LONGHORN ARMY AMMUNITION PLANT KARNACK, TEXAS

ADMINISTRATIVE RECORD

CHRONOLOGICAL INDEX

Volume 3 of 9

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Prepared for

Department of the Army
Longhorn Army Ammunition Plant

1976 – 2008

LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS
ADMINISTRATIVE RECORD – CHRONOLOGICAL INDEX

VOLUME 3 of 9

2008

Note: Volume 3, Year 2008, Letter A is listed Out of Date in Sequence and should have been inserted in Year 2004 update to the Administrative Record.

A. Title: ARC Abatement Documents – Longhorn Army Ammunition Plant "400" Area, Building Assessments & Evaluation for Future Demolition Activities (Final Report)
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LONGHORN ARMY AMMUNITION PLANT
"400" AREA
KARNACK, TEXAS

Building Assessments & Evaluation for Future Demolition Activities (Final Report)

Prepared For:
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Houston, Texas

Prepared by:
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June 10, 2004
Document Number 98410-00810

00065021

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Project No. 98410-00810
June 10, 2004

ARC Abatement, Inc.
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Subject: **Building Assessment & Evaluation**
"400" Area, Longhorn Army Ammunition Plant
Karnack, Texas

Attention: Mr. Michael Luzack
Project Manager

Please find attached Building Assessment & Evaluation Report for the "400" Area of the Longhorn Army Ammunition Plant, located in Karnack, Texas. The objective of this report is to assess and evaluate buildings within the "400" Area for the presence of Munitions Constituents (MC) and Unexploded Ordnance (UXO) and to provide an Ordnance and Explosive (OE) response action if munitions constituents are found. The development of this Building Assessment & Evaluation Report is partially based upon requirements referenced in the "Explosive Safety Policy for Real Property Containing Conventional Ordinance and Explosives". This report presents the historical information, survey overview and results, and qualifications. Included, as appendices are summaries of sample results by EXPRAY field test, laboratory quality assurance/quality control, and field sketches denoting sample locations.

It should be noted that the interior spaces of (i.e. inside electrical conduit, fire sprinkler piping, and underground floor drains) have not been tested due to inaccessibility at the subject property, thus materials that have not been tested should be treated as a "3X" classification and requires an OE response action to decontaminate to a "5X" or "0X" prior to demolition.

This report is designed to assist ARC Abatement, Inc. in complying with the appropriate guidance documents, Department of Defense Explosives Safety Board (DDESB) memorandum DDESB-KO, "Guidance for Clearance Plans", dated February 27, 1998 and "DACS-SF" HQDA Ltr 385-00-2, "Explosives Safety Policy for Real Property Containing Conventional Ordnance and Explosives" dated June 30, 2000) and provides notifications as to the presence of MC and or UXO to personnel planning to perform asbestos abatement and demolish structures within the "400" area of the Longhorn Army Ammunition Plant. The OE response action will help establish a work plan to minimize the potential intentional or unintentional exposures to munitions constituents during the demolition phase of the work. The program is designed to remain an integral part until the structures are decontaminated and demolished.

EFI appreciates this opportunity to provide consulting services for ARC Abatement, Inc. Please contact us should any questions arise concerning this report, or if we may be of further assistance.

Sincerely,
EFI

Cuong Nguyen
Project Manager

Lee A. Burckle, P.E.
Branch Manager

(E:\Projects2003\023126-ARC\00810 Exp Svy\400 Area\Longhorn 400 Area UXO. rpt)

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INTRODUCTION

BACKGROUND INFORMATION

Longhorn Army Ammunition Plant (LHAAP) is an 8,493 acre government owned former industrial facility located in Karnack, Harrison County, Texas approximately 15 miles northeast of Marshall, Texas (see Appendix A, Figure 1 for Site Map). The site is bounded by Caddo Lake, and the town of Uncertain, Texas to the north and northeast and the town of Karnack to the west (see Appendix A, Figure 2 for Installation Map).

In the summer of 1941, the Army's Ordnance Department proposed to Monsanto Chemical Co. who had built and operated the original LHAAP, formerly named Longhorn Ordnance Works to become and operate as a smokeless powder plant. Monsanto Chemical Co. responded by stating that their facility would be better suited for the production of Trinitrotoluene (TNT).

PLANT 1 - TNT FACILITY

On December 15, 1941 the Army's Ordnance Department selected Karnack, Texas as the site to build a "U.S. TNT six-line special" facility. Contract for the construction and operation of the facility between Monsanto Chemical Co. and Army's Ordnance Department was signed on December 22, 1941.

The first flake of TNT was produced on October 19, 1942 and by the end of March 1943, four of the six lines were in operation. A new process for converting the mono and tri stages of operation to direct nitration was underway, one line was modified to the new process and returned to operation in May 1943. The conversion was so successful in reducing the batch time cycle that similar alterations for the remaining three lines were quickly implemented. Operation of the fifth line began in 1944 and line six was never operated due to lack of acid manufacturing facilities.

LHAAP from its production of the first TNT flake in October 19, 1942 to August 15, 1945 when production halted ultimately produced 414,805,500 pounds of TNT. This output aggregated eight and a half million pounds more than scheduled production.

PLANT 2 – PROPELLANT FUEL FACILITY

In November 7, 1949 Monsanto signed a contract with the War Department for a JB-2 propellant fuel plant consisting of three lines. Construction of the first line was at 90 percent completion when it was halted on August 21, 1945. Decontamination and preservation work in both Plant 1 and Plant 2 were completed on November 2, 1945 and LHAAP was classified as a standby installation up till February 1, 1952.

PLANT 2 – PYROTECHNIC PRODUCTION

In November 1951 the government entered into a contract with Universal Match Corporation as the operating contractor to reactivate Plant 2 for Korean War pyrotechnics production. Universal Match Corporation produced 3,425,942 pyrotechnic devices before production was discontinued in April 1965, including more than a million "ground signals" which would return to LHAAP for rework early in the Vietnam War.

PLANT 3 – SOLID FUEL ROCKET MOTOR FACILITY

The Army awarded a contract to Thiokol Chemical Corporation to construct a facility to produce solid fuel rocket motors for the Army's second generation of tactical missiles. Construction of the facility began in July 1953 and was completed in December 1955. In the same month, Universal Match Corporation Plant 2 operations were completed also. The first mix of live propellant was produced in December 1954 and a variety of small and large rocket motors were produced (Flacon, LaCrosse, two-inch FFAR, all the second stage sustainer motors for both the single-stage Sergeant and the two-stage Pershing missile systems). Rocket motor production continued until early 1971, when the final Nike Hercules units were packed for delivery.

PLANT 2 – ILLUMINATING MUNITIONS (1965 – 1967)

In 1965 the nation's involvement in Southeast Asia increased dramatically, requirements for production of pyrotechnic and illuminating munitions became unprecedented. LHAAP rose to the challenge and Plant 2 was rehabilitated and reactivated to produce 155 mm, 105 mm, 81mm, 60 mm, hand held signals, button bombs, 4.2 in. mortar, AN/ALA-17 flare, etc.

LHAAP FACILITY (1970's – Present)

In the early 1980's Thiokol Corporation and Morton-Norwich merged into Morton Thiokol, Inc., a new contractor for the recent merging of two commands; ARRCOM and ARRADCOM, in a unified command known as AMCCOM (R) and AMCCOM (D) to increase production efficiency. In July 1989 Morton Thiokol separated into two distinct companies – Thiokol Corporation and Morton International. Thiokol is now essentially an aerospace and ammunition producer. The company is composed of four primary operation groups: space, strategic, tactical and ordnance. Thiokol's Longhorn Division (Contractor-Operator) of LHAAP is part of the Ordnance Operation Groups. A Pershing re-qualification program during 1978 resulted in the production of Pershing P1A motors and expansion project to produce Surface Launched Unit/Fuel Air Explosives (SLUFAE) at LHAAP. In addition, LHAAP became the leading producer of Infrared (Aircraft Counter-measures) Flares for both the Army and Air Force. On August 1990, LHAAP was placed on the National Priorities List (NPL), LHAAP, EPA and the Texas Water Commission (TWC) now called Texas Natural Resource Conservation Commission (TNRCC) entered into a Comprehensive Environmental, Response, Compensation and Liability Act (CERCLA) Section 120 Agreement for remedial activities at LHAAP. In 1997, LHAAP went into standby or layaway status under the Base Realignment and Closure (BRAC) legislation. Department of the Army (DA), U.S. Army Industrial Operations Command released Thiokol Corporation from its contract to serve as operator of the LHAAP facility. In 1998 the Army contracted with Earth Tech to liquidate all personal property and specific installed property.

ARC'S SCOPE OF WORK

In 1999 the Army contracted Project Development Corp. to demolish specific structurally unsafe buildings. Currently, the Army is requesting that additional buildings (approximately 210) be demolished. ARC Abatement, Inc. (ARC) has been contracted as the abatement/demolition contractor for this Scope of Work (SOW). ARC retained Engineering and fire Investigations (EFI) for consulting and testing services to assess ordnance and explosive residue prior to the demolition of the aforementioned buildings. At the completion of the testing and evaluation, EFI issued an Explosive Safety Submission Report summarizing the findings and providing

decontamination recommendations for those buildings found to be contaminated with munitions constituents. Our "Explosives Safety Submission Report" contains elements of the "Explosive Safety Submission for Removal of Ordnance and Explosives from Real Property" (ESS) report which included: Reason for Ordnance and Explosives (OE) by historical records searches, Maps (Regional and Site), OE observations findings and test results within the structures, OE Risk Evaluation, and OE Response Action. EFI's report is only a component of the ESS and does not have all of the elements. The elements of the ESS which are not applicable to EFI's report includes: Start Date, Migration of OE, Clearance Techniques, Alternative Techniques, Quantity-Distance, Off-Site Disposal, Technical Support, Public involvement and After Action Report.

ASSESSMENT OVERVIEW

HISTORICAL RECORDS SEARCHES ("400" AREA)

EFI reviewed the available documentation provided by ARC through the Army's BRAC Technical Support Office. The documentation provided for Historical Records Searches (HRS) consists of "Basic Installation History – Longhorn Army Ammunition Plant, Marshall, Texas (December 15, 1941 to December 31, 1967)", "Annual Historical Review – Reports Control Symbol CSHIS-6 (R3), Longhorn Army Ammunition Plant, US Army Armament, Munitions & Chemical Command AMCCOM (R) (October 1, 1988 to September 30, 1989)" and a listing of the buildings in the "400" Area containing square footages, previous contamination rating and title for each building.

The "400" Area is approximately 10-Acres, is situated west of "Plant 2" Area and is bounded by Avenue P to the Southeast, Ordie Street to the East, 32nd Street to the West and the northern LHAAP property fence to the North (Farm Road 2198). The "400" Area was used for pyrotechnic production. Based on our HRS of the buildings scheduled for demolition in the "400" Area, we noted the following:

- 3 Inert buildings rated as **5X** contamination (402, 404 & 405).
- 6 Pyrotechnic Production buildings rated as **3X** contamination (403, 406, 407, 408, 409 & 410).

BUILDING OBSERVATIONS & ASSESSMENT

At completion of our HRS, EFI performed visual observations to identify building components and associated equipment for the presence of ordnance and explosive residue. Our observations entailed visual observations of exterior surfaces building components, Mechanical, Electrical, and Plumbing (MEP) components, associated process equipment, and interior wall cavities and ceiling plenum where possible for the presence of suspected residual MC. Note that the vast majority of the building's conditions observed consisted of unoccupied spaces where process equipment and HVAC systems has been previously removed leaving essentially a "shell" interior. Based on our visual observations, assessments were made to classify the level of contamination based on U.S. Army's guidance document IOCP 385-1 (Classification of Explosive Contamination). Individual building observations and assessment forms are presented in Appendix C of this report.

SAMPLING/LABORATORY PROCEDURES

EXPRAY TEST PROCEDURES (FIELD TEST)

The primary purpose of the survey was to test for the presence of ordnance and explosive residue in the buildings and on their components. This testing was achieved by the use of an EXPRAY kit through a series of sequential reactions distinguishing between polynitroarimatics – Group A Explosives, nitrate esters and nitramines – Group B Explosives, and inorganic nitrate compounds – Group C Explosives.

The EXPRAY test strip is coated with the thin adhesive and that is applied to a testing surface area of approximately 3 square inches to collect the residue. EXPRAY reagents are then sprayed on to the test strip in a sequential manner to determine if each group of explosives is present by observation of visual color change to the test strip. This process is repeated for each building component identified.

In buildings where chlorates are suspected to exist, based on historic record searches, a chlorate field test is performed. The chlorate test kit is based on a drop tub delivery system that reacts with the chlorates category of explosives. The test strip is applied to the testing surface area of 3 square inches to collect the residue. A drop of reagent is then applied to the test strip to determine if chlorate group of explosive exist by observation of visual color change. This process is repeated for each building component identified.

QUALITY ASSURANCE / QUALITY CONTROL (LABORATORY TEST)

If the EXPRAY test results showed positive for traces for explosives, then a random side-by-side wipe samples with the same surface area were obtained, packaged and shipped to EFI's subcontractor laboratory (Armstrong Forensic Laboratory) for quality assurance/quality control (QA/QC) to confirm positive identification of an EXPRAY explosives group field test. This laboratory is a successful participant in the American Industrial Hygiene Association #363, Texas Department of Public Safety #RA0135295, Drug Enforcement Agency #C00 70769, Environmental Protection Agency #TX120, International Association of Arson Investigators, American Academy of Forensic Sciences, American Society of Testing Materials, ASTM E-30, National Institute of Standards and Technology National Voluntary Laboratory Accreditation Program (NVLAP) and licensed by the Texas Department of Health (TDH).

INDIVIDUAL BUILDING ASSESSMENT / CLASSIFICATION

ARMY REGULATORY CLASSIFICATION (IOCP 385-1)

At completion of visual observations and EXPRAY field tests, the buildings and their associated components were evaluated using the Army regulatory classification "IOCP 385-1 Classification and Remediation of Explosive Contamination"(See Appendix B) for contamination classifications.

BUILDING CLASSIFICATION (BASED ON OBSERVATIONS, ASSESSMENT AND CONFIRMATORY TESTING)

Following is a discussion of the various classifications based on observations, assessment and confirmatory EXPRAY and Laboratory confirmation testing for buildings located in the "400" Area.

A total of 9 buildings from the "400" Area were observed, assessed and analyzed for suspect MC residue contamination.

Building 402 (Photo Nos. 1 & 2)

Building 402 is a one-story wood frame structure, approximately 882 square feet. The building was used as an inert Line Feed Building. Historical record searches revealed no evidence of OE production. Current contamination status for this structure prior to our survey was noted as **5X**. Based on visual observations of the exposed surfaces, the transite wall (exterior), wood wall, wood ceiling, concrete floor, steel column and beam, steam piping and wood stud frame (interior cavity) were noted to be free of suspect MC materials. In addition, no MC was detected by EXPRAY testing. No live OE/UXO was observed within the building structure during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **5X**. As no MC materials were observed or detected by testing, general demolition of Building 402 could begin as soon as practical.

Building 403 (Photo Nos. 3 & 4)

Building 403 is a one-story steel frame structure, approximately 2,600 square feet. The building was used as a Pyrotechnic Production Operations building. Historical record searches revealed process such as M206 pellet consolidation and ALA-17 charging and case assembly occurred at the building. Current contamination status for this structure prior to our survey was noted as **3X**. Based on visual observations of the exposed surfaces, corrugated metal wall (exterior), metal wall panel, foam insulated wall, steel frame (interior cavity), transite ceiling, concrete floor, concrete wall, steam piping, fire suppression piping, and ductwork were noted to be free of suspect MC materials. In addition, no MC was detected by EXPRAY testing. No live OE/UXO was observed within the building structure during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **5X**. However, fire suppression piping will need to be decontaminated and any floor drains be capped prior to general demolition of Building 403.

Building 404 (Photo Nos. 5 & 6)

Building 404 is a one-story clay tile block structure, approximately 125 square feet. The building was used as a toilet. Historical record searches revealed no evidence of OE production. Current contamination status for this structure prior to our survey was noted as **5X**. Based on visual observations of the exposed surfaces, the clay tile block wall (exterior), transite wall, pressed tin ceiling panel, ceiling plenum (interior cavity), vinyl floor tile, concrete floor, steel beam and column, and steam piping were noted to be free of suspect MC materials. In addition, no MC was detected by EXPRAY testing. No live OE/UXO was observed within the building structure during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **5X**. However, any floor drains within this building will need to be capped prior to general demolition of Building 404.

Building 405 (Photo Nos. 7 & 8)

Building 405 is a one-story clay tile block structure, approximately 125 square feet. The building was used as a toilet. Historical record searches revealed no evidence of OE production. Current contamination status for this structure prior to our survey was noted as **5X**. Based on visual observations of the exposed surfaces, the clay tile block wall (exterior), transite wall, pressed tin ceiling panel, vinyl floor tile, concrete floor, steel beam and column, and steam piping were noted to be free of suspect MC materials. In addition, no MC was detected by EXPRAY testing. No live OE/UXO was observed within the building structure during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **5X**. However, any floor drains within this building will need to be capped prior to general demolition of Building 405.

Building 406 (Photo No. 9)

Building 406 is a one-story wood frame structure, approximately 1,193 square feet. The building was used as a Chemical Process building. Historical record searches revealed packing process of M206, RR119, ALA-17 and MJU-7 pyrotechnics. Current contamination status for this structure prior to our survey was noted as **3X**. Based on visual observations of the exposed surfaces, the transite wall and ceiling (exterior), wood wall, ductwork, fire suppression piping, steam piping, concrete floor, and wood stud frame (interior cavity) were noted to be free of suspect MC materials. In addition, no MC was detected by EXPRAY testing. No live OE/UXO was observed within the building structure during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **5X**. However, fire suppression piping will need to be decontaminated and any floor drains be capped prior to general demolition of Building 406.

Building 407 (Photo Nos. 10 & 11)

Building 407 is a one-story wood frame structure, approximately 464 square feet. The building was used as a Testing building. Historical record searches revealed that the building might have been subjected to MC. Current contamination status for this structure prior to our survey was noted as **3X**. Based on visual observations of the exposed surfaces, the transite wall and ceiling (exterior), metal wall panel, steam piping, concrete wall, and concrete floor, and wood stud frame (interior cavity) were noted to be free of suspect MC materials. In addition, no MC was detected by EXPRAY testing. No live OE/UXO was observed within the building structure during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **5X**. However, any floor drains within this building will need to be capped prior to general demolition of Building 407.

Building 408 (Photo Nos. 12 & 13)

Building 408 is a one-story poured-in-place concrete and wood frame structure, approximately 2,847 square feet. The building was used as a Mixing and Pressing building. Historical record searches revealed that the building was used for loading, assembly, and packing of pyrotechnics. Current contamination status for this structure prior to our survey was noted as **3X**. Based on visual observations of the exposed

surfaces, the transite wall (exterior), transite ceiling, concrete wall, ductwork, fire suppression piping, steam piping, and wood stud frame (interior cavity) were noted to be free of suspect MC materials. In addition, no MC was detected by EXPRAY testing. No live OE/UXO was observed within the building structure during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **5X.** However, fire suppression piping will need to be decontaminated and any floor drains be capped prior to general demolition of Building 408.

Building 409 (Photo Nos. 14 & 15)

Building 409 is a one-story poured-in-place concrete and wood structure, approximately 2,605 square feet. The building was used as an Assembly and Packing building. Historical record searches revealed that the building was used for pellet packing, dipping, and stencil of pyrotechnics. Current contamination status for this structure prior to our survey was noted as **3X.** Based on visual observations of the exposed surfaces, the concrete wall (exterior), wood wall, transite wall and ceiling, ductwork, fire suppression piping, column and beam and wood trusses (interior cavity) were noted to be free of suspect MC materials. In addition, no MC was detected by EXPRAY testing. No live OE/UXO was observed within the building structure during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **5X.** However, fire suppression piping will need to be decontaminated and any floor drains be capped prior to general demolition of Building 409.

Building 410 (Photo No. 16 & 17)

Building 410 is a one-story brick structure, approximately 373 square feet. The building was used as a Pyrotechnic building. Current contamination status for this structure prior to our survey is presumed to be **3X.** Based on visual observations of the exposed surfaces, the brick wall (exterior), corrugated metal wall, transite ceiling, steam piping, and concrete floor were noted to be free of suspect MC materials. In addition, no MC was detected by EXPRAY testing. No live OE/UXO was observed within the building structure during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **5X.** However, any floor drains be capped prior to general demolition of Building 410.

OE RESPONSE ACTION PLAN

Based on visual observations and assessment and the results of our EXPRAY field test analysis, none of the buildings in the "400" Area were found to contain Munitions Constituents (MC).

INDIVIDUAL BUILDING OE RECOMMENDED ACTION PLAN

EXPRAY testing did not detect MC in the "400" Area, however, interior spaces of (i.e. inside electrical conduit, fire sprinkler piping, and underground floor drains) have not been tested due to inaccessibility, thus materials that have not been tested should be treated as a "3X" classification and requires an OE response action to decontaminate to a "5X" or "0X" prior to demolition.

DECONTAMINATION PROCEDURES

DESCRIPTION

A. Perform all planning, administration, execution of work necessary to safely conduct the Work. The Work will consist of decontaminating munitions constituents from surfaces of building facilities and their components located in the "400" Area of the LHAAP as identified in the ESS.

REFERENCE STANDARDS

A. Acknowledge awareness and familiarity with the contents and requirements of the following regulations, codes, standards, and guidance documents. Assume responsibility for the performance of the Work in strict compliance with these documents and for every instance of failure to comply with these documents. The current issue of each document shall govern. Where conflict exists between these documents and the Decontamination Procedures, the more stringent requirements shall apply.

1. Base Realignment and Closure Act of 1988, Public Law (PL) 100-526, 102 Stat. 2632.
2. Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980, PL 96-510, 94 Stat 2767, 42 USC 9601.
3. Defense Base Realignment and Closure Act of 1990, PL 101-510, 104 Stat. 1808.
4. Department of the Army Technical Bulletin, "Decontamination of Facilities and Equipment" (TB 700-4), October 1978.
5. Department of the Army – Industrial Operations Command, "Classification and Remediation of Explosive Contamination" (IOCP 385-1), July, 1997.
6. Industrial Operations Command, "Classification and Remediation of Explosive Contamination", IOCP 385-1, July 1997.
7. Resource Conservation and Recovery Act (RCRA) of 1976, PL 94-580, 90 Stat. 2796, 42 USC 6901, et seq., as amended.
8. 29 CRF 1910.120 – OSHA Hazardous Waste Operations and Emergency Response.
9. 40 CFR Part 260, et al – U.S. Environmental Protection Agency (EPA) Military Munitions Rule.
10. AR 385-10 – The Army Safety Program.
11. AR 385-64 – Ammunition and Explosives Safety Standards.
12. EP 1110-1-8153 – Ordnance and Explosives Response.
13. All state, county, and city codes and ordinances as applicable. Make available for review at the site one copy of EPA, OSHA, and applicable state, county and city regulations governing the Work.

WORKSITE CONDITIONS

A. Worker and Visitor Procedures: Contractor is hereby advised that some of the buildings in the "400" Area have been determined to contain munitions constituents that may pose a chemical and or physical hazards. Provide workers and visitors with respirators (which, as a minimum, meet the requirements of OSHA 29 CFR 1926.1101) and protective clothing during all phases of the Work and until final EXPRAY testing determines that the buildings has been decontaminated to a **5X** level or an inert state.

PERSONNEL PROTECTION

A. Prior to commencement of work, instruct all workers in the appropriate procedures for personnel protection. Ensure that workers are knowledgeable in these procedures.

B. Provide respiratory protection at all times, which is in compliance with OSHA requirements. When not in violation of the above, the minimum acceptable respiratory protection used for this project shall be as follows, unless airborne fiber concentrations inside the face mask exceed 0.01 fibers per cubic centimeter (f/cc). In the event that airborne fiber concentrations inside the mask exceed 0.01 f/cc, respiratory protection required to achieve 0.01 f/cc shall be used.

1. Provide appropriate respirators based on respiratory protection factor and the potential hazards for workers during all phases of the decontamination work from the time of first disturbance of the munitions constituents contaminated material until acceptance of final EXPRAY tests by Consultant.
2. Provide additional "piggy-back" organic cartridges recommended by the manufacturer whenever organic vapors or fumes are present or likely to be generated during decontamination process.

C. Permit no visitors, except for governmental inspectors having jurisdiction, or as authorized by Owner or Consultant, in the work areas after commencement of asbestos disturbance or removal.

D. Provide workers sufficient sets of protective disposable clothing, consisting of full-body coveralls, head covers, gloves, and foot covers, of sizes to properly fit individual workers.

E. Leave reusable equipment, apparel and protection devices (excluding respirators) in the work area until the end of the munitions constituent decontamination work, at which time such items shall be disposed of as contaminated waste.

F. Provide suitable respirators and protective equipment for use by authorized visitors, Owner, Consultant and Testing Laboratory's representatives. Furnish these in as many sets as required.

PREPARATION

A. Install warning barrier tape and signs stating "CAUTION EXPLOSIVE AREA" to segregate and demarcate work area from occupied or non-occupied areas.

B. Maintain a Sign In/Out Log in the immediate area of the entrance to the work area to be utilized by every person, each time upon entering and leaving the work area.

C. Construct staging area (worker/equipment decontamination unit) work area utilizing scaffolding framing and plywood platform for top decking.

D. Provide a worker/equipment decontamination unit in compliance with EPA guidelines concerning number, size and placement of airlocks, etc. Shower in worker decontamination unit to open into airlock on both contaminated and uncontaminated sides. Decontamination unit shall be constructed of appropriate materials (including plastic sheeting) to provide airtight barriers and allow continuous diminished pressure to be maintained in work areas. Post OSHA decontamination procedures in Change Room for duration of Project.

E. Trap shower waste water using filters having a maximum pore size of not larger than 1.0 micron, and drain into a sanitary sewer. Replace contaminated filters when they become clogged but not less than every third working day. Dispose of filters as contaminated waste.

F. Maintain emergency and fire exits from the Work Areas, or establish alternative exits satisfactory to fire officials. Provide fire extinguishers, as required, inside and outside the Work Area.

G. Provide temporary power and lighting as necessary to maintain safe and comfortable work environment.

H. Provide intrinsically safe equipment (e.g. HEPA Vacuum, temporary light, power wash equipment) to be used during the work.

I. Personnel shall not enter building areas with cigarette lighters, matches, cigarettes, cigars, pipes or other flame emitting items. Personnel shall not smoke cigarettes, cigars, pipes or the like within the building areas.

J. Isolate power source by lock-out tag-out if power is operational.

K. Disconnect Lines (mechanical/electrical from adjacent structures).

L. Cap open drain/pipe.

M. Evacuate existing lines of products.

DECONTAMINATION METHODS

A. Munitions Constituents Decontamination from Non Porous Surfaces (Physical Removal Methods)

1. Prepare work area as previously specified.
2. At completion of work area preparation, HEPA-vacuum all contaminated non-porous surfaces in the work area to remove visible munitions constituents accumulated materials.
3. Munitions constituents dust and debris collected by HEPA-Vacuum process shall be placed in impermeable containers for proper disposal or incineration.
4. Use steam clean/power-washing equipment capable of removing residual munitions constituents but not damaging to or penetrating the contaminated surfaces. Minimize water migration to other areas by collecting excessive water and place in impermeable containers for proper disposal or incineration.
5. Use disposable towel to wipe power washed surfaces free of material. Dispose of towel in impermeable containers for proper disposal or incineration
6. Surfaces will be considered clean when free from dust, dirt, residue, film, or discoloration resultant from decontamination operations or other activities subordinate to these operations.

B. Munitions Constituents Decontamination from Porous Items (Heat Process Methods)

1. Prepare work area as previously specified.
2. Disassemble munitions constituents contaminated porous items in a manner that does not pose an explosive safety hazard. Welding, drilling, sawing, etc. or any processes that generate enough heat to ignite residual contamination are prohibited.
3. Collect disassemble munitions constituents porous contaminated items and placed in a controlled environment (incinerator) for decontamination by heat process. (As an alternative open burning is allowed, see open burning methods).
4. Temperature used in the heat process shall be at a level above the decomposition temperature of the contaminants and heating duration is long enough to assure the largest mass is held at that temperature to be consumed by oxidation.
5. In cases where munitions constituents contaminated porous items are asbestos containing, use of hot gas decontamination is recommended. The process utilizes heated gas to thermally decompose or volatilize explosives or agent. For maximum decontamination effectiveness, it is recommended that a steady state of 600 degree Fahrenheit for time duration of 1 Hour (USAEC "Hot Gas Decontamination", July, 2003).
6. At completion of the hot gas decontamination process. The asbestos-containing materials will be properly bagged, labeled and disposed of in an approved landfill.

C. Munitions Constituents Decontamination from Porous Items (Open Burning Methods)

1. Prepare work area as previously specified.
2. Disassemble munitions constituents contaminated porous items in a manner that does not pose an explosive safety hazard. Welding, drilling, sawing, etc. or any processes that generate enough heat to ignite residual contamination are prohibited.
3. Collect disassemble munitions constituents porous contaminated items and placed in a controlled environment for decontamination by open burning process.
4. Remove hazardous materials substances including mercury, PCBs, radioactive material, fluorescent lights, light ballasts and unexploded ordnance from building prior to open burning.
5. Check and record meteorological conditions to achieve the following conditions prior to burning: wind velocity between 5 & 14 miles per hour; cloud cover is less than 80% and cloud ceiling is at least 2,000 feet; visibility is one mile or more; burns are not conducted during electrical storms, thunderstorms, or during periods of forecasted high probability (50% or greater) as given by the local/National Weather Services; burns are not conducted during periods of precipitation or high probability (75% or greater) as given by the National Weather Service, and burns as not conducted on ozone action days or "Code Red" air quality days.
6. Establish a fire watch during and after each burn and coordinate with the local fire department.
7. Provide an adequate firebreak around each building prior to open burning.
8. Use No. 2 virgin oil as an ignition source.
9. Temperature used in the heat process shall be at a level above the decomposition temperature of the contaminants and heating duration is long enough to assure the largest mass is held at that temperature to be consumed by oxidation.
10. Estimate amount of emissions to be generated as a result of opening burning for each building structures. Use USEPA's "Compilation of Air Pollutant Factors" (AP-42).

D. Munitions Constituents Decontamination of Suspect Explosives-Carrying Pipes/Equipment (Physical Removal & Heat Process Methods)

1. Prepare work area as previously specified.
2. Detach piping/equipment suspected of containing munitions constituents in a manner that does not poses an explosive safety hazard from building structure. Welding, drilling, sawing, etc. or any processes that generate enough heat to ignite residual contamination is prohibited.
3. Tag piping/equipment with DA Form 3803 prior to handling and placement in a controlled environment for initial physical removal decontamination process (flushing and power washing).
4. Steam cleaning of nuts and bolts shall be performed prior to applying penetrating oil to them for disassembly of pipe/equipment.

5. In the controlled environment disassemble contaminated pipe/equipment items in a manner that does not pose an explosive safety hazard. Welding, drilling, sawing, etc. or any processes that generate enough heat to ignite residual contamination is prohibited.
6. Use high pressure water for flushing of piping component and in conjunction, use power-washing equipment capable of removing residual munitions constituents but not damaging to or penetrating the contaminated surfaces. Minimize water migration to other areas by collecting excessive water and place in impermeable containers for proper disposal or incineration.
7. Use disposable towel to wipe power washed surfaces free of material. Dispose of towel in impermeable containers for proper disposal or incineration
8. At completion of power-washed disassembled piping/equipment, placed in a controlled environment (incinerator) for decontamination by heat process.
9. Temperature used in the heat process shall be at a level above the decomposition temperature of the contaminants and heating duration is long enough to assure the largest mass is held at that temperature to be consumed by oxidation.
10. Surfaces will be considered clean when free from dust, dirt, residue, film, or discoloration resultant from decontamination operations or other activities subordinate to these operations.

CLEAN-UP AND CLEARANCE TESTING

A. Provide general clean-up of work area concurrent with the decontamination of munitions constituents contaminated materials. Do not permit accumulation of debris on workspace floor. Contaminated materials such as disposable suites, towels, waste containers, etc. generated as a result of the decontamination process shall be properly disposed of by incineration.

B. Clean all equipment used in the work area and remove from work area (excluding that which will be needed for further cleaning phases) via the Decontamination Enclosure System.

C. Replace all HEPA-filters and pre-filters in vacuum machines with clean filters. Clean all vacuum machines.

D. EXPRAY Final Clearance Testing

1. Testing Laboratory will test for the presence of munitions constituents based on EXPRAY clearance criteria, upon notice from Abatement Contractor that work areas are considered visually decontaminated. Final clearance testing shall be performed using bulk wipe sampling techniques and sprayed with EXPRAY reagents. If the EXPRAY test samples indicate no presence of munitions constituents (absence of visual color change), the decontamination work will be considered completed.

2. Re-clean areas/items, which do not comply with the specified EXPRAY final clearance criteria. Abatement Contractor to bear cost of all follow-up tests necessitated by the failure of the EXPRAY clearance criteria.
3. Upon achieving clearance, the building is ready for industry demolishing standard.

E. Power Washing and Flushing Rinsate Water Testing

1. Testing Laboratory will test for the presence of munitions constituents collected in 50 Gallon Drums for waste characterization and proper disposal, upon notice from Abatement Contractor that work areas are considered visually decontaminated.
2. Upon receiving test results, and based on the determination by the water quality jurisdiction for acceptance of disposal of the rinsate water, only then will the water be disposed of.

REQUIRED RECORDKEEPING OF DECONTAMINATION ACTIVITIES

A. Identification of facility being decontaminated, previous use of the facility (include type of contaminant involved).

B. A copy of Decontamination Procedures used to achieve the work.

C. A copy of Decontamination Status for each facility based on EXPRAY testing results performed at completion of the work.

D. A copy of the Sign In/Out Log showing the following: date, name, social security number, entering and leaving time, company or agency represented.

E. A copy of Decontamination Tags used during the work for each facility items.

F. A daily report of various decontamination activities.

SUMMARY

EFI has endeavored to perform an Explosive Safety Submission for the "400" Area at the LHAAP. The objective of the survey was to determine, by visual observations, if presence of Munitions Constituents (MC) and unexploded ordnance (UXO) exists, perform confirmation testing with EXPRAY field test, assess and assign contamination rating to buildings scheduled for demolition, and develop response action for the MC contaminated buildings. No UXO were found within the building structures in the "400" Area. Based on the assessment of the MC contaminated building, the probability of exposure to OE/UXO while performing decontamination work based on the OE recommendation plan outlined and subsequent demolition of these buildings are low.

QUALIFICATION OF REPORT

The information included in this report addresses limited objectives related to the identification for the presence of munitions constituents and provide OE recommendation plan at the subject buildings for the purpose of demolition the buildings. This information should not be used by other

parties as a basis for demolition activities or for other purposes without our consultation. The responsibility for any interpretations thereof is borne exclusively by the user.

The activities of this survey included visual observations and EXPRAY testing of exterior/interior surfaces building materials that were readily accessible, including wall cavities and ceiling plenum. Suspect munitions constituents may be present on interior surfaces of piping (fire suppression, etc.) and conduits that were inaccessible and therefore not tested. These materials should be assessed with a 3X contamination status until testing of their interior surfaces is proven otherwise. Should any additional suspect materials be uncovered during the demolition, all work must cease and testing performed prior to proceeding with the demolition activities in the affected areas.

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APPENDIX A

SITE MAP (REGIONAL / INSTALLATION BOUNDARIES)

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APPENDIX B

IOCP 385-1

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APPENDIX C

OBSERVATIONS & ASSESMENT FIELD FORMS

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APPENDIX D

SAMPLING & ANALYSIS FIELD FORMS

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APPENDIX E

SAMPLE LOCATION SKETCHES

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APPENDIX F

PHOTOGRAPHIC DOCUMENTATION

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APPENDIX G

GLOSSARY

LONGHORN ARMY AMMUNITION PLANT
"PLANT 2" AREA
KARNACK, TEXAS

Building Assessment & Evaluation for Future Demolition Activities (Final Report)

Prepared For:
ARC Abatement, Inc.
Houston, Texas

Prepared by:
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9700 Richmond Ave.
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June 10, 2004
Document Number 98410-00810

00065046

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Project No. 98410-00810
June 10, 2004

ARC Abatement, Inc.
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Houston, Texas 77041

Subject: **Building Assessment & Evaluation**
"Plant 2" Area, Longhorn Army Ammunition Plant
Karnack, Texas

Attention: Mr. Michael Luzack
Project Manager

Please find attached the Building Assessment & Evaluation Report for "Plant 2" Area of the Longhorn Army Ammunition Plant, located in Karnack, Texas. The objective of this report is to assess and evaluate buildings within the "Plant 2" Area for the presence of Munitions Constituents (MC) and Unexploded Ordnance (UXO) prior to their dismantling, planned demolition, and to provide an Ordnance and Explosive (OE) response action if munitions constituents are found. The development of this Building Assessment & Evaluation Report for is partially based upon requirements referenced in the "Explosive Safety Policy for Real Property Containing Conventional Ordinance and Explosives". This report presents the historical information, survey overview and results, and qualifications. Included, as appendices are summaries of sample results by EXPRAY field test, laboratory quality assurance/quality control, and field sketches denoting sample locations.

It should be noted that the interior spaces of (i.e. inside electrical conduit, fire sprinkler piping, and underground floor drains) have not been tested due to inaccessibility at the subject property, thus materials that have not been tested should be treated as a "3X" classification and requires an OE response action to decontaminate to a "5X" or "0X" prior to demolition.

This report is designed to assist ARC Abatement, Inc. in complying with the appropriate guidance documents, Department of Defense Explosives Safety Board (DDESB) memorandum DDESB-KO, "Guidance for Clearance Plans", dated February 27, 1998 and "DACS-SF" HQDA Ltr 385-00-2, "Explosives Safety Policy for Real Property Containing Conventional Ordnance and Explosives" dated June 30, 2000), and provides notifications as to the presence of MC and or UXO to personnel planning to perform asbestos abatement and demolish structures within the "Plant 2" area of the Longhorn Army Ammunition Plant. The OE response action will help establish a work plan to minimize the potential intentional or unintentional exposure to munitions constituents during the demolition phase of the work. The program is designed to remain an integral part until the structures are decontaminated and demolished.

EFI appreciates this opportunity to provide consulting services for ARC Abatement, Inc. Please contact us should any questions arise concerning this report, or if we may be of further assistance.

Sincerely,
EFI

Cuong Nguyen
Project Manager

Lee A. Burckle, P.E.
Branch Manager

(E:\Projects2003\023126-ARC\00810 Exp Svy\Longhorn Plant 2 Area)

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INTRODUCTION

BACKGROUND INFORMATION

Longhorn Army Ammunition Plant (LHAAP) is an 8,493 acre government owned former industrial facility located in Karnack, Harrison County, Texas approximately 15 miles northeast of Marshall, Texas (see Appendix A, Figure 1 for Site Map). The site is bounded by Caddo Lake, and the town of Uncertain to the north and northeast, and the town of Karnack to the west (see Appendix A, Figure 2 for Installation Map).

In the summer of 1941, the Army's Ordnance Department proposed to Monsanto Chemical Co. who had built and operated the original LHAAP, formerly named Longhorn Ordnance Works to become and operate as a smokeless powder plant. Monsanto Chemical Co. responded by stating that their facility would be better suited for the production of Trinitrotoluene (TNT).

PLANT 1 - TNT FACILITY

On December 15, 1941 the Army's Ordnance Department selected Karnack, Texas as the site to build a "U.S. TNT six-line special" facility. Contract for the construction and operation of the facility between Monsanto Chemical Co. and Army's Ordnance Department was signed on December 22, 1941.

The first flake of TNT was produced on October 19, 1942 and by the end of March 1943, four of the six lines were in operation. A new process for converting the mono and tri stages of operation to direct nitration was underway, one line was modified to the new process and returned to operation in May 1943. The conversion was so successful in reducing the batch time cycle that similar alterations for the remaining three lines were quickly implemented. Operation of the fifth line began in 1944 and line six was never operated due to lack of acid manufacturing facilities.

LHAAP from its production of the first TNT flake in October 19, 1942 to August 15, 1945 when production halted ultimately produced 414,805,500 pounds of TNT. This output aggregated eight and a half million pounds more than scheduled production.

PLANT 2 – PROPELLANT FUEL FACILITY

On November 7, 1949 Monsanto signed a contract with the War Department for a JB-2 propellant fuel plant consisting of three lines. Construction of the first line was 90 percent complete when it was halted on August 21, 1945. Decontamination and preservation work in both Plant 1 and Plant 2 were completed on November 2, 1945 and LHAAP was classified as a standby installation till February 1, 1952.

PLANT 2 – PYROTECHNIC PRODUCTION

In November 1951 the government entered into a contract with Universal Match Corporation as the operating contractor to reactivate Plant 2 for Korean War pyrotechnics production. Universal Match Corporation produced 3,425,942 pyrotechnic devices before production was discontinued in April 1965, including more than a million "ground signals" which would return to LHAAP for rework early in the Vietnam War.

PLANT 3 – SOLID FUEL ROCKET MOTOR FACILITY

The Army awarded a contract to Thiokol Chemical Corporation to construct a facility to produce solid fuel rocket motors for the Army's second generation of tactical missiles. Construction of the facility began in July 1953 and was completed in December 1955. In the same month, Universal Match Corporation Plant 2 operations were completed also. The first mix of live propellant was produced in December 1954 and a variety of small and large rocket motors were produced (Flacon, LaCrosse, two-inch FFAR, all the second stage sustainer motors for both the single-stage Sergeant and the two-stage Pershing missile systems). Rocket motor production continued until early 1971, when the final Nike Hercules units were packed for delivery.

PLANT 2 – ILLUMINATING MUNITIONS (1965 – 1967)

In 1965 the nation's involvement in Southeast Asia increased dramatically, requirements for production of pyrotechnic and illuminating munitions became unprecedented. LHAAP rose to the challenge and Plant 2 was rehabilitated and reactivated to produce 155 mm, 105 mm, 81mm, 60 mm, hand held signals, button bombs, 4.2 in. mortar, AN/ALA-17 flare, etc.

LHAAP FACILITY (1970's – Present)

In the early 1980's Thiokol Corporation and Morton-Norwich merged into Morton Thiokol, Inc., a new contractor for the recent merging of two commands; ARRCOM and ARRADCOM, in a unified command known as AMCCOM (R) and AMCCOM (D) to increase production efficiency. In July 1989 Morton Thiokol separated into two distinct companies – Thiokol Corporation and Morton International. Thiokol is now essentially an aerospace and ammunition producer. The company is composed of four primary operation groups: space, strategic, tactical and ordnance. Thiokol's Longhorn Division (Contractor-Operator) of LHAAP is part of the Ordnance Operation Groups. A Pershing re-qualification program during 1978 resulted in the production of Pershing P1A motors and expansion project to produce Surface Launched Unit/Fuel Air Explosives (SLUFAE) at LHAAP. In addition, LHAAP became the leading producer of Infrared (Aircraft Counter-measures) Flares for both the Army and Air Force. In August 1990, LHAAP was placed on the National Priorities List (NPL). LHAAP, EPA and the Texas Water Commission (TWC) now called Texas Natural Resource Conservation Commission (TNRCC) entered into a Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) Section 120 Agreement for remedial activities at LHAAP. In 1997, LHAAP went into standby or layaway status under the Base Realignment and Closure (BRAC) legislation. Department of the Army (DA), U.S. Army Industrial Operations Command released Thiokol Corporation from its contract to serve as operator of the LHAAP facility. In 1998 the Army contracted with Earth Tech to liquidate all personal property and specific installed property.

ARC'S SCOPE OF WORK

In 1999 the Army contracted Project Development Corp. to demolish specific structurally unsafe buildings. Currently, the Army is requesting that additional buildings (approximately 210) be demolished. ARC Abatement, Inc. (ARC) has been contracted as the abatement/demolition contractor for this Scope of Work (SOW). ARC retained Engineering and fire Investigations (EFI) for consulting and testing services to assess ordnance and explosive residue prior to the demolition of the aforementioned buildings. At the completion of the testing and evaluation, EFI issued an Explosive Safety Submission Report summarizing the findings and providing

decontamination recommendations for those buildings found to be contaminated with munitions constituents. Our "Explosives Safety Submission Report" contains elements of the "Explosive Safety Submission for Removal of Ordnance and Explosives from Real Property" (ESS) report which included: Reason for Ordnance and Explosives (OE) by historical records searches, Maps (Regional and Site), OE observations findings and test results within the structures, OE Risk Evaluation, and OE Response Action. EFI's report is only a component of the ESS and does not have all of the elements. The elements of the ESS which are not applicable to EFI's report includes: Start Date, Migration of OE, Clearance Techniques, Alternative Techniques, Quantity-Distance, Off-Site Disposal, Technical Support, Public involvement and After Action Report.

ASSESSMENT OVERVIEW

HISTORICAL RECORDS SEARCHES ("PLANT 2" AREA)

EFI reviewed the available documentation provided by ARC through the Army's BRAC Technical Support Office. The documentation provided Historical Records Searches (HRS) and consisted of "Basic Installation History – Longhorn Army Ammunition Plant, Marshall, Texas (December 15, 1941 to December 31, 1967)", "Annual Historical Review – Reports Control Symbol CSHIS-6 (R3), Longhorn Army Ammunition Plant, US Army Armament, Munitions & Chemical Command AMCCOM (R) (October 1, 1988 to September 30, 1989)" and a listing of the buildings in the "Plant 2" Area containing square footages, previous contamination rating and title for each building.

The "Plant 2" Area is approximately 190-Acres, bounded by Avenue P to the south and southwest, 11th Street and Rayner Street to the southeast and east, and the northern LHAAP property fence to the north. Production in "Plant 2" Area included the production of propellant, pyrotechnic, photoflash bombs, simulators, hand signals, and 40-millimeter tracers. Based on our HRS of the buildings scheduled for demolition in the "Plant 2" Area, we noted the following:

- 21 inert buildings rated as **5X** contamination (TS-45-A, TS-69, TS-74, 101, 102, 102-R, 103, L-5, L-6, 207, 211-1, 211-2, 402, S-1, S-2, S-3, S-4, M-2, LR-1, Shed L, and Shed B).
- 50 Mill House buildings rated as **3X** contamination (212-1 through 212-21, 212-23, 212-25, 212-27, 212-29, 212-31 through 212-40, 212-42, 212-44, 212-46, 212-48, 212-50 Through 212-57, and 212-59). Processes from these buildings range from propellant production and curing, load-assembly-pack of pyrotechnic. OE noted in these buildings consists of potassium perchlorate, SLUFAE propellant, LOVA propellant, PBX propellant, and black powder.
- 3 pyrotechnic walkway transport route sheds rated as **3X** contamination (Shed C, Shed D, and Shed J).
- 10 pyrotechnic buildings rated as **3X** contamination (B-7, B-8, B-9, B-10, B-11, B-12, B-13, B-14, B-15, and B-16).
- 8 miscellaneous buildings consisting of pyrotechnic production, & administrative area rated as **3X** contamination (M-2, M-4, P-1, P-3, P-10, P-11, P-14 & P-123).
- 1 Mill House Building previously rated at 3X contamination (211-58) was observed to have been previously demolished.

Additional buildings discovered during our survey, which were incorporated with the current SOW at the request of ARC are noted below. We understand these buildings are scheduled for demolition.

- 18 miscellaneous buildings (Shed B, Shed E, Shed F, Shed G, Shed K, Shed L, P-9, T-1, T-2, T-3, 212-35-R, 212-38-R, 727-R, P-13, M-1, P-122, P-112, & S-8) which did not have information as to the contamination ratings; therefore, they were presumed to have a **3X** contamination prior to our assessment and confirmatory MC residue testing performed.

BUILDING OBSERVATIONS & ASSESSMENT

At completion of our HRS, EFI performed visual observations to identify building components and associated equipment for the presence of ordnance and explosive residue. Our observations entailed visual observation of exterior surface building components, Mechanical, Electrical, and Plumbing (MEP) components, associated process equipment, and interior wall cavities and ceiling plenums where possible for the presence of suspected residual MC. The vast majority of the building's conditions consist of unoccupied spaces where process equipment and HVAC systems have been previously removed leaving essentially a "shell" interior. Based on our visual observations, assessments were made to classify the level of contamination based on U.S. Army's guidance document IOCP 385-1 (Classification of Explosive Contamination). Individual building observations and assessment forms are presented in Appendix C of this report.

SAMPLING/LABORATORY PROCEDURES

EXPRAY TEST PROCEDURES (FIELD TEST)

The primary purpose of the survey was to test for the presence of ordnance and explosive residue in the buildings and on its components. This testing was achieved by the use of an EXPRAY kit through a series of sequential reactions distinguishing between polynitroarimatics – Group A Explosives, nitrate esters and nitramines – Group B Explosives, and inorganic nitrate compounds – Group C Explosives.

The EXPRAY test strip is coated with the thin adhesive and that is applied to a testing surface area of approximately 3 square inches to collect the residue. EXPRAY reagents are then sprayed on to the test strip in a sequential manner to determine if each group of explosives is present by observation of visual color change to the test strip. This process is repeated for each building component identified.

In buildings where chlorates are suspected to exist, based on historic record searches, a chlorate field test is performed. The chlorate test kit is based on a drop tub delivery system that reacts with the chlorates category of explosives. The test strip is applied to the testing surface area of 3 square inches to collect the residue. A drop of reagent is then applied to the test strip to determine if the chlorate group of explosive exists by observation of visual color change. This process is repeated for each building component identified.

QUALITY ASSURANCE / QUALITY CONTROL (LABORATORY TEST)

Random side-by-side wipe samples with the same surface area are obtained, packaged and shipped to EFI's subcontractor laboratory (Armstrong Forensic Laboratory) for quality assurance/quality control (QA/QC) to confirm positive identification of an EXPRAY explosives group field test. This laboratory is a successful participant in the American Industrial Hygiene Association #363, Texas Department of Public Safety #RA0135295, Drug Enforcement Agency #C00 70769, Environmental Protection Agency #TX120, International Association of Arson

Investigators, American Academy of Forensic Sciences, American Society of Testing Materials, ASTM E-30, National Institute of Standards and Technology National Voluntary Laboratory Accreditation Program (NVLAP) and licensed by the Texas Department of Health (TDH). Laboratory results of QA/QC samples are presented in Appendix G.

INDIVIDUAL BUILDING ASSESSMENT / CLASSIFICATION

ARMY REGULATORY CLASSIFICATION (IOCP 385-1)

At completion of visual observations and EXPRAY field tests, the buildings and their associated components were evaluated using the Army regulatory classification "IOCP 385-1 Classification and Remediation of Explosive Contamination"(See Appendix B) for contamination classifications.

BUILDING CLASSIFICATION (BASED ON OBSERVATIONS, ASSESSMENT AND CONFIRMATORY TESTING)

Following is a discussion of the various classifications based on observations, assessment and confirmatory EXPRAY and Laboratory confirmation testing for buildings located in the "Plant 2" Area. A total of 110 buildings from the "Plant 2" Area were observed, assessed and analyzed for suspect MC residue contamination.

Buildings T-1 & T-2 (Photo Nos. 1 & 2)

Buildings T-1 & T-2 are one-story wood frame structures, approximately 400 square feet each. No historical record searches were available for these building; however, our observations noted them to be toilets/restrooms. Current contamination status for these structures prior to our survey was presumed to be **3X**. Based on visual observations of the exposed surfaces, the corrugated metal wall (exterior), transite wall (exterior), wood walls, transite ceiling, wood stud frame (interior cavity), fire suppression, floor tile, concrete floor, and steam piping were noted to be free of suspect MC materials. In addition, no MC was detected by EXPRAY testing. No live OE/UXO was observed within the building structure during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate these buildings as **5X**. However, fire suppression piping will need to be decontaminated and any floor drains be capped prior to general demolition of Buildings T-1 & T-2.

Building T-3 (Photo Nos. 3 & 4)

Building T-3 is a one-story wood frame structure, approximately 400 square feet. No historical record searches were available for this building; however, our observations noted it to be a toilet/restroom. Current contamination status for this structure prior to our survey is presumed to be **3X**. Based on visual observations of the exposed surfaces, wood walls, concrete floor, steam piping, wood stud frame (interior cavity), and wood ceiling panel (interior surface) was noted to be free of suspect MC materials. However, EXPRAY confirmatory testing indicated traces residual amount of **Group A explosives** on the steam piping. In addition, laboratory test quality assurance/controls (side by side sample collected) results confirm the presence of **Group A explosives**. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **3X**. We recommend that this building be decontaminated of MC residue in accordance with the Ordnance and Explosive (OE) action plan prior to demolition.

Buildings TS-45-A, TS-69 & TS-74 (Photo No. 5)

Buildings TS-45-A, TS-69 & T-74 are one-story wood frame structures, approximately 400 square feet each. No historical record searches were available for these buildings; however, our observations noted them to be guard shacks. Current contamination status for these structures prior to our survey was noted or assumed as **5X**. Based on visual observations of the exposed surfaces, the wood wall (exterior), wood walls, wood ceiling, wood stud frame (interior cavity), wood floor, and floor tile were noted to be free of suspect MC materials. In addition, no MC was detected by EXPRAY testing. No live OE/UXO was observed within the building structures during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate these buildings as **5X**. As no MC materials were observed or detected by testing, general demolition of Buildings TS-45-A, TS-69, & TS-74 could begin as soon as practical.

Building 101 (Photo Nos. 6 & 7)

Building 101 is a one-story brick structure, approximately 2,175 square feet. The building was used as an administration building. Historical record searches revealed no evidence of OE production. Current contamination status for this structure prior to our survey was noted as **5X**. Based on visual observations of the exposed surfaces, the brick wall (exterior), concrete floor, ceiling tile, gypsum board ceilings, ceiling plenum, steam piping, ductwork, and steel beams & columns were noted to be free of suspect MC materials. In addition, no MC was detected by EXPRAY testing. No live OE/UXO was observed within the building structure during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **5X**. As no MC materials were observed or detected by testing, general demolition of Building 101 could begin as soon as practical.

Building 102 (Photo Nos. 7, 8, 9 & 10)

Building 102 is a one-story brick structure, approximately 3,275 square feet. The building was used as a Change House. Historical record searches revealed no evidence of OE production. Current contamination status for this structure prior to our survey was noted as **5X**. Based on visual observations of the exposed surfaces, the brick wall (exterior), transite wall (exterior), transite wall (interior), floor tile, concrete floor, wood ceiling, steam piping, wood stud frame (interior cavity) and steel beams & columns were noted to be free of suspect MC materials. In addition, no MC was detected by EXPRAY testing. No live OE/UXO was observed within the building structure during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **5X**. As no MC materials were observed or detected by testing, general demolition of Building 102 could begin as soon as practical.

Building 102-R (Photo No. 11)

Building 102-R is a wood walkway structure, approximately 508 square feet. Historical record searches revealed no evidence of OE production. Current contamination status for this structure prior to our survey was noted as **5X**. Based on visual observations of the exposed surfaces, the brick wall (exterior) transite wall (exterior), transite wall (interior), concrete floor, wood ceiling, steam piping, and wood stud frame (interior cavity) were

noted to be free of suspect MC materials. In addition, no MC was detected by EXPRAY testing. No live OE/UXO was observed within the building structure during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **5X**. As no MC materials were observed or detected by testing, general demolition of Building 102-R could begin as soon as practical.

Building 103 (Photo Nos. 12, 13 & 14)

Building 103 is a single-story brick structure, approximately 4,929 square feet. The building was used as a Change House. Historical record searches revealed no evidence of OE production. Current contamination status for this structure prior to our survey was noted as **5X**. Based on visual observations of the exposed surfaces, the brick wall (exterior), transite wall (exterior), transite wall (interior), floor tile, concrete floor, wood ceiling, ceiling plenum, steam piping, wood stud frame (interior cavity) and steel beams & columns were noted to be free of suspect MC materials. In addition, no MC was detected by EXPRAY testing. No live OE/UXO was observed within the building structure during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **5X**. As no MC materials were observed or detected by testing, general demolition of Building 103 could begin as soon as practical.

Building 207 (Photo No.15)

Building 207 is a one-story wood frame structure, approximately 5,543 square feet. The building was used as a Production Building. Historical record searches revealed no evidence of OE production. Current contamination status for this structure prior to our survey was noted as **5X**. Based on visual observations of the exposed surfaces, the transite wall (exterior), transite wall (interior), transite ceiling, steam piping, ductwork, wood stud frame (interior cavity), concrete wall, and concrete floor were noted to be free of suspect MC materials. In addition, no MC was detected by EXPRAY testing. No live OE/UXO was observed within the building structure during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **5X**. As no MC materials were observed or detected by testing, general demolition of Building 207 could begin as soon as practical.

Building 727-R (Photo No. 16)

Building 727-R is a one-story brick structure, approximately 144 square feet. No historical record searches were available for this building. Current contamination status for this structure prior to our survey was presumed to be **3X**. Based on visual observations of the exposed surfaces, the brick wall (exterior), transite ceiling, steel beam, concrete floor, and steam piping were noted to be free of suspect MC materials. In addition, no MC was detected by EXPRAY testing. No live OE/UXO was observed within the building structure during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **5X**. However, any floor drains within this building will need to be capped prior to general demolition of Building 727-R.

Buildings L-5 & L-6 (Photo No. 17)

Buildings L-5 & L-6 are one-story wood frame structures, approximately 1,375 and 8,491 square feet, respectively. These buildings were used as Transit Sheds. Historical record searches revealed no evidence of OE production. Current contamination status for these structures prior to our survey was noted as **5X**. Based on visual observations of the exposed surfaces, the transite wall (exterior), concrete wall, wood ceiling, wood stud frame (interior cavity), and concrete floor were noted to be free of suspect MC materials. In addition, no MC was detected by EXPRAY testing. No live OE/UXO was observed within the building structure during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate these buildings as **5X**. As no MC materials were observed or detected by testing, general demolition of Buildings L-5 & L-6 could begin as soon as practical.

Building LR-1 (Photo Nos. 18 & 19)

Building LR-1 is a one-story wood frame structure, approximately 3,734 square feet. The building was used as a Lunch Room. Historical record searches revealed no evidence of OE production. Current contamination status for this structure prior to our survey was noted as **5X**. Based on visual observations of the exposed surfaces, the transite wall (exterior), ceramic tile wall (interior), gypsum board and wood ceilings, ceiling tile, ceiling plenum, steam piping, ductwork, wood stud frame (interior cavity), concrete wall, wood floor, and concrete floor were noted to be free of suspect MC materials. In addition, no MC was detected by EXPRAY testing. No live OE/UXO was observed within the building structure during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **5X**. As no MC materials were observed or detected by testing, general demolition of Building LR-1 could begin as soon as practical.

Building M-1 (Photo No. 20)

Building M-1 is a one-story wood frame structure, approximately 500 square feet. No historical record searches were available for this building. Current contamination status for this structure prior to our survey was presumed to be **3X**. Based on visual observations of the exposed surfaces, the transite wall (exterior), wood ceiling, ceiling cavity, heater, fire suppression piping, light fixtures, concrete floor, and steam piping were noted to be free of suspect MC materials. In addition, no MC was detected by EXPRAY testing. No live OE/UXO was observed within the building structure during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **5X**. However, fire suppression piping will need to be decontaminated and any floor drains be capped prior to general demolition of Building M-1.

Building M-2 (Photo Nos. 21 & 22)

Building M-2 is a one-story wood frame structure, approximately 1,300 square feet. The building was reportedly used as a General Purpose Administration Building. Historical record searches revealed no evidence of OE production. Current contamination status for this structure prior to our survey was noted as **5X**. Based on visual observations of the exposed surfaces, the transite wall (exterior), wood wall, wood ceiling, transite ceiling,

steam piping, steel beams & columns, wood stud frame (interior cavity), and concrete floor were noted to be free of suspect MC materials. In addition, no MC was detected by EXPRAY testing. No live OE/UXO was observed within the building structure during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **5X**. As no MC materials were observed or detected by testing, general demolition of Building M-2 could begin as soon as practical.

