N7082

Laboratory ID	Client Sample ID	Result	Units	Reporting Limit	DF	Qual	Date Collected	Date Analyzed	Analyst
1106N30-001A	BAT 617-1	BRL	ug. Total	20	1		06/17/2011	06/29/2011	MP
1106N30-002A	BAT 617-2	BRL	ug. Total	20	1		06/17/2011	06/29/2011	MP
1106N30-003A	BAT 617-3	BRL	ug. Total	20	1		06/17/2011	06/29/2011	MP
1106N30-004A	BAT 617-4	92	ug. Total	20	1		06/17/2011	06/29/2011	MP
1106N30-005A	BAT 617-5	232	ug. Total	20	1		06/17/2011	06/29/2011	MP
1106N30-006A	BAT 617-6	49	ug. Total	20	1		06/17/2011	06/29/2011	MP
1106N30-007A	BAT 617-7	24	ug. Total	20	1		06/17/2011	06/29/2011	MP
1106N30-008A	BAT 617-8	168	ug. Total	20	1		06/17/2011	06/29/2011	MP
1106N30-009A	BAT 617-9	824	ug. Total	20	1		06/17/2011	06/29/2011	MP
1106N30-010A	BAT 617-10	BRL	ug. Total	20	1		06/17/2011	06/29/2011	MP
1106N30-011A	BAT 617-11	BRL	ug. Total	20	1		06/17/2011	06/29/2011	MP
1106N30-012A	BAT 617-12	BRL	ug. Total	20	1		06/17/2011	06/29/2011	MP
1106N30-013A	BAT 617-13	BRL	ug. Total	20	1		06/17/2011	06/29/2011	MP
1106N30-014A	BAT 617-14	56	ug. Total	20	1		06/17/2011	06/29/2011	MP
1106N30-015A	BAT 617-15	BRL	ug. Total	20	1		06/17/2011	06/29/2011	MP
1106N30-016A	BAT 617-16	BRL	ug. Total	20	1		06/17/2011	06/29/2011	MP
1106N30-017A	BAT 617-17	BRL	ug. Total	20	1		06/17/2011	06/29/2011	MP
1106N30-018A	BAT 617-18	BRL	ug. Total	20	1		06/17/2011	06/29/2011	MP

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Commo storage room at rear of IFR

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Locker area of IFR

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Day room at front of IFR

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**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**
Non-Responsive 206 Armory Street, Batesburg, SC 29006.

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

1. References.

- a. Report submitted 5 October 2005, Industrial Hygiene Survey, **Non-Responsive**
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. 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.

d. 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.

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

Non-Responsive

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

Non-Responsive

September 2, 2005

Non-Responsive

SC Army National Guard Armory
206 Armory St
Batesburg, SC 29006

RE: Baseline Industrial Hygiene Survey

FINAL REPORT

FOR

BASELINE INDUSTRIAL HYGIENE SURVEY

SOUTH CAROLINA ARMY NATIONAL GUARD

BATESBURG ARMORY

BATESBURG, SC

DATE:

AUGUST 10, 2005

PREPARED BY

Non-Responsive

CONTENTS

1.0 INTRODUCTION

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 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 Batesburg 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 Batesburg Armory.

The building was finished in 1962. The installation of drop ceiling in offices and individual A/C wall units has been the only remodeling done to the building. The facility houses the Company B 122nd ENGR BN. The armory is used by the troops of the Company B 122nd ENGR BN for their monthly weekend drills.

The Company B 122nd ENGR BN with about 70-80 troops had two full time AGR personnel at the time of the survey. A recruiter also has an office at the facility. 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, classroom, supply room, a weapons vault, a kitchen, and a deactivated Indoor Firing Range which was converted to from front to rear, Commo equipment storage, storage for tables and chairs and locker room with metal lockers. The kitchen is used to cook for troops on weekend drills. Wipe samples were taken from the kitchen. The kitchen and dining area is located in an outside building behind the armory. The facility has only window A/C units. The lighting in several areas of the facility is below the recommended IES guidelines. Personnel reported that they have new light fixtures ready to be installed but have not been able to have the job done unless they do it themselves. 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 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:

- 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 Supply Sgt. Office (two bulb light fixtures located very high resulting in poor lighting), the classroom (Only two bulb fixtures and two fixtures out), the learning center (two light fixtures out, the day room with three light fixtures out, the Commander office and the Platoon office (one fixture 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. Personnel reported that they have new light fixtures ready to be installed but have not been able to have the job done yet. Also in the plans is the installation of drop ceiling at the supply Sgt. Office. 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. Supply Sgt. reported that he has been under treatment and therapy for a torn left rotator cuff injury. Goes back every two months for reevaluation. No other health problems reported by personnel at the time of the survey.

Motor Pool

The motor pool is located in a fenced area behind the building. It is a large area with many vehicles. PMCS maintenance is performed at the motor pool on weekend drills. Several technicians are members of the unit. They help with the operator level maintenance on weekend drills. Major and other repairs for the vehicles 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, classes and briefings on weekend drills. The Drill Hall is used to clean weapons about four times a year. Weapons are distributed from the vault in the Supply Room. Rags with CLP are used to clean the weapons on tables set up on the Drill Hall floor. 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. The Bay door should be opened, weather permitting, when the weapons are cleaned. There are two air exhaust ventilators located towards the front of the Drill Hall, and close to the roof. Both were working well at the time of the survey.

They are turned on when it is hot and when cleaning weapons in the Drill Hall. There is a weapons cleaning detail that cleans all weapons in the maintenance shop when the unit comes back from training. The Drill Hall is rented out occasionally for birthday parties, wedding receptions and retirement parties. The renters bring their own food.

Boiler Room

The facility has a metal boiler that uses natural gas to heat the facility. The hot water is used to heat the armory through the floor standing grills. Personnel reported that the system heats well during the winter. There were no water leaks at the time of the survey.

Deactivated Indoor Firing Range

There is a deactivated Indoor Firing Range (IFR) at the facility. Personnel reported that they are not sure when the IFR was cleaned but it was probably in the mid 90s. The space is used now to store some COMMO equipment in the front where the backstop was, chairs and tables and lockers. A dividing wall with door separates the backstop area from the rest of the area. Six wipe samples were taken from the IFR. One of the six samples was above the clearance level of 200ug/ft². See table 1 for results.

Table 1

Sample Number	Sample Location	Results
34	Bullet backstop area, Where it was located: right	BRL
35	Bullet backstop area, Where it was located: left	23ug
36	Floor in front of bullet backstop area, Where it was located	240ug
37	Item 1 stored in IFR, metal wire roll	BRL
38	Item 2 stored in IFR, top of metal cabinet	BRL
39	Wall next to entrance/exit door	67ug
43	Blank	BRL

Kitchen

The kitchen is located in a separate small building behind the armory (See pictures). The mess section uses the kitchen to cook for the troops on weekend drills. These are troops that are assigned by the Headquarter Company. The kitchen was clean at the time of the survey. The dining room is also located in this building. Both were clean the day of the survey. Three samples for lead were taken from the kitchen. The results are found on Table 2 below.

Weapons Vault

The Batesburg 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 about four times a year using tables that are set up in the Drill Hall. There is also a weapons cleaning machine that is used to clean the weapons in the maintenance area. 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 out of the vault through drainage hose. Four wipe samples were taken from the weapons vault racks. None of the samples was above the clearance level of 200ug/ft² although one reading was 188ug. See table 2 for results. Table two also includes wipe sampling taken from the kitchen.

Table 2

Sample Number	Sample Location	Results
30	Weapons Vault Racks (A)	85ug
31	Weapons Vault Racks (B)	91ug
32	Weapons Vault Racks (C)	121ug
33	Weapons Vault Racks (D)	188ug
40	Kitchen, Top of counter next to sink	BRL
41	Kitchen, Top of wood shelf	BRL
42	Kitchen, Top of cart where coffee machine is	BRL

43	Blank	BRL
----	-------	-----

A/C-Heating System

Individual A/C window/wall units are used to cool 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. It was also reported that the heating system work well to keep the armory warm during the winter months.

Material Safety Data Sheets

The MSDS was not located at the time of the survey. There are two Flammables Cabinets. One of them, located in the Supply Room, contains spray paint cans, paint gallons, 2 cycle engine oil and CLP in small bottles. There was no Hazardous Materials Inventory List in this cabinet. The other cabinet is located in the maintenance area. There was a Hazardous Materials Inventory List but it was in the office of this area.

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)
ADOREadinessNCO Office(SFC Waters)	51-71 (Avg. 63)	50-100
ADO Supply Room Office	20-39 (Avg. 29)	50-100
ADO Supply Room Storage	16-50 (Avg. 41)	20

- 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.

Non-Responsive

RECOMMENDATIONS

- Consideration should be given to provide supplemental lighting at locations that were below the recommended standard, and to replace burned out bulbs with the same color fluorescent lights. Lighting in general should be improved by replacing the old light fixtures with a better one. A request should be made to the appropriate state agency (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.
- A request should be made to the appropriate state agency to request for the installation of the new light fixtures (that are already in the armory) especially in the classroom and the supply room office area.
- A request should be made to the appropriate state agency to evaluate the possibility of enlarging the weapons vault in the armory.
- Recommend that the MSDS book, if present at the facility be located in a place where it can be accessible to the troops and personnel in case of emergency. And if there is no MSDS book, one should be developed using the MSDS forms.
- A Hazards Materials Inventory List should be made from the MSDS forms and placed in the flammables cabinet in the supply room.
- Ensure that personnel and troops have knowledge of the location of the MSDS book. And is enrolled hazardous materials safety training.

SECTION 1.

DEMOGRAPHIC DATA

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A. ARLOC

B. INSTALLATION

Datesburg SC Army

C. BLDG/RM NUMBER

Receives NCO Office

D. LOCATION/CODE

E. OPERATION/CODE

F. DESCRIPTION

Receives NCO, Do Attn., Do Training, Computer work about 6 hrs/day.

G. MACOM/CODE

H. CODE

I. SUPERVISOR

J. TELEPHONE/AUTOVON NUMBER

K. RAC

L. FREQUENCY (Hrs per day)

M. NO CIV(S)

N. NO

O. NO CONTRACTOR(S)

P. NO LOC(S)

Q. NO OTHER

SECTION 2.

IH STAFFING DATA

A. LAB HOODS

B. VAPOR DEGREASERS

C. MAINTENANCE BAYS

D. SPRAY BOOT-S

E. OPEN SURFACE TANKS

F. VENTILATION UNITS

SECTION 3.

SURVEY DATA

A. SURVEY DATE

8-10-05

B. EVALUATOR (INITIALS)

Non-Responsive

C. CONTROLS PRESENT	D. EVALUATION	E. UNIT CODE	F. CONTROLS REQUIRED	G. STATUS
Lighting	51-71; Aug 63	FC	58-100	Adgt

H. PERSONAL PROTECTIVE EQUIPMENT (H=REQUIRED; A=AVAILABLE)

1. RESPIRATOR

MANUFACTURER

NIOSH TC NO

R/A

DISPOSABLE

W/ FACE AIR PURIFYING

W/ FACE AIR PURIFYING

FULL FACE AIR PURIFYING

POWERED AIR PURIFYING

AIRLINE

SELF-CONTAINED

ABRASIVE BLASTING HOOD

2. GLOVES

R/A

3. EYES/FACE

R/A

4. HEARING

R/A

5. BODY

R/A

6. HEAD/FOOT

ACID

CHEMICAL/SPLASH

MUFFS

APRONS

HARD HATS

OIL

SAFETY/IMPACT

EARPLUGS

COVERALLS

IMPERMEABLE BOOTS

SOLVENTS

CHEMICAL/SAFETY

CANAL CAPS

FULL BODY SUIT

SAFETY CONDUCT SHOES

HOT SURFACES

FULL FACE SHIELD

HELMETS

SAFETY BELT/HARNES

SAFETY/NONCONDUCTIVE SHOES

COLD SURFACES

WELDING HELMET

HEAT REFLECT VEST/SUIT

NBC AGENTS

SECTION 4.

HAZARD INVENTORY DATA

A. CAS CODE

D. HAZARD DESCRIPTION

E. PAC OF EPC

F. MEDICAL SURVEILLANCE RECOMMENDED
YES/NO

POVDT

Computers use for long periods of time

3

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FOIA Requested Record #J-15-0085 (SC)

Released by National Guard Bureau

Page 112 of 964

SECTION 1.

DEMOGRAPHIC DATA

1. ARLOC _____ 2. INSTALLATION Batesburg SC Army 3. BLDG/RM NUMBER Supply Room
4. LOCATION/CODE AA SA 5. OPERATION/CODE ADD, SAH 6. DESCRIPTION Supply 5 gr. Handle fuel oil, order ration for troops, cloth for soldiers
7. MACOM/CODE NG 8. TELEPHONE/AUTOVON NUMBER Non-Responsive 9. SUPERVISOR Non-Responsive
10. NO CIV(S) _____ 11. NO MIL _____ 12. RAC _____ 13. FREQUENCY (Hrs Per Day) _____
14. NO CONTRACTOR(S) _____ 15. NO LOC(S) _____ 16. NO OTHES _____

SECTION 2.

IH STAFFING DATA

1. LAB HOODS _____ 2. VAPOR DEGREASERS _____ 3. MAINTENANCE BAYS _____ 4. SPRAY BOOTS _____
5. OPEN SURFACE TANKS _____ 6. VENTILATION UNITS _____

SECTION 3.

SURVEY DATA

1. SURVEY DATE 8-10-05 2. EVALUATOR (INITIALS) Non-Responsive

3. CONTROLS PRESENT	4. EVALUATION	5. UNIT CODE	6. CONTROLS REQUIRED	7. STATUS
Lighting - Office	20-39; 107-29	FC	50-100	Inspected
Lighting - Supply Room	16-50; 107-41	FC	20	Adapt

8. PERSONAL PROTECTIVE EQUIPMENT (N=REQUIRED; A=AVAILABLE)

1. RESPIRATOR

DISPOSABLE

FACE AIR PURIFYING

FACE AIR PURIFYING

FULL FACE AIR PURIFYING

POWERED AIR PURIFYING

AIRLINE

SELF-CONTAINED

ABRASIVE BLASTING HOOD

MANUFACTURER

NIOSH TC NO

R/A

1

1

1

1

1

1

1

1

2. GLOVES	R/A	3. EYES/FACE	R/A	4. HEARING	R/A	5. BODY	R/A	6. HEAD/FOOT	R/A
ACID	/	CHEMICAL/SPLASH	/	MUFFS	/	APRONS	/	HARD HATS	/
OIL	/	SAFETY/IMPACT	/	EARPLUGS	/	COVERALLS	/	IMPERMEABLE BOOTS	/
SOLVENTS	/	CHEMICAL/SAFETY	/	CANAL CAPS	/	FULL BODY SUIT	/	SAFETY CONDUCT SHOES	/
HOT SURFACES	/	FULL FACE SHIELD	/	HELMETS	/	SAFETY BELT/HARNES	/	SAFETY/NONCONDUCTIVE SHOES	/
COLD SURFACES	/	WELDING HELMET	/		/	HEAT REFLECT VEST/SUIT	/		/
NBC AGENTS	/		/		/		/		/

SECTION 4.

HAZARD INVENTORY DATA

1. CAS CODE	2. HAZARD DESCRIPTION	3. PAC OF EPC	4. MEDICAL SURVEILLANCE RECOMMENDED YES/NO
POVD T	Computer use for long periods of time	3	
PO FOOT HAZ	Foot hazard	3	
PO LIFTING	Heavy lifting	3	

Analytical Environmental Services, Inc.

Date: 8/17/2005

TOTAL LEAD IN WIPE SAMPLES
N7082

CLIENT:

Non-Responsive

Project: Batesburg SC Armory

Lab Order: 0508653

Date Received: 8/12/2005 3:15 PM

Delivery Order:

Matrix: Wipe

PO No:

Laboratory ID	Client Sample ID	Results	Units	Report Limit.	DF	Date Collected	Date Analyzed	Analyst
0508653-001A	#30	85	µg, Total	20	1	8/10/2005	8/16/2005	VA
0508653-002A	#31	91	µg, Total	20	1	8/10/2005	8/16/2005	VA
0508653-003A	#32	121	µg, Total	20	1	8/10/2005	8/16/2005	VA
0508653-004A	#33	188	µg, Total	20	1	8/10/2005	8/16/2005	VA
0508653-005A	#34	BRL	µg, Total	20	1	8/10/2005	8/16/2005	VA
0508653-006A	#35	23	µg, Total	20	1	8/10/2005	8/16/2005	VA
0508653-007A	#36	240	µg, Total	20	1	8/10/2005	8/16/2005	VA
0508653-008A	#37	BRL	µg, Total	20	1	8/10/2005	8/16/2005	VA
0508653-009A	#38	BRL	µg, Total	20	1	8/10/2005	8/16/2005	VA
0508653-010A	#39	67	µg, Total	20	1	8/10/2005	8/16/2005	VA
0508653-011A	#40	BRL	µg, Total	20	1	8/10/2005	8/16/2005	VA
0508653-012A	#41	BRL	µg, Total	20	1	8/10/2005	8/16/2005	VA
0508653-013A	#42	BRL	µg, Total	20	1	8/10/2005	8/16/2005	VA
0508653-014A	#43	BRL	µg, Total	20	1	8/10/2005	8/16/2005	VA

Qualifiers: BRL - Not Detected at the Reporting Limit

DF - Dilution Factor

Results are blank corrected where applicable

a

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**BATESBURG, SC
ARMORY**





DRILL HALL

KITCHEN





MOTOR POOL





**LIGHT FIXTURE OUT,
DAY ROOM**

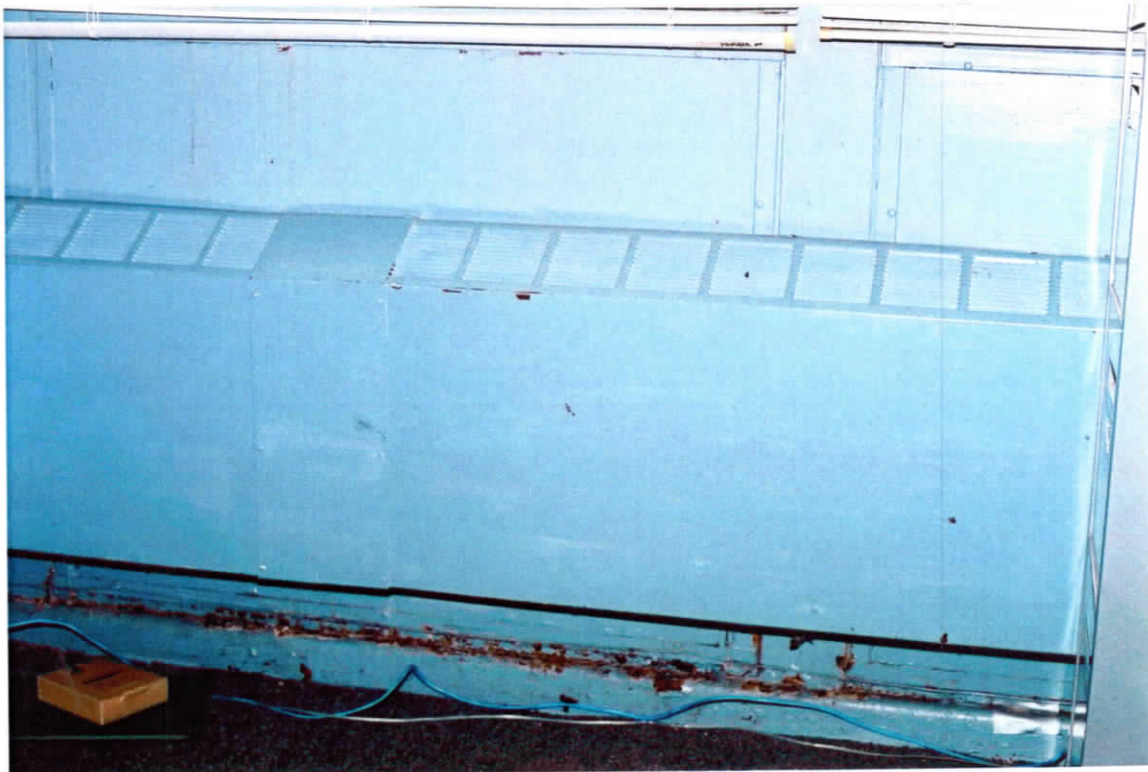
**LIGHT FIXTURES
OUT, CLASSROOM**





BOILER

**HEATING GRILL,
OFFICE**





IFR, FRONT VIEW

IFR, REAR VIEW





**IFR, FLOOR IN FRONT OF
WHERE BACKSTOP WAS**

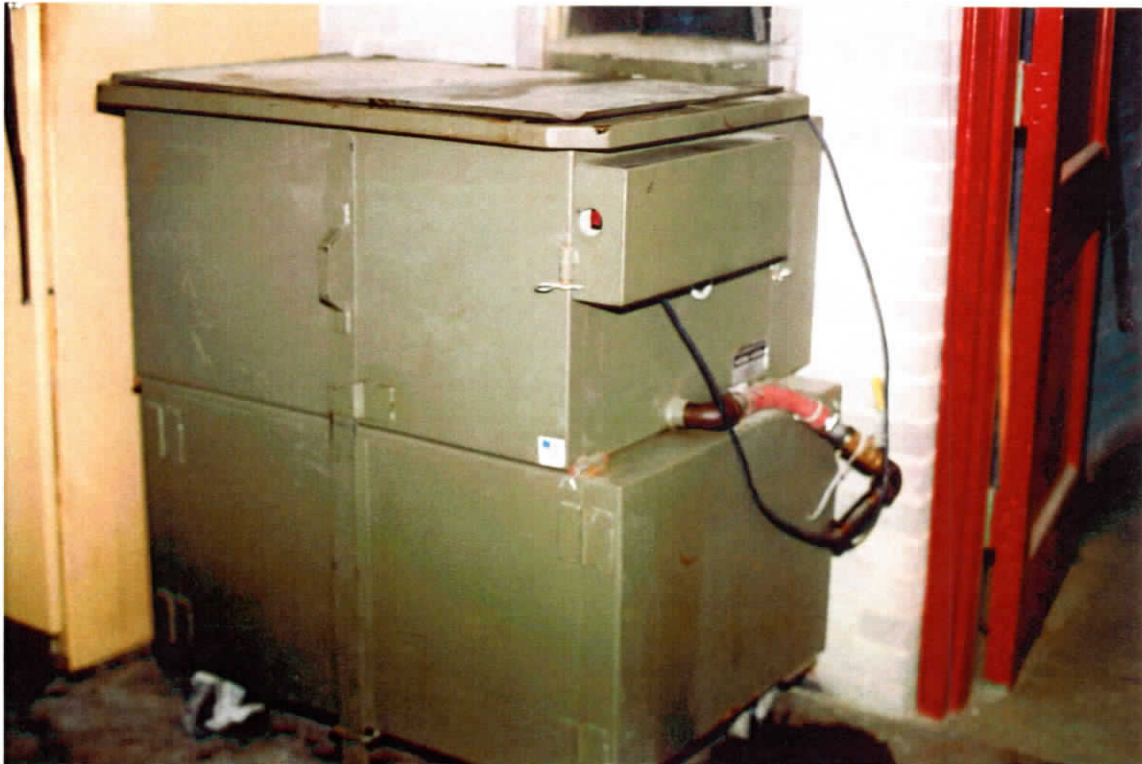
**FLAMMABLES
CABINET**

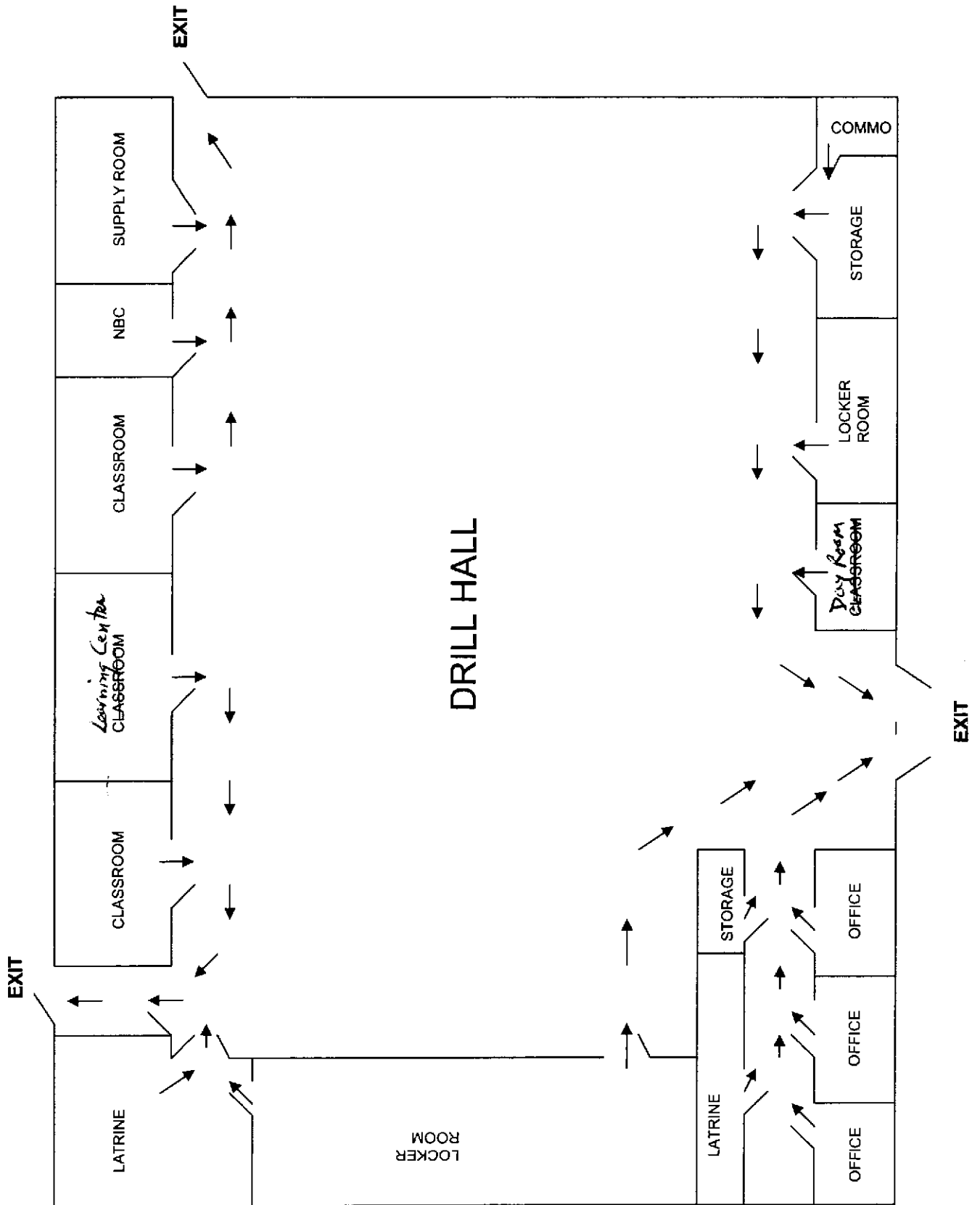




**FLAMMABLES
CABINET, INSIDE**

**WEAPONS CLEANING
MACHINE**





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

NGB-AVN-SI

January 6, 2003

MEMORANDUM FOR The South Carolina Army National Guard, Company B, 151st Signal Battalion, ATTN: **Non-Responsive** Armory Supervisor, 700 Blue Ridge Ave, Belton, SC 29605.

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

1. References.

- a. Report submitted 24 December 2002, Industrial Hygiene Survey, Enviro-Management, Inc.
- 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 Enviro-Management, Inc. 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. 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.

d. Give the Facility Office a copy of this report and make them aware of the Asbestos problems.

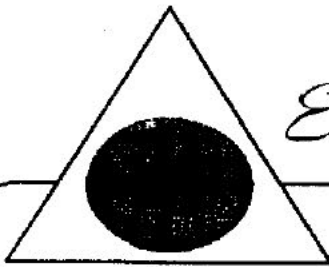
e. To execute your responsibilities in correcting all deficiencies and meeting all standards coordinate with the Occupational Health Nurse and the Occupational Safety and Health Office for technical guidance.

5. If additional information is needed about the contractors report, please contact **Non-Res**

Non-Responsive

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



Enviro-Management, Inc.

INDUSTRIAL HYGIENE SERVICE

MEMORANDUM FOR: Company B 151st Signal Battalion. Attn: **Non-Responsive**
700 Blue Ridge Avenue, Belton, South Carolina 29605.

SUBJECT: Industrial Hygiene Survey for the Belton National Guard Armory, Belton, South Carolina.

1. References.

- a. Title 29, Code of Federal Regulations (CFR) Part 1910, Occupational Safety and Health Administration (OSHA).
- b. AR 40-5, Preventive Medicine, 15 October 1990.
- c. AR 385-10, 23 May 1988, Army Safety Program.
- d. TB MED 503, The Army Industrial Hygiene Program.
- e. Title 29 CFR, Part 1910.1200, The Hazard Communication Standard.
- f. Department of the Army Pamphlet (DA PAM) 40-501, 27 August 1991, Hearing Conservation.
- g. National Guard Pamphlet (NG PAM) AR 385-16, Safety Guidelines for Converting Indoor Firing Ranges to Other Uses.
- h. National Institute for Occupational Health and Safety (NIOSH), (76-130) Technical Information, Lead Exposure and Design Considerations for Indoor Firing Ranges GPO, 1975.
- i. Industrial ventilation, 22nd Edition, American Conference of Governmental Industrial Hygienist (ACGIH), Cincinnati, Ohio.
- j. 29 CFR 1926.58, The OSHA Asbestos Standard.
- k. Housing and Urban Development (HUD) Guidelines for the Evaluation and Control of Lead Based Paint Hazards in Housing.

2. Purpose. The purpose of this survey was to conduct a baseline Industrial Hygiene Survey of the Belton National Guard Armory. The survey consisted of a walk through inspection of all operations and administrative areas in the Belton Armory. Interviews were conducted with **Non-Responsive** to gather background and historical information relative to the various operations at the Belton Armory. A diagram of the building is found in Appendix A. Photographs of the facility are located in Appendix B. Appendix C contains the health hazard inventory module (HHIM), Appendix D includes an excerpt from NG PAM 385-16, Guidelines for converting indoor firing ranges to other uses and Appendix E includes laboratory results.

3. Background. At the request of **Non-Responsive** of the National Guard Bureau Region South Industrial Hygiene Office, an industrial hygiene survey was conducted at the Belton National Guard Armory in Belton, South Carolina on December 4, 2002 by Gail Smith, Industrial Hygienist.

4. Facility Description. This facility houses B Company of the 151st. Signal Battalion. A total of five full time personnel work in the Belton Armory. The armory is utilized by administrative and supply personnel during the week (Monday through Friday) and is utilized for Guard drills on weekends. The physical structure is a one story red brick building with a flat roof and block glass center which was constructed in the 1960's. A list of the operations and administrative areas are detailed in Table I.

TABLE I
Operations and Administrative Areas

Administrative Offices	Storage
Female Latrine	Learning Center
NCO Lounge	NBC Room
Range/Locker Room	Training Room
Drill Floor	Kitchen
Men's latrine	Class Room

5. Health Hazard Inventory Module (HHIM) & Risk Assessment Codes - The results of the walk through survey were entered into a health hazard inventory module (HHIM) industrial hygiene form. The form details the hazards found in the particular operation, the controls that are present, and types of personal protective equipment (PPE) used. Health hazard risk assessment codes (RAC's) were assigned to the operations. Risk assessment codes were determined using the RAC table in the Department of Defense (DOD) Instruction 6055.1 and are reproduced in Appendix C.
6. Findings.
- A. Inactive Firing Range/Vehicle Maintenance Facility and Boiler Room - An initial walk through of the facility revealed that there was an inactive firing range on the premises. A maintenance facility was also located on the armory premises. An inactive boiler room was also present at the facility.
- B. Suspect Asbestos Containing Materials
- (1) Vinyl Floor Tile (VFT) - There were 9"X9" VFT observed in several areas of the armory, including in the classroom, NBC Room, Training Room, NCO Room and the Hall. Two samples of deteriorated VFT were taken. One sample was taken in the hall near the Administration Office (sample B-11) and one sample was taken in the NBC Room (sample B-12). Laboratory results revealed that both samples were found to be asbestos containing. Results are found in Appendix E.
- (2.) White ceiling Material- White 2x2 "lay in" ceiling tiles were identified throughout the building. Ceiling tiles in the Supply Room and the training room were damaged by water due to the leaking roof. An interview revealed that all damaged tiles are replaced immediately. The ceiling tile throughout the remainder of the facility was in good condition and there was little evidence of water damage in other areas. The ceiling tiles have been replaced over the years and are of new construction therefore, they were suspect not asbestos containing.

- C. Supply Room – One employee works in this operation. **Non-Responsive** The employee is responsible for ordering, distributing and storing military supplies and equipment such as night vision goggles, uniforms, calibrated tools, batteries, etc. The ULLS and an RCAS computer systems are also utilized for this operation. Illumination measurements taken in the office area ranged between 18 and 85 foot candles of illumination. The ANSI Standard recommends 50 ftc of illumination for general office work. The employees had no ergonomic concerns or complaints. A Flammable Cabinet was not present in the supply area.
- D. The Vault – The vault is used to store military weapons. Entry into the vault is limited to one person during the week. **Non-Responsive**. **Non-Responsive** also works in this operation during drill weekends. Weapons repair is not performed inside the vault and this area is not meant for continuous occupancy. There is only one means of entry and egress and no independent ventilation is present in the vault.
- E. Illumination survey - An illumination survey was performed in four areas in the Armory. The illumination levels in the survey areas were not within the American National Standard Institute (ANSI) recommended minimum illumination levels.

TABLE II
Illumination Survey

Location	Illumination Level (ftc)	ANSI Minimum Requirements (ftc)	DG 412-2 Minimum Requirements (ftc)
Administrative Offices	47	50 – 100	50
Supply Office	40	50 – 100	50
Maintenance Bays	14	50 – 100	50
Spc. Edwards office	40	50 – 100	50

Notes: ANSI office illumination depending on the task is 50 ftc for general desk work and 90 ftc for reading poor quality print.

- F. Nuclear, Biological and Chemical (NBC) cage - Nuclear, biological and chemical (NBC) protective equipment and devices such as protective masks, decontamination apparatus and E56 Kits are stored and maintained in this operation. Radiac meters are also stored in this operation. The meters contain a low level radioactive source. The employees in this operation are aware of the radiation hazard.

- G. Drill Floor – The drill floor is used on guard weekends by drill personnel. The floor is concrete and the ceiling is approximately 25 – 30 feet high and composed of beams and troweled-on material. Interviews revealed that vehicles were occasionally driven into the Drill Hall. As required lead wipe samples were collected from the drill floor. Laboratory analysis revealed the following: All samples were below the 200 milligrams/sq.ft. guidelines as required by NG PAM(AR) 385-16.
- H. Inactive Firing Range – The Belton Armory is equipped with an inactive indoor firing range. Interviews with personnel revealed that sand from the "pit" area of the firing range had been removed, filled with concrete and turned into locker rooms. As required, lead wipe samples were taken in the firing range. The bullet backstop had been covered with paneling when the space was renovated and an alternate sample was taken on the paneling. There were no supply vents in the offices from which to take a sample. Laboratory results revealed the following: One sample (B-02) taken on the firing range floor below the paneling was found to be above 200 milligrams/sq. ft. guidelines as required by MG PAM(AR) 385-16.
- I. Boiler Room – A boiler room was present in the armory however, it is no longer used. The boiler was covered in suspect thermal system insulation (TSI). Thermal system pipe fittings (elbows) were also covered with asbestos containing materials. The suspect insulation was in good condition and no sampling was performed, if the insulation becomes damaged or is removed in the future it must be tested prior to any action.
- J. Vehicle Maintenance Operation – A vehicular maintenance operation was present at the Armory. The facility is located separate from the armory in a quonset hut. This operation is staffed during weekdays by **Non-Responsive** and on the weekends by **Non-Responsive** and other drill personnel. The floor of the Quonset hut is made of asphalt. It was observed that the asphalt floor where vehicle maintenance is performed was very uneven. Personnel stated that the asphalt is softer than concrete and therefore the jack sinks when put under heavy load and poses a potential safety hazard. An interview revealed that organizational level support maintenance is performed in this operation. There are two bay doors in the facility and no local exhaust ventilation system. General exhaust fans were present. An eye lavage/deluge shower was not available in this operation. Welding was occasionally performed in this operation and the required personal protective equipment was available. Pneumatic tools are very seldom used, for the most part manual tools were used. Two flammable lockers were present in the operation. Material safety data sheets (MSDS) and a hazardous materials inventory list (HMIL) were readily available in the maintenance shop. Maintenance technicians receive annual physicals and hearing tests. Mechanics are issued all required items of personal protective equipment. The technicians have also received initial hazard communication training however, they have not received the annual follow-up training. A parts washer was present and is changed on an as needed basis. There was no battery room present. The facility also contains cage storage in the automotive area and in a small area upstairs.

- K. Flammable Storage Operation - Anti freeze, oils and lubricants , etc. are stored in this operation. This operation is accessed by Non-Responsive on weekdays and on Drill weekends. There were no personal protective equipment (PPE), emergency eye lavage or a spill kit available in this area. The material safety data sheets (MSDS) and hazardous materials inventory list (HMIL) were available in the maintenance shop office.
- L. Kitchen - The kitchen is in a Quonset hut separate from the armory, it is fully functional and used by Drill personnel on weekends. The ceiling is paneled and the floor is concrete. An exhaust fan is present in the kitchen.
- M. Officers & Female latrines - Interviews revealed that during heavy rain showers, sewage would back-up in the officers and female latrines.
- N. Cleaning Supply Area - Suspect thermal system insulation was identified in the cleaning supply area however, it was found to be in good condition and no sampling was performed.

SUBJECT: Industrial Hygiene Survey for the Belton National Guard Armory, Belton, South Carolina.

Recommendations

1. Any severely deteriorated or damaged tile should be removed or repaired using the services of a EPA certified asbestos abatement contractor.
2. Determine the source of the leaking roof if possible and replace damaged ceiling tiles.
3. Upgrade or enhance illumination in those areas which were found to be deficient.
4. Perform sampling on thermal system insulation in the Boiler Room and in the cleaning Supply Room if it becomes damaged or deteriorated.
5. Repair the floor in the Maintenance Quonset Hut to minimize the safety hazard with the un-level asphalt floor.
6. Correct sewage backup problem in the female and officers latrines.
7. Provide PPE, a spill kit, MSDS's and a HMIL for the Flammable Storage Operation.
8. As required by NG PAM (AR) 385-16 (reference g), the firing range should be decontaminated.

APPENDIX A

P A R K - I N G

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*B-01
*B-02

*B-03
RANGE ROOM
Locker Room

S U P P L Y

R O O M

S T O R A G E

Platform used
LEARNING CENTER

C E N T E R

N B C

R O O M

T R A I N I N G

R O O M

K I T C H E N
D I N I N G H A L L
0-0-0-0-0

*B-07

N C O

L O U N G E

*B-04

F E A T U R E S

Class
ROOM
LOCKER
ROOM

L A T R I N E

A D M I N
O F F I C E

C O M P A N Y
B E L T O N , S . C .
B
1 5 1 s t
S I G N A L
B A T T A L I O N

APPENDIX B

Belton Armory

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Kitchen



Vehicle maintenance facility

Belton Armory

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Uneven asphalt Floor in Maintenance facility



APPENDIX C

450000 Location Operation Survey Year Month Day MACOM Sub-MACOM RAC Unit/Organization

Supervisor Mr. Ms. Date 627204 NG AR 14 C200B251ST5IG2W700BBLUERID95CAYE BELTON AR

Supervisor of Point of Contact Telephone Number [Redacted] Frequency (hrs/day) No. CIVs No. MIL Contractors No. LOCs

Controls present (if > 6, continue in comments) [25] Evaluation [25 char max per line] Unit Code Controls Required [25 char max per line]

Controls present (if > 6, continue in comments) [25] Evaluation [25 char max per line] Unit Code Controls Required [25 char max per line]

Controls present (if > 6, continue in comments) [25] Evaluation [25 char max per line] Unit Code Controls Required [25 char max per line]

Controls present (if > 6, continue in comments) [25] Evaluation [25 char max per line] Unit Code Controls Required [25 char max per line]

Controls present (if > 6, continue in comments) [25] Evaluation [25 char max per line] Unit Code Controls Required [25 char max per line]

Controls present (if > 6, continue in comments) [25] Evaluation [25 char max per line] Unit Code Controls Required [25 char max per line]

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Controls present (if > 6, continue in comments) [25] Evaluation [25 char max per line] Unit Code Controls Required [25 char max per line]

Controls present (if > 6, continue in comments) [25] Evaluation [25 char max per line] Unit Code Controls Required [25 char max per line]

PAC	EPC	CAS Code	PAC	EPC	Hazard Description
3		POHOISECO			
		POFOOTIDAZ			
		POFLYPROJ			
		POEYEIAZA			
		POFLAMIAZ			
		POLISTHRO			
		POSTARPOB			
		POHOTOBJE			
		POELSHOCK			
		COLUBEOL			

Social Security Number or Other Unique Identifier	Last Name	First Name	Mi	Sex	Category
[REDACTED]				M	CIV

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Personnel data provided by the facility is attached to this form

Comments

Remember to comment on problems, recommendations, and needed control items

1. Operation described is SAT

2. Other operations: MAN, LOA

3. Weapons are stored in the vault but NO ammunition

(Comments continued on attached sheet)

☐ This operation was explained to the evaluators.

☐ There is a loose data sheet

☐ There is a ventilation data sheet

□

100

L

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

PAC		EPC		CAS Code		PAC		EPC		Hazard Description	
				POH0ISECO	2	0	3				
				POFOOTIAZ	2	4					Radioactive Isotope Americium
				POFLYPROJ							
				POEYELIAZA							
				POFLAMIAZ							
				POLIJTING							
				POSIARPOB							
				POHOTOBJE							
				POELSIIOCK							
				COLUBEOL							

[illegible]

☐ Personnel data provided by the facility is attached to this form

Remember to comment on problems, recommendations, and needed control items

1Operation described is: SAH

2. Other operations: MAN L-04

3. Radiac meter are stored in this operation. Meters have emit a very low level radiation.

[illegible]

Personnel data provided by the facility is attached to this form

Remember to comment on problems, recommendations, and needed control items

1. Operation described is : OTM+

2. other operations: $\text{LOA}, \text{MA}, \text{AN}$

3. The Drill floor is used for formation. Personnel occasionally load equipment + lift heavy objects. Guns are cleaned in this operation. Vehicles are driven inside briefly.

4. Lead sampling revealed all sample, were below 200 ug / sq ft. minimum as per NC-PAM (AR) 385-16.

45060
Location GS Operation MAT Survey Date 622204 Year Month Day MACOM NCG Sub-MACOM AR RAC 3 Unit/Organization CBA B 7519 S I G B Y 7910 BLUE RIDGE 951C
Main Entrance

Supervisor Mr. ☒ Ms. ☐
Supervisor or Point of Contact Telephone Number ☐ DSN ☒ Commercial ☐
Frequency (hrs/day) 969 No. CIVs 02 No. MIL ☐ Contractors ☐ No. LOCs ☐

Lab Hoods ☐ Vapor Degreasers ☐ Spray Booths ☐ Open Surface Tanks ☐ Ventilation Units ☐
Controls present (if >6, continue in comments)(25)
Evaluation (25 char max per line)
Unit Code Controls Required (25 char max per line)

General exhaust (none)
LEV (none)
Lighting
Fluorescent
14 FT C

Gloves e* R U Respirator e* R U Manufacturer's Description (10 char max) NIOSH TC# or foreign equiv. (10 char max)
BEST AVAILABLE COPY
acid cold surfaces hot surfaces NBC agents oil solvents surgical gloves leather/cotton
airline abrasive blasting hood disposable full face air purifying 1/2 face air purifying powered air purifying 1/4 face air purifying self-contained
3M

Eyes and Face e* R U Hearing e* R U Body e* R U Head and Feet e* R U
chemical splash full face shield chem/safely impact safety impact welding helmet sunglasses welding goggles/glasses laser eye protection
(>85-100dBA steady) earplugs helmets w/muffs muffs alone (106-118) muffle/earplugs comb muffs and earplugs (118 or >) with time limit
canal caps
aprons cold weather clothing coveralls full body suit heat reflective vest/suit safety belt/harness special purpose clothing
cold weather boots/shirt hard hats impermeable boots safety shoes (conductive) safety shoes (nonconductive)

PAC	EPC	CAS Code	PAC	EPC	Hazard Description
3	A	POHISECO	3	A	CO
3	Q	POFOOTIA	3	A	Nitrogen oxides
3	Q	POFLYPROJ	3	A	Nitrogen dioxide
3	Q	POVEYIAZ	3	A	Petrochemicals to be kept
3	Q	POFLAMIA	3	Q	falling objects
3	Q	POELTINE			
		POSHARPOB			
		POHOTOBJE			
		POELSHOCK			
3	Q	COLUBEON			

Other Unique Identifier	Last Name	First Name	MI	Sex	Category
				M	CEV

Personnel data provided by the facility is attached to this form

Remember to comment on problems, recommendations, and needed control items

Operation described is: MAI

Additional operations: MAN, LOA

This operation is accessed on weekdays & weekends

Organizational Level Support is maintenance is performed

Personnel reported that the Asphalt floor in the bay was uneven and too soft for vehicle maintenance.

on was explained to the evaluators.

There is a noise data sheet

There is a verification data sheet

(Comments continued on attached sheet)

Building Number

BELTON AR

Room Number

B011E2

45000

Location Operation

BP BPO

Survey Date

Year Month Day

6 2 22 04

MACOM

Sub-MACOM

AR

RAC

Unit/Organization

C 0 0 B 1 5 4 8

7 0 0 B 1 5 4 8

A V E B E L T O N

Supervisor

Mr. Ms.

Supervisor or Point of Contact telephone Number

DSN

Commercial

Frequency (hrs/day)

No. CIVS

No. MIL

Contractors

No. LOCs

Controls present (if > 6, continue in comments)(25)

Evaluation (25 char max per line)

Unit Code

Controls Required (25 char max per line)

Manufacturer's Description (10 char max)

NIOSH TC# or foreign equiv. (10 char max)

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FOIA Requested Record #J-15-0085 (SC)

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Lab Hoods Vapor Degreasers Spray Booths

Open Surface Tanks

Ventilation Units

Frequency (hrs/day)

No. CIVS

No. MIL

Contractors

No. LOCs

Controls present (if > 6, continue in comments)(25)

Evaluation (25 char max per line)

Unit Code

Controls Required (25 char max per line)

Manufacturer's Description (10 char max)

NIOSH TC# or foreign equiv. (10 char max)

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FOIA Requested Record #J-15-0085 (SC)

Released by National Guard Bureau

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Controls present (if > 6, continue in comments)(25)

Evaluation (25 char max per line)

Unit Code

Controls Required (25 char max per line)

Manufacturer's Description (10 char max)

NIOSH TC# or foreign equiv. (10 char max)

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Gloves

acid

cold surfaces

hot surfaces

NBC agents

oil

solvents

surgical gloves

leather/cotton

other

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Eyes and Face

chemical splash

full face shield

chem/safety impact

safety impact

welding helmet

sunglasses

laser eye protection

other

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Eyes and Face

chemical splash

full face shield

chem/safety impact

safety impact

welding helmet

sunglasses

laser eye protection

other

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Released by National Guard Bureau

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Eyes and Face

chemical splash

full face shield

chem/safety impact

safety impact

welding helmet

sunglasses

laser eye protection

other

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Eyes and Face

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chem/safety impact

safety impact

welding helmet

sunglasses

laser eye protection

other

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Eyes and Face

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MEDDAC

FORM 609-R

FOIA Requested Record #J-15-0085 (SC)

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FOIA Requested Record #J-15-0085 (SC)

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Other Unique Identifier

Personnel data provided by the facility is attached to this form

Comments

2. Other operations: LOA, MAI, MAN.

3. ~~Q~~ Suspect Asbestos insulation was in good condition and sampling should be done when it becomes disturbed.

HHIMS INDUSTRIAL HYGIENE SURVEY FORM

Installation

Building Number

Room Number

45060

Location

Operation

Year

Month

Day

MACOM

Sub-MACOM

RAC

Unit/Organization

AR

Z

C

B

15

19

SIG

BN

WTF

Survey

Date

62

72

04

NG

AR

AR

Z

C

B

15

19

SIG

BN

C

Mr. Ms.

Supervisor

Supervisor or Point of Contact Telephone Number

DSN

Commercial

Frequency (hrs/day)

No. CIVS

No. MIL

Contractors

No. LOCs

Unit Code

Controls Required [25 char max per line]

Evaluation [25 char max per line]

Unit Code

Controls Required [25 char max per line]

Unit Code

Controls Required [25 char max per line]

Unit Code

Controls Required [25 char max per line]

Unit Code

Controls Required [25 char max per line]

Unit Code

Controls Required [25 char max per line]

Unit Code

Controls Required [25 char max per line]

Unit Code

Controls Required [25 char max per line]

Unit Code

Controls Required [25 char max per line]

Unit Code

Controls Required [25 char max per line]

Unit Code

Controls Required [25 char max per line]

Unit Code

BEST AVAILABLE COPY

BEST AVAILABLE COPY

Social Security Number or Other Unique Identifier	Last Name	First Name	MI	Sex	Category
	<div style="background-color: black; color: red;">Non-Response</div>			M	CIV

Remember to comment on problems, recommendations, and needed control items.

2 other operations: salt, man, loA.

3. This operation was converted from an indoor firing range to a locker room lead dust sampling revealed one elevated sample.

Commentary continued on attached sheet

This option was explained to the evaluators.

7/11/2011 11:58 AM

There is a verification step—check

ARLOC

Installation

HHIMS INDUSTRIAL HYGIENE SURVEY FORM

Building Number

B E L T O N A R

Room Number

E L A M Storage

Location

S H A 2

Operation

W A 2

Survey Date

6 2 2 2 0 4

MACOM

N G

Sub-MACOM

A R

RAC

3

Unit/Organization

C O B 1 5 2 5 I G B W
7 0 0 B B L U E R I d 9 E
A Y E B E L T O N S. C.

Mr. Ms.

Supervisor

Supervisor or Point of Contact Telephone Number

DSN Commercial

Frequency (hrs/day)

No. CIVS

No. MIL

Contractors

No. LOCs

Lab Hoods

Vapor Degreasers

Spray Booths

Open Surface Tanks

Ventilation Units

Controls present (if > 6, continue in comments)(25)

Evaluation (25 char max per line)

Unit Code

Controls Required (25 char max per line)

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Gloves

e* R U

Respirator

e* R U

Manufacturer's Description (10 char max)

NIOSH TC# or foreign equiv. (10 char max)

cold surfaces
hot surfaces
NBC agents
solvents
oil
surgical gloves
leather/cotton
otheracid
alkaline
abrasive blasting hood
disposable
full face air purifying
1/2 face air purifying
powered air purifying
1/4 face air purifying
self-contained
other

Eyes and Face

e* R U

Hearing

e* R U

Body

e* R U

Head and Feet

e* R U

chemical splash
full face shield
chem/safety impact
safety impact
welding helmet
sunglasses
welding goggles/glasses
laser eye protection
othercanal caps
(>85-108dBA steady) earplugs
helmets w/muffs
muffs alone
(108-118) muffs/earplugs comb
muffs and earplugs
(118 or >) with time limit
otheraprons
cold weather clothing
coveralls
full body suit
heat reflective vest/suit
safety belt/harness
special purpose clothing
othercold weather boots/shoe
hard hats
impermeable boots
safety shoes (conductive)
safety shoes (nonconductive)
other
other
other
othere* = evaluator's recommendation
or agreement

MEDDAC

MAY 95

FORM 609-R

Reminders: ergonomics - dermalitis - physical agents - flammable storage
EYE (permanent) - EYE (portable) - SIM - IV - LEVACO ADM DSA DSN LAB LCK
RAD EGB EPL RUS SPR WEL

PAG	EPC	CAS Code	Hazard Description
3	0	POFOOTIAZ	
3	0	POFLYPROJ	
3	0	POEYELIAZA	
3	0	POFLAMIAZ	
3	0	POMFTING	
		POSHARPOB	
		POIIOBJE	
		POELSHOCK	
		COLUBEOL	

First Name	MI	Sex	Category
		M	CIV

Personnel data provided by the facility is attached to this form

Remember to comment on problems, recommendations, and needed control items

Operation described is: HAZ

- Other operations: SAH, LOA, MAN
- Necessary Articles of PPE were not present and should be acquired.
4. MSDS and A HMIU are needed.

(Comments continued on attached sheet)

This operation was explained to the evaluators.

There is a noise data sheet

There is a ventilation data sheet

APPENDIX D

Kern - FYI

HEADQUARTERS
DEPARTMENTS OF THE ARMY AND THE AIR FORCE
Washington, DC 20310-2500
31 January 1994

NG PAM (AR) 385-15/
ANGPAM 91-101

Safety

GUIDELINES FOR CONVERTING INDOOR FIRING RANGES TO OTHER USES

Summary. This is a new pamphlet. This guidance prescribes policy, responsibilities, and procedures on how to convert lead-contaminated indoor firing ranges to other uses.

Applicability. This guidance applies to all persons responsible for the operation of Army National Guard (ARNG) and Air National Guard (ANG) indoor firing ranges. As no regulation/guidance can foresee all situations that might arise, the following is written in a broad scope and is intended to be interpreted as to the INTENT of the law by health professionals.

Supplementation. Supplementation of this guidance is prohibited without prior approval from Chief, National Guard Bureau (NGB-AVN-SI).

Impact on New Manning System. This guidance does not contain information that affects the New Manning System.

Interim changes. Interim changes are not official unless they are authenticated by the Chief, Administrative Services. Users will destroy interim changes on their expiration date unless sooner superseded or rescinded.

Suggested Improvements. The proponent of this publication is the National Guard Bureau. Users are invited to send comments and suggested improvements on DA Form 2028 (Recommended Changes to Publications and Blank Forms) directly to Chief, National Guard Bureau, Attn: NGB-AVN-SI, 111 South George Mason Drive, Arlington, VA 22204-1332.

Distribution. Distribution of this publication is made in accordance with the requirements on DA Form 12-09-E.

CONTENTS (Listed by paragraph numbers)

	Para
Purpose	1
References	2
Explanation of abbreviations and terms	3
Policy and procedures	4
Goal	5
Background	6
Wipe Sample Media	7
Wipe Sampling Protocol	8
Range Cleaning Instructions	9
Cleaning Stored Contaminated Equipment	10
Contaminated Sand and Lead Waste	11
Medical Surveillance	12
Worker Education	13
Personal Protective Equipment	14
Point of Contact	15

Appendices

- A. Sampling Strategy for Collection of Wipe Samples
- B. Interpretation of Sample Results (Prior to Cleaning)
- C. Interpretation of Sample Results (After Cleaning)
- D. OSHA Instruction CPL 2-2.208
- E. Where to Purchase Sample Media and Containers
- F. AEHA Form 8-R (Bulk Sample Data)
- G. Instructions to Complete AEHA Form 8-R
- H. Examples of Computation of Lead Level from Wipe Sample Results
- I. Supporting Laboratories and Areas Served

Glossary

1. Purpose

This pamphlet establishes policy and procedures for converting indoor firing ranges to other uses.

2. References

Related publications are listed below.

a. DODI 6053.1 (Department of Defense Occupational Safety and Health (OSH) Program).

b. AR 11-34 (The Army Respiratory Protection Program).

c. AR 40-5 (Preventive Medicine).

d. NGR (AR) 385-15 (Policy, Responsibilities, and Procedures for Inspection/Evaluation and Use of ARNG Indoor Firing Ranges).

e. TB MED 502 (Occupational and Environmental Health Respiratory Protection Program).

f. USAEHA TG 141 (Industrial Hygiene Air Sampling and Bulk Sampling Instructions).

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

31 January 1994

NG Pam (AR) 385-16/ANGPAM 91-101

APPENDIX B INTERPRETATION OF SAMPLE RESULTS (PRIOR TO CLEANING)

B-1 200 micrograms/sq ft or LESS

If all sample results are 200 micrograms/sq ft or less, the range can be converted and/or used for any purpose.

B-2 BETWEEN 201 and 200,000 micrograms/sq ft

Range must be decontaminated. Continue with cleaning instructions listed in paragraph 15. Sample results will be used to establish a baseline. The baseline sample results will be used to ensure the 75 percent reduction is achieved.