Building S-1 (Photo Nos. 23 & 24)

Building S-1 is a one-story wood frame structure, approximately 28,243 square feet. The building was used as a General Purpose Warehouse. Historical record searches revealed no evidence of OE production. Current contamination status for this structure prior to our survey was noted as **5X**. Based on visual observations of the exposed surfaces, the transite wall (exterior), wood wall (interior), wood ceiling, ductwork, steam piping, fire suppression piping, wood trusses, wood stud frame (interior cavity), concrete wall, and concrete floor were noted to be free of suspect MC materials. In addition, no MC was detected by EXPRAY testing. No live OE/UXO was observed within the building structure during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **5X**. However, fire suppression piping will need to be decontaminated and any floor drains be capped prior to general demolition of Building S-1.

Building S-2 (Photo Nos. 25, 26 & 27)

Building S-2 is a one-story wood frame structure, approximately 36,869 square feet. The building was used as a General Purpose Warehouse. Historical record searches revealed no evidence of OE production. Current contamination status for this structure prior to our survey was noted as **5X**. Based on visual observations of the exposed surfaces, the transite wall (exterior), wood wall (interior), wood ceiling, ductwork, steam piping, fire suppression piping, domestic water tank, wood trusses, wood column, wood stud frame (interior cavity), concrete wall, and concrete floor were noted to be free of suspect MC materials. In addition, no MC was detected by EXPRAY testing. No live OE/UXO was observed within the building structure during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **5X**. However, fire suppression piping will need to be decontaminated and any floor drains be capped prior to general demolition of Building S-2.

Building S-3 (Photo No. 28)

Building S-3 is a one-story wood frame structure, approximately 36,869 square feet. The building was used as a General Purpose Warehouse. The interior is similar to Building S-2. Historical record searches revealed no evidence of OE production. Current contamination status for this structure prior to our survey was noted as **5X**. Based on visual observations of the exposed surfaces, the transite wall (exterior), concrete wall (interior), wood ceiling, heater, steam piping, fire suppression piping, wood trusses, wood column, wood stud frame (interior cavity), and concrete floor were noted to be free of suspect MC materials. In addition, no MC was detected by EXPRAY testing. No live OE/UXO was observed within the building structure during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **5X**. Based on our visual observations, assessment and confirmatory EXPRAY testing,

we rate this building as **5X**. However, fire suppression piping will need to be decontaminated and any floor drains be capped prior to general demolition of Building S-3.

Building S-4 (Photo No. 29)

Building S-4 is a one-story wood frame structure, approximately 22,606 square feet. The building was used as a General Purpose Warehouse. The interior is similar to Building S-2. Historical record searches revealed no evidence of OE production. Current contamination status for this structure prior to our survey was noted as **5X**. Based on visual observations of the exposed surfaces, the transite wall (exterior), concrete wall (interior), wood ceiling, heater, steam piping, fire suppression piping, wood trusses, wood column, wood stud frame (interior cavity), and concrete floor were noted to be free of suspect MC materials. In addition, no MC was detected by EXPRAY testing. No live OE/UXO was observed within the building structure during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **5X**. However, fire suppression piping will need to be decontaminated and any floor drains be capped prior to general demolition of Building S-4.

Building S-5 (Photo No. 30)

Building S-5 is a one-story concrete masonry structure, approximately 120 square feet. Historical record searches revealed that the building was used as a Pyrotechnic Production Building. Current contamination status for this structure prior to our survey was noted as **3X**. Based on visual observations of the exposed surfaces, the concrete masonry wall (exterior), wood ceiling panel, ductwork, concrete floor, wood stud frame (interior cavity), and wood trusses were noted to be free of suspect MC materials. In addition, no MC was detected by EXPRAY testing. No live OE/UXO was observed within the building structure during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **5X**. However, any floor drains within the building will need to be capped prior to general demolition of Building S-5.

Building S-7 (Photo No. 31)

Building S-7 is a one-story concrete masonry structure, approximately 168 square feet. Historical record searches revealed that the building was used as a Pyrotechnic Production Building. Current contamination status for this structure prior to our survey was noted as **3X**. Based on visual observations of the exposed surfaces, the concrete masonry wall (exterior), corrugated fiberglass wall (exterior), transite ceiling panel, steam piping, concrete floor, wood stud frame (interior cavity), and wood trusses were noted to be free of suspect MC materials. In addition, no MC was detected by EXPRAY testing. No live OE/UXO was observed within the building structure during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **5X**. However, any floor drains within the building will need to be capped prior to general demolition of Building S-7.

Building S-8 (Photo No. 32)

Building S-8 is a one-story foam/concrete masonry structure, approximately 200 square feet. Historical record searches revealed that the building was used as a Pyrotechnic Production Building. Current contamination status for this structure prior to our survey was

noted as **3X**. Based on visual observations of the exposed surfaces, the foam/concrete masonry wall (exterior), wood ceiling panel, steam piping, concrete floor, wood stud frame (interior cavity), and wood trusses were noted to be free of suspect MC materials. In addition, no MC was detected by EXPRAY testing. No live OE/UXO was observed within the building structure during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **5X**. However, any floor drains within the building will need to be capped prior to general demolition of Building S-8.

Sheds B, C, D, E, F, G, J, K, & L (Photo Nos. 33, 34, 35, 36, 37, 38, 39, 40 & 41)

Sheds B, C, D, E, F, G, J, K and L are enclosed wood walkway structures located in the pyrotechnic production area. Their sizes ranges approximately from 2,195 to 2,718 square feet. Historical record searches and observations revealed that these walkways were used to interconnect the pyrotechnic buildings and transportation of OE. Current contamination status for these structures prior to our survey was noted as **5X for Sheds B & L and 3X for Sheds C, D & J** and **3X was assumed for Sheds E, F, G, & K.** Based on visual observations of the exposed surfaces, the transite wall (exterior), concrete floor, wood ceiling, fire suppression piping, steam piping, and wood stud frame (interior cavity) were noted to be free of suspect MC materials. In addition, no MC was detected by EXPRAY testing. No live OE/UXO was observed within these structures during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate these structures as **5X**. However, fire suppression piping will need to be decontaminated and any floor drains be capped prior to general demolition of Sheds B, C, D, E, F, G, J, K & L.

Buildings 211-1 & 211-2 (Photo Nos. 42 & 43)

Buildings 211-1 & 211-2 are two-story ceramic tile block structures, approximately 1,860 square feet each. The buildings were used as Lunch & Break Rooms. Historical record searches revealed no evidence of OE production. Current contamination status for these structures prior to our survey was noted as **5X**. Based on visual observations of the exposed surfaces, the ceramic tile block wall (exterior), wood wall (interior cavity), heater, concrete ceiling, floor tile, and concrete floor were noted to be free of suspect MC materials. In addition, no MC was detected by EXPRAY testing. No live OE/UXO was observed within the building structure during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **5X**. As no MC materials were observed or detected by testing, general demolition of Buildings 211-1 & 211-2 could begin as soon as practical.

Buildings 212-1 Through 212-15 & 212-17 Through 212-20
(Photo Nos. 44, 45, 46, 47, 48, 49 & 50)

Buildings 212-1 through 212-15, & 212-17 through 212-20 are one-story concrete/steel frame structures, approximately 300 square feet each. Historical record searches revealed that these building were used as Pyrotechnic Production Buildings. Current contamination status for these structures prior to our survey was noted as **3X**. Based on visual observations of the exposed surfaces, the transite wall (exterior), concrete wall, transite ceiling, steel beam, wood wall (interior cavity), wood door, concrete floor, fire suppression piping, ductwork, and steam piping were noted to be free of suspect MC materials. In addition, no MC was detected by EXPRAY testing. No live OE/UXO was

observed within the building structure during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate these buildings as **5X**. However, any floor drains within these buildings will need to be capped prior to general demolition of Buildings 212-1 through 212-15 & 212-17 through 212-20.

Building 212-16 (Photo No. 51)

Building 212-16 is a one-story concrete/steel frame structure, approximately 2,300 square feet. Historical record searches revealed that this building was used as Pyrotechnic Production Building. Current contamination status for this structure prior to our survey is presumed to be **3X** Based on visual observations of the exposed surfaces, the transite wall (exterior), concrete wall, transite ceiling, steel beam, wood door, concrete floor, fire suppression piping, and steam piping were noted to be free of suspect MC materials. However, EXPRAY confirmatory testing indicated traces residual amount of **Group C explosives** on a steel column. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **3X**. We recommend that this building be decontaminated of MC residue in accordance with the Ordnance and Explosive (OE) action plan prior to demolition.

Building 212-21, 212-23, & 212-27 (Photo Nos. 52, 53 & 54)

Buildings 212-21, 212-23, & 212-27 are one-story concrete/steel frame structures, approximately 300 square feet each. Historical record searches revealed that these buildings were used as Pyrotechnic Production Buildings. Current contamination status for these structures prior to our survey was noted as **3X**. Based on visual observations of the exposed surfaces, the transite wall (exterior), concrete wall, transite ceiling, steel beam, wood door, concrete floor, and steam piping were noted to be free of suspect MC materials. In addition, no MC was detected by EXPRAY testing. No live OE/UXO was observed within the building structure during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate these buildings as **5X**. However, any floor drains within these buildings will need to be capped prior to general demolition of Buildings 212-21, 212-23, & 212-27.

Buildings 212-25, 212-29, 212-31, 212-32, 212-33, & 212-36
(Photo Nos. 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65 & 66)

Building 212-25, 212-29, 212-31, 212-32, 212-33 & 212-36 are a one-story concrete/steel frame structures, approximately 300 square feet each. Historical record searches revealed that these buildings were used as Pyrotechnic Production Buildings. Current contamination status for these structures prior to our survey is noted as **3X**. Based on visual observations of the exposed surfaces, the transite wall (exterior), concrete wall, transite ceiling, steel beam, wood door, wood wall (interior cavity), concrete floor, chilled water piping, fire suppression piping, and steam piping were noted to be free of suspect MC materials. However, EXPRAY confirmatory testing indicated traces residual amount of **Group A explosives** on the concrete wall in Building 212-25, traces residual amount of **Group A explosives** on the concrete floor, concrete wall, wood door, steel beam, transite ceiling in Building 212-29, traces residual amount of **Group A explosives** on the concrete wall and steel beam in Building 212-31, traces residual amount of **Group A explosives** on the angle iron support, concrete wall, chilled water piping, steam piping, ductwork and radiator in Building 212-32, traces residual amount of **Group A explosives** on the

concrete floor, concrete wall, fire suppression piping, steam piping, and wood door in Building 212-33, and traces residual amount of **Group A explosives** on the concrete floor in Building 212-36. In addition, laboratory test quality assurance/controls (side by side sample collected) results confirm the presence of traces residual amount of **Group A explosives** in Buildings 212-25, 212-29 and 212-32. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate these buildings as **3X**. We recommend that these buildings be decontaminated of MC residue in accordance with the Ordnance and Explosive (OE) action plan prior to demolition.

Building 212-34 & 212-35 (Photo Nos. 67 & 68)

Buildings 212-34 & 212-35 are one-story concrete/steel frame structures, approximately 300 square feet each. Historical record searches revealed that these building were used as Pyrotechnic Production Buildings. Current contamination status for these structures prior to our survey was noted as **3X**. Based on visual observations of the exposed surfaces, the transite wall (exterior), concrete wall, transite ceiling, steel beam, wood door, concrete floor, ductwork, fire suppression piping, and steam piping were noted to be free of suspect MC materials. In addition, no MC was detected by EXPRAY testing. No live OE/UXO was observed within the building structure during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate these buildings as **5X**. However, fire suppression piping will need to be decontaminated and any floor drains be capped prior to general demolition of Buildings 212-34 & 212-35.

Buildings 212-35-R & 212-38-R (Photo Nos. 69 & 70)

Buildings 212-35-R & 212-38-R are walkway structures located in the pyrotechnic production area. Their sizes range from approximately 2,195 to 2,718 square feet. It appears that these walkways were used to interconnect the pyrotechnic buildings and transportation of OE. Current contamination status for these structures prior to our survey was **assumed as 3X**. Based on visual observations of the exposed surfaces, the transite wall (exterior), concrete floor, wood ceiling, steam piping, fire suppression piping, and wood stud frame (interior cavity) were noted to be free of suspect MC materials. In addition, no MC was detected by EXPRAY testing. No live OE/UXO was observed within these building structures during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate these buildings as **5X**. However, fire suppression piping will need to be decontaminated and any floor drains be capped prior to general demolition of Buildings 212-35-R and 212-38-R.

Buildings 212-37 Through 212-40 (Photo Nos. 71 & 72)

Buildings 212-37 through 212-40 are one-story concrete/steel frame structures, approximately 300 square feet each. Historical record searches revealed that these building were used as Pyrotechnic Production Buildings. Current contamination status for these structures prior to our survey was noted as **3X**. Based on visual observations of the exposed surfaces, the transite wall (exterior), concrete wall, transite ceiling, steel beam, wood wall (interior cavity), wood door, concrete floor, ductwork, fire suppression piping, and steam piping were noted to be free of suspect MC materials. In addition, no MC was detected by EXPRAY testing. No live OE/UXO was observed within the building structure during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate these buildings as **5X**. However, fire suppression piping will

need to be decontaminated and any floor drains be capped prior to general demolition of Buildings 212-37 through 212-40.

Buildings 212-42, 212-44 & 212-46 (Photo Nos. 73 & 74)

Buildings 212-42, 212-44 & 212-46 are one-story concrete/steel frame structures, approximately 300 square feet each. Historical record searches revealed that these building were used as Pyrotechnic Production Buildings. Current contamination status for these structures prior to our survey was noted as **3X**. Based on visual observations of the exposed surfaces, the transite wall (exterior), concrete wall, transite ceiling, steel beam, wood door, concrete floor, and steam piping were noted to be free of suspect MC materials. In addition, no MC was detected by EXPRAY testing. No live OE/UXO was observed within the building structure during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate these buildings as **5X**. However, any floor drains within these buildings will need to be capped prior to general demolition of Buildings 212-42, 212-44, & 212-46.

Buildings 212-48 & 212-50 (Photo Nos. 75, 76, 77 & 78)

Building 212-48 & 212-50 are a one-story concrete/steel frame structures, approximately 300 square feet each. Historical record searches revealed that these buildings were used as Pyrotechnic Production Buildings. Current contamination status for these structures prior to our survey is noted as **3X**. Based on visual observations of the exposed surfaces, the transite wall (exterior), concrete wall, transite ceiling, steel beam, wood door, and concrete floor were noted to be free of suspect MC materials. However, EXPRAY confirmatory testing indicated traces residual amount of **Group A explosives** on the concrete wall and steel beam in Building 212-48 and, traces residual amount of **Group A explosives** on the concrete wall Building 212-50. In addition, laboratory test quality assurance/controls (side by side sample collected) results confirm the presence of traces residual amount of **Group A explosives** in Building 212-48. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate these buildings as **3X**. We recommend that this building be decontaminated of MC residue in accordance with the Ordnance and Explosive (OE) action plan prior to demolition.

Buildings 212-51 Through 212-57 and 212-59 (Photo Nos. 79, 80, 81, 82, 83 & 84)

Buildings 212-51 through 212-57 and 212-59 are one-story concrete/steel frame structures, approximately 300 square feet each. Historical record searches revealed that these building were used as Pyrotechnic Production Buildings. Current contamination status for these structures prior to our survey was noted as **3X**. Based on visual observations of the exposed surfaces, the transite wall (exterior), concrete wall, transite ceiling, steel beam, wood door, concrete floor, and steam piping were noted to be free of suspect MC materials. In addition, no MC was detected by EXPRAY testing. No live OE/UXO was observed within the building structure during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate these buildings as **5X**. However, any floor drains within these buildings will need to be capped prior to general demolition of Buildings 212-51 through 212-57 and 212-59.

Building P-1 (Photo Nos. 85 & 86)

Building P-1 is a one-story wood and concrete frame structure, approximately 1,950 square feet. Historical record searches revealed that this building was used as a Pyrotechnic Production Building. Current contamination status for these structures prior to our survey was noted as **3X**. Based on visual observations of the exposed surfaces, the transite wall (exterior), concrete wall, wood ceiling, ceiling plenum, wood stud frame (interior cavity), concrete floor, ductwork, fire suppression piping, and steam piping were noted to be free of suspect MC materials. In addition, no MC was detected by EXPRAY testing. No live OE/UXO was observed within the building structure during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **5X**. However, fire suppression piping will need to be decontaminated and any floor drains be capped prior to general demolition of Buildings P-1.

Building P-3 (Photo Nos. 87, 88 & 89)

Building P-3 is a one-story wood and concrete framed structure, approximately 4,164 square feet. Historical record searches revealed that this building was used as a Pyrotechnic Production Building. Current contamination status for these structures prior to our survey was noted as **3X**. Based on visual observations of the exposed surfaces, the transite wall (exterior), concrete wall, transite ceiling, wood stud, wood trusses, concrete floor, ductwork, fire suppression piping, exhaust flue, and steam piping were noted to be free of suspect MC materials. However, EXPRAY confirmatory testing indicated traces residual amount of **Group C explosives** on the wood trusses and steel beam in Building P-3. In addition, laboratory test quality assurance/controls (side by side sample collected) results confirm the presence traces residual amount of **Group C explosives.** Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **3X**. We recommend that this building be decontaminated of MC residue in accordance with the Ordnance and Explosive (OE) action plan prior to demolition.

Building P-9 (Photo Nos. 90 & 91)

Building P-9 is a one-story wood frame structure, approximately 1,500 square feet. No historical record searches were available for this building. However, based on our observations, this building was used as a Pyrotechnic Production Building. Current contamination status for this structure prior to our survey was assumed to be **3X**. Based on visual observations of the exposed surfaces, the transite wall (exterior), transite ceiling, wood stud, concrete floor, light fixtures, heater, sink basin, steel column and beam, and steam piping were noted to be free of suspect MC materials. However, EXPRAY confirmatory testing indicated traces residual amount of **Group A explosives** on the steam piping, sink basin, light fixtures, and wood stud frame in Building P-9. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **3X**. We recommend that this building be decontaminated of MC residue in accordance with the Ordnance and Explosive (OE) action plan prior to demolition.

Buildings P-10, P-11 & P-14 (Photo Nos. 92, 93 & 94)

Buildings P-10, P-11 and P-14 are one-story wood frame structures, approximately 1,764, 1,777 and 1,935 square feet, respectively. Historical record searches revealed that these

buildings were used as Pyrotechnic Production Buildings. Current contamination status for these structures prior to our survey was noted as **3X**. Based on visual observations of the exposed surfaces, the transite wall (exterior), transite ceiling, fire suppression piping, domestic water piping, wood stud frame (interior cavity), concrete floor, and steam piping were noted to be free of suspect MC materials. In addition, no MC was detected by EXPRAY testing. No live OE/UXO was observed within the building structure during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate these buildings as **5X**. However, fire suppression piping will need to be decontaminated and any floor drains be capped prior to general demolition of Buildings P-10, P-11 & P-14.

Building P-13 (Photo Nos. 95 & 96)

Building P-13 is a one-story wood and concrete framed structure, approximately 1,500 square feet. No historical record searches were available for this building. However, based on our observations, this building was used as a Pyrotechnic Production Building. Current contamination status for this structure prior to our survey was assumed to be **3X**. Based on visual observations of the exposed surfaces, the transite wall (exterior), concrete wall, wood ceiling, wood stud, concrete floor, fire suppression piping, steel column and beam, and steam piping were noted to be free of suspect MC materials. In addition, no MC was detected by EXPRAY testing. No live OE/UXO was observed within the building structure during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **5X**. However, fire suppression piping will need to be decontaminated and any floor drains be capped prior to general demolition of Building P-13.

Building P-112 (Photo Nos. 97 & 98)

Building P-112 is a one-story wood frame structure, approximately 2,300 square feet. No historical record searches were available for this building. However, based on our observations, this building was used as a Pyrotechnic Production Building. Current contamination status for this structure prior to our survey was assumed to be **3X**. Based on visual observations of the exposed surfaces, the corrugated metal wall (exterior), concrete wall, foam ceiling, gypsum board ceiling, wall cavity, ductwork, ceramic tile floor, concrete floor, fire suppression piping, and steel column and beam were noted to be free of suspect MC materials. In addition, no MC was detected by EXPRAY testing. No live OE/UXO was observed within the building structure during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **5X**. However, fire suppression piping will need to be decontaminated and any floor drains be capped prior to general demolition of Building P-112.

Building P-113 (Photo Nos. 99 & 100)

Building P-113 is a one-story wood frame structure, approximately 2,290 square feet. It appears that this building was used as a Pyrotechnic Production Building. Current contamination status for this structure prior to our survey was assumed to be **3X**. Based on visual observations of the exposed surfaces, the corrugated metal wall (exterior), concrete masonry wall, foam board ceiling, gypsum board ceiling, ductwork, concrete floor, fire suppression piping, and steel column and beam were noted to be free of suspect MC materials. However, EXPRAY confirmatory testing indicated traces residual amount of

Group A explosives on the ductwork, fire suppression piping, and steel beams and columns in Building P-113. In addition, laboratory test quality assurance/controls (side by side sample collected) results confirm the presence of traces residual amount of **Group A explosives**. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **3X**. We recommend that this building be decontaminated of MC residue in accordance with the Ordnance and Explosive (OE) action plan prior to demolition.

Building P-116 (Photo Nos. 101 & 102)

Building P-116 is a one-story concrete masonry structure, approximately 3,520 square feet. Historical record searches revealed that this building was used as a Pyrotechnic Production Building. Current contamination status for this structure prior to our survey was noted as **3X**. Based on visual observations of the exposed surfaces, the concrete masonry wall (exterior), concrete wall, foam board ceiling, corrugated metal ceiling, concrete floor, ductwork, steel beam and column, fire suppression piping, and steam piping were noted to be free of suspect MC materials. In addition, no MC was detected by EXPRAY testing. No live OE/UXO was observed within the building structure during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **5X**. However, fire suppression piping will need to be decontaminated and any floor drains be capped prior to general demolition of Building P-116.

Building P-117 (Photo Nos. 103 & 104)

Building P-117 is a one-story wood frame structure, approximately 3,520 square feet. Historical record searches revealed that this building was used as a Pyrotechnic Production Building. Current contamination status for this structure prior to our survey was noted as **3X**. Based on visual observations of the exposed surfaces, the corrugated metal wall (exterior), concrete masonry wall, corrugated metal wall, foam board ceiling, corrugated metal ceiling, ductwork, steel beam and column, concrete floor, fire suppression piping, steam piping, and steel column and beam were noted to be free of suspect MC materials. However, EXPRAY confirmatory testing indicated traces residual amount of **Group A explosives** on the ductwork, steam piping, steel beams and columns and corrugated metal wall in Building P-117. In addition, laboratory test quality assurance/controls (side by side sample collected) results confirm the presence of traces residual amount of **Group A explosives**. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **3X**. We recommend that this building be decontaminated of MC residue in accordance with the Ordnance and Explosive (OE) action plan prior to demolition.

Building P-118 (Photo Nos. 105 & 106)

Building P-118 is a one-story concrete structure, approximately 19,204 square feet. Historical record searches revealed that this building was used as a Pyrotechnic Production Building. Current contamination status for this structure prior to our survey was noted as **3X**. Based on visual observations of the exposed surfaces, the concrete masonry wall (exterior), concrete wall, foam board ceiling, transite ceiling, concrete floor, ductwork, steel beam and column, fire suppression piping, and steam piping were noted to be free of suspect MC materials. In addition, no MC was detected by EXPRAY testing.

No live OE/UXO was observed within the building structure during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **5X**. However, fire suppression piping will need to be decontaminated and any floor drains be capped prior to general demolition of P-118.

Building P-122 & P-123 (Photo Nos. 107 & 108)

Buildings P-122 and P-123 are one-story concrete masonry structures, approximately 6,100 square feet each. Historical record searches revealed that these buildings were used as Pyrotechnic Production Buildings. Current contamination status for Building P-122 was assumed to be **3X** and Building P-123 was noted as **3X** prior to our survey. Based on visual observations of the exposed surfaces, the concrete masonry wall (exterior), concrete wall, foam board ceiling, corrugated metal ceiling, concrete floor, ductwork, steel beam and column, fire suppression piping, and steam piping were noted to be free of suspect MC materials. In addition, no MC was detected by EXPRAY testing. No live OE/UXO was observed within the building structure during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate these buildings as **5X**. However, fire suppression piping will need to be decontaminated and any floor drains be capped prior to general demolition of Buildings P-122 and P-123.

Building P-124 (Photo Nos. 109 & 110)

Building P-124 is a one-story metal frame structure, approximately 850 square feet. Historical record searches revealed that this building was used as a Tank Car Unloading Building. Current contamination status for this structure prior to our survey was noted as **3X**. Based on visual observations of the exposed surfaces, the corrugated metal wall (exterior), corrugated metal ceiling, concrete floor, and steel beam and column were noted to be free of suspect MC materials. In addition, no MC was detected by EXPRAY testing. No live OE/UXO was observed within the building structure during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **5X**. However, any floor drains be capped prior to general demolition of P-118.

Buildings B-7 Through B-16 (Photo Nos. 111, 112, 113, 114 & 115)

Buildings B-7 through B-16 are one-story concrete/wood structures, with their sizes ranging from approximately 1,632 square feet to 6,374 square feet. Historical record searches revealed that these building were used as Pyrotechnic Production Buildings. Current contamination status for these structures prior to our survey was noted as **3X**. Based on visual observations of the exposed surfaces, the transite wall (exterior), concrete wall, wood wall, transite ceiling, wood ceiling, foam board ceiling, wood stud frame (interior cavity), concrete floor, fire suppression piping, and steam piping were noted to be free of suspect MC materials. In addition, no MC was detected by EXPRAY testing. No live OE/UXO was observed within the building structure during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate these buildings as **5X**. However, fire suppression piping will need to be decontaminated and any floor drains be capped prior to general demolition of Buildings B-7 through B-16.

OE RESPONSE ACTION PLAN

Based on visual observations and assessment and the results of our EXPRAY field test analysis and QA/QC laboratory analysis, the following buildings were found to contain MC residue traces and rated as **3X** contamination:

Building T-3	Building 212-16	Building 212-25	Building 212-29
Building 212-31	Building 212-32	Building 212-33	Building 212-36
Building 212-48	Building 212-50	Building P-3	Building P-9
Building P-113	Building P-117		

These buildings will need to be decontaminated to a XXXXX condition prior to demolition. A XXXXX-Five X's decontamination indicate the equipment or facilities have been completely decontaminated, are free of hazards and may be released for general use by the public. EFI has prepared the following decontaminating procedures in general accordance with Department of the Army Technical Bulletin "Decontamination of Facilities and Equipment" (TB 700-4), October 1978 to provide guidance for decontamination of facilities and equipment exposed to MC contamination for the purpose of demolishing these facilities and not for the re-sale or re-use to the general public.

INDIVIDUAL BUILDING OE RECOMMENDED ACTION PLAN

Building T-3

Building T-3 tested positive for traces residual amount of **Groups A explosives** residue located on the steam piping. We recommend physical removal methods for the explosives residue contaminants from all surfaces of the building. Further detail of each decontamination process is presented in the "Decontamination Procedures" section of the report.

Based on our observations, we noted suspect asbestos-containing materials (ACM) within Building T-3, which may be contaminated with the identified explosives residue. Prior to demolition of the building, we recommend that the suspect ACM be sampled and analyzed for asbestos content, or a review of previous survey reports be performed to confirm asbestos or non-asbestos status. We recommend that any ACM that will be potentially disturbed by the demolition activities be decontaminated, removed and disposed by a licensed asbestos abatement contractor prior to those activities that would disturb them. Further, we recommend that this work be perform following work procedures prepared by a licensed asbestos consultant and monitored.

Building 212-16

Building 212-16 tested positive for traces residual amount of **Group C explosives** residue on the steel column. We recommend physical removal of the contaminants from all surfaces of the building. Further detail of each decontamination process is presented in the "Decontamination Procedures" section of the report.

Based on our observations, we noted suspect asbestos-containing materials (ACM) within Building 212-16, which may be contaminated with the identified explosives residue. Prior to demolition of the building, we recommend that the suspect ACM be sampled and analyzed for asbestos content, or a review of previous survey reports be performed to confirm asbestos or non-asbestos status. We recommend that any ACM that will be potentially disturbed by the demolition activities be decontaminated, removed and disposed by a licensed asbestos abatement contractor prior to those activities that would disturb them. Further, we recommend that this work be perform following work procedures prepared by a licensed asbestos consultant and monitored.

Building 212-25

Building 212-25 tested positive for traces residual amount of **Group A explosives** residue on the concrete wall, steel beam and steam piping. We recommend physical removal of the contaminants from all surfaces of the building. We also recommend that the piping (fire suppression piping that may have interior explosives contamination) be purged by water. Further detail of each decontamination process is presented in the "Decontamination Procedures" section of the report.

Based on our observations, we noted suspect asbestos-containing materials (ACM) within Building 212-25, which may be contaminated with the identified explosives residue. Prior to demolition of the building, we recommend that the suspect ACM be sampled and analyzed for asbestos content, or a review of previous survey reports be performed to confirm asbestos or non-asbestos status. We recommend that any ACM that will be potentially disturbed by the demolition activities be decontaminated, removed and disposed by a licensed asbestos abatement contractor prior to those activities that would disturb them. Further, we recommend that this work be perform following work procedures prepared by a licensed asbestos consultant and monitored.

Building 212-29

Building 212-29 tested positive for traces residual amount of **Group A explosives** residue on the concrete floor, concrete wall, wood door, steel beam, and transite ceiling. We recommend physical removal of the contaminants from all surfaces due to extensive contamination of multiple surfaces within Building 212-29. Further detail of each decontamination process is presented in the "Decontamination Procedures" section of the report.

Based on our observations, we noted suspect asbestos-containing materials (ACM) within Building 212-29, which may be contaminated with the identified explosives residue. Prior to demolition of the building, we recommend that the suspect ACM be sampled and analyzed for asbestos content, or a review of previous survey reports be performed to confirm asbestos or non-asbestos status. We recommend that any ACM that will be potentially disturbed by the demolition activities be decontaminated, removed and disposed by a licensed asbestos abatement contractor prior to those activities that would disturb them. Further, we recommend that this work be perform following work procedures prepared by a licensed asbestos consultant and monitored.

Building 212-31

Building 212-31 tested positive for traces residual amount of **Group A explosives** residue on the concrete wall and steel beam. Due to the confined space of Building 212-31, we believe that the MC residue may have migrated to other areas of the building; therefore, we recommend physical removal of the contaminants from all surfaces within Building 212-31. Further detail of each decontamination process is presented in the "Decontamination Procedures" section of the report.

Based on our observations, we noted suspect asbestos-containing materials (ACM) within Building 212-31, which may be contaminated with the identified explosives residue. Prior to demolition of the building, we recommend that the suspect ACM be sampled and analyzed for asbestos content, or a review of previous survey reports be performed to confirm asbestos or non-asbestos status. We recommend that any ACM that will be potentially disturbed by the demolition activities be decontaminated, removed and disposed by a licensed asbestos abatement contractor prior to those activities that would disturb them. Further, we recommend that this work be perform following work procedures prepared by a licensed asbestos consultant and monitored.

Building 212-32

Building 212-32 tested positive for traces residual amount of **Group A explosives** residue on the concrete floor, concrete wall, chilled water piping, steam piping, ductwork and radiator. We recommend physical removal of the contaminants from all surfaces due to extensive contamination of multiple surfaces within Building 212-32. Further detail of each decontamination process is presented in the "Decontamination Procedures" section of the report.

Based on our observations, we noted suspect asbestos-containing materials (ACM) within Building 212-32, which may be contaminated with the identified explosives residue. Prior to demolition of the building, we recommend that the suspect ACM be sampled and analyzed for asbestos content, or a review of previous survey reports be performed to confirm asbestos or non-asbestos status. We recommend that any ACM that will be potentially disturbed by the demolition activities be decontaminated, removed and disposed by a licensed asbestos abatement contractor prior to those activities that would disturb them. Further, we recommend that this work be perform following work procedures prepared by a licensed asbestos consultant and monitored.

Building 212-33

Building 212-33 tested positive for traces residual amount of **Group A explosives** residue on the concrete floor, concrete wall, fire suppression piping, steam piping, and wood door. We recommend physical removal of the contaminants from all surfaces due to extensive contamination of multiple surfaces within Building 212-33. We also recommend that the piping (fire suppression piping that may have interior explosives contamination) be purged by water. Further detail of each decontamination process is presented in the "Decontamination Procedures" section of the report.

Based on our observations, we noted suspect asbestos-containing materials (ACM) within Building 212-33, which may be contaminated with the identified explosives residue. Prior to demolition of the building, we recommend that the suspect ACM be sampled and analyzed for asbestos content, or a review of previous survey reports be performed to confirm asbestos or non-asbestos status. We recommend that any ACM that will be potentially disturbed by the demolition activities be decontaminated, removed and disposed by a licensed asbestos abatement contractor prior to those activities that would disturb them. Further, we recommend that this work be perform following work procedures prepared by a licensed asbestos consultant and monitored.

Building 212-36

Building 212-36 tested positive for traces residual amount of **Group A explosives** residue on the concrete floor. Due to the confined space of Building 212-36, we believe that the MC residue may have migrated to other areas of the building; therefore, we recommend physical removal of the contaminants from all surfaces within Building 212-36. We also recommend that the piping (fire suppression piping that may have interior explosives contamination) be purged by water. Further detail of each decontamination process is presented in the "Decontamination Procedures" section of the report.

Based on our observations, we noted suspect asbestos-containing materials (ACM) within Building 212-36, which may be contaminated with the identified explosives residue. Prior to demolition of the building, we recommend that the suspect ACM be sampled and analyzed for asbestos content, or a review of previous survey reports be performed to confirm asbestos or non-asbestos status. We recommend that any ACM that will be potentially disturbed by the demolition activities be decontaminated, removed and disposed by a licensed asbestos abatement contractor prior to those activities that would disturb them. Further, we recommend that this work be perform following work procedures prepared by a licensed asbestos consultant and monitored.

Building 212-48

Building 212-48 tested positive for traces residual amount of **Group A explosives** residue on the concrete wall and steel beam. Due to the confined space of Building 212-48, we believe that the MC residue may have migrated to other areas of the building; therefore, we recommend physical removal of the contaminants from all surfaces within Building 212-48. Further detail of each decontamination process is presented in the "Decontamination Procedures" section of the report.

Based on our observations, we noted suspect asbestos-containing materials (ACM) within Building 212-48, which may be contaminated with the identified explosives residue. Prior to demolition of the building, we recommend that the suspect ACM be sampled and analyzed for asbestos content, or a review of previous survey reports be performed to confirm asbestos or non-asbestos status. We recommend that any ACM that will be potentially disturbed by the demolition activities be decontaminated, removed and disposed by a licensed asbestos abatement contractor prior to those activities that would disturb them. Further, we recommend that this work be perform following work procedures prepared by a licensed asbestos consultant and monitored.

Building 212-50

Building 212-50 tested positive for traces residual amount of **Group A explosives** residue on the concrete wall. Due to the confined space of Building 212-50, we believe that the MC residue may have migrated to other areas of the building; therefore, we recommend physical removal of the contaminants from all surfaces within Building 212-50. Further detail of each decontamination process is presented in the "Decontamination Procedures" section of the report.

Based on our observations, we noted suspect asbestos-containing materials (ACM) within Building 212-50, which may be contaminated with the identified explosives residue. Prior to demolition of the building, we recommend that the suspect ACM be sampled and analyzed for asbestos content, or a review of previous survey reports be performed to confirm asbestos or non-asbestos status. We recommend that any ACM that will be potentially disturbed by the demolition activities be decontaminated, removed and disposed by a licensed asbestos abatement contractor prior to those activities that would disturb them. Further, we recommend that this work be perform following work procedures prepared by a licensed asbestos consultant and monitored.

Building P-3

Building P-3 tested positive for traces residual amount of **Group A explosives** residue on the wood trusses and steel beam. We recommend physical removal of the contaminants from all of the non-porous surfaces within the building and the wood trusses (porous material) be removed and decontaminated by heat in a controlled environment. We also recommend that the piping (fire suppression piping that may have interior explosives contamination) be purged by water. Further detail of each decontamination process is presented in the "Decontamination Procedures" section of the report.

Based on our observations, we noted suspect asbestos-containing materials (ACM) within Building P-3, which may be contaminated with the identified explosives residue. Prior to demolition of the building, we recommend that the suspect ACM be sampled and analyzed for asbestos content, or a review of previous survey reports be performed to confirm asbestos or non-asbestos status. We recommend that any ACM that will be potentially disturbed by the demolition activities be decontaminated, removed and disposed by a licensed asbestos abatement contractor prior to those activities that would disturb them. Further, we recommend that this work be perform following work procedures prepared by a licensed asbestos consultant and monitored.

Building P-9

Building P-9 tested positive for traces residual amount of **Group A explosives** residue on the steam piping, sink basin, light fixtures and wood stud frame. We recommend physical removal of the contaminants from all non-porous surfaces within the building and the wood stud frame (porous material) be removed and decontaminated by heat in a controlled environment. Further detail of each decontamination process is presented in the "Decontamination Procedures" section of the report.

Based on our observations, we noted suspect asbestos-containing materials (ACM) within Building P-9, which may be contaminated with the identified explosives residue. Prior to demolition of the building, we recommend that the suspect ACM be sampled and analyzed for asbestos content, or a review of previous survey reports be performed to confirm asbestos or non-asbestos status. We recommend that any ACM that will be potentially disturbed by the demolition activities be decontaminated, removed and disposed by a licensed asbestos abatement contractor prior to those activities that would disturb them. Further, we recommend that this work be perform following work procedures prepared by a licensed asbestos consultant and monitored.

Building P-113

Building P-113 tested positive for traces residual amount of **Group A explosives** residue on the ductwork, fire suppression piping and steel beam. We recommend physical removal of the contaminants from all surfaces within the building. We also recommend that the piping (fire suppression piping that may have interior explosives contamination) be purged by water. Further detail of each decontamination process is presented in the "Decontamination Procedures" section of the report.

Based on our observations, we noted suspect asbestos-containing materials (ACM) within Building P-113, which may be contaminated with the identified explosives residue. Prior to demolition of the building, we recommend that the suspect ACM be sampled and analyzed for asbestos content, or a review of previous survey reports be performed to confirm asbestos or non-asbestos status. We recommend that any ACM that will be potentially disturbed by the demolition activities be decontaminated, removed and disposed by a licensed asbestos abatement contractor prior to those activities that would disturb them. Further, we recommend that this work be perform following work procedures prepared by a licensed asbestos consultant and monitored.

Building P-117

Building P-117 tested positive for traces residual amount of **Group A explosives** residue on the ductwork, steam piping and steel beam and column and corrugated metal wall. We recommend physical removal of the contaminants from all surfaces within the building. We also recommend that the piping (fire suppression piping that may have interior explosives contamination) be purged by water. Further detail of each decontamination process is presented in the "Decontamination Procedures" section of the report.

Based on our observations, we noted suspect asbestos-containing materials (ACM) within Building P-117, which may be contaminated with the identified explosives residue. Prior to demolition of the building, we recommend that the suspect ACM be sampled and analyzed for asbestos content, or a review of previous survey reports be performed to confirm asbestos or non-asbestos status. We recommend that any ACM that will be potentially disturbed by the demolition activities be decontaminated, removed and disposed by a licensed asbestos abatement contractor prior to those activities that would disturb them. Further, we recommend that this work be perform following work procedures prepared by a licensed asbestos consultant and monitored.

DECONTAMINATION PROCEDURES

DESCRIPTION

A. Perform all planning, administration, execution of work necessary to safely conduct the Work. The Work will consist of decontaminating munitions constituents from surfaces of building facilities and their components located in the "Plant 2" Area of the LHAAP as identified in the ESS.

REFERENCE STANDARDS

A. Acknowledge awareness and familiarity with the contents and requirements of the following regulations, codes, standards, and guidance documents. Assume responsibility for the performance of the Work in strict compliance with these documents and for every instance of failure to comply with these documents. The current issue of each document shall govern. Where conflict exists between these documents and the Decontamination Procedures, the more stringent requirements shall apply.

1. Base Realignment and Closure Act of 1988, Public Law (PL) 100-526, 102 Stat. 2632.
2. Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980, PL 96-510, 94 Stat 2767, 42 USC 9601.
3. Defense Base Realignment and Closure Act of 1990, PL 101-510, 104 Stat. 1808.
4. Department of the Army Technical Bulletin, "Decontamination of Facilities and Equipment" (TB 700-4), October 1978.
5. Department of the Army – Industrial Operations Command, "Classification and Remediation of Explosive Contamination" (IOCP 385-1), July, 1997.
6. Industrial Operations Command, "Classification and Remediation of Explosive Contamination", IOCP 385-1, July 1997.
7. Resource Conservation and Recovery Act (RCRA) of 1976, PL 94-580, 90 Stat. 2796, 42 USC 6901, et seq., as amended.
8. 29 CRF 1910.120 – OSHA Hazardous Waste Operations and Emergency Response.
9. 40 CFR Part 260, et al – U.S. Environmental Protection Agency (EPA) Military Munitions Rule.
10. AR 385-10 – The Army Safety Program.
11. AR 385-64 – Ammunition and Explosives Safety Standards.
12. EP 1110-1-8153 – Ordnance and Explosives Response.
13. All state, county, and city codes and ordinances as applicable. Make available for review at the site one copy of EPA, OSHA, and applicable state, county and city regulations governing the Work.

WORKSITE CONDITIONS

A. Worker and Visitor Procedures: Contractor is hereby advised that some of the buildings in the "Plant 2" Area have been determined to contain munitions constituents that may pose a chemical and or physical hazard. Provide workers

and visitors with respirators (which, as a minimum, meet the requirements of OSHA 29 CFR 1926.1101) and protective clothing during all phases of the Work and until final EXPRAY testing determines that the buildings has been decontaminated to a **5X** level or an inert state.

PERSONNEL PROTECTION

A. Prior to commencement of work, instruct all workers in the appropriate procedures for personnel protection. Ensure that workers are knowledgeable in these procedures.

B. Provide respiratory protection at all times, which is in compliance with OSHA requirements. When not in violation of the above, the minimum acceptable respiratory protection used for this project shall be as follows, unless airborne fiber concentrations inside the face mask exceed 0.01 fibers per cubic centimeter (f/cc). In the event that airborne fiber concentrations inside the mask exceed 0.01 f/cc, respiratory protection required to achieve 0.01 f/cc shall be used.

1. Provide appropriate respirators based on respiratory protection factor and the potential hazards for workers during all phases of the decontamination work from the time of first disturbance of the munitions constituents contaminated material until acceptance of final EXPRAY tests by Consultant.
2. Provide additional "piggy-back" organic cartridges recommended by the manufacturer whenever organic vapors or fumes are present or likely to be generated during decontamination process.

C. Permit no visitors, except for governmental inspectors having jurisdiction, or as authorized by Owner or Consultant, in the work areas after commencement of asbestos disturbance or removal.

D. Provide workers sufficient sets of protective disposable clothing, consisting of full-body coveralls, head covers, gloves, and foot covers, of sizes to properly fit individual workers.

E. Leave reusable equipment, apparel and protection devices (excluding respirators) in the work area until the end of the munitions constituent decontamination work, at which time such items shall be disposed of as contaminated waste.

F. Provide suitable respirators and protective equipment for use by authorized visitors, Owner, Consultant and Testing Laboratory's representatives. Furnish these in as many sets as required.

PREPARATION

A. Install warning barrier tape and signs stating "CAUTION EXPLOSIVE AREA" to segregate and demarcate work area from occupied or non-occupied areas.

B. Maintain a Sign In/Out Log in the immediate area of the entrance to the work area to be utilized by every person, each time upon entering and leaving the work area.

C. Construct staging area (worker/equipment decontamination unit) work area utilizing scaffolding framing and plywood platform for top decking.

D. Provide a worker/equipment decontamination unit in compliance with EPA guidelines concerning number, size and placement of airlocks, etc. Shower in worker decontamination unit to open into airlock on both contaminated and uncontaminated sides. Decontamination unit shall be constructed of appropriate materials (including plastic sheeting) to provide airtight barriers and allow continuous diminished pressure to be maintained in work areas. Post OSHA decontamination procedures in Change Room for duration of Project.

E. Trap shower waste water using filters having a maximum pore size of not larger than 1.0 micron, and drain into a sanitary sewer. Replace contaminated filters when they become clogged but not less than every third working day. Dispose of filters as contaminated waste.

F. Maintain emergency and fire exits from the Work Areas, or establish alternative exits satisfactory to fire officials. Provide fire extinguishers, as required, inside and outside the Work Area.

G. Provide temporary power and lighting as necessary to maintain safe and comfortable work environment.

H. Provide intrinsically safe equipment (e.g. HEPA Vacuum, temporary light, power wash equipment) to be used during the work.

I. Personnel shall not enter building areas with cigarette lighters, matches, cigarettes, cigars, pipes or other flame emitting items. Personnel shall not smoke cigarettes, cigars, pipes or the like within the building areas.

J. Isolate power source by lock-out tag-out if power is operational.

K. Disconnect Lines (mechanical/electrical from adjacent structures).

L. Cap open drain/pipe (sewage).

M. Evacuate existing lines of products.

DECONTAMINATION METHODS

A. Munitions Constituents Decontamination from Non Porous Surfaces (Physical Removal Methods)

1. Prepare work area as previously specified.

2. At completion of work area preparation, HEPA-vacuum all contaminated non-porous surfaces in the work area to remove visible munitions constituents accumulated materials.
3. Munitions constituents dust and debris collected by HEPA-Vacuum process shall be placed in impermeable containers for proper disposal or incineration.
4. Use steam clean/power-washing equipment capable of removing residual munitions constituents but not damaging to or penetrating the contaminated surfaces. Minimize water migration to other areas by collecting excessive water and place in impermeable containers for proper disposal or incineration.
5. Use disposable towel to wipe power washed surfaces free of material. Dispose of towel in impermeable containers for proper disposal or incineration
6. Surfaces will be considered clean when free from dust, dirt, residue, film, or discoloration resultant from decontamination operations or other activities subordinate to these operations.

B. Munitions Constituents Decontamination from Porous Items (Heat Process Methods)

1. Prepare work area as previously specified.
2. Disassemble munitions constituents contaminated porous items in a manner that does not pose an explosive safety hazard. Welding, drilling, sawing, etc. or any processes that generate enough heat to ignite residual contamination are prohibited.
3. Collect disassembled munitions constituents porous contaminated items and place in a controlled environment (incinerator) for decontamination by heat process. (As an alternative open burning is allowed, see open burning methods).
4. Temperature used in the heat process shall be at a level above the decomposition temperature of the contaminants and heating duration is long enough to assure the largest mass is held at that temperature to be consumed by oxidation.
5. In cases where munitions constituents contaminated porous items are asbestos containing, use of hot gas decontamination is recommended. The process utilizes heated gas to thermally decompose or volatilize explosives or agent. For maximum decontamination effectiveness, it is recommended that a steady state of 600 degree Fahrenheit for time duration of 1 Hour (USAEC "Hot Gas Decontamination", July, 2003).
6. At completion of the hot gas decontamination process. The asbestos-containing materials will be properly bagged, labeled and disposed of in an approved landfill.

C. Munitions Constituents Decontamination from Porous Items (Open Burning Methods)

1. Prepare work area as previously specified.
2. Disassemble munitions constituents contaminated porous items in a manner that does not pose an explosive safety hazard. Welding, drilling,

sawing, etc. or any processes that generate enough heat to ignite residual contamination are prohibited.

3. Collect disassemble munitions constituents porous contaminated items and place in a controlled environment for decontamination by open burning process.
4. Remove hazardous materials substances including mercury, PCBs, radioactive material, fluorescent lights, light ballasts and unexploded ordnance from building prior to open burning.
5. Check and record meteorological conditions to achieve the following conditions prior to burning: wind velocity between 5 & 14 miles per hour; cloud cover is less than 80% and cloud ceiling is at least 2,000 feet; visibility is one mile or more; burns are not conducted during electrical storms, thunderstorms, or during periods of forecasted high probability (50% or greater) as given by the local/National Weather Services; burns are not conducted during periods of precipitation or high probability (75% or greater) as given by the National Weather Service, and burns as not conducted on ozone action days or "Code Red" air quality days.
6. Establish a fire watch during and after each burn and coordinate with the local fire department.
7. Provide an adequate firebreak around each building prior to open burning.
8. Use No. 2 virgin oil as an ignition source.
9. Temperature used in the heat process shall be at a level above the decomposition temperature of the contaminants and heating duration is long enough to assure the largest mass is held at that temperature to be consumed by oxidation.
10. Estimate amount of emissions to be generated as a result of opening burning for each building structures. Use USEPA's "Compilation of Air Pollutant Factors" (AP-42).

D. Munitions Constituents Decontamination of Suspect Explosives-Carrying Pipes/Conduits/Equipment (Physical Removal & Heat Process Methods)

1. Prepare work area as previously specified.
2. Detach piping/conduit/equipment suspected of containing munitions constituents in a manner that does not poses an explosive safety hazard from building structure. Welding, drilling, sawing, etc. or any processes that generate enough heat to ignite residual contamination is prohibited.
3. Tag piping/conduit/equipment with DA Form 3803 prior to handling and placement in a controlled environment for initial physical removal decontamination process (flushing and power washing).
4. Steam cleaning of nuts and bolts shall be performed prior to applying penetrating oil to them for disassembly of pipe/equipment.
5. In the controlled environment disassemble contaminated pipe/equipment items in a manner that does not pose an explosive safety hazard. Welding, drilling, sawing, etc. or any processes that generate enough heat to ignite residual contamination is prohibited.
6. Use high pressure water for flushing of piping component and in conjunction, use power-washing equipment capable of removing residual munitions constituents but not damaging to or penetrating the

contaminated surfaces. Minimize water migration to other areas by collecting excessive water and place in impermeable containers for proper disposal or incineration.

7. Use disposable towel to wipe power washed surfaces free of material. Dispose of towel in impermeable containers for proper disposal or incineration
8. At completion of power-washed disassembled piping/conduit/equipment, placed in a controlled environment (incinerator) for decontamination by heat process.
9. Temperature used in the heat process shall be at a level above the decomposition temperature of the contaminants and heating duration is long enough to assure the largest mass is held at that temperature to be consumed by oxidation.
10. Surfaces will be considered clean when free from dust, dirt, residue, film, or discoloration resultant from decontamination operations or other activities subordinate to these operations.

CLEAN-UP AND CLEARANCE TESTING

A. Provide general clean-up of work area concurrent with the decontamination of munitions constituents contaminated materials. Do not permit accumulation of debris on workspace floor. Contaminated materials such as disposable suites, towels, waste containers, etc. generated as a result of the decontamination process shall be properly disposed of by incineration.

B. Clean all equipment used in the work area and remove from work area (excluding that which will be needed for further cleaning phases) via the Decontamination Enclosure System.

C. Replace all HEPA-filters and pre-filters in vacuum machines with clean filters. Clean all vacuum machines.

D. EXPRAY Final Clearance Testing

1. Testing Laboratory will test for the presence of munitions constituents based on EXPRAY clearance criteria, upon notice from Contractor that work areas are considered visually decontaminated. Final clearance testing shall be performed using bulk wipe sampling techniques and sprayed with EXPRAY reagents. If the EXPRAY test samples indicate no presence of munitions constituents (absence of visual color change), the decontamination work will be considered completed.
2. Re-clean areas/items, which do not comply with the specified EXPRAY final clearance criteria. Contractor to bear cost of all follow-up tests necessitated by the failure of the EXPRAY clearance criteria.
3. Upon achieving clearance, the building is ready for industry demolishing standard.

E. Power Washing and Flushing Rinsate Water Testing

1. Testing Laboratory will test for the presence of munitions constituents collected in 50 Gallon Drums for waste characterization and proper disposal, upon notice from Abatement Contractor that work areas are considered visually decontaminated.
2. Upon receiving test results, and based on the determination by the water quality jurisdiction for acceptance of disposal of the rinsate water, only then will the water be disposed of.

REQUIRED RECORDKEEPING OF DECONTAMINATION ACTIVITIES

A. Identification of facility being decontaminated, previous use of the facility (include type of contaminant involved).

B. A copy of Decontamination Procedures used to achieve the work.

C. A copy of Decontamination Status for each facility based on EXPRAY testing results performed at completion of the work.

D. A copy of the Sign In/Out Log showing the following: date, name, social security number, entering and leaving time, company or agency represented.

E. A copy of Decontamination Tags used during the work for each facility items.

F. A daily report of various decontamination activities.

SUMMARY

EFI has endeavored to perform an Explosive Safety Submission for the "Plant 2" Area at the LHAAP. The objective of the survey was to determine, by visual observations, if presence of Munitions Constituents (MC) and unexploded ordnance (UXO) exist, perform confirmation testing with EXPRAY field test, assess and assign contamination rating to buildings scheduled for demolition, and develop response action for the MC contaminated buildings. No UXO were found within the building structures in the "Plant 2" Area; however, MC residue was found to exists in the Buildings T-3, 212-16, 212-29, 212-31, 212-32, 212-33, 212-36, 212-48, 212-50, P-3, P-9, P-113 and P-117. Based on the assessment of the MC contaminated buildings, the probability of exposure to OE/UXO while performing decontamination work based on the OE recommendation plan outlined and subsequent demolition of these buildings are low.

QUALIFICATION OF REPORT

The information included in this report addresses limited objectives related to the identification for the presence of munitions constituents and provide OE recommendation plan at the subject buildings for the purpose of demolition the buildings. This information should not be used by other parties as a basis for demolition activities or for other purposes without our consultation. The responsibility for any interpretations thereof is borne exclusively by the user.

The activities of this survey included visual observations and EXPRAY testing of exterior/interior surfaces building materials that were readily accessible, including wall cavities and ceiling plenum. Suspect munitions constituents may be present on interior surfaces of piping (fire suppression, etc.) and conduits that were inaccessible and therefore not tested. These materials should be assessed with a 3X contamination status until testing of their interior surfaces is proven otherwise. Should any additional suspect materials be uncovered during the demolition, all work must cease and testing performed prior to proceeding with the demolition activities in the affected areas.

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APPENDIX A

SITE MAP (REGIONAL / INSTALLATION BOUNDARIES)

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APPENDIX B

IOCP 385-1

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APPENDIX C

OBSERVATIONS & ASSESMENT FIELD FORMS

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APPENDIX D

SAMPLING & ANALYSIS FIELD FORMS

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APPENDIX E

SAMPLE LOCATION SKETCHES

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APPENDIX F

PHOTOGRAPHIC DOCUMENTATION

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APPENDIX F

PHOTOGRAPHIC DOCUMENTATION

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APPENDIX G

UXO POSITIVE (LABORATORY QA/QC SUMMARY)

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APPENDIX H

GLOSSARY

LONGHORN ARMY AMMUNITION PLANT
"PLANT 3" AREA
KARNACK, TEXAS

Building Assessment & Evaluation for Future Demolition Activities (Final Report)

Prepared For:
ARC Abatement, Inc.
Houston, Texas

Prepared by:
EFI
9700 Richmond Ave.
Suite 201
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June 10, 2004
Document Number 98410-00810

00065090

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Project No. 98410-00810
June 10, 2004

ARC Abatement, Inc.
630 Roxburgh Drive, Suite 130
Houston, Texas 77041

Subject: **Building Assessment & Evaluation**
"Plant 3" Area, Longhorn Army Ammunition Plant
Karnack, Texas

Attention: Mr. Michael Luzack
Project Manager

Please find attached the Building Assessment & Evaluation Report for the "Plant 3" Area of the Longhorn Army Ammunition Plant, located in Karnack, Texas. The objective of this report is to assess and evaluate buildings within the "Plant 3" Area for the presence of Munitions Constituents (MC) and Unexploded Ordnance (UXO) prior to their dismantling, planned demolition, and to provide an Ordnance and Explosive (OE) response action if munitions constituents are found. The development of this Building Assessment & Evaluation Report is partially based upon requirements referenced in the "Explosive Safety Policy for Real Property Containing Conventional Ordinance and Explosives". This report presents the historical information, survey overview and results, and qualifications. Included, as appendices are summaries of sample results by EXPRAY field test, laboratory quality assurance/quality control, and field sketches denoting sample locations.

It should be noted that the interior spaces of (i.e. inside electrical conduit, fire sprinkler piping, and underground floor drains) have not been tested due to inaccessibility at the subject property, thus materials that have not been tested should be treated as a "3X" classification and requires an OE response action to decontaminate to a "5X" or "0X" prior to demolition.

This report is designed to assist ARC Abatement, Inc. in complying with the appropriate guidance documents, Department of Defense Explosives Safety Board (DDESB) memorandum DDESB-KO, "Guidance for Clearance Plans", dated February 27, 1998 and "DACS-SF" HQDA Ltr 385-00-2, "Explosives Safety Policy for Real Property Containing Conventional Ordnance and Explosives" dated June 30, 2000), and provides notifications as to the presence of MC and or UXO to personnel planning to perform asbestos abatement and demolish structures within the "Plant 3" area of the Longhorn Army Ammunition Plant. The OE response action will help establish a work plan to minimize the potential intentional or unintentional exposure to munitions constituents during the demolition phase of the work. The program is designed to remain an integral part until the structures are decontaminated and demolished.

EFI appreciates this opportunity to provide consulting services for ARC Abatement, Inc. Please contact us should any questions arise concerning this report, or if we may be of further assistance.

Sincerely,
EFI

Cuong Nguyen
Project Manager

Lee A. Burckle, P.E.
Branch Manager

(E:\Projects2003\023126-ARC\00810 Exp Svy\Longhorn Plant 3 Area)

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INTRODUCTION

BACKGROUND INFORMATION

Longhorn Army Ammunition Plant (LHAAP) is an 8,493 acre government owned former industrial facility located in Karnack, Harrison County, Texas approximately 15 miles northeast of Marshall, Texas (see Appendix A, Figure 1 for Site Map). The site is bounded by Caddo Lake, and the town of Uncertain to the north and northeast, and the town of Karnack to the west (see Appendix A, Figure 2 for Installation Map).

In the summer of 1941, the Army's Ordnance Department proposed to Monsanto Chemical Co. who had built and operated the original LHAAP, formerly named Longhorn Ordnance Works to become and operate as a smokeless powder plant. Monsanto Chemical Co. responded by stating that their facility would be better suited for the production of Trinitrotoluene (TNT).

PLANT 1 - TNT FACILITY

On December 15, 1941 the Army's Ordnance Department selected Karnack, Texas as the site to build a "U.S. TNT six-line special" facility. Contract for the construction and operation of the facility between Monsanto Chemical Co. and Army's Ordnance Department was signed on December 22, 1941.

The first flake of TNT was produced on October 19, 1942 and by the end of March 1943, four of the six lines were in operation. A new process for converting the mono and tri stages of operation to direct nitration was underway, one line was modified to the new process and returned to operation in May 1943. The conversion was so successful in reducing the batch time cycle that similar alterations for the remaining three lines were quickly implemented. Operation of the fifth line began in 1944 and line six was never operated due to lack of acid manufacturing facilities.

LHAAP from its production of the first TNT flake in October 19, 1942 to August 15, 1945 when production halted ultimately produced 414,805,500 pounds of TNT. This output aggregated eight and a half million pounds more than scheduled production.

PLANT 2 – PROPELLANT FUEL FACILITY

On November 7, 1949 Monsanto signed a contract with the War Department for a JB-2 propellant fuel plant consisting of three lines. Construction of the first line was 90 percent complete when it was halted on August 21, 1945. Decontamination and preservation work in both Plant 1 and Plant 2 were completed on November 2, 1945 and LHAAP was classified as a standby installation till February 1, 1952.

PLANT 2 – PYROTECHNIC PRODUCTION

In November 1951 the government entered into a contract with Universal Match Corporation as the operating contractor to reactivate Plant 2 for Korean War pyrotechnics production. Universal Match Corporation produced 3,425,942 pyrotechnic devices before production was discontinued in April 1965, including more than a million "ground signals" which would return to LHAAP for rework early in the Vietnam War.

PLANT 3 – SOLID FUEL ROCKET MOTOR FACILITY

The Army awarded a contract to Thiokol Chemical Corporation to construct a facility to produce solid fuel rocket motors for the Army's second generation of tactical missiles. Construction of the facility began in July 1953 and was completed in December 1955. In the same month, Universal Match Corporation Plant 2 operations were completed also. The first mix of live propellant was produced in December 1954 and a variety of small and large rocket motors were produced (Flacon, LaCrosse, two-inch FFAR, all the second stage sustainer motors for both the single-stage Sergeant and the two-stage Pershing missile systems). Rocket motor production continued until early 1971, when the final Nike Hercules units were packed for delivery.

PLANT 2 – ILLUMINATING MUNITIONS (1965 – 1967)

In 1965 the nation's involvement in Southeast Asia increased dramatically, requirements for production of pyrotechnic and illuminating munitions became unprecedented. LHAAP rose to the challenge and Plant 2 was rehabilitated and reactivated to produce 155 mm, 105 mm, 81mm, 60 mm, hand held signals, button bombs, 4.2 in. mortar, AN/ALA-17 flare, etc.

LHAAP FACILITY (1970's – Present)

In the early 1980's Thiokol Corporation and Morton-Norwich merged into Morton Thiokol, Inc., a new contractor for the recent merging of two commands; ARRCOM and ARRADCOM, in a unified command known as AMCCOM (R) and AMCCOM (D) to increase production efficiency. In July 1989 Morton Thiokol separated into two distinct companies – Thiokol Corporation and Morton International. Thiokol is now essentially an aerospace and ammunition producer. The company is composed of four primary operation groups: space, strategic, tactical and ordnance. Thiokol's Longhorn Division (Contractor-Operator) of LHAAP is part of the Ordnance Operation Groups. A Pershing re-qualification program during 1978 resulted in the production of Pershing P1A motors and expansion project to produce Surface Launched Unit/Fuel Air Explosives (SLUFAE) at LHAAP. In addition, LHAAP became the leading producer of Infrared (Aircraft Counter-measures) Flares for both the Army and Air Force. In August 1990, LHAAP was placed on the National Priorities List (NPL). LHAAP, EPA and the Texas Water Commission (TWC) now called Texas Natural Resource Conservation Commission (TNRCC) entered into a Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) Section 120 Agreement for remedial activities at LHAAP. In 1997, LHAAP went into standby or layaway status under the Base Realignment and Closure (BRAC) legislation. Department of the Army (DA), U.S. Army Industrial Operations Command released Thiokol Corporation from its contract to serve as operator of the LHAAP facility. In 1998 the Army contracted with Earth Tech to liquidate all personal property and specific installed property.

ARC'S SCOPE OF WORK

In 1999 the Army contracted Project Development Corp. to demolish specific structurally unsafe buildings. Currently, the Army is requesting that additional buildings (approximately 210) be demolished. ARC Abatement, Inc. (ARC) has been contracted as the abatement/demolition contractor for this Scope of Work (SOW). ARC retained Engineering and fire Investigations (EFI) for consulting and testing services to assess ordnance and explosive residue prior to the demolition of the aforementioned buildings. At the completion of the testing and evaluation, EFI issued an Explosive Safety Submission Report summarizing the findings and providing

decontamination recommendations for those buildings found to be contaminated with munitions constituents. Our "Explosives Safety Submission Report" contains elements of the "Explosive Safety Submission for Removal of Ordnance and Explosives from Real Property" (ESS) report which included: Reason for Ordnance and Explosives (OE) by historical records searches, Maps (Regional and Site), OE observations findings and test results within the structures, OE Risk Evaluation, and OE Response Action. EFI's report is only a component of the ESS and does not have all of the elements. The elements of the ESS which are not applicable to EFI's report includes: Start Date, Migration of OE, Clearance Techniques, Alternative Techniques, Quantity-Distance, Off-Site Disposal, Technical Support, Public involvement and After Action Report.

ASSESSMENT OVERVIEW

HISTORICAL RECORDS SEARCHES ("PLANT 3" AREA)

EFI reviewed the available documentation provided by ARC through the Army's BRAC Technical Support Office. The documentation provided for Historical Records Searches (HRS) consists of "Basic Installation History – Longhorn Army Ammunition Plant, Marshall, Texas (December 15, 1941 to December 31, 1967)", "Annual Historical Review – Reports Control Symbol CSHIS-6 (R3), Longhorn Army Ammunition Plant, US Army Armament, Munitions & Chemical Command AMCCOM (R) (October 1, 1988 to September 30, 1989)" and a listing of the buildings in the "Plant 3" Area containing square footages, previous contamination rating and title for each building.

The "Plant 3" Area is approximately 275-Acres, bounded by Avenue P to the west, Karnack Avenue to the East, 51st Street to the South and 11th street, Galveston Avenue, and Goose Prairie Creek to the North. Production in "Plant 3" Area included the production of rocket motors, pyrotechnic and illuminating devices and propellant mixing. Based on our HRS of the buildings scheduled for demolition in the "Plant 3" Area, we noted the following:

- 13 Inert buildings rated as **5X** contamination (21A, 22-B, 32-B, 25G-2, 26G, 27A, 29-A, 31-A, 61-I, 60-I, 62-I, 61-J, & 61-J2).
- 18 Propellant Plant buildings rated as **3X** contamination (25-D, 26-E, 32-E, 29-D, 31-G, 36-B, 38-B, 40-D, 41-E, 46-A, 46-B, 47-B, 49-B, 50-G, 53-D, 54-F, 54-G & 68-C). Processes from these buildings range from inert blending, oxidizer blending, screening and surge of Ground RDX and LOVA propellant, standardization, finishing, and propellant mixing. OE noted in these buildings consists of ammonium perchlorate, SLUFAE propellant, LOVA propellant, PBX propellant, and black powder.
- 6 X-Ray Complex buildings rated as **3X** contamination (53-B, 54-B, 55-B, 56-B, 59-B & 60-B).
- 8 miscellaneous buildings consisting of production, restrooms, power shed & break area rated as **3X** contamination (69-C, 68-G-1, 68-F, 68-F-1, 54-F-1, 40 H, 65-D, & 26-B-1).
- 40 buildings (17-A, 22-A, 26-B-1, 12-G, 13-G, 16-G, 17-G, 19-G, 019-I, 21-G, 22-G, 25-G, 28-G, 28-G-1, 28-H-1, 30-G, 32-H, 32-H-1, 33-G, 33-G-1, 34-G, 36-G, 38-E, 42-H, 44-D, 43-E, 45-E, 46-E, 53-H, 54-H, 54-H-1, 55-H, 62-D, 62-G, 65-D, 65-E, 68-G, 75-I, 75-I-1, & 82-G) were noted on the site plan but were not included in the SOW. Our observations noted that these building have been previously demolished. Note these buildings were not in this current SOW; however, this listing of previously demolished buildings can be used to update remaining buildings.
- 4 buildings in the current SOW and previously rated as **3X** contamination (21-A, 25C, 25C-1, and 53-D,) were to be observed to have been previously demolished.

Additional buildings discovered during our survey, which were incorporated with the current SOW at the request of ARC, are noted below. We understand these buildings are scheduled for demolition.

- 17 miscellaneous buildings (25-D-1, 26-E-1, 27-F, 29-D-1, 37-E, 37-F, 38-D, 39-F, 40-E, 42-E, 48-G, 49-B-1, 53-B-1, 56-B-1, 75-J, 90-J & 90-J-1) which did not have information as to the contamination ratings; therefore, they were presumed to have a **3X** contamination prior to our assessment and confirmatory MC residue testing.

BUILDING OBSERVATIONS & ASSESSMENT

At completion of our HRS, EFI performed visual observations to identify building components and associated equipment for the presence of ordnance and explosive residue. Our observations entailed visual observations of exterior surface building components, Mechanical, Electrical, and Plumbing (MEP) components, associated process equipment, and interior wall cavities and ceiling plenums where possible for the presence of suspected residual MC. The vast majority of the building's conditions consist of unoccupied spaces where process equipment and HVAC systems have been previously removed leaving essentially a "shell" interior. Based on our visual observations, assessments were made to classify the level of contamination based on U.S. Army's guidance document IOCP 385-1 (Classification of Explosive Contamination). Individual building observations and assessment forms are presented in Appendix C of this report.

SAMPLING/LABORATORY PROCEDURES

EXPRAY TEST PROCEDURES (FIELD TEST)

The primary purpose of the survey was to test for the presence of ordnance and explosive residue in the buildings and on its components. This testing was achieved by the use of an EXPRAY kit through a series of sequential reactions distinguishing between polynitroarimatics – Group A Explosives, nitrate esters and nitramines – Group B Explosives, and inorganic nitrate compounds – Group C Explosives.

The EXPRAY test strip is coated with the thin adhesive and that is applied to a testing surface area of approximately 3 square inches to collect the residue. EXPRAY reagents are then sprayed on to the test strip in a sequential manner to determine if each group of explosives is present by observation of visual color change to the test strip. This process is repeated for each building component identified.

In buildings where chlorates are suspected to exist, based on historic record searches, a chlorate field test is performed. The chlorate test kit is based on a drop tub delivery system that reacts with the chlorates category of explosives. The test strip is applied to the testing surface area of 3 square inches to collect the residue. A drop of reagent is then applied to the test strip to determine if the chlorate group of explosive exists by observation of visual color change. This process is repeated for each building component identified.

QUALITY ASSURANCE / QUALITY CONTROL (LABORATORY TEST)

Random side-by-side wipe samples with the same surface area are obtained, packaged and shipped to EFI's subcontractor laboratory (Armstrong Forensic Laboratory) for quality assurance/quality control (QA/QC) to confirm positive identification of an EXPRAY explosives group field test. This laboratory is a successful participant in the American Industrial Hygiene Association #363, Texas Department of Public Safety #RA0135295, Drug Enforcement Agency #C00 70769, Environmental Protection Agency #TX120, International Association of Arson Investigators, American Academy of Forensic Sciences, American Society of Testing Materials, ASTM E-30, National Institute of Standards and Technology National Voluntary Laboratory Accreditation Program (NVLAP) and licensed by the Texas Department of Health (TDH). Laboratory results of QA/QC samples are presented in Appendix G.

INDIVIDUAL BUILDING ASSESSMENT / CLASSIFICATION

ARMY REGULATORY CLASSIFICATION (IOCP 385-1)

At completion of visual observations and EXPRAY field tests, the buildings and their associated components were evaluated using the Army regulatory classification "IOCP 385-1 Classification and Remediation of Explosive Contamination"(See Appendix B) for contamination classifications.

BUILDING CLASSIFICATION (BASED ON OBSERVATIONS, ASSESSMENT AND CONFIRMATORY TESTING)

Following is a discussion of the various classifications based on observations, assessment and confirmatory EXPRAY and Laboratory confirmation testing for buildings located in the "Plant 3" Area. A total of 61 buildings from the "Plant 3" Area were observed, assessed and analyzed for suspect MC residue contamination.

Building 25-G-2 (Photo Nos. 1 & 2)

Building 25-G-2 is a one-story wood frame structure, approximately 125 square feet. The building was used as a clock house. Historical record searches revealed no evidence of OE production. Current contamination status for this structure prior to our survey was noted as **5X**. Based on visual observations of the exposed surfaces, the transite wall (exterior), concrete floor, and wood stud frame structure were noted to be free of suspect MC materials. In addition, no MC was detected by EXPRAY testing. No live OE/UXO was observed within the building structure during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **5X**. As no MC materials were observed or detected by testing, general demolition of Building 25-G-2 could begin as soon as practical.

Building 26-G (Photo Nos. 3 & 4)

Building 26-G is a one-story wood frame structure, approximately 5,824 square feet. The building was used as a change house. Historical record searches revealed no evidence of OE production. Current contamination status for this structure prior to our survey was noted as **5X**. Based on visual observations of the exposed surfaces, the transite wall (exterior), steam piping, ductwork, domestic water tank, steel columns, wood stud frame

(interior wall cavity), and concrete floor were noted to be free of suspect MC materials. In addition, no MC was detected by EXPRAY testing. No live OE/UXO was observed within the building structure during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **5X**. As no MC materials were observed or detected by testing, general demolition of Building 26-G could begin as soon as practical.

Building 61-I (Photo Nos. 5 & 6)

Building 61-I is a one-story wood frame structure, approximately 1,215 square feet. The building was used as a compressor building. Historical record searches revealed no evidence of OE production. Current contamination status for this structure prior to our survey was noted as **5X**. Based on visual observations of the exposed surfaces, the transite wall (exterior surface), wood ceiling, concrete floor, steam piping, steel trusses, wood stud frame (interior wall cavity), and transite ceiling panel (interior surface) were noted to be free of suspect MC materials. However, EXPRAY confirmatory testing indicated traces residual amount of **Group A explosives** on the steel trusses, wood ceiling and in the concrete pit. In addition, laboratory test quality assurance/controls (side by side sample collected) results confirm the presence of traces residual amount of **Group A explosives**. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **3X**. We recommend that this building be decontaminated of MC residue in accordance with the Ordnance and Explosive (OE) action plan prior to demolition.

Building 60-I (Photo Nos.7 & 8)

Building 60-I is a one-story wood frame structure, approximately 136 square feet. The building was used as a storage building. Historical record searches revealed no evidence of OE production. Current contamination status for this structure prior to our survey was noted as **5X**. Based on visual observations of the exposed surfaces, the corrugated metal wall (exterior), concrete floor, and wood stud frame (interior wall cavity) panel were noted to be free of suspect MC materials. In addition, no MC was detected by EXPRAY testing. No live OE/UXO was observed within the building structure during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **5X**. As no MC materials were observed or detected by testing, general demolition of Building 60-I could begin as soon as practical.

Building 62-I (Photo Nos. 9 & 10)

Building 62-I is a one-story wood frame structure, approximately 4,292 square feet. The building was used as an inert storage building. Historical record searches revealed no evidence of OE production. Current contamination status for this structure prior to our survey was noted as **5X**. Based on visual observations of the exposed surfaces, the transite wall (exterior), gypsum wallboard and gypsum board ceiling, floor tile, concrete floor, steam piping, steel column, and wood stud frame (interior wall cavity) were noted to be free of suspect MC materials. However, EXPRAY confirmatory testing indicated traces residual amount of **Group A explosives** on the transite wall, gypsum wallboard, wood stud frame (interior wall cavity). In addition, laboratory test quality assurance/controls (side by side sample collected) results confirm the presence of traces residual amount of **Group A explosives**. Based on our visual observations, assessment and confirmatory EXPRAY

testing, we rate this building as **3X**. We recommend that this building be decontaminated of MC residue in accordance with the Ordnance and Explosive (OE) action plan prior to demolition.

Building 61-J

Building 61-J is a one-story wood frame structure, approximately 6,656 square feet. The building was used as a change house. Historical record searches revealed no evidence of OE production. Current contamination status for this structure prior to our survey was noted as **5X**. Based on visual observations of the exposed surfaces, the transite wall (exterior), concrete floor, steel column, steam piping, domestic piping, washbasin, ductwork, and wood stud frame (interior wall cavity) were noted to be free of suspect MC materials. In addition, no MC was detected by EXPRAY testing. No live OE/UXO was observed within the building structure during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **5X**. As no MC materials were observed or detected by testing, general demolition of Building 60-J could begin as soon as practical.

Building 61-J-2

Building 61-J-2 is a one-story wood frame structure, approximately 117 square feet. Historical record searches revealed that the building was used as a clock house. Current contamination status for this structure prior to our survey was noted as **5X**. Based on visual observations of the exposed surfaces, the transite wall (exterior), concrete floor, and wood stud frame (interior wall cavity) were noted to be free of suspect MC materials. In addition, no MC was detected by EXPRAY testing. No live OE/UXO was observed within the building structure during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **5X**. As no MC materials were observed or detected by testing, general demolition of Building 60-J-2 could begin as soon as practical.

Building 22-B (Photo Nos. 11 & 12)

Building 22B is a one-story steel/poured-in-place concrete frame structure, approximately 4,240 square feet. Historical record searches revealed that the building was used as an inert storage building. Current contamination status for this structure prior to our survey was noted as **3X**. Based on visual observations of the exposed surfaces, the corrugated metal wall (exterior), steel columns and beams, concrete wall, concrete floor, wood wall, wall cavity, and wood and gypsum ceiling panel, were noted to be free of suspect MC materials. In addition, no MC was detected by EXPRAY testing. No live OE/UXO was observed within the building structure during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **5X**. As no MC materials were observed or detected by testing, general demolition of Building 22-B could begin as soon as practical.

Building 32-B (Photo Nos. 13 & 14)

Building 32-B is a one-story steel/poured-in-place concrete frame structure, approximately 6,905 square feet. Historical record searches revealed that the building was used as a general storage building. Current contamination status for this structure prior to our survey

is noted as **5X**. Based on visual observations of the exposed surfaces, the transite wall (exterior), corrugated metal wall (exterior), concrete wall, steel beams and columns, and concrete floor were noted to be free of suspect MC materials. In addition, no MC was detected by EXPRAY testing. No live OE/UXO was observed within the building structure during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **5X**. As no MC materials were observed or detected by testing, general demolition of Building 32-B could begin as soon as practical.

Building 31-A

Building 31-A is a one-story wood frame structure, approximately 288 square feet. Historical record searches revealed that the building was used as a laboratory storage building. Current contamination status for this structure prior to our survey is noted as **5X**. Based on visual observations of the exposed surfaces, the transite wall (exterior), wood stud frame (interior cavity) and concrete floor were noted to be free of suspect MC materials. In addition, no MC was detected by EXPRAY testing. No live OE/UXO was observed within the building structure during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **5X**. As no MC materials were observed or detected by testing, general demolition of Building 31-A could begin as soon as practical.

Building 29-A (Photo Nos. 15 & 16)

Building 29-A is a one-story concrete masonry/concrete structure, approximately 12,750 square feet. Historical record searches revealed that the building was used as a laboratory. Current contamination status for this structure prior to our survey was noted as **5X**. Based on visual observations of the exposed surfaces, the concrete masonry wall (exterior), concrete wall (interior), transite wall, floor tile, steam piping, lab counters, exhaust flue, ductwork, and gypsum ceiling board were noted to be free of suspect MC materials. However, EXPRAY confirmatory testing indicated traces residual amount of **Group A explosives** on the transite wall and ductwork. In addition, laboratory test quality assurance/controls (side by side sample collected) results confirm the presence of traces residual amount of **Group A explosives**. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **3X**. We recommend that this building be decontaminated of MC residue in accordance with the Ordnance and Explosive (OE) action plan prior to demolition.

Building 27-A (Photo Nos. 17 & 18)

Building 27-A is a one-story brick structure, approximately 2,562 square feet. Historical record searches revealed that the building was used as an administration building. Current contamination status for this structure prior to our survey was noted as **5X**. Based on visual observations of the exposed surfaces, the brick wall (exterior), gypsum wallboard (interior), steam piping, wood stud frame (interior cavity) and floor tile were noted to be free of suspect MC materials. In addition, no MC was detected by EXPRAY testing. No live OE/UXO was observed within the building structure during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **5X**. As no MC materials were observed or detected by testing, general demolition of Building 27-A could begin as soon as practical.

Building 21-A

Building 21-A is a one-story brick structure, approximately 2,112 square feet. Historical record searches revealed that the building was used as an administration building. Current contamination status for this structure prior to our survey was noted as **5X**. Based on visual observations of the exposed surfaces, the brick wall (exterior), gypsum wallboard (interior), steam piping, wood stud frame (interior cavity) and floor tile were noted to be free of suspect MC materials. In addition, no MC was detected by EXPRAY testing. No live OE/UXO was observed within the building structure during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **5X**. As no MC materials were observed or detected by testing, general demolition of Building 21-A could begin as soon as practical.

Building 46-A (Photo Nos. 19, 20, & 21)

Building 46-A is a one-story steel frame structure, approximately 6,376 square feet. Historical record searches revealed that the building was used as a Propellant Plant (Casting & Curing Building). Current contamination status for this structure prior to our survey was noted as **3X**. Based on visual observations of the exposed surfaces, the transite wall (exterior), corrugated metal wall (exterior), steel column, concrete wall, wood ceiling panel, concrete floor, wood stud frame (interior cavity), fire suppression piping, and steam piping were noted to be free of suspect MC materials. In addition, no MC was detected by EXPRAY testing. No live OE/UXO was observed within the building structure during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **5X**. However, fire suppression piping will need to be decontaminated and any floor drains be capped prior to general demolition of Building 46-A.

Building 49-B

Building 49-B is a one-story steel frame structure, approximately 6,376 square feet. Historical record searches revealed that the building was used as a Propellant Plant (Press & Pump House). Current contamination status for this structure prior to our survey was noted as **3X**. Based on visual observations of the exposed surfaces, the transite wall (exterior), corrugated metal wall (exterior), steel column, concrete wall, wood floor, concrete floor, wood stud frame (interior cavity), ductwork, and steam piping were noted to be free of suspect MC materials. In addition, no MC was detected by EXPRAY testing. No live OE/UXO was observed within the building structure during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **5X**. However, any floor drains within this building will need to be capped prior to general demolition of Building 49-B.

Building 49-B-1

Building 49-B-1 is a one-story brick structure, approximately 400 square feet. No historical record searches were available for this building; however, our observations noted it to be a toilet/restroom. Current contamination status for this structure prior to our survey is presumed to be **3X**. Based on visual observations of the exposed surfaces, the brick wall (exterior), steel trusses, wood ceiling, and steam piping were noted to be free of suspect MC materials. In addition, no MC was detected by EXPRAY testing. No live OE/UXO was

observed within the building structure during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **5X**. As no MC materials were observed or detected by testing, general demolition of Building 49-B-1 could begin as soon as practical.

Building 47-B

Building 47-B is a one-story poured-in-place concrete structure, approximately 624 square feet. Historical record searches revealed that the building was used as a Propellant Plant. Current contamination status for this structure prior to our survey was noted as **3X**. Based on visual observations of the exposed surfaces, the concrete wall (exterior), concrete floor, ductwork, and transite wall were noted to be free of suspect MC materials. In addition, no MC was detected by EXPRAY testing. No live OE/UXO was observed within the building structure during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **5X**. As no MC materials were observed or detected by testing, general demolition of Building 47-B could begin as soon as practical.

Building 46-B (Photo Nos. 22, 23 & 24)

Building 46-B is a one-story poured-in-place concrete/steel frame structure, approximately 2,361 square feet. Historical record searches revealed that the building was used as a Propellant Plant. Current contamination status for this structure prior to our survey was noted as **3X**. Based on visual observations of the exposed surfaces, the concrete wall (exterior), corrugated metal wall (exterior), steel column, wood ceiling, fire suppression piping, concrete floor, wood stud frame, and transite wall were noted to be free of suspect MC materials. In addition, no MC was detected by EXPRAY testing. No live OE/UXO was observed within the building structure during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **5X**. However, fire suppression piping will need to be decontaminated and any floor drains be capped prior to general demolition of Building 46-B.

Building 53-B (Photo Nos. 25 & 26)

Building 53-B is a one-story poured-in-place concrete/steel frame structure, approximately 609 square feet. Historical record searches revealed that the building was used as part of an X-Ray Complex. Current contamination status for this structure prior to our survey was noted as **3X**. Based on visual observations of the exposed surfaces, the transite wall (exterior), brick wall (interior), wood beam, wood ceiling, fire suppression piping, and steam piping were noted to be free of suspect MC materials. In addition, no MC was detected by EXPRAY testing. No live OE/UXO was observed within the building structure during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **5X**. However, fire suppression piping will need to be decontaminated and any floor drains be capped prior to general demolition of Building 53-B.

Building 53-B-1

Building 53-B-1 is a one-story brick structure, approximately 400 square feet. No historical record searches were available for this building; however, our observations noted it to be a

toilet/restroom. Current contamination status for this structure prior to our survey is presumed to be **3X**. Based on visual observations of the exposed surfaces, the brick wall (exterior), concrete floor, steel column, concrete ceiling and steam piping were noted to be free of suspect MC materials. In addition, no MC was detected by EXPRAY testing. No live OE/UXO was observed within the building structure during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **5X**. As no MC materials were observed or detected by testing, general demolition of Building 53-B-1 could begin as soon as practical.

Building 54-B

Building 54-B is a one-story poured-in-place concrete/steel frame structure, approximately 545 square feet. Historical record searches revealed that the building was used as part of an X-Ray Complex. Current contamination status for this structure prior to our survey was noted as **3X**. Based on visual observations of the exposed surfaces, the transite wall (exterior), brick wall (interior), transite wall, transite ceiling, fire suppression piping, and steam piping were noted to be free of suspect MC materials. In addition, no MC was detected by EXPRAY testing. No live OE/UXO was observed within the building structure during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **5X**. However, fire suppression piping will need to be decontaminated and any floor drains be capped prior to general demolition of Building 54-B.

Building 55-B

Building 55-B is a one-story poured-in-place concrete/steel frame structure, approximately 905 square feet. Historical record searches revealed that the building was used as part of an X-Ray Complex. Current contamination status for this structure prior to our survey was noted as **3X**. Based on visual observations of the exposed surfaces, the transite wall (exterior), brick wall (interior), concrete wall, wood stud frame (interior cavity), transite ceiling, and steam piping were noted to be free of suspect MC materials. In addition, no MC was detected by EXPRAY testing. No live OE/UXO was observed within the building structure during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **5X**. However, any floor drains within this building will need to be capped prior to general demolition of Building 55-B.

Building 56-B (Photo Nos. 27, 28 & 29)

Building 56-B is a one-story poured-in-place, brick, wood frame structure, approximately 905 square feet. Historical record searches revealed that the building was used as part of an X-Ray Complex. Current contamination status for this structure prior to our survey was noted as **3X**. Based on visual observations of the exposed surfaces, the transite wall (exterior), brick wall (interior), concrete wall, wood stud frame (interior cavity), transite ceiling, and steam piping were noted to be free of suspect MC materials. In addition, no MC was detected by EXPRAY testing. No live OE/UXO was observed within the building structure during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **5X**. However, any floor drains within this building will need to be capped prior to general demolition of Building 56-B.

Building 56-B-1

Building 56-B-1 is a one-story wood frame structure, approximately 400 square feet. No historical record searches were available for this building; however, our observations noted it to be a toilet/restroom. Current contamination status for this structure prior to our survey is presumed to be **3X**. Based on visual observations of the exposed surfaces, the transite wall (exterior), concrete floor, transite ceiling, wood stud frame (interior cavity) and steam piping were noted to be free of suspect MC materials. In addition, no MC was detected by EXPRAY testing. No live OE/UXO was observed within the building structure during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **5X**. However, fire suppression piping will need to be decontaminated and any floor drains within this building will need to be capped prior to general demolition of Building 56-B-1.

Building 59-B

Building 59-B is a one-story wood frame/brick structure, approximately 535 square feet. Historical record searches revealed that the building was used as part of an X-Ray Complex. Current contamination status for this structure prior to our survey was noted as **3X**. Based on visual observations of the exposed surfaces, the transite wall (exterior), brick wall (interior), transite ceiling, wood stud frame (interior cavity), fire suppression piping, and steam piping were noted to be free of suspect MC materials. In addition, no MC was detected by EXPRAY testing. No live OE/UXO was observed within the building structure during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **5X**. However, fire suppression piping will need to be decontaminated and any floor drains be capped prior to general demolition of Building 59-B-1.

Building 60-B

Building 60-B is a one-story wood frame/brick structure, approximately 705 square feet. Historical record searches revealed that the building was used as part of an X-Ray Complex. Current contamination status for this structure prior to our survey was noted as **3X**. Based on visual observations of the exposed surfaces, the transite wall (exterior), brick wall (interior), gypsum wallboard, wood beam, transite ceiling, wood stud frame (interior cavity), and steam piping were noted to be free of suspect MC materials. In addition, no MC was detected by EXPRAY testing. No live OE/UXO was observed within the building structure during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **5X**. However, any floor drains within this building will need to be capped prior to general demolition of Building 18Y.

Building 68-C (Photo Nos. 30, 31 & 32)

Building 68-B is a one-story steel frame structure, approximately 4,064 square feet. Historical record searches revealed that the building was used as a Propellant Plant. Current contamination status for this structure prior to our survey was noted as **3X**. Based on visual observations of the exposed surfaces, the corrugated metal wall (exterior), wood wall panel, wall cavity, foam board wall panel, exhaust flue, domestic piping, steel beam, gypsum board ceiling, ductwork, air handling unit, and concrete floor were noted to be free

of suspect MC materials. In addition, no MC was detected by EXPRAY testing. No live OE/UXO was observed within the building structure during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **5X**. However, any floor drains within this building will need to be capped prior to general demolition of Building 68-C.

Building 69-C (Photo Nos. 33 & 34)

Building 69-C is a one-story wood frame structure, approximately 144 square feet. Historical record searches revealed that the building was used as a Break Area. Current contamination status for this structure prior to our survey was noted as **3X**. Based on visual observations of the exposed surfaces, the corrugated metal wall (exterior), wood stud frame (interior cavity), and concrete floor were noted to be free of suspect MC materials. In addition, no MC was detected by EXPRAY testing. No live OE/UXO was observed within the building structure during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **5X**. As no MC materials were observed or detected by testing, general demolition of Building 69-C could begin as soon as practical.

Building 68-G-1 (Photo Nos.35 & 36)

Building 68-G-1 is a one-story wood frame structure, approximately 255 square feet. Historical record searches revealed that the building was used as a restroom. Current contamination status for this structure prior to our survey is presumed to be **3X**. Based on visual observations of the exposed surfaces, the wood wall (exterior), concrete floor, wood ceiling, wood stud frame (cavity) and steam piping were noted to be free of suspect MC materials. In addition, no MC was detected by EXPRAY testing. No live OE/UXO was observed within the building structure during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **5X**. However, any floor drains within this building will need to be capped prior to general demolition of Building 68-G-1.

Building 68-F (Photo Nos. 37, 38 & 39)

Building 68-F is a one-story poured-in-place concrete/wood frame structure, approximately 9,546 square feet. Historical record searches revealed that the building was used as a Production Building. Current contamination status for this structure prior to our survey was noted as **3X**. Based on visual observations of the exposed surfaces, the transite wall (exterior), wood wall panel, wood stud frame (interior cavity), steam piping, fire suppression piping, steel column, transite ceiling, ductwork, and concrete floor were noted to be free of suspect MC materials. However, EXPRAY confirmatory testing indicated traces residual amount of **Group A explosives** on the ductwork. In addition, laboratory test quality assurance/controls (side by side sample collected) results confirm the presence of traces residual amount of **Group C explosives**. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **3X**. We recommend that this building be decontaminated of MC residue in accordance with the Ordnance and Explosive (OE) action plan prior to demolition.

Building 68-F-1

Building 68-F-1 is a one-story wood frame structure, approximately 255 square feet. Historical record searches revealed that the building was used as a restroom. Current contamination status for this structure prior to our survey is presumed to be **3X**. Based on visual observations of the exposed surfaces, the transite wall (exterior), concrete floor, gypsum wallboard, wood stud frame (interior cavity) and steam piping were noted to be free of suspect MC materials. In addition, no MC was detected by EXPRAY testing. No live OE/UXO was observed within the building structure during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **5X**. However, any floor drains within this building will need to be capped prior to general demolition of Building 68-F-1.

Building 26-E (Photo Nos. 40 & 41)

Building 26-E is a one-story concrete structure, approximately 10,551 square feet. Historical record searches revealed that the building was used as a Propellant Plant. Current contamination status for this structure prior to our survey was noted as **3X**. Based on visual observations of the exposed surfaces, the transite wall (exterior), concrete wall (interior), steam piping, fire suppression piping, ductwork, radiator, and concrete floor were noted to be free of suspect MC materials. However, EXPRAY confirmatory testing indicated traces of traces residual amount of **Group A explosives** on the transite wall. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **3X**. We recommend that this building be decontaminated of MC residue in accordance with the Ordnance and Explosive (OE) action plan prior to demolition.

Building 26-E-1 (Photo Nos. 42 & 43)

Building 26-E-1 is a one-story wood frame structure, approximately 255 square feet. Historical record searches revealed that the building was used as a restroom. Current contamination status for this structure prior to our survey is presumed to be **3X**. Based on visual observations of the exposed surfaces, the transite wall (exterior), wood wall, concrete floor, gypsum wallboard, wood stud frame (interior cavity) and steam piping were noted to be free of suspect MC materials. In addition, no MC was detected by EXPRAY testing. No live OE/UXO was observed within the building structure during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **5X**. However, any floor drains within this building will need to be capped prior to general demolition of Building 26-E-1.

Building 32-E (Photo Nos. 45 & 46)

Building 32-E is a one-story poured-in-place concrete structure, approximately 1,830 square feet. Historical record searches revealed that the building was used as a Propellant Plant. Current contamination status for this structure prior to our survey was noted as **3X**. Based on visual observations of the exposed surfaces, the concrete wall (exterior), wood wall panel, gypsum wallboard, wall cavity, transite ceiling, gas piping, ductwork, and concrete floor were noted to be free of suspect MC materials. In addition, no MC was detected by EXPRAY testing. No live OE/UXO was observed within the building structure during this survey. Based on our visual observations, assessment and

confirmatory EXPRAY testing, we rate this building as **5X**. However, fire suppression piping will need to be decontaminated and any floor drains be capped prior to general demolition of Building 32-E.

Building 29-D (Photo Nos. 47 & 48)

Building 29-D is a one-story poured-in-place concrete structure, approximately 7,397 square feet. Historical record searches revealed that the building was used as a Propellant Plant. Current contamination status for this structure prior to our survey was noted as **3X**. Based on visual observations of the exposed surfaces, the concrete wall (exterior), gypsum wallboard, transite wall, wall cavity, wood ceiling, concrete ceiling, hopper, gas piping, ductwork, fire suppression piping, gas piping, steam piping and concrete floor were noted to be free of suspect MC materials. In addition, no MC was detected by EXPRAY testing. No live OE/UXO was observed within the building structure during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **5X**. However, fire suppression piping will need to be decontaminated and any floor drains be capped prior to general demolition of Building 29-D.

Building 29-D-1

Building 29-D-1 is a one-story wood frame structure, approximately 255 square feet. No historical record searches were available for this building; however, our observations noted it to be a toilet/restroom. Current contamination status for this structure prior to our survey is presumed to be **3X**. Based on visual observations of the exposed surfaces, the transite wall (exterior), concrete floor, gypsum wallboard, wood wall panel, wood stud frame (interior cavity) and steam piping were noted to be free of suspect MC materials. In addition, no MC was detected by EXPRAY testing. No live OE/UXO was observed within the building structure during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **5X**. However, fire suppression piping will need to be decontaminated and any floor drains be capped prior to general demolition of Building 29-D-1.

Building 25-D

Building 25-D is a two-story poured-in-place concrete structure, approximately 10,805 square feet. Historical record searches revealed that the building was used as a Propellant Plant. Current contamination status for this structure prior to our survey was noted as **3X**. Based on visual observations of the exposed surfaces, the transite wall (exterior), wood ceiling, ceiling plenum, concrete ceiling, air handling unit, ductwork, fire suppression piping, steam piping and concrete floor were noted to be free of suspect MC materials. In addition, no MC was detected by EXPRAY testing. No live OE/UXO was observed within the building structure during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **5X**. However, fire suppression piping will need to be decontaminated and any floor drains be capped prior to general demolition of Building 25-D.

Building 25-D-1

Building 25-D-1 is a one-story wood frame structure, approximately 255 square feet. No historical record searches were available for this building; however, our observations noted it to be a toilet/restroom. Current contamination status for this structure prior to our survey is presumed to be **3X**. Based on visual observations of the exposed surfaces, the transite wall (exterior), concrete floor, gypsum wallboard, gypsum ceiling board, wood stud frame (interior cavity) and steam piping were noted to be free of suspect MC materials. In addition, no MC was detected by EXPRAY testing. No live OE/UXO was observed within the building structure during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **5X**. As no MC materials were observed or detected by testing, general demolition of Building 25-D-1 could begin as soon as practical.

Building 35-B (Photo Nos. 49 & 50)

Building 35-B is a one-story brick structure, approximately 680 square feet. Historical record searches revealed that the building was used as Pyrotechnic Production. Current contamination status for this structure prior to our survey was noted as **3X**. Based on visual observations of the exposed surfaces, the brick wall (exterior), wood joist, fire suppression piping, radiator, steam piping and concrete floor were noted to be free of suspect MC materials. In addition, no MC was detected by EXPRAY testing. No live OE/UXO was observed within the building structure during this survey Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **5X**. However, fire suppression piping will need to be decontaminated and any floor drains be capped prior to general demolition of Building 35-B.

Building 39-E

Building 39-E is a one-story covered walkway wood structure. Current contamination status for this structure prior to our survey was noted as **3X**. Based on visual observations of the exposed surfaces, the corrugated metal ceiling (exterior), steel beam and column, and concrete floor were noted to be free of suspect MC materials. In addition, no MC was detected by EXPRAY testing. No live OE/UXO was observed within the building structure during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **5X**. As no MC materials were observed or detected by testing, general demolition of Building 39-E could begin as soon as practical.

Building 40-D

Building 40-D is a one-story steel frame structure, approximately 228 square feet. Historical record searches revealed that the building was used as a Propellant Plant. Current contamination status for this structure prior to our survey was noted as **3X**. Based on visual observations of the exposed surfaces, the corrugated metal ceiling (exterior), steel beam and column, and concrete floor were noted to be free of suspect MC materials. In addition, no MC was detected by EXPRAY testing. No live OE/UXO was observed within the building structure during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **5X**. However, any

floor drains within this building will need to be capped prior to general demolition of Building 40-D.

Building 41-E

Building 41-E is a one-story steel frame structure, approximately 1,495 square feet. Historical record searches revealed that the building was used as a Propellant Plant. Current contamination status for this structure prior to our survey was noted as **3X**. Based on visual observations of the exposed surfaces, the corrugated metal wall (exterior), steel beam and column, fiberglass ceiling, fire suppression piping, and concrete floor were noted to be free of suspect MC materials. In addition, no MC was detected by EXPRAY testing. No live OE/UXO was observed within the building structure during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **5X**. However, fire suppression piping will need to be decontaminated and any floor drains be capped prior to general demolition of Building 41-E.

Building 36-B

Building 36-B is a one-story steel frame structure, approximately 680 square feet. Historical record searches revealed that the building was used as a Propellant Plant. Current contamination status for this structure prior to our survey was noted as **3X**. Based on visual observations of the exposed surfaces, the brick wall (exterior), steel wall (interior), transite ceiling, steel beam and column, ductwork, and concrete floor were noted to be free of suspect MC materials. In addition, no MC was detected by EXPRAY testing. No live OE/UXO was observed within the building structure during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **5X**. However, any floor drains within this building will need to be capped prior to general demolition of Building 36-B.

Building 38-B

Building 38-B is a one-story brick structure, approximately 786 square feet. Historical record searches revealed that the building was used as a Propellant Plant. Current contamination status for this structure prior to our survey was noted as **3X**. Based on visual observations of the exposed surfaces, the brick wall (exterior), transite wall (interior), ductwork, radiator, and concrete floor were noted to be free of suspect MC materials. In addition, no MC was detected by EXPRAY testing. No live OE/UXO was observed within the building structure during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **5X**. However, any floor drains within this building will need to be capped prior to general demolition of Building 38-B.

Building 50-G

Building 50-G is a one-story steel frame structure, approximately 3,138 square feet. Historical record searches revealed that the building was used as a Propellant Plant. Current contamination status for this structure prior to our survey was noted as **3X**. Based on visual observations of the exposed surfaces, the transite wall (exterior), steel beam and column, wood wall panel, wall cavity, transite ceiling, heater, ductwork, fire suppression piping, steam piping, and concrete floor were noted to be free of suspect MC materials. In addition, no MC was detected by EXPRAY testing. No live OE/UXO was observed within

the building structure during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **5X**. However, fire suppression piping will need to be decontaminated and any floor drains be capped prior to general demolition of Building 50-G.

Building 54-F (Photo Nos. 51 & 52)

Building 54-F is a one-story poured-in-place/wood frame structure, approximately 9,563 square feet. Historical record searches revealed that the building was used as a Propellant Plant. Current contamination status for this structure prior to our survey was noted as **3X**. Based on visual observations of the exposed surfaces, the transite wall (exterior), concrete wall, transite wall, transite ceiling, wood stud frame (interior cavity), steam piping, steel column, ductwork, fire suppression piping, and concrete floor were noted to be free of suspect MC materials. However, EXPRAY confirmatory testing indicated traces residual amount of **Group B explosives** on the concrete floor. In addition, laboratory test quality assurance/controls (side by side sample collected) results confirm the presence of traces residual amount of **Group B explosives**. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **3X**. We recommend that this building be decontaminated of MC residue in accordance with the Ordnance and Explosive (OE) action plan prior to demolition.

Building 54-F-1

Building 54-F-1 is a one-story wood frame structure, approximately 100 square feet. Historical record searches revealed that the building was used as a restroom. Current contamination status for this structure prior to our survey is presumed to be **3X**. Based on visual observations of the exposed surfaces, the transite wall (exterior), concrete floor, gypsum wallboard, gypsum ceiling board, wood stud frame (interior cavity) and steam piping were noted to be free of suspect MC materials. However, EXPRAY confirmatory testing indicated traces residual amount of **Group A explosives** on the transite wall. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **3X**. We recommend that this building be decontaminated of MC residue in accordance with the Ordnance and Explosive (OE) action plan prior to demolition.

Building 54-G (Photo Nos. 53, 54 & 55)

Building 54-G is a one-story wood/poured-in-place concrete structure, approximately 10,247 square feet. Historical record searches revealed that the building was used as Propellant Plant. Current contamination status for this structure prior to our survey was noted as **3X**. Based on visual observations of the exposed surfaces, the transite wall (exterior), steel wall, concrete wall, steel beam, concrete floor, fire suppression piping, steam piping, wood stud frame (interior cavity), and wood ceiling were noted to be free of suspect MC materials. However, Perchlorate confirmatory testing indicated traces residual amount of **Perchlorate** on the steel beam and pneumatic controls. In addition, laboratory test quality assurance/controls (side by side sample collected) results confirm the presence of traces residual amount of **Perchlorate**. Based on our visual observations, assessment and Perchlorate testing, we rate this building as **3X**. No live OE/UXO was observed within the building structure during this survey. We recommend that this building be decontaminated of MC residue in accordance with the Ordnance and Explosive (OE) action plan prior to demolition.

Building 54-G-1

Building 54-G-1 is a one-story wood frame structure, approximately 125 square feet. Historical record searches revealed that the building was used as a restroom. Current contamination status for this structure prior to our survey is presumed to be **3X**. Based on visual observations of the exposed surfaces, the transite wall (exterior), concrete floor, gypsum wallboard, gypsum ceiling board, wood stud frame (interior cavity) and steam piping were noted to be free of suspect MC materials. In addition, no MC was detected by EXPRAY testing. No live OE/UXO was observed within the building structure during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **5X**. As no MC materials were observed or detected by testing, general demolition of Building 54-G-1 could begin as soon as practical.

Building 40-H

Building 40-H is a one-story wood frame structure, approximately 125 square feet. Historical record searches revealed that the building was used as a power shed. Current contamination status for this structure prior to our survey is presumed to be **3X**. Based on visual observations of the exposed surfaces, the corrugated metal wall (exterior), concrete floor, and electrical buss duct were noted to be free of suspect MC materials. In addition, no MC was detected by EXPRAY testing. No live OE/UXO was observed within the building structure during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **5X**. As no MC materials were observed or detected by testing, general demolition of Building 40-H could begin as soon as practical.

Building 31-G

Building 31-G is a one-story pour-in-place concrete structure, approximately 5,234 square feet. Historical record searches revealed that the building was used as a Propellant Plant. Current contamination status for this structure prior to our survey was noted as **3X**. Based on visual observations of the exposed surfaces, the transite wall (exterior), concrete wall, steel frame support (cargo bay), chilled water piping, transite ceiling, ductwork, fire suppression piping, steam piping, wood stud frame (interior cavity) and concrete floor were noted to be free of suspect MC materials. In addition, no MC was detected by EXPRAY testing. No live OE/UXO was observed within the building structure during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **5X**. However, fire suppression piping will need to be decontaminated and any floor drains be capped prior to general demolition of Building 31-G.

Building 48-G

Building 48-G is a one-story wood frame structure, approximately 800 square feet. Historical record searches revealed that the building was used as a Sewer Pumping Station. Current contamination status for this structure prior to our survey was presumed as **3X**. Based on visual observations of the exposed surfaces, the transite wall (exterior), wood stud frame (interior cavity), and concrete floor were noted to be free of suspect MC materials. In addition, no MC was detected by EXPRAY testing. No live OE/UXO was observed within the building structure during this survey. Based on our visual

observations, assessment and confirmatory EXPRAY testing, we rate this building as **5X**. As no MC materials were observed or detected by testing, general demolition of Building 48-G could begin as soon as practical.

Building 75-J

Building 75-J is a concrete masonry structure, approximately 500 square feet. Historical record searches revealed that the building was used as a Storage Building. Current contamination status for this structure prior to our survey was presumed as **3X**. Based on visual observations of the exposed surfaces, the concrete masonry wall (exterior), wood stud frame (interior cavity), transite roof, and concrete floor were noted to be free of suspect MC materials. In addition, no MC was detected by EXPRAY testing. No live OE/UXO was observed within the building structure during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **5X**. As no MC materials were observed or detected by testing, general demolition of Building 75-J could begin as soon as practical.

Building 27-F (Photo No. 44)

Building 27-F is a one-story circular steel structure, approximately 300 square feet. No historical record searches were available for this building; however, our observations noted it to be an observation room. Current contamination status for this structure prior to our survey was presumed as **3X**. Based on visual observations of the exposed surfaces, the steel wall (exterior), foam wall (interior), steel beam, and concrete floor were noted to be free of suspect MC materials. In addition, no MC was detected by EXPRAY testing. No live OE/UXO was observed within the building structure during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **5X**. As no MC materials were observed or detected by testing, general demolition of Building 27-F could begin as soon as practical.

Building 90-J

Building 90-J is a one-story wood frame structure, approximately 75 square feet. Historical record searches revealed that the building was used as a Guard Shack. Current contamination status for this structure prior to our survey is presumed to be **3X**. Based on visual observations of the exposed surfaces, the transite wall shingle (exterior), wood wall, wood ceiling, concrete floor, and wood stud frame (interior cavity) were noted to be free of suspect MC materials. In addition, no MC was detected by EXPRAY testing. No live OE/UXO was observed within the building structure during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **5X**. As no MC materials were observed or detected by testing, general demolition of Building 90-J could begin as soon as practical.

Building 90-J-1

Building 90-J-1 is a one-story wood frame structure, approximately 125 square feet. Historical record searches revealed that the building was used as a restroom. Current contamination status for this structure prior to our survey is presumed to be **3X**. Based on visual observations of the exposed surfaces, the transite wall (exterior), transite ceiling, concrete floor, and wood stud frame were noted to be free of suspect MC materials. In

addition, no MC was detected by EXPRAY testing. No live OE/UXO was observed within the building structure during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **5X**. As no MC materials were observed or detected by testing, general demolition of Building 90-J-1 could begin as soon as practical.

Building 40-E

Building 40-E is a one-story pour-in-place concrete structure, approximately 824 square feet. No historical record searches were available for this building; however, our observations noted it to be an electrical/storage and restroom. Current contamination status for this structure prior to our survey was presumed as **3X**. Based on visual observations of the exposed surfaces, the concrete wall (exterior), corrugated metal roof, steel column, concrete ceiling, steel beam, and concrete floor were noted to be free of suspect MC materials. In addition, no MC was detected by EXPRAY testing. No live OE/UXO was observed within the building structure during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **5X**. As no MC materials were observed or detected by testing, general demolition of Building 40-E could begin as soon as practical.

Building 37-F

Building 37-F is a one-story wood frame structure, approximately 945 square feet. No historical record searches were available for this building; however, our observations noted it to be a walkway/garage structure. Current contamination status for this structure prior to our survey was presumed as **3X**. Based on visual observations of the exposed surfaces, the corrugated metal wall (exterior), foam wall (interior), steel beam, wood stud frame (interior cavity), and concrete floor were noted to be free of suspect MC materials. In addition, no MC was detected by EXPRAY testing. No live OE/UXO was observed within the building structure during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **5X**. As no MC materials were observed or detected by testing, general demolition of Building 37-F could begin as soon as practical.

Building 39-F

Building 39-F is a one-story steel frame structure, approximately 300 square feet. No historical record searches were available for this building; however, our observations noted it to be a garage structure. Current contamination status for this structure prior to our survey was presumed as **3X**. Based on visual observations of the exposed surfaces, the corrugated metal wall (exterior), steel beam and column, and concrete floor were noted to be free of suspect MC materials. In addition, no MC was detected by EXPRAY testing. No live OE/UXO was observed within the building structure during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **5X**. As no MC materials were observed or detected by testing, general demolition of Building 39-F could begin as soon as practical.

Building 42-E (Photo Nos. 56 & 57)

Building 42-E is a one-story steel frame structure, approximately 800 square feet. No historical record searches were available for this building; however, our observations noted it to be a Propellant Plant structure. Current contamination status for this structure prior to our survey was presumed as **3X**. Based on visual observations of the exposed surfaces, the corrugated metal wall (exterior), steel wall (interior), steel beam, concrete trench, ductwork, fire suppression piping and concrete floor were noted to be free of suspect MC materials. In addition, no MC was detected by EXPRAY testing. No live OE/UXO was observed within the building structure during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **5X**. However, fire suppression piping will need to be decontaminated and any floor drains be capped prior to general demolition of Building 42-E.

Building 37-E

Building 37-E is a one-story poured-in-place concrete structure, approximately 824 square feet. No historical record searches were available for this building; however, our observations noted it to be an electrical/storage and restroom. Current contamination status for this structure prior to our survey was presumed as **3X**. Based on visual observations of the exposed surfaces, the concrete wall (exterior), corrugated metal roof, steel column, concrete ceiling, steel beam, fire suppression piping, and concrete floor were noted to be free of suspect MC materials. In addition, no MC was detected by EXPRAY testing. No live OE/UXO was observed within the building structure during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **5X**. However, fire suppression piping will need to be decontaminated and any floor drains be capped prior to general demolition of Building 37-E.

Building 38-D

Building 38-D is a one-story wood frame structure, approximately 945 square feet. No historical record searches were available for this building; however, our observations noted it to be a walkway/garage structure. Current contamination status for this structure prior to our survey was presumed as **3X**. Based on visual observations of the exposed surfaces, the corrugated metal wall (exterior), foam wall (interior), steel beam, wood stud frame (interior cavity), and concrete floor were noted to be free of suspect MC materials. In addition, no MC was detected by EXPRAY testing. No live OE/UXO was observed within the building structure during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **5X**. As no MC materials were observed or detected by testing, general demolition of Building 38-D could begin as soon as practical.

Building 65-D

Building 65-D is a one-story wood frame structure, approximately 64 square feet. No historical record searches were available for this building; however, our observations noted it to be an electrical building. Current contamination status for this structure prior to our survey was presumed as **3X**. Based on visual observations of the exposed surfaces, the

transite wall (exterior), transite ceiling, exhaust fan, wood stud frame (interior cavity), and concrete floor were noted to be free of suspect MC materials. In addition, no MC was detected by EXPRAY testing. No live OE/UXO was observed within the building structure during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **5X**. As no MC materials were observed or detected by testing, general demolition of Building 65-D could begin as soon as practical.

Building 26-B-1

Building 26-B-1 is a one-story wood frame structure, approximately 250 square feet. No historical record searches were available for this building; however, our observations noted it to be a toilet. Current contamination status for this structure prior to our survey was presumed as **3X**. Based on visual observations of the exposed surfaces, the brick wall (exterior), gypsum wallboard, plaster ceiling, steel beam and column, and concrete floor were noted to be free of suspect MC materials. In addition, no MC was detected by EXPRAY testing. No live OE/UXO was observed within the building structure during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **5X**. As no MC materials were observed or detected by testing, general demolition of Building 26-B-1 could begin as soon as practical.

OE RESPONSE ACTION PLAN

Based on visual observations and assessment and the results of our EXPRAY field test analysis and QA/QC laboratory analysis, the following buildings were found to contain MC residue traces and rated as **3X** contamination:

Building 29-A	Building 26-E	Building 54-F
Building 54-F-1	Building 54-G	Building 61-I
Building 62-I	Building 68-F	

These buildings will need to be decontaminated to a degree of less than XXXXX prior to demolition. A XXXXX-Five X's decontamination indicate the equipment or facilities have been completely decontaminated, are free of hazards and may be released for general use by the public. EFI has prepared the following decontaminating procedures in general accordance with Department of the Army Technical Bulletin "Decontamination of Facilities and Equipment" (TB 700-4), October 1978 to provide guidance for decontamination of facilities and equipment exposed to MC contamination for the purpose of demolishing these facilities and not for the re-sale or re-use to the general public.

INDIVIDUAL BUILDING OE RECOMMENDED ACTION PLAN

Building 29-A

Building 29-A tested positive for traces residual amount of **Groups A explosives** residue located on the transite wall and ductwork. We recommend physical removal methods for the explosives residue contaminants from within the building. Further detail of each decontamination process is presented in the "Decontamination Procedures" section of the report.

Based on our observations, we noted suspect asbestos-containing materials (ACM) within Building 29-A, which may be contaminated with the identified explosives residue. Prior to demolition of the building, we recommend that the suspect ACM be sampled and analyzed for asbestos content, or a review of previous survey reports be performed to confirm asbestos or non-asbestos status. We recommend that any ACM that will be potentially disturbed by the demolition activities be decontaminated, removed and disposed by a licensed asbestos abatement contractor prior to those activities that would disturb them. Further, we recommend that this work be perform following work procedures prepared by a licensed asbestos consultant and monitored.

Building 26-E

Building 26-E tested positive for traces residual amount of **Group A explosives** residue on the transite wall. We recommend physical removal of the contaminants from the surfaces within the building. We also recommend that the piping (fire suppression piping that may have interior explosives contamination) be purged by water. Further detail of each decontamination process is presented in the "Decontamination Procedures" section of the report.

Based on our observations, we noted suspect asbestos-containing materials (ACM) within Building 26-E, which may be contaminated with the identified explosives residue. Prior to demolition of the building, we recommend that the suspect ACM be sampled and analyzed for asbestos content, or a review of previous survey reports be performed to confirm asbestos or non-asbestos status. We recommend that any ACM that will be potentially disturbed by the demolition activities be decontaminated, removed and disposed by a licensed asbestos abatement contractor prior to those activities that would disturb them. Further, we recommend that this work be perform following work procedures prepared by a licensed asbestos consultant and monitored.

Building 54-F

Building 54-F tested positive for traces residual amount of **Group B explosives** residue on the concrete floor. We recommend physical removal of the contaminants from the surfaces within the building. We also recommend that the piping (fire suppression piping that may have interior explosives contamination) be purged by water. Further detail of each decontamination process is presented in the "Decontamination Procedures" section of the report.

Based on our observations, we noted suspect asbestos-containing materials (ACM) within Building 54-F, which may be contaminated with the identified explosives residue. Prior to demolition of the building, we recommend that the suspect ACM be sampled and analyzed for asbestos content, or a review of previous survey reports be performed to confirm asbestos or non-asbestos status. We recommend that any ACM that will be potentially disturbed by the demolition activities be decontaminated, removed and disposed by a licensed asbestos abatement contractor prior to those activities that would disturb them. Further, we recommend that this work be perform following work procedures prepared by a licensed asbestos consultant and monitored.

Building 54-F-1

Building 54-F-1 tested positive for traces residual amount of **Group A explosives** residue on the transite wall. We recommend physical removal of the contaminants from the surfaces of the transite wall located in Building 54-F-1. Further detail of each decontamination process is presented in the "Decontamination Procedures" section of the report.

Based on our observations, we noted suspect asbestos-containing materials (ACM) within Building 54-F-1 which may be contaminated with the identified explosives residue. Prior to demolition of the building, we recommend that the suspect ACM be sampled and analyzed for asbestos content, or a review of previous survey reports be performed to confirm asbestos or non-asbestos status. We recommend that any ACM that will be potentially disturbed by the demolition activities be decontaminated, removed and disposed by a licensed asbestos abatement contractor prior to those activities that would disturb them. Further, we recommend that this work be perform following work procedures prepared by a licensed asbestos consultant and monitored.

Building 54-G

Building 54-G tested positive for traces residual amount of **Perchlorate** residue on the steel beam and pneumatic controls. We recommend physical removal of the contaminants from the surfaces of the building. Further detail of each decontamination process is presented in the "Decontamination Procedures" section of the report.

Based on our observations, we noted suspect asbestos-containing materials (ACM) within Building 54-G, which may be contaminated with the identified explosives residue. Prior to demolition of the building, we recommend that the suspect ACM be sampled and analyzed for asbestos content, or a review of previous survey reports be performed to confirm asbestos or non-asbestos status. We recommend that any ACM that will be potentially disturbed by the demolition activities be decontaminated, removed and disposed by a licensed asbestos abatement contractor prior to those activities that would disturb them. Further, we recommend that this work be perform following work procedures prepared by a licensed asbestos consultant and monitored.

Building 61-I

Building 61-I tested positive for traces residual amount of **Group A explosives** residue on the steel trusses, wood ceiling and concrete pit. We recommend physical removal of the contaminants from all surfaces and the wood ceiling (porous material) be removed and decontaminated by heat in a controlled environment. Further detail of each decontamination process is presented in the "Decontamination Procedures" section of the report.

Based on our observations, we noted suspect asbestos-containing materials (ACM) within Building 61-I, which may be contaminated with the identified explosives residue. Prior to demolition of the building, we recommend that the suspect ACM be sampled and analyzed for asbestos content, or a review of previous survey reports be performed to confirm asbestos or non-asbestos status. We recommend that any ACM that will be potentially

disturbed by the demolition activities be decontaminated, removed and disposed by a licensed asbestos abatement contractor prior to those activities that would disturb them. Further, we recommend that this work be perform following work procedures prepared by a licensed asbestos consultant and monitored.

Building 62-I

Building 62-I tested positive for traces residual amount of **Group A explosives** residue on the transite wall, gypsum wallboard, and wood stud frame. We recommend physical removal of the contaminants from all surfaces and the gypsum wallboard and wood stud frame (porous materials) be removed and decontaminated by heat in a controlled environment. Further detail of each decontamination process is presented in the "Decontamination Procedures" section of the report.

Based on our observations, we noted suspect asbestos-containing materials (ACM) within Building 62-I which may be contaminated with the identified explosives residue. Prior to demolition of the building, we recommend that the suspect ACM be sampled and analyzed for asbestos content, or a review of previous survey reports be performed to confirm asbestos or non-asbestos status. We recommend that any ACM that will be potentially disturbed by the demolition activities be decontaminated, removed and disposed by a licensed asbestos abatement contractor prior to those activities that would disturb them. Further, we recommend that this work be perform following work procedures prepared by a licensed asbestos consultant and monitored.

Building 68-F

Building 68-F tested positive for traces residual amount of **Group A explosives** residue on the ductwork. We recommend physical removal of the contaminants from all surfaces of the within the building. Further detail of each decontamination process is presented in the "Decontamination Procedures" section of the report.

Based on our observations, we noted suspect asbestos-containing materials (ACM) within Building 68-F which may be contaminated with the identified explosives residue. Prior to demolition of the building, we recommend that the suspect ACM be sampled and analyzed for asbestos content, or a review of previous survey reports be performed to confirm asbestos or non-asbestos status. We recommend that any ACM that will be potentially disturbed by the demolition activities be decontaminated, removed and disposed by a licensed asbestos abatement contractor prior to those activities that would disturb them. Further, we recommend that this work be perform following work procedures prepared by a licensed asbestos consultant and monitored.