B-3 OVER 200,000 micrograms/sq ft

Your sample media may not be capable of collecting additional lead dust and results that are above 200,000 micrograms/sq ft should be considered suspect. Larger concentrations of lead dust may exist on surfaces tested other than results indicate. If the initial sampling results are above 200,000 micrograms/sq ft, the range should be cleaned by either HEPA vacuuming and/or wet wiping to establish a baseline. After the cleaning procedure is completed, resampling should occur until sample results are under the 200,000 micrograms/sq ft limit.

B-4 High sample results may exist due to personnel walking or moving equipment/vehicles over the range surfaces causing the lead dust to be "ground" into the substratum. For example, a maintenance activity may have oversprayed paint or spilled solvents onto the surface which would bond with the lead dust. Consult your Regional Industrial Hygiene Office for specific guidance.

below the 75 percent reduction, a more thorough cleaning of the range is required along with resampling until criteria are met.

* PLEASE NOTE, that if your original wipe sample results were, i.e., 175,000 ug/sq ft then you would have to reduce the lead level below 13,125 ug/sq ft. This would meet the 75 percent reduction criteria, however, this is an enormous amount of lead dust and care should be taken to ensure a heavy coat of paint seals the lead dust. It is unknown at this time whether or not the remaining amount of lead dust will allow the latex paint to adhere to the substratum. If the paint peels, falls to the floor and is crushed over a period of time, it will create another respirable lead hazard. If this happens, contact your Regional Industrial Hygiene Office for guidance. Periodically monitor the converted range for signs of peeling paint. Paint chips can be analyzed for lead content. **DO NOT IGNORE PEELING PAINT IN A CONVERTED INDOOR FIRING RANGE.**

APPENDIX C INTERPRETATION OF SAMPLE RESULTS (AFTER CLEANING)

C-1 200 micrograms/sq ft or LESS

If all sample results are less than 200 micrograms/sq ft, the range can be converted and/or used for any purpose after a coat of lead-free latex paint is applied. The paint color must contrast the color of the present substratum.

C-2 ABOVE 200 micrograms/sq ft

As a minimum, a 75 percent reduction should occur from your initial sample results or the samples should be under the 200 microgram/sq ft level. If all sample results meet this criteria, a contrasting color of lead-free latex paint must be applied before the area is utilized for other purposes. The room can only be used as a storage area. Storage of kitchen equipment and food is prohibited. The room cannot be used for a child care or nursery area. If sample results are not

APPENDIX E

Belton National Guard Armory
Asbestos Analysis
Appendix E

Sample No.	Location	Type Analysis	Results
B-11(tile)	VFT in Hall Near Admin Office	Asbestos	5% Chrysotile
B-11 (mastic)	Mastic in Hall Near Admin Office	Asbestos	12% Chrysotile
B-12 (tile)	VFT in NBC Room	Asbestos	8% Chrysotile
B-12 (mastic)	Mastic in NBC Room	Asbestos	15% Chrysotile

Belton National Guard Armory
Lead Wipe sample Analysis
Appendix E

Sample No.	Location	Type Analysis	Results	
			ug/wipe	ug/sq.ft.
B-01	IFR Paneling Covering Backstop	Lead	107.5	107.5
B-02	IFR Floor Front of Paneling	Lead	763	763.0
B-03	IFR Two Items	Lead	83	83.0
B-04	IFR Rear wall Next to Entrance	Lead	<12	<12
B-05	Blank	Lead	<12	<12
B-06	NE Corner, Drill Floor	Lead	<12	<12
B-07	Drill Floor Center	Lead	<12	<12
B-08	Drill Floor SW Corner	Lead	<12	<12
B-09	Kitchenette	Lead	<12	<12
B-10	Blank	Lead	<12	<12

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ANALYTICAL

CHAIN OF CUSTODY

ASBESTOS

EMSL Representative: **Non-Responsive**Your Company Name: **Non-Responsive**Street: **3100 PA. AVE, S.E.**

Box #:

City/State: **WASH DC Zip: 20000**Verbal Results to: **Non-Responsive**

Telephone #:

Project Name/Number:

EMSL-Bill to:

Street:

Box #:

City/State:

Fax Results to:

Fax #:

Purchase Order #

Zip:

☐ Air ☐ Floor Tile ☐ Soil ☐ Wipe
☒ Bulk ☐ Drinking Water ☐ Dust ☐ Wastewater
☐ 6 Hours☐ 3 Days☐ 3 Hour**☐ 5 Days☐ 24 Hours☐ 6-10 Days☒ 48 Hours☐ Same Day*****Must call
Lab for
approval*** 10:00AM delivery
results by Mid-night
or earlier

PCM

☐ NIOSH 7400
☐ OSHA
☐ Other:

PLM BULK (regular bulk)

☒ EPA 800
☐ NOB
☐ Point Count
☐ Other:

TEM BULK

☐ Drop Mount (Qualitative)
☐ Chatfield
☐ Chatfield / SEM QC
☐ Conventional (Quantitative)
☐ EMSL Method
☐ NOB
☐ NOB / SEM QC
☐ Micro Vac - Quantitative
☐ Micro Vac - Qualitative

TEM WATER

☐ Wastewater
☐ Drinking Water EPA 100.1
☐ Water - NY Wastewater
☐ Water-NY Drinking Water

TEM AIR

☐ AHERA
☐ NIOSH 7402
☐ Level I
☐ Level II

SEM

☐ Qualitative
☐ Quantitative

TEM WIPE

☐ Quantitative
☐ Qualitative

XRD

☐ Asbestos
☐ Silica
☐ OTHER☐ COMMENTS

Client Sample # (s)

Relinquished:

Received:

Received:

Total Samples:

Date:

Date:

Date:

Time:

Time:

Time:

SAMPLE DATE SAMPLE NAME

12-04-02

A-11

Hall near Admin Office

"

B-12

NBC Room

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FOIA Requested Record #J-15-0085 (SC)

Released by National Guard Bureau

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Disclaimer: PLM has been known to miss asbestos in a small percentage of samples which contain asbestos. This negative PLM result cannot be guaranteed. EMSL suggests that samples reported as <1% or none detected be tested with either SEM or TEM. The above test report is based only on the results of the PLM test. This report may not be reproduced, except in full, without written approval by EMSL. The above test report must not be used by the client to request or provide any other service or product. Laboratory is not responsible for the accuracy of results when requested to provide any other service or product. Analyses performed by EMSL, Baltimore (MD) and Bulk (MD) (L7000053, VA Lic 43333-000235).

Non-Responsive

Comment: For all obviously heterogeneous samples easily separated into sub-samples, and for layered samples, each component is analyzed separately. Also, "# of Layers" refers to number of separable sub-samples.

Sample	Location	Appearance	Treatment	% Chrysotile	% Type	% Non-Fibrous	% Non-Asbestos
B-11 (TILE)	hall near admin. office	Green Non-Fibrous Homogeneous	Crushed/Dissolved	5% Chrysotile	85% Ca Carbonate	10% Matrix	
B-11 (MASTIC)	hall near admin. office	Black Non-Fibrous Homogeneous	Crushed/Dissolved	12% Chrysotile	88% Other		
B-12 (TILE)	NBC m.	Red Non-Fibrous Homogeneous	Crushed/Dissolved	8% Chrysotile	80% Ca Carbonate	12% Matrix	
B-12 (MASTIC)	NBC m.	Black Non-Fibrous Homogeneous	Crushed/Dissolved	15% Chrysotile	85% Other		

Project: Belton

POLARIZED LIGHT MICROSCOPY (PLM)

Performed by EPA 600/R-93/116 Method*

Ref Number: MD026264

Tuesday, December 10, 2002

EMSL

Phone: (301) 937-5700 Fax: (301) 937-5701

Baltimore, MD 20705

10768 Baltimore Avenue

EMSL Analytical, Inc.

Attn: Non-Responsive
Enviro-Management, Inc.
3100 Pennsylvania Avenue, S.W.
Washington, DC 20020

EMSL ANALYTICAL

CHAIN OF CUSTODY

11/02/02/13

LEAD

Date: 12-09-02 EMSL Representative

Non-Responsive

Project Name/No.: Belton Army P.O.#:

Company Name: Enviro-management, Inc

EMSL-Bill to: SAME

Street: 3100 PA. AVE, S.E.

Street:

Box #:

Box #:

City/State: WASH. DC

Zip: 20000

City/State:

Zip:

Phone Results to: (Name)

Telephone

Fax Results to: (Name)

Fax #:

Non-Responsive

MATRIX	METHOD	INSTRUMENT	mdls	TAT
Lead Chips*	SW846-7420 or AOAC 8.008 (974.02)	Flame Atomic Absorption	0.01% ++	
Lead Wastewater	SW846-7420	Flame Atomic Absorption	0.4 mg/l water/ 50 mg/kg (ppm) soil	
Lead Soil +	or SW846-8010	ICP	0.1 mg/l water/ 10 mg/kg (ppm) soil	
Lead in Air***	NIOSH 7082	Flame Atomic Absorption	5 ug/filter	
	or NIOSH 7300	ICP	3.0 ug/filter	
Lead in Wipe* (ASTM)	SW846-7420	Flame Atomic Absorption	10 ug/wipe	
Non ASTM media	or SW846-8010	ICP	3.0 ug/wipe	
TCLP Lead**	SW846-1311/7420	Flame Atomic Absorption	0.4 mg/l (ppm)	
	or SW846-8010	ICP	0.1 mg/l (ppm)	
Lead in Air****	NIOSH 7105	Graphite Furnace Atomic Absorption	0.03 ug/filter	
Lead Wastewater	SW846-7421	Graphite Furnace Atomic Absorption	0.003 mg/l (ppm) water	
Lead Soil +			0.3 mg/kg (ppm) soil	
Lead in Drinking Water (check state Certification Requirements)	EPA 239.2	Graphite Furnace Atomic Absorption	0.003 mg/l (ppm)	
Total Dust	NIOSH 0500-0800	Gravimetric Reduction	0.0001g	

TAT (Turnaround) - Same day, 24 hr - 1 Day, 3 Days, 4 Days, 5 Days, 6-10 Days

* **, ***, ****, +, ++ Please Refer to Price Quote

+ If no box is checked, non-ASTM is assumed

SAMPLE #	LOCATION	Air volume, L Area, in ²	LAB #
B-01	Paneling Backstop	12" x 12"	
B-02	Floor, Front of paneling	"	
B-03	Two items	"	
B-04	Rear wall next to entry	"	
B-05	BLANK	"	
B-06	N.E. corner, Drill floor	"	
B-07	Drill floor, Center	"	
B-08	Drill floor, S.W. corner	"	
B-09	Kitchenette	"	
B-10	BLANK	"	

Relinquished By: (Person)

Received at EMSL By:

Received at EMSL By:

Date: 12-09-02

Date: 12/10/02 2:25 PM

Date:

emslcocpb

Non-Responsive

BEST AVAILABLE COPY

EMSL Analytical, Inc.

10768 Baltimore Avenue, Beltsville, MD 20705
 Phone: 301-937-5700 Fax: 301-937-5701

EMSL

Enviro-Management, Inc.
 3100 Pennsylvania Avenue, S.W.
 Washington, DC 20020
 Phone: 202-582-2461

EMSL Project #: MD026273
 Beltsville Batch #: 121102

Client Project ID: Belton Armory

Date Received: 12/10/02
 Date Analyzed: 12/11/02
 Report Date: 12/16/02
 Page: 1/1

Summary of Analytical Results - Lead in Wipes

Client Sample ID	Lab Sample ID	Sample Description	Area Sampled Square Feet	RL ug/Sq. Ft.	Results	
					ug/wipe	ug/Sq.ft.
B-01	210406	Paneling Covering Backstop	1.00	12	107.5	107.5
B-02	210407	Floor Front of Paneling	1.00	12	763	763.0
B-03	210408	Two Items	1.00	12	83	83.0
B-04	210409	Rear Wall Next to Entry	1.00	12	<12	<12
B-05	210410	Blank	0.00	<12	<12	<12 ug
B-06	210411	NE Corner Drill Floor	1.00	12	<12	<12
B-07	210412	Drill Floor Center	1.00	12	<12	<12
B-08	210413	Drill Floor SW Corner	1.00	12	<12	<12
B-09	210414	Kitchenette	1.00	12	<12	<12
B-10	210415	Blank	0.00	<12	<12	<12 ug

****Non-ASTM wipes used, results NOT VALID under AHA accreditation**

*RL - Reporting Limit for EMSL Beltsville = 12 ug/wipe

AIHA Accreditation #102892

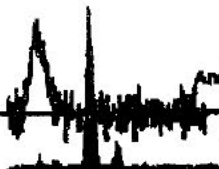
Non-Responsive

This report shall not be reproduced unless in full, without written approval from EMSL

EMSL is not responsible for concentrations that are based on areas provided by the client.

Analysis performed by EMSL Beltsville via EPA method 8260-8 - 3060A-7420 modified according to HUD guidelines.

Instrument ID: Pectin Elmer 3112



**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, Battery B 3/178th FA, 725 South Parsonage Ave, Bennettsville,
South Carolina 29512.

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

1. References.

- a. Report submitted 14 March 2003, Industrial Hygiene Survey, OSHA 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** f OSHA 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. 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.

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

Non-Responsive

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** National Guard Road, Columbia, SC 29201-4766

 **OSHEA II**
Industrial Hygiene Consulting

South Carolina Army National Guard
Bennettville Armory
Bennettville, 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 Battery 3/178th Field Artillery, Bennettsville, South Carolina
29512

SUBJECT: Baseline Industrial Hygiene Health Hazard Information Module (HHIM)
Survey of B Battery 3/178th Field Artillery, 725 South Parsonage, Bennettsville, South
Carolina 29512
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 Bennettsville Armory
Bennettsville, 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 Battery 3/178th 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.
Brueel & Kajer sound Analyzer 10/10/02	2236	1942775 CAL
Brueel & 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

4. FINDINGS:

a. Armory Site Description: The armory is occupied by B Battery 3/178th Field Artillery. There are three full time individuals who perform administrative duties. The armory was constructed in 1977. 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 fair condition. Administrative areas of the armory have carpeted floors. Tile was located in hallways and the class rooms. There was evidence of some water damage on ceiling tile and in hallways. In the office occupied by **Non-Responsive**, ceiling tile was bowed as a result of water damage. 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 furnace room which had pipes wrapped in a fiberglass wrap. There was no friability of 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. During the survey one of the flammable storage cabinets contained items that were not labeled on the front of the door. Enclosure No. 1 contains pictures of the facility's interior and exterior. Enclosure No. 3 contains the list of product discovered during the survey. The POL shed had a large container of oil leaking onto the floor of the shed. The shed's floor is concrete. The NCOIC discovered this during the survey and stated that he would take care of the problem.

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.

Illumination levels**Location Reading in Foot candles At, Above or Below Standard**

Administrative Areas	54.0—54.4	At standard
Hallway areas	28.0—29.1	Below
Kitchen	50.6—52.1	At standard
Food Prep Area	56.5—57.1	At standard
Operations	30.5—31.1	Below
NBC Room	34.1—34.4	Below
Drill Hall	10.7—15.0	Below
Classroom	23.7—24.7	Below

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

f. **Administrative Areas:** Personnel perform administrative duties that consist of reading, handling and generating paper work. Employees use computers and answer phones also. Ceiling tile were missing and there were exposed holes. There was also paint peeling off the wall. Paint chips were collected for analysis. The results will be divulged later in this report.

g. Wipe sampling was performed of the drill hall and the kitchen area near the drill hall floor. The results of all sampling will be disclosed later in this report.

h. **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.

Oshea II Industrial Hygiene Consulting
IH Survey 11 Feb 03 Bennettsville Armory
Bennettsville, 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 fence was used to fabricate cages from ceiling to floor to store equipment. Samples were collected using the wipe method and the results are disclosed later in this report.

j. 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.

K. 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

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.

m. All sample results taken in the armory are listed in the chart below .

<u>Sample No.S</u>	<u>Location taken</u>	<u>Results</u>
0210064	Drill Hall (DHS)	BRL
0210065	Drill Hall(DHS)	BRL
0210066	IFR Bullet Stop	265 mg/m3
0210067	IFR Floor Bullet Stop	21.0 mg/m3
0210068	IFR Bullet Backstop	636 mg/m3
0210069	Kitchen (DHS)	BLR
0210070	Arms Vault	BLR
0210073	Arms Vault	BLR

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

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 Indoor firing range revealed the presence of lead. (Mg/m³ is milligrams per cubic meter).

Sample No. 0211072 for paint chips taken from the boiler room were Below Reading Limits (BRL).

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.
- b. 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:

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

Non-Responsive

CF: State Safety and Occupational Health Office
ATTN: **Non-Responsive**
1225 Bluff Road
Columbia, South Carolina 29170

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

OSHEA II INDUSTRIAL HYGIENE CONSULTING
SURVEY OF Bennettsville Armory, Bennettsville, 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



BEST AVAILABLE COPY

Armory Exterior

motor pool



Administrative areas

H2O damaged ceiling tile

Page 176 of 964



BEST AVAILABLE COPY

H2O damaged ceiling tile



Administrative areas



Furnance Rm



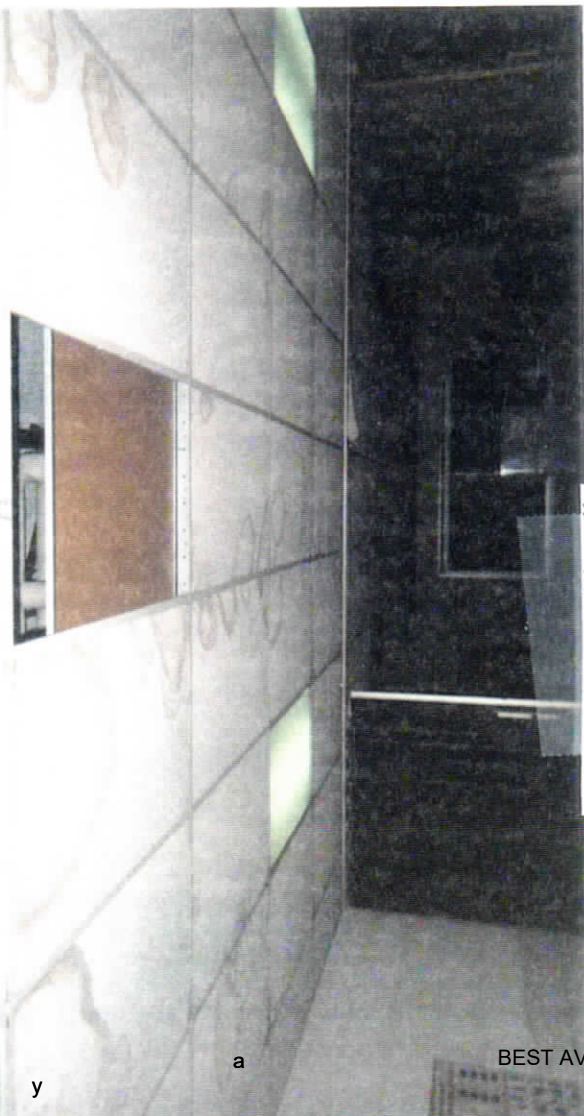
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IFR

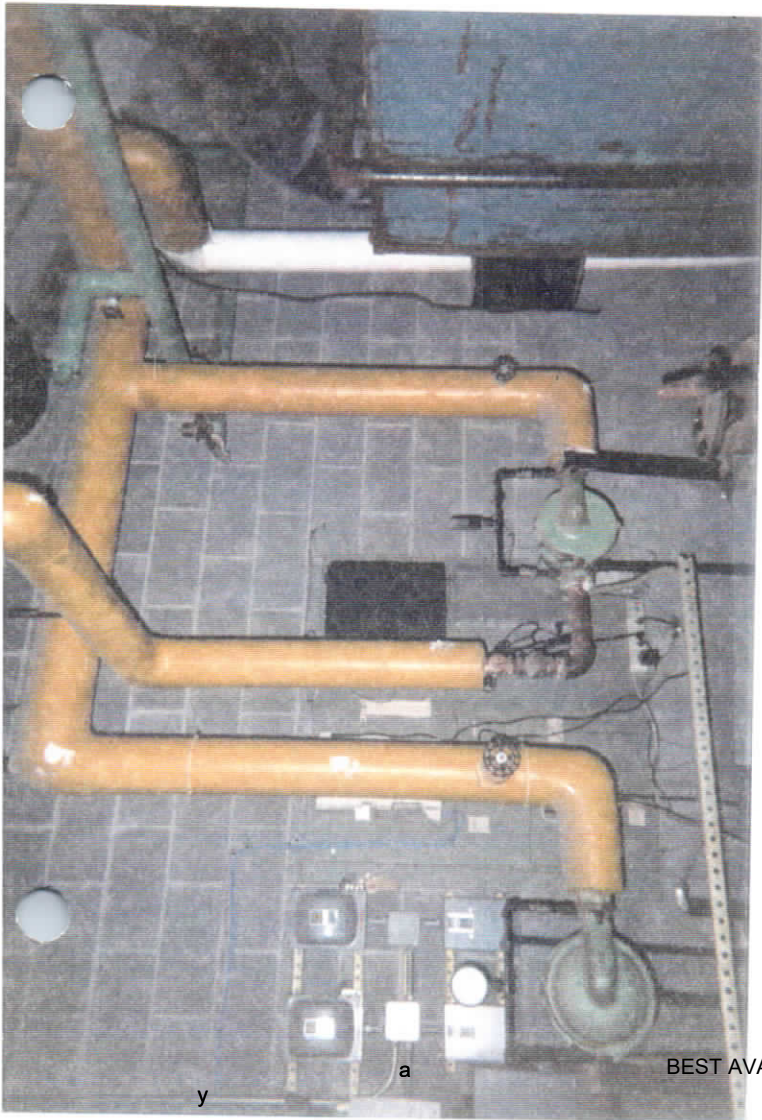


H2O damaged ceiling tile

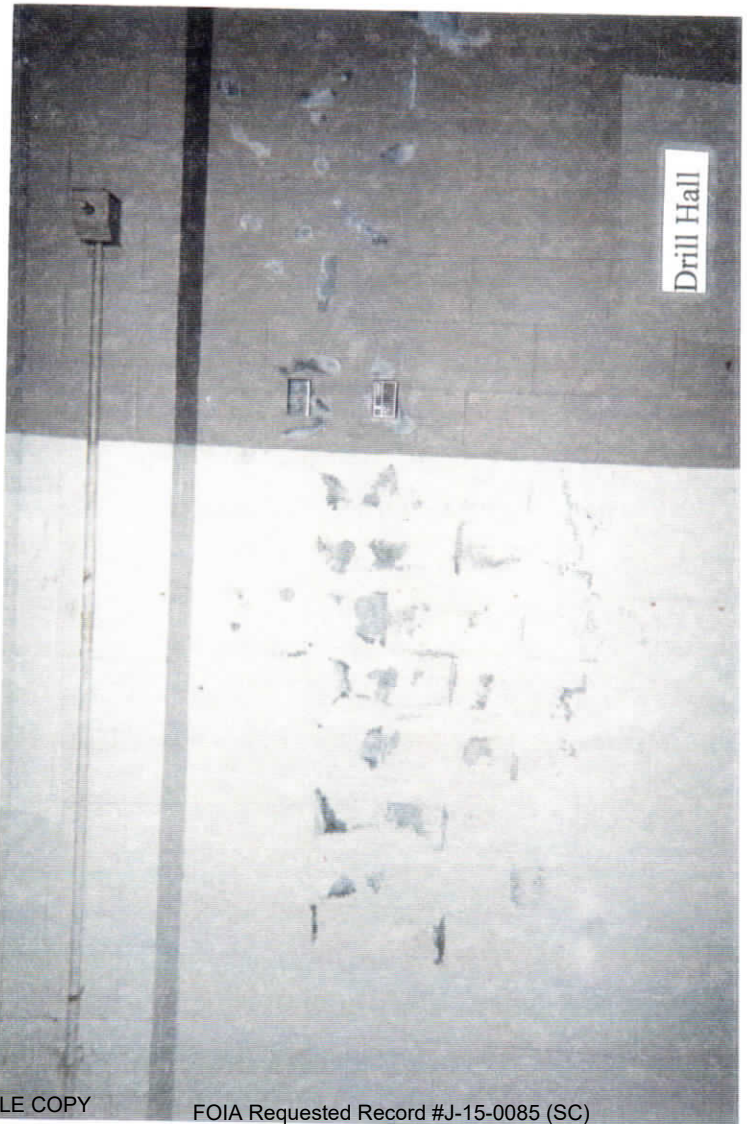


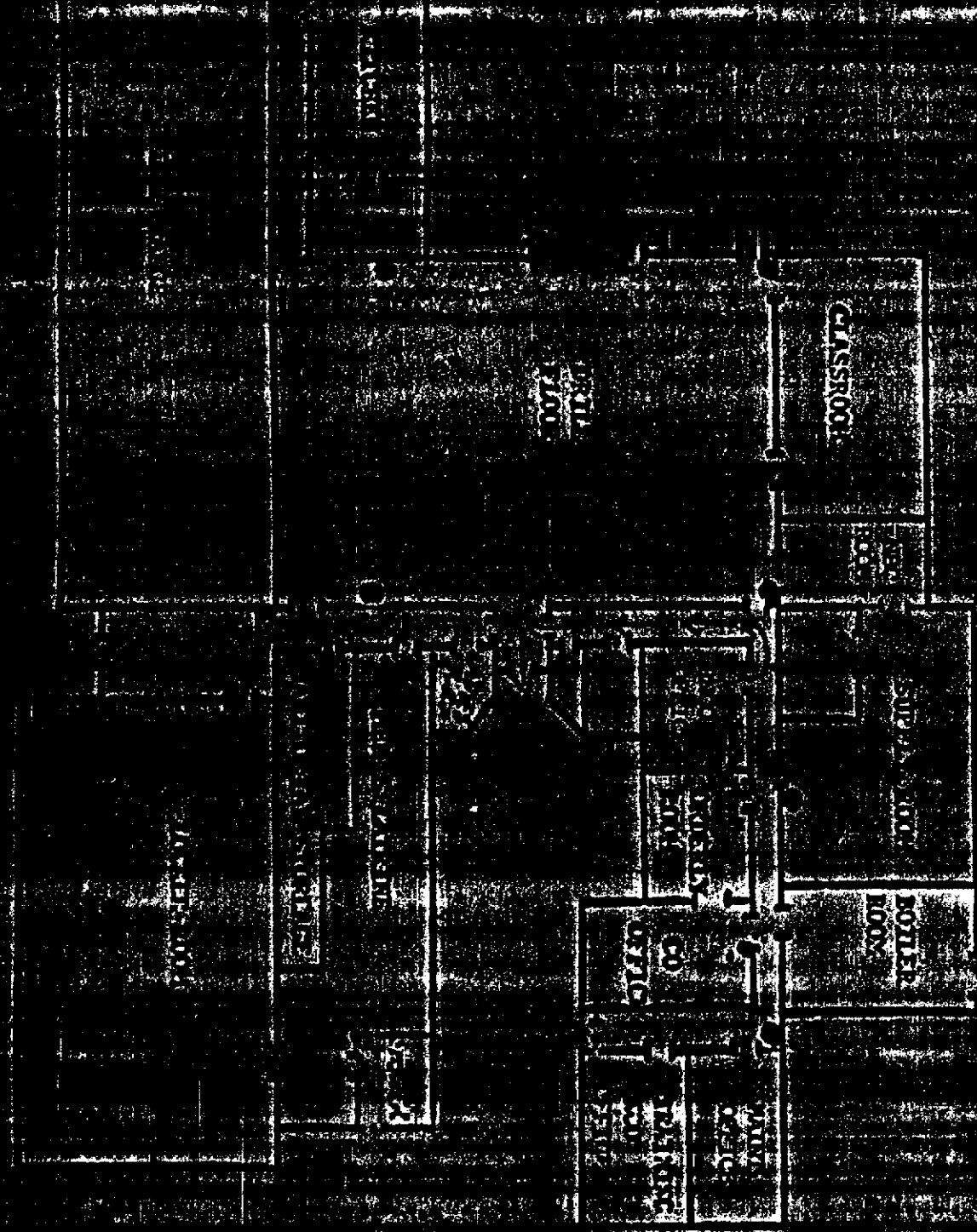


Flam Stg cabinet



Mechanical Rm





Hazardous Material inventory

Scouring powder NSN 7930-01-294-115

Floor wax

Floor Stripper

Hand cleaner

IH inventory of Flammable storage cabinet

Enamel spray paint

Premethan anthropod repellant NSN 6840-01-278-1336

CIP lubricant cleaner

corrosion preventive compound

Primer

Furniture polish

GAA automotive grease type II

Omega metal/wood enamel

Coating, Aliphatic polyurethane NSN 8010-01-229-7546

Alfa cleaner

Dimethylsilicon lubricant compound NSN 9150-00-823-7860

N Plastic Glass anti static cleaner

Chemical protective Type I NSN 8415-01-033-3518

Insect repellant

Alfa cleaner

Yard fogger

Zenthane

Epoxy coating

d-phenothrin aerosol insecticide NSN 6840-01-067-6674

Loctite sealant

plastic patches

propane

Enclosure No. 3

TITLE

HAZARDOUS MATERIALS INVENTORY LIST

Purpose

Document the type, quantity, and location of hazardous materials at the facility

Frequency

Monthly

Materials

Checklist, Inventories, MSDSs

References

Module 3, HAZMAT Employee Training
OSHA Checklists
TEAM Guide, Section 3, Hazardous Materials Management

Instructions

The storage areas and containers should be inventoried monthly. The inspection log should be conspicuously posted in the storage area to verify that inspections have been performed.