DECONTAMINATION PROCEDURES

DESCRIPTION

A. Perform all planning, administration, execution of work necessary to safely conduct the Work. The Work will consist of decontaminating munitions constituents from surfaces of building facilities and their components located in the "Plant 3" Area of the LHAAP as identified in the ESS.

REFERENCE STANDARDS

A. Acknowledge awareness and familiarity with the contents and requirements of the following regulations, codes, standards, and guidance documents. Assume responsibility for the performance of the Work in strict compliance with these documents and for every instance of failure to comply with these documents. The current issue of each document shall govern. Where conflict exists between these documents and the Decontamination Procedures, the more stringent requirements shall apply.

1. Base Realignment and Closure Act of 1988, Public Law (PL) 100-526, 102 Stat. 2632.
2. Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980, PL 96-510, 94 Stat 2767, 42 USC 9601.
3. Defense Base Realignment and Closure Act of 1990, PL 101-510, 104 Stat. 1808.
4. Department of the Army Technical Bulletin, "Decontamination of Facilities and Equipment" (TB 700-4), October 1978.
5. Department of the Army – Industrial Operations Command, "Classification and Remediation of Explosive Contamination" (IOCP 385-1), July, 1997.
6. Industrial Operations Command, "Classification and Remediation of Explosive Contamination", IOCP 385-1, July 1997.
7. Resource Conservation and Recovery Act (RCRA) of 1976, PL 94-580, 90 Stat. 2796, 42 USC 6901, et seq., as amended.
8. 29 CRF 1910.120 – OSHA Hazardous Waste Operations and Emergency Response.
9. 40 CFR Part 260, et al – U.S. Environmental Protection Agency (EPA) Military Munitions Rule.
10. AR 385-10 – The Army Safety Program.
11. AR 385-64 – Ammunition and Explosives Safety Standards.
12. EP 1110-1-8153 – Ordnance and Explosives Response.
13. All state, county, and city codes and ordinances as applicable. Make available for review at the site one copy of EPA, OSHA, and applicable state, county and city regulations governing the Work.

WORKSITE CONDITIONS

A. Worker and Visitor Procedures: Contractor is hereby advised that some of the buildings in the "Plant 3" Area have been determined to contain munitions constituents that may pose a chemical and or physical hazard. Provide workers and visitors with respirators (which, as a minimum, meet the requirements of OSHA 29 CFR 1926.1101) and protective clothing during all phases of the Work and until final EXPRAY testing determines that the buildings has been decontaminated to a **5X** level or an inert state.

PERSONNEL PROTECTION

A. Prior to commencement of work, instruct all workers in the appropriate procedures for personnel protection. Ensure that workers are knowledgeable in these procedures.

B. Provide respiratory protection at all times, which is in compliance with OSHA requirements. When not in violation of the above, the minimum acceptable respiratory protection used for this project shall be as follows, unless airborne fiber concentrations inside the face mask exceed 0.01 fibers per cubic centimeter (f/cc). In the event that airborne fiber concentrations inside the mask exceed 0.01 f/cc, respiratory protection required to achieve 0.01 f/cc shall be used.

1. Provide appropriate respirators based on respiratory protection factor and the potential hazards for workers during all phases of the decontamination work from the time of first disturbance of the munitions constituents contaminated material until acceptance of final EXPRAY tests by Consultant.
2. Provide additional "piggy-back" organic cartridges recommended by the manufacturer whenever organic vapors or fumes are present or likely to be generated during decontamination process.

C. Permit no visitors, except for governmental inspectors having jurisdiction, or as authorized by Owner or Consultant, in the work areas after commencement of asbestos disturbance or removal.

D. Provide workers sufficient sets of protective disposable clothing, consisting of full-body coveralls, head covers, gloves, and foot covers, of sizes to properly fit individual workers.

E. Leave reusable equipment, apparel and protection devices (excluding respirators) in the work area until the end of the munitions constituent decontamination work, at which time such items shall be disposed of as contaminated waste.

F. Provide suitable respirators and protective equipment for use by authorized visitors, Owner, Consultant and Testing Laboratory's representatives. Furnish these in as many sets as required.

PREPARATION

A. Install warning barrier tape and signs stating "CAUTION EXPLOSIVE AREA" to segregate and demarcate work area from occupied or non-occupied areas.

B. Maintain a Sign In/Out Log in the immediate area of the entrance to the work area to be utilized by every person, each time upon entering and leaving the work area.

C. Construct staging area (worker/equipment decontamination unit) work area utilizing scaffolding framing and plywood platform for top decking.

D. Provide a worker/equipment decontamination unit in compliance with EPA guidelines concerning number, size and placement of airlocks, etc. Shower in worker decontamination unit to open into airlock on both contaminated and uncontaminated sides. Decontamination unit shall be constructed of appropriate materials (including plastic sheeting) to provide airtight barriers and allow continuous diminished pressure to be maintained in work areas. Post OSHA decontamination procedures in Change Room for duration of Project.

E. Trap shower waste water using filters having a maximum pore size of not larger than 1.0 micron, and drain into a sanitary sewer. Replace contaminated filters when they become clogged but not less than every third working day. Dispose of filters as contaminated waste.

F. Maintain emergency and fire exits from the Work Areas, or establish alternative exits satisfactory to fire officials. Provide fire extinguishers, as required, inside and outside the Work Area.

G. Provide temporary power and lighting as necessary to maintain safe and comfortable work environment.

H. Provide intrinsically safe equipment (e.g. HEPA Vacuum, temporary light, power wash equipment) to be used during the work.

I. Personnel shall not enter building areas with cigarette lighters, matches, cigarettes, cigars, pipes or other flame emitting items. Personnel shall not smoke cigarettes, cigars, pipes or the like within the building areas.

J. Isolate power source by lock-out tag-out if power is operational.

K. Disconnect Lines (mechanical/electrical from adjacent structures).

L. Cap open drain/pipe.

M. Evacuate existing lines of products.

DECONTAMINATION METHODS

A. Munitions Constituents Decontamination from Non Porous Surfaces (Physical Removal Methods)

1. Prepare work area as previously specified.
2. At completion of work area preparation, HEPA-vacuum all contaminated non-porous surfaces in the work area to remove visible munitions constituents accumulated materials.
3. Munitions constituents dust and debris collected by HEPA-Vacuum process shall be placed in impermeable containers for proper disposal or incineration.

4. Use steam clean/power-washing equipment capable of removing residual munitions constituents but not damaging to or penetrating the contaminated surfaces. Minimize water migration to other areas by collecting excessive water and place in impermeable containers for proper disposal or incineration.
5. Use disposable towel to wipe power washed surfaces free of material. Dispose of towel in impermeable containers for proper disposal or incineration
6. Surfaces will be considered clean when free from dust, dirt, residue, film, or discoloration resultant from decontamination operations or other activities subordinate to these operations.

B. Munitions Constituents Decontamination from Porous Items (Heat Process Methods)

1. Prepare work area as previously specified.
2. Disassemble munitions constituents contaminated porous items in a manner that does not pose an explosive safety hazard. Welding, drilling, sawing, etc. or any processes that generate enough heat to ignite residual contamination are prohibited.
3. Collect disassembled munitions constituents porous contaminated items and place in a controlled environment (incinerator) for decontamination by heat process. (As an alternative open burning is allowed, see open burning methods).
4. Temperature used in the heat process shall be at a level above the decomposition temperature of the contaminants and heating duration is long enough to assure the largest mass is held at that temperature to be consumed by oxidation.
5. In cases where munitions constituents contaminated porous items are asbestos containing, use of hot gas decontamination is recommended. The process utilizes heated gas to thermally decompose or volatilize explosives or agent. For maximum decontamination effectiveness, it is recommended that a steady state of 600 degree Fahrenheit for time duration of 1 Hour (USAEC "Hot Gas Decontamination", July, 2003).
6. At completion of the hot gas decontamination process. The asbestos-containing materials will be properly bagged, labeled and disposed of in an approved landfill.

C. Munitions Constituents Decontamination from Porous Items (Open Burning Methods)

1. Prepare work area as previously specified.
2. Disassemble munitions constituents contaminated porous items in a manner that does not pose an explosive safety hazard. Welding, drilling, sawing, etc. or any processes that generate enough heat to ignite residual contamination are prohibited.
3. Collect disassemble munitions constituents porous contaminated items and place in a controlled environment for decontamination by open burning process.

4. Remove hazardous materials substances including mercury, PCBs, radioactive material, fluorescent lights, light ballasts and unexploded ordnance from building prior to open burning.
5. Check and record meteorological conditions to achieve the following conditions prior to burning: wind velocity between 5 & 14 miles per hour; cloud cover is less than 80% and cloud ceiling is at least 2,000 feet; visibility is one mile or more; burns are not conducted during electrical storms, thunderstorms, or during periods of forecasted high probability (50% or greater) as given by the local/National Weather Services; burns are not conducted during periods of precipitation or high probability (75% or greater) as given by the National Weather Service, and burns as not conducted on ozone action days or "Code Red" air quality days.
6. Establish a fire watch during and after each burn and coordinate with the local fire department.
7. Provide an adequate firebreak around each building prior to open burning.
8. Use No. 2 virgin oil as an ignition source.
9. Temperature used in the heat process shall be at a level above the decomposition temperature of the contaminants and heating duration is long enough to assure the largest mass is held at that temperature to be consumed by oxidation.
10. Estimate amount of emissions to be generated as a result of opening burning for each building structures. Use USEPA's "Compilation of Air Pollutant Factors" (AP-42).

D. Munitions Constituents Decontamination of Suspect Explosives-Carrying Pipes/Conduits/Equipment (Physical Removal & Heat Process Methods)

1. Prepare work area as previously specified.
2. Detach piping/conduit/equipment suspected of containing munitions constituents in a manner that does not poses an explosive safety hazard from building structure. Welding, drilling, sawing, etc. or any processes that generate enough heat to ignite residual contamination is prohibited.
3. Tag piping/conduit/equipment with DA Form 3803 prior to handling and placement in a controlled environment for initial physical removal decontamination process (flushing and power washing).
4. Steam cleaning of nuts and bolts shall be performed prior to applying penetrating oil to them for disassembly of pipe/equipment.
5. In the controlled environment disassemble contaminated pipe/equipment items in a manner that does not pose an explosive safety hazard. Welding, drilling, sawing, etc. or any processes that generate enough heat to ignite residual contamination is prohibited.
6. Use high pressure water for flushing of piping component and in conjunction, use power-washing equipment capable of removing residual munitions constituents but not damaging to or penetrating the contaminated surfaces. Minimize water migration to other areas by collecting excessive water and place in impermeable containers for proper disposal or incineration.

7. Use disposable towel to wipe power washed surfaces free of material. Dispose of towel in impermeable containers for proper disposal or incineration
8. At completion of power-washed disassembled piping/conduit/equipment, placed in a controlled environment (incinerator) for decontamination by heat process.
9. Temperature used in the heat process shall be at a level above the decomposition temperature of the contaminants and heating duration is long enough to assure the largest mass is held at that temperature to be consumed by oxidation.
10. Surfaces will be considered clean when free from dust, dirt, residue, film, or discoloration resultant from decontamination operations or other activities subordinate to these operations.

CLEAN-UP AND CLEARANCE TESTING

A. Provide general clean-up of work area concurrent with the decontamination of munitions constituents contaminated materials. Do not permit accumulation of debris on workspace floor. Contaminated materials such as disposable suites, towels, waste containers, etc. generated as a result of the decontamination process shall be properly disposed of by incineration.

B. Clean all equipment used in the work area and remove from work area (excluding that which will be needed for further cleaning phases) via the Decontamination Enclosure System.

C. Replace all HEPA-filters and pre-filters in vacuum machines with clean filters. Clean all vacuum machines.

D. EXPRAY Final Clearance Testing

1. Testing Laboratory will test for the presence of munitions constituents based on EXPRAY clearance criteria, upon notice from Contractor that work areas are considered visually decontaminated. Final clearance testing shall be performed using bulk wipe sampling techniques and sprayed with EXPRAY reagents. If the EXPRAY test samples indicate no presence of munitions constituents (absence of visual color change), the decontamination work will be considered completed.
2. Re-clean areas/items, which do not comply with the specified EXPRAY final clearance criteria. Contractor to bear cost of all follow-up tests necessitated by the failure of the EXPRAY clearance criteria.
3. Upon achieving clearance, the building is ready for industry demolishing standard.

E. Power Washing and Flushing Rinsate Water Testing

1. Testing Laboratory will test for the presence of munitions constituents collected in 50 Gallon Drums for waste characterization and proper disposal, upon notice from Abatement Contractor that work areas are considered visually decontaminated.

2. Upon receiving test results, and based on the determination by the water quality jurisdiction for acceptance of disposal of the rinsate water, only then will the water be disposed of.

REQUIRED RECORDKEEPING OF DECONTAMINATION ACTIVITIES

A. Identification of facility being decontaminated, previous use of the facility (include type of contaminant involved).

B. A copy of Decontamination Procedures used to achieve the work.

C. A copy of Decontamination Status for each facility based on EXPRAY testing results performed at completion of the work.

D. A copy of the Sign In/Out Log showing the following: date, name, social security number, entering and leaving time, company or agency represented.

E. A copy of Decontamination Tags used during the work for each facility items.

F. A daily report of various decontamination activities.

SUMMARY

EFI has endeavored to perform an Explosive Safety Submission for the "Plant 3" Area at the LHAAP. The objective of the survey was to determine, by visual observations, if presence of Munitions Constituents (MC) and unexploded ordnance (UXO) exist, perform confirmation testing with EXPRAY field test, assess and assign contamination rating to buildings scheduled for demolition, and develop response action for the MC contaminated buildings. No UXO were found within the building structures in the "Plant 3" Area; however, MC residue was found to exists in the Buildings 29-A, 26-E, 54-F, 54-F-1, 61-I, 62-I, and 68-F. Based on the assessment of the MC contaminated buildings, the probability of exposure to OE/UXO while performing decontamination work based on the OE recommendation plan outlined and subsequent demolition of these buildings are low.

QUALIFICATION OF REPORT

The information included in this report addresses limited objectives related to the identification for the presence of munitions constituents and provide OE recommendation plan at the subject buildings for the purpose of demolition the buildings. This information should not be used by other parties as a basis for demolition activities or for other purposes without our consultation. The responsibility for any interpretations thereof is borne exclusively by the user.

The activities of this survey included visual observations and EXPRAY testing of exterior/interior surfaces building materials that were readily accessible, including wall cavities and ceiling plenum. Suspect munitions constituents may be present on interior surfaces of piping (fire suppression, etc.) and conduits that were inaccessible and therefore not tested. These materials should be assessed with a 3X contamination status until testing of their interior surfaces is proven otherwise. Should any additional suspect materials be uncovered during the demolition, all work must cease and testing performed prior to proceeding with the demolition activities in the affected areas.

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APPENDIX A

SITE MAP (REGIONAL / INSTALLATION BOUNDARIES)

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APPENDIX B

IOCP 385-1

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APPENDIX C

OBSERVATIONS & ASSESMENT FIELD FORMS

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APPENDIX D

SAMPLING & ANALYSIS FIELD FORMS

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APPENDIX E

SAMPLE LOCATION SKETCHES

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APPENDIX F

PHOTOGRAPHIC DOCUMENTATION

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APPENDIX F

PHOTOGRAPHIC DOCUMENTATION

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APPENDIX G

UXO POSITIVE (LABORATORY QA/QC SUMMARY)

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APPENDIX H

GLOSSARY

LONGHORN ARMY AMMUNITION PLANT
"T" AREA
KARNACK, TEXAS

Building Assessment & Evaluation for
Future Demolition Activities
(Final Report)

Prepared For:
ARC Abatement, Inc.
Houston, Texas

Prepared by:
EFI
9700 Richmond Ave.
Suite 201
Houston, Texas 77042

June 10, 2004
Document Number 98410-00810

00065135

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Project No. 98410-00810
June 10, 2004

ARC Abatement, Inc.
630 Roxburgh Drive, Suite 130
Houston, Texas 77041

Subject: **Building Assessment & Evaluation**
"T" Area, Longhorn Army Ammunition Plant
Karnack, Texas

Attention: Mr. Michael Luzack
Project Manager

Please find attached the Building Assessment & Evaluation Report for the "T" Area of the Longhorn Army Ammunition Plant, located in Karnack, Texas. The objective of this report is to assess and evaluate buildings within the "T" Area for the presence of unexploded ordinance (UXO) prior to their dismantling, planned demolition, and to provide an Ordnance and Explosive (OE) response action if explosive materials are found. The development of this Building Assessment & Evaluation Report is based upon requirements referenced in the "Explosive Safety Policy for Real Property Containing Conventional Ordinance and Explosives". This report presents the historical information, survey overview and results, and qualifications. Included, as appendices are summaries of sample results by EXPRAY field test, laboratory quality assurance/quality control, and field sketches denoting sample locations.

It should be noted that the interior spaces of (i.e. inside electrical conduit and fire sprinkler) have not been tested due to inaccessibility at the subject property, thus materials that have not been tested should be treated as a "3X" classification and requires an OE response action to decontaminate to a "5X" or "0X" prior to demolition.

This report is designed to assist ARC Abatement, Inc. in complying with the appropriate guidance documents, Department of Defense Explosives Safety Board (DDESB) memorandum DDESB-KO, "Guidance for Clearance Plans", dated February 27, 1998 and "DACS-SF" HQDA Ltr 385-00-2, "Explosives Safety Policy for Real Property Containing Conventional Ordnance and Explosives" dated June 30, 2000), and provides notifications as to the presence of MC and or UXO to personnel planning to perform asbestos abatement and demolish structures within the "T" area of the Longhorn Army Ammunition Plant. The OE response action will help establish a work plan to minimize the potential intentional or unintentional exposure to UXO during the demolition phase of the work. The program is designed to remain an integral part until the structures area decontaminated and demolished.

EFI appreciates this opportunity to provide consulting services for ARC Abatement, Inc. Please contact us should any questions arise concerning this report, or if we may be of further assistance.

Sincerely,
EFI

Cuong Nguyen
Project Manager

Lee A. Burckle, P.E.
Branch Manager

(E:\Projects2003\023126-ARC\00810 Exp Svy\Test Area\Longhorn T Area)

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INTRODUCTION

BACKGROUND INFORMATION

Longhorn Army Ammunition Plant (LHAAP) is an 8,493 acre government owned former industrial facility located in Karnack, Harrison County, Texas approximately 15 miles northeast of Marshall, Texas (see figure 1 for Site Map). The site is bounded by Caddo Lake and the town of Uncertain to the north and northeast, and the town of Karnack to the west (see figure 2 for Installation Map).

In the summer of 1941, the Army's Ordnance Department proposed to Monsanto Chemical Co. who had built and operated the original LHAAP, formerly named Longhorn Ordnance Works to become and operate as a smokeless powder plant. Monsanto Chemical Co. responded by stating that their facility would be better suited for the production of Trinitrotoluene (TNT).

PLANT 1 - TNT FACILITY

On December 15, 1941 the Army's Ordnance Department selected Karnack, Texas as the site to build a "U.S. TNT six-line special" facility. Contract for the construction and operation of the facility between Monsanto Chemical Co. and Army's Ordnance Department was signed on December 22, 1941.

The first flake of TNT was produced on October 19, 1942 and by the end of March 1943, four of the six lines were in operations. A new process for converting the mono and tri stages of operation to direct nitration was underway, one line was modified to the new process and returned to operation in May 1943. The conversion was so successful in reducing the batch time cycle that similar alterations for the remaining three lines were quickly implemented. Operation of the fifth line began in 1944 and line six was never operated due to lack of acid manufacturing facilities.

LHAAP from its production of the first TNT flake in October 19, 1942 to August 15, 1945 when production halted ultimately produced 414,805,500 pounds of TNT. This output aggregated eight and a half million pounds more than scheduled production.

PLANT 2 – PROPELLANT FUEL FACILITY

On November 7, 1949 Monsanto signed a contract with the War Department for a JB-2 propellant fuel plant consisting of three lines. Construction of the first line was 90 percent complete when it was halted on August 21, 1945. Decontamination and preservation work in both Plant 1 and Plant 2 were completed on November 2, 1945 and LHAAP was classified as a standby installation till February 1, 1952.

PLANT 2 – PYROTECHNIC PRODUCTION

In November 1951 the government entered into a contract with Universal Match Corporation as operating contractor to reactivate Plant 2 for Korean War pyrotechnics production. Universal Match Corporation produced 3,425,942 pyrotechnic devices before production was discontinue in April 1965, including more than a million "ground signals" which would return to LHAAP for rework early in the Vietnam War.

PLANT 3 – SOLID FUEL ROCKET MOTOR FACILITY

The Army awarded a contract to Thiokol Chemical Corporation to construct a facility to produce solid fuel rocket motors for the Army's second generation of tactical missiles. Construction of the facility began in July 1953 and was completed in December 1955. In the same month, Universal Match Corporation Plant 2 operations were completed also. The first mix of live propellant was produced in December 1954 and a variety of small and large rocket motors were produced (Flacon, LaCrosse, two-inch FFAR, all the second stage sustainer motors for both the single-stage Sergeant and the two-stage Pershing missile systems). Rocket motor production continued until early 1971, when the final Nike Hercules units were packed for delivery.

PLANT 2 – ILLUMINATING MUNITIONS (1965 – 1967)

In 1965 the nation's involvement in Southeast Asia increased dramatically, requirements for production of pyrotechnic and illuminating munitions became unprecedented. LHAAP rose to the challenge and Plant 2 was rehabilitated and reactivated to produce 155 mm, 105 mm, 81mm, 60 mm, hand held signals, button bombs, 4.2 in. mortar, AN/ALA-17 flare, etc.

LHAAP FACILITY (1970's – Present)

In the early 1980's Thiokol Corporation and Morton-Norwich merged into Morton Thiokol, Inc., a new contractor for the recent merging of two commands; ARRCOM and ARRADCOM, in a unified command known as AMCCOM (R) and AMCCOM (D) to increase production efficiency. In July 1989 Morton Thiokol separated into two distinct companies – Thiokol Corporation and Morton International. Thiokol is now essentially an aerospace and ammunition producer. The company is composed of four primary operation groups: space, strategic, tactical and ordnance. Thiokol's Longhorn Division (Contractor-Operator) of LHAAP is part of the Ordnance Operation Groups. A Pershing re-qualification program during 1978 resulted in the production of Pershing P1A motors and expansion project to produce Surface Launched Unit/Fuel Air Explosives (SLUFAE) at LHAAP. In addition, LHAAP became the leading producer of Infrared (Aircraft Counter-measures) Flares for both the Army and Air Force. In August 1990, LHAAP was placed on the National Priorities List (NPL). LHAAP, EPA and the Texas Water Commission (TWC) now called Texas Natural Resource Conservation Commission (TNRCC) entered into a Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) Section 120 Agreement for remedial activities at LHAAP. In 1997, LHAAP went into standby or layaway status under the Base Realignment and Closure (BRAC) legislation. Department of the Army (DA), U.S. Army Industrial Operations Command released Thiokol Corporation from its contract to serve as operator of the LHAAP facility. In 1998 the Army contracted with Earth Tech to liquidate all personal property and specific installed property.

ARC'S SCOPE OF WORK

In 1999 the Army contracted Project Development Corp. to demolish specific structurally unsafe buildings. Currently, the Army is requesting that additional buildings (approximately 210) be demolished. ARC Abatement, Inc. (ARC) has been contracted as the abatement/demolition contractor for this Scope of Work (SOW). ARC retained Engineering and fire Investigations (EFI) for consulting and testing services to assess ordnance and explosive residue prior to the demolition of the aforementioned buildings. At the completion of the testing and evaluation, EFI issued an Explosive Safety Submission Report summarizing the findings and providing

decontamination recommendations for those buildings found to be contaminated with munitions constituents. Our "Explosives Safety Submission Report" contains elements of the "Explosive Safety Submission for Removal of Ordnance and Explosives from Real Property" (ESS) report which included: Reason for Ordnance and Explosives (OE) by historical records searches, Maps (Regional and Site), OE observations findings and test results within the structures, OE Risk Evaluation, and OE Response Action. EFI's report is only a component of the ESS and does not have all of the elements. The elements of the ESS which are not applicable to EFI's report includes: Start Date, Migration of OE, Clearance Techniques, Alternative Techniques, Quantity-Distance, Off-Site Disposal, Technical Support, Public involvement and After Action Report.

ASSESSMENT OVERVIEW

HISTORICAL RECORDS SEARCHES ("T" AREA)

EFI reviewed the available documentation provided by ARC through the Army's BRAC Technical Support Office. The documentation provided for Historical Records Searches (HRS) consists of "Basic Installation History – Longhorn Army Ammunition Plant, Marshall, Texas (December 15, 1941 to December 31, 1967)", "Annual Historical Review – Reports Control Symbol CSHIS-6 (R3), Longhorn Army Ammunition Plant, US Army Armament, Munitions & Chemical Command AMCCOM (R) (October 1, 1988 to September 30, 1989)" and a listing of the buildings in the "T" Area containing square footages, previous contamination rating and title for each building.

The "T" Area is approximately 30-Acres, near the intersection of Tyler Avenue and continues to Terry Drive, Taylor Avenue, Tucson Avenue, Travis Avenue, and Trinity Drive. The area was used for the testing purposes and evaluation of illumination devices and the firing of rocket motors. Based on our review of the buildings scheduled for demolition in the "T" Area, we noted the following:

- 1 Constant Temperature Control building rated as 5X contamination (31T).
- 15 Production quality and test buildings rated as 3X contamination (8T, 8T-2, 13T, 16T, 16T-1, 20T, 20T-1, 21T, 34T, 35T, 36T-1, 36T-2, 36T-3, 40T, and 61T). Processes from these buildings range from igniter assembly, igniter blending, oxidizing preparation, and metal powder preparation. UXO noted in these buildings consists of strontium nitrate, tetranitrocarbozale, potassium perchlorate, and black powder.
- 3 Production and quality test buildings previously rated at 3X contamination (18T, 34T-1, and 36T-4) were to be observed to have been previously demolished.
- 3 General Purpose Magazine buildings previously rated as 5X contamination (31M, 35M, and 39M).

Additional buildings found, but not included with the current SOW scheduled for demolition are noted as:

- 31T, 39T, 39T-1, & one building located south of Building 40T (approximately 2,400 square feet), which did not have any markings or information as to the contamination ratings; therefore, they were presumed to have a 3X contamination prior to our assessment and confirmatory MC residue testing.

BUILDING OBSERVATIONS & ASSESSMENT

At completion of our HRS, EFI performed visual observations to identify building components and associated equipment for the presence of ordnance and explosive residue. Our observations entailed visual inspection of exterior surface building components, Mechanical, Electrical, and Plumbing (MEP) components, associated process equipment, and interior wall cavities and ceiling plenums where possible for the presence of suspected residual MC. Note that the vast majority of the building's conditions consist of unoccupied spaces where process equipment and HVAC systems have been previously removed leaving essentially a "shell" interior. Based on our visual observations, assessments were made to classify the level of contamination based on U.S. Army's guidance document IOCP 385-1 (Classification of Explosive Contamination). Individual building observations and assessment forms are presented in Appendix C of this report.

SAMPLING/LABORATORY PROCEDURES

EXPRAY TEST PROCEDURES (FIELD TEST)

The primary purpose of the survey was to test for the presence of ordnance and explosive residue in the buildings and on its components. This testing was achieved by the use of an EXPRAY kit through a series of sequential reactions distinguishing between polynitroarimatics – Group A Explosives, nitrate esters and nitramines – Group B Explosives, and inorganic nitrate compounds – Group C Explosives.

The EXPRAY test strip is coated with the thin adhesive and that is applied to a testing surface area of approximately 3 square inches to collect the residue. EXPRAY reagents are then sprayed on to the test strip in a sequential manner to determine if each group of explosives is present by observation of visual color change to the test strip. This process is repeated for each building component identified.

In buildings where chlorates are suspected to exist, based on historic record searches, a chlorate field test is performed. The chlorate test kit is based on a drop tub delivery system that reacts with the chlorates category of explosives. The test strip is applied to the testing surface area of 3 square inches to collect the residue. A drop of reagent is then applied to the test strip to determine if the chlorate group of explosives exists by observation of visual color change. This process is repeated for each building component identified.

QUALITY ASSURANCE / QUALITY CONTROL (LABORATORY TEST)

Random side-by-side wipe samples with the same surface area are obtained, packaged and shipped to EFI's subcontractor laboratory (Armstrong Forensic Laboratory) for quality assurance/quality control (QA/QC) to confirm positive identification of an EXPRAY explosives group field test. This laboratory is a successful participant in the American Industrial Hygiene Association #363, Texas Department of Public Safety #RA0135295, Drug Enforcement Agency #C00 70769, Environmental Protection Agency #TX120, International Association of Arson Investigators, American Academy of Forensic Sciences, American Society of Testing Materials, ASTM E-30, National Institute of Standards and Technology National Voluntary Laboratory Accreditation Program (NVLAP) and licensed by the Texas Department of Health (TDH). Laboratory results of QA/QC samples are presented in Appendix G.

INDIVIDUAL BUILDING ASSESSMENT / CLASSIFICATION

ARMY REGULATORY CLASSIFICATION (IOCP 385-1)

At completion of visual observations and EXPRAY field tests, the buildings and their associated components are evaluated using the Army regulatory classification "IOCP 385-1 Classification and Remediation of Explosive Contamination"(See Appendix B) for contamination classifications.

BUILDING CLASSIFICATION (BASED ON OBSERVATIONS, ASSESSMENT AND CONFIRMATORY TESTING)

Following is a discussion of the various classifications based on observations, assessment and confirmatory EXPRAY and Laboratory confirmation testing for buildings located in the "T" Area. A total of 22 buildings from the "T" Area were observed, assessed and analyzed for suspect MC residue contamination.

Building 8T (Photo Nos. 1, 2 & 3)

Building 8T is a one-story wood frame structure, approximately 3,876 square feet. The building was used as a Change House. Historical record searches revealed no evidence of OE production. Current contamination status for this structure prior to our survey was noted as **3X**. Based on visual observations of the exposed surfaces, the transite wall (exterior surface), transite wall, transite ceiling panels, concrete floor, floor tile, interior wall cavities, steel columns, ceiling plenum, steam pipes, interior metal HVAC ductwork, wood studs and wood beam support structure were noted to be free of suspect MC materials. In addition, no MC was detected by EXPRAY testing. No live OE/UXO was observed within the building structure during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **5X**. As no MC materials were observed or detected by testing, general demolition of Building 8T could begin as soon as practical.

Building 8T-2 (Photo No. 4)

Building 8T-2 is a one-story wood frame structure, approximately 100 square feet. The building was used as a Clock House. No historical record searches or data were available to show evidence of OE production. Current contamination status for this structure prior to our survey was noted as **3X**. Based on visual observations of the exposed surfaces, the transite wall (exterior), concrete floor, and wood studs (interior) were noted to be free of suspect MC materials. In addition, no MC was detected by EXPRAY testing. No live OE/UXO was observed within the building structure during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **5X**. As no MC materials were observed or detected by testing, general demolition of Building 8T-2 could begin as soon as practical.

Building 13T (Photo Nos. 5 & 6)

Building 13T is a one-story wood frame structure, approximately 2,594 square feet. The building was used as an Administration Building. Historical record searches revealed no evidence of OE production. Current contamination status for this structure prior to our survey was noted as **3X**. Based on visual observations of the exposed surfaces, the transite wall (exterior), concrete floor, wood walls, transite ceiling panels, gypsum ceiling, steam pipe, interior wall cavities, and radiators were noted to be free of suspect MC materials. In addition, no MC was detected by EXPRAY testing. No live OE/UXO was observed within the building structure during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **5X**. As no MC materials were observed or detected by testing, general demolition of Building 13T could begin as soon as practical.

Building 16T

Building 16T is a one-story wood/poured in place concrete frame structure, approximately 3,871 square feet. The purpose of the building was reportedly for Ammunition Quality control. Historical record searches revealed no evidence of OE production. Current contamination status for this structure prior to our survey was noted as **3X**. Based on visual observations of the exposed surfaces, the poured in place concrete wall (exterior), concrete wall (interior), metal beam, wood beam, transite wall, transite ceiling panel, concrete floor, steam pipe, and fire suppression piping were noted to be free of suspect MC materials. In addition, no MC was detected by EXPRAY testing. No live OE/UXO was observed within the building structure during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **5X**. As no MC materials were observed or detected by testing, general demolition of Building 16T could begin as soon as practical.

Building 16T-1

Building 16T-1 is a one-story wood frame structure, approximately 121 square feet. The building was used as a toilet. Historical record searches revealed no evidence of OE production. Current contamination status for this structure prior to our survey was noted as **3X**. Based on visual observations of the exposed surfaces, the transite wall (exterior), gypsum wallboard and ceiling, concrete floor, and steam pipe were noted to be free of suspect MC materials. In addition, no MC was detected by EXPRAY testing. No live OE/UXO was observed within the building structure during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **5X**. As no MC materials were observed or detected by testing, general demolition of Building 16T-1 could begin as soon as practical.

Building 20T (Photo Nos. 7 & 8)

Building 20T is a one-story wood frame structure, approximately 8,513 square feet. The purpose of the building was reportedly for Ammunition Quality control. Historical record searches revealed no evidence of OE production. Current contamination status for this structure prior to our survey was noted as **3X**. Based on visual observations of the exposed surfaces, the concrete wall (exterior), concrete wall (interior), concrete floor, wood

wall, transite wall, wood ceiling, steam pipe, fire suppression piping, exposed wood wall cavities, and steel beam were noted to be free of suspect MC materials. However, EXPRAY confirmatory testing indicated traces residual amount of **Group A explosives** on the exterior concrete wall on the northwest area of the building. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **3X.** We recommend that this building be decontaminated of MC residue in accordance with the Ordnance and Explosive (OE) action plan prior to demolition.

Building 20T-1

Building 20T-1 is a one-story wood frame structure, approximately 83 square feet. The building was used as a toilet. Historical record searches revealed no evidence of OE production. Current contamination status for this structure prior to our survey was noted as **3X**. Based on visual observations of the exposed surfaces, the transite wall (exterior), wood wall, gypsum wall, concrete floor, and steam pipe were noted to be free of suspect MC materials. In addition, no MC was detected by EXPRAY testing. No live OE/UXO was observed within the building structure during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **5X.** As no MC materials were observed or detected by testing, general demolition of Building 20T-1 could begin as soon as practical.

Building 21T

Building 21T is a one-story wood frame structure, approximately 114 square feet. The building was reportedly used as a General Purpose Magazine facility. Historical record searches revealed no evidence of OE production. Current contamination status for this structure prior to our survey was noted as **3X.** Based on visual observations of the exposed surfaces, the transite wall (exterior), transite wall, concrete floor, and steel beams were noted to be free of suspect MC materials. In addition, no MC was detected by EXPRAY testing. No live OE/UXO was observed within the building structure during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **5X.** As no MC materials were observed or detected by testing, general demolition of Building 21T-1 could begin as soon as practical.

Building 31T

Building 31T is a one-story wood frame structure, approximately 2,800 square feet. Historical record searches revealed that the building was reportedly used as a Constant Temperature Control facility. Current contamination status for this structure prior to our survey was noted as **5X.** Based on visual observations of the exposed surfaces, the transite wall (exterior), transite wall (interior), concrete floor, transite ceiling panel, light fixture, and metal HVAC ductwork were noted to be free of suspect MC materials. In addition, no MC was detected by EXPRAY testing. No live OE/UXO was observed within the building structure during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **5X.** As no MC materials were observed or detected by testing, general demolition of Building 31T could begin as soon as practical.

Building 34T (Photo Nos.17, 18, 19)

Building 34T is a one-story poured in place concrete frame structure, approximately 2,738 square feet. The purpose of the building was for Ammunition Quality control. Historical record searches revealed no evidence of OE production. Current contamination status for this structure prior to our survey was noted as **3X**. Based on visual observations of the exposed surfaces, the concrete wall (exterior), concrete floor, concrete wall (interior), transite ceiling, metal HVAC ductwork, and steam pipe were noted to be free of suspect MC materials. In addition, no MC was detected by EXPRAY testing. No live OE/UXO was observed within the building structure during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **5X**. As no MC materials were observed or detected by testing, general demolition of Building 34T could begin as soon as practical.

Building 35T (Photo Nos. 9 & 10)

Building 35T is a one-story concrete frame structure, approximately 1,784 square feet. The purpose of the building was reportedly for Ammunition Quality control. Historical record searches revealed no evidence of OE production. Current contamination status for this structure prior to our survey was noted as **3X.** Based on visual observations of the exposed surfaces, the concrete wall (exterior), transite wall (exterior), concrete wall (interior), and concrete ceiling were noted to be free of suspect MC materials. In addition, no MC was detected by EXPRAY testing. No live OE/UXO was observed within the building structure during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **5X**. As no MC materials were observed or detected by testing, general demolition of Building 35T could begin as soon as practical.

Building 36T-1

Building 36T-1 is a one-story poured in place concrete frame structure, approximately 708 square feet. The purpose of the building was reportedly for Ammunition Quality control. Historical record searches revealed no evidence of OE production. Current contamination status for this structure prior to our survey was noted as **3X.** Based on visual observations of the exposed surfaces, the concrete wall (exterior), transite wall (exterior), concrete wall (interior), concrete ceiling, electrical conduit, fire suppression piping, and steam piping were noted to be free of suspect MC materials. In addition, no MC was detected by EXPRAY testing. No live OE/UXO was observed within the building structure during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **5X.** As no MC materials were observed or detected by testing, general demolition of Building 36T-1 could begin as soon as practical.

Building 36T-2

Building 36T-2 is a one-story poured in place concrete frame structure, approximately 708 square feet. The purpose of the building was reportedly for Ammunition Quality control. Historical record searches revealed no evidence of OE production. Current contamination status for this structure prior to our survey was noted as **3X.** Based on

visual observations of the exposed surfaces, the concrete wall (exterior), transite wall (exterior), concrete wall (interior), concrete ceiling, electrical conduit, fire suppression piping, and steam piping were noted to be free of suspect MC materials. In addition, no MC was detected by EXPRAY testing. No live OE/UXO was observed within the building structure during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **5X**. As no MC materials were observed or detected by testing, general demolition of Building 36T-2 could begin as soon as practical.

Building 36T-3 (Photo No. 11)

Building 36T-3 is a one-story poured in place concrete frame structure, approximately 708 square feet. The purpose of the building was reportedly for Ammunition Quality control. Historical record searches revealed no evidence of OE production. Current contamination status for this structure prior to our survey was noted as **3X**. Based on visual observations of the exposed surfaces, the concrete wall (exterior), transite wall (exterior), concrete wall (interior), concrete ceiling, electrical conduit, fire suppression piping, and steam piping were noted to be free of suspect MC materials. In addition, no MC was detected by EXPRAY testing. No live OE/UXO was observed within the building structure during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **5X**. As no MC materials were observed or detected by testing, general demolition of Building 36T-3 could begin as soon as practical.

Building 39T (Photo Nos. 12 & 13)

Building 39T is a one-story poured in place concrete frame structure, approximately 3,324 square feet. The purpose of the building was reportedly for Ammunition Surveillance Facility – Test Preparation. Historical record searches revealed no evidence of OE production. Current contamination status for this structure prior to our survey was noted as **3X**. Based on visual observations of the exposed surfaces, the concrete wall (exterior), concrete wall (interior), and concrete floor were noted to be free of suspect MC materials. However, EXPRAY confirmatory testing indicated traces residual amount of **Group A explosives** on the exterior transite wall on the southeast area of the building. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **3X**. We recommend that this building be decontaminated of MC residue in accordance with the Ordnance and Explosive (OE) action plan prior to demolition.

Building 39T-1

Building 39T-1 is a one-story wood frame structure, approximately 100 square feet. The building was used as a toilet. Historical record searches revealed no evidence of OE production. Current contamination status for this structure prior to our survey was noted as **3X**. Based on visual observations of the exposed surfaces, the transite wall (exterior), wood wall, gypsum wall, concrete floor, and steam pipe were noted to be free of suspect MC materials. In addition, no MC was detected by EXPRAY testing. No live OE/UXO was observed within the building structure during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building

as **5X**. As no MC materials were observed or detected by testing, general demolition of Building 39T-1 could begin as soon as practical.

Building 40T

Building 40T is a one-story poured in place concrete frame structure, approximately 58 square feet. The building was used as a shed. Historical record searches revealed no evidence of OE production. Current contamination status for this structure prior to our survey was noted as **3X**. Based on visual observations of the exposed surfaces, the concrete wall (exterior), corrugated metal wall (exterior), concrete wall (interior), concrete ceiling, wood stud frame and steam piping were noted to be free of suspect MC materials. In addition, no MC was detected by EXPRAY testing. No live OE/UXO was observed within the building structure during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **5X**. As no MC materials were observed or detected by testing, general demolition of Building 40T could begin as soon as practical.

Building 61T

Building 61T is a one-story poured in place concrete frame structure, approximately 1,333 square feet. The purpose of the building was reportedly used for Operational Test Shield. Historical record searches revealed no evidence of OE production. Current contamination status for this structure prior to our survey was noted as **3X**. Based on visual observations of the exposed surfaces, the concrete wall (exterior), fiberglass wall (exterior), concrete wall (interior), fiberglass ceiling, and concrete floor were noted to be free of suspect MC materials. In addition, no MC was detected by EXPRAY testing. No live OE/UXO was observed within the building structure during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **5X**. As no MC materials were observed or detected by testing, general demolition of Building 61T could begin as soon as practical.

Building 31M (Photo Nos. 14 & 15)

Building 31M is a one-story wood frame structure approximately 11,440 square feet. Historical record searches revealed that the building was reportedly used as a Magazine Warehouse. Historical record searches revealed no evidence of OE production. Current contamination status for this structure prior to our survey was noted as **3X**. Based on visual observations of the exposed surfaces, the corrugated metal wall (exterior), concrete floor, and wood stud frame were noted to be free of suspect MC materials. In addition, no MC was detected by EXPRAY testing. No live OE/UXO was observed within the building structure during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **5X**. As no MC materials were observed or detected by testing, general demolition of Building 31M could begin as soon as practical.

Building 35M

Building 35M is a one-story wood frame structure approximately 11,440 square feet. Historical record searches revealed that the building was reportedly used as a Magazine Warehouse. Historical record searches revealed no evidence of OE production. Current contamination status for this structure prior to our survey was noted as **3X**. Based on visual observations of the exposed surfaces, the corrugated metal wall (exterior), concrete floor, and wood stud frame were noted to be free of suspect MC materials. In addition, no MC was detected by EXPRAY testing. No live OE/UXO was observed within the building structure during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **5X**. As no MC materials were observed or detected by testing, general demolition of Building 35M could begin as soon as practical.

Building 39M

Building 39M is a one-story wood frame structure approximately 11,440 square feet. Historical record searches revealed that the building was reportedly used as a Magazine Warehouse. Historical record searches revealed no evidence of OE production. Current contamination status for this structure prior to our survey was noted as **3X**. Based on visual observations of the exposed surfaces, the corrugated metal wall (exterior), concrete floor, and wood stud frame were noted to be free of suspect MC materials. In addition, no MC was detected by EXPRAY testing. No live OE/UXO was observed within the building structure during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **5X**. As no MC materials were observed or detected by testing, general demolition of Building 39M could begin as soon as practical.

Building "Unknown – Unmarked" (Photo No. 16)

This "unmarked" Building is a one-story pour-in-place concrete structure, approximately 2,400 square feet is located south of Building 40T. No historical record searches or data were available for this building. Current contamination status for this structure prior to our survey was noted as **3X**. Based on visual observations of the exposed surfaces, the concrete wall (exterior), metal ceiling, steel beam, steel column encased in concrete, and concrete floor were noted to be free of suspect MC materials. In addition, no MC was detected by EXPRAY testing. No live OE/UXO was observed within the building structure during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **5X**. As no MC materials were observed or detected by testing, general demolition of Building "Unmarked" could begin as soon as practical.

OE RESPONSE ACTION PLAN

Based on visual observations and assessment and the results of our EXPRAY field test analysis and QA/QC laboratory analysis, the following buildings were found to contain UXO residue traces:

Building 20T Building 39T

INDIVIDUAL BUILDING OE RECOMMENDED ACTION PLAN

Building 20T

Building 20T was tested positive for traces residual amount of **Group A explosives** residue located on the exterior concrete wall. We recommend physical removal of the explosives residue contaminants from the all the surfaces within the building and including the exterior concrete wall. We also recommend that the piping (fire suppression that may have interior explosives contamination) located in Building 20T be purged by a water source prior to demolition. Further detail of each decontamination process is presented in the "Decontamination Procedures" section of the report.

Based on our observations, we noted suspect asbestos-containing materials (ACM) within Building 20T, which may be contaminated with the identified explosives residue. Prior to demolition of the building, we recommend that the suspect ACM be sampled and analyzed for asbestos content, or a review of previous survey reports be performed to confirm asbestos or non-asbestos status. We recommend that any ACM that will be potentially disturbed by the demolition activities be decontaminated, removed and disposed by a licensed asbestos abatement contractor prior to those activities that would disturb them. Further, we recommend that this work be performed following work procedures prepared by a licensed asbestos consultant and monitored.

Building 39T

Building 39T was tested positive for traces residual amount of **Group A explosives** residue located on the exterior transite wall. We recommend physical removal of the explosives residue contaminants from the all surfaces within the building and including the exterior transite wall. We also recommend that the piping (fire suppression that may have interior explosives contamination) located in Building 39T be purged by a water source prior to demolition. Further detail of each decontamination process is presented in the "Decontamination Procedures" section of the report.

Based on our observations, we noted suspect asbestos-containing materials (ACM) within Building 39T, which may be contaminated with the identified explosives residue. Prior to demolition of the building, we recommend that the suspect ACM be sampled and analyzed for asbestos content, or a review of previous survey reports be performed to confirm asbestos or non-asbestos status. We recommend that any ACM that will be potentially disturbed by the demolition activities be decontaminated, removed and disposed by a licensed asbestos abatement contractor prior to those activities that would disturb them. Further, we recommend that this work be performed following work procedures prepared by a licensed asbestos consultant and monitored.

The buildings which were previously rated as **3X**, retested by EXPRAY and reclassified as **5X**, but still have fire suppression piping within these structures are: 16-T, 36-T-1, 36-T-2, 36-T-3. The fire suppression piping within these buildings are still considered **3X** and should be purged by a water source prior to demolition.

Note that other buildings in the "T" Area, which did not contain explosives residue, may contain asbestos components that will need to be abated prior to demolition of these buildings.

DECONTAMINATION PROCEDURES

DESCRIPTION

A. Perform all planning, administration, execution of work necessary to safely conduct the Work. The Work will consist of decontaminating munitions constituents from surfaces of building facilities and their components located in the "T" Area of the LHAAP as identified in the ESS.

REFERENCE STANDARDS

A. Acknowledge awareness and familiarity with the contents and requirements of the following regulations, codes, standards, and guidance documents. Assume responsibility for the performance of the Work in strict compliance with these documents and for every instance of failure to comply with these documents. The current issue of each document shall govern. Where conflict exists between these documents and the Decontamination Procedures, the more stringent requirements shall apply.

1. Base Realignment and Closure Act of 1988, Public Law (PL) 100-526, 102 Stat. 2632.
2. Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980, PL 96-510, 94 Stat 2767, 42 USC 9601.
3. Defense Base Realignment and Closure Act of 1990, PL 101-510, 104 Stat. 1808.
4. Department of the Army Technical Bulletin, "Decontamination of Facilities and Equipment" (TB 700-4), October 1978.
5. Department of the Army – Industrial Operations Command, "Classification and Remediation of Explosive Contamination" (IOCP 385-1), July, 1997.
6. Industrial Operations Command, "Classification and Remediation of Explosive Contamination", IOCP 385-1, July 1997.
7. Resource Conservation and Recovery Act (RCRA) of 1976, PL 94-580, 90 Stat. 2796, 42 USC 6901, et seq., as amended.
8. 29 CRF 1910.120 – OSHA Hazardous Waste Operations and Emergency Response.
9. 40 CFR Part 260, et al – U.S. Environmental Protection Agency (EPA) Military Munitions Rule.
10. AR 385-10 – The Army Safety Program.
11. AR 385-64 – Ammunition and Explosives Safety Standards.
12. EP 1110-1-8153 – Ordnance and Explosives Response.
13. All state, county, and city codes and ordinances as applicable. Make available for review at the site one copy of EPA, OSHA, and applicable state, county and city regulations governing the Work.

WORKSITE CONDITIONS

A. Worker and Visitor Procedures: Contractor is hereby advised that some of the buildings in the "T" Area have been determined to contain munitions constituents that may pose a chemical and or physical hazard. Provide workers and visitors with respirators (which, as a minimum, meet the requirements of OSHA 29 CFR 1926.1101) and protective clothing during all phases of the Work and until final EXPRAY testing determines that the buildings has been decontaminated to a **5X** level or an inert state.

PERSONNEL PROTECTION

A. Prior to commencement of work, instruct all workers in the appropriate procedures for personnel protection. Ensure that workers are knowledgeable in these procedures.

B. Provide respiratory protection at all times, which is in compliance with OSHA requirements. When not in violation of the above, the minimum acceptable respiratory protection used for this project shall be as follows, unless airborne fiber concentrations inside the face mask exceed 0.01 fibers per cubic centimeter (f/cc). In the event that airborne fiber concentrations inside the mask exceed 0.01 f/cc, respiratory protection required to achieve 0.01 f/cc shall be used.

1. Provide appropriate respirators based on respiratory protection factor and the potential hazards for workers during all phases of the decontamination work from the time of first disturbance of the munitions constituents contaminated material until acceptance of final EXPRAY tests by Consultant.
2. Provide additional "piggy-back" organic cartridges recommended by the manufacturer whenever organic vapors or fumes are present or likely to be generated during decontamination process.

C. Permit no visitors, except for governmental inspectors having jurisdiction, or as authorized by Owner or Consultant, in the work areas after commencement of asbestos disturbance or removal.

D. Provide workers sufficient sets of protective disposable clothing, consisting of full-body coveralls, head covers, gloves, and foot covers, of sizes to properly fit individual workers.

E. Leave reusable equipment, apparel and protection devices (excluding respirators) in the work area until the end of the munitions constituent decontamination work, at which time such items shall be disposed of as contaminated waste.

F. Provide suitable respirators and protective equipment for use by authorized visitors, Owner, Consultant and Testing Laboratory's representatives. Furnish these in as many sets as required.

PREPARATION

A. Install warning barrier tape and signs stating "CAUTION EXPLOSIVE AREA" to segregate and demarcate work area from occupied or non-occupied areas.

B. Maintain a Sign In/Out Log in the immediate area of the entrance to the work area to be utilized by every person, each time upon entering and leaving the work area.

C. Construct staging area (worker/equipment decontamination unit) work area utilizing scaffolding framing and plywood platform for top decking.

D. Provide a worker/equipment decontamination unit in compliance with EPA guidelines concerning number, size and placement of airlocks, etc. Shower in worker decontamination unit to open into airlock on both contaminated and uncontaminated sides. Decontamination unit shall be constructed of appropriate materials (including plastic sheeting) to provide airtight barriers and allow continuous diminished pressure to be maintained in work areas. Post OSHA decontamination procedures in Change Room for duration of Project.

E. Trap shower waste water using filters having a maximum pore size of not larger than 1.0 micron, and drain into a sanitary sewer. Replace contaminated filters when they become clogged but not less than every third working day. Dispose of filters as contaminated waste.

F. Maintain emergency and fire exits from the Work Areas, or establish alternative exits satisfactory to fire officials. Provide fire extinguishers, as required, inside and outside the Work Area.

G. Provide temporary power and lighting as necessary to maintain safe and comfortable work environment.

H. Provide intrinsically safe equipment (e.g. HEPA Vacuum, temporary light, power wash equipment) to be used during the work.

I. Personnel shall not enter building areas with cigarette lighters, matches, cigarettes, cigars, pipes or other flame emitting items. Personnel shall not smoke cigarettes, cigars, pipes or the like within the building areas.

J. Isolate power source by lock-out tag-out if power is operational.

K. Disconnect Lines (mechanical/electrical from adjacent structures).

L. Cap open drain/pipe.

M. Evacuate existing lines of products.

DECONTAMINATION METHODS

A. Munitions Constituents Decontamination from Non Porous Surfaces (Physical Removal Methods)

1. Prepare work area as previously specified.
2. At completion of work area preparation, HEPA-vacuum all contaminated non-porous surfaces in the work area to remove visible munitions constituents accumulated materials.
3. Munitions constituents dust and debris collected by HEPA-Vacuum process shall be placed in impermeable containers for proper disposal or incineration.
4. Use steam clean/power-washing equipment capable of removing residual munitions constituents but not damaging to or penetrating the contaminated surfaces. Minimize water migration to other areas by collecting excessive water and place in impermeable containers for proper disposal or incineration.
5. Use disposable towel to wipe power washed surfaces free of material. Dispose of towel in impermeable containers for proper disposal or incineration
6. Surfaces will be considered clean when free from dust, dirt, residue, film, or discoloration resultant from decontamination operations or other activities subordinate to these operations.

B. Munitions Constituents Decontamination from Porous Items (Heat Process Methods)

1. Prepare work area as previously specified.
2. Disassemble munitions constituents contaminated porous items in a manner that does not pose an explosive safety hazard. Welding, drilling, sawing, etc. or any processes that generate enough heat to ignite residual contamination are prohibited.
3. Collect disassembled munitions constituents porous contaminated items and place in a controlled environment (incinerator) for decontamination by heat process. (As an alternative open burning is allowed, see open burning methods).
4. Temperature used in the heat process shall be at a level above the decomposition temperature of the contaminants and heating duration is long enough to assure the largest mass is held at that temperature to be consumed by oxidation.
5. In cases where munitions constituents contaminated porous items are asbestos containing, use of hot gas decontamination is recommended. The process utilizes heated gas to thermally decompose or volatilize explosives or agent. For maximum decontamination effectiveness, it is recommended that a steady state of 600 degree Fahrenheit for time duration of 1 Hour (USAEC "Hot Gas Decontamination", July, 2003).
6. At completion of the hot gas decontamination process. The asbestos-containing materials will be properly bagged, labeled and disposed of in an approved landfill.

C. Munitions Constituents Decontamination from Porous Items (Open Burning Methods)

1. Prepare work area as previously specified.
2. Disassemble munitions constituents contaminated porous items in a manner that does not pose an explosive safety hazard. Welding, drilling, sawing, etc. or any processes that generate enough heat to ignite residual contamination are prohibited.
3. Collect disassemble munitions constituents porous contaminated items and place in a controlled environment for decontamination by open burning process.
4. Remove hazardous materials substances including mercury, PCBs, radioactive material, fluorescent lights, light ballasts and unexploded ordnance from building prior to open burning.
5. Check and record meteorological conditions to achieve the following conditions prior to burning: wind velocity between 5 & 14 miles per hour; cloud cover is less than 80% and cloud ceiling is at least 2,000 feet; visibility is one mile or more; burns are not conducted during electrical storms, thunderstorms, or during periods of forecasted high probability (50% or greater) as given by the local/National Weather Services; burns are not conducted during periods of precipitation or high probability (75% or greater) as given by the National Weather Service, and burns as not conducted on ozone action days or "Code Red" air quality days.
6. Establish a fire watch during and after each burn and coordinate with the local fire department.
7. Provide an adequate firebreak around each building prior to open burning.
8. Use No. 2 virgin oil as an ignition source.
9. Temperature used in the heat process shall be at a level above the decomposition temperature of the contaminants and heating duration is long enough to assure the largest mass is held at that temperature to be consumed by oxidation.
10. Estimate amount of emissions to be generated as a result of opening burning for each building structures. Use USEPA's "Compilation of Air Pollutant Factors" (AP-42).

D. Munitions Constituents Decontamination of Suspect Explosives-Carrying Pipes/Equipment (Physical Removal & Heat Process Methods)

1. Prepare work area as previously specified.
2. Detach piping/equipment suspected of containing munitions constituents in a manner that does not poses an explosive safety hazard from building structure. Welding, drilling, sawing, etc. or any processes that generate enough heat to ignite residual contamination is prohibited.
3. Tag piping/equipment with DA Form 3803 prior to handling and placement in a controlled environment for initial physical removal decontamination process (flushing and power washing).
4. Steam cleaning of nuts and bolts shall be performed prior to applying penetrating oil to them for disassembly of pipe/equipment.

5. In the controlled environment disassemble contaminated pipe/equipment items in a manner that does not pose an explosive safety hazard. Welding, drilling, sawing, etc. or any processes that generate enough heat to ignite residual contamination is prohibited.
6. Use high pressure water for flushing of piping component and in conjunction, use power-washing equipment capable of removing residual munitions constituents but not damaging to or penetrating the contaminated surfaces. Minimize water migration to other areas by collecting excessive water and place in impermeable containers for proper disposal or incineration.
7. Use disposable towel to wipe power washed surfaces free of material. Dispose of towel in impermeable containers for proper disposal or incineration
8. At completion of power-washed disassembled piping/equipment, placed in a controlled environment (incinerator) for decontamination by heat process.
9. Temperature used in the heat process shall be at a level above the decomposition temperature of the contaminants and heating duration is long enough to assure the largest mass is held at that temperature to be consumed by oxidation.
10. Surfaces will be considered clean when free from dust, dirt, residue, film, or discoloration resultant from decontamination operations or other activities subordinate to these operations.

CLEAN-UP AND CLEARANCE TESTING

A. Provide general clean-up of work area concurrent with the decontamination of munitions constituents contaminated materials. Do not permit accumulation of debris on workspace floor. Contaminated materials such as disposable suites, towels, waste containers, etc. generated as a result of the decontamination process shall be properly disposed of by incineration.

B. Clean all equipment used in the work area and remove from work area (excluding that which will be needed for further cleaning phases) via the Decontamination Enclosure System.

C. Replace all HEPA-filters and pre-filters in vacuum machines with clean filters. Clean all vacuum machines.

D. EXPRAY Final Clearance Testing

1. Testing Laboratory will test for the presence of munitions constituents based on EXPRAY clearance criteria, upon notice from Contractor that work areas are considered visually decontaminated. Final clearance testing shall be performed using bulk wipe sampling techniques and sprayed with EXPRAY reagents. If the EXPRAY test samples indicate no presence of munitions constituents (absence of visual color change), the decontamination work will be considered completed.

2. Re-clean areas/items, which do not comply with the specified EXPRAY final clearance criteria. Contractor to bear cost of all follow-up tests necessitated by the failure of the EXPRAY clearance criteria.
3. Upon achieving clearance, the building is ready for industry demolishing standard.

E. Power Washing and Flushing Rinsate Water Testing

1. Testing Laboratory will test for the presence of munitions constituents collected in 50 Gallon Drums for waste characterization and proper disposal, upon notice from Abatement Contractor that work areas are considered visually decontaminated.
2. Upon receiving test results, and based on the determination by the water quality jurisdiction for acceptance of disposal of the rinsate water, only then will the water be disposed of.

REQUIRED RECORDKEEPING OF DECONTAMINATION ACTIVITIES

A. Identification of facility being decontaminated, previous use of the facility (include type of contaminant involved).

B. A copy of Decontamination Procedures used to achieve the work.

C. A copy of Decontamination Status for each facility based on EXPRAY testing results performed at completion of the work.

D. A copy of the Sign In/Out Log showing the following: date, name, social security number, entering and leaving time, company or agency represented.

E. A copy of Decontamination Tags used during the work for each facility items.

F. A daily report of various decontamination activities.

SUMMARY

EFI has endeavored to perform an Explosive Safety Submission for the "T" Area at the LHAAP. The objective of the survey was to determine, by visual observations, if presence of Munitions Constituents (MC) and unexploded ordnance (UXO) exists, perform confirmation testing with EXPRAY field test, assess and assign contamination rating to buildings scheduled for demolition, and develop response action for the MC contaminated buildings. No UXO were found within the building structures in the "T" Area; however, MC residue was found to exist in the Buildings 20T and 39T. Based on the assessment of the MC contaminated buildings, the probability of exposure to OE/UXO while performing decontamination work based on the OE recommendation plan outlined and subsequent demolition of these buildings are low.

QUALIFICATION OF REPORT

The information included in this report addresses limited objectives related to the identification for the presence of munitions constituents and provide OE recommendation plan at the subject buildings for the purpose of demolition the buildings. This information should not be used by other parties as a basis for demolition activities or for other purposes without our consultation. The responsibility for any interpretations thereof is borne exclusively by the user.

The activities of this survey included visual observations and EXPRAY testing of exterior/interior surfaces building materials that were readily accessible, including wall cavities and ceiling plenum. Suspect munitions constituents may be present on interior surfaces of piping (fire suppression, etc.) and conduits that were inaccessible and therefore not tested. These materials should be assessed with a 3X contamination status until testing of their interior surfaces is proven otherwise. Should any additional suspect materials be uncovered during the demolition, all work must cease and testing performed prior to proceeding with the demolition activities in the affected areas.

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APPENDIX A

SITE MAP (REGIONAL / INSTALLATION BOUNDARIES)

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APPENDIX B

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APPENDIX C

OBSERVATIONS & ASSESMENT FIELD FORMS

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APPENDIX D

SAMPLING & ANALYSIS FIELD FORMS

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APPENDIX E

SAMPLE LOCATION SKETCHES

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APPENDIX F

PHOTOGRAPHIC DOCUMENTATION

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APPENDIX G

UXO POSITIVE (LABORATORY QA/QC SUMMARY)

LONGHORN ARMY AMMUNITION PLANT
"Y" AREA
KARNACK, TEXAS

Building Assessments & Evaluation for Future Demolition Activities (Final Report)

Prepared For:
ARC Abatement, Inc.
Houston, Texas

Prepared by:
EFI
9700 Richmond Ave.
Suite 201
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June 10, 2004
Document Number 98410-00810

00065165

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Project No. 98410-00810
June 10, 2004

ARC Abatement, Inc.
630 Roxburgh Drive, Suite 130
Houston, Texas 77041

Subject: **Building Assessment & Evaluation**
"Y" Area, Longhorn Army Ammunition Plant
Karnack, Texas

Attention: Mr. Michael Luzack
Project Manager

Please find attached the revised Building Assessment & Evaluation Report for the "Y" Area of the Longhorn Army Ammunition Plant, located in Karnack, Texas. The objective of this report is to assess and evaluate buildings within the "Y" Area for the presence of Munitions Constituents (MC) and Unexploded Ordnance (UXO) and to provide an Ordnance and Explosive (OE) response action if munitions constituents are found. The development of this Building Assessment & Evaluation Report is partially based upon requirements referenced in the "Explosive Safety Policy for Real Property Containing Conventional Ordinance and Explosives". This report presents the historical information, survey overview and results, and qualifications. Included, as appendices are summaries of sample results by EXPRAY field test, laboratory quality assurance/quality control, and field sketches denoting sample locations.

It should be noted that the interior spaces of (i.e. inside electrical conduit, fire sprinkler piping, and underground floor drains) have not been tested due to inaccessibility at the subject property, thus materials that have not been tested should be treated as a "3X" classification and requires an OE response action to decontaminate to a "5X" or "0X" prior to demolition.

This report is designed to assist ARC Abatement, Inc. in complying with the appropriate guidance documents, Department of Defense Explosives Safety Board (DDESB) memorandum DDESB-KO, "Guidance for Clearance Plans", dated February 27, 1998 and "DACS-SF" HQDA Ltr 385-00-2, "Explosives Safety Policy for Real Property Containing Conventional Ordnance and Explosives" dated June 30, 2000), and provides notifications as to the presence of MC and or UXO to personnel planning to perform asbestos abatement and demolish structures within the "Y" area of the Longhorn Army Ammunition Plant. The OE response action will help establish a work plan to minimize the potential intentional or unintentional exposures to munitions constituents during the demolition phase of the work. The program is designed to remain an integral part until the structures are decontaminated and demolished.

EFI appreciates this opportunity to provide consulting services for ARC Abatement, Inc. Please contact us should any questions arise concerning this report, or if we may be of further assistance.

Sincerely,
EFI

Cuong Nguyen
Project Manager

Lee A. Burckle, P.E.
Branch Manager

(E:\Projects2003\023126-ARC\00810 Exp Svy\Y Area\Longhorn Y Area UXO Final rpt. 6-10-04)

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INTRODUCTION

BACKGROUND INFORMATION

Longhorn Army Ammunition Plant (LHAAP) is an 8,493 acre government owned former industrial facility located in Karnack, Harrison County, Texas approximately 15 miles northeast of Marshall, Texas (see Appendix A, Figure 1 for Site Map). The site is bounded by Caddo Lake, and the town of Uncertain, Texas to the north and northeast and the town of Karnack to the west (see Appendix A, Figure 2 for Installation Map).

In the summer of 1941, the Army's Ordnance Department proposed to Monsanto Chemical Co. who had built and operated the original LHAAP, formerly named Longhorn Ordnance Works to become and operate as a smokeless powder plant. Monsanto Chemical Co. responded by stating that their facility would be better suited for the production of Trinitrotoluene (TNT).

PLANT 1 - TNT FACILITY

On December 15, 1941 the Army's Ordnance Department selected Karnack, Texas as the site to build a "U.S. TNT six-line special" facility. Contract for the construction and operation of the facility between Monsanto Chemical Co. and Army's Ordnance Department was signed on December 22, 1941.

The first flake of TNT was produced on October 19, 1942 and by the end of March 1943, four of the six lines were in operation. A new process for converting the mono and tri stages of operation to direct nitration was underway, one line was modified to the new process and returned to operation in May 1943. The conversion was so successful in reducing the batch time cycle that similar alterations for the remaining three lines were quickly implemented. Operation of the fifth line began in 1944 and line six was never operated due to lack of acid manufacturing facilities.

LHAAP from its production of the first TNT flake in October 19, 1942 to August 15, 1945 when production halted ultimately produced 414,805,500 pounds of TNT. This output aggregated eight and a half million pounds more than scheduled production.

PLANT 2 – PROPELLANT FUEL FACILITY

In November 7, 1949 Monsanto signed a contract with the War Department for a JB-2 propellant fuel plant consisting of three lines. Construction of the first line was at 90 percent completion when it was halted on August 21, 1945. Decontamination and preservation work in both Plant 1 and Plant 2 were completed on November 2, 1945 and LHAAP was classified as a standby installation up till February 1, 1952.

PLANT 2 – PYROTECHNIC PRODUCTION

In November 1951 the government entered into a contract with Universal Match Corporation as the operating contractor to reactivate Plant 2 for Korean War pyrotechnics production. Universal Match Corporation produced 3,425,942 pyrotechnic devices before production was discontinued in April 1965, including more than a million "ground signals" which would return to LHAAP for rework early in the Vietnam War.

PLANT 3 – SOLID FUEL ROCKET MOTOR FACILITY

The Army awarded a contract to Thiokol Chemical Corporation to construct a facility to produce solid fuel rocket motors for the Army's second generation of tactical missiles. Construction of the facility began in July 1953 and was completed in December 1955. In the same month, Universal Match Corporation Plant 2 operations were completed also. The first mix of live propellant was produced in December 1954 and a variety of small and large rocket motors were produced (Flacon, LaCrosse, two-inch FFAR, all the second stage sustainer motors for both the single-stage Sergeant and the two-stage Pershing missile systems). Rocket motor production continued until early 1971, when the final Nike Hercules units were packed for delivery.

PLANT 2 – ILLUMINATING MUNITIONS (1965 – 1967)

In 1965 the nation's involvement in Southeast Asia increased dramatically, requirements for production of pyrotechnic and illuminating munitions became unprecedented. LHAAP rose to the challenge and Plant 2 was rehabilitated and reactivated to produce 155 mm, 105 mm, 81mm, 60 mm, hand held signals, button bombs, 4.2 in. mortar, AN/ALA-17 flare, etc.

LHAAP FACILITY (1970's – Present)

In the early 1980's Thiokol Corporation and Morton-Norwich merged into Morton Thiokol, Inc., a new contractor for the recent merging of two commands; ARRCOM and ARRADCOM, in a unified command known as AMCCOM (R) and AMCCOM (D) to increase production efficiency. In July 1989 Morton Thiokol separated into two distinct companies – Thiokol Corporation and Morton International. Thiokol is now essentially an aerospace and ammunition producer. The company is composed of four primary operation groups: space, strategic, tactical and ordnance. Thiokol's Longhorn Division (Contractor-Operator) of LHAAP is part of the Ordnance Operation Groups. A Pershing re-qualification program during 1978 resulted in the production of Pershing P1A motors and expansion project to produce Surface Launched Unit/Fuel Air Explosives (SLUFAE) at LHAAP. In addition, LHAAP became the leading producer of Infrared (Aircraft Counter-measures) Flares for both the Army and Air Force. On August 1990, LHAAP was placed on the National Priorities List (NPL), LHAAP, EPA and the Texas Water Commission (TWC) now called Texas Natural Resource Conservation Commission (TNRCC) entered into a Comprehensive Environmental, Response, Compensation and Liability Act (CERCLA) Section 120 Agreement for remedial activities at LHAAP. In 1997, LHAAP went into standby or layaway status under the Base Realignment and Closure (BRAC) legislation. Department of the Army (DA), U.S. Army Industrial Operations Command released Thiokol Corporation from its contract to serve as operator of the LHAAP facility. In 1998 the Army contracted with Earth Tech to liquidate all personal property and specific installed property.

ARC'S SCOPE OF WORK

In 1999 the Army contracted Project Development Corp. to demolish specific structurally unsafe buildings. Currently, the Army is requesting that additional buildings (approximately 210) be demolished. ARC Abatement, Inc. (ARC) has been contracted as the abatement/demolition contractor for this Scope of Work (SOW). ARC retained Engineering and fire Investigations (EFI) for consulting and testing services to assess ordnance and explosive residue prior to the demolition of the aforementioned buildings. At the completion of the testing and evaluation, EFI issued an Explosive Safety Submission Report summarizing the findings and providing

decontamination recommendations for those buildings found to be contaminated with munitions constituents. Our "Explosives Safety Submission Report" contains elements of the "Explosive Safety Submission for Removal of Ordnance and Explosives from Real Property" (ESS) report which included: Reason for Ordnance and Explosives (OE) by historical records searches, Maps (Regional and Site), OE observations findings and test results within the structures, OE Risk Evaluation, and OE Response Action. EFI's report is only a component of the ESS and does not have all of the elements. The elements of the ESS which are not applicable to EFI's report includes: Start Date, Migration of OE, Clearance Techniques, Alternative Techniques, Quantity-Distance, Off-Site Disposal, Technical Support, Public involvement and After Action Report.

ASSESSMENT OVERVIEW

HISTORICAL RECORDS SEARCHES ("Y" AREA)

EFI reviewed the available documentation provided by ARC through the Army's BRAC Technical Support Office. The documentation provided for Historical Records Searches (HRS) consists of "Basic Installation History – Longhorn Army Ammunition Plant, Marshall, Texas (December 15, 1941 to December 31, 1967)", "Annual Historical Review – Reports Control Symbol CSHIS-6 (R3), Longhorn Army Ammunition Plant, US Army Armament, Munitions & Chemical Command AMCCOM (R) (October 1, 1988 to September 30, 1989)" and a listing of the buildings in the "Y" Area containing square footages, previous contamination rating and title for each building.

The "Y" Area is approximately 16-Acres, near the intersection of Yoakum Drive and Starr Ranch Road. It was used for the production of igniters and used in pyrotechnic and illuminating devices. Based on our HRS of the buildings scheduled for demolition in the "Y" Area, we noted the following:

- 6 Inert buildings rated as 5X contamination (3Y, 4Y, 4Y-2, 16Y-1, 16Y-2, & 18Y-1).
- 6 Production buildings rated as 3X contamination (16Y, 18Y, 34Y, 38Y, 40Y & 45Y). Processes from these buildings range from igniter assembly, igniter blending, oxidizing preparation, and metal powder preparation. OE noted in these buildings consists of strontium nitrate, tetranitrocarbozale and potassium perchlorate, and black powder.
- 4 General Purpose Magazine buildings rated as 3X contamination (13Y, 29Y, 32Y, & 48Y).

Additional buildings discovered during our survey, which were incorporated with the current SOW at the request of ARC are noted below. We understand these buildings are scheduled for demolition.

- 5 Inert buildings "Sewage Treatment Plant" rated as 5X contamination (15G, & 18G)
- 3 miscellaneous buildings "800 Area" (813-I, 814 & 800 Shed) which did not have information as to the contamination ratings; therefore, they were presumed to have a 3X contamination prior to our assessment and confirmatory MC residue testing.

BUILDING OBSERVATIONS & ASSESSMENT

At completion of our HRS, EFI performed visual observations to identify building components and associated equipment for the presence of ordnance and explosive residue. Our observations entailed visual observations of exterior surfaces building components, Mechanical, Electrical, and

Plumbing (MEP) components, associated process equipment, and interior wall cavities and ceiling plenum where possible for the presence of suspected residual MC. Note that the vast majority of the building's conditions observed consisted of unoccupied spaces where process equipment and HVAC systems has been previously removed leaving essentially a "shell" interior. Based on our visual observations, assessments were made to classify the level of contamination based on U.S. Army's guidance document IOCP 385-1 (Classification of Explosive Contamination). Individual building observations and assessment forms are presented in Appendix C of this report.

SAMPLING/LABORATORY PROCEDURES

EXPRAY TEST PROCEDURES (FIELD TEST)

The primary purpose of the survey was to test for the presence of ordnance and explosive residue in the buildings and on their components. This testing was achieved by the use of an EXPRAY kit through a series of sequential reactions distinguishing between polynitroarimatics – Group A Explosives, nitrate esters and nitramines – Group B Explosives, and inorganic nitrate compounds – Group C Explosives.

The EXPRAY test strip is coated with the thin adhesive and that is applied to a testing surface area of approximately 3 square inches to collect the residue. EXPRAY reagents are then sprayed on to the test strip in a sequential manner to determine if each group of explosives is present by observation of visual color change to the test strip. This process is repeated for each building component identified.

In buildings where chlorates are suspected to exist, based on historic record searches, a chlorate field test is performed. The chlorate test kit is based on a drop tub delivery system that reacts with the chlorates category of explosives. The test strip is applied to the testing surface area of 3 square inches to collect the residue. A drop of reagent is then applied to the test strip to determine if chlorate group of explosive exist by observation of visual color change. This process is repeated for each building component identified.

QUALITY ASSURANCE / QUALITY CONTROL (LABORATORY TEST)

Random side-by-side wipe samples with the same surface area are obtained, packaged and shipped to EFI's subcontractor laboratory (Armstrong Forensic Laboratory) for quality assurance/quality control (QA/QC) to confirm positive identification of an EXPRAY explosives group field test. This laboratory is a successful participant in the American Industrial Hygiene Association #363, Texas Department of Public Safety #RA0135295, Drug Enforcement Agency #C00 70769, Environmental Protection Agency #TX120, International Association of Arson Investigators, American Academy of Forensic Sciences, American Society of Testing Materials, ASTM E-30, National Institute of Standards and Technology National Voluntary Laboratory Accreditation Program (NVLAP) and licensed by the Texas Department of Health (TDH).

INDIVIDUAL BUILDING ASSESSMENT / CLASSIFICATION

ARMY REGULATORY CLASSIFICATION (IOCP 385-1)

At completion of visual observations and EXPRAY field tests, the buildings and their associated components were evaluated using the Army regulatory classification "IOCP 385-1 Classification and Remediation of Explosive Contamination"(See Appendix B) for contamination classifications.

BUILDING CLASSIFICATION (BASED ON OBSERVATIONS, ASSESSMENT AND CONFIRMATORY TESTING)

Following is a discussion of the various classifications based on observations, assessment and confirmatory EXPRAY and Laboratory confirmation testing for buildings located in the "Y" Area and "800" Area. A total of 16 buildings from the "Y" Area, 3 buildings from the "800 Area" and 2 buildings from the "Sewage Treatment Plant" were observed, assessed and analyzed for suspect MC residue contamination.

Building 3Y (Photo Nos. 1 & 2)

Building 3Y is a one-story wood frame structure, approximately 2,240 square feet. The building was used as a production break/lunch room. Historical record searches revealed no evidence of OE production. Current contamination status for this structure prior to our survey was noted as **5X**. Based on visual observations of the exposed surfaces, the clay tile block wall (exterior), gypsum wallboard and ceiling panel (interior surface), concrete floor, wall cavities, ceiling plenum, metal trusses and wood beam support structure were noted to be free of suspect MC materials. In addition, no MC was detected by EXPRAY testing. No live OE/UXO was observed within the building structure during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **5X**. As no MC materials were observed or detected by testing, general demolition of Building 3Y could begin as soon as practical.

Building 4Y (Photo Nos. 3 & 4)

Building 4Y is a one-story wood frame structure, approximately 2,016 square feet. The building was used as a change house. Historical record searches revealed no evidence of OE production. Current contamination status for this structure prior to our survey was noted as **5X**. Based on visual observations of the exposed surfaces, the clay tile block wall (exterior), steam piping, domestic piping, washbasin, wood wall panel, wood stud frame (interior wall cavity), concrete floor, and transite ceiling panel were noted to be free of suspect MC materials. In addition, no MC was detected by EXPRAY testing. No live OE/UXO was observed within the building structure during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **5X**. As no MC materials were observed or detected by testing, general demolition of Building 4Y could begin as soon as practical.

Building 4Y-2 (Photo Nos. 5 & 6)

Building 4Y-2 is a one-story wood frame structure, approximately 64 square feet. The building was used as a clock house. Historical record searches revealed no evidence of OE production. Current contamination status for this structure prior to our survey was

noted as **5X**. Based on visual observations of the exposed surfaces, the transite wall (exterior surface), concrete floor, wood stud frame (interior wall cavity), and transite ceiling panel (interior surface) were noted to be free of suspect MC materials. In addition, no MC was detected by EXPRAY testing. No live OE/UXO was observed within the building structure during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **5X**. As no MC materials were observed or detected by testing, general demolition of Building 4Y-2 could begin as soon as practical.

Building 16Y-2

Building 16Y-2 is a one-story wood frame structure, approximately 64 square feet. The building was used as a clock house. Historical record searches revealed no evidence of OE production. Current contamination status for this structure prior to our survey was noted as **5X**. Based on visual observations of the exposed surfaces, the corrugated metal wall (exterior), wood wall panel, concrete floor, wood stud frame (interior wall cavity), and transite ceiling panel were noted to be free of suspect MC materials. In addition, no MC was detected by EXPRAY testing. No live OE/UXO was observed within the building structure during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **5X**. As no MC materials were observed or detected by testing, general demolition of Building 16Y-2 could begin as soon as practical.

Building 16Y-1 (Photo Nos. 7 & 8)

Building 16Y-1 is a one-story wood frame structure, approximately 170 square feet. The building was used as a toilet/shower. Historical record searches revealed no evidence of OE production. Current contamination status for this structure prior to our survey was noted as **5X**. Based on visual observations of the exposed surfaces, the transite wall (exterior), gypsum wallboard and gypsum board ceiling, floor tile, concrete floor, exhaust fan, and wood stud frame (interior wall cavity) were noted to be free of suspect MC materials. In addition, no MC was detected by EXPRAY testing. No live OE/UXO was observed within the building structure during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **5X**. Since this building is adjacent to Building 16Y (pyrotechnic production) we recommend capping of any floor drain prior to general demolition of Building 16Y-1.

Building 18Y-1

Building 18Y-1 is a one-story wood frame structure, approximately 160 square feet. The building was used as a toilet/shower. Historical record searches revealed no evidence of OE production. Current contamination status for this structure prior to our survey was noted as **5X**. Based on visual observations of the exposed surfaces, the transite wall (exterior), gypsum wallboard and gypsum board ceiling, sheet flooring, concrete floor, steam piping, and wood stud frame (interior wall cavity) were noted to be free of suspect MC materials. However, EXPRAY confirmatory testing indicated traces residual amount of **Group C explosives** on the gypsum wallboard in the women's restroom and on the steam piping located in the men's restroom. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **3X**. We recommend that this

building be decontaminated of MC residue in accordance with the Ordnance and Explosive (OE) action plan prior to demolition.

Building 16Y (Photo Nos. 9 & 10)

Building 16Y is a one-story wood/poured-in-place concrete frame structure, approximately 5,138 square feet. Historical record searches revealed that the building was used as a production – igniter assembly. Current contamination status for this structure prior to our survey was noted as **3X**. Based on the buildings functional set up, it was divided into four sections for evaluation. Based on visual observations of the exposed surfaces, the corrugated metal wall (exterior surface), transite wall (exterior surface), concrete wall (interior surface), concrete floor, wood wall and ceiling panel, transite wall panel (interior surface), steel columns and beams, steam pipe, fire suppression piping, air grilles, wood trusses and wood stud frame (interior wall cavity) were noted to be free of suspect MC materials. However, EXPRAY confirmatory testing indicated traces residual amount of **Group C explosives** on the wood ceiling of Section A (North Corridor) and on the sprinkler pipe located in Section B (Corridor outside testing bay). Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate Section A and Section B of this building as **3X.** We recommend that ARC decontaminate building components in Section A and Section B identified to contain MC residue in accordance with the Ordnance and Explosive (OE) action plan. No live OE/UXO was observed within Section C and Section D of this building structure during this survey. Section C (Attached Garage) and Section D (Detached Mechanical Shed) of this Building are rated as **5X** and can be demolish by general industry standards, following clean up of Section A and Section B.

Building 18Y

Building 18Y is a one-story wood/poured-in-place concrete frame structure, approximately 4,240 square feet. Historical record searches revealed that the building was used as a production – igniter assembly. Current contamination status for this structure prior to our survey was noted as **3X.** Based on visual observations of the exposed surfaces, the corrugated metal wall (exterior), transite wall (exterior), concrete wall, concrete floor, wood wall and ceiling panel, transite wall panel, steel columns and beams, steam pipe, fire suppression piping, air grilles, HVAC ductwork (interior), wood trusses and wood stud frame (interior wall cavity) were noted to be free of suspect MC materials. In addition, no MC was detected by EXPRAY testing. No live OE/UXO was observed within the building structure during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **5X.** However, fire suppression piping will need to be decontaminated and any floor drains be capped prior to general demolition of Building 18Y.

Building 29Y (Photo Nos. 11 & 12)

Building 29Y is a one-story steel frame structure, approximately 793 square feet. Historical record searches showed that the building was used as a General Purpose Magazine. Current contamination status for this structure prior to our survey is noted as **3X.** Based on visual observations of the exposed surfaces, the concrete masonry wall (exterior), concrete wall, foam board wall with foil sheathing, HVAC unit, and chilled water piping was noted to be free of suspect MC materials. EFI noted red granular substance

on the concrete floor, testing revealed the material was not OE. However, EXPRAY confirmatory testing indicated traces residual amount of **Group C explosives** on the HVAC unit. In addition, laboratory test quality assurance/controls (side by side sample collected) results confirm the presence of traces residual amount of **Group C explosives**. No live OE/UXO was observed within the building structure during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **3X.** We recommend this building be decontaminated of MC residue in accordance with the Ordnance and Explosive (OE) action plan prior to demolition.

Building 32Y

Building 32Y is a one-story steel frame structure, approximately 793 square feet. Historical record searches revealed that the building was used as a General Purpose Magazine. Current contamination status for this structure prior to our survey was noted as **3X**. Based on visual observations of the exposed surfaces, the concrete masonry wall (exterior), concrete wall (interior), foam board wall, chilled water piping, and HVAC unit were noted to be free of suspect MC materials. In addition, no MC was detected by EXPRAY testing. No live OE/UXO was observed within the building structure during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **5X**. As no MC materials were observed or detected by testing, general demolition of Building 32Y could begin as soon as practical.

Building 13Y (Photo Nos. 13 & 14)

Building 13Y is a one-story steel frame structure, approximately 793 square feet. Historical record searches revealed that the building was used as a General Purpose Magazine. Current contamination status for this structure prior to our survey was noted as **3X**. Based on visual observations of the exposed surfaces, the concrete masonry wall (exterior), concrete wall (interior), foam board wall, HVAC unit, steel beam support, interior exhaust flue, and chilled water piping were noted to be free of suspect MC materials. However, EXPRAY confirmatory testing indicated traces residual amount of **Groups A, B & C explosives** on the foam board wall and traces residual amount of **Group C explosives** on chilled water piping. No live OE/UXO was observed within the building structure during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **3X**. We recommend that this building be decontaminated of MC residue in accordance with the Ordnance and Explosive (OE) action plan prior to demolition.

Building 48Y

Building 48Y is a one-story steel frame structure, approximately 793 square feet. Historical record searches revealed that the building was used as a General Purpose Magazine. Current contamination status for this structure prior to our survey was noted as **3X**. Based on visual observations of the exposed surfaces, the concrete masonry wall (exterior), concrete wall (interior), transite ceiling, and steel beam were noted to be free of suspect MC materials. In addition, no MC was detected by EXPRAY testing. No live OE/UXO was observed within the building structure during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building

as **5X**. As no MC materials were observed or detected by testing, general demolition of Building 48Y could begin as soon as practical.

Building 34Y

Building 34Y is a one-story wood/poured-in-place concrete structure, approximately 2,906 square feet. Historical record searches revealed that the building was used as Oxidizer Preparation. Current contamination status for this structure prior to our survey was noted as **3X**. Based on the buildings functional set up it was divided into three sections for evaluation. Based on visual observations of the exposed surfaces, the corrugated metal wall (exterior), transite wall (exterior), concrete wall, wood wall panel, transite wall, steel support structure, concrete floor, chilled water piping, fire suppression piping, light fixtures, wood stud frame (interior cavity), and wood trusses were noted to be free of suspect MC materials. However, EXPRAY confirmatory testing indicated traces residual amount of **Group C explosives** on the wood wall panel and fire suppression piping in Section C of this building, traces residual amount of **Group C explosives** on the steel support structure in Section B of this building, traces residual amount of **Groups A & C explosives** on the light fixture in Section A of this Building and traces residual amount of **Group A explosives** on the concrete wall in Section A of this building. In addition, laboratory test quality assurance/controls (side by side sample collected) results confirm the presence of traces residual amount of **Group C explosives**. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **3X**. No live OE/UXO was observed within the building structure during this survey. We recommend that this building be decontaminated of MC residue in accordance with the Ordnance and Explosive (OE) action plan prior to demolition.

Building 38Y

Building 38Y is a one-story poured-in-place concrete structure, approximately 2,546 square feet. Historical record searches revealed that the building was used as an Igniter Blender. Current contamination status for this structure prior to our survey was noted as **3X**. This building was divided into three sections for evaluation based on its functional set up. Based on visual observations of the exposed surfaces, the corrugated fiberglass wall (exterior), corrugated metal wall (exterior), concrete wall, wood wall panel, transite wall, concrete floor, fire suppression piping, light fixtures, steam piping, wood stud frame (interior cavity), and HVAC ductwork were noted to be free of suspect MC materials. However, EXPRAY confirmatory testing indicated traces residual amount of **Group B explosives** on the light fixture and steam piping in Section B of this building, traces residual amount of **Groups A & B explosives** on the wood stud frame in Section C of this building and, traces residual amount of **Group B explosives** on the concrete floor in Section C of this Building. No live OE/UXO was observed within Section A, Section B and Section C of this building structure during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate Section B and Section C of this building as **3X** and Section A of this building as **5X**. It is recommended that Section A (possible migration of MC) along with Section B & C be decontaminated of MC residue in accordance with the Ordnance and Explosive (OE) action plan prior to demolition.

Building 40Y

Building 40Y is a one-story poured-in-place concrete structure, approximately 1,760 square feet. Historical record searches revealed that the building was used as an Igniter Blender. Current contamination status for this structure prior to our survey was noted as **3X**. Based on visual observations of the exposed surfaces, the corrugated fiberglass wall (exterior), concrete wall (exterior), wood wall panel, domestic piping, and concrete floor were noted to be free of suspect MC materials. However, EXPRAY confirmatory testing indicated traces residual amount of **Group B explosives** on the exterior concrete wall, interior concrete floor, interior concrete wall, domestic piping, and light fixture of this building. No live OE/UXO was observed within the building structure during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **3X**. We recommend that this building be decontaminated of MC residue in accordance with the Ordnance and Explosive (OE) action plan prior to demolition.

Building 45Y

Building 45Y is a one-story wood frame structure, approximately 1,051 square feet. Historical record searches revealed that the building was used as a metal powder preparation. Current contamination status for this structure prior to our survey was noted as **3X**. Based on visual observations of the exposed surfaces, the corrugated metal wall (exterior), wood wall panel, wood ceiling panel, concrete wall, HVAC ductwork, fire suppression piping, chilled water piping, concrete floor, and wood stud frame (interior) were noted to be free of suspect MC materials. No live OE/UXO was observed within the building structure during this survey. However, EXPRAY confirmatory testing indicated traces residual amount of **Group C explosives** on the fire suppression piping. In addition, laboratory test quality assurance/controls (side by side sample collected) results confirm the presence of traces residual amount of **Group C explosives**. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **3X**. We recommend that this building be decontaminated of MC residue in accordance with the Ordnance and Explosive (OE) action plan prior to demolition.

Building 813-I

Building 813-I is a one-story steel frame structure, approximately 40,000 square feet. Historical record searches revealed that the building was used as a General Purpose Warehouse. Current contamination status for this structure prior to our survey was noted as **3X**. Based on visual observations of the exposed surfaces, the corrugated metal wall (exterior), concrete floor, wood stud frame (interior cavity), fire suppression piping, domestic piping, ductwork (interior cavity), exhaust flue, concrete wall, and light fixture were noted to be free of suspect MC materials. In addition, no MC was detected by EXPRAY testing. No live OE/UXO was observed within the building structure during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **5X**. However, fire suppression piping will need to be decontaminated and any floor drains be capped prior to general demolition of Building 813-I.

Building 814

Building 814 is a one-story wood frame structure, approximately 8,000 square feet. The building was used as a General Purpose Warehouse. Historical record revealed that a majority portion of the building had been demolished and only 8,000 square feet of the building currently exist. Current contamination status for this structure prior to our survey was noted as **3X**. Based on visual observations of the exposed surfaces, the transite wall (exterior), brick wall (exterior), wood wall panel, HVAC ductwork (interior cavity), steam piping, fire suppression piping, concrete floor, and wood stud frame (interior cavity) were noted to be free of suspect MC materials. In addition, no MC was detected by EXPRAY testing. No live OE/UXO was observed within the building structure during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **5X**. However, fire suppression piping will need to be decontaminated and any floor drains be capped prior to general demolition of Building 814.

Building 800 (Storage Shed)

Building 800 (Storage Shed) is a one-story wood frame structure, approximately 900 square feet. The building was used as a Storage Shed. Current contamination status for this structure prior to our survey is noted as **5X**. Based on visual observations of the exposed surfaces, the corrugated metal wall (exterior), concrete floor, and wood stud frame (interior cavity) were noted to be free of suspect MC materials. In addition, no MC was detected by EXPRAY testing. No live OE/UXO was observed within the building structure during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **5X**. As no MC materials were observed or detected by testing, general demolition of Building 800 (Storage Shed) could begin as soon as practical.

Building 15G

Building 15G is a wood frame structure, approximately 196 square feet. Historical record searches revealed that the building was used as a Sewage Pumping Station. Current contamination status for this structure prior to our survey was noted as **5X**. Based on visual observations of the exposed surfaces, the corrugated metal wall (exterior), concrete floor, and wood stud frame (interior cavity) were noted to be free of suspect MC materials In addition, no MC was detected by EXPRAY testing. No live OE/UXO was observed within the building structure during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **5X**. As no MC materials were observed or detected by testing, general demolition of Building 15G could begin as soon as practical.

Building 18G

Building 18G is a wood frame structure, approximately 196 square feet. Historical record searches revealed that the building was used as a Chlorination building. Current contamination status for this structure prior to our survey was noted as **5X**. Based on visual observations of the exposed surfaces, the corrugated metal wall (exterior), concrete floor, and wood stud frame (interior cavity) were noted to be free of suspect MC materials. In addition, no MC was detected by EXPRAY testing. No live OE/UXO was observed

within the building structure during this survey. Based on our visual observations, assessment and confirmatory EXPRAY testing, we rate this building as **5X**. As no MC materials were observed or detected by testing, general demolition of Building 18G could begin as soon as practical.

OE RESPONSE ACTION PLAN

Based on visual observations and assessment and the results of our EXPRAY field test analysis and QA/QC laboratory analysis, the following buildings were found to contain MC residue traces and rated as **3X** contamination:

Building 13Y	Building 16Y	Building 18Y-1
Building 29Y	Building 34Y	Building 38Y
Building 40 Y	Building 45Y	

These buildings will need to be decontaminated to a degree of less than XXXXX prior to demolition. A XXXXX-Five X's decontamination indicate the equipment or facilities have been completely decontaminated, are free of hazards and may be released for general use by the public. EFI has prepared the following decontaminating procedures in general accordance with Department of the Army Technical Bulletin "Decontamination of Facilities and Equipment" (TB 700-4), October 1978 to provide guidance for decontamination of facilities and equipment exposed to MC contamination for the purpose of demolishing these facilities and not for the re-sale or re-use to the general public.

INDIVIDUAL BUILDING OE RECOMMENDED ACTION PLAN

Building 13Y

Building 13Y was tested positive for traces residual amount of **Groups A, B & C explosives** residue located on the foam board panel and traces residual amount of **Group C explosives** residue on the surface of chilled water piping. We recommend physical removal methods for the explosives residue contaminants from the surfaces of the foam board panel and chilled water piping metal outer jacketing. We also recommend that the piping (fire suppression that may have interior explosives contamination) located in Building 13Y be purged by a water source prior to demolition. Further detail of each decontamination process is presented in the "Decontamination Procedures" section of the report.

Based on our observations, we noted suspect asbestos-containing materials (ACM) within Building 13Y, which may be contaminated with the identified explosives residue. Prior to demolition of the building, we recommend that the suspect ACM be sampled and analyzed for asbestos content, or a review of previous survey reports be performed to confirm asbestos or non-asbestos status. We recommend that any ACM that will be potentially disturbed by the demolition activities be decontaminated, removed and disposed by a licensed asbestos abatement contractor prior to those activities that would disturb them. Further, we recommend that this work be perform following work procedures prepared by a licensed asbestos consultant and monitored.

Building 16Y

Building 16Y was tested positive for traces residual amount of **Group C explosives** residue on the wood ceiling of Section A (North Corridor) and on the fire suppression pipe located in Section B (Corridor outside testing bay). We recommend physical removal of the contaminants from the surfaces of the fire suppression pipe located in Sections A & B. We also recommend that the piping (fire suppression piping that may have interior explosives contamination) be purged by water, and the wood ceiling (porous material) in Section A be removed and decontaminated by heat in a controlled environment. Further detail of each decontamination process is presented in the "Decontamination Procedures" section of the report.

Based on our observations, we noted suspect asbestos-containing materials (ACM) within Building 16Y, which may be contaminated with the identified explosives residue. Prior to demolition of the building, we recommend that the suspect ACM be sampled and analyzed for asbestos content, or a review of previous survey reports be performed to confirm asbestos or non-asbestos status. We recommend that any ACM that will be potentially disturbed by the demolition activities be decontaminated, removed and disposed by a licensed asbestos abatement contractor prior to those activities that would disturb them. Further, we recommend that this work be perform following work procedures prepared by a licensed asbestos consultant and monitored.

Building 18Y-1

Building 18Y-1 was tested positive for traces residual amount of **Group C explosives** residue on the gypsum wallboard in the women's restroom and on the steam piping located in the men's restroom We recommend physical removal of the contaminants from the surfaces of the steam piping pipe located in Building 18Y-1. We recommend that the gypsum wallboard (porous material) in Building 18Y-1 be removed and decontaminated by heat in a controlled environment. Further detail of each decontamination process is presented in the "Decontamination Procedures" section of the report.

Based on our observations, we noted suspect asbestos-containing materials (ACM) within Building 18Y-1 which may be contaminated with the identified explosives residue. Prior to demolition of the building, we recommend that the suspect ACM be sampled and analyzed for asbestos content, or a review of previous survey reports be performed to confirm asbestos or non-asbestos status. We recommend that any ACM that will be potentially disturbed by the demolition activities be decontaminated, removed and disposed by a licensed asbestos abatement contractor prior to those activities that would disturb them. Further, we recommend that this work be perform following work procedures prepared by a licensed asbestos consultant and monitored.

Building 29Y

Building 29Y was tested positive for traces residual amount of **Group C explosives** residue on the HVAC unit. We recommend physical removal of the contaminants from the surfaces of the HVAC unit located in Building 29Y. Further detail of each decontamination process is presented in the "Decontamination Procedures" section of the report.

Based on our observations, we noted suspect asbestos-containing materials (ACM) within Building 29Y, which may be contaminated with the identified explosives residue. Prior to demolition of the building, we recommend that the suspect ACM be sampled and analyzed for asbestos content, or a review of previous survey reports be performed to confirm asbestos or non-asbestos status. We recommend that any ACM that will be potentially disturbed by the demolition activities be decontaminated, removed and disposed by a licensed asbestos abatement contractor prior to those activities that would disturb them. Further, we recommend that this work be perform following work procedures prepared by a licensed asbestos consultant and monitored.

Building 34Y

Building 34Y was tested positive for traces residual amount of **Group C explosives** on the wood wall panel and fire suppression piping in Section C of this building, traces residual amount of **Group C explosives** on the steel support structure in Section B of this building, traces residual amount of **Groups A & C explosives** on the light fixture in Section A of this Building and traces residual amount of **Group A explosives** on the concrete wall in Section A of this building. We recommend physical removal of the contaminants from the all of the surfaces of the building including fire suppression piping in Section C of this building, steel support structure in Section B of this building, light fixtures and concrete wall in Section A of this building. We recommend that the wood wall panel (porous material) in Building 34Y be removed and decontaminated by heat in a controlled environment and purging of the suppression piping in Building 34Y by a water source. Further detail of each decontamination process is presented in the "Decontamination Procedures" section of the report.

Based on our observations, we noted suspect asbestos-containing materials (ACM) within Building 34Y, which may be contaminated with the identified explosives residue. Prior to demolition of the building, we recommend that the suspect ACM be sampled and analyzed for asbestos content, or a review of previous survey reports be performed to confirm asbestos or non-asbestos status. We recommend that any ACM that will be potentially disturbed by the demolition activities be decontaminated, removed and disposed by a licensed asbestos abatement contractor prior to those activities that would disturb them. Further, we recommend that this work be perform following work procedures prepared by a licensed asbestos consultant and monitored.

Building 38Y

Building 38Y was tested positive for traces residual amount of **Group B explosives** on the light fixture and steam piping in Section B of this building, traces residual amount of **Groups A & B explosives** on the wood stud frame in Section C of this building and, traces residual amount of **Group B explosives** on the concrete floor in Section C of this Building. We recommend physical removal of the contaminants from the all of the surfaces of the building including the light fixtures and steam piping in Section B of this building and power wash the entire building. We recommend that the wood stud frame (porous material) in Building 38Y be removed and decontaminated by heat in a controlled environment and purging of the suppression piping in Building 38Y by a water source. Further detail of each decontamination process is presented in the "Decontamination Procedures" section of the report.

Based on our observations, we noted suspect asbestos-containing materials (ACM) within Building 38Y, which may be contaminated with the identified explosives residue. Prior to demolition of the building, we recommend that the suspect ACM be sampled and analyzed for asbestos content, or a review of previous survey reports be performed to confirm asbestos or non-asbestos status. We recommend that any ACM that will be potentially disturbed by the demolition activities be decontaminated, removed and disposed by a licensed asbestos abatement contractor prior to those activities that would disturb them. Further, we recommend that this work be perform following work procedures prepared by a licensed asbestos consultant and monitored.

Building 40Y

Building 40Y was tested positive for traces residual amount of **Group B explosives** on the exterior concrete wall, interior concrete floor, interior concrete wall, domestic piping, and light fixture of this building. We recommend physical removal of the contaminants from the all of the surfaces of the building including concrete wall, concrete floor, domestic piping and light fixtures and power wash entire building. Further detail of each decontamination process is presented in the "Decontamination Procedures" section of the report.

Based on our observations, we noted suspect asbestos-containing materials (ACM) within Building 38Y, which may be contaminated with the identified explosives residue. Prior to demolition of the building, we recommend that the suspect ACM be sampled and analyzed for asbestos content, or a review of previous survey reports be performed to confirm asbestos or non-asbestos status. We recommend that any ACM that will be potentially disturbed by the demolition activities be decontaminated, removed and disposed by a licensed asbestos abatement contractor prior to those activities that would disturb them. Further, we recommend that this work be perform following work procedures prepared by a licensed asbestos consultant and monitored.

Building 45Y

Building 45Y was tested positive for traces residual amount of **Group C explosives** on the fire suppression piping. We recommend physical removal of the contaminants from the all of the surfaces of the building including fire suppression piping by HEPA-vacuum and wet wipe methods and power wash the entire building. In addition, we recommend purging of the suppression piping in Building 45Y by a water source. Further detail of each decontamination process is presented in the "Decontamination Procedures" section of the report.

DECONTAMINATION PROCEDURES

DESCRIPTION

A. Perform all planning, administration, execution of work necessary to safely conduct the Work. The Work will consist of decontaminating munitions constituents from surfaces of building facilities and their components located in the "Y" Area of the LHAAP as identified in the ESS.

REFERENCE STANDARDS

A. Acknowledge awareness and familiarity with the contents and requirements of the following regulations, codes, standards, and guidance documents. Assume responsibility for the performance of the Work in strict compliance with these documents and for every instance of failure to comply with these documents. The current issue of each document shall govern. Where conflict exists between these documents and the Decontamination Procedures, the more stringent requirements shall apply.

1. Base Realignment and Closure Act of 1988, Public Law (PL) 100-526, 102 Stat. 2632.
2. Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980, PL 96-510, 94 Stat 2767, 42 USC 9601.
3. Defense Base Realignment and Closure Act of 1990, PL 101-510, 104 Stat. 1808.
4. Department of the Army Technical Bulletin, "Decontamination of Facilities and Equipment" (TB 700-4), October 1978.
5. Department of the Army – Industrial Operations Command, "Classification and Remediation of Explosive Contamination" (IOCP 385-1), July, 1997.
6. Industrial Operations Command, "Classification and Remediation of Explosive Contamination", IOCP 385-1, July 1997.
7. Resource Conservation and Recovery Act (RCRA) of 1976, PL 94-580, 90 Stat. 2796, 42 USC 6901, et seq., as amended.
8. 29 CRF 1910.120 – OSHA Hazardous Waste Operations and Emergency Response.
9. 40 CFR Part 260, et al – U.S. Environmental Protection Agency (EPA) Military Munitions Rule.
10. AR 385-10 – The Army Safety Program.
11. AR 385-64 – Ammunition and Explosives Safety Standards.
12. EP 1110-1-8153 – Ordnance and Explosives Response.
13. All state, county, and city codes and ordinances as applicable. Make available for review at the site one copy of EPA, OSHA, and applicable state, county and city regulations governing the Work.

WORKSITE CONDITIONS

A. Worker and Visitor Procedures: Contractor is hereby advised that some of the buildings in the "Y" Area have been determined to contain munitions constituents that may pose a chemical and or physical hazards. Provide workers and visitors with respirators (which, as a minimum, meet the requirements of OSHA 29 CFR 1926.1101) and protective clothing during all phases of the Work and until final EXPRAY testing determines that the buildings has been decontaminated to a **5X** level or an inert state.

PERSONNEL PROTECTION

A. Prior to commencement of work, instruct all workers in the appropriate procedures for personnel protection. Ensure that workers are knowledgeable in these procedures.

B. Provide respiratory protection at all times, which is in compliance with OSHA requirements. When not in violation of the above, the minimum acceptable respiratory protection used for this project shall be as follows, unless airborne fiber concentrations inside the face mask exceed 0.01 fibers per cubic centimeter (f/cc). In the event that airborne fiber concentrations inside the mask exceed 0.01 f/cc, respiratory protection required to achieve 0.01 f/cc shall be used.

1. Provide appropriate respirators based on respiratory protection factor and the potential hazards for workers during all phases of the decontamination work from the time of first disturbance of the munitions constituents contaminated material until acceptance of final EXPRAY tests by Consultant.
2. Provide additional "piggy-back" organic cartridges recommended by the manufacturer whenever organic vapors or fumes are present or likely to be generated during decontamination process.

C. Permit no visitors, except for governmental inspectors having jurisdiction, or as authorized by Owner or Consultant, in the work areas after commencement of asbestos disturbance or removal.

D. Provide workers sufficient sets of protective disposable clothing, consisting of full-body coveralls, head covers, gloves, and foot covers, of sizes to properly fit individual workers.

E. Leave reusable equipment, apparel and protection devices (excluding respirators) in the work area until the end of the munitions constituent decontamination work, at which time such items shall be disposed of as contaminated waste.

F. Provide suitable respirators and protective equipment for use by authorized visitors, Owner, Consultant and Testing Laboratory's representatives. Furnish these in as many sets as required.

PREPARATION

A. Install warning barrier tape and signs stating "CAUTION EXPLOSIVE AREA" to segregate and demarcate work area from occupied or non-occupied areas.

B. Maintain a Sign In/Out Log in the immediate area of the entrance to the work area to be utilized by every person, each time upon entering and leaving the work area.

C. Construct staging area (worker/equipment decontamination unit) work area utilizing scaffolding framing and plywood platform for top decking.

D. Provide a worker/equipment decontamination unit in compliance with EPA guidelines concerning number, size and placement of airlocks, etc. Shower in worker decontamination unit to open into airlock on both contaminated and uncontaminated sides. Decontamination unit shall be constructed of appropriate materials (including plastic sheeting) to provide airtight barriers and allow continuous diminished pressure to be maintained in work areas. Post OSHA decontamination procedures in Change Room for duration of Project.

E. Trap shower waste water using filters having a maximum pore size of not larger than 1.0 micron, and drain into a sanitary sewer. Replace contaminated filters when they become clogged but not less than every third working day. Dispose of filters as contaminated waste.

F. Maintain emergency and fire exits from the Work Areas, or establish alternative exits satisfactory to fire officials. Provide fire extinguishers, as required, inside and outside the Work Area.

G. Provide temporary power and lighting as necessary to maintain safe and comfortable work environment.

H. Provide intrinsically safe equipment (e.g. HEPA Vacuum, temporary light, power wash equipment) to be used during the work.

I. Personnel shall not enter building areas with cigarette lighters, matches, cigarettes, cigars, pipes or other flame emitting items. Personnel shall not smoke cigarettes, cigars, pipes or the like within the building areas.

J. Isolate power source by lock-out tag-out if power is operational.

K. Disconnect Lines (mechanical/electrical from adjacent structures).

L. Cap open drain/pipe.

M. Evacuate existing lines of products.

DECONTAMINATION METHODS

A. Munitions Constituents Decontamination from Non Porous Surfaces (Physical Removal Methods)

1. Prepare work area as previously specified.
2. At completion of work area preparation, HEPA-vacuum all contaminated non-porous surfaces in the work area to remove visible munitions constituents accumulated materials.
3. Munitions constituents dust and debris collected by HEPA-Vacuum process shall be placed in impermeable containers for proper disposal or incineration.

4. Use steam clean/power-washing equipment capable of removing residual munitions constituents but not damaging to or penetrating the contaminated surfaces. Minimize water migration to other areas by collecting excessive water and place in impermeable containers for proper disposal or incineration.
5. Use disposable towel to wipe power washed surfaces free of material. Dispose of towel in impermeable containers for proper disposal or incineration
6. Surfaces will be considered clean when free from dust, dirt, residue, film, or discoloration resultant from decontamination operations or other activities subordinate to these operations.

B. Munitions Constituents Decontamination from Porous Items (Heat Process Methods)

1. Prepare work area as previously specified.
2. Disassemble munitions constituents contaminated porous items in a manner that does not pose an explosive safety hazard. Welding, drilling, sawing, etc. or any processes that generate enough heat to ignite residual contamination are prohibited.
3. Collect disassemble munitions constituents porous contaminated items and placed in a controlled environment (incinerator) for decontamination by heat process. (As an alternative open burning is allowed, see open burning methods).
4. Temperature used in the heat process shall be at a level above the decomposition temperature of the contaminants and heating duration is long enough to assure the largest mass is held at that temperature to be consumed by oxidation.
5. In cases where munitions constituents contaminated porous items are asbestos containing, use of hot gas decontamination is recommended. The process utilizes heated gas to thermally decompose or volatilize explosives or agent. For maximum decontamination effectiveness, it is recommended that a steady state of 600 degree Fahrenheit for time duration of 1 Hour (USAEC "Hot Gas Decontamination", July, 2003).
6. At completion of the hot gas decontamination process. The asbestos-containing materials will be properly bagged, labeled and disposed of in an approved landfill.

C. Munitions Constituents Decontamination from Porous Items (Open Burning Methods)

1. Prepare work area as previously specified.
2. Disassemble munitions constituents contaminated porous items in a manner that does not pose an explosive safety hazard. Welding, drilling, sawing, etc. or any processes that generate enough heat to ignite residual contamination are prohibited.
3. Collect disassemble munitions constituents porous contaminated items and placed in a controlled environment for decontamination by open burning process.

4. Remove hazardous materials substances including mercury, PCBs, radioactive material, fluorescent lights, light ballasts and unexploded ordnance from building prior to open burning.
5. Check and record meteorological conditions to achieve the following conditions prior to burning: wind velocity between 5 & 14 miles per hour; cloud cover is less than 80% and cloud ceiling is at least 2,000 feet; visibility is one mile or more; burns are not conducted during electrical storms, thunderstorms, or during periods of forecasted high probability (50% or greater) as given by the local/National Weather Services; burns are not conducted during periods of precipitation or high probability (75% or greater) as given by the National Weather Service, and burns as not conducted on ozone action days or "Code Red" air quality days.
6. Establish a fire watch during and after each burn and coordinate with the local fire department.
7. Provide an adequate firebreak around each building prior to open burning.
8. Use No. 2 virgin oil as an ignition source.
9. Temperature used in the heat process shall be at a level above the decomposition temperature of the contaminants and heating duration is long enough to assure the largest mass is held at that temperature to be consumed by oxidation.
10. Estimate amount of emissions to be generated as a result of opening burning for each building structures. Use USEPA's "Compilation of Air Pollutant Factors" (AP-42).

D. Munitions Constituents Decontamination of Suspect Explosives-Carrying Pipes/Equipment (Physical Removal & Heat Process Methods)

1. Prepare work area as previously specified.
2. Detach piping/equipment suspected of containing munitions constituents in a manner that does not poses an explosive safety hazard from building structure. Welding, drilling, sawing, etc. or any processes that generate enough heat to ignite residual contamination is prohibited.
3. Tag piping/equipment with DA Form 3803 prior to handling and placement in a controlled environment for initial physical removal decontamination process (flushing and power washing).
4. Steam cleaning of nuts and bolts shall be performed prior to applying penetrating oil to them for disassembly of pipe/equipment.
5. In the controlled environment disassemble contaminated pipe/equipment items in a manner that does not pose an explosive safety hazard. Welding, drilling, sawing, etc. or any processes that generate enough heat to ignite residual contamination is prohibited.
6. Use high pressure water for flushing of piping component and in conjunction, use power-washing equipment capable of removing residual munitions constituents but not damaging to or penetrating the contaminated surfaces. Minimize water migration to other areas by collecting excessive water and place in impermeable containers for proper disposal or incineration.

7. Use disposable towel to wipe power washed surfaces free of material. Dispose of towel in impermeable containers for proper disposal or incineration
8. At completion of power-washed disassembled piping/equipment, placed in a controlled environment (incinerator) for decontamination by heat process.
9. Temperature used in the heat process shall be at a level above the decomposition temperature of the contaminants and heating duration is long enough to assure the largest mass is held at that temperature to be consumed by oxidation.
10. Surfaces will be considered clean when free from dust, dirt, residue, film, or discoloration resultant from decontamination operations or other activities subordinate to these operations.

CLEAN-UP AND CLEARANCE TESTING

A. Provide general clean-up of work area concurrent with the decontamination of munitions constituents contaminated materials. Do not permit accumulation of debris on workspace floor. Contaminated materials such as disposable suites, towels, waste containers, etc. generated as a result of the decontamination process shall be properly disposed of by incineration.

B. Clean all equipment used in the work area and remove from work area (excluding that which will be needed for further cleaning phases) via the Decontamination Enclosure System.

C. Replace all HEPA-filters and pre-filters in vacuum machines with clean filters. Clean all vacuum machines.

D. EXPRAY Final Clearance Testing

1. Testing Laboratory will test for the presence of munitions constituents based on EXPRAY clearance criteria, upon notice from Abatement Contractor that work areas are considered visually decontaminated. Final clearance testing shall be performed using bulk wipe sampling techniques and sprayed with EXPRAY reagents. If the EXPRAY test samples indicate no presence of munitions constituents (absence of visual color change), the decontamination work will be considered completed.
2. Re-clean areas/items, which do not comply with the specified EXPRAY final clearance criteria. Abatement Contractor to bear cost of all follow-up tests necessitated by the failure of the EXPRAY clearance criteria.
3. Upon achieving clearance, the building is ready for industry demolishing standard.

E. Power Washing and Flushing Rinsate Water Testing

1. Testing Laboratory will test for the presence of munitions constituents collected in 50 Gallon Drums for waste characterization and proper

disposal, upon notice from Abatement Contractor that work areas are considered visually decontaminated.

2. Upon receiving test results, and based on the determination by the water quality jurisdiction for acceptance of disposal of the rinsate water, only then will the water be disposed of.

REQUIRED RECORDKEEPING OF DECONTAMINATION ACTIVITIES

A. Identification of facility being decontaminated, previous use of the facility (include type of contaminant involved).

B. A copy of Decontamination Procedures used to achieve the work.

C. A copy of Decontamination Status for each facility based on EXPRAY testing results performed at completion of the work.

D. A copy of the Sign In/Out Log showing the following: date, name, social security number, entering and leaving time, company or agency represented.

E. A copy of Decontamination Tags used during the work for each facility items.

F. A daily report of various decontamination activities.

SUMMARY

EFI has endeavored to perform an Explosive Safety Submission for the "Y" Area at the LHAAP. The objective of the survey was to determine, by visual observations, if presence of Munitions Constituents (MC) and unexploded ordnance (UXO) exists, perform confirmation testing with EXPRAY field test, assess and assign contamination rating to buildings scheduled for demolition, and develop response action for the MC contaminated buildings. No UXO were found within the building structures in the "Y" Area; however, MC residue was found to exists in the Buildings 13Y, 16Y, 18Y-1, 29Y, 34Y, 38Y, 40 Y and 45Y. Based on the assessment of the MC contaminated buildings, the probability of exposure to OE/UXO while performing decontamination work based on the OE recommendation plan outlined and subsequent demolition of these buildings are low.

QUALIFICATION OF REPORT

The information included in this report addresses limited objectives related to the identification for the presence of munitions constituents and provide OE recommendation plan at the subject buildings for the purpose of demolition the buildings. This information should not be used by other parties as a basis for demolition activities or for other purposes without our consultation. The responsibility for any interpretations thereof is borne exclusively by the user.

The activities of this survey included visual observations and EXPRAY testing of exterior/interior surfaces building materials that were readily accessible, including wall cavities and ceiling plenum. Suspect munitions constituents may be present on interior surfaces of piping (fire suppression, etc.) and conduits that were inaccessible and therefore not tested. These materials should be assessed with a 3X contamination status until testing of their interior surfaces is proven otherwise. Should any additional suspect materials be uncovered during the demolition, all work must cease and testing performed prior to proceeding with the demolition activities in the affected areas.

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APPENDIX A

SITE MAP (REGIONAL / INSTALLATION BOUNDARIES)

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APPENDIX B

IOCP 385-1

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APPENDIX C

OBSERVATIONS & ASSESMENT FIELD FORMS

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APPENDIX D

SAMPLING & ANALYSIS FIELD FORMS

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APPENDIX E

SAMPLE LOCATION SKETCHES

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APPENDIX F

PHOTOGRAPHIC DOCUMENTATION

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APPENDIX F

PHOTOGRAPHIC DOCUMENTATION

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APPENDIX G

UXO POSITIVE (LABORATORY QA/QC SUMMARY)

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APPENDIX H

GLOSSARY

ARC Abatement

6630 Roxburgh Drive, Suite 130, Houston, Texas 77041
713-896-0668 / Fax: 713-896-1772
www.arcabatement.com

- Asbestos Abatement
- Mold Remediation
- Lead Removal
- Demolition
- Restoration

June 24, 2004

Dr. Rose M. Zeiler
Longhorn AAP Site Manager
Bldg. 1440
Fourth Avenue
Ft. Chaffe, AR 72905

Re: Work Plan

Dear Dr. Zeiler,

Please find enclosed the following for your review.

ARC Abatement, Inc.

1. Health and Safety Manual/Standard Operating Procedures
2. Material and Equipment Manufacture's Data and MSDS
3. Daily Project Log Book "Sample"

Engineering and Fire Investigations

1. Work Procedures (Work Plan) for Remediation and Demolition Longhorn AAP
2. Site Specific Health and Safety Plan for Longhorn AAP

Engineering and Fire Investigations

1. Final Remediation and Air Monitoring Report Longhorn AAP, Contract No.DAAA09-03-C-0019.

Should you have any questions please contact me at your earliest convenience.

Sincerely,

Michael Luczak
Vice President

00065199

ARC Abatement

6630 Roxburgh Drive, Suite 130, Houston, Texas 77041
713-849-7738 / Fax: 713-849-7744
www.arcabatement.com

- Asbestos Abatement
- Mold Remediation
- Lead Removal
- Demolition
- Restoration

Transmittal Letter

To: Ms. Rose Zeiler
Longhorn Site Manager
727 S. Brooklin
Ratcliff, AR 72951

Date: 12/05/2006

If enclosures are not as noted, please inform us immediately.

We Transmit: X Herewith Under Separate Cover

For Your: Approval Review X Use File

# of Copies	Date	Description
2	12/5/2006	Abatement Observations/Air Monitoring Report for Longhorn Army Ammunition Plant.

Comments:

By: Michael Luczak, Vice President

EFI®
Engineering and Fire Investigations

ABATEMENT OBSERVATIONS & AIR MONITORING REPORT LONGHORN ARMY AMMUNITION PLANT KARNACK, TEXAS

EFI Project No. 98410-13709

Prepared For:

ARC Abatement, Inc.
6630 Roxburgh Drive, Suite 130
Houston, Texas 77041

Prepared By:

Engineering and Fire Investigations (EFI)
9700 Richmond, Suite 201
Houston, Texas 77042

July 18, 2005

EFI Global
Complex Issues • Solid Solutions

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Fax: 713-975-7336
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July 18, 2005

Mr. Michael Luczak
ARC Abatement, Inc.
6630 Roxburgh Drive, Suite 130
Houston, Texas 77041

Subject: **REPORT OF ABATEMENT OBSERVATIONS AND AIR MONITORING**
Longhorn Army Ammunition Plant
Hazardous Materials Removal Project
Houston, Texas
EFI PROJECT NO. 98410-13709

Dear Mr. Luczak:

Engineering and Fire Investigations (EFI) performed work at the Longhorn Army Ammunition Plant in general accordance with the "Proposal for Consulting Services Longhorn Army Ammunition Plant", dated February 27, 2003.

ARC Abatement, Inc. (ARC) was selected as the Asbestos/Demolition abatement contractor. ARC mobilized on site on March 17, 2003 and began setting up construction office. ARC performed asbestos and hazardous materials removal activities at various locations within the Longhorn Army Ammunition Plant.