Facility Location			Page Number <u>1</u> of <u>3</u>
Storage Area			
Inspector Signature		Date	

Item	Trade Name/ Nomenclature	National Stock Number	Container Size/Type	Quantity on Hand	Location
1	Lubricating Oil Gear	9150-01-035-5390	QT	25	
2	Grease, Automotive & Artillery	915001197763	1402 Tubes	25	
3	Lube Oil Gear	9150-01-035-5393	5GL	2	
4	Lubricating Oil Gear	9150010355393	QT	20	
5	Hydraulic Fluid Automotive Transmission Dexpan III	9150-01-353-4799	QT	8	
6	Brake Fluid Silicone	9150-01-102-9455	1GL	8	
7	Lube Oil Engine	9150-01-152-4118	5GL		
8	Lubricating Oil Engine	9150-01-401-1423	QT	48	
9					
10	Lube Oil Engine	9150-01-180-2268	5GL	1	

Comments:

Encl. No. 3

TITLE**HAZARDOUS MATERIALS INVENTORY LIST****Purpose**

Document the type, quantity, and location of hazardous materials at the facility

Frequency

Monthly

Materials

Checklist, Inventories, MSDSs

ReferencesModule 3, HAZMAT Employee Training
OSHA Checklists
TEAM Guide, Section 3, Hazardous Materials Management**Instructions**

The storage areas and containers should be inventoried monthly. The inspection log should be conspicuously posted in the storage area to verify that inspections have been performed.

Facility Location		Page Number <u>2</u> of <u>3</u>	
Storage Area			
Inspector Signature		Date	

Item	Trade Name/ Nomenclature	National Stock Number	Container Size/Type	Quantity on Hand	Location
1	Cleaner Lubricant + Preservative	91500105366 988	1GL	26	
2	4-1 Austin's Bleach		1GL	1	
3	Super Clean		1GL	3	
4	Deionized Water	ASTM- 193-91 1131	101	2	
5	Ant. Freeze, Ethylene Glycol	6050-00-181-7433	5GL	2	
6	Grease Auto/Artillery oil	9150-01-197- 7692	5GL	2	
7	Silicone Compound	9150-00-520- 7518	1Tu	1	
8	Penetrating Oil	9150-00-520- 7518	15oz	48	
9	Grease, Molybdenum Disulfide	9150-00-754- 2595	1-CN	1	
10	Coating, Aliphatic Polyurethane	3010012241540	1-CN	13	

Comments:

Encl. Vol 3

TITLE**HAZARDOUS MATERIALS INVENTORY LIST****Purpose**

Document the type, quantity, and location of hazardous materials at the facility

Frequency

Monthly

Materials

Checklist, Inventories, MSDSs

References

Module 3, HAZMAT Employee Training
 OSHA Checklists
 TEAM Guide, Section 3, Hazardous Materials Management

Instructions

The storage areas and containers should be inventoried monthly. The inspection log should be conspicuously posted in the storage area to verify that inspections have been performed.

Facility Location		Page Number <u>3</u> of <u>3</u>	
Storage Area			
Inspector Signature		Date	

Item	Trade Name/ Nomenclature	National Stock Number	Container Size/Type	Quantity on Hand	Location
1	Acetic Acid	201501-1	Q-1	11	
2	Acetic Acid	201501-1	Q-1	11	
3	Acetic Acid	201501-1	Q-1	11	
4	Acetic Acid	201501-1	Q-1	11	
5					
6					
7					
8					
9					
10					

Comments:

Encl. No. 3

Full time Personnel

Non-Responsive



Enclosure No. 4

Front page

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

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

Hazard Description
Stockard Solvent
Petroleum Distillates
Cyclohexanes
Noise, Continuous

1

Non-Responsive										MI	Sex	Category
											M	Q1
											M	Q2
											M	Q3
												Q4

Reinhaber to comment on problems, recommendations, and needed control items.

Operation described is Weapons Are Cleaned After being fired.

<input type="checkbox"/> This operation was explained to the evaluators, but was not actually observed.	
There is a noise data sheet attached to this form <input type="checkbox"/>	
There is a ventilation data sheet attached to this form <input type="checkbox"/>	(Comments continued on

Front page

flamminders: ergonomics · dermatitis · physical agents · flammable storage
 EYE (permanent) _____ · EYE (portable) _____ SHW · GMV · LEV

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

[illegible][illegible]

Comments	Remember to comment on problems, recommendations, and needed control items
Operation described is Supplies	Military Vehicles are driven to run errands and transport

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HHIMS Industrial Hygiene Survey Form

Front page

ARLOC

45000

Location

Mr. AD0

Mr. AD0

Mr. AD0

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Installation

SCARNG

Survey Date

03/01/11

Ms

Rank

Non-Responsive

Non-Responsive

Non-Responsive

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Building

Evaluation

Macom

Submacom

RAC

No. CIVs

Frequency (hr/day)

6-7

No. MIL

Contractors

No. LOCs

Unit code

Controls Required (25 characters max)

Unit code

Controls Required (25 characters max)

Unit code

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Unit code

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Unit code

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evaluator's recommendation
or agreement

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

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

CAS code	P	O	N	O	I	S	E	E	O
PONOISECO	P	O	N	O	I	S	E	E	O
POFOOTIAZ	P	O	F	O	O	T	I	A	Z
POFLYPROJ									
POEYENHAZ									
POFLAMHAZ									
POLIFTING									
POSHARPOB									
POHOTOBJE									
POELSHOCK									
COLUMBEOL									

PAC

EPC

Hazard Description

Noise Continuous
Mental & Physical Stress

Non-Responsive

Comments

Remember to comment on problems, recommendations, and needed control items

Operation described is

Administrative duties are phone answering, computer use, reading, writing and generating paper work.

☐ This operation was explained to the evaluator, but was not actually observed.

There is a noise data sheet attached to this form ☐

There is a ventilation data sheet attached to this form ☐

(Comments continued on next page)

Front page

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

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

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

TAG-AV-OH

16 July 2012

MEMORANDUM FOR: South Carolina Army National Guard: ATTN: **Non-Responsive**
Non-Responsive Commander SCARNG ELMT JT FCE HQ, Bluff Road Armory, Columbia, SC
29201

SUBJECT: Baseline Industrial Hygiene Survey of the Bluff Road Armory, 1225 Bluff
Road, Columbia, SC 29201. 5 July 2012.

REFERENCES

- a. Title 29 Code of Federal Regulations (CFR) part 1910,
Occupational Safety and Health Administration (OSHA).
- b. Army Regulation 11-34, February 1990, The Army Respiratory
Protection Program
- c. Army Regulation 385-10, The Army Safety Program
- d. Technical Bulletin (TB MED) 503, 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

GENERAL:

The purpose of this survey was to conduct a baseline Industrial Hygiene Survey of the Bluff Road Armory. The survey consisted of a walk through inspection of all operations and administrative areas in the Bluff Road Armory. Interviews were conducted with various personnel throughout the facility.

BACKGROUND:

As a responsibility of the South Carolina National Guard Industrial Hygiene Technician, an industrial hygiene survey was conducted at the Bluff Road Armory on 5 July 2012 by **Non-Responsive** SCNG Industrial Hygiene Technician.

FACILITY DESCRIPTION:

The Bluff Road Armory is located at 1255 Bluff Road, Columbia, SC 29201, is 64,097 square feet and contains over 40 designated offices. Within the 40 office areas are separate individual personnel office areas. The armory has a drill hall floor, kitchen area and a total of 7 male and female restrooms. The Bluff Road Armory was constructed in the early 1970's. There are over 125 personnel working in the Bluff road armory full time.

FINDINGS:

Overall, the facility is well maintained, building and janitorial wise with the exception of lighting issues. There were no significant complaints. Flooring and ceiling material was intact with no visible signs of friability in most areas due to renovations, but there are signs of age and deterioration in some areas of the armory.

The units supply personnel is responsible for monthly fire extinguisher checks. AED's are located throughout the armory. AED pads and batteries are replaced routinely.

Lead sampling was not performed in the Bluff Road Armory. There were no hazardous materials to inventory. There were no conditions deeming sampling necessary. The armory does have an Indoor Firing Range, which is no longer in use and has been unoccupied and locked since testing/cleaning in 2008. Post cleaning test indicated that IFR still not under expectable levels of 200ug/ft² throughout the range. Results attached.

The armory has a kitchen area that at times is used by personnel. Kitchen contains a stove/oven, industrial size refrigerator and ice machine. There is a receiving hood located in the kitchen area, but due to remodeling, it is not located over the stove (see attached picture). Results are indicated below.

Two exhaust vents that measured 20" x 20" each.

Vent	Average	Minimum	Max
Vent #1	16ft/min (velocity)	5ft/min (velocity)	38ft/min (velocity)
	45.66cfm (flow)	13.59cfm (flow)	101.93cfm (flow)

Vent #2	19ft/min (velocity)	5ft/min (velocity)	33ft/min (velocity)
	53.06cfm (flow)	13.58cfm (flow)	91.01cfm (flow)

Illumination survey was conducted in all areas of the Bluff Road Armory and drill hall floor. A number of illumination levels were not at the IES lighting standard for foot candles for each area. See chart below.

Location	Illumination (AVG)	IES Standard (FTC)	Light fixture
IG office #1	34	50 – 100	All working
IG office #2	40.3	50 – 100	4 bulbs out
IG office #3	43	50 – 100	4 bulbs out
IG office #4	45.2	50 – 100	4 bulbs out
IG office #5	31	50 – 100	4 bulbs out
IG office #6	44.7	50 – 100	All working
Counter Drug #7	35.7	50 – 100	6 bulbs out
Counter Drug #8	61.9	50 – 100	28 bulbs out + sun
Counter Drug #9	71.9	50 – 100	All working
Counter Drug #10	87.1	50 – 100	All working
Counter Drug #11	60.6	50 – 100	1 bulb out
Counter Drug #12	98.1	50 – 100	3 bulbs out
Counter Drug #13	138.3	50 – 100	All working + sun
Counter Drug #14	90.5	50 – 100	All working
PBO # 15	47.4	50 – 100	4 bulbs out
Weight room # 16	21.9	50 – 100	All working
R & R supply # 17	30.9	50 – 100	All working
J1 admin # 18	59.8	50 – 100	1 bulb out
R & R printing # 19	27.1	50 – 100	2 bulbs out
R & R admin # 20	166.9	50 – 100	All working
R & R admin # 21	87.7	50 – 100	All working
STARC supply # 22	48.1	50 – 100	30 bulbs out
STARC admin # 23	52.9	50 – 100	4 bulbs out
STARC admin # 24	45.6	50 – 100	4 bulbs out
STARC admin # 25	24.7	50 – 100	16 bulbs out
STARC admin # 26	39.8	50 – 100	10 bulbs out
STARC admin # 27	50.8	50 – 100	4 bulbs out
Family Program # 28	60.8	50 – 100	4 bulbs out
Family Program # 29	40.8	50 – 100	All working
Family Program # 30	76.1	50 – 100	2 bulbs out
Drill Hall Floor # 31	145.9	50 – 100	2 bulbs out + sun
OH/Safety # 32	56.1	50 – 100	All working
OH/Safety # 33	78.4	50 – 100	All working
OH/Safety # 34	127.7	50 – 100	All working
OH/Safety # 35	31.7	50 – 100	4 bulbs out

OH/Safety # 36	103.8	50 – 100	6 bulbs out
Aviation # 37	45.7	50 – 100	All working + sun
Aviation # 38	58.2	50 – 100	5 bulbs out
Classroom # 39	90.8	50 – 100	All working
Classroom # 40	108.1	50 – 100	3 bulbs out
Classroom # 41	40.6	50 – 100	12 bulbs out
Classroom # 42	83.6	50 – 100	3 bulbs out
Education # 43	147.0	50 – 100	All working
Education # 44	81.5	50 – 100	5 bulbs out
Family Program # 45	93.3	50 – 100	2 bulbs out
Restroom # 46	44.6	20	1 bulb out
Family Program # 47	98.1	50 – 100	3 bulbs out
Survivor Outreach # 48	80.8	50 – 100	3 bulbs out
Survivor Outreach # 49	95.0	50 – 100	5 bulbs out
Employment Services # 50	109.4	50 – 100	9 bulbs out
ESGR # 51	88.8	50 – 100	8 bulbs out
Reception Desk # 52	68.9	50 – 100	All working
SGM Witt # 53	75.3	50 – 100	2 bulbs out
ID card office # 54	109.1	50 – 100	All working
J1 offices # 55	79.0	50 – 100	All working
SARC # 56	94.4	50 – 100	3 bulbs out
WTU office # 57	114.2	50 – 100	3 bulbs out
R & R office # 58	90.0	50 – 100	All working
Supply Management # 59	108.1	50 – 100	4 bulbs out + sun
Visual Info # 60	122.9	50 – 100	All working + sun
Logistics #61	116.2	50 – 100	All working + sun
Food service # 62	88.1	50 – 100	3 bulbs out + sun
Food service # 63	64.1	50 – 100	2 bulbs out
Food service # 64	61.1	50 – 100	6 bulbs out + sun
Restroom # 65	92.1	20	All working
Restroom # 66	39.6	20	All working
Equipment Specialist # 67	73.1	50 – 100	All working
Equipment Specialist # 68	118.5	50 – 100	1 bulb out
Equipment Specialist # 69	105.3	50 – 100	All working
Surface Maintenance # 70	135.0	50 – 100	All working + sun
Surface Maintenance # 71	99.7	50 – 100	All working
Surface Maintenance # 72	110.5	50 – 100	All working + sun
Program Analyst # 73	129.8	50 – 100	All working + sun
Surface Maintenance # 74	99.6	50 – 100	All working + sun
Admin Assistant # 75	70.4	50 – 100	1 bulb out
Surface Maintenance # 76	82.7	50 – 100	1 bulb out + sun
Restroom # 77	57.6	20	All working
Restroom # 78	63.5	20	All working
Restroom # 79	80.5	20	All working

INSTRUMENTATION:

The following survey instrumentation was utilized to obtain illumination measurements and exhaust readings. All equipment was used according to manufacturer/manual recommendations.

EQUIPMENT	MODEL #	SERIAL #
EXTECH Heavy Duty Light Meter	407026	Q558791
TSI VelociCalc Air Velocity Meter (calibrated – February 2012)	966	P12080045

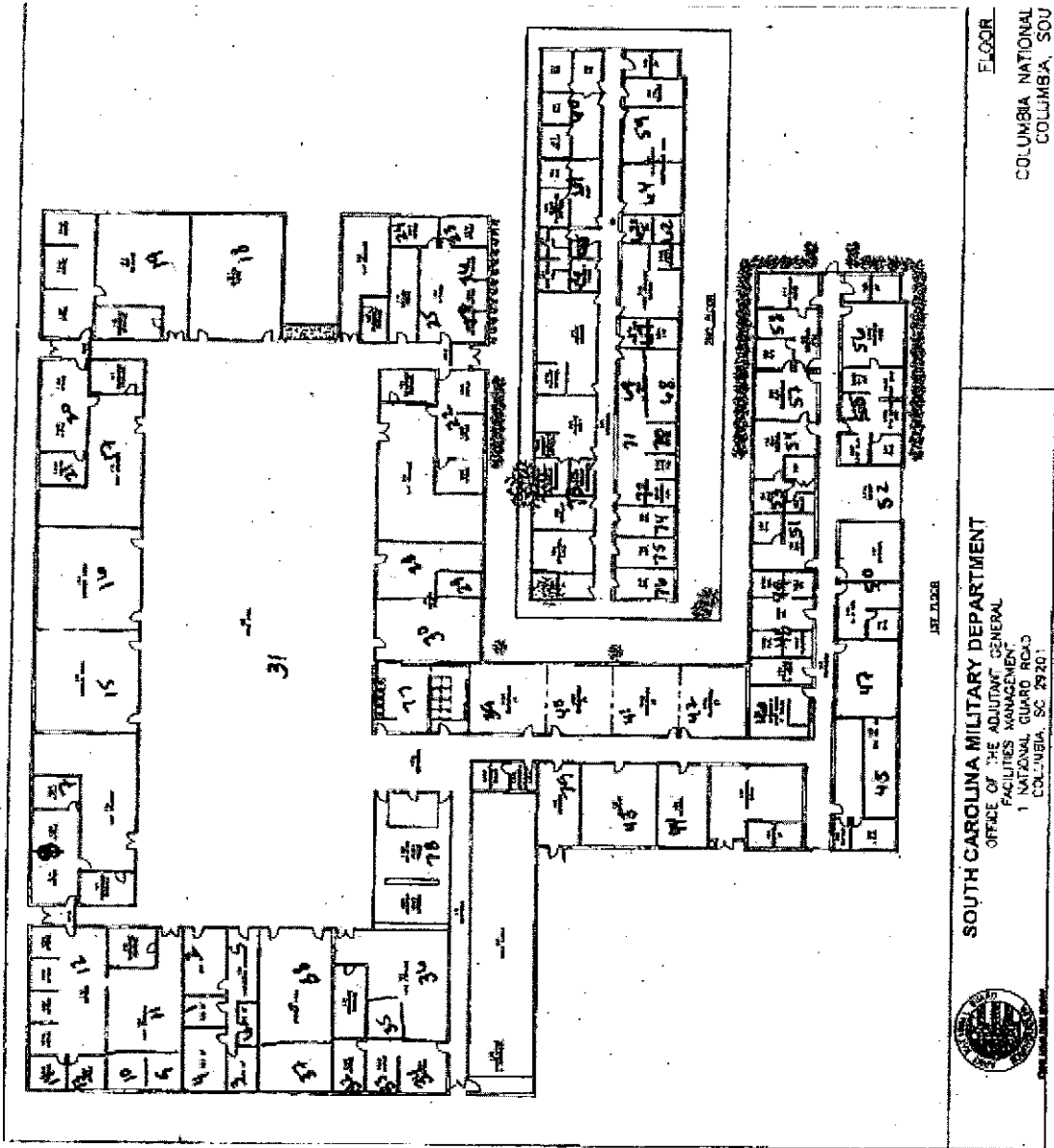
RECOMMENDATIONS:

Provide supplemental lighting in those areas where light measurements were below the recommended standard. Replace burned out light fixtures and bulbs where needed.

Recommend that when using computers for extended periods of time, personnel should take occasional breaks and change position to minimize the possibility of eye, hand or wrist injury.

Recommend that if kitchen continue to be used, placement of stove directly under exhaust advised.

FACILITY LAYOUT:



SOUTH CAROLINA MILITARY DEPARTMENT
 OFFICE OF THE ADJUTANT GENERAL
 FACILITIES MANAGEMENT
 1 NATIONAL GUARD ROAD
 COLUMBIA, SC 29201

FLOOR
 COLUMBIA NATIONAL
 COLUMBIA, SOU

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PRE CLEANING LEAD SAMPLING RESULTS (2008):**Analytical Environmental Services, Inc.**

Date: 8/8/2008

**LEAD ON WIPES (N9100/7082)
N7082****CLIENT:** National Guard Bureau Region-South IH**Lab Order:** 0808075**Project:** Bluff Road Armory**Date Received:** 8/1/2008 9:35 AM**Delivery Order:****Matrix:** Wipe**PO No:**

Laboratory ID	Client Sample ID	Results	Units	Report Limit	DF	Date Collected	Date Analyzed	Analyst
0808075-001A	JL 9319-0011	1270	ug, Total	19	2.44	7/31/2008	8/6/2008	JY
0808075-002A	JL 9319-0012	185	ug, Total	20	1	7/31/2008	8/6/2008	JY
0808075-003A	JL 9319-0013	4560	ug, Total	111	5.54	7/31/2008	8/6/2008	JY
0808075-004A	JL 9319-0014	83800	ug, Total	3100	155	7/31/2008	8/6/2008	JY
0808075-005A	JL 9319-0015	107000	ug, Total	3720	186	7/31/2008	8/6/2008	JY
0808075-006A	JL 9319-0016	28800	ug, Total	712	35.61	7/31/2008	8/6/2008	JY
0808075-007A	JL 9319-0017	2250	ug, Total	77	3.84	7/31/2008	8/6/2008	JY
0808075-008A	JL 9319-0018	10900	ug, Total	402	20.1	7/31/2008	8/6/2008	JY
0808075-009A	JL 9319-0019	3310	ug, Total	97	4.84	7/31/2008	8/6/2008	JY
0808075-010A	JL 9319-0020	1340	ug, Total	52	2.6	7/31/2008	8/6/2008	JY
0808075-011A	JL 9319-0021	BRL	ug, Total	20	1	7/31/2008	8/6/2008	JY
0808075-012A	JL 9319-0022	50	ug, Total	20	1	7/31/2008	8/6/2008	JY
0808075-013A	JL 9319-0023	310	ug, Total	20	1	7/31/2008	8/6/2008	JY
0808075-014A	JL 9319-0024	1150	ug, Total	46	2.28	7/31/2008	8/6/2008	JY
0808075-015A	JL 9319-0025	33	ug, Total	20	1	7/31/2008	8/6/2008	JY
0808075-016A	JL 9319-0026	221	ug, Total	20	1	7/31/2008	8/6/2008	JY
0808075-017A	JL 9319-0027	1060	ug, Total	43	2.13	7/31/2008	8/6/2008	JY
0808075-018A	JL 9319-0028	310	ug, Total	20	1	7/31/2008	8/6/2008	JY
0808075-019A	JL 9319-0029	61	ug, Total	20	1	7/31/2008	8/6/2008	JY
0808075-020A	JL 9319-0030	BRL	ug, Total	20	1	7/31/2008	8/6/2008	JY
0808075-021A	JL 9319-0031	BRL	ug, Total	20	1	7/31/2008	8/7/2008	JY
0808075-022A	JL 9319-0032	BRL	ug, Total	20	1	7/31/2008	8/7/2008	JY
0808075-023A	JL 9319-0033	175	ug, Total	20	1	7/31/2008	8/7/2008	JY
0808075-024A	JL 9319-0034	909	ug, Total	20	1	7/31/2008	8/7/2008	JY
0808075-025A	JL 9319-0035	1340	ug, Total	51	2.56	7/31/2008	8/7/2008	JY
0808075-026A	JL 9319-0036	437	ug, Total	20	1	7/31/2008	8/7/2008	JY
0808075-027A	JL 9319-0037	3130	ug, Total	86	4.3	7/31/2008	8/7/2008	JY
0808075-028A	JL 9319-0038	323	ug, Total	20	1	7/31/2008	8/7/2008	JY
0808075-029A	JL 9319-0010	BRL	ug, Total	20	1	7/31/2008	8/7/2008	JY

Qualifiers: BRL - Not Detected at the Reporting Limit

DF - Dilution Factor

Results are blank corrected where applicable

Page 1 of 1

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POST CLEANING RESULTS (2008):

MACTEC

engineering and constructing a better tomorrow

September 18, 2008

Non-Responsive

1 National Guard Road
Columbia, South Carolina 29201

Subject: Report of Limited Surface Sampling Survey
Bluff Road Armory Building
Columbia, South Carolina
MACTEC Project 6671-07-0575.02

Dear **Non-Responsive**

MACTEC Engineering and Consulting, Inc. (MACTEC) is pleased to submit this report of our Limited Surface Sampling Survey for the presence of lead for the above referenced building. Included as part of this report are survey procedures, a summary of visual observations, and our sampling results. The Limited Surface Sampling survey was conducted in accordance with the scope of work and terms and conditions outlined in MACTEC Proposal 08COLM0095, dated August 6, 2008.

PROJECT INFORMATION

The South Carolina National Guard has retained MACTEC to conduct this survey to assess the potential presence of surface lead dust within a former shooting range room of the Bluff Road Armory Building located along Bluff Road in Columbia, South Carolina. The purpose of this survey was to provide information concerning the adequacy of cleaning activities performed at the site regarding lead dust. MACTEC previously performed a limited air and surface sampling survey for the presence of lead (Reference MACTEC Project 6671-07-0575.01, dated November 1, 2007). The results of that survey indicated the elevated presence of lead dust on the surface of the target area of the shooting range room. Since this previous survey was performed, cleaning activities have reportedly taken place on the surface areas of the shooting range room. Procedures and techniques utilized in this study were in general accordance with standard industrial hygiene and engineering practices.

FIELD SURVEY

During our September 5, 2008 site visit, four surface samples were obtained at the site for the purpose of conducting the lead survey. MACTEC collected the surface samples (designated W-1 through W-4) using laboratory prepared disposable wipes. Two surface samples were collected from the front side of the target area (W-1 and W-2) and two surface samples were collected from the back side of the target area (W-3 and W-4). Surface area for each of the samples consisted of one square foot. Upon completion of our sample collection activities, the surface samples were sent to TestAmerica Laboratories, Inc. in Savannah, Georgia for analysis.

MACTEC Engineering and Consulting, Inc.
720 Green Road, Suite 132 • Columbia, SC 29210 • Phone: 803.798.1200 • Fax: 803.750.1303

www.mactec.com

POST CLEANING RESULTS (2008) CONT:

South Carolina National Guard-Limited Surface Sampling Survey
 Bluff Road Armory, Columbia, South Carolina
 MACTEC Project 6671-07-6373.02

September 18, 2008

RESULTS AND CONCLUSIONS

Analysis of the surface samples revealed the presence of lead for each of the samples at concentrations ranging from 69 micrograms per square foot ($\mu\text{g}/\text{ft}^2$) for W-3 to 3,300 $\mu\text{g}/\text{ft}^2$ for W-1 (refer to the attached Laboratory Results). The wipe samples from the front side of the target area were significantly higher (3,300 $\mu\text{g}/\text{ft}^2$ and 2,200 $\mu\text{g}/\text{ft}^2$ for samples W-1 and W-2, respectively) compared to the wipe samples from the back side of the target area (69 $\mu\text{g}/\text{ft}^2$ and 72 $\mu\text{g}/\text{ft}^2$ for samples W-3 and W-4, respectively). Results from a wipe sample collected from the front side of the target area during the previous survey indicated a lead dust concentration of 21,000 $\mu\text{g}/\text{ft}^2$.

The Environmental Protection Agency (EPA) has promulgated final rules regarding post cleaning standards for maximum lead dust concentration levels (40 CFR Part 745). In the standard, the EPA has established a clearance criteria of 400 $\mu\text{g}/\text{ft}^2$ for this type of surface area. While a significant reduction of the lead dust concentration has been shown on the front side of the target area from the pre-cleaning survey to the post-cleaning survey, the results of the laboratory analysis for the surface samples obtained from the front side of the target area for this survey exceed the EPA cleanup standard. The results of the laboratory analysis for the back side of the target area for this survey were shown to be below the EPA cleanup standard. No surface samples were collected from the back side of the target area during the pre-cleaning survey.

It appears that the surface area of the front side of the target area has not been adequately cleaned to reach the EPA clearance criteria. Therefore, MACTEC recommends that the surface of the front side of the target area be thoroughly re-cleaned utilizing properly trained and certified personnel. Upon thorough re-cleaning of the front side of the target area, additional surface sampling for the presence of lead dust should be conducted to confirm the adequacy of the lead dust re-cleaning activities.

QUALIFICATIONS

The conclusions and recommendations contained in this report are based on the measurements and data obtained during this evaluation. This sampling and test data is to be considered the condition for a "snapshot-in-time" and is pertinent for the particular times and for the particular locations the measurements were obtained. This report is intended solely for the use of the South Carolina National Guard. A departure from this intention must be submitted in writing to MACTEC.

CLOSING

We appreciate the opportunity to have been of service to you on this project. If you have any questions or comments, please contact us at your convenience.

Sincerely,
 MACTEC ENGINEERING AND CONSULTING, INC.