This Asbestos Abatement Project Report includes, summary of completed work, and air sampling records. Thank you for allowing us to participate in this project. If you have any questions about this report or if we can assist you on any other matter please contact us at (713) 975-7031.

Sincerely,

Engineering and Fire Investigations

Cuong Nguyen
Project Manager

Rick A. Anderson, P.E.
Branch Manager

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Appendix B - Asbestos Summary of Air Monitoring Results
Appendix C - Daily Field Notes
Appendix D - Texas Department of Health Notifications/Related Documents
Appendix E - Air Monitoring Certifications and Licenses & Work Procedures
Appendix F - Lead – Transmittal of Analytical Results
Appendix G - Building 451,TNT Production Area, PCB's – Transmittal of Analytical Results

1.0 EXECUTIVE SUMMARY

The ARMY contracted ARC as the abatement/demolition contractor to remove hazardous materials prior to demolishing structurally unsafe structures down to the concrete foundation. ARC retained Engineering and Fire Investigations (EFI) to provide hazardous materials consulting services including, but not limited to: on-site project monitoring, clearance activities, reporting requirements and final reporting.

As part of the proposed demolition, a scope of work summary (see Appendix A) listing the buildings and materials identified as Asbestos-Containing was issued in March 2003. In conjunction with the Work Procedures developed by EFI for removal and disposal and specified as hazardous materials, ARC addressed only those building components containing hazardous materials (ACM, lead & PCB) in the Scope of Work (SOW) which included the Administration Area, Magazine Area, Warehouse Area, Battery Shop Area, Scrap Yard, South Test Area, Signal Area, TNT Production Area, T Area and Y Area, or as required by change orders.

Generally, the asbestos-containing materials abated under the scope of work for this project included: transite siding and roofing (interior & exterior) panels, ceiling tile, vinyl sheet flooring, floor tile/mastic, thermal system insulation (piping & equipment), and roofing components.

ARC mobilized on site on March 17, 2003 to begin work area preparations. Asbestos removal activities concluded on April 15, 2004.

The activities monitored included area preparation, the abatement work, post removal visual survey, and clearance air sampling and analysis. Abatement of the asbestos -containing materials was completed in each of the work areas. Friable Asbestos-Containing Materials collected during the project were properly disposed in the BFI, McCarty Road landfill located at 11013 Old Beaumont Highway in Houston, Texas. ARC disposed of the Non-Friable Asbestos-Containing Materials in designated, on-site landfill at the Longhorn Army Ammunition Plant.

Our observations and air sampling collected and analyzed before, during, and after asbestos removal activities of each area indicates this project was accomplished in general accordance with the EFI's Work Procedures. Phased Contrast Microscopy (PCM) sampling was utilized to determine final clearance. PCM clearance was set at 0.01 fibers per cubic centimeter (f/cc) per sample for containment enclosure settings. For outdoors (open - air) settings down wind and upwind samples were evaluated utilizing Occupational Safety and Health Administration (OSHA) Permissible Exposure Limits (PEL) and surrounding ambient. ARC achieved air clearance levels in all work areas prior to the demolition of the buildings.

2.0 BACKGROUND INFORMATION

124 structures subjected to abatement and demolition are located within the Administration Area, Magazine Area, Warehouse Area, Battery Shop Area, Scrap Yard, South Test Area, Signal Area, TNT Production Area, T Area and Y Area of the Longhorn Army Ammunition Plant. Building materials that were found to contain asbestos content included, but, were not limited to: transite siding and roofing (interior & exterior) panels, ceiling tile, vinyl sheet flooring, floor tile/mastic, thermal system insulation (piping & equipment), and roofing components. Materials identified as asbestos, which impacted the demolition process, were scheduled for abatement.

Mr. Lee A. Burckle, PE of EFI served as the hazardous material consultant for this project. EFI's project manager overseeing the on-site operations for this abatement project was Mr. Cuong Nguyen. All personnel who monitored asbestos-related activities for EFI during this project are licensed by the Texas Department of Health and certifications including licenses are included in Appendices.

3.0 ACM MONITORING ACTIVITIES

Monitoring activities consisted of observations of the abatement contractor's work practices, containment barriers, and differential air pressure system operations. EFI also performed the following services during the course of the project:

- Asbestos Abatement Project Management,
- Pre-removal survey of environmental controls,
- Ambient air sampling and analyses,
- Post-removal visual clearance, and
- Final clearance air sampling.

Two phases of abatement activities essential for a successful asbestos abatement project are proper work area preparation and proper removal of asbestos-containing/contaminated materials. The following paragraphs describe the general preparation and removal activities accomplished by ARC. EFI's field technician(s) documented daily activities. A copy of the field reports are included in the appendices.

MUNITIONS RESIDUE DECONTAMINATION PROCESS

Work areas contaminated with explosive residues were decontaminated by use of pressure wash or steam cleaning. Environmental controls consisted of containment enclosure, decontamination facilities, differential air pressure, wet removal, and other controls described in the "Work Procedures". The controls were established to reduce the likelihood of explosives contaminants migrating outside the work area during the decontamination operations. This process was implemented for buildings contaminated with explosives prior to abatement of the asbestos-containing materials and subsequent demolition.

ASBESTOS WORK AREA PREPARATION

Preparation of the asbestos work areas included establishing proper environmental controls for the various materials scheduled for abatement. Depending upon the materials to be removed, controls may have consisted of containment enclosure, decontamination facilities, differential air pressure, wet removal, and other controls described in the "Work Procedures". The controls were established to reduce the likelihood of releasing asbestos fibers outside the work area during the abatement operations and to protect against unauthorized or accidental entry into the work area.

Containment Enclosures. In most cases, the enclosure(s) consisted of one layer of 6 mil thick plastic sheeting taped over critical barriers and one layer of 4-mil thick plastic sheeting taped and sealed to each of the walls and floor. More stringent requirements, as per TDH Texas Asbestos Health Protection Rules (TAHPR) and project specifications were met when required.

Decontamination Units. A decontamination unit for personnel and equipment was constructed adjacent to each containment as required. The decontamination unit consisted of a clean room, a shower room, and a dirty room, all separated by triple-flap airlocks. Shower wastewater was collected and filtered through a 5.0 micron filter prior to discharge into the sanitary sewer system.

Differential Air Pressure. The Work Procedures specified that the contractor maintain a reduced air pressure within the work areas of at least 0.02 inches of water. Differential air pressure within each of the work areas was achieved by setting up air machines equipped with High Efficiency Particulate Air (HEPA) filters. These specially manufactured filters are capable of collecting asbestos fibers that may become airborne during abatement activities. The filtered exhaust from the air machines was directed outside the building. The differential air pressure was maintained constantly until each containment achieved final air clearance.

ASBESTOS REMOVAL ACTIVITIES

ARC prepared each work area in accordance with applicable regulations and the procedures as described in the Work Procedures. This included, but was not limited to: decontamination units, appropriate signage, construction barriers, fire extinguishers, appropriate documentation available (on-site), etc. The work area was visually observed by an EFI representative to verify that preparatory procedures were adequate prior to removal activities.

The contractor's workers wore appropriate respiratory protection for the removal activity planned. The respiratory protection may have included either Powered Air-Purifying Respirators (PAPR) or half-face respirators. Appropriate body coverings including hooded suits, gloves, boots, etc. were also utilized for Personal Protective Equipment (PPE). The asbestos substrate was wetted prior to disturbance and kept wet during the removal process. The abatement process included gross removal, fine cleaning, and clearance activities, as detailed below.

Gross Removal. "Wet" techniques were employed during gross removal of asbestos-containing material in all containment(s) to reduce airborne fiber concentrations generated during the removal process in all areas. All asbestos-containing materials in each work area were thoroughly wetted, removed, and then double-bagged in asbestos disposal bags. The bags of regulated ACM were sealed, wet-wiped, and placed in plastic drums for transportation to an enclosed roll off dumpster located on site.

Fine Cleaning. After completing gross removal in a containment, the contractor brushed and wet-wiped surfaces from which the asbestos materials were removed. Where applicable, one layer of poly sheeting was removed, including the drop cloth layer on the floor. Waste bags and unnecessary equipment / supplies were wet-wiped and removed from the work area.

Clearance Activities. After completing the fine cleaning of the containment area(s), the contractor prepared the work area(s) for a visual observation by an EFI representative. The post-removal visual clearance of the work area was then performed. When no visual accumulations of debris were observed and all surfaces were observed to be clean, one coat of encapsulant was applied to lock down residual fibers. Clearance activities/protocols, as described in the Asbestos Abatement Package, were followed for each containment. Generally, following visual approval and after the encapsulant had dried, final air clearance samples were collected using aggressive air disturbance methods. The specified level for final air clearance samples is detailed as less than .01 Fibers /cc as analyzed by Phase Contrast Microscopy (PCM). A minimum of three samples was collected and each sample had to pass the clearance level before "clean air" for the work area is established. After clearance levels were met for each regulated area, all remaining plastic sheeting was then removed and disposed of as asbestos-contaminated waste.

DISPOSAL

Non-friable asbestos-containing and/or asbestos-contaminated waste was double-bagged, removed from the work area and transported and buried in a landfill located on-site at the Longhorn Army Ammunition Plant. Friable asbestos-containing waste was double-bagged, removed from the work area and transported to a dumpster lined with plastic sheeting. The dumpster and was kept locked to prohibit unauthorized access. Each dumpster was taken by Bayou City Waste, a Texas licensed Asbestos Transporter, to the BFI, McCarty Road Landfill in Houston, Texas.

WORK DEFICIENCIES

Because of the complex nature of an asbestos abatement project, various work area problems or deficiencies in work practices can occur. Most deficiencies were minor in nature and include negative pressure dropping below a specified limit, critical barriers coming loose due to heat-loss adhesion, keeping material wet enough, placing proper generator labels on asbestos waste, keeping waste dumpster locked, etc. There were no major deficiencies noted for this asbestos abatement project based upon visual observations gathered by EFI representative(s). Deficiencies noted during the course of work were brought to the contractor's attention and were corrected immediately.

4.0 AIR SAMPLING AND ANALYSIS

Air samples were collected to quantify airborne fiber concentrations before, during and after the abatement activities. Ambient air samples were taken for background concentrations, for verification of containment effectiveness, as a check on contractor work practices and for final air clearances. OSHA personal compliance sampling requirements are included as part of the Air Summary Data Table (See Appendix B).

PROCEDURES FOR COLLECTION AND ANALYSIS

ASBESTOS

Ambient, personnel samples and clearance samples were collected on 25-mm diameter, 0.8 micron mixed cellulose ester filters. Ambient and clearance samples were collected using high volume sampling pumps calibrated at about 10 liters per minute. Air sampling protocols utilizing Texas Department of Health Asbestos Health Protection Rules were followed. Air sample analyses are reported in Table 1 – Air Sample Summary.

Ambient air samples were analyzed by EFI personnel using Phase Contrast Microscopy (PCM) as described by the National Institute of Occupational Safety and Health (NIOSH) Method 7400, Asbestos Fibers in Air. A wedge from the filter cassette is mounted on a slide and viewed under the phase contrast microscope at 400 x power. This increases the contrast between the background and the fibers on the filter. Fibers longer than 5 microns, with an aspect ratio of 3:1 or greater, are counted. This method does not allow the analyst to distinguish between asbestos and non-asbestos fibers. The limit of quantification for Method 7400 is based on significant volumes to maintain 10 fibers in 100 fields. All EFI personnel who monitor abatement projects have been trained in NIOSH-approved courses and are proficient participates in the NIOSH PAT Program.

LEAD - TOXICITY CHARACTERISTIC LEACHING PROCEDURE (TCLP)

Prior to demolition and disposal of the structures, composite bulk materials of the buildings were sampled and analyze for Toxicity Characteristic Leaching Procedure (TCLP) for Lead to determine the hazardous waste characterization. The Bulk Sample analyses are reported in Appendix F of this report.

POLYCHLORINATED BIPHENYLS (PCBs)

Prior to demolition and disposal of the structures, ARC conducted a survey of materials (light ballasts & transformers) suspect of containing polychlorinated Biphenyls (PCBs) to determine the hazardous waste characterization. Determination of "PCB containing" light ballasts were achieved by the label on the light ballasts stating that it "contained PCB" or if no label was found on the light ballasts then they were assumed to contain PCB. The PCB containing light ballasts would then be segregated and placed in a 50-Gallon drum for proper disposal. If the label on the light ballasts stated that it did not contain PCB then the light ballasts would be disposed of as construction waste. Dielectric fluid oil suspect for Polychlorinated Biphenyls was found in a 6-gallon reservoir at Building 451 located in the TNT Production Area. The fluid was sampled for analysis. Based on the results the dielectric fluid collected from a 6-gallon transformer reservoir located in the TNT Production Area (Building 451) is not considered to be PCB as defined by the Environmental Protection Agency (EPA). Transmittal of the analytical results is reported in Appendix G of this report.

5.0 CONCLUSION

Observations of the asbestos regulated containment's/areas, environmental engineering controls, and the contractor's work practices were utilized to confirm that the project would be accomplished in a manner generally consistent with the Work Procedures. Whenever a minor deficiency was noted, the contractor was informed and deficiency corrected.

Based on our observations and air sampling results, we believe the asbestos abatement performed by ARC Environmental, was accomplished in general accordance with the contract documents and the project specifications. Identified asbestos-containing materials were removed and disposed of prior to demolition activities. Final clearances were reported to meet all clearance criteria as established by the Work Procedures. Work areas were cleaned of all residual tape, plastic sheeting, tools, equipment, etc. PCM air samples were obtained to determine whether the airborne fiber concentration level met the specified criteria for air clearance. The criteria established for this phase of the project was 0.01 fibers per cubic centimeter (f/cc) or less for containment areas. ARC was required to re-clean the area when airborne fiber concentration were above the criteria of 0.01 f/cc. This process was repeated as necessary until the criteria was achieved. Once the abatement crew had demobilized from the work area, ARC'S non asbestos personnel were given authorization to proceed with demolition activities.

APPENDIX A
SCOPE OF WORK SUMMARY

TABLE 1
SCOPE OF WORK (SOW)
LONGHORN ARMY AMMUNITION PLANT

SECTIONS	LOCATIONS	DESCRIPTION	ASBESTOS-CONTAINING MATERIALS										
			Ext. Transite Siding/Roof/ Ceiling/Wall	Int. Transite Siding/Roof/ Ceiling/Wall	Corrugated Transite	Tar Shingle Roof	Floor Tile & Mastic	Linoleum	TSI - Steam	TSI- Domestic	PCB/Mercury	Ceiling Tile	Boiler Flue / Tank
N.W. SECTION	501 E	Radio Transmission Building	100 S.F +/-			•	•	•	•	•	•	•	•
N.W. SECTION	414	Water Pumping Station	5,200 S.F +/-			•	•	•	•	•	3 +/-	•	•
ADMIN. AREA	701	General Purpose Warehouse	2,640 S.F +/-			1,800 S.F +/-	•	•	•	•	•	•	•
ADMIN. AREA	703 & 703-A	Admin. General Purpose	21,000 S.F +/-			38,400 S.F +/-	38,000 S.F +/-	900 S.F +/-	2,300 L.F +/-	•	•	•	•
ADMIN. AREA	703-C	Heating Plant - Gas Fired Building	4,700 S.F +/-				•	•	•	•	•	•	80 S.F +/-
ADMIN. AREA	705	Personnel / Purchasing	5,300 S.F +/-			2,200 S.F +/-	3,000 S.F +/-	1,000 S.F +/-	•	•	•	•	•
ADMIN. AREA	707-E	Electronic Main Building	1,500 S.F +/-			2,600 S.F +/-	•	•	•	•	•	•	•
ADMIN. AREA	719	Medical Clinic	5,000 S.F +/-				•	•	•	•	•	8,100 S.F +/-	•
ADMIN. AREA	720-A	Admin. Old Security Building	5,300 S.F +/-			8,500 S.F +/-	•	•	•	•	•	•	•
ADMIN. AREA	730	Vehicle Parking	2 S.F +/-			•	•	•	•	•	•	•	•
MAGAZINE AREA	722-G	Dunnage Building	1,000 S.F +/-			•	•	•	•	•	•	•	•
MAGAZINE AREA	TS-84	Small Building on Slab	1,000 S.F +/-			•	•	•	•	•	•	•	•
MAGAZINE AREA	TS-Guard	3 Guard Shacks on Skids	•			•	•	•	•	•	•	•	•
MAGAZINE AREA	TS-64	Shack	•			•	50 S.F +/-	•	•	•	•	•	•
WAREHOUSE AREA	31-W	Flammable Material Storage	14,240 +/-			•	•	•	•	•	•	•	•
WAREHOUSE AREA	33-W	Flammable Material Storage	14,240 +/-			•	•	•	•	•	•	•	•
WAREHOUSE AREA	35- W	Flammable Material Storage	14,240 +/-			•	•	•	•	•	•	•	•

00065210

TABLE 1
SCOPE OF WORK (SOW)
LONGHORN ARMY AMMUNITION PLANT

SECTIONS	LOCATIONS	DESCRIPTION	ASBESTOS-CONTAINING MATERIALS										
			Ext. Transite Siding/Roof/ Ceiling/Wall	Int. Transite Siding/Roof/ Ceiling/Wall	Corrugated Transite	Tar Shingle Roof	Floor Tile & Mastic	Linoleum	TSI - Steam	TSI- Domestic	PCB/Mercury	Ceiling Tile	Boiler Flue / Tank
WAREHOUSE AREA	41-W-2	Clock House	•			•	•	•	•	•	•	•	•
WAREHOUSE AREA	41-W-1	Public Toilet	550 S.F +/-			•	•	•	•	•	•	•	•
WAREHOUSE AREA	41-W	Quality Assurance Building	6,500 S.F +/-			•	2,700 S.F +/-	•	100 L.F +/-	•	•	•	•
WAREHOUSE AREA	42-W	General Purpose Warehouse	18,000 S.F +/-			•	•	•		•	•	•	•
WAREHOUSE AREA	44-W	General Purpose Warehouse	18,000 S.F +/-			•	•	•	100 L.F +/-	•	•	•	•
WAREHOUSE AREA	46-W	General Purpose Warehouse	22,000 S.F +/-			•	•	•	1,000 L.F +/-	•	•	•	•
BATTERY SHOP AREA	18-K	Battery Charging Building	5,100 S.F +/-			•	•	•	200 L.F +/-	•	•	•	•
BATTERY SHOP AREA	18-K-1	Restroom	400 S.F +/-			•	•	•	•	•	•	•	•
SCRAP YARD	49-W	Loading Dock	2,000 S.F +/-			•	•	•	•	•	•	•	•
SCRAP YARD	TS_25	Restroom	100 S.F +/-			•	50 S.F +/-	•	•	•	•	•	•
SOUTH TEST AREA	IST-2	Ammunition Quality Buiding	300 S.F +/-			•	•	•	100 L.F +/-	•	•	•	•
SOUTH TEST AREA	DST-3	Earth Covered Magazine	•			•	•	•	•	•	•	•	•
SOUTH TEST AREA	BST-4	Earth Covered High Explosive Mag.	•			•	•	•	•	•	•	•	•
SOUTH TEST AREA	BST-2	Earth Covered High Explosive Mag.	•			•	•	•	•	•	•	•	•
SIGNAL AREA	TS-62	Shed	100 S.F +/-			•	60 S.F +/-	•	•	•	•	•	•
TNT PRODUCTION AREA	707-A	Change House	3,900 S.F +/-			2,900 S.F +/-	•	•	•	•	•	•	•

00065211

TABLE 1
SCOPE OF WORK (SOW)
LONGHORN ARMY AMMUNITION PLANT

SECTIONS	LOCATIONS	DESCRIPTION	ASBESTOS-CONTAINING MATERIALS										
			Ext. Transite Siding/Roof/ Ceiling/Wall	Int. Transite Siding/Roof/ Ceiling/Wall	Corrugated Transite	Tar Shingle Roof	Floor Tile & Mastic	Linoleum	TSI - Steam	TSI- Domestic	PCB/Mercury	Ceiling Tile	Boiler Flue / Tank
TNT PRODUCTION AREA	704-A	Admin. Building	1,500 S.F +/-			1,800 S.F +/-	*	*	*	*	*	*	*
TNT PRODUCTION AREA	707-C	General Purpose Warehouse	2,900 S.F +/-			2,900 S.F +/-	*	*	*	*	*	*	*
TNT PRODUCTION AREA	451	Compressed Air Plant Building	10,400 S.F +/-			*	*	*	*	*	4 +/-	*	*
TNT PRODUCTION AREA	801F	Large Caliber Rocket Landing	800 S.F +/-			*	*	*	*	*	*	*	*
TNT PRODUCTION AREA	601 B	Truck Weigh Station	150 S.F +/-			*	*	*	*	*	*	*	*
MISC. BUILDING	25-G	Old Cafeteria	3,000 S.F +/-			*	4,950 S.F +/-	*	50 L.F +/-	*	*	*	*
MISC. BUILDING		Pistol Range/Shack	100 S. F +/-			*	*	*	*	*	*	*	*
MISC. BUILDING	22-G	Sewage Pump Station	200 S. F +/-			*	*	*	*	*	*	*	*
MISC. BUILDING	22-A	Admin. Building - 51st. Street	*			*	3,000 S.F +/-	1,800 S.F +/-	*	*	*	*	*
PHASE II	709-A		3908 S.F +/-	*	*	*	3,500 S.F +/-	644 S.F +/-	*	*	*	*	*
PHASE II	TS-38		720 S.F. +/-	*	*	*	*	*	*	*	*	*	*
PHASE II	726		962 S.F. +/-	*	*	*	*	*	*	*	*	*	*
PHASE II	726-D		*	*	*	*	*	*	*	*	*	*	*
PHASE II	726-C		*	*	*	*	*	*	*	*	*	*	*
PHASE II	718-A		*	*	*	*	*	*	*	*	*	*	*
PHASE II	717		24,250 S.F +/-	120 S.F +/-	*	*	1,600 S.F +/-	*	490 L.F. +/-	*	2 Drum	*	*
PHASE II	734		3,250 S.F. +/-	*	*	*	*	*	*	*	*	*	*

00065212

TABLE 1
SCOPE OF WORK (SOW)
LONGHORN ARMY AMMUNITION PLANT

SECTIONS	LOCATIONS	DESCRIPTION	ASBESTOS-CONTAINING MATERIALS										
			Ext. Transite Siding/Roof/ Ceiling/Wall	Int. Transite Siding/Roof/ Ceiling/Wall	Corrugated Transite	Tar Shingle Roof	Floor Tile & Mastic	Linoleum	TSI - Steam	TSI- Domestic	PCB/Mercury	Ceiling Tile	Boiler Flue / Tank
PHASE II	723		2,124 S.F. +/-	2,336 S.F +/-	*	*	500 S.F. +/-	100 S.F +/-	800 L.F +/-	*	*	*	*
PHASE II	722-P		*	*	3,375 S.F +/-	*	*	*	100 L.F +/-	*	*	*	*
PHASE II	725		*	*	*	*	*	*	300 L.F +/-	*	*	*	*
PHASE II	206		*	1,888 S.F +/-	11,000 S.F +/	*	250 S.F. +/-	*	890 L.F +/-	*	*	*	*
PHASE II	205		*	*	*	*	*	*	12 L.F +/-	*	*	*	*
PHASE II	204		*	724 S.F. +/-	1,800 S.F. +/	*	*	*	186 L.F +/-	*	*	*	*
PHASE II	203		640 S.F +/-	*	*	*	*	*	*	*	*	*	*
PHASE II	713-B		*	*	*	*	*	*	*	*	*	*	*
PHASE II	201		*	*	20,441 S.F +/	*	1,725 S.F +/-	1,625 S.F +/-	100 L.F +/-	*	*	*	*
PHASE II	201-A		816 S.F +/-	*	*	*	1,240 S.F +/-	1,240 S.F +/-	*	*	*	*	*
PHASE II	201-R		*	*	640 S.F +/-	*	*	*	*	*	*	*	*
PHASE II	202		*	1,560 S.F +/-	9,284 S.F +/-	*	*	*	180 L.F +/-	*	*	*	*
PHASE II	707-F		1,260 S.F +/-	*	*	*	1,225 S.F +/-	*	*	*	*	*	*
PHASE II	707-G		1,260 S.F +/-	*	*	*	1,225 S.F +/-	*	*	*	*	*	*
PHASE II	707-J		1,260 S.F +/-	*	*	*	1,225 S.F +/-	*	*	*	*	*	*
PHASE II	704-D		2,712 S.F +/-	*	600 S.F +/-	*	*	4,800 S.F +/-	60 L.F +/-	*	*	*	*
PHASE II	413-A		*	80 S.F +/-	11,174 S.F +/	*	*		60 L.F +/-	*	3 +/-	*	*
PHASE II	713		5,760 S.F +/-	*	*	*	*	*	*	*	*	*	*
PHASE II	722-E		1,560 S.F +/-	*	*	*	900 S.F +/-	*	*	*	*	*	*
PHASE II	722-F		2,400 S.F +/-	*	*	*	2,400 S.F +/-	*	*	*	*	*	*
PHASE II	715		*	*	*	*	*	*	16 L.F +/-	*	*	*	*
PHASE II	744		10,624 S.F +/-	*	*	*	*	*	*	*	*	*	*
PHASE II	716		8,400 S.F +/-	*	*	*	730 S.F +/-	*	*	*	*	*	*
PHASE II	714		4,480 S.F +/-	*	*	*	*	*	*	*	*	*	*
PHASE II	632-A		315 S.F +/-	*	*	*	*	*	400 L.F +/-	*	*	*	*
PHASE II	630-A		64 S.F +/-	*	*	*	*	*	*	*	*	*	*
PHASE II	510-B-2		*	*	*	*	*	*	*	*	*	*	*
PHASE II	S36		*	*	*	*	*	*	*	*	*	*	*
PHASE II	TS-10		*	*	*	*	*	*	*	*	*	*	*
PHASE II	744-A		*	*	*	*	*	*	*	*	*	*	*

00065213

TABLE 1
SCOPE OF WORK (SOW)
LONGHORN ARMY AMMUNITION PLANT

SECTIONS	LOCATIONS	DESCRIPTION	ASBESTOS-CONTAINING MATERIALS										
			Ext. Transite Siding/Roof/ Ceiling/Wall	Int. Transite Siding/Roof/ Ceiling/Wall	Corrugated Transite	Tar Shingle Roof	Floor Tile & Mastic	Linoleum	TSI - Steam	TSI- Domestic	PCB/Mercury	Ceiling Tile	Boiler Flue / Tank
PHASE II	272		-	-	-	-	-	-	-	-	-	-	-
800's AREA	814		2,800 S.F +/-	-	-	-	-	-	160 L.F +/-	-	-	-	-
800's AREA	815		-	-	-	-	-	-	-	-	-	-	-
800's AREA	813		-	-	-	-	-	-	425 L.F +/-	-	-	-	-
800's AREA	TS-10		300 S.F +/-	-	-	-	-	-	-	-	-	-	-
MAGAZINE AREA	811-1 THRU 811-58 58 Each		24,476 S.F +/-	-	-	-	-	-	-	-	-	-	-
"Y" AREA	4Y-2		325 S.F +/-	-	-	-	-	-	-	-	-	-	-
"Y" AREA	4Y-2		-	2,080 S.F +/-	-	-	-	-	-	-	-	-	-
"Y" AREA	3Y		-	-	-	-	2,080 S.F +/-	-	-	-	-	-	-
"Y" AREA	29Y		-	-	-	-	-	-	-	-	-	-	-
"Y" AREA	32Y		-	-	-	-	-	-	-	-	-	-	-
"Y" AREA	48Y		330 S.F +/-	-	-	-	-	-	-	-	-	-	-
"Y" AREA	45Y		1,386 S.F +/-	2,090 S.F +/-	-	-	-	-	74 L.F +/-	-	-	-	-
"Y" AREA	34Y		8,445 S.F +/-	4,771 S.F +/-	-	-	-	-	-	-	-	-	-
"Y" AREA	38Y		1,800 S.F +/-	-	-	-	-	-	-	-	-	-	-
"Y" AREA	40Y		-	-	-	-	-	-	-	-	-	-	-
"Y" AREA	TS-87		-	-	-	-	-	-	-	-	-	-	-
"Y" AREA	18Y-1		576 S.F +/-	-	-	-	-	-	-	-	-	-	-
"Y" AREA	18Y		4,800 S.F +/-	8,160 S.F +/-	-	-	-	-	640 L.F +/-	-	-	-	-
"Y" AREA	16Y		2,205 S.F +/-	8,790 S.F +/-	-	-	-	-	200 L.F +/-	-	-	-	-
"Y" AREA	16Y-1		400 S.F +/-	-	-	-	-	-	20 L.F +/-	-	-	-	-
"Y" AREA	13Y-1		-	-	-	-	-	-	18 L.F +/-	-	-	-	-
"Y" AREA	Walkways		-	-	-	-	-	-	-	-	-	-	-
"Y" AREA	16Y-2		756 S.F +/-	-	-	-	-	-	-	-	-	-	-
"T" AREA	8T-2		288 S.F +/-	-	-	-	-	-	-	-	-	-	-

00065214

TABLE 1
SCOPE OF WORK (SOW)
LONGHORN ARMY AMMUNITION PLANT

SECTIONS	LOCATIONS	DESCRIPTION	ASBESTOS-CONTAINING MATERIALS										
			Ext. Transite Siding/Roof/ Ceiling/Wall	Int. Transite Siding/Roof/ Ceiling/Wall	Corrugated Transite	Tar Shingle Roof	Floor Tile & Mastic	Linoleum	TSI - Steam	TSI- Domestic	PCB/Mercury	Ceiling Tile	Boiler Flue / Tank
"T" AREA	8T		2,340 S.F +/-	8,415 S.F +/-	*	*	3,600 S.F +/-	*	240 L.F +/-	*	*	*	125 S.F +/-
"T" AREA	13T		1,746 S.F +/-	*	*	*	168 S.F +/-	*	246 L.F +/-	*	*	*	*
"T" AREA	16T-1		360 S.F +/-	260 S.F +/-	*	*	168 S.F +/- & 2,080 S.F +/- (Resisual Mastic Only)	*	80 L.F +/-	*	*	*	*
"T" AREA	16T		3,060 S.F +/-	3,800 S.F +/-	*	*	*	*	*	*	*	*	*
"T" AREA	20T-1		396 S.F+/-	*	*	*	*	*	*	*	*	*	*
"T" AREA	20T		3,645 S.F +/-	6,175 S.F +/-	*	*	*	*	135 L.F +/-	*	*	*	*
"T" AREA	18T-1		540 S.F +/-	*	*	*	*	*	*	*	*	*	*
"T" AREA	35T		*	*	*	*	*	*	*	*	*	*	*
"T" AREA	34T		*	*	*	*	*	*	*	*	*	*	*
"T" AREA	36T-1		400 S.F +/-	*	*	*	*	*	*	*	*	*	*
"T" AREA	36T-2		400 S.F +/-	*	*	*	*	*	*	*	*	*	*
"T" AREA	36T-3		400 S.F +/-	*	*	*	*	*	*	*	*	*	*
"T" AREA	36T-4		400 S.F +/-	*	*	*	*	*	*	*	*	*	*
"T" AREA	61T		*	*	*	*	*	*	*	*	*	*	*
"T" AREA	39T		2,470 S.F +/-	*	*	*	*	*	40 L.F +/-	*	*	*	*
"T" AREA	39T-1		432 S.F +/-	*	*	*	*	*	*	*	*	*	*
"T" AREA	21T		432 S.F +/-	*	*	*	*	*	*	*	*	*	*
"T" AREA	31T		4,855 S.F +/-	3,650 S.F +/-	*	*	*	*	*	*	*	*	*
"T" AREA	40T		58 S.F +/-	*	*	*	*	*	*	*	*	*	*

00065215

APPENDIX B
ASBESTOS SUMMARY OF AIR MONITORING RESULTS

TABLE B.1
PCM ENVIRONMENTAL AIR MONITORING RESULTS
LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS
EFI PROJECT NO. 98410-13709

Date	Sample Location	Type	Abatement Activity	Airborne Fiber Concentration (f/cc)	Volume (liters)
3/19/2003	Area 2 Personnel Saul Lopez	P	Removal	0.03	90
3/19/2003	Area 2	OWA	Prevalent Level	<=0.01	525
3/19/2003	Area 2	OWA	Prevalent Level	<=0.01	1452
3/19/2003	Area 8	OWA	Prevalent Level	<=0.01	1425
3/19/2003	Area 8	P/L	Prevalent Level	<=0.01	1425
3/20/2003	Area 2 bldg. 701 Personnel Saul Lopez	P	Personnel	<=0.01	1533
3/20/2003	Area 2 Bldg. 701 Upwind	IWA	Removal	<=0.01	1200
3/20/2003	Area 2 Bldg. 701Downwind	IWA	Removal	<=0.01	1203
3/20/2003	Area 7 Prevalent Level	IWA	N/A	<=0.01	1350
3/20/2003	Area 7 Prevalent Level	N/A	N/A	<=0.01	1356
3/20/2003	Area 7 Personnel Saul Lopez	N/A	Removal	<=0.01	1365
3/24/2003	Area 2 Bldg. 720A Upwind	IWA	Removal	<=0.01	1422
3/24/2003	Area 2 Bldg. 720A Downwind	IWA	Removal	<=0.01	1425
3/24/2003	Area 2 Bldg. 720A Personnel Saul Lope	P	Removal	<=0.01	1416
3/25/2003	Area 2 Bldg. 719 Upwind	IWA	Removal	<=0.01	1506
3/25/2003	Area 2 Bldg. 719Downwind	IWA	Removal	<=0.01	1509
3/25/2003	Area 2 Bldg. 719 Personnel Saul Lopez	IWA	Removal	<=0.01	1506
3/26/2003	Area 2 Bldg. 705 Downwind	IWA	Removal	<=0.01	1611
3/26/2003	Area 2 Bldg. 705 Upwind	IWA	Removal	<=0.01	1614
3/26/2003	Area 2 Bldg. 705 Personnel Saul Lopez	IWA	Removal	0.03	90
3/27/2003	Bldg. 707E Upwind	IWA	Removal	<=0.01	1551
3/27/2003	Bldg. 707E Downwind	IWA	Removal	<=0.01	1563
3/27/2003	Bldg. 707E Personnel	IWA	Removal	<=0.01	1551
3/31/2003	Bldg. 703 Upwind	IWA	Removal	<=0.01	1043
3/31/2003	Bldg. 703 Downwind	IWA	Removal	<=0.01	1190
3/31/2003	Bldg. 703 Personnel Aunilio Romero	IWA	Removal	<=0.01	982
3/31/2003	Bldg. 703 Personnel Alejandro Garcia	IWA	Removal	<=0.01	828
4/1/2003	Bldg. 703 Upwind	IWA	Removal	<=0.01	977
4/1/2003	Bldg. 703 Downwind	IWA	Removal	<=0.01	1375
4/1/2003	Bldg. 703 Personnel Alejandro Garcia	IWA	Removal	<=0.01	1166
4/1/2003	Bldg. 703 Personnel Jose Mendoza	IWA	Removal	<=0.01	918
4/1/2003	Bldg. 703 Personnel Jose Mendoza	IWA	Removal	0.04	61
4/2/2003	Bldg. 703 Upwind	IWA	Removal	<=0.01	846
4/2/2003	Bldg. 703 Downwind	IWA	Removal	<=0.01	1222
4/2/2003	Bldg. 703 Personnel Jose Aguilliar	IWA	Removal	<=0.01	1058
4/2/2003	Bldg. 703 Personnel Jose Aguilliar	IWA	Removal	0.04	61
4/3/2003	Bldg. 703 Upwind	IWA	Removal	<=0.01	495
4/3/2003	Bldg. 703 Downwind	IWA	Removal	<=0.01	424

Notes: IWA - Inside Work Area
OWA - Outside Work Area

TABLE B.1
PCM ENVIRONMENTAL AIR MONITORING RESULTS
LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS
EFI PROJECT NO. 98410-13709

Date	Sample Location	Type	Abatement Activity		Airborne Fiber Concentration (f/cc)	Volume (liters)
4/3/2003	Bldg. 707A/736 Pers.Rigoberto Hernandez	IWA	Removal		<=0.01	830
4/3/2003	Bldg. 736 Personnel Ramon Herrera	IWA	Removal		<=0.01	729
4/3/2003	Bldg. 707A	IWA	Removal		<=0.01	648
4/3/2003	Bldg. 451 lift	IWA	Removal		0.02	315
4/7/2003	Bldg. 707 C Upwind	IWA	Removal		<=0.01	1080
4/7/2003	Bldg. 707 C Downwind	IWA	Removal		<=0.01	1080
4/7/2003	Bldg. 451 Upwind	IWA	Removal		<=0.01	1080
4/7/2003	Bldg. 451 Personnel Rigoberto Hernandez	IWA	Removal		<=0.01	1080
4/8/2003	Bldg. 451 Upwind	IWA	Removal		<=0.01	753
4/9/2003	QA/QC recount A-047	IWA		0	<=0.01	753
4/8/2003	Bldg. 451 Downwind	IWA	Removal		<=0.01	744
4/8/2003	Bldg. 451 Upwind	IWA	Removal		<=0.01	681
4/8/2003	Bldg. 25G Downwind	IWA	Removal		<=0.01	681
4/8/2003	Bldg. 25G Personnel Rigoberto Hernandez	IWA	Removal		<=0.01	498
4/9/2003	Bldg. 801F Upwind	IWA	Removal		<=0.01	808
4/9/2003	Bldg. 801F Downwind	IWA	Removal		<=0.01	806
4/9/2003	Bldg. 18K Upwind	IWA	Removal		<=0.01	798
4/9/2003	Bldg. 18K Downwind	IWA	Removal		<=0.01	798
4/9/2003	Bldg. 18K Personnel	IWA	Removal		<=0.01	792
4/10/2003	Bldg. 18K/18K-1 Upwind	IWA	Removal		<=0.01	562
4/10/2003	Bldg. 18k/18K-1 downwind	IWA	Removal		<=0.01	568
4/10/2003	Bldg. 801F Upwind	IWA	Removal		<=0.01	554
4/10/2003	Bldg. 801F Downwind	IWA	Removal		<=0.01	552
4/10/2003	Bldg. 801F Personnel Aunilio Romero	IWA	Removal		0.04	60
4/14/2003	Bldg. 41W Upwind	IWA	Removal		<=0.01	880
4/14/2003	Bldg. 41W Downwind	IWA	Removal		<=0.01	878
4/14/2003	Bldg. 18K-1 Upwind	IWA	Removal		<=0.01	696
4/14/2003	Bldg. 18K-1 Downwind	IWA	Removal		<=0.01	696
4/14/2003	Bldg. 703 Upwind	IWA	Removal		<=0.01	832
4/14/2003	Bldg. 703 Downwind	IWA	Removal		<=0.01	834
4/14/2003	Bldg. 703 Personnel Jose Mendoza	IWA	Removal		<=0.01	694
4/15/2003	Bldg. 41W Upwind	IWA	Removal		<=0.01	880
4/15/2003	Bldg. 41W Downwind	IWA	Removal		<=0.01	880
4/15/2003	Bldg. 703 Upwind	IWA	Removal		<=0.01	848
4/15/2003	Bldg. 703 Downwind	IWA	Removal		<=0.01	846
4/15/2003	Bldg. 703 Personnel Rigoberto Hernandez	IWA	Removal		<=0.01	838

Notes: IWA - Inside Work Area
OWA - Outside Work Area

TABLE B.1
PCM ENVIRONMENTAL AIR MONITORING RESULTS
LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS
EFI PROJECT NO. 98410-13709

Date	Sample Location	Type	Abatement Activity	Airborne Fiber Concentration (f/cc)	Volume (liters)
4/15/2003	Bldg. 703 Fl 1 south	IWA	Removal	<=0.01	891
4/16/2003	Bldg. 41W Upwind	IWA	Removal	<=0.01	1000
4/16/2003	Bldg. 41W Downwind	IWA	Removal	<=0.01	1000
4/16/2003	Bldg. 703 Upwind	IWA	Removal	<=0.01	998
4/16/2003	Bldg. 703 Downwind	IWA	Removal	<=0.01	1002
4/16/2003	Bldg. 703 Fl 1 south	IWA	Removal	<=0.01	1497
4/16/2003	Bldg. 703 Personnel Jose Aguilliar	IWA	Removal	<=0.01	1000
4/17/2003	Bldg. 42W Upwind	IWA	Removal	<=0.01	462
4/17/2003	Bldg. 42W Downwind	IWA	Removal	<=0.01	460
4/17/2003	Bldg. 703 Upwind	IWA	Removal	<=0.01	468
4/17/2003	Bldg. 703 Downwind	IWA	Removal	<=0.01	466
4/17/2003	Bldg. 703 Personnel Saul Lopez	IWA	Removal	<=0.01	466
4/17/2003	Bldg. 703 Fl 1 south	IWA	Removal	<=0.01	705
4/21/2003	Bldg. 703 Downwind	IWA	Removal	<=0.01	872
4/21/2003	Bldg. 703 Upwind	IWA	Removal	<=0.01	928
4/21/2003	Bldg. 42W Downwind	IWA	Removal	<=0.01	722
4/21/2003	Bldg. 42W N E Work area	IWA	Removal	<=0.01	1038
4/21/2003	Bldg. 703B Personnel Ramon Herrera	IWA	Removal	<=0.01	770
4/21/2003	Bldg. 703B Personnel Ramon Herrera	IWA	Removal	0.04	68
4/22/2003	Bldg. 703 B North Area	IWA	Removal	<=0.01	1184
4/22/2003	Bldg. 703B Decon	IWA	Removal	<=0.01	1233
4/22/2003	Bldg. 42W North Area	IWA	Removal	<=0.01	1274
4/22/2003	Bldg42W on lift	IWA	Removal	<=0.01	1115
4/22/2003	Bldg. 42W South Area	IWA	Removal	<=0.01	1235
4/22/2003	Bldg. 703B Personnel Aunilio Romero	IWA	Removal	<=0.01	436
4/22/2003	Bldg. 703B Personnel Aunilio Romero	IWA	Removal	0.02	198
4/23/2003	Bldg. 703B IWA	IWA	Removal	<=0.01	746
4/23/2003	Bldg. 42W Downwind	IWA	Removal	<=0.01	1188
4/23/2003	Bldg. 42W North Area	IWA	Removal	<=0.01	1231
4/23/2003	Bldg. 42W Upwind	IWA	Removal	<=0.01	1124
4/23/2003	Bldg. 422G Upwind	IWA	Removal	0.02	473
4/23/2003	Bldg. 703B/422G Personnel A.Garcia	IWA	Removal	<=0.01	560
4/23/2003	Bldg. 422G Personnel A.Garcia	IWA	Removal	<=0.01	366
4/24/2003	Bldg. 1 St-1 Pipe & Flooring	IWA	Removal	<=0.01	348
4/24/2003	Bldg. 1 St-1 Personnel J.Aguilliar	IWA	Removal	<=0.01	363
4/24/2003	Bldg. 42W Upwind	IWA	Removal	<=0.01	823

Notes: IWA - Inside Work Area
OWA - Outside Work Area

TABLE B.1
PCM ENVIRONMENTAL AIR MONITORING RESULTS
LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS
EFI PROJECT NO. 98410-13709

Date	Sample Location	Type	Abatement Activity	Airborne Fiber Concentration (f/cc)	Volume (liters)
4/24/2003	Bldg. 42W Downwind	IWA	Removal	<=0.01	785
4/24/2003	Bldg. 18K IWA	IWA	Removal	<=0.01	528
4/24/2003	Bldg. 18K IWA	IWA	Removal	<=0.01	418
4/24/2003	Bldg. 18K IWA	IWA	Removal	<=0.01	437
4/24/2003	Bldg. 18K Personnel R.Hernandez	IWA	Removal	<=0.01	414
4/24/2003	Bldg. 18K Personnel R.Hernandez	IWA	Removal	0.05	68
4/28/2003	Bldg. 44W/42W IWA	IWA	Removal	<=0.01	874
4/28/2003	Bldg. 42W/44W Downwind	IWA	Removal	<=0.01	760
4/28/2003	Bldg. 41W o/s decon	OWA	Removal	<=0.01	914
4/28/2003	Bldg. 41W IWA	IWA	Removal	<=0.01	953
4/28/2003	Bldg. 41W Personnel S.Lopez	IWA	Removal	<=0.01	363
4/28/2003	Bldg. 41W Personnel S.Lopez	IWA	Removal	0.04	73
4/28/2003	Bldg. 41W Personnel S.Lopez	IWA	Removal	<=0.01	345
4/29/2003	Bldg. 44W North	IWA	Removal	<=0.01	1008
4/29/2003	Bldg. 44W South	IWA	Removal	<=0.01	1104
4/29/2003	Bldg. 41W Clearance	IWA	Clearance	<=0.01	1308
4/29/2003	Bldg. 41W Decon	OWA	Bagout	<=0.01	1155
4/29/2003	Bldg. 703A demolition Downwind	IWA	Demo	<=0.01	760
4/29/2003	Bldg. 41W Clearance	IWA	Clearance	<=0.01	988
4/29/2003	Bldg. 41W Clearance	IWA	Clearance	<=0.01	1026
4/29/2003	Bldg. 42W Personnel A.Garcia	IWA	Removal	<=0.01	979
4/30/2003	Bldg. 44W South	IWA	Removal	<=0.01	1265
4/30/2003	Bldg. 44W North	IWA	Removal	<=0.01	1155
4/30/2003	Bldg. 703A demolition Downwind	IWA	Demo	<=0.01	1030
4/30/2003	Bldg. 41W IWA	IWA	Removal	<=0.01	1023
4/30/2003	Bldg. 41W IWA	IWA	Removal	0.02	930
4/30/2003	Bldg. 41W Personnel Braulio Monroy	IWA	Removal	<=0.01	990
4/30/2003	Bldg. 41W Personnel Braulio Monroy	IWA	Removal	0.06	66
5/1/2003	Bldg. 44W North Area	IWA	Removal	<=0.01	693
5/1/2003	Bldg. 44W South Area	IWA	Removal	<=0.01	725
5/1/2003	Bldg. 703A Demolition	OWA	Demolition	<=0.01	683
5/1/2003	Bldg. 41W-1 Upwind	IWA	Removal	<=0.01	540
5/1/2003	Bldg. 41W-1 Downwind	IWA	Removal	<=0.01	518
5/5/2003	Bldg. 44W North	IWA	Removal	<=0.01	939
5/5/2003	Bldg. 44W South	IWA	Removal	<=0.01	978
5/5/2003	Bldg. 44W Personnel J Mendoza	IWA	Removal	0.04	66
5/5/2003	Bldg. 44W Personnel J Mendoza	IWA	Removal	<=0.01	862
5/6/2003	Bldg. 44W North	IWA	Removal	<=0.01	1127
5/6/2003	Bldg. 44W South	IWA	Removal	<=0.01	1076

Notes: IWA - Inside Work Area
OWA - Outside Work Area

TABLE B.1
PCM ENVIRONMENTAL AIR MONITORING RESULTS
LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS
EFI PROJECT NO. 98410-13709

Date	Sample Location	Type	Abatement Activity	Airborne Fiber Concentration (f/cc)	Volume (liters)
5/6/2003	Bldg. 44W Personnel Saul Lopez	IWA	Removal	0.06	66
5/6/2003	Saul Lopez 467-89-3372	P	Removal	<=0.01	944
5/7/2003	Bldg. 44W North	IWA	Transite Removal	<=0.01	1196
5/7/2003	Bldg. 44W South	IWA	Transite Removal	<=0.01	1144
5/7/2003	Bldg. 44W Personnel Ramon Herrera	P	Transite Removal	0.08	66
5/7/2003	Bldg. 44W Personnel Ramon Herrera	P	Transite Removal	<=0.01	1078
5/8/2003	Bldg. 44W	IWA	Transite Removal	0.02	1180
5/8/2003	Bldg. 44W	IWA	Transite Removal	<=0.01	1182
5/8/2003	Personnel Alejandro Garcia	P	Transite Removal	<=0.01	1650
5/8/2003	Personnel Alejandro Garcia	P	Transite Removal	<=0.01	1065
5/12/2003	Bldg. 44W Upwind	IWA	Transite Removal	<=0.01	1230
5/12/2003	Bldg. 44W Downwind	IWA	Transite Removal	<=0.01	1230
5/12/2003	Bldg. 44W Personnel Saul Lopez	P	Transite Removal	<=0.01	1076
5/12/2003	Bldg. 44W Personnel Jose Aguilar	P	Transite Removal	0.05	58
5/13/2003	Bldg. TS 25&49W Downwind	IWA	Transite Removal	<=0.01	1122
5/13/2003	Bldg. TS 25&49W Upwind	IWA	Transite Removal	<=0.01	1137
5/13/2003	Personnel Jose Mendoza	P	Transite Removal	<=0.01	960
5/13/2003	Personnel Braulio Monroy	P	Transite Removal	0.04	60
5/14/2003	Bldg. 46W Upwind	IWA	Transite Removal	<=0.01	1199
5/14/2003	Bldg. 46W Downwind	IWA	Transite Removal	<=0.01	1135
5/14/2003	Bldg. 46W Personnel Santos Reyes	P	Transite Removal	0.04	60
5/14/2003	Bldg. 46W Personnel Rigoberto Hernandez	P	Transite Removal	<=0.01	962
5/15/2003	Bldg. 46W Upwind	IWA	Transite Removal	<=0.01	1124
5/15/2003	Bldg. 46W Downwind	IWA	Transite Removal	<=0.01	1133
5/15/2003	Bldg. 46W Personnel Jose Aguilar	P	Transite Removal	0.04	60
5/15/2003	Bldg. 46W Personnel Braulio Monroy	P	Transite Removal	<=0.01	960
5/19/2003	Bldg. 46W Upwind	IWA	Transite Removal	<=0.01	1016
5/19/2003	Bldg. 46W Downwind	IWA	Transite Removal	<=0.01	1023
5/19/2003	Bldg. 46W Personnel Saul Lopez	P	Transite Removal	<=0.01	960
5/19/2003	Bldg. 46W Personnel Ramon Herrera	P	Transite Removal	0.05	58
5/19/2003	Field Blank	N/A	N/A	#VALUE!	#######
5/20/2003	Bldg. 31W Upwind	IWA	Transite Removal	<=0.01	880
5/20/2003	Bldg. 31W Downwind	IWA	Transite Removal	<=0.01	1093
5/20/2003	Bldg. 31W Personnel Rigoberto Hernandez	P	Transite Removal	0.05	60
5/20/2003	Bldg. 31W Personnel Jose Aguilar	P	Transite Removal	<=0.01	1068

Notes: IWA - Inside Work Area
OWA - Outside Work Area

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PCM ENVIRONMENTAL AIR MONITORING RESULTS
LONGHORN ARMY AMMUNITION PLANT
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Date	Sample Location	Type	Abatement Activity	Airborne Fiber Concentration (f/cc)	Volume (liters)
5/21/2003	Bldg. 31W Upwind	IWA	Transite Removal	<=0.01	1109
5/21/2003	Bldg. 31W Downwind	IWA	Transite Removal	<=0.01	1109
5/21/2003	Bldg. 31W Personnel Jose Aguilar	P	Transite Removal	<=0.01	966
5/21/2003	Bldg. 31W Personnel Brauilo Monroy	P	Transite Removal	0.04	60
5/21/2003	Field Blank	N/A	N/A	#VALUE!	#######
5/22/2003	Bldg. 31W Personnel Ramon Herrera	P	Transite Removal	<=0.01	978
5/22/2003	Bldg. 31W Downwind	IWA	Transite Removal	<=0.01	1056
5/27/2003	Bldg. 31W Upwind	IWA	Transite Removal	<=0.01	1109
5/27/2003	Bldg. 33W Downwind	IWA	Transite Removal	<=0.01	1111
5/27/2003	Bldg. 33W Personnel Saul Lopez	P	Transite Removal	<=0.01	992
5/27/2003	Bldg. 33W Personnel Ramon Herrera	P	Transite Removal	0.04	62
5/28/2003	Bldg. 33W Upwind	IWA	Transite Removal	<=0.01	1155
5/28/2003	Bldg. 33W Downwind	IWA	Transite Removal	<=0.01	1148
5/28/2003	Bldg. 33W Personnel Jose Aguilar	P	Transite Removal	<=0.01	1010
5/28/2003	Bldg. 33W Personnel Santos Reyes	P	Transite Removal	0.09	60
5/28/2003	Field Blank	N/A	N/A	#VALUE!	#######
5/29/2003	Bldg. 33W Upwind	IWA	Transite Removal	<=0.01	1047
5/29/2003	Bldg. 33W Downwind	IWA	Transite Removal	<=0.01	1049
5/29/2003	Bldg. 33W Personnel Alejandro Garcia	P	Transite Removal	<=0.01	960
5/29/2003	Bldg. 33W Personnel Aunilio Romero	P	Transite Removal	0.05	58
5/30/2003	Bldg. 35W Upwind	IWA	Transite Removal	<=0.01	1001
5/30/2003	Bldg. 35W Downwind	IWA	Transite Removal	<=0.01	1012
5/30/2003	Bldg. 35W Personnel Jose Mendoza	P	Transite Removal	<=0.01	944
6/2/2003	Bldg. 42W Upwind	IWA	Transite Removal	<=0.01	670
6/2/2003	Bldg. 42W Downwind	IWA	Transite Removal	<=0.01	670
6/2/2003	Bldg. 42W Personnel Saul Lopez	P	Transite Removal	0.03	90
6/2/2003	Bldg. 42W Personnel Saul Lopez	P	Transite Removal	<=0.01	930
6/3/2003	Bldg. 25G Inside Containment	IWA	Floor Tile Removal	<=0.01	1010
6/3/2003	Bldg. 25G Inside Containment	IWA	Floor Tile Removal	<=0.01	1010
6/3/2003	Bldg. 25G Outside Containment	OWA	Floor Tile Removal	<=0.01	990
6/3/2003	Bldg. 25G Personnel Braulio Monroy	P	Floor Tile Removal	<=0.01	960
6/4/2003	Bldg. 25G Inside Containment	IWA	Floor Tile Removal	<=0.01	820
6/4/2003	Bldg. 25G Inside Containment	IWA	Floor Tile Removal	<=0.01	822
6/4/2003	Bldg. 25G Outside Containment	OWA	Floor Tile Removal	<=0.01	860

Notes: IWA - Inside Work Area
OWA - Outside Work Area

TABLE B.1
PCM ENVIRONMENTAL AIR MONITORING RESULTS
LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS
EFI PROJECT NO. 98410-13709

Date	Sample Location	Type	Abatement Activity	Airborne Fiber Concentration (f/cc)	Volume (liters)
6/4/2003	Bldg. 25G Personnel Santos Reyes	P	Floor Tile Removal	<=0.01	834
6/4/2003	Bldg. 25G Inside Containment	IWA	Final Clearance	<=0.01	1260
6/4/2003	Bldg. 25G Inside Containment	IWA	Final Clearance	<=0.01	1260
6/9/2003	Bldg. 22A Upwind	IWA	Floor Tile Removal	<=0.01	910
6/9/2003	Bldg. 22A Downwind	IWA	Floor Tile Removal	<=0.01	914
6/9/2003	Bldg. 22A Personnel Ramon Herrera	P	Floor Tile Removal	0.04	60
6/9/2003	Bldg. 22A Personnel Braulio Monroy	P	Floor Tile Removal	<=0.01	1040
6/10/2003	Bldg. 22A Upwind	IWA	Final Cleaning	<=0.01	1060
6/10/2003	Bldg. 22A Downwind	IWA	Final Cleaning	<=0.01	1060
6/10/2003	Bldg. 22A Personnel Santos Reyes	P	Final Cleaning	0.05	60
6/10/2003	Bldg. 22A Personnel Santos Reyes	P	Final Cleaning	<=0.01	972
6/11/2003	Bldg. 22A Upwind	IWA	Final Cleaning	<=0.01	1080
6/11/2003	Bldg. 22A Downwind	IWA	Final Cleaning	<=0.01	1086
6/11/2003	Bldg. 22A Inside Containment	IWA	Floor Mastic Removal	<=0.01	1070
6/11/2003	Bldg. 22A Santos Reyes	IWA	Floor Mastic Removal	<=0.01	1080
6/12/2003	Bldg. 22A Upwind	IWA	Floor Mastic Removal	<=0.01	650
6/12/2003	Bldg. 22A Downwind	IWA	Floor Mastic Removal	<=0.01	632
6/12/2003	Bldg. 22A	IWA	Floor Mastic Removal	<=0.01	650
6/12/2003	Bldg. 22A Personnel Braulio Monroy	P	Floor Mastic Removal	<=0.01	958
6/12/2003	Bldg. 22A Inside Containment	IWA	Final Clearance	<=0.01	1260
6/12/2003	Bldg. 22A Inside Containment	IWA	Final Clearance	<=0.01	1260
6/16/2003	Bldg. 716	IWA	Floor Tile Removal	<=0.01	310
6/16/2003	Bldg. 716	IWA	Floor Tile Removal	<=0.01	310
6/16/2003	Bldg. 716	IWA	Floor Tile Removal	<=0.01	306
6/16/2003	Bldg. 716,744,744A Saul Lopez	IWA	Floor Tile Removal	<=0.01	960
6/16/2003	Bldg. 716	IWA	Final Clearance	<=0.01	1284
6/16/2003	Bldg. 716	IWA	Final Clearance	<=0.01	1284
6/16/2003	Bldg. 744A	IWA	Glovebag Removal	0.01	180
6/16/2003	Bldg. 744A	OWA	Glovebag Removal	0.02	182
6/16/2003	Bldg. 744 Upwind	IWA	Transite Removal	<=0.01	620
6/16/2003	Bldg. 744 Downwind	IWA	Transite Removal	<=0.01	606
6/17/2003	Bldg. 744 Upwind	IWA	Transite Removal	<=0.01	400
6/17/2003	Bldg. 744 Downwind	IWA	Transite Removal	<=0.01	404
6/17/2003	Bldg. 716	IWA	Floor Tile Removal	0.02	200
6/17/2003	Bldg. 713	IWA	Floor Tile Removal	0.02	230
6/17/2003	Bldg. 713 Personnel Ramon Herrera	P	Floor Tile Removal	<=0.01	960
6/18/2003	Bldg. 717	IWA	Floor Tile Removal	<=0.01	980
6/18/2003	Bldg. 717	IWA	Floor Tile Removal	<=0.01	980
6/18/2003	Bldg. 717 Personnel Braulio Monroy	P	Floor Tile Removal	0.04	60
6/18/2003	Bldg. 717 Personnel Braulio Monroy	P	Floor Tile Removal	<=0.01	960
6/19/2003	Bldg. 717 Upwind	IWA	Floor Tile Removal	<=0.01	890

Notes: IWA - Inside Work Area
OWA - Outside Work Area

TABLE B.1
PCM ENVIRONMENTAL AIR MONITORING RESULTS
LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS
EFI PROJECT NO. 98410-13709