Non-Responsive

POST CLEANING RESULTS (2008) CONT:

SAMPLE SUMMARY

Client: MACTEC Engineering and Consulting Inc

Job Number: 680-40174-1

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
680-40174-1	W-1	Wipe	09/05/2008 1030	09/08/2008 1030
680-40174-2	W-2	Wipe	09/05/2008 1030	09/08/2008 1030
680-40174-3	W-3	Wipe	09/05/2008 1030	09/08/2008 1030
680-40174-4	W-4	Wipe	09/05/2008 1030	09/08/2008 1030

Analytical Data

Client: MACTEC Engineering and Consulting Inc

Job Number: 680-40174-1

Client Sample ID: W-1

Lab Sample ID: 680-40174-1
Client Matrix: Wipe

Date Sampled: 09/05/2008 1030
Date Received: 09/08/2008 1030

6010B Inductively Coupled Plasma - Atomic Emission Spectrometry

Method:	6010B	Analysis Batch:	680-116664	Instrument ID:	ICP/AES - D
Preparation:	3050B	Prep Batch:	680-116809	Lab File ID:	N/A
Dilution:	5.0			Initial Weight/Volume:	1.00 Wipe
Date Analyzed:	09/11/2008 1102			Final Weight/Volume:	100 mL
Date Prepared:	09/10/2008 1127				

Analyte	Result (ug/Wipe)	Qualifier	MDL	RL
Lead	3300	B	0.95	2.5

POST CLEANING RESULTS (2008) CONT:

Analytical Data

Client: MACTEC Engineering and Consulting Inc

Job Number: 680-40174-1

Client Sample ID: W-2

Lab Sample ID: 680-40174-2
Client Matrix: WipeDate Sampled: 09/06/2008 1030
Date Received: 09/06/2008 1030**6010B Inductively Coupled Plasma - Atomic Emission Spectrometry**Method: 6010B
Preparation: 3050B
Dilution: 5.0
Date Analyzed: 09/11/2008 1107
Date Prepared: 09/10/2008 1127Analysis Batch: 680-116964
Prep Batch: 680-116809Instrument ID: ICP/AES - D
Lab File ID: N/A
Initial Weight/Volume: 1.00 Wipe
Final Weight/Volume: 100 mL

Analyte	Result (ug/Wipe)	Qualifier	MDL	RL
Lead	2200	B	0.85	2.8

Analytical Data

Client: MACTEC Engineering and Consulting Inc

Job Number: 680-40174-1

Client Sample ID: W-3

Lab Sample ID: 680-40174-3
Client Matrix: WipeDate Sampled: 09/05/2008 1030
Date Received: 09/08/2008 1030**6010B Inductively Coupled Plasma - Atomic Emission Spectrometry**Method: 6010B
Preparation: 3050B
Dilution: 1.0
Date Analyzed: 09/11/2008 0000
Date Prepared: 09/10/2008 1127Analysis Batch: 680-116864
Prep Batch: 680-116809Instrument ID: ICP/AES - D
Lab File ID: N/A
Initial Weight/Volume: 1.00 Wipe
Final Weight/Volume: 100 mL

Analyte	Result (ug/Wipe)	Qualifier	MDL	RL
Lead	89	B	0.18	0.50

POST CLEANING RESULTS (2008) CONT:

Analytical Data

Client: MACTEC Engineering and Consulting Inc

Job Number: 680-40174-1

Client Sample ID: W-4

Lab Sample ID: 680-40174-4

Date Sampled: 09/05/2008 1030

Client Matrix: Wipe

Date Received: 09/09/2008 1030

6010B Inductively Coupled Plasma - Atomic Emission Spectrometry

Method: 6010B

Analysis Batch: 680-116864

Instrument ID: ICP/AES - 0

Preparation: 3050B

Prep Batch: 680-116809

Lab File ID: N/A

Dilution: 1.0

Initial Weight/Volume: 1.00 Wipe

Date Analyzed: 09/11/2008 0016

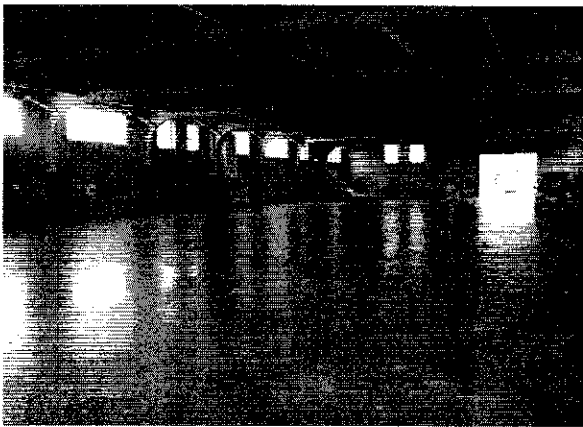
Final Weight/Volume: 100 mL

Date Prepared: 09/10/2008 1127

Analyte	Result (ug/Wipe)	Qualifier	MDL	RL
Lead	72	B	0.19	0.50



BLUFF ROAD ARMORY ENTRANCE



DRILL HALL FLOOR



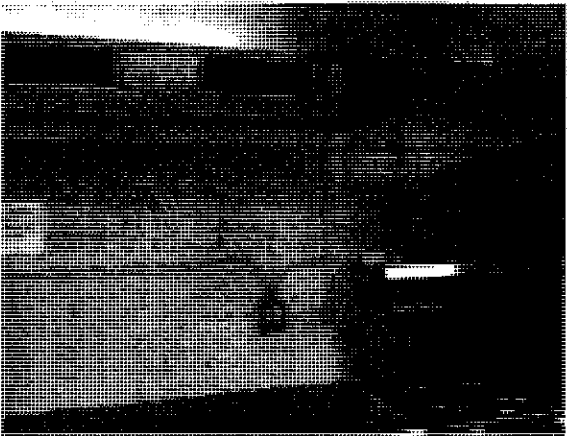
HALLWAY TO IFR



HALLWAY TOWARDS ADMINISTRATIVE OFFICES



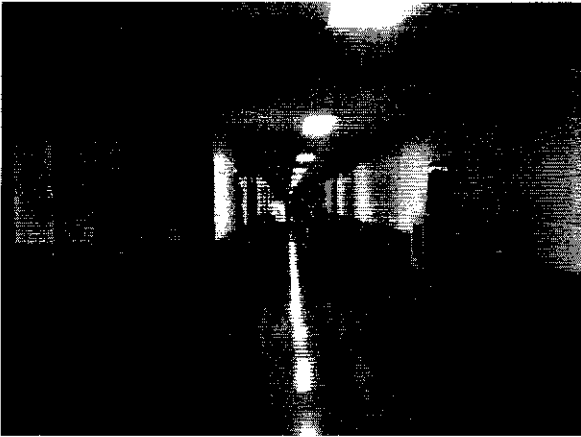
ARMORY KITCHEN AREA



STOVE AND EXHAUST



SIDE BY SIDE 20" X 20" EXHAUST (KITCHEN)



1ST FLOOR ADMINISTRATIVE HALLWAY



2ND FLOOR ADMINISTRATIVE HALLWAY

**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: [Redacted]
[Redacted] Armory Supervisor, 108th Signal and the 114th Signal CO. 1100 Ehrenciou Drive, Camden, SC 29526-0793.

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

1. References.

- a. Report submitted 19 May 2005, Industrial Hygiene Survey, Environmental Management Solutions, Aisha Boyd.
- 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 **except for installing Carbon Monoxide Monitors in the motor pool area.**

b. **Discuss the high lead samples taken inside of the inactive indoor firing range and the motor pool 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, 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-Responsive

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

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ENVIRONMENTAL MANAGEMENT SOLUTIONS
INDUSTRIAL HYGIENE CONSULTING

SOUTH CAROLINA ARMY NATIONAL GUARD

CAMDEN ARMORY
CAMDEN, SOUTH CAROLINA

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

Camden Armory
Survey Date: 4 May 2005

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Environmental Management Solutions

EXECUTIVE SUMMARY

An initial baseline industrial hygiene survey was conducted at the Camden Armory on 4 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 1400 micrograms. Lead results in the converted Indoor firing range area are significantly above requirements. Supply, drill hall, IFR, and maintenance areas also show higher than recommended levels of lead contamination.	Clean surfaces in the supply, drill hall, IFR, and maintenance areas 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	No findings	No action
Noise Survey	Under 85 dBA	A noise survey should be performed on equipment used and maintained in the maintenance area.
Illumination Survey	2.5 to 61.6 foot-candles	Upgrade lighting to appropriate levels.
Building Condition	Building in poor condition. Damaged ceiling tiles, walls, and standing water was observed.	Develop a housekeeping schedule to identify, repair, and prevent any leaks or standing water.
Hazard Communication	Material Safety Data Sheets were not available.	Material Safety Data Sheets should be available, updated 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	PPE is needed for personnel	Ensure that appropriate PPE is

Camden Armory
Survey Date: 4 May 2005

	during training periods. No PPE was observed in the maintenance area.	provided by unit commander during weekends.
--	---	---

Camden Armory
Survey Date: 4 May 2005

MEMORANDUM FOR

South Carolina Army National Guard
Camden Armory

Non-Responsive

Camden, South Carolina 29006-0175

SUBJECT

Initial Baseline Industrial Hygiene Survey of the Camden Armory performed 4 May 2005 in Camden, 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 Camden Armory in Camden, South Carolina. Environmental Management Solutions conducted the survey on 4 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 the 108th signal Bn and the 114th signal Co. 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 as a locker area. There is some dust and storage items behind the bullet trap which is still present in the range. Refer to Building layout in Appendix C. Soldiers perform weapons cleaning once every two months in the maintenance shop approximately once per year for three hours 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.

Environmental Management Solutions
Report Date: 4 May 2005

Page 3

Camden Armory
Survey Date: 4 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.

FINDINGS AND DISCUSSION

LEAD WIPE SAMPLES

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

SAMPLE NUMBER	SAMPLE LOCATION	MICROGRAMS OF LEAD (μ g) PER SQUARE FOOT
CD-01	Weapons Vault, Right side of drill hall in supply room in middle of room	28
CD-02	Floor in back of 114 th supply part of IFR	327
CD-03	Desk in supply near vault of 114 th	BRL
CD-04	Table along wall in weapons vault on right side of drill hall in supply room	75
CD-05	Supply room floor near fridge	BRL
CD-06	Shelf in back of 114 th supply part of IFR	303
CD-07	Vault floor in supply room of 108 th	147
CD-08	Table in vault of supply room for 108 th	BRL
CD-09	Floor by door leading to drill hall in supply room 108 th	BRL

CD-010	Supply room of 108 th floor by office supplies	BRL
CD-011	Floor under table in left center of kitchen	BRL
CD-012	In front of kitchen storage room door	BRL
CD-013	Drill hall floor for wall next to George W. Bush	BRL
CD-014	Drill Hall floor left side of IFR area	69
CD-015	Hallway left side along wall @ corner IFR	BRL
CD-016	1ST step left side in entranceway of IFR	170
CD-017	Left side of IFR near roll up door	341
CD-018	Right side IFR floor under fire extinguisher	705
CD-019	Left side of IFR near bullet trap	1400
CD-020	Table located in the front of the IFR	BRL
CD-021	Maintenance top of solvent tank	118
CD-022	Maintenance area in front of fridge	91
CD-023	Maintenance area in	142

Camden Armory
Survey Date: 4 May 2005

	front of sink	
--	----------------------	--

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 significantly 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 supply and maintenance 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. No friable suspect material was found.

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 2.5 foot-candles to 61.6 foot-candles. Specific readings are listed in the table below.

AREA	AVERAGE FOOT-CANDLES	RECOMMENDED FOOTCANDLES	MEETS STANDARD?
Drill Hall	17.3	10-15	Y
NCO Club	16.7	50-75	N
Library	17.9	50-75	N

Environmental Management Solutions
Report Date: 4 May 2005

Page 7

Men's Latrine	23.1	10-15	Y
108 th Supply room	10.7	20-30	N
Operations	22.5	50-75	N
BN Supply SGT	22	50-75	N
Administrative Officer	34.8	50-75	N
BN CDR	25.5	50-75	N
PSNCO	29.9	50-75	N
Readiness NCO	18.5	50-75	N
Admin NCO	32.5	50-75	N
114 th Supply	18.8	20-30	N
Server Room	18.1	10-15	Y
Room #14	6.9	50-75	N
Classroom 15 & 16	38.9	50-75	N
CSM	27.6	50-75	N
Recruiting Office	61.6	50-75	N
Signal Co. Outer Office	24.4	50-75	N

Non-Responsive Office	25.6	50-75	N
Office #1	30.8	50-75	N
IFR/Locker room	2.5	10-15	N
Kitchen	49.6	50-75	Y
Boiler Room	5.8	10-15	N
Room #23	12.6	50-75	N
Storage Area w/Lounge	12	10-15	N
Lounge	22.9	10-15	Y
Storage Area #2	10.6	5-7.5	Y
Maintenance Area	14.8	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 on ceiling and floor tiles. Standing water was observed in the HVAC room. Doors to the range area have been damaged by flooding water due to blocked drain. The drain has since been repaired. The indoor firing range has been converted to a locker room. Trash was seen behind the bullet trap area that is still in place.

The maintenance area is used for training purposes during drill weekends. The area is being used, but there is still construction on the building itself. 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

Material Safety Data Sheets were not available for this facility. Hazardous Materials information could not be reviewed.

RADIATION PROTECTION PROGRAM

A radiation protection officer has been assigned for the radioactive items stored at this facility. The areas where these items are kept are not appropriately marked.

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.

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) 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 use of available light
 - Provide supplemental or task lighting
- 1) 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.
- 2) 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.
- 3) 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™ solution during off hours.

4) 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 ¼ to ½ 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.

5) If carpet is wet for less than 48 hours:

- Remove all materials such as furniture, file cabinets, paperwork from 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.
- 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 water-damaged carpets especially in humid environments is often the best option.
- 6) 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.
 - 7) Obtain all specifications and drawings of the HVAC system and have the system properly balanced.
 - 8) 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.
 - 9) 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.
 - 10) Maintain relative humidity between 30 to 60%
 - 11) Consult State Environmental Office for approval of an appropriate pesticide to prevent rodent and insect infiltration.
 - 12) Ensure that storage area for radioactive equipment is appropriately marked.
 - 13) 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.
 - 14) Complete noise dosimetry and a noise survey on all maintenance equipment and mark equipment and areas as noise hazardous, where appropriate.
 - 15) 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 are running or left idling in order to provide adequate ventilation during these times.

- 16) 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.
- 17) 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.
- 18) 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** *Regional Industrial Hygienist at the National Guard Bureau Region South Industrial Hygiene Office at* **Non-Responsive**

Non-Responsive

Environmental Management Solutions

APPENDICES

APPENDIX A

Environmental Management Solutions

- ❑ American conference of Governmental Industrial Hygienists (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 (USACIIPPM) Industrial Hygiene Air Sampling Guide, November 1997.

Environmental Management Solutions

APPENDIX B

Environmental Management Solutions

Frc page

c* = evaluator's recommendation of agreement

Reminders: ergonomics • dermatitis • physical agents • flammable storage
EYE (permanent) _____ • EYE (portable) _____ • SHW • GMV • LEV

ACO ADM DSA DSN LAB LCK
RAD FRN FOR INFO FOR (1.2)

[illegible][illegible]

Gloves		Respirator					Manufacturer's Description (10 characters max)					NIOSH TC # or Foreign equivalent (10 characters max)					
		e R U					e R U					e R U					
acid							silica										
cold surfaces							abrasive blasting hood										
hot surfaces							disposable										
NBC agents							full face air purifying										
oil							1/2 face air purifying										
solvents							powered air purifying										
surgical gloves							1/4 face air purifying										
leather / cotton							self-contained										
other							other										
Eyes and Face		Hearing					Body					Head and Feet					
		e R U					e R U					e R U					
chemical splash							canal caps					aprons					
full face shield							>85-108 dBA steady earplugs					cold weather clothing					
chem/safety impact							" helmets w/ muffs					coveralls					
safety impact							" muffs, plume					full body suit					
welding helmet							(108-118) muffs/earplug comb					heat reflective					
sunglasses							muffs and earplugs					vest/suit					
welding goggles/glasses							{ 118 or > } with time limit					safety belt/harness					
laser eye protection							other					special purp. clothing					
other							other					other					

**C⁺ = evaluator's recommendation
of agreement**

Reminders: ergonomics • dermatitis • physical agents • flammable storage
EYE (permanent) _____ • EYE (portable) _____ • SHW • GAW • LEV

ACO ADM DSA DSN LAB LCK
RAD ECM EOL HUS SOC USC

Back Page

Hazard Description	Hazard Category	Hazard Level	Hazard Mitigation	Hazard Status	Hazard Date
Computer use: video display terminal ergonomics hospital stress workload					

1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 26

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(Comments continued on attached)

2/17/95 CHFMBACK.XLS

HHIMS Industrial Hygiene Survey Form

Front Page

AIRLOC		Installation		Building		Room Number	
45000		05/05/04		050504		050504	
Location		Survey Date		Evaluator		Unit / Organization (45)	
SA		05/05/04		050504		050504	
Supervisor		Rank		Macom		Submacom	
[Redacted]		[Redacted]		[Redacted]		[Redacted]	
Vapor Degreasers		Open Surface Tanks		Frequency (per day)		No. LOCs	
000		000		000		000	
Controls Present (if > 6, continue in comments) [25]		Evaluation (25 characters max)		Unit code		Controls Required (26 characters max)	
OTH		2.5-61.6		FIC		50-100 (Admin)	
						20-50 (Storage)	
						NIOSH TC # or Foreign equivalent (10 characters max)	

Gloves	Eyes and Face	Hearing	Respirator	Body	Head and Feet
acid	chemical splash	canal caps	airline	cold weather boots/hat	cold weather boots/hat
cold surfaces	full face shield	(> 85-105 dBA steady)	abrasive blasting hood	hard hats	hard hats
hot surfaces	chem/safety impact	helmets w/ muffs	disposable	impermeable boots	impermeable boots
NBC agents	safety impact	goggles/earplugs	full face air purifying	safety shoes (conductive)	safety shoes (conductive)
oil	welding helmet	(108-118 muffs/earplugs)	1/2 face air purifying	safety (nonconductive)	safety (nonconductive)
solvents	sunglasses	muffs and earplugs	powered air purifying	other	other
surgical gloves	welding goggles/glasses	(118 or >) with time limit	1/4 face air purifying	safety belt/harness	other
leather / cotton	laser eye protection	other	self-contained	special purp. clothing	other
other	other	other	other	other	other

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 FOIA Requested Record #J-15-0085 (SC)
 Released by National Guard Bureau
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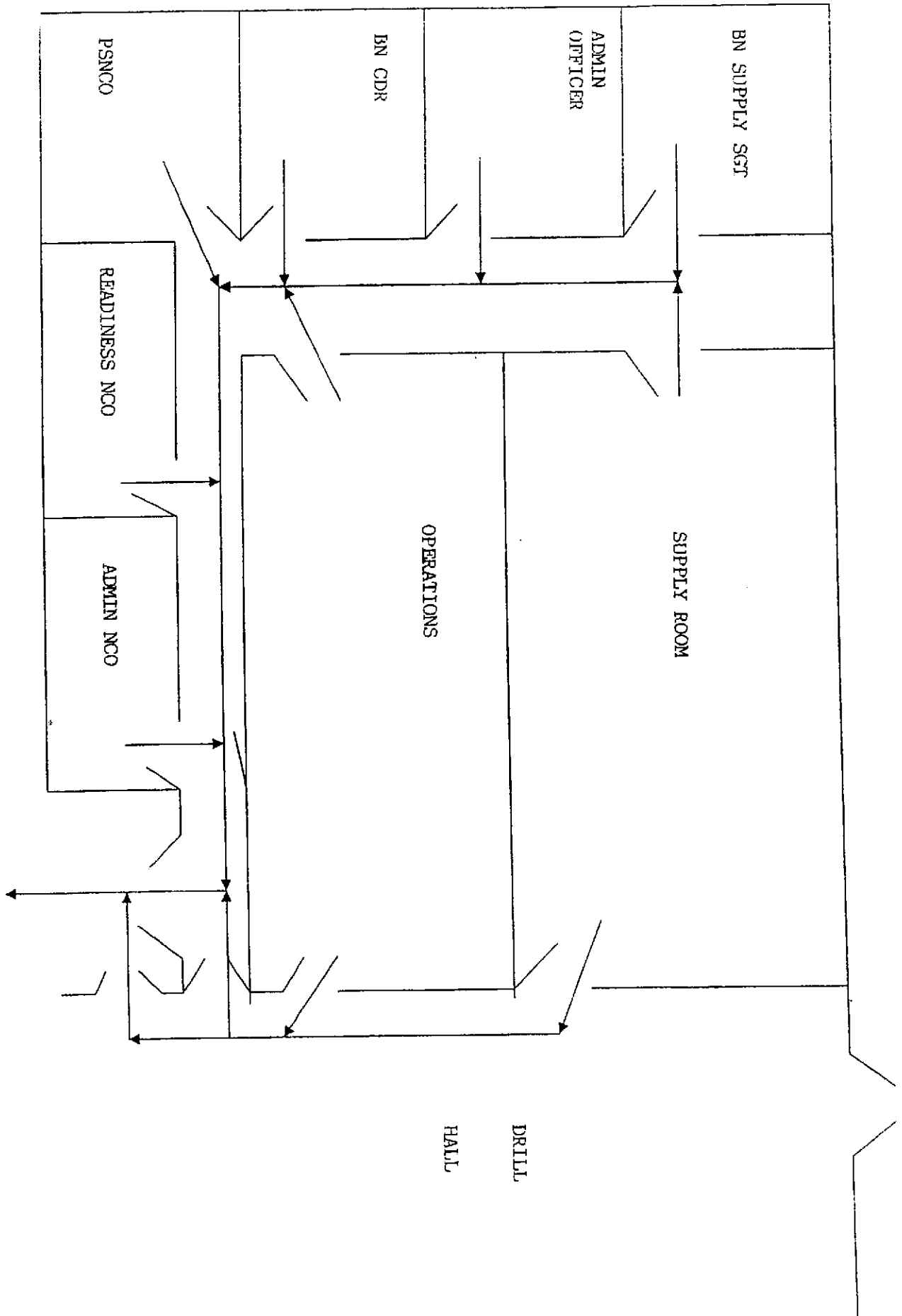
 e* = evaluator's recommendation
 or agreement

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

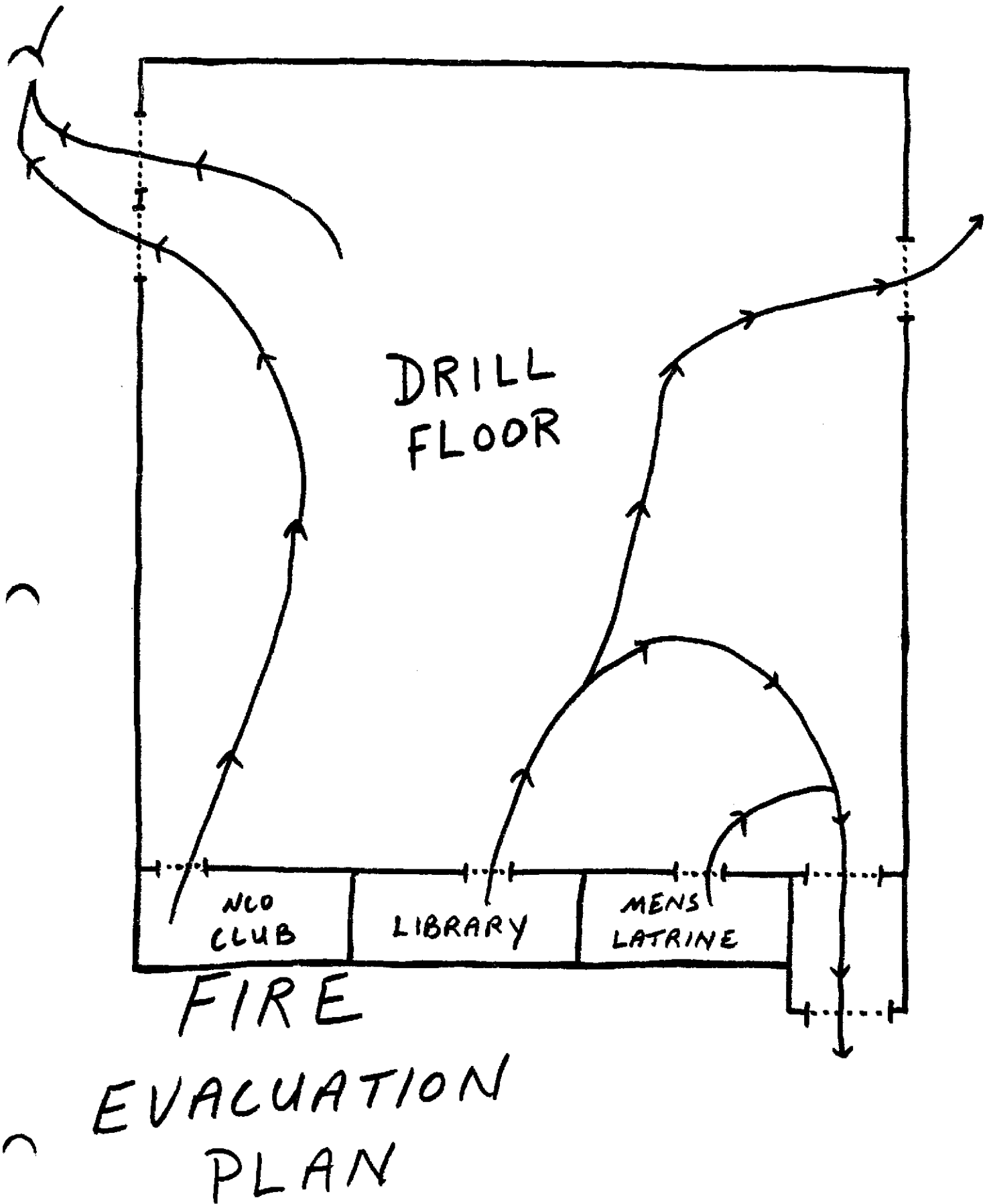
 ACO ADM OSA DSN LAB LCK
 RAN FCH FCH RUC RUC RUC