Date	Sample Location	Type	Abatement Activity	Airborne Fiber Concentration (f/cc)	Volume (liters)
6/19/2003	Bldg. 717 Downwind	IWA	Floor Tile Removal	<=0.01	916
6/19/2003	Bldg. 717	IWA	Floor Tile Removal	<=0.01	910
6/19/2003	Bldg. 717 Personnel Saul Lopez	P	Floor Tile Removal	<=0.01	964
6/19/2003	Bldg. 717	IWA	Final Clearance	<=0.01	1260
6/19/2003	Bldg. 717	IWA	Final Clearance	<=0.01	1260
6/23/2003	Bldg. 704D Personnel Saul Lopez	P	Floor Tile Removal	<=0.01	960
6/23/2003	Bldg. 704D Personnel Ramon Herrera	P	Floor Tile Removal	0.04	60
6/23/2003	Bldg. 704D Outside Decon	OWA	Floor Tile Removal	<=0.01	1056
6/23/2003	Bldg. 704D Rear of Bldg.	OWA	Floor Tile Removal	<=0.01	1425
6/24/2003	Bldg. 704D Outside Decon	OWA	Floor Tile Removal	<=0.01	1200
6/24/2003	Bldg. 704D Personnel Ramon Herrera	P	Floor Tile Removal	<=0.01	880
6/24/2003	Bldg. 704D Personnel Ramon Herrera	P	Floor Tile Removal	0.06	66
6/25/2003	Bldg. 704D Personnel Braulio Monroy	P	Floor Mastic Removal	<=0.01	720
6/25/2003	Bldg. 704D Outside Decon	OWA	Floor Mastic Removal	<=0.01	792
6/25/2003	Bldg. 704D Personnel Saul Lopez	P	Floor Mastic Removal	0.04	60
6/25/2003	Bldg. 704D	IWA	Final Clearance	<=0.01	1300
6/26/2003	Bldg. 451 Personnel Ramon Herrera	P	Transite Removal	0.04	66
6/26/2003	Bldg. 451 Personnel Ramon Herrera	P	Transite Removal	<=0.01	990
6/26/2003	Bldg. 451 Upwind	IWA	Transite Removal	<=0.01	960
6/26/2003	Bldg. 451 Downwind	IWA	Transite Removal	<=0.01	1104
6/30/2003	Bldg. 414 Upwind	IWA	Transite Removal	<=0.01	1050
6/30/2003	Bldg. 414 Downwind	IWA	Transite Removal	<=0.01	1030
6/30/2003	Bldg. 414 Personnel Saul Lopez	IWA	Transite Removal	<=0.01	984
6/30/2003	Bldg. 414 Personnel Ramon Herrera	P	Transite Removal	0.09	60
6/30/2003	Bldg. 414 Upwind	IWA	Transite Removal	<=0.01	1110
7/1/2003	Bldg. 414 Downwind	IWA	Transite Removal	<=0.01	1114
7/1/2003	Bldg. 414 Personnel Brautio Monrey	P	Transite Removal	<=0.01	1112
7/1/2003	Bldg. 414 Personnel Roberto Sierra	P	Transite Removal	0.04	60
7/2/2003	Bldg. 811-1 Upwind	IWA	Transite Removal	<=0.01	1020
7/2/2003	Bldg. 811-8 Downwind	IWA	Transite Removal	<=0.01	1028
7/2/2003	Bldg. 811-1-811-8 Braulio Monrey	P	Transite Removal	<=0.01	1030
7/2/2003	Bldg. 811-1-811-8 Roberto Sierra	P	Transite Removal	0.10	60
7/3/2003	Bldg. 811-9 Upwind	IWA	Transite Removal	<=0.01	1014
7/3/2003	Bldg. 811-14 Downwind	IWA	Transite Removal	<=0.01	1026
7/3/2003	Bldg. 811-9-811-14 Saul Lopez	P	Transite Removal	<=0.01	1010
7/3/2003	Bldg. 811-9-811-14 Ramon Herrera	P	Transite Removal	0.07	60
7/14/2003	Bldg. 811-15-811-19 Upwind	IWA	Transite Removal	<=0.01	1060

Notes: IWA - Inside Work Area
OWA - Outside Work Area

TABLE B.1
PCM ENVIRONMENTAL AIR MONITORING RESULTS
LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS
EFI PROJECT NO. 98410-13709

Date	Sample Location	Type	Abatement Activity	Airborne Fiber Concentration (f/cc)	Volume (liters)
7/14/2003	Bldg. 811-15-811-19 Downwind	IWA	Transite Removal	<=0.01	1072
7/14/2003	Bldg. 811-15-811-19 Saul Lopez	P	Transite Removal	<=0.01	1110
7/14/2003	Bldg. 811-15-811-19 Roberta Sierra	P	Transite Removal	0.04	60
7/15/2003	Bldg. 811-15-811-20 Upwind	IWA	Transite Removal	<=0.01	1070
7/15/2003	Bldg. 811-15-811-20 Downwind	IWA	Transite Removal	<=0.01	1072
7/15/2003	Bldg. 811-15-811-20 Ramon Herrera	P	Transite Removal	<=0.01	1064
7/15/2003	Bldg. 811-15-811-20 Roberta Sierra	P	Transite Removal	0.09	60
7/16/2003	Bldg. 811-21-811-25 Upwind	IWA	Transite Removal	<=0.01	1120
7/16/2003	Bldg. 811-21-811-25 Downwind	IWA	Transite Removal	<=0.01	1118
7/16/2003	Bldg. 811-21-811-25 Ramon Herrera	P	Transite Removal	<=0.01	1124
7/16/2003	Bldg. 811-21-811-25 Saul Lopez	P	Transite Removal	0.06	60
7/17/2003	Bldg. 811-25-811-30 Upwind	IWA	Transite Removal	<=0.01	1062
7/17/2003	Bldg. 811-26-811-30 Downwind	IWA	Transite Removal	<=0.01	1062
7/17/2003	Bldg. 811-26-811-30 Braulio Monroy	P	Transite Removal	<=0.01	1076
7/17/2003	Bldg. 811-26-811-30 Saul Lopez	P	Transite Removal	0.06	62
7/21/2003	Bldg. 811-31-811-35 Upwind	IWA	Transite Removal	<=0.01	1086
7/21/2003	Bldg. 811-31-811-35 Downwind	IWA	Transite Removal	<=0.01	1064
7/21/2003	Bldg 811-31-811-35 Braulio Monroy	P	Transite Removal	<=0.01	1062
7/21/2003	Bldg. 811-31-811-35 Ramon Herrera	P	Transite Removal	0.04	60
7/22/2003	Bldg. 811-36-811-40 Upwind	IWA	Transite Removal	<=0.01	1046
7/22/2003	Bldg. 811-36-811-40 Downwind	IWA	Transite Removal	<=0.01	1060
7/22/2003	Bldg. 811-36-811-40 Roberto Sierra	P	Transite Removal	<=0.01	1026
7/22/2003	Bldg. 811-36-811-40 Saul Lopez	P	Transite Removal	0.06	60
7/23/2003	Bldg. 811-41-811-47 Upwind	IWA	Transite Removal	<=0.01	1030
7/23/2003	Bldg. 811-41-811-47 Downwind	IWA	Transite Removal	<=0.01	1030
7/23/2003	Bldg. 811-41-811-47 Braulio Monroy	P	Transite Removal	<=0.01	1030
7/23/2003	Bldg. 811-41-811-47 Saul Lopez	P	Transite Removal	0.07	62
7/24/2003	Bldg. 811-48-811-58 Upwind	IWA	Transite Removal	<=0.01	1020
7/24/2003	Bldg. 811-48-811-58 Downwind	IWA	Transite Removal	<=0.01	1016
7/24/2003	Bldg. 811-48-811-58	P	Transite Removal	<=0.01	1014
7/24/2003	Bldg. 811-48-811-58	P	Transite Removal	0.04	60
7/28/2003	Bldg. 713 Upwind	IWA	Transite Removal	<=0.01	978
7/28/2003	Bldg. 713 Downwind	IWA	Transite Removal	<=0.01	1002
7/28/2003	Bldg. 713 Ramon Herrera	P	Transite Removal	<=0.01	998
7/28/2003	Bldg. 713 Roberto Sierra	P	Transite Removal	0.04	60
7/29/2003	Bldg. 713 Upwind	IWA	Transite Removal	<=0.01	1020
7/29/2003	Bldg. 713 Downwind	IWA	Transite Removal	<=0.01	1018
7/29/2003	Bldg. 713 Saul Lopez	P	Transite Removal	<=0.01	1010
7/29/2003	Bldg. 713 Braulio Monroy	P	Transite Removal	0.02	120
7/30/2003	Bldg. 713 & 722-E Upwind	IWA	Transite Removal	<=0.01	1024
7/30/2003	Bldg. 713 & 722-E Downwind	IWA	Transite Removal	<=0.01	1024

Notes: IWA - Inside Work Area
OWA - Outside Work Area

TABLE B.1
PCM ENVIRONMENTAL AIR MONITORING RESULTS
LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS
EFI PROJECT NO. 98410-13709

Date	Sample Location	Type	Abatement Activity	Airborne Fiber Concentration (f/cc)	Volume (liters)
7/30/2003	Bldg. 713 & 722-E Roberto Sierra	P	Transite Removal	<=0.01	1036
7/30/2003	Bldg. 713 & 722-E Ramon Herrera	P	Transite Removal	<=0.01	1500
7/31/2003	Bldg. 718-A Upwind	IWA	Transite Removal	<=0.01	976
7/31/2003	Bldg. 718-A Downwind	IWA	Transite Removal	<=0.01	974
7/31/2003	Bldg. 718-A Braulio Monroy	P	Transite Removal	<=0.01	980
7/31/2003	Bldg. 713-A Roberto Sierra	P	Transite Removal	0.04	60
8/4/2003	Bldg. 718-A Upwind	IWA	Transite Removal	<=0.01	1040
8/4/2003	Bldg. 718-A Downwind	IWA	Transite Removal	<=0.01	1036
8/4/2003	Bldg. 718-A Saul Lopez	P	Transite Removal	<=0.01	1080
8/4/2003	Bldg. 718-A Braulio Monroy	P	Transite Removal	0.04	60
8/5/2003	Bldg. 718-A & 714 Upwind	IWA	Transite Removal	<=0.01	992
8/5/2003	Bldg. 718-A & 714 Downwind	IWA	Transite Removal	<=0.01	996
8/5/2003	Bldg. 718-A & 714 Ramon Herrera	P	Transite Removal	<=0.01	1000
8/5/2003	Bldg. 718-A & 714 Roberto Sierra	P	Transite Removal	0.04	60
8/6/2003	Bldg. 722-E Prep	IWA	Floor Tile Removal	<=0.01	720
8/6/2003	Bldg. 722-E O/S Decon	OWA	Floor Tile Removal	<=0.01	900
8/6/2003	Bldg. 722-E Clearance	IWA	Floor Tile Removal	<=0.01	1440
8/6/2003	Bldg. 722-E Clearance	IWA	Floor Tile Removal	<=0.01	1440
8/6/2003	Bldg. 722-E Clearance	IWA	Floor Tile Removal	<=0.01	1440
8/7/2003	Bldg. 717 Upwind	IWA	Transite Removal	<=0.01	900
8/7/2003	Bldg. 717 Downwind	IWA	Transite Removal	<=0.01	902
8/7/2003	Bldg. 717 Saul Lopez	P	Transite Removal	<=0.01	916
8/7/2003	Bldg. 717 Braulio Monroy	P	Transite Removal	0.04	60
8/11/2003	Bldg. 717 Upwind	IWA	Transite Removal	< .0049	910
8/11/2003	Bldg. 717 Downwind	IWA	Transite Removal	<=0.01	912
8/11/2003	Bldg. 717 Ramon Herrera	P	Transite Removal	<=0.01	938
8/11/2003	Bldg. 717 Braulio Monroy	P	Transite Removal	<.074	60
8/12/2003	Bldg. 206 Work Area	IWA	Baseline	<=0.01	1260
8/12/2003	Bldg. 206 Work Area	IWA	Baseline	<=0.01	1260
8/12/2003	Bldg. 206 Work Area	IWA	Prep.	<=0.01	720
8/12/2003	Bldg. 206 O/S Decon	IWA	Floor Tile Removal	<=0.01	840
8/12/2003	Bldg. 206 In-side Work Area	IWA	Clearance	<=0.01	1560
8/12/2003	Bldg. 206 In-side Work Area	IWA	Clearance	<=0.01	1560
8/12/2003	Bldg. 206 In-side Work Area	IWA	Clearance	<=0.01	1560
8/12/2003	Bldg. 206 Ramon Herrera	P	Floor Tile Removal	<=0.01	780
8/13/2003	Bldg. 206 In-side Work Area	IWA	Glovebag	<=0.01	960
8/13/2003	Bldg. 206 In-side Work Area	IWA	Glovebag	<=0.01	966
8/13/2003	Bldg. 206 Saul Lopez	P	Glovebag	<=0.01	976
8/13/2003	Bldg. 206 Braulio Monroy	P	Glovebag	0.05	60
8/14/2003	Bldg. 717 Upwind	IWA	Transite Removal	<=0.01	962
8/14/2003	Bldg. 717 Downwind	IWA	Transite Removal	<=0.01	962

Notes: IWA - Inside Work Area
OWA - Outside Work Area

TABLE B.1
PCM ENVIRONMENTAL AIR MONITORING RESULTS
LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS
EFI PROJECT NO. 98410-13709

Date	Sample Location	Type	Abatement Activity	Airborne Fiber Concentration (f/cc)	Volume (liters)
8/14/2003	Bldg. 717 Saul Lopez	P	Transite Removal	<=0.01	966
8/14/2003	Bldg. 717 Ramon Herrera	P	Transite Removal	0.04	60
8/18/2003	Bldg. 717 Upwind	IWA	Transite Removal	<=0.01	1112
8/18/2003	Bldg. 717 Downwind	IWA	Transite Removal	<=0.01	2785
8/18/2003	Bldg. 717 Braulio Monroy	P	Transite Removal	<=0.01	1100
8/18/2003	Bldg. 717 Saul Lopez	P	Transite Removal	0.04	60
8/19/2003	Bldg. 717 / 707F / 707G Up wind	IWA	Transite Removal	<=0.01	910
8/19/2003	Bldg. 717 / 707F / 707G Down wind	IWA	Transite Removal	<=0.01	930
8/19/2003	Bldg. 717 / 707F / 707G Ramon Herrera	P	Transite Removal	<=0.01	948
8/19/2003	Bldg. 717 / 707F / 707G Roberto Sierra	P	Transite Removal	0.04	60
8/20/2003	Bldg. 707J Upwind	IWA	Transite Removal	<=0.01	710
8/20/2003	Bldg. 707J Down wind	IWA	Transite Removal	<=0.01	714
8/20/2003	Bldg. 723 In-side Work Area	IWA	Glovebag	<=0.01	360
8/20/2003	Bldg. 723 Saul Lopez	P	Transite Removal& Glovebag	<=0.01	1010
8/20/2003	Bldg. 723 Roberto Sierra	P	Glovebag Removal	0.04	60
8/21/2003	Bldg. 723 In-side Work Area	IWA	Glovebag	<=0.01	1000
8/21/2003	Bldg. 723 In-side Work Area	IWA	Glovebag	<=0.01	1000
8/21/2003	Bldg. 723 Braulio Monroy	P	Glovebag	<=0.01	946
8/21/2003	Bldg. 723 Ramon Herrera	P	Glovebag	0.07	60
8/25/2003	Bldg. 723 Upwind	IWA	Transite Removal	<=0.01	1030
8/25/2003	Bldg. 723 Downwind	IWA	Transite Removal	<=0.01	1036
8/25/2003	Bldg. 723 Ramon Herrera	P	Transite Removal	<=0.01	1044
8/25/2003	Bldg. 723 Saul Lopez	P	Transite Removal	0.09	60
8/26/2003	Bldg. 726C,726D,4-ST Upwind	IWA	Transite Removal	<=0.01	1040
8/26/2003	Bldg. 726C,726D,4-ST Downwind	IWA	Transite Removal	<=0.01	1034
8/26/2003	Bldg. 726C,726D,4-ST Ramon Herrera	P	Transite Removal	<=0.01	1040
8/26/2003	Bldg. 726C,726D,4-ST Braulio Monroy	P	Transite Removal	0.04	60
8/27/2003	Bldg. 723,722P	IWA	Glovebag Removal	<=0.01	1062
8/27/2003	Bldb. 723,722P	IWA	Glovebag Removal	<=0.01	1060
8/27/2003	Bldg. 723,722P Braulio Monroy	P	Glovebag Removal	<=0.01	1062
8/27/2003	Bldg. 723,722P Ramon Herrera	P	Glovebag Removal	0.11	60
8/28/2003	Bldg. 722P	IWA	Glovebag Removal	<=0.01	1050
8/28/2003	Bldg. 722P	IWA	Glovebag Removal	<=0.01	1044
8/28/2003	Bldg. 722P Saul Lopez	P	Glovebag Removal	<=0.01	1030
8/28/2003	Bldg. 722P Roberto Sierra	P	Glovebag Removal	0.11	60
9/2/2003	Bldg. 723 O/S water storage tank	OWA	Prep.	<=0.01	1500
9/2/2003	Bldg. 723 O/S water storage tank	OWA	Removal	<=0.01	1500

Notes: IWA - Inside Work Area
OWA - Outside Work Area

TABLE B.1
PCM ENVIRONMENTAL AIR MONITORING RESULTS
LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS
EFI PROJECT NO. 98410-13709

Date	Sample Location	Type	Abatement Activity	Airborne Fiber Concentration (f/cc)	Volume (liters)
9/2/2003	Bldg. 723 O/S water storage tank	OWA	Removal	<=0.01	1700
9/2/2003	Bldg. 723 Braulio Monroy	P	Removal	<=0.01	720
9/2/2003	Bldg. 723 Clearance	IWA	Clearance	<=0.01	1378
9/2/2003	Blnd. 723 Clearance	IWA	Clearance	<=0.01	1363
9/3/2003	Bldg. 201 A Floor Tile Removal	IWA	Prep.	<=0.01	1500
9/3/2003	Bldg. 201 A Floor Tile Removal	OWA	Removal	<=0.01	1500
9/3/2003	Bldg. 201 A Floor Tile Removal	IWA	Removal	0.02	680
9/3/2003	Bldg. 201 A Floor Tile Removal	OWA	Removal	<=0.01	674
9/4/2003	Bldg. 201 A Floor Tile Removal	OWA	Removal	<=0.01	1313
9/4/2003	Bldg. 201 Rammon Herrera	P	Removal	<=0.01	996
9/4/2003	Bldg. 201 Saul Lopez	P	Removal	0.07	60
9/4/2003	Bldg. 201 A Mastic Removal	OWA	Removal	<=0.01	3250
9/4/2003	Bldg. 201 A Mastic Removal	IWA	Clearance	<=0.01	1313
9/4/2003	Bldg. 201 A Mastic Removal	IWA	Clearance	<=0.01	1300
9/4/2003	Bldg. 201 A Mastic Removal	IWA	Clearance	<=0.01	1313
9/5/2003	Bldg. 722 P	IWA	Upwind Transite Removal	<=0.01	840
9/5/2003	Bldg. 722 P	IWA	Downwind Transite Removal	<=0.01	838
9/5/2003	Bldg. 722 P Braulio Monroy	P	Removal	<=0.01	862
9/5/2003	Bldg. 722 P Saul Lopez	P	Removal	0.04	60
9/8/2003	Bldg. 722 P & 501B	IWA	Upwind Transite Removal	<=0.01	1048
9/8/2003	Bldg. 722 P & 501B	IWA	Downwind Transite Removal	<=0.01	1040
9/8/2003	Bldg. 722 P & 501B Ramon Herrera	P	Removal	<=0.01	1040
9/8/2003	Bldg. 722 P & 501B Saul Lopez	P	Removal	0.13	60
9/9/2003	Bldg. 204	IWA	Upwind Transite Removal	<=0.01	1092
9/9/2003	Bldg. 204	IWA	Downwind Transite Removal	<=0.01	1088
9/9/2003	Bldg. 204 Romon Herrera	P	Transite Removal	<=0.01	1084
9/9/2003	Bldg. 204 Braulio Monroy	P	Transite Removal	0.05	60
9/11/2003	Various Bldg. Area Clean-up	P	Transite Clean-up	<=0.01	980
9/11/2003	Various Bldg. Area Clean-up	P	Transite Clean-up	0.04	60
9/15/2003	Various Bldg. Area Clean-up	P	Transite Clean-up	<=0.01	1078
9/15/2003	Various Bldg. Area Clean-up	P	Transite Clean-up	0.04	60
9/16/2003	Bldg. 206 Braulio Monroy	P	Glovebag Removal	<=0.01	1060
9/16/2003	Bldg. 206 Roberto Sierra	P	Glovebag Removal	0.08	60
9/16/2003	Bldg. 206	IWA	Glovebag Removal	<=0.01	1070
9/16/2003	Bldg. 206	IWA	Glovebag Removal	<=0.01	1072
9/17/2003	Site Clean-up Saul Lopez	P	Demo Debri Clean-up	<=0.01	910
9/17/2003	Site Clean-up Roberto Sierra	P	Demo Debri Clean-up	0.04	60
9/17/2003	Site Clean-up Ramon Herrera	P	Demo Debri Clean-up	<=0.01	838
9/17/2003	Site Clean-up Braulio Monroy	P	Demo Debri Clean-up	0.04	60
9/22/2003	Bldg. 202	IWA	Glovebag Removal	<=0.01	806
9/22/2003	Bldg. 202	IWA	Glovebag Removal	0.02	804

Notes: IWA - Inside Work Area
OWA - Outside Work Area

TABLE B.1
PCM ENVIRONMENTAL AIR MONITORING RESULTS
LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS
EFI PROJECT NO. 98410-13709

Date	Sample Location	Type	Abatement Activity	Airborne Fiber Concentration (f/cc)	Volume (liters)
9/22/2003	Bldg. 202 Robero Sierra	P	Glovebag Removal	<=0.01	1002
9/22/2003	Bldg. 202 Saul Lopez	P	Glovebag Removal	0.09	60
9/23/2003	Bldg. 202 Upwind	IWA	Transite Removal	<=0.01	840
9/23/2003	Bldg. 202 Downwind	IWA	Transite Removal	<=0.01	866
9/23/2003	Bldg. 202 Ramon Herrera	P	Transite Removal	<=0.01	1000
9/23/2003	Bldg. 202 Braulio Monroy	P	Transite Removal	<.074	60
9/23/2003	Site Clean-up Saul Lopez	P	Transite Removal	<=0.01	1082
9/24/2003	Site Clean-up Ramon Herrera	P	Transite Removal	0.04	60
9/25/2003	Site Clean-up Braulio Monroy	P	Transite Removal	<=0.01	1024
9/25/2003	Site Clean-up Roberto Sierra	P	Transite Removal	0.04	60
9/29/2003	BLDG 201R & 202 Upwind	IWA	Transite Removal	<=0.01	942
9/29/2003	BLDG 201R & 202 Downwind	IWA	Transite Removal	<=0.01	962
9/29/2003	BLDG 201R & 202 Ramon Herrera	P	Transite Removal	<=0.01	992
9/29/2003	BLDG 201R & 202 Braulio Monroy	P	Transite Removal	0.05	60
9/30/2003	BLDG 202 Upwind	IWA	Transite Removal	<=0.01	1040
9/30/2003	BLDG 202 Downwind	IWA	Transite Removal	<=0.01	1036
9/30/2003	BLDG 202 Saul Lopez	P	Transite Removal	<=0.01	1030
9/30/2003	BLDG 202 Roberto Sierra	P	Transite Removal	0.04	60
10/6/2003	BLDG 202 Upwind	IWA	Transite Removal	<=0.01	1030
10/6/2003	BLDG 202 Downwind	IWA	Transite Removal	<=0.01	1030
10/6/2003	BLDG 202 Saul Lopez	P	Transite Removal	<=0.01	1100
10/6/2003	BLDG 202 Ramon Herrera	P	Transite Removal	0.06	60
10/7/2003	BLDG 202	IWA	Glovebag Removal	<=0.01	850
10/7/2003	BLDG 202	IWA	Glovebag Removal	<=0.01	848
10/7/2003	BLDG 202 Braulio Monroy	P	Transite Removal	<=0.01	854
10/7/2003	BLDG 202 Roberto Sierra	P	Transite Removal	0.15	60
10/8/2003	BLDG 201 Upwind	IWA	Transite Removal	<=0.01	970
10/8/2003	BLDG 201 Downwind	IWA	Transite Removal	<=0.01	964
10/8/2003	BLDG 201 Roberto Sierra	P	Transite Removal	<=0.01	980
10/8/2003	BLDG 201 Braulio Monroy	P	Transite Removal	0.04	60
10/9/2003	BLDG 201 Upwind	IWA	Transite Removal	<=0.01	966
10/9/2003	BLDG 201 Downwind	IWA	Transite Removal	<=0.01	964
10/13/2003	BLDG 201 Upwind	IWA	Transite Removal	<=0.01	870
10/13/2003	BLDG 201 Downwind	IWA	Transite Removal	<=0.01	902
10/13/2003	BLDG 201 Saul Lopez	P	Transite Removal	<=0.01	1006
10/13/2003	BLDG 201 Ramon Herrera	P	Transite Removal	0.09	60
10/14/2003	Site Clean-up Roberto Sierra	P	Transite Removal	<=0.01	1078
10/14/2003	Site Clean-up Braulio Monroy	P	Transite Removal	0.04	60
10/15/2003	BLDG 201 Upwind	IWA	Transite Removal	<=0.01	1268
10/15/2003	BLDG 201 Downwind	IWA	Transite Removal	<=0.01	1030
10/15/2003	BLDG 201 Ramon Herrera	P	Transite Removal	<=0.01	1040

Notes: IWA - Inside Work Area
OWA - Outside Work Area

TABLE B.1
PCM ENVIRONMENTAL AIR MONITORING RESULTS
LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS
EFI PROJECT NO. 98410-13709

Date	Sample Location	Type	Abatement Activity	Airborne Fiber Concentration (f/cc)	Volume (liters)
10/15/2003	BLDG 201 Saul Lopez	P	Transite Removal	0.04	60
10/16/2003	BLDG 201 Upwind	IWA	Transite Removal	<=0.01	918
10/16/2003	BLDG 201 Downwind	IWA	Transite Removal	<=0.01	922
10/16/2003	BLDG 201 Braulio Monroy	P	Transite Removal	<=0.01	936
10/16/2003	BLDG 201 Saul Lopez	P	Transite Removal	0.04	60
10/27/2003	BLDG 201 Upwind	IWA	Transite Removal	<=0.01	1002
10/27/2003	BLDG 201 Downwind	IWA	Transite Removal	<=0.01	1002
10/27/2003	BLDG 201 Saul Lopez	P	Transite Removal	<=0.01	1056
10/27/2003	BLDG 201 Braulio Monroy	P	Transite Removal	<=0.01	1500
10/28/2003	BLDG 201 Upwind	IWA	Transite Removal	<=0.01	1044
10/28/2003	BLDG 201 Downwind	IWA	Transite Removal	<=0.01	1042
10/28/2003	BLDG 201 Ramon Herrera	P	Transite Removal	<=0.01	1046
10/28/2003	BLDG 201 Saul Lopez	P	Transite Removal	0.04	60
10/29/2003	BLDG 201 Upwind	IWA	Transite Removal	<=0.01	1090
10/29/2003	BLDG 201 Downwind	IWA	Transite Removal	<=0.01	1088
10/29/2003	BLDG 201 Braulio Monroy	P	Transite Removal	<=0.01	1080
10/29/2003	BLDG 201 Ramon Herrera	P	Transite Removal	0.04	62
10/30/2003	BLDG 201 Upwind	IWA	Transite Removal	<=0.01	1020
10/30/2003	BLDG 201 Downwind	IWA	Transite Removal	<=0.01	1030
10/30/2003	BLDG 201 Saul Lopez	P	Transite Removal	<=0.01	1040
10/30/2003	BLDG 201 Ramon Herrera	P	Transite Removal	0.06	60
11/10/2003	BLDG 201 Upwind	IWA	Transite Removal	<=0.01	1000
11/10/2003	BLDG 201 Downwind	IWA	Transite Removal	<=0.01	1002
11/10/2003	BLDG 201 Ramon Herrera	P	Transite Removal	<=0.01	980
11/10/2003	BLDG 201 Roberto Sierra	P	Transite Removal	<=0.01	988
11/11/2003	BLDG 201 Upwind	IWA	Transite Removal	<=0.01	1070
11/11/2003	BLDG 201 Downwind	IWA	Transite Removal	<=0.01	1072
11/11/2003	BLDG 201 Saul Lopez	P	Transite Removal	<=0.01	1078
11/11/2003	BLDG 201 Braulio Monroy	P	Transite Removal	0.04	60
11/12/2003	BLDG 201 Upwind	IWA	Transite Removal	<=0.01	1072
11/12/2003	BLDG 201 Downwind	IWA	Transite Removal	<=0.01	1080
11/12/2003	BLDG 201 Ramon Herrera	P	Transite Removal	<=0.01	1050
11/12/2003	BLDG 201 Roberto Sierra	P	Transite Removal	0.04	60
11/13/2003	BLDG 709A Upwind	IWA	Transite Removal	<=0.01	1310
11/13/2003	BLDG 709A Downwind	IWA	Transite Removal	<=0.01	1056
11/13/2003	BLDG 709A Saul Lopez	P	Transite Removal	<=0.01	1080
11/13/2003	BLDG 709A Braulio Monroy	P	Transite Removal	0.04	60
11/17/2003	BLDG 206 Upwind	IWA	Transite Removal	<=0.01	1026
11/17/2003	BLDG 206 Downwind	IWA	Transite Removal	<=0.01	1036
11/17/2003	BLDG 206 Saul Lopez	P	Transite Removal	<=0.01	1062
11/17/2003	BLDG 206 Braulio Monroy	P	Transite Removal	<=0.01	1500

Notes: IWA - Inside Work Area
OWA - Outside Work Area

TABLE B.1
PCM ENVIRONMENTAL AIR MONITORING RESULTS
LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS
EFI PROJECT NO. 98410-13709

Date	Sample Location	Type	Abatement Activity	Airborne Fiber Concentration (f/cc)	Volume (liters)
11/18/2003	BLDG 206 Upwind	IWA	Transite Removal	<=0.01	1048
11/18/2003	BLDG 206 Downwind	IWA	Transite Removal	<=0.01	1046
11/18/2003	BLDG 206 Roberto Sierra	P	Transite Removal	<=0.01	1038
11/18/2003	BLDG 206 Ramon Herrera	P	Transite Removal	0.04	60
11/19/2003	BLDG 206 Upwind	IWA	Transite Removal	<=0.01	1072
11/19/2003	BLDG 206 Downwind	IWA	Transite Removal	<=0.01	1090
11/19/2003	BLDG 206 Saul Lopez	P	Transite Removal	<=0.01	1086
11/19/2003	BLDG 206 Braulio Monroy	P	Transite Removal	0.04	60
11/20/2003	BLDG 413A Upwind	IWA	Transite Removal	<=0.01	520
11/20/2003	BLDG 413A Downwind	IWA	Transite Removal	<=0.01	528
11/21/2003	BLDG 413A Upwind	IWA	Transite Removal	<=0.01	1050
11/21/2003	BLDG 413A Downwind	IWA	Transite Removal	<=0.01	1052
11/21/2003	BLDG 413A Saul Lopez	P	Transite Removal	<=0.01	1080
11/21/2003	BLDG 413A Braulio Monroy	P	Transite Removal	0.04	60
11/24/2003	BLDG 413A Upwind	IWA	Transite Removal	<=0.01	1128
11/24/2003	BLDG 413A Downwind	IWA	Transite Removal	<=0.01	1100
11/24/2003	BLDG 413A Roberto Sierra	P	Transite Removal	<=0.01	1102
11/24/2003	BLDG 413A Ramon Herrera	P	Transite Removal	0.04	60
11/25/2003	BLDG 413A Upwind	IWA	Transite Removal	<=0.01	1064
11/25/2003	BLDG 413A Downwind	IWA	Transite Removal	<=0.01	1072
11/25/2003	BLDG 413A Saul Lopez	P	Transite Removal	<=0.01	1088
11/25/2003	BLDG 413A Braulio Monroy	P	Transite Removal	0.04	60
1/12/2004	BLDG 413A Upwind	IWA	Transite Removal	<=0.01	980
1/12/2004	BLDG 413A Downwind	IWA	Transite Removal	<=0.01	978
1/12/2004	BLDG 413A Saul Lopez	P	Transite Removal	<=0.01	982
1/12/2004	BLDG 413A Fernando Delgado	P	Transite Removal	0.04	60
1/13/2004	BLDG 413A Upwind	IWA	Transite Removal	<=0.01	974
1/13/2004	BLDG 413A Downwind	IWA	Transite Removal	<=0.01	974
1/13/2004	BLDG 413A Fernando Delgado	IWA	Transite Removal	<=0.01	992
1/13/2004	BLDG 413A Jesus Villanueva	IWA	Transite Removal	0.04	60
1/14/2004	BLDG 413A Upwind	IWA	Transite Removal	<=0.01	968
1/14/2004	BLDG 413A Downwind	IWA	Transite Removal	<=0.01	954
1/14/2004	BLDG 413A Jesus Villanueva	P	Transite Removal	<=0.01	988
1/14/2004	BLDG 413A Fernando Delgado	P	Transite Removal	0.04	60
1/15/2004	BLDG 413A Upwind	IWA	Transite Removal	<=0.01	1036
1/15/2004	BLDG 413A Downwind	IWA	Transite Removal	<=0.01	1032
1/15/2004	BLDG 413A Saul Lopez	P	Transite Removal	<=0.01	1032
1/15/2004	BLDG 413A Ramon Herrera	P	Transite Removal	0.04	60
1/19/2004	BLDG 413A Upwind	IWA	Transite Removal	<=0.01	540
1/19/2004	BLDG 413A Downwind	IWA	Transite Removal	<=0.01	536
1/20/2004	BLDG 413A Upwind	IWA	Transite Removal	<=0.01	450

Notes: IWA - Inside Work Area
OWA - Outside Work Area

TABLE B.1
PCM ENVIRONMENTAL AIR MONITORING RESULTS
LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS
EFI PROJECT NO. 98410-13709

Date	Sample Location	Type	Abatement Activity	Airborne Fiber Concentration (f/cc)	Volume (liters)
1/20/2004	BLDG 814 Upwind	IWA	Transite Removal	<=0.01	452
1/21/2004	BLDG 814 & 813 Upwind	IWA	Transite Removal	<=0.01	1058
1/21/2004	BLDG 814 & 813 Downwind	IWA	Transite Removal	<=0.01	1056
1/21/2004	BLDG 814 & 813 Saul Lopez	P	Transite Removal	<=0.01	1090
1/21/2004	BLDG 814 & 813 Ramon Herrera	P	Transite Removal	0.04	60
1/22/2004	BLDG TS 10/800 Upwind	IWA	Transite Removal	<=0.01	1016
1/22/2004	BLDG TS 10/800 Downwind	IWA	Transite Removal	<=0.01	1020
1/22/2004	BLDG TS 10/800 Jesus Villanueva	P	Transite Removal	<=0.01	1038
1/22/2004	BLDG TS 10/800 Fernando Delgado	P	Transite Removal	0.04	60
1/26/2004	BLDG 4Y2 & 4Y Upwind	IWA	Transite Removal	<=0.01	870
1/26/2004	BLDG 4Y2 & 4Y Downwind	IWA	Transite Removal	<=0.01	870
1/26/2004	BLDG 4Y2 & 4Y Fernando Delgado	P	Transite Removal	<=0.01	910
1/26/2004	BLDG 4Y2 & 4Y Jesus Villanueva	P	Transite Removal	0.04	60
1/27/2004	BLDG 3Y-13Y-4Y2 Upwind	IWA	Transite Removal	<=0.01	1048
1/27/2004	BLDG 3Y-13Y-4Y2 Downwind	IWA	Transite Removal	<=0.01	1058
1/27/2004	BLDG 3Y-13Y-4Y2 Saul Lopez	P	Transite Removal	<=0.01	1072
1/27/2004	BLDG 3Y-13Y-4Y2 Ramon Herrera	P	Transite Removal	0.04	60
1/28/2004	BLDG 16Y UPWIND	IWA	Transite Removal	<=0.01	990
1/28/2004	BLDG 16Y Downwind	IWA	Transite Removal	<=0.01	960

Notes: IWA - Inside Work Area
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TABLE B.1
PCM ENVIRONMENTAL AIR MONITORING RESULTS
LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS
EFI PROJECT NO. 98410-13709

Date	Sample Location	Type	Abatement Activity	Airborne Fiber Concentration (f/cc)	Volume (liters)
3/19/2003	Area 2 Personnel Saul Lopez	P	Removal	0.03	90
3/19/2003	Area 2	OWA	Prevalent Level	<=0.01	525
3/19/2003	Area 2	OWA	Prevalent Level	<=0.01	1452
3/19/2003	Area 8	OWA	Prevalent Level	<=0.01	1425
3/19/2003	Area 8	P/L	Prevalent Level	<=0.01	1425
3/20/2003	Area 2 bldg. 701 Personnel Saul Lopez	P	Personnel	<=0.01	1533
3/20/2003	Area 2 Bldg. 701 Upwind	IWA	Removal	<=0.01	1200
3/20/2003	Area 2 Bldg. 701Downwind	IWA	Removal	<=0.01	1203
3/20/2003	Area 7 Prevalent Level	IWA	N/A	<=0.01	1350
3/20/2003	Area 7 Prevalent Level	N/A	N/A	<=0.01	1356
3/20/2003	Area 7 Personnel Saul Lopez	N/A	Removal	<=0.01	1365
3/24/2003	Area 2 Bldg. 720A Upwind	IWA	Removal	<=0.01	1422
3/24/2003	Area 2 Bldg. 720A Downwind	IWA	Removal	<=0.01	1425
3/24/2003	Area 2 Bldg. 720A Personnel Saul Lope	P	Removal	<=0.01	1416
3/25/2003	Area 2 Bldg. 719 Upwind	IWA	Removal	<=0.01	1506
3/25/2003	Area 2 Bldg. 719Downwind	IWA	Removal	<=0.01	1509
3/25/2003	Area 2 Bldg. 719 Personnel Saul Lopez	IWA	Removal	<=0.01	1506
3/26/2003	Area 2 Bldg. 705 Downwind	IWA	Removal	<=0.01	1611
3/26/2003	Area 2 Bldg. 705 Upwind	IWA	Removal	<=0.01	1614
3/26/2003	Area 2 Bldg. 705 Personnel Saul Lopez	IWA	Removal	0.03	90
3/27/2003	Bldg. 707E Upwind	IWA	Removal	<=0.01	1551
3/27/2003	Bldg. 707E Downwind	IWA	Removal	<=0.01	1563
3/27/2003	Bldg. 707E Personnel	IWA	Removal	<=0.01	1551
3/31/2003	Bldg. 703 Upwind	IWA	Removal	<=0.01	1043
3/31/2003	Bldg. 703 Downwind	IWA	Removal	<=0.01	1190
3/31/2003	Bldg. 703 Personnel Aunilio Romero	IWA	Removal	<=0.01	982
3/31/2003	Bldg. 703 Personnel Alejandro Garcia	IWA	Removal	<=0.01	828
4/1/2003	Bldg. 703 Upwind	IWA	Removal	<=0.01	977
4/1/2003	Bldg. 703 Downwind	IWA	Removal	<=0.01	1375
4/1/2003	Bldg. 703 Personnel Alejandro Garcia	IWA	Removal	<=0.01	1166
4/1/2003	Bldg. 703 Personnel Jose Mendoza	IWA	Removal	<=0.01	918
4/1/2003	Bldg. 703 Personnel Jose Mendoza	IWA	Removal	0.04	61
4/2/2003	Bldg. 703 Upwind	IWA	Removal	<=0.01	846
4/2/2003	Bldg. 703 Downwind	IWA	Removal	<=0.01	1222
4/2/2003	Bldg. 703 Personnel Jose Aguilliar	IWA	Removal	<=0.01	1058
4/2/2003	Bldg. 703 Personnel Jose Aguilliar	IWA	Removal	0.04	61
4/3/2003	Bldg. 703 Upwind	IWA	Removal	<=0.01	495
4/3/2003	Bldg. 703 Downwind	IWA	Removal	<=0.01	424

Notes: IWA - Inside Work Area
OWA - Outside Work Area

TABLE B.1
PCM ENVIRONMENTAL AIR MONITORING RESULTS
LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS
EFI PROJECT NO. 98410-13709

Date	Sample Location	Type	Abatement Activity		Airborne Fiber Concentration (f/cc)	Volume (liters)
4/3/2003	Bldg. 707A/736 Pers.Rigoberto Hernandez	IWA	Removal		<=0.01	830
4/3/2003	Bldg. 736 Personnel Ramon Herrera	IWA	Removal		<=0.01	729
4/3/2003	Bldg. 707A	IWA	Removal		<=0.01	648
4/3/2003	Bldg. 451 lift	IWA	Removal		0.02	315
4/7/2003	Bldg. 707 C Upwind	IWA	Removal		<=0.01	1080
4/7/2003	Bldg. 707 C Downwind	IWA	Removal		<=0.01	1080
4/7/2003	Bldg. 451 Upwind	IWA	Removal		<=0.01	1080
4/7/2003	Bldg. 451 Personnel Rigoberto Hernandez	IWA	Removal		<=0.01	1080
4/8/2003	Bldg. 451 Upwind	IWA	Removal		<=0.01	753
4/9/2003	QA/QC recount A-047	IWA		0	<=0.01	753
4/8/2003	Bldg. 451 Downwind	IWA	Removal		<=0.01	744
4/8/2003	Bldg. 451 Upwind	IWA	Removal		<=0.01	681
4/8/2003	Bldg. 25G Downwind	IWA	Removal		<=0.01	681
4/8/2003	Bldg. 25G Personnel Rigoberto Hernandez	IWA	Removal		<=0.01	498
4/9/2003	Bldg. 801F Upwind	IWA	Removal		<=0.01	808
4/9/2003	Bldg. 801F Downwind	IWA	Removal		<=0.01	806
4/9/2003	Bldg. 18K Upwind	IWA	Removal		<=0.01	798
4/9/2003	Bldg. 18K Downwind	IWA	Removal		<=0.01	798
4/9/2003	Bldg. 18K Personnel	IWA	Removal		<=0.01	792
4/10/2003	Bldg. 18K/18K-1 Upwind	IWA	Removal		<=0.01	562
4/10/2003	Bldg. 18k/18K-1 downwind	IWA	Removal		<=0.01	568
4/10/2003	Bldg. 801F Upwind	IWA	Removal		<=0.01	554
4/10/2003	Bldg. 801F Downwind	IWA	Removal		<=0.01	552
4/10/2003	Bldg. 801F Personnel Aunilio Romero	IWA	Removal		0.04	60
4/14/2003	Bldg. 41W Upwind	IWA	Removal		<=0.01	880
4/14/2003	Bldg. 41W Downwind	IWA	Removal		<=0.01	878
4/14/2003	Bldg. 18K-1 Upwind	IWA	Removal		<=0.01	696
4/14/2003	Bldg. 18K-1 Downwind	IWA	Removal		<=0.01	696
4/14/2003	Bldg. 703 Upwind	IWA	Removal		<=0.01	832
4/14/2003	Bldg. 703 Downwind	IWA	Removal		<=0.01	834
4/14/2003	Bldg. 703 Personnel Jose Mendoza	IWA	Removal		<=0.01	694
4/15/2003	Bldg. 41W Upwind	IWA	Removal		<=0.01	880
4/15/2003	Bldg. 41W Downwind	IWA	Removal		<=0.01	880
4/15/2003	Bldg. 703 Upwind	IWA	Removal		<=0.01	848
4/15/2003	Bldg. 703 Downwind	IWA	Removal		<=0.01	846
4/15/2003	Bldg. 703 Personnel Rigoberto Hernandez	IWA	Removal		<=0.01	838

Notes: IWA - Inside Work Area
OWA - Outside Work Area

TABLE B.1
PCM ENVIRONMENTAL AIR MONITORING RESULTS
LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS
EFI PROJECT NO. 98410-13709

Date	Sample Location	Type	Abatement Activity	Airborne Fiber Concentration (f/cc)	Volume (liters)
4/15/2003	Bldg. 703 Fl 1 south	IWA	Removal	<=0.01	891
4/16/2003	Bldg. 41W Upwind	IWA	Removal	<=0.01	1000
4/16/2003	Bldg. 41W Downwind	IWA	Removal	<=0.01	1000
4/16/2003	Bldg. 703 Upwind	IWA	Removal	<=0.01	998
4/16/2003	Bldg. 703 Downwind	IWA	Removal	<=0.01	1002
4/16/2003	Bldg. 703 Fl 1 south	IWA	Removal	<=0.01	1497
4/16/2003	Bldg. 703 Personnel Jose Aguilliar	IWA	Removal	<=0.01	1000
4/17/2003	Bldg. 42W Upwind	IWA	Removal	<=0.01	462
4/17/2003	Bldg. 42W Downwind	IWA	Removal	<=0.01	460
4/17/2003	Bldg. 703 Upwind	IWA	Removal	<=0.01	468
4/17/2003	Bldg. 703 Downwind	IWA	Removal	<=0.01	466
4/17/2003	Bldg. 703 Personnel Saul Lopez	IWA	Removal	<=0.01	466
4/17/2003	Bldg. 703 Fl 1 south	IWA	Removal	<=0.01	705
4/21/2003	Bldg. 703 Downwind	IWA	Removal	<=0.01	872
4/21/2003	Bldg. 703 Upwind	IWA	Removal	<=0.01	928
4/21/2003	Bldg. 42W Downwind	IWA	Removal	<=0.01	722
4/21/2003	Bldg. 42W N E Work area	IWA	Removal	<=0.01	1038
4/21/2003	Bldg. 703B Personnel Ramon Herrera	IWA	Removal	<=0.01	770
4/21/2003	Bldg. 703B Personnel Ramon Herrera	IWA	Removal	0.04	68
4/22/2003	Bldg. 703 B North Area	IWA	Removal	<=0.01	1184
4/22/2003	Bldg. 703B Decon	IWA	Removal	<=0.01	1233
4/22/2003	Bldg. 42W North Area	IWA	Removal	<=0.01	1274
4/22/2003	Bldg42W on lift	IWA	Removal	<=0.01	1115
4/22/2003	Bldg. 42W South Area	IWA	Removal	<=0.01	1235
4/22/2003	Bldg. 703B Personnel Aunilio Romero	IWA	Removal	<=0.01	436
4/22/2003	Bldg. 703B Personnel Aunilio Romero	IWA	Removal	0.02	198
4/23/2003	Bldg. 703B IWA	IWA	Removal	<=0.01	746
4/23/2003	Bldg. 42W Downwind	IWA	Removal	<=0.01	1188
4/23/2003	Bldg. 42W North Area	IWA	Removal	<=0.01	1231
4/23/2003	Bldg. 42W Upwind	IWA	Removal	<=0.01	1124
4/23/2003	Bldg. 422G Upwind	IWA	Removal	0.02	473
4/23/2003	Bldg. 703B/422G Personnel A.Garcia	IWA	Removal	<=0.01	560
4/23/2003	Bldg. 422G Personnel A.Garcia	IWA	Removal	<=0.01	366
4/24/2003	Bldg. 1 St-1 Pipe & Flooring	IWA	Removal	<=0.01	348
4/24/2003	Bldg. 1 St-1 Personnel J.Aguilliar	IWA	Removal	<=0.01	363
4/24/2003	Bldg. 42W Upwind	IWA	Removal	<=0.01	823

Notes: IWA - Inside Work Area
OWA - Outside Work Area

TABLE B.1
PCM ENVIRONMENTAL AIR MONITORING RESULTS
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KARNACK, TEXAS
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Date	Sample Location	Type	Abatement Activity	Airborne Fiber Concentration (f/cc)	Volume (liters)
4/24/2003	Bldg. 42W Downwind	IWA	Removal	<=0.01	785
4/24/2003	Bldg. 18K IWA	IWA	Removal	<=0.01	528
4/24/2003	Bldg. 18K IWA	IWA	Removal	<=0.01	418
4/24/2003	Bldg. 18K IWA	IWA	Removal	<=0.01	437
4/24/2003	Bldg. 18K Personnel R.Hernandez	IWA	Removal	<=0.01	414
4/24/2003	Bldg. 18K Personnel R.Hernandez	IWA	Removal	0.05	68
4/28/2003	Bldg. 44W/42W IWA	IWA	Removal	<=0.01	874
4/28/2003	Bldg. 42W/44W Downwind	IWA	Removal	<=0.01	760
4/28/2003	Bldg. 41W o/s decon	OWA	Removal	<=0.01	914
4/28/2003	Bldg. 41W IWA	IWA	Removal	<=0.01	953
4/28/2003	Bldg. 41W Personnel S.Lopez	IWA	Removal	<=0.01	363
4/28/2003	Bldg. 41W Personnel S.Lopez	IWA	Removal	0.04	73
4/28/2003	Bldg. 41W Personnel S.Lopez	IWA	Removal	<=0.01	345
4/29/2003	Bldg. 44W North	IWA	Removal	<=0.01	1008
4/29/2003	Bldg. 44W South	IWA	Removal	<=0.01	1104
4/29/2003	Bldg. 41W Clearance	IWA	Clearance	<=0.01	1308
4/29/2003	Bldg. 41W Decon	OWA	Bagout	<=0.01	1155
4/29/2003	Bldg. 703A demolition Downwind	IWA	Demo	<=0.01	760
4/29/2003	Bldg. 41W Clearance	IWA	Clearance	<=0.01	988
4/29/2003	Bldg. 41W Clearance	IWA	Clearance	<=0.01	1026
4/29/2003	Bldg. 42W Personnel A.Garcia	IWA	Removal	<=0.01	979
4/30/2003	Bldg. 44W South	IWA	Removal	<=0.01	1265
4/30/2003	Bldg. 44W North	IWA	Removal	<=0.01	1155
4/30/2003	Bldg. 703A demolition Downwind	IWA	Demo	<=0.01	1030
4/30/2003	Bldg. 41W IWA	IWA	Removal	<=0.01	1023
4/30/2003	Bldg. 41W IWA	IWA	Removal	0.02	930
4/30/2003	Bldg. 41W Personnel Braulio Monroy	IWA	Removal	<=0.01	990
4/30/2003	Bldg. 41W Personnel Braulio Monroy	IWA	Removal	0.06	66
5/1/2003	Bldg. 44W North Area	IWA	Removal	<=0.01	693
5/1/2003	Bldg. 44W South Area	IWA	Removal	<=0.01	725
5/1/2003	Bldg. 703A Demolition	OWA	Demolition	<=0.01	683
5/1/2003	Bldg. 41W-1 Upwind	IWA	Removal	<=0.01	540
5/1/2003	Bldg. 41W-1 Downwind	IWA	Removal	<=0.01	518
5/5/2003	Bldg. 44W North	IWA	Removal	<=0.01	939
5/5/2003	Bldg. 44W South	IWA	Removal	<=0.01	978
5/5/2003	Bldg. 44W Personnel J Mendoza	IWA	Removal	0.04	66
5/5/2003	Bldg. 44W Personnel J Mendoza	IWA	Removal	<=0.01	862
5/6/2003	Bldg. 44W North	IWA	Removal	<=0.01	1127
5/6/2003	Bldg. 44W South	IWA	Removal	<=0.01	1076

Notes: IWA - Inside Work Area
OWA - Outside Work Area

TABLE B.1
PCM ENVIRONMENTAL AIR MONITORING RESULTS
LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS
EFI PROJECT NO. 98410-13709

Date	Sample Location	Type	Abatement Activity	Airborne Fiber Concentration (f/cc)	Volume (liters)
5/6/2003	Bldg. 44W Personnel Saul Lopez	IWA	Removal	0.06	66
5/6/2003	Saul Lopez 467-89-3372	P	Removal	<=0.01	944
5/7/2003	Bldg. 44W North	IWA	Transite Removal	<=0.01	1196
5/7/2003	Bldg. 44W South	IWA	Transite Removal	<=0.01	1144
5/7/2003	Bldg. 44W Personnel Ramon Herrera	P	Transite Removal	0.08	66
5/7/2003	Bldg. 44W Personnel Ramon Herrera	P	Transite Removal	<=0.01	1078
5/8/2003	Bldg. 44W	IWA	Transite Removal	0.02	1180
5/8/2003	Bldg. 44W	IWA	Transite Removal	<=0.01	1182
5/8/2003	Personnel Alejandro Garcia	P	Transite Removal	<=0.01	1650
5/8/2003	Personnel Alejandro Garcia	P	Transite Removal	<=0.01	1065
5/12/2003	Bldg. 44W Upwind	IWA	Transite Removal	<=0.01	1230
5/12/2003	Bldg. 44W Downwind	IWA	Transite Removal	<=0.01	1230
5/12/2003	Bldg. 44W Personnel Saul Lopez	P	Transite Removal	<=0.01	1076
5/12/2003	Bldg. 44W Personnel Jose Aguilar	P	Transite Removal	0.05	58
5/13/2003	Bldg. TS 25&49W Downwind	IWA	Transite Removal	<=0.01	1122
5/13/2003	Bldg. TS 25&49W Upwind	IWA	Transite Removal	<=0.01	1137
5/13/2003	Personnel Jose Mendoza	P	Transite Removal	<=0.01	960
5/13/2003	Personnel Braulio Monroy	P	Transite Removal	0.04	60
5/14/2003	Bldg. 46W Upwind	IWA	Transite Removal	<=0.01	1199
5/14/2003	Bldg. 46W Downwind	IWA	Transite Removal	<=0.01	1135
5/14/2003	Bldg. 46W Personnel Santos Reyes	P	Transite Removal	0.04	60
5/14/2003	Bldg. 46W Personnel Rigoberto Hernandez	P	Transite Removal	<=0.01	962
5/15/2003	Bldg. 46W Upwind	IWA	Transite Removal	<=0.01	1124
5/15/2003	Bldg. 46W Downwind	IWA	Transite Removal	<=0.01	1133
5/15/2003	Bldg. 46W Personnel Jose Aguilar	P	Transite Removal	0.04	60
5/15/2003	Bldg. 46W Personnel Braulio Monroy	P	Transite Removal	<=0.01	960
5/19/2003	Bldg. 46W Upwind	IWA	Transite Removal	<=0.01	1016
5/19/2003	Bldg. 46W Downwind	IWA	Transite Removal	<=0.01	1023
5/19/2003	Bldg. 46W Personnel Saul Lopez	P	Transite Removal	<=0.01	960
5/19/2003	Bldg. 46W Personnel Ramon Herrera	P	Transite Removal	0.05	58
5/19/2003	Field Blank	N/A	N/A	#VALUE!	#######
5/20/2003	Bldg. 31W Upwind	IWA	Transite Removal	<=0.01	880
5/20/2003	Bldg. 31W Downwind	IWA	Transite Removal	<=0.01	1093
5/20/2003	Bldg. 31W Personnel Rigoberto Hernandez	P	Transite Removal	0.05	60
5/20/2003	Bldg. 31W Personnel Jose Aguilar	P	Transite Removal	<=0.01	1068

Notes: IWA - Inside Work Area
OWA - Outside Work Area

TABLE B.1
PCM ENVIRONMENTAL AIR MONITORING RESULTS
LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS
EFI PROJECT NO. 98410-13709

Date	Sample Location	Type	Abatement Activity	Airborne Fiber Concentration (f/cc)	Volume (liters)
5/21/2003	Bldg. 31W Upwind	IWA	Transite Removal	<=0.01	1109
5/21/2003	Bldg. 31W Downwind	IWA	Transite Removal	<=0.01	1109
5/21/2003	Bldg. 31W Personnel Jose Aguilar	P	Transite Removal	<=0.01	966
5/21/2003	Bldg. 31W Personnel Brauilo Monroy	P	Transite Removal	0.04	60
5/21/2003	Field Blank	N/A	N/A	#VALUE!	#######
5/22/2003	Bldg. 31W Personnel Ramon Herrera	P	Transite Removal	<=0.01	978
5/22/2003	Bldg. 31W Downwind	IWA	Transite Removal	<=0.01	1056
5/27/2003	Bldg. 31W Upwind	IWA	Transite Removal	<=0.01	1109
5/27/2003	Bldg. 33W Downwind	IWA	Transite Removal	<=0.01	1111
5/27/2003	Bldg. 33W Personnel Saul Lopez	P	Transite Removal	<=0.01	992
5/27/2003	Bldg. 33W Personnel Ramon Herrera	P	Transite Removal	0.04	62
5/28/2003	Bldg. 33W Upwind	IWA	Transite Removal	<=0.01	1155
5/28/2003	Bldg. 33W Downwind	IWA	Transite Removal	<=0.01	1148
5/28/2003	Bldg. 33W Personnel Jose Aguilar	P	Transite Removal	<=0.01	1010
5/28/2003	Bldg. 33W Personnel Santos Reyes	P	Transite Removal	0.09	60
5/28/2003	Field Blank	N/A	N/A	#VALUE!	#######
5/29/2003	Bldg. 33W Upwind	IWA	Transite Removal	<=0.01	1047
5/29/2003	Bldg. 33W Downwind	IWA	Transite Removal	<=0.01	1049
5/29/2003	Bldg. 33W Personnel Alejandro Garcia	P	Transite Removal	<=0.01	960
5/29/2003	Bldg. 33W Personnel Aunilio Romero	P	Transite Removal	0.05	58
5/30/2003	Bldg. 35W Upwind	IWA	Transite Removal	<=0.01	1001
5/30/2003	Bldg. 35W Downwind	IWA	Transite Removal	<=0.01	1012
5/30/2003	Bldg. 35W Personnel Jose Mendoza	P	Transite Removal	<=0.01	944
6/2/2003	Bldg. 42W Upwind	IWA	Transite Removal	<=0.01	670
6/2/2003	Bldg. 42W Downwind	IWA	Transite Removal	<=0.01	670
6/2/2003	Bldg. 42W Personnel Saul Lopez	P	Transite Removal	0.03	90
6/2/2003	Bldg. 42W Personnel Saul Lopez	P	Transite Removal	<=0.01	930
6/3/2003	Bldg. 25G Inside Containment	IWA	Floor Tile Removal	<=0.01	1010
6/3/2003	Bldg. 25G Inside Containment	IWA	Floor Tile Removal	<=0.01	1010
6/3/2003	Bldg. 25G Outside Containment	OWA	Floor Tile Removal	<=0.01	990
6/3/2003	Bldg. 25G Personnel Braulio Monroy	P	Floor Tile Removal	<=0.01	960
6/4/2003	Bldg. 25G Inside Containment	IWA	Floor Tile Removal	<=0.01	820
6/4/2003	Bldg. 25G Inside Containment	IWA	Floor Tile Removal	<=0.01	822
6/4/2003	Bldg. 25G Outside Containment	OWA	Floor Tile Removal	<=0.01	860

Notes: IWA - Inside Work Area
OWA - Outside Work Area

TABLE B.1
PCM ENVIRONMENTAL AIR MONITORING RESULTS
LONGHORN ARMY AMMUNITION PLANT
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EFI PROJECT NO. 98410-13709