108th Full Time Staff Roster

1.	Non-Responsive
2.	
3.	
4.	
5.	
6.	
7.	
8.	
9.	
10.	



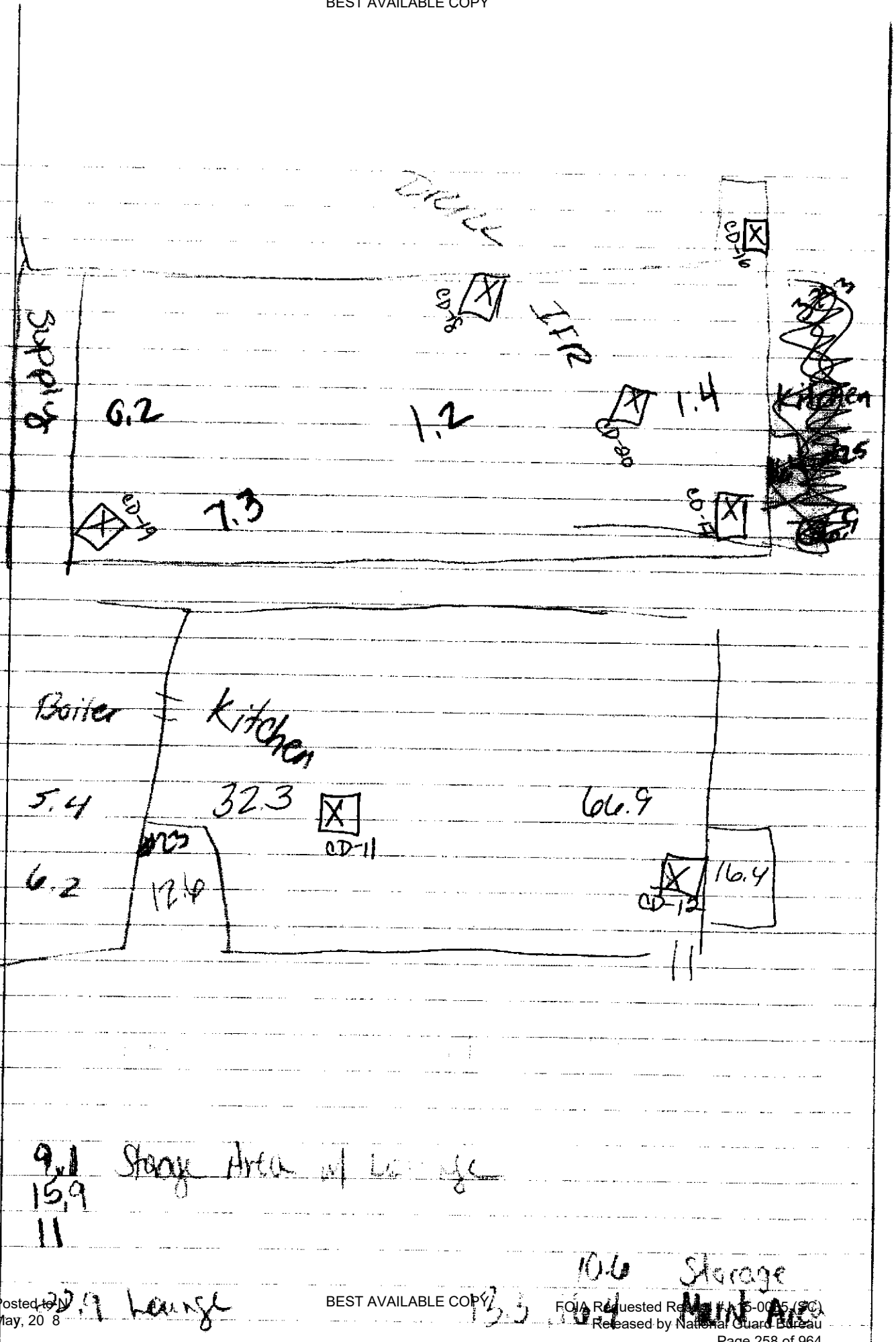
FIRE EVACUATION PLAN

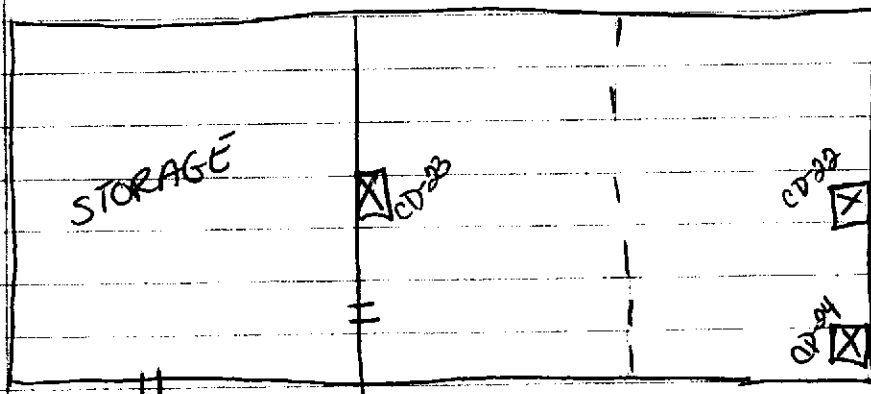


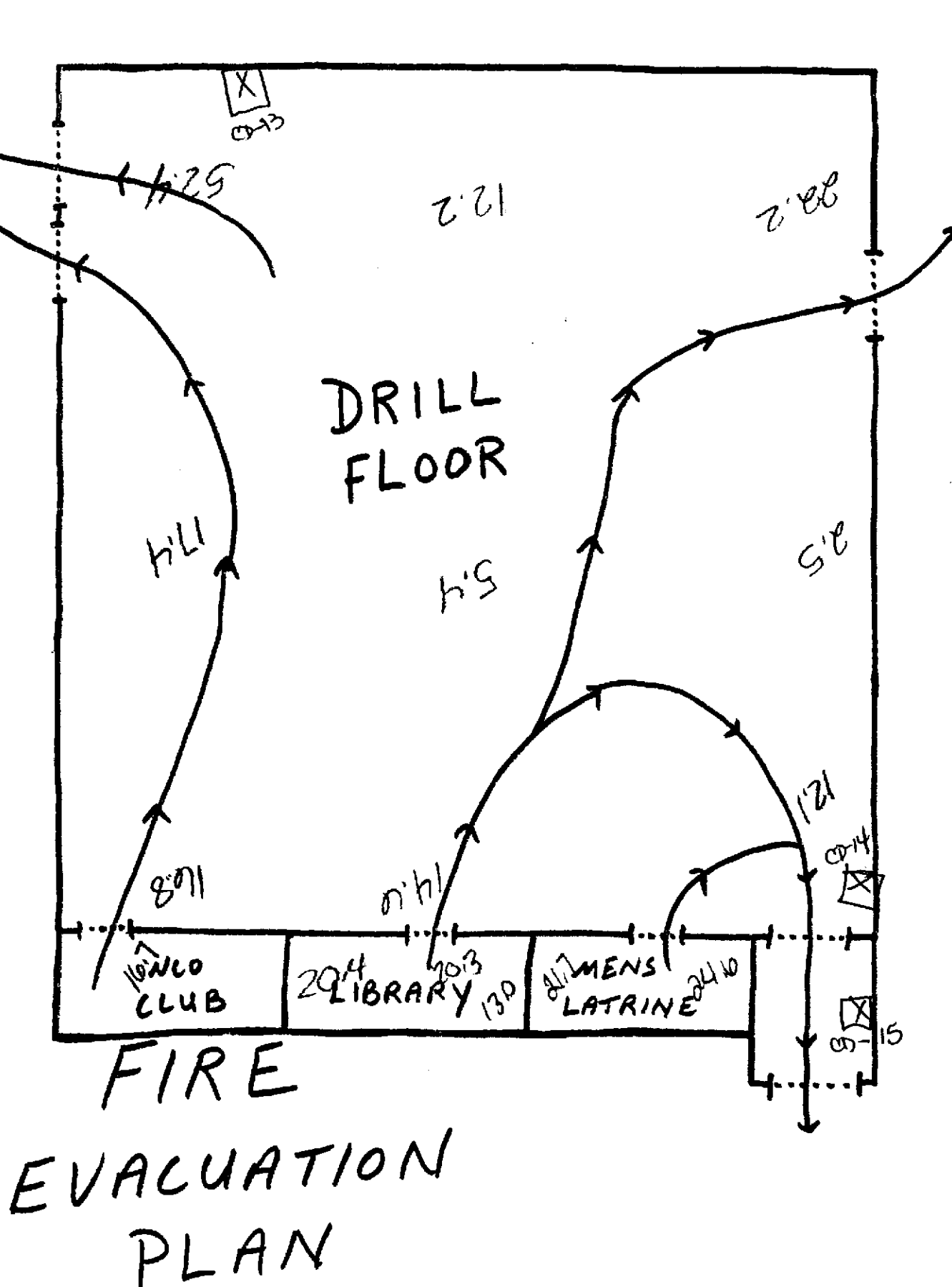
FIRE EVACUATION PLAN

☒ - Samples









APPENDIX C

Environmental Management Solutions



Camden Armory

Water damaged ceiling tile



Water damage supply area



Lockers IFR



Standing water, HVAC room



Water damaged ceiling tile



Water damage side wall
administrative area



Behind bullet trap, IFR



Water damage...ceiling leak HVAC



Kitchen



Damaged door due to flooding water



Blocked drain which led to flooding, has been repaired, IFR to the right



Water damaged ceiling tiles



Standing water HVAC room



Indoor firing range entrance area...damage to door from flooding water



Door damage from water



Outdoor drain



Water damaged ceiling tiles



Drill hall



Water damage



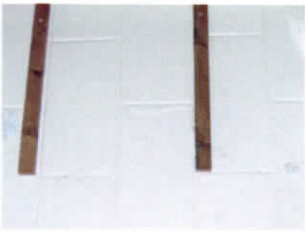
Administrative area



Water damaged ceiling tiles



Paint bubbles due to water damage



Water bubbles due to water damage



Classroom



Supply 118th



IFR locker/storage



Storage building



Maintenance building



Behind bullet trap....storage



Supply 118th, Vault



Supply storage



Maintenance tent



Maintenance area



Flammable storage



Hole knocked in wall, no ventilation present



Storage



Flammable storage



Flammable storage



Flammable storage



APPENDIX D

Environmental Management Solutions



Date: 5/16/2005

TOTAL LEAD IN WIPE SAMPLES N7082

CLIENT: National Guard Bureau Region-South IH
Project: Camden Armory
Delivery Order:
PO No:

Lab Order: 0505384
Date Received: 5/5/2005 8:00:00
Matrix: Wipe

Laboratory ID	Client Sample ID	Results	Units	Report Limit.	DF	Date Collected	Date Analyzed	Analyst
0505384-001A	CD-01	28	µg, Total	20	1	5/4/2005	5/11/2005	EM
0505384-002A	CD-02	327	µg, Total	20	1	5/4/2005	5/11/2005	EM
0505384-003A	CD-03	BRL	µg, Total	20	1	5/4/2005	5/11/2005	EM
0505384-004A	CD-04	75	µg, Total	20	1	5/4/2005	5/11/2005	EM
0505384-005A	CD-05	BRL	µg, Total	20	1	5/4/2005	5/11/2005	EM
0505384-006A	CD-06	303	µg, Total	20	1	5/4/2005	5/11/2005	EM
0505384-007A	CD-07	147	µg, Total	20	1	5/4/2005	5/11/2005	EM
0505384-008A	CD-08	BRL	µg, Total	20	1	5/4/2005	5/11/2005	EM
0505384-009A	CD-09	BRL	µg, Total	20	1	5/4/2005	5/11/2005	EM
0505384-010A	CD-10	BRL	µg, Total	20	1	5/4/2005	5/11/2005	EM
0505384-011A	CD-11	BRL	µg, Total	20	1	5/4/2005	5/11/2005	EM
0505384-012A	CD-12	BRL	µg, Total	20	1	5/4/2005	5/11/2005	EM
0505384-013A	CD-13	BRL	µg, Total	20	1	5/4/2005	5/11/2005	EM
0505384-014A	CD-14	69	µg, Total	20	1	5/4/2005	5/11/2005	EM
0505384-015A	CD-15	BRL	µg, Total	20	1	5/4/2005	5/11/2005	EM
0505384-016A	CD-16	170	µg, Total	20	1	5/4/2005	5/11/2005	EM
0505384-017A	CD-17	341	µg, Total	20	1	5/4/2005	5/11/2005	EM
0505384-018A	CD-18	705	µg, Total	20	1	5/4/2005	5/11/2005	EM
0505384-019A	CD-19	1400	µg, Total	20	1	5/4/2005	5/11/2005	EM
0505384-020A	CD-20	BRL	µg, Total	20	1	5/4/2005	5/11/2005	EM
0505384-021A	CD-21	118	µg, Total	20	1	5/4/2005	5/10/2005	EM
0505384-022A	CD-22	91	µg, Total	20	1	5/4/2005	5/10/2005	EM
0505384-023A	CD-23	142	µg, Total	20	1	5/4/2005	5/10/2005	EM

Qualifiers: BRL - Not Detected at the Reporting Limit

DF - Dilution Factor

Results are blank corrected where applicable

Page 1 of 1

**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, Det. 1, 3/178th FA, Highway 52-US1, Cheraw, South Carolina
29520.

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

1. 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.

5. If additional information is needed, let

Non-Responsive

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 II
Industrial Hygiene Consulting

South Carolina Army National Guard
Cheraw Armory
Cheraw, 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, Det. 1 3/178th Field Artillery, Cheraw, South Carolina 29520

SUBJECT: Baseline Industrial Hygiene Health Hazard Information Module (HHIM)
Survey of Det. 1 3/178th Field Artillery, HWY 52-US1, Cheraw, South Carolina 29520
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 Cheraw Armory
Cheraw, 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 Det. 1 3/178th Field Artillery, 11 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 Cheraw Armory
Cheraw, South Carolina

4. FINDINGS:

a. Armory Site Description: The armory is occupied by Det. 1 3/178th Field Artillery. There are two full time individuals who perform administrative duties. The armory was constructed in 1982. It is approximately 15,169 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 fair condition. Administrative areas of the armory have carpeted floors. Tile was located in hallways and the class rooms. There was evidence of some water damage on ceiling tile and 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 furnace room which had pipes wrapped in a fiberglass wrap. There was no friability of this wrap. The armory also had a converted indoor firing range. The sand had been removed from the pit. The area was being used as a storage area.

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. Enclosure No. 3 contains the list of product discovered during the survey. The POL shed had a large container of oil leaking onto the floor of the shed. The shed's floor is concrete.

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 Cheraw Armory
Cheraw, South Carolina

Illumination levels

<u>Location</u>	<u>Reading in Foot candles</u>	<u>At, Above or Below Standard</u>
Administrative Areas	21.3—23.6	Below
Hallway areas	23.6—24.1	Below
Kitchen	29.7—32.1	Below
Food Prep Area	36.5—77.3	Below
Orderly room	26.5—32.1	Below
NBC Room	34.1—34.4	Below
Drill Hall	52.7—54.2	At Standard
Classroom	14.6—16.7	Below

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

f. **Administrative Areas:** Personnel perform administrative duties that consist of reading, handling and generating paper work. Employees use computers and answer phones also. Ceiling tile were missing and there were exposed holes. There was also paint peeling off the wall. Paint chips were collected for analysis. The results will be divulged later in this report.

g. Wipe sampling was performed of the drill hall and the kitchen area near the drill hall floor. The results of all sampling will be disclosed later in this report.

h. **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.

Oshea II Industrial Hygiene Consulting
IH Survey 11 Feb 03 Cheraw Armory
Cheraw,, 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 fence was used to fabricate cages from ceiling to floor to store equipment. Samples were collected using the wipe method and the results are disclosed later in this report.

j. 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.

K. 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

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.

m. All sample results taken in the armory are listed in the chart below .

<u>Sample No.S</u>	<u>Location taken</u>	<u>Results</u>
0210046	Kitchen(DHS)	BRL
0210047	Kitchen(DHS)	BRL
0210048	IFR Bullet Stop	BRL
0210049	IFR Floor Bullet Stop	BRL
0210050	Drill Hall (DHS)	BRL
0210051	Drill Hall (DHS)	BLR

Samples were taken in relation as to the armory's ventilation system for the analysis of lead. All (BRL) readings were Below Reading Limits..

Oshea II Industrial Hygiene Consulting
IH Survey 11 Feb 03 Cheraw Armory
Cheraw, 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.
- b. 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 Cheraw Armory
Cheraw, South Carolina

6. Technical Assistance:

Non-Responsive

CF: State Safety and Occupational Health Office
ATTN: **Non-Responsive**
1225 Bluff Road
Columbia, South Carolina 29170

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

OSHEA II INDUSTRIAL HYGIENE CONSULTING
SURVEY OF Cheraw Armory, Cheraw, 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

Enck No.1



IFR



Armory Exterior

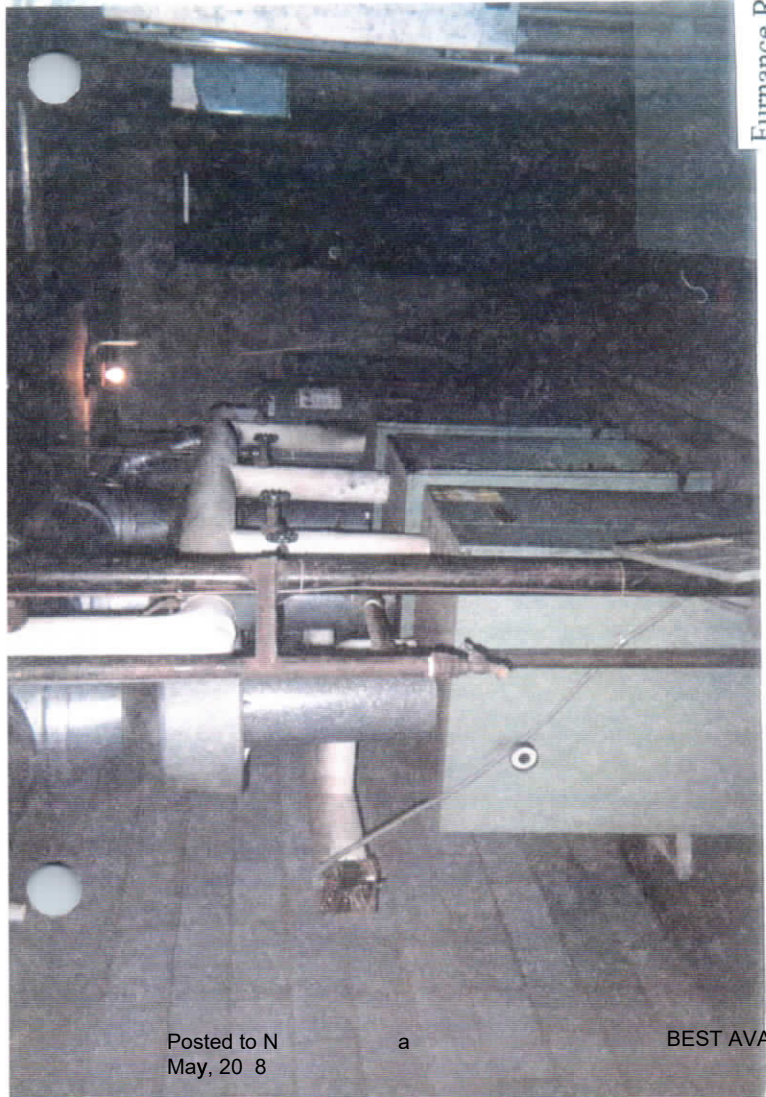


motor pool



BEST AVAILABLE COPY

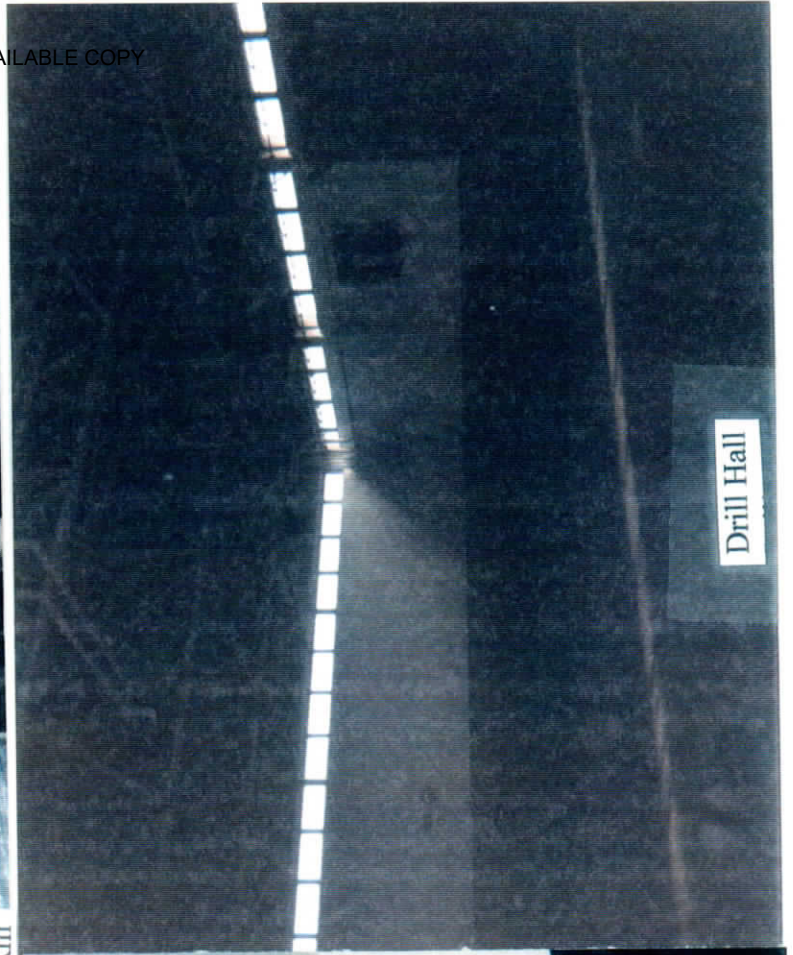
Furnance Rm



Posted to N
May, 20 8

a

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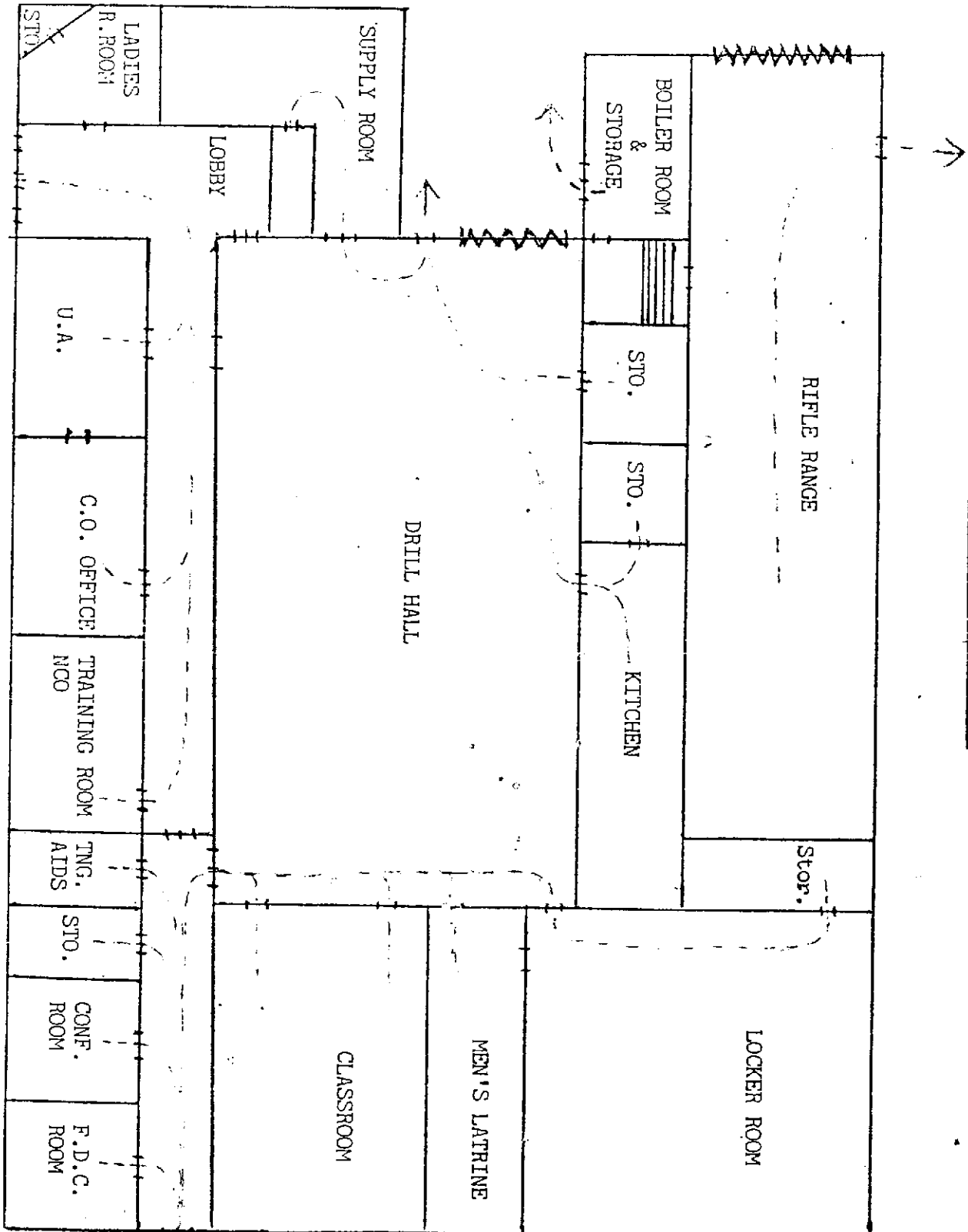
Drill Hall



20 damaged ceiling tile

Administrative areas

CHEKAW NATIONAL GUARD ARMORY
Fire Evacuation Plan



NOT TO SCALE

1-Dec-82

04-80
Post to N
May, 20 8

a

Hazardous Material inventory

Scouring powder NSN 7930-01-294-115

Floor wax

Floor Stripper

Hand cleaner

Enclosure No. 3

Full time Personnel

Non-Responsive

Enclosure No. 4

HHIMS Industrial Hygiene Survey Form

Front page

Aft OC **45000** Installation **SCARNG** Building **030211** Survey Date **030211** day **1** month **02** year **11**
 Location **B.S.** Operation **M 0 W** Evaluator HHNS **KJP** Macom **NG** Submacom **X X** RAC **3** No. CIV's **2**
 Unit / Organization (45) **DET 3378 FA** **CHERAW** **SOUTH CAROLINA** No. MIL **1** No. LOCs **2**
 Controls Present (if > 8, continue in comments) [25] **Non-Responsive**

Controls Required (25 characters max) _____
 Unit code _____
 Evaluation (25 characters max) _____
 Manufacturer's Description (10 characters max) _____
 NIOSH TC # or Foreign equivalent (10 characters max) _____

Gloves **e R U**
 acid _____
 cold surfaces _____
 hot surfaces _____
 NBC agents _____
 oil _____
 solvents _____
 surgical gloves _____
 leather - cotton _____
 other _____
 Eyes and Face **e R U**
 chemical splash _____
 full face shield _____
 chem/safety impact _____
 safety impact _____
 welding helmet _____
 sunglasses _____
 welding goggles/glasses _____
 laser eye protection _____
 other _____

Respirator **e R U**
 other _____
 Heating **e R U**
 (> 85-108 dBA steady) earplugs _____
 helmets w/ muffs _____
 muffs alone _____
 (108-118 Imuff/earplug comb _____
 muffs and earplugs _____
 (118 or >) with time limit _____
 other _____
 Body **e R U**
 cold weather boots/hat _____
 cold weather clothing _____
 coveralls _____
 full body suit _____
 heat reflective vest/suit _____
 safety belt/harness _____
 special purp. clothing _____
 other **BDU's** _____

Head and Feet **e R U**
 cold weather boots/hat _____
 hard hats _____
 impermeable boots _____
 safety shoes (conductive) _____
 safety (nonconductive) _____
 other _____
 other _____
 other _____

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

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

HHIMS Industrial Hygiene Survey Form

Front page

Room Number CHERAW Unit / Organization (45) DET. 1 3/37A FA

Submacom X X X RAC 3 No. MIL 1 No. CIVs 3 No. LOCs 1

Building CHERAW Evaluator HHUS KJS Macom A/G Frequency (hr/day) 1

Installation SCARBNG Survey Date 030211 day 1 month 2 year 11

Operation DR Non-Responsive

Controls Present (if > 8, continue in comments) [25]

Unit code

Controls Required (25 characters max)

NIOSH TC # or Foreign equivalent (10 characters max)

Manufacturer's Description (10 characters max)

Respirator

Gloves

Eyes and Face

Hearing

Body

Head and Feet

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

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

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

evaluator's recommendation
in Agreement

Front page

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

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

Front page

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2

[illegible]

WEL LAB DSN DSA ADN ACO
LCK

flamminers · ergonomics · dermatitis · physical agents · flammable storage
LEV (particulate) : 5VE (particulate) : 51W · GMV · LEV

HHIMS Industrial Hygiene Survey Form

Front page

Affiliations 4 5 6 7 8 9		Installation SCARNG		Building 1 2 3 4 5 6 7 8 9 10		Room Number 1 2 3 4 5 6 7 8 9 10	
Location 1 2 3 4 5 6 7 8 9 10		Operation DRV		Survey Date 03/03/11		Evaluator-HHIMS KJS	
MS 03/03/11		Rank 1		Macom NA		Submacom X X	
SN 1		Commercial 1		Frequency (hrs/day) 1		RAC 3	
No. CIVS 3		No. MIL 3		Contractors 1		No. LOE 1	
Unit / Organization (45) Det. 1 3/37A EN		Unit code 1		Controls Required (25 characters max) 1		Controls Present (if > 6, continue in comments) (25) 1	
Manufacturer's Description (10 characters max) 1		Unit code 1		Controls Required (25 characters max) 1		Controls Present (if > 6, continue in comments) (25) 1	
MOSH TC # or Foreign equivalent (10 characters max) 1		Unit code 1		Controls Required (25 characters max) 1		Controls Present (if > 6, continue in comments) (25) 1	

Eyes and Face e R U chemical splash full face shield chem/safety impact safety impact welding helmet sunglasses welding goggles/glasses laser eye protection other		Respirator e R U abrasive blasting hood disposable full face air purifying 1/2 face air purifying powered air purifying 1/4 face air purifying self-contained other		Body e R U aprons cold weather clothing coveralls full body suit heat reflective safety belt/harness special purp. clothing other		Head and Feet e R U cold weather boots/hat hard hats impermeable boots safety shoes (conductive) safety (nonconductive) other other other	
--	--	--	--	--	--	--	--

Reminders: ergonomics - dermatitis - physical agents - flammable storage
 EYE (permanent) EYE (portable) SHW - GMV - LEV
 ACO ADM DSA DSN LAB LCK
 RAD ECB EPL RHS SPR WEL

HHIMS Industrial Hygiene Survey Form

Front page

AHI/OC 45000 Installation SCARNG Building 046RADW Room Number 046RADW
 Location GS Operation M0W Survey Date 030211 day month year
 Evaluator: HHIMS KJS Macom NG Submacom X X RAC 3
 DSN Commercial ✓ Frequency (hr/day) 1 No. CIVs 2 No. MIL Contractors 0 No. LOA 0
 Unit code 046RADW Unit / Organization (45) DET 1 3/378 FA
 Non-Responsive 046RADW South Carolina

Controls Present (if not, continue in comments) [25]
 Evaluation (25 characters max) _____ Unit code _____ Controls Required (25 characters max) _____
 Version Units _____

Gloves		e * R U		Respirator		e * R U		Manufacturer's Description (10 characters max)		NIOSH TC # or Foreign equivalent (10 characters max)	
acid				airline							
cool surfaces				abrasive blasting hood							
hot surfaces				disposable							
MBC agents				full face air purifying							
oil				1/2 face air purifying							
solvents				powered air purifying							
surgical gloves				1/4 face air purifying							
leather - cotton				self-contained							
other											

Eyes and Face		e * R U		Hearing		e * R U		Body		e * R U		Head and Feet		e * R U	
chemical splash				canal caps				aprons				cold weather boots/hat			
full face shield				> 85-108 dBA steady earplugs				cold weather clothing				hard hats			
chem/safety impact				helmets w/ muffs				coveralls				impermeable boots			
safety impact				muffs alone				full body suit				safety shoes (conductive)			
welding helmet				(108-118 [muff/earplug comb				heat reflective				safety (nonconductive)			
sunglasses				muffs and earplugs				vast/suit				other			
welding goggles/glasses				(118 or >) with time limit				safety belt/harness				other			
laser eye protection				other				special purp. clothing				other			
other				other				other <u>BOUIS</u>				other			

Reminders: ergonomics - dermatitis - physical agents - flammable storage
 EYE (permanent) _____ EYE (portable) _____ SHW - GMV - LEV
 ACO ADM DSA ODN LAB ICK
 RAD ECB EPL RNS SPR WEL

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HHIMS Industrial Hygiene Survey Form

Front page

Affiliations: 43000 Installation: 82. HAN/G
 Location: M/N Operation: A/D/O Survey Date: 03/21/11
 Building: Evaluation: JINUS Macom: N/G Submacom: X X
 DSN: Commercial: V Frequency (hr/day): 5-6 RAC: 3 No. CIVS: 20
 Unit / Organization (45): DET. 1 8/378 F.A.
 Controls Required (25 characters max): SOUTH CAROLINA
 No. MLL: No. Contractors: No. LOD:

Controls Present (if #6, continue in comments) (25):
 Evaluation (25 characters max):
 Unit code:
 Controls Required (25 characters max):
 NIOSH TC # or Foreign equivalent (10 characters max):

	e	R	U
acrid			
acid surfaces			
rust surfaces			
HBC agents			
oil			
solvents			
strong odors			
heat/cold			
other			

Respirator

	e	R	U
abrasive blasting hood			
disposable			
full face air purifying			
1/2 face air purifying			
powered air purifying			
1/4 face air purifying			
self-contained			
other			

Hearing

	e	R	U
canal caps			
> 85-108 dBA steady earplugs			
helmets w/ muffs			
muffs alone			
(108-118) muffs/earplugs comb			
muffs and earplugs			
(118 or >) with time limit			
other			
other			

Body

	e	R	U
aprons			
cold weather clothing			
coveralls			
full body suit			
heat reflective			
vest/suit			
safety belt/harness			
special PPE, clothing			
other			
other			

Head and Feet

	e	R	U
cold weather boots/shoes			
hard hats			
impermeable boots			
safety shoes (conductive)			
safety (nonconductive)			
other			
other			
other			

HHIMS Industrial Hygiene Survey Form

Front page

Affiliations 45000		Installation SCARNG		Building [] [] [] [] [] [] [] [] [] []		Room Number 050204	
Location MN		Operation MAN		Survey Date 030211		Unit / Organization (45) 1st 1338th FA	
Non-Response		Evaluator: HHNS KJS		Macom NG		Submacom X X	
OSN Commercial [] [] [] [] [] [] [] [] [] []		Frequency (per day) < 1		No. CIVS 2		No. MIL [] [] [] [] [] [] [] [] [] []	
Ventilation Unit [] [] [] [] [] [] [] [] [] []		RAC 5		No. Contractors [] [] [] [] [] [] [] [] [] []		No. Lab [] [] [] [] [] [] [] [] [] []	
Comments Present (if #8, continue in comments) (25)							
Evaluation (25 characters max)							
Unit code							
Controls Required (25 characters max)							
NIOSH TC # or foreign equivalent (10 characters max)							

Gloves		e R U		Respirator		e R U		Manufacturers Description (10 characters max)		e R U		Body		e R U		Hand and Feet		e R U	
Acid				abrasive blasting hood				airline				aprons				cold weather boots/shoe			
cut surfaces				disposable				full face air purifying				cold weather clothing				hard hats			
hot surfaces				full face air purifying				1/2 face air purifying				coveralls				impermeable boots			
flame agents				powered air purifying				1/4 face air purifying				full body suit				safety shoes (conductive)			
oil				self contained								heat reflective				safety nonconductive			
solvents												vest/suit				other			
synthetic gloves												safety harness				other			
leather												special purp. clothing				other			
other												other				other			

Eyes and Face		e R U		Hearing		e R U		Body		e R U		Hand and Feet		e R U	
chemical splash				canal caps				aprons				cold weather boots/shoe			
full face shield				(> 85-108 dBA steady) earplugs				cold weather clothing				hard hats			
chem/safety impact				helmet w/ muffs				coveralls				impermeable boots			
safety impact				muffs alone				full body suit				safety shoes (conductive)			
welding helmet				muffs and earplugs				heat reflective				safety nonconductive			
sunglasses				118 or > 1 with time limit				vest/suit				other			
welding goggles/glasses				other				special purp. clothing				other			
hazmat eye protection				other				other				other			
other				other				other				other			

evaluator's and environmental
and equipment

Parameters: ergonomics - dermatitis - physical agents - flammable storage
EYE (initials) []
SIW - GMV - LEV

ACO ADU DSA OSN LAB LCK
HAE ECB EHL HHS BHR WEL

Posted to
May, 2008

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

NGB-AVN-SI

June 19, 2006

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

TO: The South Carolina Army National Guard Clover Armory, ATTN: **Non-Responsive** **Non-Responsive** Commander, 301 Memorial Street, Clover, SC 29710-0258.

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

1. References.

- a. Report submitted May 2006, Industrial Hygiene Survey, Technical Solutions International, Inc (TSI).
- b. OSHA Standards 29 CFR (Code of Federal Regulations), General Industry, revised 2004.
- c. AR 40-5, Preventive Medicine, October 1990.
- d. AR 11-34, 15 February 1990, the Army Respiratory Protection Program.
- e. AR 385-10, 29 February 2000, Army Safety Program.
- f. Department of the Army Pamphlet (DA PAM) 40-501, 10 December 1998, Hearing Conservation.
- g. TB MED 530, the Army Industrial Hygiene Program.
- h. Title 29 Code of Federal regulation (CFR), 2004 rev, Part 1910.94 (c) (6) Table G-10, Ventilation.
- i. Industrial Ventilation, 25th ed, 2004, 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. TSI 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., attachment 1 requesting industrial hygiene (IH) services where needed to complete the recommendations.

b. Discuss the high lead samples taken inside of this previously cleaned 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, 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.

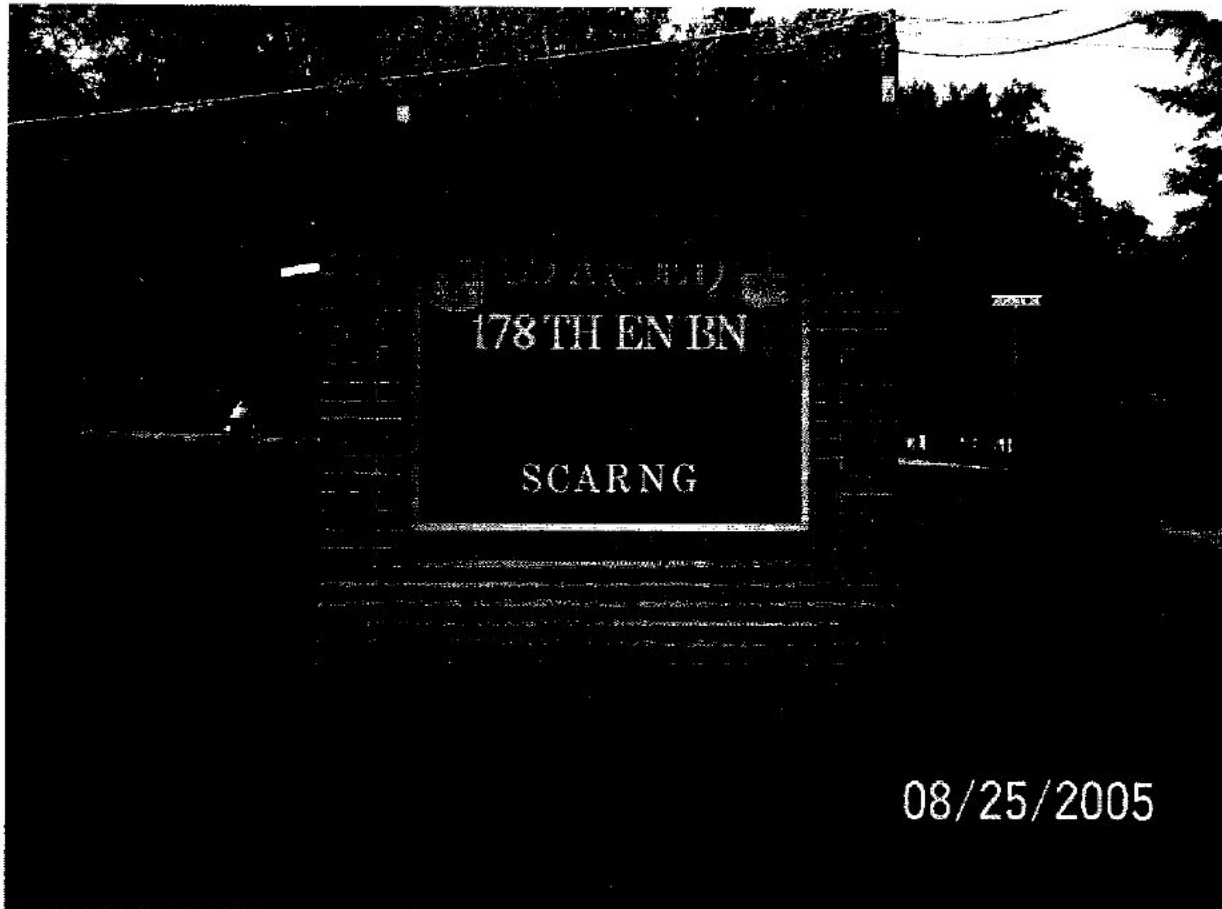
4. Please accept the apologies of the Regional Industrial Hygiene Office for getting these reports out so late. This is not our normal practice. We strive to have reports of surveys back to you within 30-45 days of walk thru.

5. If additional information is needed about the contractors report, please contact ^{Non-Res}

Non-Responsive

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

Army National Guard Industrial Hygiene Survey



Clover Armory

301 Memorial St
Clover, SC 29710-0258
803-806-1941

POC: **Non-Responsive**

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220 Jaysee Court
Fayetteville, GA 30215
Phone: (678) 522-1138
FAX: (877) 631-9226
E-mail: info@tsi-cg.com
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Sharing Your Business. Improving Your Performance.

15 June 2006

MEMORANDUM FOR: South Carolina Army National Guard, ATTN: **Non-Responsive**
Commander, DET 2 HHC 178 EN BN, 301 Memorial St, Clover, SC
29710-0258

SUBJECT: Industrial Hygiene Survey of Clover Armory Army National Guard, Clover, South Carolina

BACKGROUND:

Introduction:

At the request of **Non-Responsive** National Guard Bureau Regional Industrial Hygiene South Office, Atlanta, GA, an initial baseline industrial hygiene survey was conducted at the **Clover Armory, Clover, South Carolina**, on 25 Jul 05 as part of the South Carolina Army National Guard Occupational Health Program to identify potential hazards in the workplace. The point of contact for this facility was **Non-Responsive**

Scope of Work:

An initial baseline survey was conducted, which consisted of collecting lead wipe samples, conducting noise and illumination survey, as well as evaluating the condition of the building, including the Heating Ventilation and Air Conditioning (HVAC) System as it relates to indoor air quality. A review of several industrial hygiene programs, such as hazard communication, radiation protection, and personal protective equipment was also performed. A field survey form is completed on all industrial operations at the facility, and the data is contained in this report. Twenty Lead samples were collected, with color photos documenting sample locations. All standard industrial hygiene sampling analysis were performed by Analytical Environmental Services Laboratory. As part of the general walkthrough, any noted deficiencies were photographed and documented as part of this report.

INSTRUMENTATION:

The following survey instrumentation was provided by or for the contractor, and was used to obtain lead wipe dust, illumination, ventilation, and noise sample measurements. All noise dosimeter instrumentation was calibrated before and after sampling. All other instrumentation was operated according to manufacturer recommendations.

Instrument	Serial Number	Calibration
Extech Heavy Duty Light Meter	Q009392	NEW, Purchase July 2003
Bruel & Kjaer Sound Level Meter	1942768	09 June 2005
Bruel & Kjaer 4231 Acoustic calibrator	1944552	10 June 2005
Alnor-Thermo Anemometer (CompuFlow)	2800	07 June 2005
Ghost Wipe Lead Dust Wipes		

FINDINGS:

The armory was built in 1963. Vehicles stored at this facility include dozers, graders, rollers, haulers, HEMMETS, 916 tractor trailer beds, and cranes. This facility houses the following unit:

1. DET 2 HHC 178 EN BN, **Non-Responsive** Commander

The primary function of this unit is to provide maintenance and transportation support for Combat Engineers. The unit has actually relocated and is based out of the Welford, South Carolina Armory

This unit has two fulltime personnel providing readiness and other personnel support as follows:

	Last Name	First Name	MI	Sex	SSN (Last 4 digits)	Rank
1.	Non-Responsive					
2.						

BUILDING CONDITION:

In spite of the building's age, there is evidence it has been well maintained. Water damage was found in some areas of the ceiling throughout the building, which is evidence of possible roof leakage. Some areas have been repaired, but a few are still in need of repair. One particular area of the building had a strong musty odor, which might be evidence of mildew.

LEAD DUST WIPE SAMPLES:

Lead dust wipe samples were taken using 12 inch templates. Twenty dust wipe samples were submitted to the lab for analysis. The results show that most were below reportable levels (BRL). However, **two** samples were above the Army National Guard's limit of **200 µg/ft²** for surface contamination in and around indoor firing ranges (***Army National Guard All States Log Number P01-0075, Policies and Responsibilities for Inspection, Evaluation, and Operation of ARNG Indoor Firing Range (IFR) and Guidelines for IFR Rehabilitation, Conversion, and Cleaning***). Pictures of the lead sample wipes were taken (see pictures Clover-01 to Clover-12).

The following table notes where the samples were taken, the sample number and the lead results:

BEST AVAILABLE COPY

Sample Location	Sample No.	Results ($\mu\text{g}/\text{ft}^2$)
Supply Room: Vault Shelf	1	BRL
Supply Room: Vault Rack	2	BRL
Supply Room: Blank	3	BRL
Supply Room: Outside Vault Door	4	BRL
Drill Hall: Supply Room Entrance	5	BRL
Drill Hall: Center Floor	6	BRL
Drill Hall: Main Entrance	7	BRL
Kitchen: Blank	8	BRL
Kitchen: Stove	9	BRL
Motor Pool: Blank	10	BRL
Motor Pool: Bay I	11	BRL
Motor Pool: Administration Office	12	BRL
IFR: Blank	15	BRL
IFR: Backstop	16	625
IFR: Floor	17	719
IFR: Entrance Sidewall	18	BRL
Commander's Office	19	BRL
Administrative Office 2	20	BRL

Note 1: IFR refers to Indoor Firing Range

Note 2: $\mu\text{g}/\text{ft}^2$ refers to micrograms or one millionth of a gram per square foot

ADMINISTRATIVE OFFICES

There are several administrative offices in this facility, where personnel use computer systems, file, read, write and perform other administrative tasks as necessary. Computer use occurs throughout the day. Illumination levels range from 17.7 to 68.5 Foot Candles (FC's). (*Illumination and Engineering Society of North America (IES) requires 20 to 50 foot-candles (FC) for storage areas and 50 – 100 FC for administrative areas.*)

SUPPLY ROOM(S) AND VAULTS:

BEST AVAILABLE COPY

This facility has one supply rooms, with several storage areas. The supply room is currently not used by full-time personnel; therefore there are no computers or other office equipment in use on a daily basis. No chemicals, or weapons are stored in Clover, hence a Material Safety Data Sheet (MSDS) book is not maintained and kept in the office. The supply room and office have not been occupied since approximately February 2003.

KITCHEN / MESS HALL

The kitchen is currently not used for cooking. There were indications of possible rodent infestation, evident by droppings on the counter tops. The illumination levels range from 15.5 to 73.1 FC's

DRILL HALL

Personnel have not officially used the drill hall for any purpose including cleaning weapons, since March 2003. It is occupied on a regular basis, at least once per week, by a church organization for Sunday worship services. Ceiling lamps were in good working order. Illumination levels ranged from 8.3 to 59.5 FC's.

Due to low noise levels (administrative and drill areas) there were no requirements for a hearing conservation program.

INDOOR FIRING RANGE (IFR) BEST AVAILABLE COPY

This IFR is now used for a variety of functions, which include a Readiness Clubroom, Administrative Offices, and classroom / offices rented by a church organization. An exact date was not provided for the last retrofit and clearance for this IFR, but it was conducted prior to the early-1980s.

The Army National Guard All States Log Number P01-0075, Policies and Responsibilities for Inspection, Evaluation, and Operation of ARNG Indoor Firing Range (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. The lead wipe sample readings for the IFR ranged from BRL $\mu\text{g}/\text{ft}^2$ to 719 $\mu\text{g}/\text{ft}^2$. There are

MOTOR POOL

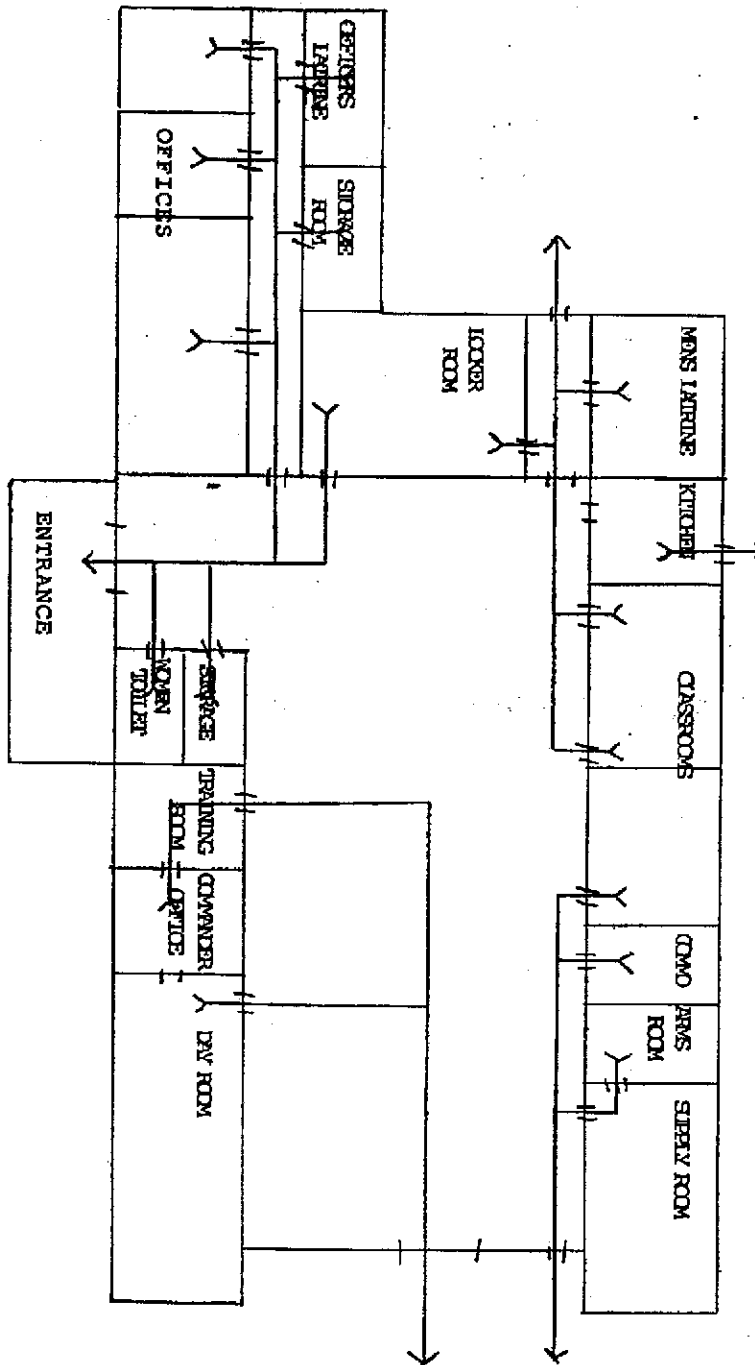
The motor pool building was built in 1948. The building is currently used only for vehicle storage. All machinery and maintenance equipment have been removed.

TECHNICAL ASSISTANCE: BEST AVAILABLE COPY

Non-Responsive

APPENDIX A - ADDITIONAL DATA

FACILITY DIAGRAM:



FIRE EVACUATION PLAN

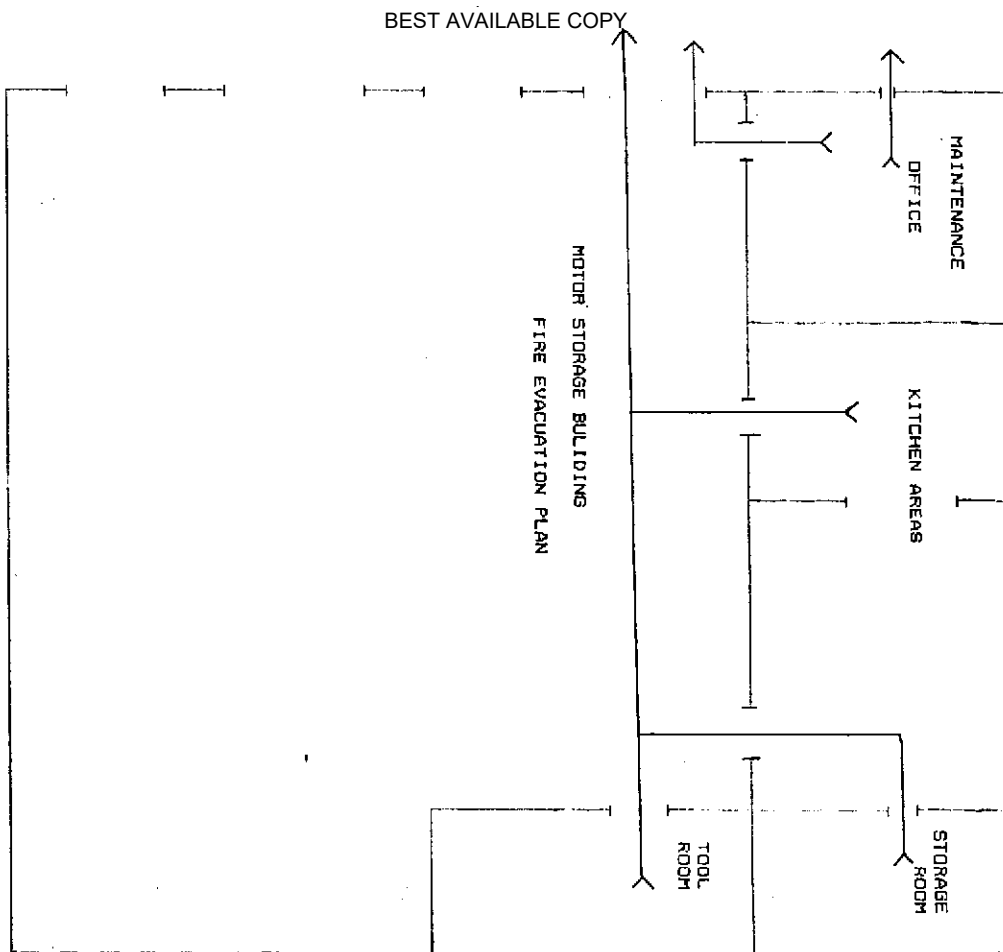
P. 1

407-445-8954

McDonald

Aug 28 05 08:32p

ME Building



WALK THROUGH OBSERVATIONS

No.	Location	Description	Picture #
1	Motor Pool Office	Signs of water leak; paint chips	13 & 14
2	Former Kitchen	Signs of water leak	15
3	Locker Room	Ceiling water leak; strong mildew odor	16 & 17
4	Weight Room	Signs of water leak	18
5	Commander's Office	Signs of water leak	20
6	Foyer Utility Closet	Signs of water leak	21
7	Foyer	Signs of water leak	22

PAINT CHIP SAMPLE RESULTS

Sample Location	Sample No.	Results ($\mu\text{g}/\text{ft}^2$)	Remarks
Motor Pool Office	13	0.0758	
Locker Room	14	BRL	Below reportable level

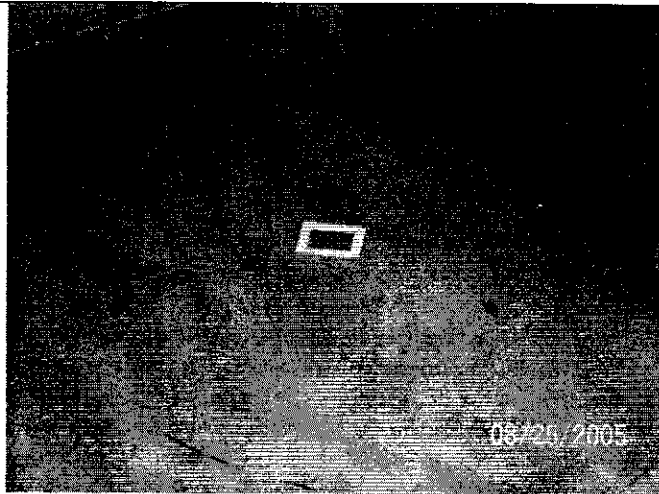
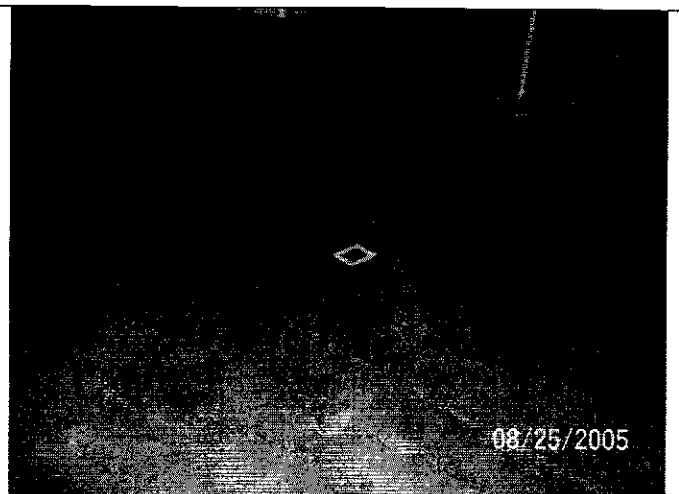
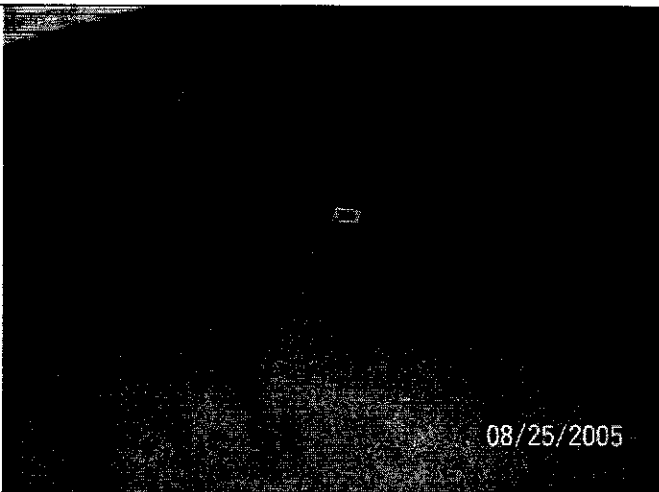
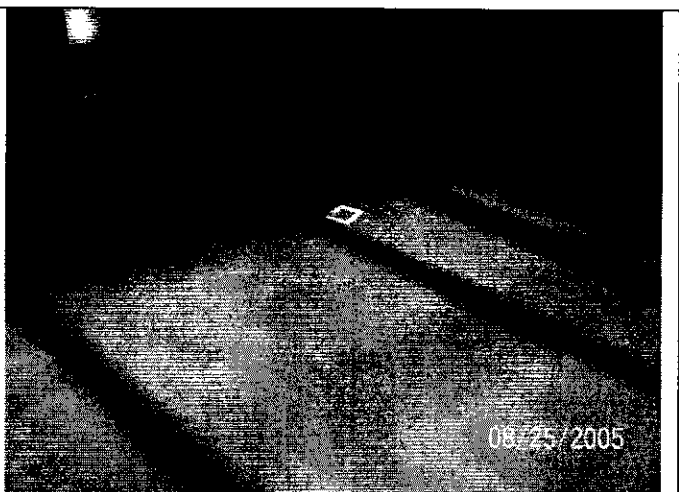
RESTAURANT TELEGRAPH

Light levels found in the administrative areas are as follows:

[illegible]

APPENDIX B – Recommendations:

- a. Continue a maintenance schedule for ensuring that filters in the HVAC system are properly changed, any leaks or standing water are identified, repaired, and prevented, and supply and exhaust grilles are appropriately cleaned. Failure to do so may lead to further indoor air quality issues. The plan should include monitoring, inspecting and cleaning HVAC components such as outside air intakes, outside air dampers, air filters, drain pans, heating and cooling coils, the interior of air handling units, fan motors and belts, air humidification, controls and cooling towers. Consult manufacturers' instructions for appropriate maintenance schedules.
- b. Non-porous (e.g., metals, glass, and hard plastics) and semi-porous (e.g., wood, and concrete) materials that are structurally sound and are visibly moldy can be cleaned and reused. Cleaning should be done using a detergent solution. Porous materials such as ceiling tiles and insulation, and wallboards with more than a small area of contamination should be removed and discarded. Porous materials (e.g., wallboard, and fabrics) that can be cleaned, can be reused, but should be discarded if possible. A professional restoration consultant should be contacted when restoring porous materials with more than a small area of fungal contamination. All materials to be reused should be dry and visibly free from mold. Routine inspections should be conducted to confirm the effectiveness of remediation work.
- c. Any initial water infiltration should be stopped and cleaned immediately. An immediate response (within 24 to 48 hours) and thorough clean up, drying, and/or removal of water damaged materials will prevent or limit mold growth. If the source of water is elevated humidity, relative humidity should be maintained at levels below 60% to inhibit mold growth. Emphasis should be on ensuring proper repairs of the building infrastructure, so that water damage and moisture buildup does not recur.
- d. Contaminated materials that cannot be cleaned should be removed from the building in a sealed plastic bag. There are no special requirements for the disposal of moldy materials.
- e. Upgrade lighting measurements as required. Replacing blown or broken lights, painting the walls a light color, cleaning existing light fixtures, rearranging furniture to make better use of available light, and supplemental or task lighting are considerations in increasing available light levels.
- f. An ergonomics survey should be completed for all supply and administrative personnel as a preventative measure to address and document any ergonomic concerns or problems. An emphasis on maintaining neutral postures and proper lifting techniques should be covered.
- g. Material Safety Data Sheets (MSDS) are required to be kept at the primary workplace facility and to be easily accessible in case of emergency. Personnel responsible for these items should receive annual training in the requirements of the Hazardous Communication Program and the appropriate keeping and storage of MSDSs.
- h. Ensure personnel are prohibited from drinking, eating, smoking chewing tobacco and gum, or applying makeup in supply and maintenance areas. Hands should be cleaned with soap and water before eating drinking, eating, smoking, chewing tobacco and gum, or applying makeup. Remove all refrigerators, cups, and other utensils from supply and maintenance areas.
- j. Ensure that all noise hazardous machinery and noise hazardous areas are appropriately marked.
- k. Perform noise dosimetry on maintenance personnel during drill weekend, in order to document noise exposure.
- l. Do not disturb damaged floor tiles, utilize damp mop to clean said areas.

APPENDIX C – Pictures**Photo # 1****Lead Wipe Sample 1 -
Supply Room: Outside Vault Door****Photo # 2****Lead Wipe Sample 5 – Drill Hall:
Supply Room Entrance****Photo # 3****Lead Wipe Sample 6 -
Drill Hall: Center Floor****Photo # 4****Lead Wipe Sample 7 -
Drill Hall: Main Entrance**

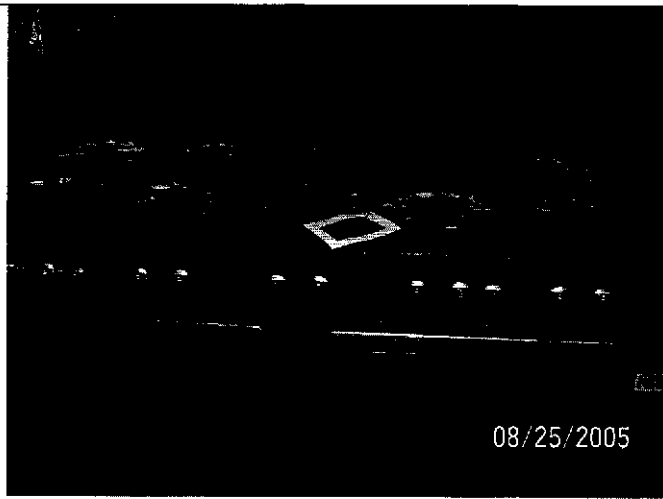


Photo # 5
Lead Wipe Sample 9 -
Kitchen Stove

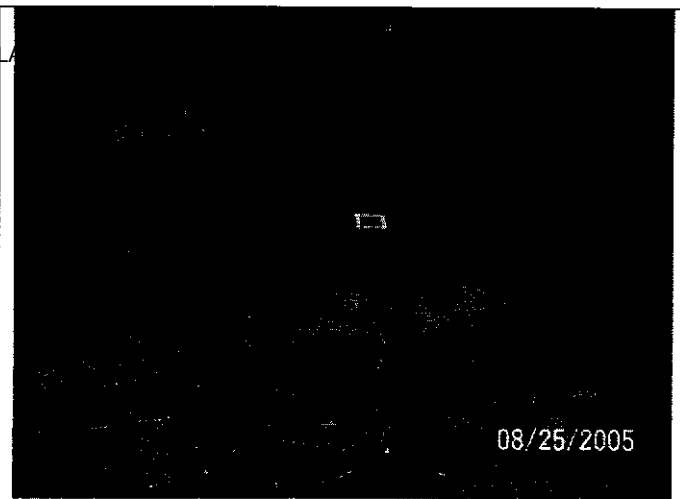


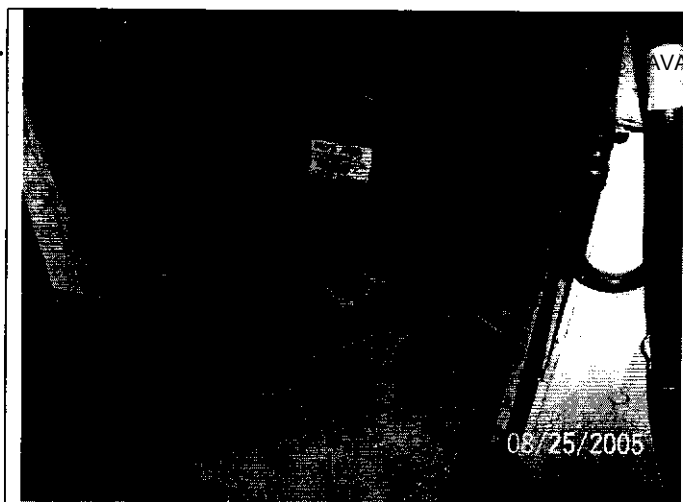
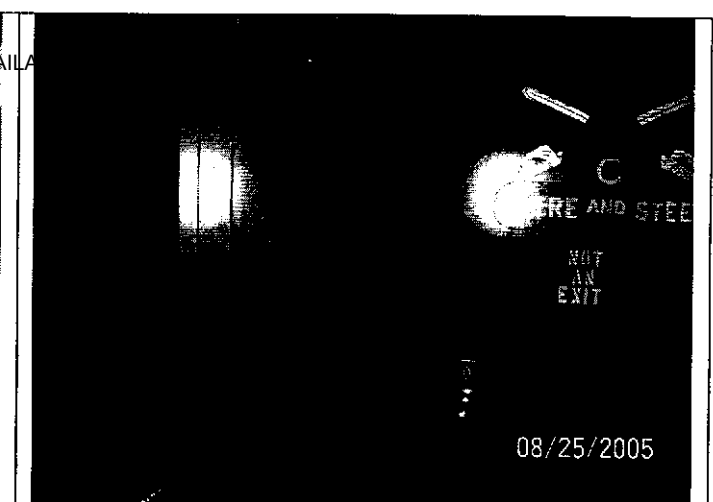
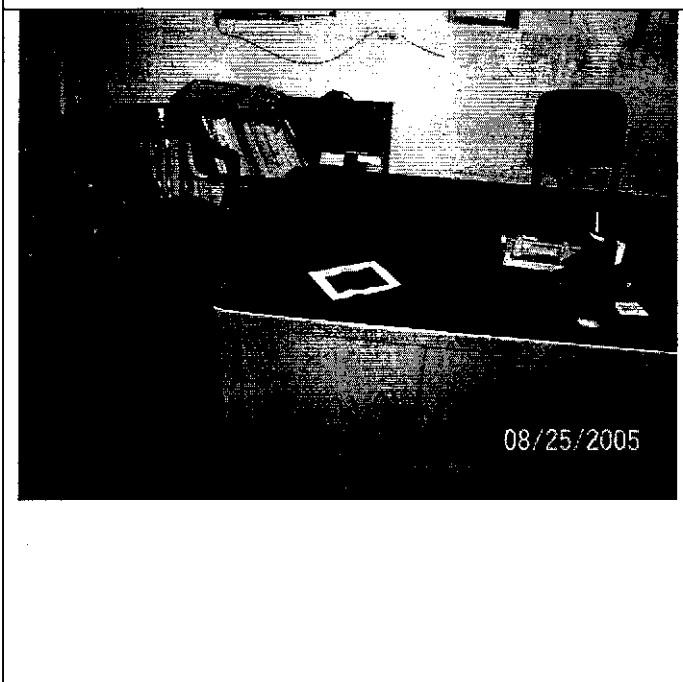
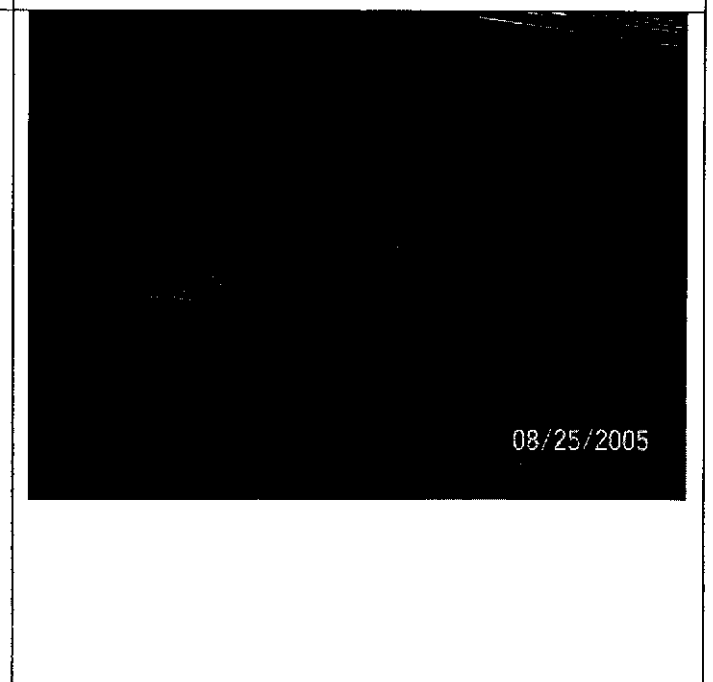
Photo # 6
Lead Wipe Sample 11 – Motor Pool:
Bay I



Photo # 7
Lead Wipe Sample 11 – Motor Pool:
Administration Office



Photo # 8
Lead Wipe Sample 16 – IFR Backstop

	
<p>Photo # 9</p>	<p>Photo # 10</p>
<p>Lead Wipe Sample 17 – IFR Floor</p>	<p>Lead Wipe Sample 18 – IFR Entrance Sidewall</p>
	
<p>Photo # 11</p>	<p>Photo # 12</p>
<p>Lead Wipe Sample 19 – Commander's Office</p>	<p>Lead Wipe Sample 20 – Administrative Office III</p>

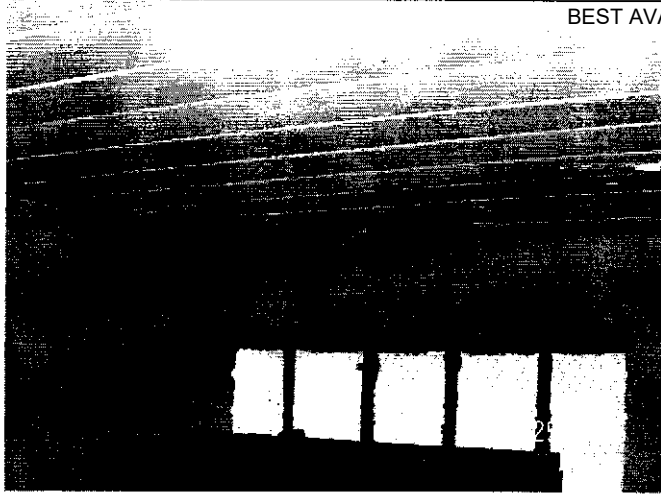


Photo # 13
Motor Pool Office Ceiling Water Damage

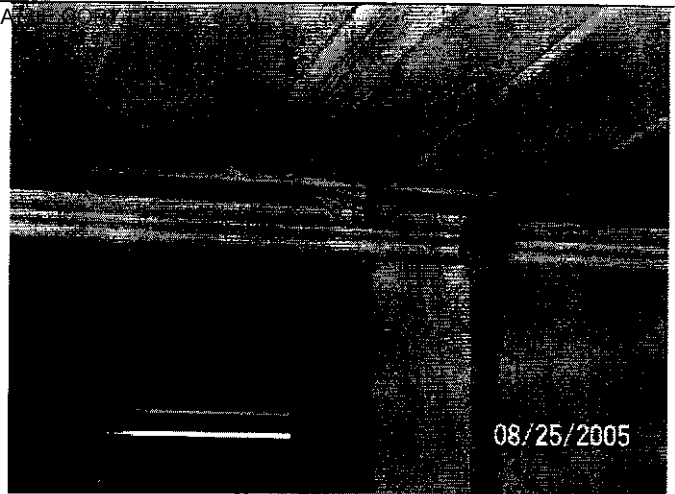


Photo # 14
Motor Pool Office Paint Chips

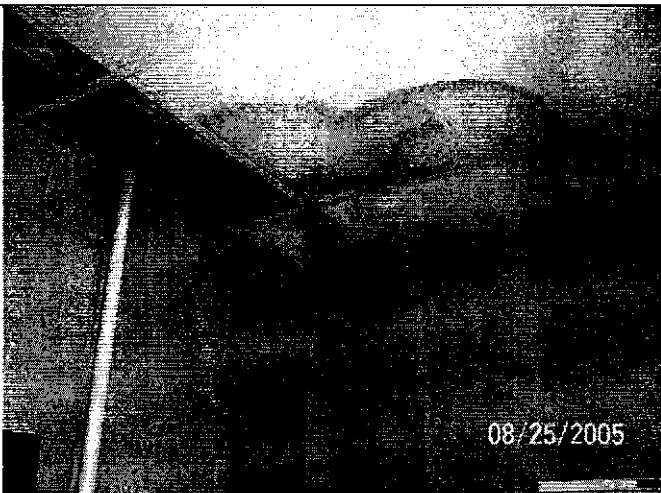


Photo # 15
Former Kitchen Ceiling Water Damage

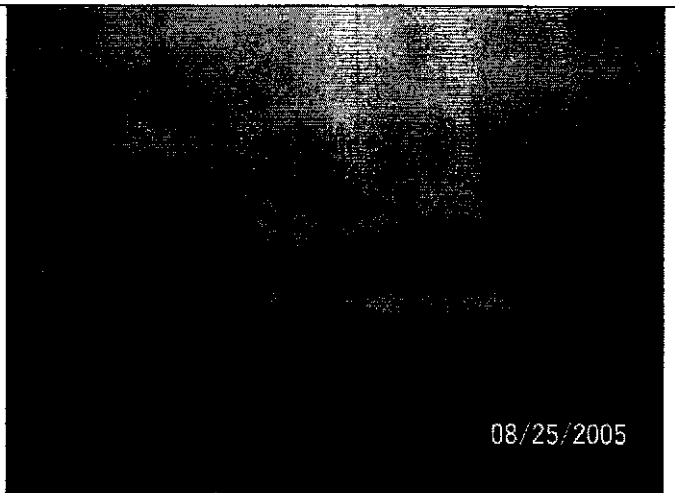
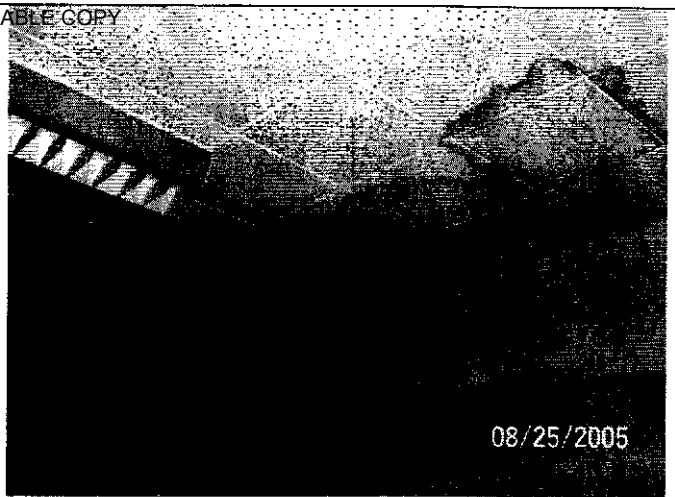


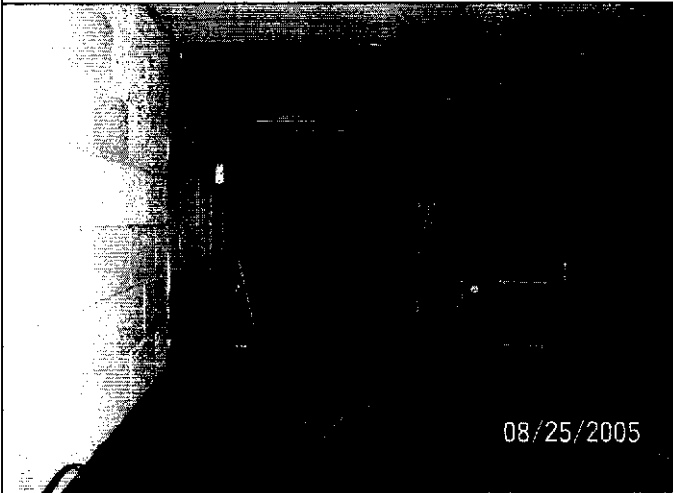
Photo # 16
Locker Room Ceiling Water Damage I



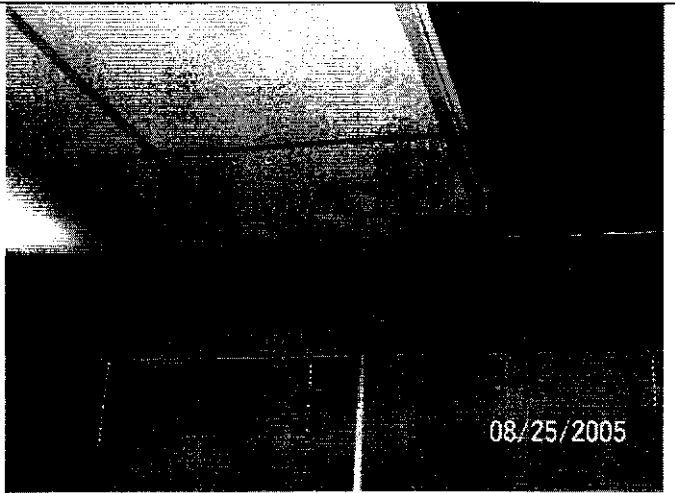
08/25/2005

Photo # 17**Locker Room Ceiling Water Damage II**

08/25/2005


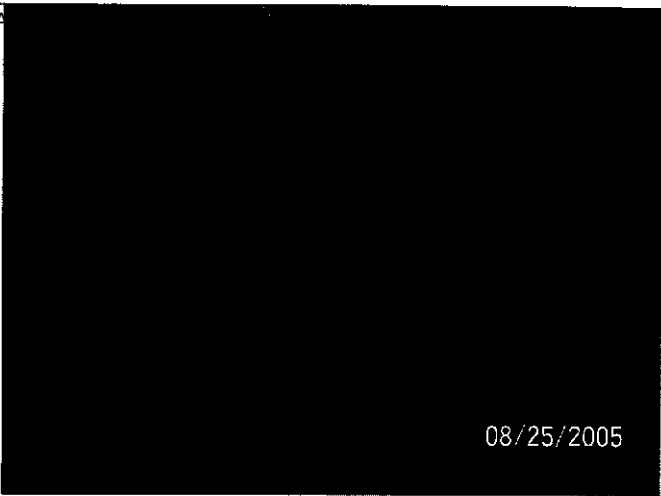
Photo # 18**Weight Room Ceiling & Wall Water Damage**

08/25/2005

Photo # 19**Former IFR Backstop Paneling & Door**

08/25/2005

Photo # 20**Commander's Office Ceiling Water Damage**

 <p>08/25/2005</p>	 <p>08/25/2005</p>
<p>Photo # 21 Foyer Utility Room Ceiling Water Damage</p>	<p>Photo # 22 Foyer / Front Entrance Ceiling Water Damage</p>

Date: 8/7/2005

Analytical Environmental Services, Inc.

TOTAL LEAD IN WIPE SAMPLES
N7082

Client: Technical Solutions International
 Project: Clover Amory
 Delivery Order:
 PO No: W90PJM42015001-0001

Lab Order: 0508F17
 Date Received: 8/30/2005 9:20 AM
 Matrix: Wipe

Laboratory ID	Client Sample ID	Results	Units	Report Limit	DF	Date Collected	Date Analyzed	Analyst
0508F17-001A	CLOVER 1	BRL	µg. Total	20	1	8/25/2005	8/31/2005	VA
0508F17-002A	CLOVER 2	BRL	µg. Total	20	1	8/25/2005	8/31/2005	VA
0508F17-003A	CLOVER 3	BRL	µg. Total	20	1	8/25/2005	8/31/2005	VA
0508F17-004A	CLOVER 4	BRL	µg. Total	20	1	8/25/2005	8/31/2005	VA
0508F17-005A	CLOVER 5	BRL	µg. Total	20	1	8/25/2005	8/31/2005	VA
0508F17-006A	CLOVER 6	BRL	µg. Total	20	1	8/25/2005	8/31/2005	VA
0508F17-007A	CLOVER 7	BRL	µg. Total	20	1	8/25/2005	8/31/2005	VA
0508F17-008A	CLOVER 8	BRL	µg. Total	20	1	8/25/2005	8/31/2005	VA
0508F17-009A	CLOVER 9	BRL	µg. Total	20	1	8/25/2005	8/31/2005	VA
0508F17-010A	CLOVER 10	BRL	µg. Total	20	1	8/25/2005	8/31/2005	VA
0508F17-011A	CLOVER 11	BRL	µg. Total	20	1	8/25/2005	8/31/2005	VA
0508F17-012A	CLOVER 12	BRL	µg. Total	20	1	8/25/2005	8/31/2005	VA
0508F17-013A	CLOVER 13	BRL	µg. Total	20	1	8/25/2005	8/31/2005	VA
0508F17-016A	CLOVER 16	BRL	µg. Total	20	1	8/25/2005	8/31/2005	VA
0508F17-017A	CLOVER 17	BRL	µg. Total	20	1	8/25/2005	8/31/2005	VA
0508F17-018A	CLOVER 18	BRL	µg. Total	20	1	8/25/2005	8/31/2005	VA
0508F17-019A	CLOVER 19	BRL	µg. Total	20	1	8/25/2005	8/31/2005	VA
0508F17-020A	CLOVER 20	BRL	µg. Total	20	1	8/25/2005	8/31/2005	VA

Analytical Environmental Services, Inc.

Date: 9/7/2005

TOTAL LEAD IN PAINT
PAINT

Client: Technical Solutions International
 Project: Clover Amory
 Delivery Order:
 PO No: W90PJM42015001-0001

Lab Order: 0508F17
 Date Received: 8/30/2005 9:20 AM
 Matrix: Paint

Laboratory ID	Client Sample ID	Results	Units	Report Limit	DF	Date Collected	Date Analyzed	Analyst
0508F17-013A	CLOVER 13	0.075%	wt%	0.00671	1	8/25/2005	9/1/2005	VA
0508F17-014A	CLOVER 14	BRL	wt%	0.00666	1	8/25/2005	9/1/2005	VA

APPENDIX E - HHIM Sheets

BEST AVAILABLE COPY

Section 1. Demographics Data

a. ARLOC 45000 b. Installation SC Nat. Guard c. BLDG / RM Number Clover Armory
d. Location / Code e. Operation Code f. Description
g. MACOM/CODE h. SUBMACOM/CODE i. Supervisor
j. Telephone / AUTOVON Number k. RAC l. Frequency (hrs. per day)
m. NO CIV(S) n. NO MIL o. NO Contractor(s) p. NO LOC(S) q. NO Other

Section 2. IH Staffing data

a. LAB Hoods b. Vapor Degreasers c. Maintenance Bays d. Spray Booths
e. Open Surface Tanks f. Ventilation Units

Section 3. Survey Data

a. Survey Date		b. Evaluator (initials)		
c. Controls Present	d. Evaluation	e. Unit Code	f. Controls Required	g. Status

h. Personal Protective Equipment (R - Required; A - Available)

1. Respirator	Manufacturer	NIOSH TC NO	R/A
Disposable			/
1/2 Face Air Purifying			/
1/2 Face Air Purifying			/
Full Face Air Purifying			/
Powered Air Purifying			/
Airline			/
Self-Contained			/
Abrasive Blasting Hood			/

2. Gloves	R/A	3. Eye / Face	R/A	4. Hearing	R/A	5. Body	R/A	6. Head/Foot	R/A
Acid	/	Chemical / Splash	/	Muffs	/	Aprons	/	Hard Hats	/
Oil	/	Safety / Impact	/	Earplugs	/	Coveralls	/	Impermeable Boots	/
Solvents	/	Chemical / Safety	/	Canal Caps	/	Full Body Suit	/	Safety Conduct Shoes	/
Hot Surfaces	/	Full Face Shield	/	Helmets	/	Safety Belt / Harness	/	Safety Non-Conductive Shoes	/
Cold Surfaces	/	Welding Helmet	/			Heat Reflect Vest / Suit	/		/
NBC Agents	/					BDU's	/		/

Section 4. Hazard Inventory Data

a. CAS Code	b. Hazard Description	c. PAC or EPC	d. Medical Surveillance Recommended (Yes or No)

[illegible][illegible]

Facility Name:

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Date: _____

Storage Area:

Trade Name:

Nomenclature:

Container:

[illegible]

**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 C 1/263 Armor, 16th Ave & Ward Circle, Conway, SC 29526-0793.

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

1. 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.
- 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. Discuss the high lead samples taken inside of the inactive indoor firing range and the motor pool 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, 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.

Non-Responsive

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

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ENVIRONMENTAL MANAGEMENT SOLUTIONS
INDUSTRIAL HYGIENE CONSULTING

SOUTH CAROLINA ARMY NATIONAL GUARD

CONWAY ARMORY
CONWAY, SOUTH CAROLINA

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