Date	Sample Location	Type	Abatement Activity	Airborne Fiber Concentration (f/cc)	Volume (liters)
6/4/2003	Bldg. 25G Personnel Santos Reyes	P	Floor Tile Removal	<=0.01	834
6/4/2003	Bldg. 25G Inside Containment	IWA	Final Clearance	<=0.01	1260
6/4/2003	Bldg. 25G Inside Containment	IWA	Final Clearance	<=0.01	1260
6/9/2003	Bldg. 22A Upwind	IWA	Floor Tile Removal	<=0.01	910
6/9/2003	Bldg. 22A Downwind	IWA	Floor Tile Removal	<=0.01	914
6/9/2003	Bldg. 22A Personnel Ramon Herrera	P	Floor Tile Removal	0.04	60
6/9/2003	Bldg. 22A Personnel Braulio Monroy	P	Floor Tile Removal	<=0.01	1040
6/10/2003	Bldg. 22A Upwind	IWA	Final Cleaning	<=0.01	1060
6/10/2003	Bldg. 22A Downwind	IWA	Final Cleaning	<=0.01	1060
6/10/2003	Bldg. 22A Personnel Santos Reyes	P	Final Cleaning	0.05	60
6/10/2003	Bldg. 22A Personnel Santos Reyes	P	Final Cleaning	<=0.01	972
6/11/2003	Bldg. 22A Upwind	IWA	Final Cleaning	<=0.01	1080
6/11/2003	Bldg. 22A Downwind	IWA	Final Cleaning	<=0.01	1086
6/11/2003	Bldg. 22A Inside Containment	IWA	Floor Mastic Removal	<=0.01	1070
6/11/2003	Bldg. 22A Santos Reyes	IWA	Floor Mastic Removal	<=0.01	1080
6/12/2003	Bldg. 22A Upwind	IWA	Floor Mastic Removal	<=0.01	650
6/12/2003	Bldg. 22A Downwind	IWA	Floor Mastic Removal	<=0.01	632
6/12/2003	Bldg. 22A	IWA	Floor Mastic Removal	<=0.01	650
6/12/2003	Bldg. 22A Personnel Braulio Monroy	P	Floor Mastic Removal	<=0.01	958
6/12/2003	Bldg. 22A Inside Containment	IWA	Final Clearance	<=0.01	1260
6/12/2003	Bldg. 22A Inside Containment	IWA	Final Clearance	<=0.01	1260
6/16/2003	Bldg. 716	IWA	Floor Tile Removal	<=0.01	310
6/16/2003	Bldg. 716	IWA	Floor Tile Removal	<=0.01	310
6/16/2003	Bldg. 716	IWA	Floor Tile Removal	<=0.01	306
6/16/2003	Bldg. 716,744,744A Saul Lopez	IWA	Floor Tile Removal	<=0.01	960
6/16/2003	Bldg. 716	IWA	Final Clearance	<=0.01	1284
6/16/2003	Bldg. 716	IWA	Final Clearance	<=0.01	1284
6/16/2003	Bldg. 744A	IWA	Glovebag Removal	0.01	180
6/16/2003	Bldg. 744A	OWA	Glovebag Removal	0.02	182
6/16/2003	Bldg. 744 Upwind	IWA	Transite Removal	<=0.01	620
6/16/2003	Bldg. 744 Downwind	IWA	Transite Removal	<=0.01	606
6/17/2003	Bldg. 744 Upwind	IWA	Transite Removal	<=0.01	400
6/17/2003	Bldg. 744 Downwind	IWA	Transite Removal	<=0.01	404
6/17/2003	Bldg. 716	IWA	Floor Tile Removal	0.02	200
6/17/2003	Bldg. 713	IWA	Floor Tile Removal	0.02	230
6/17/2003	Bldg. 713 Personnel Ramon Herrera	P	Floor Tile Removal	<=0.01	960
6/18/2003	Bldg. 717	IWA	Floor Tile Removal	<=0.01	980
6/18/2003	Bldg. 717	IWA	Floor Tile Removal	<=0.01	980
6/18/2003	Bldg. 717 Personnel Braulio Monroy	P	Floor Tile Removal	0.04	60
6/18/2003	Bldg. 717 Personnel Braulio Monroy	P	Floor Tile Removal	<=0.01	960
6/19/2003	Bldg. 717 Upwind	IWA	Floor Tile Removal	<=0.01	890

Notes: IWA - Inside Work Area
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Date	Sample Location	Type	Abatement Activity	Airborne Fiber Concentration (f/cc)	Volume (liters)
6/19/2003	Bldg. 717 Downwind	IWA	Floor Tile Removal	<=0.01	916
6/19/2003	Bldg. 717	IWA	Floor Tile Removal	<=0.01	910
6/19/2003	Bldg. 717 Personnel Saul Lopez	P	Floor Tile Removal	<=0.01	964
6/19/2003	Bldg. 717	IWA	Final Clearance	<=0.01	1260
6/19/2003	Bldg. 717	IWA	Final Clearance	<=0.01	1260
6/23/2003	Bldg. 704D Personnel Saul Lopez	P	Floor Tile Removal	<=0.01	960
6/23/2003	Bldg. 704D Personnel Ramon Herrera	P	Floor Tile Removal	0.04	60
6/23/2003	Bldg. 704D Outside Decon	OWA	Floor Tile Removal	<=0.01	1056
6/23/2003	Bldg. 704D Rear of Bldg.	OWA	Floor Tile Removal	<=0.01	1425
6/24/2003	Bldg. 704D Outside Decon	OWA	Floor Tile Removal	<=0.01	1200
6/24/2003	Bldg. 704D Personnel Ramon Herrera	P	Floor Tile Removal	<=0.01	880
6/24/2003	Bldg. 704D Personnel Ramon Herrera	P	Floor Tile Removal	0.06	66
6/25/2003	Bldg. 704D Personnel Braulio Monroy	P	Floor Mastic Removal	<=0.01	720
6/25/2003	Bldg. 704D Outside Decon	OWA	Floor Mastic Removal	<=0.01	792
6/25/2003	Bldg. 704D Personnel Saul Lopez	P	Floor Mastic Removal	0.04	60
6/25/2003	Bldg. 704D	IWA	Final Clearance	<=0.01	1300
6/26/2003	Bldg. 451 Personnel Ramon Herrera	P	Transite Removal	0.04	66
6/26/2003	Bldg. 451 Personnel Ramon Herrera	P	Transite Removal	<=0.01	990
6/26/2003	Bldg. 451 Upwind	IWA	Transite Removal	<=0.01	960
6/26/2003	Bldg. 451 Downwind	IWA	Transite Removal	<=0.01	1104
6/30/2003	Bldg. 414 Upwind	IWA	Transite Removal	<=0.01	1050
6/30/2003	Bldg. 414 Downwind	IWA	Transite Removal	<=0.01	1030
6/30/2003	Bldg. 414 Personnel Saul Lopez	IWA	Transite Removal	<=0.01	984
6/30/2003	Bldg. 414 Personnel Ramon Herrera	P	Transite Removal	0.09	60
6/30/2003	Bldg. 414 Upwind	IWA	Transite Removal	<=0.01	1110
7/1/2003	Bldg. 414 Downwind	IWA	Transite Removal	<=0.01	1114
7/1/2003	Bldg. 414 Personnel Brautio Monrey	P	Transite Removal	<=0.01	1112
7/1/2003	Bldg. 414 Personnel Roberto Sierra	P	Transite Removal	0.04	60
7/2/2003	Bldg. 811-1 Upwind	IWA	Transite Removal	<=0.01	1020
7/2/2003	Bldg. 811-8 Downwind	IWA	Transite Removal	<=0.01	1028
7/2/2003	Bldg. 811-1-811-8 Braulio Monrey	P	Transite Removal	<=0.01	1030
7/2/2003	Bldg. 811-1-811-8 Roberto Sierra	P	Transite Removal	0.10	60
7/3/2003	Bldg. 811-9 Upwind	IWA	Transite Removal	<=0.01	1014
7/3/2003	Bldg. 811-14 Downwind	IWA	Transite Removal	<=0.01	1026
7/3/2003	Bldg. 811-9-811-14 Saul Lopez	P	Transite Removal	<=0.01	1010
7/3/2003	Bldg. 811-9-811-14 Ramon Herrera	P	Transite Removal	0.07	60
7/14/2003	Bldg. 811-15-811-19 Upwind	IWA	Transite Removal	<=0.01	1060

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OWA - Outside Work Area

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PCM ENVIRONMENTAL AIR MONITORING RESULTS
LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS
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Date	Sample Location	Type	Abatement Activity	Airborne Fiber Concentration (f/cc)	Volume (liters)
7/14/2003	Bldg. 811-15-811-19 Downwind	IWA	Transite Removal	<=0.01	1072
7/14/2003	Bldg. 811-15-811-19 Saul Lopez	P	Transite Removal	<=0.01	1110
7/14/2003	Bldg. 811-15-811-19 Roberta Sierra	P	Transite Removal	0.04	60
7/15/2003	Bldg. 811-15-811-20 Upwind	IWA	Transite Removal	<=0.01	1070
7/15/2003	Bldg. 811-15-811-20 Downwind	IWA	Transite Removal	<=0.01	1072
7/15/2003	Bldg. 811-15-811-20 Ramon Herrera	P	Transite Removal	<=0.01	1064
7/15/2003	Bldg. 811-15-811-20 Roberta Sierra	P	Transite Removal	0.09	60
7/16/2003	Bldg. 811-21-811-25 Upwind	IWA	Transite Removal	<=0.01	1120
7/16/2003	Bldg. 811-21-811-25 Downwind	IWA	Transite Removal	<=0.01	1118
7/16/2003	Bldg. 811-21-811-25 Ramon Herrera	P	Transite Removal	<=0.01	1124
7/16/2003	Bldg. 811-21-811-25 Saul Lopez	P	Transite Removal	0.06	60
7/17/2003	Bldg. 811-25-811-30 Upwind	IWA	Transite Removal	<=0.01	1062
7/17/2003	Bldg. 811-26-811-30 Downwind	IWA	Transite Removal	<=0.01	1062
7/17/2003	Bldg. 811-26-811-30 Braulio Monroy	P	Transite Removal	<=0.01	1076
7/17/2003	Bldg. 811-26-811-30 Saul Lopez	P	Transite Removal	0.06	62
7/21/2003	Bldg. 811-31-811-35 Upwind	IWA	Transite Removal	<=0.01	1086
7/21/2003	Bldg. 811-31-811-35 Downwind	IWA	Transite Removal	<=0.01	1064
7/21/2003	Bldg 811-31-811-35 Braulio Monroy	P	Transite Removal	<=0.01	1062
7/21/2003	Bldg. 811-31-811-35 Ramon Herrera	P	Transite Removal	0.04	60
7/22/2003	Bldg. 811-36-811-40 Upwind	IWA	Transite Removal	<=0.01	1046
7/22/2003	Bldg. 811-36-811-40 Downwind	IWA	Transite Removal	<=0.01	1060
7/22/2003	Bldg. 811-36-811-40 Roberto Sierra	P	Transite Removal	<=0.01	1026
7/22/2003	Bldg. 811-36-811-40 Saul Lopez	P	Transite Removal	0.06	60
7/23/2003	Bldg. 811-41-811-47 Upwind	IWA	Transite Removal	<=0.01	1030
7/23/2003	Bldg. 811-41-811-47 Downwind	IWA	Transite Removal	<=0.01	1030
7/23/2003	Bldg. 811-41-811-47 Braulio Monroy	P	Transite Removal	<=0.01	1030
7/23/2003	Bldg. 811-41-811-47 Saul Lopez	P	Transite Removal	0.07	62
7/24/2003	Bldg. 811-48-811-58 Upwind	IWA	Transite Removal	<=0.01	1020
7/24/2003	Bldg. 811-48-811-58 Downwind	IWA	Transite Removal	<=0.01	1016
7/24/2003	Bldg. 811-48-811-58	P	Transite Removal	<=0.01	1014
7/24/2003	Bldg. 811-48-811-58	P	Transite Removal	0.04	60
7/28/2003	Bldg. 713 Upwind	IWA	Transite Removal	<=0.01	978
7/28/2003	Bldg. 713 Downwind	IWA	Transite Removal	<=0.01	1002
7/28/2003	Bldg. 713 Ramon Herrera	P	Transite Removal	<=0.01	998
7/28/2003	Bldg. 713 Roberto Sierra	P	Transite Removal	0.04	60
7/29/2003	Bldg. 713 Upwind	IWA	Transite Removal	<=0.01	1020
7/29/2003	Bldg. 713 Downwind	IWA	Transite Removal	<=0.01	1018
7/29/2003	Bldg. 713 Saul Lopez	P	Transite Removal	<=0.01	1010
7/29/2003	Bldg. 713 Braulio Monroy	P	Transite Removal	0.02	120
7/30/2003	Bldg. 713 & 722-E Upwind	IWA	Transite Removal	<=0.01	1024
7/30/2003	Bldg. 713 & 722-E Downwind	IWA	Transite Removal	<=0.01	1024

Notes: IWA - Inside Work Area
OWA - Outside Work Area

TABLE B.1
PCM ENVIRONMENTAL AIR MONITORING RESULTS
LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS
EFI PROJECT NO. 98410-13709

Date	Sample Location	Type	Abatement Activity	Airborne Fiber Concentration (f/cc)	Volume (liters)
7/30/2003	Bldg. 713 & 722-E Roberto Sierra	P	Transite Removal	<=0.01	1036
7/30/2003	Bldg. 713 & 722-E Ramon Herrera	P	Transite Removal	<=0.01	1500
7/31/2003	Bldg. 718-A Upwind	IWA	Transite Removal	<=0.01	976
7/31/2003	Bldg. 718-A Downwind	IWA	Transite Removal	<=0.01	974
7/31/2003	Bldg. 718-A Braulio Monroy	P	Transite Removal	<=0.01	980
7/31/2003	Bldg. 713-A Roberto Sierra	P	Transite Removal	0.04	60
8/4/2003	Bldg. 718-A Upwind	IWA	Transite Removal	<=0.01	1040
8/4/2003	Bldg. 718-A Downwind	IWA	Transite Removal	<=0.01	1036
8/4/2003	Bldg. 718-A Saul Lopez	P	Transite Removal	<=0.01	1080
8/4/2003	Bldg. 718-A Braulio Monroy	P	Transite Removal	0.04	60
8/5/2003	Bldg. 718-A & 714 Upwind	IWA	Transite Removal	<=0.01	992
8/5/2003	Bldg. 718-A & 714 Downwind	IWA	Transite Removal	<=0.01	996
8/5/2003	Bldg. 718-A & 714 Ramon Herrera	P	Transite Removal	<=0.01	1000
8/5/2003	Bldg. 718-A & 714 Roberto Sierra	P	Transite Removal	0.04	60
8/6/2003	Bldg. 722-E Prep	IWA	Floor Tile Removal	<=0.01	720
8/6/2003	Bldg. 722-E O/S Decon	OWA	Floor Tile Removal	<=0.01	900
8/6/2003	Bldg. 722-E Clearance	IWA	Floor Tile Removal	<=0.01	1440
8/6/2003	Bldg. 722-E Clearance	IWA	Floor Tile Removal	<=0.01	1440
8/6/2003	Bldg. 722-E Clearance	IWA	Floor Tile Removal	<=0.01	1440
8/7/2003	Bldg. 717 Upwind	IWA	Transite Removal	<=0.01	900
8/7/2003	Bldg. 717 Downwind	IWA	Transite Removal	<=0.01	902
8/7/2003	Bldg. 717 Saul Lopez	P	Transite Removal	<=0.01	916
8/7/2003	Bldg. 717 Braulio Monroy	P	Transite Removal	0.04	60
8/11/2003	Bldg. 717 Upwind	IWA	Transite Removal	< .0049	910
8/11/2003	Bldg. 717 Downwind	IWA	Transite Removal	<=0.01	912
8/11/2003	Bldg. 717 Ramon Herrera	P	Transite Removal	<=0.01	938
8/11/2003	Bldg. 717 Braulio Monroy	P	Transite Removal	<.074	60
8/12/2003	Bldg. 206 Work Area	IWA	Baseline	<=0.01	1260
8/12/2003	Bldg. 206 Work Area	IWA	Baseline	<=0.01	1260
8/12/2003	Bldg. 206 Work Area	IWA	Prep.	<=0.01	720
8/12/2003	Bldg. 206 O/S Decon	IWA	Floor Tile Removal	<=0.01	840
8/12/2003	Bldg. 206 In-side Work Area	IWA	Clearance	<=0.01	1560
8/12/2003	Bldg. 206 In-side Work Area	IWA	Clearance	<=0.01	1560
8/12/2003	Bldg. 206 In-side Work Area	IWA	Clearance	<=0.01	1560
8/12/2003	Bldg. 206 Ramon Herrera	P	Floor Tile Removal	<=0.01	780
8/13/2003	Bldg. 206 In-side Work Area	IWA	Glovebag	<=0.01	960
8/13/2003	Bldg. 206 In-side Work Area	IWA	Glovebag	<=0.01	966
8/13/2003	Bldg. 206 Saul Lopez	P	Glovebag	<=0.01	976
8/13/2003	Bldg. 206 Braulio Monroy	P	Glovebag	0.05	60
8/14/2003	Bldg. 717 Upwind	IWA	Transite Removal	<=0.01	962
8/14/2003	Bldg. 717 Downwind	IWA	Transite Removal	<=0.01	962

Notes: IWA - Inside Work Area
OWA - Outside Work Area

TABLE B.1
PCM ENVIRONMENTAL AIR MONITORING RESULTS
LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS
EFI PROJECT NO. 98410-13709

Date	Sample Location	Type	Abatement Activity	Airborne Fiber Concentration (f/cc)	Volume (liters)
8/14/2003	Bldg. 717 Saul Lopez	P	Transite Removal	<=0.01	.966
8/14/2003	Bldg. 717 Ramon Herrera	P	Transite Removal	0.04	60
8/18/2003	Bldg. 717 Upwind	IWA	Transite Removal	<=0.01	1112
8/18/2003	Bldg. 717 Downwind	IWA	Transite Removal	<=0.01	2785
8/18/2003	Bldg. 717 Braulio Monroy	P	Transite Removal	<=0.01	1100
8/18/2003	Bldg. 717 Saul Lopez	P	Transite Removal	0.04	60
8/19/2003	Bldg. 717 / 707F / 707G Up wind	IWA	Transite Removal	<=0.01	910
8/19/2003	Bldg. 717 / 707F / 707G Down wind	IWA	Transite Removal	<=0.01	930
8/19/2003	Bldg. 717 / 707F / 707G Ramon Herrera	P	Transite Removal	<=0.01	948
8/19/2003	Bldg. 717 / 707F / 707G Roberto Sierra	P	Transite Removal	0.04	60
8/20/2003	Bldg. 707J Upwind	IWA	Transite Removal	<=0.01	710
8/20/2003	Bldg. 707J Down wind	IWA	Transite Removal	<=0.01	714
8/20/2003	Bldg. 723 In-side Work Area	IWA	Glovebag	<=0.01	360
8/20/2003	Bldg. 723 Saul Lopez	P	Transite Removal& Glovebag	<=0.01	1010
8/20/2003	Bldg. 723 Roberto Sierra	P	Glovebag Removal	0.04	60
8/21/2003	Bldg. 723 In-side Work Area	IWA	Glovebag	<=0.01	1000
8/21/2003	Bldg. 723 In-side Work Area	IWA	Glovebag	<=0.01	1000
8/21/2003	Bldg. 723 Braulio Monroy	P	Glovebag	<=0.01	946
8/21/2003	Bldg. 723 Ramon Herrera	P	Glovebag	0.07	60
8/25/2003	Bldg. 723 Upwind	IWA	Transite Removal	<=0.01	1030
8/25/2003	Bldg. 723 Downwind	IWA	Transite Removal	<=0.01	1036
8/25/2003	Bldg. 723 Ramon Herrera	P	Transite Removal	<=0.01	1044
8/25/2003	Bldg. 723 Saul Lopez	P	Transite Removal	0.09	60
8/26/2003	Bldg. 726C,726D,4-ST Upwind	IWA	Transite Removal	<=0.01	1040
8/26/2003	Bldg. 726C,726D,4-ST Downwind	IWA	Transite Removal	<=0.01	1034
8/26/2003	Bldg. 726C,726D,4-ST Ramon Herrera	P	Transite Removal	<=0.01	1040
8/26/2003	Bldg. 726C,726D,4-ST Braulio Monroy	P	Transite Removal	0.04	60
8/27/2003	Bldg. 723,722P	IWA	Glovebag Removal	<=0.01	1062
8/27/2003	Bldb. 723,722P	IWA	Glovebag Removal	<=0.01	1060
8/27/2003	Bldg. 723,722P Braulio Monroy	P	Glovebag Removal	<=0.01	1062
8/27/2003	Bldg. 723,722P Ramon Herrera	P	Glovebag Removal	0.11	60
8/28/2003	Bldg. 722P	IWA	Glovebag Removal	<=0.01	1050
8/28/2003	Bldg. 722P	IWA	Glovebag Removal	<=0.01	1044
8/28/2003	Bldg. 722P Saul Lopez	P	Glovebag Removal	<=0.01	1030
8/28/2003	Bldg. 722P Roberto Sierra	P	Glovebag Removal	0.11	60
9/2/2003	Bldg. 723 O/S water storage tank	OWA	Prep.	<=0.01	1500
9/2/2003	Bldg. 723 O/S water storage tank	OWA	Removal	<=0.01	1500

Notes: IWA - Inside Work Area
OWA - Outside Work Area

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PCM ENVIRONMENTAL AIR MONITORING RESULTS
LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS
EFI PROJECT NO. 98410-13709

Date	Sample Location	Type	Abatement Activity	Airborne Fiber Concentration (f/cc)	Volume (liters)
9/2/2003	Bldg. 723 O/S water storage tank	OWA	Removal	<=0.01	1700
9/2/2003	Bldg. 723 Braulio Monroy	P	Removal	<=0.01	720
9/2/2003	Bldg. 723 Clearance	IWA	Clearance	<=0.01	1378
9/2/2003	Blnd. 723 Clearance	IWA	Clearance	<=0.01	1363
9/3/2003	Bldg. 201 A Floor Tile Removal	IWA	Prep.	<=0.01	1500
9/3/2003	Bldg. 201 A Floor Tile Removal	OWA	Removal	<=0.01	1500
9/3/2003	Bldg. 201 A Floor Tile Removal	IWA	Removal	0.02	680
9/3/2003	Bldg. 201 A Floor Tile Removal	OWA	Removal	<=0.01	674
9/4/2003	Bldg. 201 A Floor Tile Removal	OWA	Removal	<=0.01	1313
9/4/2003	Bldg. 201 Rammon Herrera	P	Removal	<=0.01	996
9/4/2003	Bldg. 201 Saul Lopez	P	Removal	0.07	60
9/4/2003	Bldg. 201 A Mastic Removal	OWA	Removal	<=0.01	3250
9/4/2003	Bldg. 201 A Mastic Removal	IWA	Clearance	<=0.01	1313
9/4/2003	Bldg. 201 A Mastic Removal	IWA	Clearance	<=0.01	1300
9/4/2003	Bldg. 201 A Mastic Removal	IWA	Clearance	<=0.01	1313
9/5/2003	Bldg. 722 P	IWA	Upwind Transite Removal	<=0.01	840
9/5/2003	Bldg. 722 P	IWA	Downwind Transite Removal	<=0.01	838
9/5/2003	Bldg. 722 P Braulio Monroy	P	Removal	<=0.01	862
9/5/2003	Bldg. 722 P Saul Lopez	P	Removal	0.04	60
9/8/2003	Bldg. 722 P & 501B	IWA	Upwind Transite Removal	<=0.01	1048
9/8/2003	Bldg. 722 P & 501B	IWA	Downwind Transite Removal	<=0.01	1040
9/8/2003	Bldg. 722 P & 501B Ramon Herrera	P	Removal	<=0.01	1040
9/8/2003	Bldg. 722 P & 501B Saul Lopez	P	Removal	0.13	60
9/9/2003	Bldg. 204	IWA	Upwind Transite Removal	<=0.01	1092
9/9/2003	Bldg. 204	IWA	Downwind Transite Removal	<=0.01	1088
9/9/2003	Bldg. 204 Romon Herrera	P	Transite Removal	<=0.01	1084
9/9/2003	Bldg. 204 Braulio Monroy	P	Transite Removal	0.05	60
9/11/2003	Various Bldg. Area Clean-up	P	Transite Clean-up	<=0.01	980
9/11/2003	Various Bldg. Area Clean-up	P	Transite Clean-up	0.04	60
9/15/2003	Various Bldg. Area Clean-up	P	Transite Clean-up.	<=0.01	1078
9/15/2003	Various Bldg. Area Clean-up	P	Transite Clean-up	0.04	60
9/16/2003	Bldg. 206 Braulio Monroy	P	Glovebag Removal	<=0.01	1060
9/16/2003	Bldg. 206 Roberto Sierra	P	Glovebag Removal	0.08	60
9/16/2003	Bldg. 206	IWA	Glovebag Removal	<=0.01	1070
9/16/2003	Bldg. 206	IWA	Glovebag Removal	<=0.01	1072
9/17/2003	Site Clean-up Saul Lopez	P	Demo Debri Clean-up	<=0.01	910
9/17/2003	Site Clean-up Roberto Sierra	P	Demo Debri Clean-up	0.04	60
9/17/2003	Site Clean-up Ramon Herrera	P	Demo Debri Clean-up	<=0.01	838
9/17/2003	Site Clean-up Braulio Monroy	P	Demo Debri Clean-up	0.04	60
9/22/2003	Bldg. 202	IWA	Glovebag Removal	<=0.01	806
9/22/2003	Bldg. 202	IWA	Glovebag Removal	0.02	804

Notes: IWA - Inside Work Area
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PCM ENVIRONMENTAL AIR MONITORING RESULTS
LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS
EFI PROJECT NO. 98410-13709

Date	Sample Location	Type	Abatement Activity	Airborne Fiber Concentration (f/cc)	Volume (liters)
9/22/2003	Bldg. 202 Robero Sierra	P	Glovebag Removal	<=0.01	1002
9/22/2003	Bldg. 202 Saul Lopez	P	Glovebag Removal	0.09	60
9/23/2003	Bldg. 202 Upwind	IWA	Transite Removal	<=0.01	840
9/23/2003	Bldg. 202 Downwind	IWA	Transite Removal	<=0.01	866
9/23/2003	Bldg. 202 Ramon Herrera	P	Transite Removal	<=0.01	1000
9/23/2003	Bldg. 202 Braulio Monroy	P	Transite Removal	<.074	60
9/23/2003	Site Clean-up Saul Lopez	P	Transite Removal	<=0.01	1082
9/24/2003	Site Clean-up Ramon Herrera	P	Transite Removal	0.04	60
9/25/2003	Site Clean-up Braulio Monroy	P	Transite Removal	<=0.01	1024
9/25/2003	Site Clean-up Roberto Sierra	P	Transite Removal	0.04	60
9/29/2003	BLDG 201R & 202 Upwind	IWA	Transite Removal	<=0.01	942
9/29/2003	BLDG 201R & 202 Downwind	IWA	Transite Removal	<=0.01	962
9/29/2003	BLDG 201R & 202 Ramon Herrera	P	Transite Removal	<=0.01	992
9/29/2003	BLDG 201R & 202 Braulio Monroy	P	Transite Removal	0.05	60
9/30/2003	BLDG 202 Upwind	IWA	Transite Removal	<=0.01	1040
9/30/2003	BLDG 202 Downwind	IWA	Transite Removal	<=0.01	1036
9/30/2003	BLDG 202 Saul Lopez	P	Transite Removal	<=0.01	1030
9/30/2003	BLDG 202 Roberto Sierra	P	Transite Removal	0.04	60
10/6/2003	BLDG 202 Upwind	IWA	Transite Removal	<=0.01	1030
10/6/2003	BLDG 202 Downwind	IWA	Transite Removal	<=0.01	1030
10/6/2003	BLDG 202 Saul Lopez	P	Transite Removal	<=0.01	1100
10/6/2003	BLDG 202 Ramon Herrera	P	Transite Removal	0.06	60
10/7/2003	BLDG 202	IWA	Glovebag Removal	<=0.01	850
10/7/2003	BLDG 202	IWA	Glovebag Removal	<=0.01	848
10/7/2003	BLDG 202 Braulio Monroy	P	Transite Removal	<=0.01	854
10/7/2003	BLDG 202 Roberto Sierra	P	Transite Removal	0.15	60
10/8/2003	BLDG 201 Upwind	IWA	Transite Removal	<=0.01	970
10/8/2003	BLDG 201 Downwind	IWA	Transite Removal	<=0.01	964
10/8/2003	BLDG 201 Roberto Sierra	P	Transite Removal	<=0.01	980
10/8/2003	BLDG 201 Braulio Monroy	P	Transite Removal	0.04	60
10/9/2003	BLDG 201 Upwind	IWA	Transite Removal	<=0.01	966
10/9/2003	BLDG 201 Downwind	IWA	Transite Removal	<=0.01	964
10/13/2003	BLDG 201 Upwind	IWA	Transite Removal	<=0.01	870
10/13/2003	BLDG 201 Downwind	IWA	Transite Removal	<=0.01	902
10/13/2003	BLDG 201 Saul Lopez	P	Transite Removal	<=0.01	1006
10/13/2003	BLDG 201 Ramon Herrera	P	Transite Removal	0.09	60
10/14/2003	Site Clean-up Roberto Sierra	P	Transite Removal	<=0.01	1078
10/14/2003	Site Clean-up Braulio Monroy	P	Transite Removal	0.04	60
10/15/2003	BLDG 201 Upwind	IWA	Transite Removal	<=0.01	1268
10/15/2003	BLDG 201 Downwind	IWA	Transite Removal	<=0.01	1030
10/15/2003	BLDG 201 Ramon Herrera	P	Transite Removal	<=0.01	1040

Notes: IWA - Inside Work Area
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PCM ENVIRONMENTAL AIR MONITORING RESULTS
LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS
EFI PROJECT NO. 98410-13709

Date	Sample Location	Type	Abatement Activity	Airborne Fiber Concentration (f/cc)	Volume (liters)
10/15/2003	BLDG 201 Saul Lopez	P	Transite Removal	0.04	60
10/16/2003	BLDG 201 Upwind	IWA	Transite Removal	<=0.01	918
10/16/2003	BLDG 201 Downwind	IWA	Transite Removal	<=0.01	922
10/16/2003	BLDG 201 Braulio Monroy	P	Transite Removal	<=0.01	936
10/16/2003	BLDG 201 Saul Lopez	P	Transite Removal	0.04	60
10/27/2003	BLDG 201 Upwind	IWA	Transite Removal	<=0.01	1002
10/27/2003	BLDG 201 Downwind	IWA	Transite Removal	<=0.01	1002
10/27/2003	BLDG 201 Saul Lopez	P	Transite Removal	<=0.01	1056
10/27/2003	BLDG 201 Braulio Monroy	P	Transite Removal	<=0.01	1500
10/28/2003	BLDG 201 Upwind	IWA	Transite Removal	<=0.01	1044
10/28/2003	BLDG 201 Downwind	IWA	Transite Removal	<=0.01	1042
10/28/2003	BLDG 201 Ramon Herrera	P	Transite Removal	<=0.01	1046
10/28/2003	BLDG 201 Saul Lopez	P	Transite Removal	0.04	60
10/29/2003	BLDG 201 Upwind	IWA	Transite Removal	<=0.01	1090
10/29/2003	BLDG 201 Downwind	IWA	Transite Removal	<=0.01	1088
10/29/2003	BLDG 201 Braulio Monroy	P	Transite Removal	<=0.01	1080
10/29/2003	BLDG 201 Ramon Herrera	P	Transite Removal	0.04	62
10/30/2003	BLDG 201 Upwind	IWA	Transite Removal	<=0.01	1020
10/30/2003	BLDG 201 Downwind	IWA	Transite Removal	<=0.01	1030
10/30/2003	BLDG 201 Saul Lopez	P	Transite Removal	<=0.01	1040
10/30/2003	BLDG 201 Ramon Herrera	P	Transite Removal	0.06	60
11/10/2003	BLDG 201 Upwind	IWA	Transite Removal	<=0.01	1000
11/10/2003	BLDG 201 Downwind	IWA	Transite Removal	<=0.01	1002
11/10/2003	BLDG 201 Ramon Herrera	P	Transite Removal	<=0.01	980
11/10/2003	BLDG 201 Roberto Sierra	P	Transite Removal	<=0.01	988
11/11/2003	BLDG 201 Upwind	IWA	Transite Removal	<=0.01	1070
11/11/2003	BLDG 201 Downwind	IWA	Transite Removal	<=0.01	1072
11/11/2003	BLDG 201 Saul Lopez	P	Transite Removal	<=0.01	1078
11/11/2003	BLDG 201 Braulio Monroy	P	Transite Removal	0.04	60
11/12/2003	BLDG 201 Upwind	IWA	Transite Removal	<=0.01	1072
11/12/2003	BLDG 201 Downwind	IWA	Transite Removal	<=0.01	1080
11/12/2003	BLDG 201 Ramon Herrera	P	Transite Removal	<=0.01	1050
11/12/2003	BLDG 201 Roberto Sierra	P	Transite Removal	0.04	60
11/13/2003	BLDG 709A Upwind	IWA	Transite Removal	<=0.01	1310
11/13/2003	BLDG 709A Downwind	IWA	Transite Removal	<=0.01	1056
11/13/2003	BLDG 709A Saul Lopez	P	Transite Removal	<=0.01	1080
11/13/2003	BLDG 709A Braulio Monroy	P	Transite Removal	0.04	60
11/17/2003	BLDG 206 Upwind	IWA	Transite Removal	<=0.01	1026
11/17/2003	BLDG 206 Downwind	IWA	Transite Removal	<=0.01	1036
11/17/2003	BLDG 206 Saul Lopez	P	Transite Removal	<=0.01	1062
11/17/2003	BLDG 206 Braulio Monroy	P	Transite Removal	<=0.01	1500

Notes: IWA - Inside Work Area
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PCM ENVIRONMENTAL AIR MONITORING RESULTS
LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS
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Date	Sample Location	Type	Abatement Activity	Airborne Fiber Concentration (f/cc)	Volume (liters)
11/18/2003	BLDG 206 Upwind	IWA	Transite Removal	<=0.01	1048
11/18/2003	BLDG 206 Downwind	IWA	Transite Removal	<=0.01	1046
11/18/2003	BLDG 206 Roberto Sierra	P	Transite Removal	<=0.01	1038
11/18/2003	BLDG 206 Ramon Herrera	P	Transite Removal	0.04	60
11/19/2003	BLDG 206 Upwind	IWA	Transite Removal	<=0.01	1072
11/19/2003	BLDG 206 Downwind	IWA	Transite Removal	<=0.01	1090
11/19/2003	BLDG 206 Saul Lopez	P	Transite Removal	<=0.01	1086
11/19/2003	BLDG 206 Braulio Monroy	P	Transite Removal	0.04	60
11/20/2003	BLDG 413A Upwind	IWA	Transite Removal	<=0.01	520
11/20/2003	BLDG 413A Downwind	IWA	Transite Removal	<=0.01	528
11/21/2003	BLDG 413A Upwind	IWA	Transite Removal	<=0.01	1050
11/21/2003	BLDG 413A Downwind	IWA	Transite Removal	<=0.01	1052
11/21/2003	BLDG 413A Saul Lopez	P	Transite Removal	<=0.01	1080
11/21/2003	BLDG 413A Braulio Monroy	P	Transite Removal	0.04	60
11/24/2003	BLDG 413A Upwind	IWA	Transite Removal	<=0.01	1128
11/24/2003	BLDG 413A Downwind	IWA	Transite Removal	<=0.01	1100
11/24/2003	BLDG 413A Roberto Sierra	P	Transite Removal	<=0.01	1102
11/24/2003	BLDG 413A Ramon Herrera	P	Transite Removal	0.04	60
11/25/2003	BLDG 413A Upwind	IWA	Transite Removal	<=0.01	1064
11/25/2003	BLDG 413A Downwind	IWA	Transite Removal	<=0.01	1072
11/25/2003	BLDG 413A Saul Lopez	P	Transite Removal	<=0.01	1088
11/25/2003	BLDG 413A Braulio Monroy	P	Transite Removal	0.04	60
1/12/2004	BLDG 413A Upwind	IWA	Transite Removal	<=0.01	980
1/12/2004	BLDG 413A Downwind	IWA	Transite Removal	<=0.01	978
1/12/2004	BLDG 413A Saul Lopez	P	Transite Removal	<=0.01	982
1/12/2004	BLDG 413A Fernando Delgado	P	Transite Removal	0.04	60
1/13/2004	BLDG 413A Upwind	IWA	Transite Removal	<=0.01	974
1/13/2004	BLDG 413A Downwind	IWA	Transite Removal	<=0.01	974
1/13/2004	BLDG 413A Fernando Delgado	IWA	Transite Removal	<=0.01	992
1/13/2004	BLDG 413A Jesus Villanueva	IWA	Transite Removal	0.04	60
1/14/2004	BLDG 413A Upwind	IWA	Transite Removal	<=0.01	968
1/14/2004	BLDG 413A Downwind	IWA	Transite Removal	<=0.01	954
1/14/2004	BLDG 413A Jesus Villanueva	P	Transite Removal	<=0.01	988
1/14/2004	BLDG 413A Fernando Delgado	P	Transite Removal	0.04	60
1/15/2004	BLDG 413A Upwind	IWA	Transite Removal	<=0.01	1036
1/15/2004	BLDG 413A Downwind	IWA	Transite Removal	<=0.01	1032
1/15/2004	BLDG 413A Saul Lopez	P	Transite Removal	<=0.01	1032
1/15/2004	BLDG 413A Ramon Herrera	P	Transite Removal	0.04	60
1/19/2004	BLDG 413A Upwind	IWA	Transite Removal	<=0.01	540
1/19/2004	BLDG 413A Downwind	IWA	Transite Removal	<=0.01	536
1/20/2004	BLDG 413A Upwind	IWA	Transite Removal	<=0.01	450

Notes: IWA - Inside Work Area
OWA - Outside Work Area

TABLE B.1
PCM ENVIRONMENTAL AIR MONITORING RESULTS
LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS
EFI PROJECT NO. 98410-13709

Date	Sample Location	Type	Abatement Activity	Airborne Fiber Concentration (f/cc)	Volume (liters)
1/20/2004	BLDG 814 Upwind	IWA	Transite Removal	<=0.01	452
1/21/2004	BLDG 814 & 813 Upwind	IWA	Transite Removal	<=0.01	1058
1/21/2004	BLDG 814 & 813 Downwind	IWA	Transite Removal	<=0.01	1056
1/21/2004	BLDG 814 & 813 Saul Lopez	P	Transite Removal	<=0.01	1090
1/21/2004	BLDG 814 & 813 Ramon Herrera	P	Transite Removal	0.04	60
1/22/2004	BLDG TS 10/800 Upwind	IWA	Transite Removal	<=0.01	1016
1/22/2004	BLDG TS 10/800 Downwind	IWA	Transite Removal	<=0.01	1020
1/22/2004	BLDG TS 10/800 Jesus Villanueva	P	Transite Removal	<=0.01	1038
1/22/2004	BLDG TS 10/800 Fernando Delgado	P	Transite Removal	0.04	60
1/26/2004	BLDG 4Y2 & 4Y Upwind	IWA	Transite Removal	<=0.01	870
1/26/2004	BLDG 4Y2 & 4Y Downwind	IWA	Transite Removal	<=0.01	870
1/26/2004	BLDG 4Y2 & 4Y Fernando Delgado	P	Transite Removal	<=0.01	910
1/26/2004	BLDG 4Y2 & 4Y Jesus Villanueva	P	Transite Removal	0.04	60
1/27/2004	BLDG 3Y-13Y-4Y2 Upwind	IWA	Transite Removal	<=0.01	1048
1/27/2004	BLDG 3Y-13Y-4Y2 Downwind	IWA	Transite Removal	<=0.01	1058
1/27/2004	BLDG 3Y-13Y-4Y2 Saul Lopez	P	Transite Removal	<=0.01	1072
1/27/2004	BLDG 3Y-13Y-4Y2 Ramon Herrera	P	Transite Removal	0.04	60
1/28/2004	BLDG 16Y UPWIND	IWA	Transite Removal	<=0.01	990
1/28/2004	BLDG 16Y Downwind	IWA	Transite Removal	<=0.01	960

Notes: IWA - Inside Work Area
OWA - Outside Work Area

TABLE B.1
PCM ENVIRONMENTAL AIR MONITORING RESULTS
LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS
EFI PROJECT NO. 98410-13709

Date	Sample Location	Type	Abatement Activity	Airborne Fiber Concentration (f/cc)	Volume (liters)
1/29/2004	BLDG 16Y Upwind	IWA	Transite Removal	<=0.01	1044
1/29/2004	BLDG 16Y Downwind	IWA	Transite Removal	<=0.01	1040
1/29/2004	BLDG 16Y Fernando Delgado	P	Transite Removal	<=0.01	1066
1/29/2004	BLDG 16Y Jesus Villanueva	P	Transite Removal	0.04	60
2/2/2004	BLDG 16Y Upwind	IWA	Transite Removal	<=0.01	942
2/2/2004	BLDG 16Y Downwind	IWA	Transite Removal	<=0.01	962
2/2/2004	BLDG 16Y Saul Lopez	IWA	Transite Removal	<=0.01	970
2/2/2004	BLDG 16Y Herrera	P	Transite Removal	0.07	60
2/3/2004	BLDG 16Y Upwind	IWA	Transite Removal	<=0.01	940
2/3/2004	BLDG 16Y Downwind	IWA	Transite Removal	<=0.01	946
2/3/2004	BLDG 16Y Fernando Delgado	P	Transite Removal	<=0.01	914
2/3/2004	BLDG 16Y Jesus Villanueva	P	Transite Removal	0.04	60
2/4/2004	BLDG 16Y Upwind	IWA	Transite Removal	<=0.01	980
2/4/2004	BLDG 16Y Downwind	IWA	Transite Removal	<=0.01	982
2/4/2004	BLDG 16Y Ramon Herrera	P	Transite Removal	<=0.01	976
2/4/2004	BLDG 16Y Fernando Delgado	P	Transite Removal	0.04	60
2/5/2004	BLDG 16 Y T.S.I.	IWA	Glove Bag Removal	<=0.01	800
2/5/2004	BLDG 16 Y T.S.I.	IWA	Glove Bag Removal	<=0.01	798
2/5/2004	BLDG 16 Y T.S.I. Herrera	P	Glove Bag Removal	<=0.01	880
2/5/2004	BLDG 16 Y T.S.I. Delgado	P	Glove Bag Removal	0.05	58
2/9/2004	BLDG 18Y Upwind	IWA	Transite Removal	<=0.01	900
2/9/2004	BLDG 18Y Downwind	IWA	Transite Removal	<=0.01	900
2/9/2004	BLDG 18Y Lopez	P	Transite Removal	<=0.01	938
2/9/2004	BLDG 18Y Herrera	P	Transite Removal	0.04	60
2/10/2004	BLDG 18Y Upwind	IWA	Transite Removal	<=0.01	1024
2/10/2004	BLDG 18Y Downwind	IWA	Transite Removal	<=0.01	1028
2/10/2004	BLDG 18Y	P	Transite Removal	<=0.01	1028
2/10/2004	BLDG 18Y	P	Transite Removal	0.04	60
2/11/2004	BLDG 18Y Upwind	IWA	Transite Removal	<=0.01	976
2/11/2004	BLDG 18Y Downwind	IWA	Transite Removal	<=0.01	974
2/11/2004	BLDG 18Y Lopez	P	Transite Removal	<=0.01	974
2/11/2004	BLDG 18Y Herrera	P	Transite Removal	0.04	60
2/12/2004	BLDG 18Y Upwind	IWA	Transite Removal	<=0.01	970
2/12/2004	BLDG 18Y Downwind	IWA	Transite Removal	<=0.01	966
2/12/2004	BLDG 18Y Villanueva	P	Transite Removal	<=0.01	962
2/12/2004	BLDG 18Y Delgado	P	Transite Removal	0.04	60
2/16/2004	BLDG 18Y Upwind	IWA	Transite Removal	<=0.01	1000
2/16/2004	BLDG 18Y Downwind	IWA	Transite Removal	<=0.01	1004
2/16/2004	BLDG 18Y Lopez	P	Transite Removal	<=0.01	1006
2/16/2004	BLDG 18Y Herrera	P	Transite Removal	0.04	60
2/17/2004	BLDG 18Y Upwind	IWA	Transite Removal	<=0.01	1020
2/17/2004	BLDG 18Y Downwind	IWA	Transite Removal	<=0.01	994

Notes: IWA - Inside Work Area
OWA - Outside Work Area

TABLE B.1
PCM ENVIRONMENTAL AIR MONITORING RESULTS
LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS
EFI PROJECT NO. 98410-13709

Date	Sample Location	Type	Abatement Activity	Airborne Fiber Concentration (f/cc)	Volume (liters)
2/17/2004	BLDG 18Y Villanueva	P	Transite Removal	<=0.01	1020
2/17/2004	BLDG 18Y Delgado	P	Transite Removal	0.05	60
2/18/2004	BLDG 18Y Upwind	IWA	Transite Removal	<=0.01	1054
2/18/2004	BLDG 18Y Downwind	IWA	Transite Removal	<=0.01	1056
2/18/2004	BLDG 18Y Lopez	P	Transite Removal	<=0.01	1072
2/18/2004	BLDG 18Y Delgado	P	Transite Removal	0.04	60
2/19/2004	BLDG 16Y	IWA	Glove Bag Removal	<=0.01	756
2/19/2004	BLDG 16Y	IWA	Glove Bag Removal	<=0.01	758
2/23/2004	BLDG 18Y & 601A Upwind	IWA	Transite Removal	<=0.01	1030
2/23/2004	BLDG 18Y & 601A Downwind	IWA	Transite Removal	<=0.01	1038
2/23/2004	BLDG 18Y & 601A	P	Transite Removal	<=0.01	1058
2/23/2004	BLDG 18Y & 601A	P	Transite Removal	0.04	60
2/24/2004	BLDG 32Y & 29Y Upwind	IWA	Transite Removal	<=0.01	1066
2/24/2004	BLDG 32Y & 29Y Downwind	IWA	Transite Removal	<=0.01	1062
2/24/2004	BLDG 32Y & 29Y	P	Transite Removal	<=0.01	1060
2/24/2004	BLDG 32Y & 29Y	P	Transite Removal	0.06	60
2/25/2004	BLDG 34Y Upwind	IWA	Transite Removal	<=0.01	1060
/25/2004	BLDG 34Y Downwind	IWA	Transite Removal	<=0.01	1052
2/25/2004	BLDG 34Y Lopez	P	Transite Removal	<=0.01	1038
2/25/2004	BLDG 34Y Herrera	P	Transite Removal	0.04	60
2/26/2004	BLDG 34Y Upwind	IWA	Transite Removal	<=0.01	1060
2/26/2004	BLDG 34Y Downwind	IWA	Transite Removal	<=0.01	1060
2/26/2004	BLDG 34Y Villanueva	P	Transite Removal	<=0.01	1078
2/26/2004	BLDG 34Y Delgado	P	Transite Removal	0.07	60
3/1/2004	BLDG 34Y	IWA	Transite Removal	<=0.01	1028
3/1/2004	BLDG 34Y	IWA	Transite Removal	<=0.01	1028
3/1/2004	BLDG 34Y	P	Transite Removal	<=0.01	1064
3/1/2004	BLDG 34Y	P	Transite Removal	0.04	60
3/2/2004	BLDG 34Y Upwind	IWA	Transite Removal	<=0.01	1078
3/2/2004	BLDG 34Y Downwind	IWA	Transite Removal	<=0.01	1076
3/2/2004	BLDG 34Y Villanueva	P	Transite Removal	<=0.01	1082
3/2/2004	BLDG 34Y Delgado	P	Transite Removal	0.04	60
3/3/2004	BLDG 34Y Upwind	IWA	Transite Removal	<=0.01	1060
3/3/2004	BLDG 34Y Downwind	IWA	Transite Removal	<=0.01	1066
3/3/2004	BLDG 34Y LOPEZ	P	Transite Removal	<=0.01	1092
3/3/2004	BLDG 34Y Herrera	P	Transite Removal	0.06	60
3/4/2004	BLDG 34Y Upwind	IWA	Transite Removal	<=0.01	810
3/4/2004	BLDG 34Y Downwind	IWA	Transite Removal	<=0.01	822
3/4/2004	BLDG 34Y Villanueva	P	Transite Removal	<=0.01	838
3/4/2004	BLDG 34Y Delgado	P	Transite Removal	0.04	60
3/8/2004	BLDG 8T PREP	IWA	PREP	<=0.01	940
3/8/2004	BLDG 8T PREP	IWA	PREP	<=0.01	940

Notes: IWA - Inside Work Area
OWA - Outside Work Area

TABLE B.1
PCM ENVIRONMENTAL AIR MONITORING RESULTS
LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS
EFI PROJECT NO. 98410-13709

Date	Sample Location	Type	Abatement Activity	Airborne Fiber Concentration (f/cc)	Volume (liters)
3/8/2004	BLDG 8T	IWA	FLOOR TILE REMOVAL	<=0.01	1010
3/9/2004	BLDG 8T	IWA	FLOOR TILE REMOVAL	<=0.01	1006
3/9/2004	BLDG 8T LOPEZ	P	FLOOR TILE REMOVAL	<=0.01	1038
3/9/2004	BLDG 8T HERRERA	P	FLOOR TILE REMOVAL	0.09	60
3/10/2004	BLDG 8T	IWA	FLOOR TILE REMOVAL	<=0.01	1038
3/10/2004	BLDG 8T	IWA	FLOOR TILE REMOVAL	<=0.01	1074
3/10/2004	BLDG 8T VILLANUEVA	P	FLOOR TILE REMOVAL	<=0.01	1070
3/10/2004	BLDG 8T DELGADO	P	FLOOR TILE REMOVAL	0.04	60
3/11/2004	BLDG 8T	IWA	Transite Removal	<=0.01	1040
3/11/2004	BLDG 8T	IWA	Transite Removal	<=0.01	1068
3/11/2004	BLDG 8T LOPEZ	P	Transite Removal	<=0.01	1072
3/11/2004	BLDG 8T HERRERA	P	Transite Removal	0.06	60
3/15/2004	BLDG 8T UPWIND	IWA	Transite Removal	<=0.01	1076
3/15/2004	BLDG 8T DOWNWIND	IWA	Transite Removal	<=0.01	1068
3/15/2004	BLDG 8T LOPEZ	P	Transite Removal	<=0.01	1062
3/15/2004	BLDG 8T HERRERA	P	Transite Removal	0.07	60
3/16/2004	BLDG 8T UPWIND	IWA	Transite Removal	<=0.01	1044
3/16/2004	BLDG 8T DOWNWIND	IWA	Transite Removal	<=0.01	1034
3/16/2004	BLDG 8T VILLANUEVA	P	Transite Removal	<=0.01	1046
3/16/2004	BLDG 8T DELGADO	P	Transite Removal	0.06	60
3/17/2004	BLDG 8T UPWIND	IWA	Transite Removal	<=0.01	1048
3/17/2004	BLDG 8T DOWNWIND	IWA	Transite Removal	<=0.01	1050
3/17/2004	BLDG 8T LOPEZ	P	Transite Removal	<=0.01	1048
3/17/2004	BLDG 8T HERRERA	P	Transite Removal	0.08	60
3/18/2004	BLDG 8T UPWIND	IWA	Transite Removal	<=0.01	1050
3/18/2004	BLDG 8T DOWNWIND	IWA	Transite Removal	<=0.01	1048
3/18/2004	BLDG 8T VILLANUEVA	P	Transite Removal	<=0.01	1048
3/18/2004	BLDG 8T DELGADO	P	Transite Removal	<=0.01	1046
3/22/2004	BLDG 13T UPWIND	IWA	Transite Removal	<=0.01	842
3/22/2004	BLDG 13T DOWNWIND	IWA	Transite Removal	<=0.01	848
3/22/2004	BLDG 16T UPWIND	IWA	Transite Removal	<=0.01	1080
3/23/2004	BLDG 16T DOWNWIND	IWA	Transite Removal	<=0.01	1084
3/23/2004	BLDG 16T LOPEZ	P	Transite Removal	<=0.01	1066
3/23/2004	BLDG 16T HERRERA	P	Transite Removal	0.04	60
3/24/2004	BLDG 16T UPWIND	IWA	Transite Removal	<=0.01	1058
3/24/2004	BLDG 16T DOWNWIND	IWA	Transite Removal	<=0.01	1060
3/24/2004	BLDG 16T VILLANUEVA	P	Transite Removal	<=0.01	1082
3/24/2004	BLDG 16T DELGADO	P	Transite Removal	0.06	60
3/25/2004	BLDG 16T UPWIND	IWA	Transite Removal	<=0.01	1046
3/25/2004	BLDG 16T DOWNWIND	IWA	Transite Removal	<=0.01	1042
3/25/2004	BLDG 16T LOPEZ	P	Transite Removal	<=0.01	1060
3/25/2004	BLDG 16T HERRERA	P	Transite Removal	0.04	60

Notes: IWA - Inside Work Area
OWA - Outside Work Area

TABLE B.1
PCM ENVIRONMENTAL AIR MONITORING RESULTS
LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS
EFI PROJECT NO. 98410-13709

Date	Sample Location	Type	Abatement Activity	Airborne Fiber Concentration (f/cc)	Volume (liters)
3/29/2004	BLDG 20T UPWIND	IWA	Transite Removal	<=0.01	998
3/29/2004	BLDG 20T DOWNWIND	IWA	Transite Removal	<=0.01	998
3/29/2004	BLDG 20T LOPEZ	P	Transite Removal	<=0.01	1006
3/29/2004	BLDG 20T HERRERA	P	Transite Removal	0.06	60
3/30/2004	BLDG 20T UPWIND	IWA	Transite Removal	<=0.01	1064
3/30/2004	BLDG 20T DOWNWIND	IWA	Transite Removal	<=0.01	1064
3/30/2004	BLDG 20T VILLANUEVA	P	Transite Removal	<=0.01	1056
3/30/2004	BLDG 20T DELAGADO	P	Transite Removal	0.04	60
3/31/2004	BLDG 35T & 39T UPWIND	IWA	Transite Removal	<=0.01	1066
3/31/2004	BLDG 35T & 39T DOWNWIND	IWA	Transite Removal	<=0.01	1066
3/31/2004	BLDG 35T & 39T LOPEZ	P	Transite Removal	<=0.01	1084
3/31/2004	BLDG 35T & 39T HERRERA	P	Transite Removal	0.04	60
4/1/2004	BLDG 101 UPWIND	IWA	Transite Removal	<=0.01	1100
4/1/2004	BLDG 101 DOWNWIND	IWA	Transite Removal	<=0.01	1096
4/1/2004	BLDG 101 VILLANUEVA	P	Transite Removal	<=0.01	1094
4/1/2004	BLDG 101 DELGADO	P	Transite Removal	0.04	60
4/5/2004	BLDG 31T UPWIND	IWA	Transite Removal	<=0.01	1060
4/5/2004	BLDG 31T DOWNWIND	IWA	Transite Removal	<=0.01	1080
4/5/2004	BLDG 31T LOPEZ	P	Transite Removal	<=0.01	1092
4/5/2004	BLDG 31T HERRERA	P	Transite Removal	0.05	60
4/6/2004	BLDG 31T UPWIND	IWA	Transite Removal	<=0.01	1082
4/6/2004	BLDG 31T DOWNWIND	IWA	Transite Removal	<=0.01	1080
4/6/2004	BLDG 31T VILLANUEVA	IP	Transite Removal	<=0.01	1104
4/6/2004	BLDG 31T DELGADO	P	Transite Removal	<=0.01	1500
4/7/2004	BLDG 31T UPWIND	IWA	Transite Removal	<=0.01	946
4/7/2004	BLDG 31T DOWNWIND	IWA	Transite Removal	<=0.01	940
4/7/2004	BLDG 31T LOPEZ	P	Transite Removal	<=0.01	948
4/7/2004	BLDG 31T HERRERA	P	Transite Removal	0.04	60

Notes: IWA - Inside Work Area
OWA - Outside Work Area

APPENDIX C
DAILY FIELD NOTES

3/18/03 & 3/19/03

NOTES: Daily NOTES

EFI®

703 - 703A - MONDAY - General DEBRIS clean up on 3/17/03

3/18/03 - 703 & 703A & 719 - General Brush clearing around Bldg.

- PRE-CON MTG. w/ BRAC Rep., G.C, ARC & EFI
  - . Discuss scope of work
  - . Discuss addition scope
- Crew of 4 & 1 Supervisor - Review Crew's paper work. All in compliance
- NO ASBESTOS work TODAY - Notification (TDH) will Go into effect Tomorrow
- Crew continues w/ Clearing Trees & Brush from Buildings
- RAIN All DAY - NO PREVALENT RUN

3/19/03

7:00 AM - Crew & EFI on-site

7:15 AM - Supervisor Helo Safety MTG.

7:35 AM - Supervisor informs EFI - That Crew will continue w/ Brush & Tree clean AND will have one worker clean / pick up Transite Debris To satisfy TDH Notification.

8:00 AM - Crew Begins clearing Brushes - EFI sets prevalent level in Area II (Admin Area) - Sample #2 & #3

8:20 AM - Set prevalent level in Area VIII (TNT production Area) Sample # 4 & #5

9:30 AM - Crew Completes 1/2 of Brush & Tree clearing from Bldg. 719

11:15 AM - Crew moves to Area VIII To clear Brushes in Bldgs. 707C, 704A & 707A

12:00 PM - Crew Breaks for 1/2 hr lunch

1:30 PM - Crew moves to Bldg 451 To Clear Brushes

4:00 PM - EFI collects Prevalent level samples - Crew Finish clearing Brushes from Bldg 451 - will mobilize to Bldg 703A To Build remain Decon & Pick up Transite Debris @ 703

4:05 PM - EFI set up 30 min Steel

4:35 PM - EFI collects 30 min Steel

5:10 PM - Crew will complete Building Decon Tomorrow

5:30 PM - EFI & ARC off-site

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NOTES: Daily NOTES 3/20/03 EFI®

3/20/03

7:00 AM - EFI & ARC ON-SITE - CREW will SPLIT up INTO 2 GROUPS - GROUP ONE will BUILD ROADS DECON @ AREA II - BLDG 703A. 2ND GROUP will BEGIN REMOVING TRANSITE FROM EXTERIOR OF BLDG. 701 FROM AREA II

7:40 AM - CREW COMPLETES BARRICADE OF BLDG. 701 - SET up SIGNS / LAY Floor Poly Around PERIMETER SUITED up & BEGAN TRANSITE REMOVAL PIECES.

- REMOVE NAIL HEADS / SPRAY AMENDED WATER
- DETACH EXTERIOR SIDING FROM BLDG. STRUCTURE IN WHOLE PIECES
- PLACE SIDINGS ON Floor poly FOR WRAP & Disposal.

9:15 AM CHANGE OUT 30 MIN. SCBA. - SET MERA (PREVALENT) IN AREA VII

9:05 AM GROUP 2 COMPLETES CONSTRUCTION OF THE DECON UNIT & will MOBILIZE TO BLDG 701 TO ASSIST GROUP 1

9:30 AM CREW COMPLETES 30% of REMOVAL of EXTERIOR TRANSITE SIDING.

12:00 PM CREW BREAKS FOR LUNCH

2:30 PM CREW COMPLETES 100% REMOVAL @ BLDG. 701 will MOBILIZE TO BLDG. 719 TO REMOVE TRANSITE EXT. SIDING

3:50 PM EFI Collect CASSETTES - CREW CONTINUE W/ REMOVAL

5:15 PM ARC COMPLETES 15% of TRANSITE REMOVAL - will CONTINUE ON MONDAY.

5:30 PM ARC & EFI OFF-SITE

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EFI
Engineering and Fire Investigations

Field Report

Date: 3 24 , 2003 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

7:00A - EFI & ARC ON SITE ARC WILL BEGIN ABATEMENT ON BUILDING 720-A. WORKER HAVE BARRIER TAPE AROUND PERIMETER OF BUILDING.

8:00A - WORKERS (4) IN SUITS & ½ FACE RESPIRATORS ARE REMOVING TRANSITE SHINGLES WITH MINIMAL DAMAGE at this time. EFI PLACES AIR SAMPLING EQUIPMENT AROUND THE WORK AREA.

11:30A - WORKERS GO to LUNCH

12:30p - WORKERS MEET FOR SAFETY ORIENTATION ON LIFT EQUIPMENT.

2:30p - WORKER PRACTICE OPERATING LIFT EQUIPMENT.

3:30p - WORKERS RETURN TO BLDG 720-A to CONTINUE REMOVAL

Owner: US Army Industrial Operation
DAIM-BO-O, 1 Rock Island Arsenal
Rock Island, IL 61299
Site: Longhorn Army Ammunition Plant
Hwy 43 @ Spur 449

Generator Label to Be used on waste

Site Representative (Print Name) Signature/Date

Contractor Supervisor (Print Name) Signature/Date

EFI®
Engineering and Fire Investigations

Field Report

Date: 3-25, 2003 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

7:00A - ARC & EFI ON SITE. WORK WILL BEGIN ON BLDG. 719. WITH THE EXCEPTION OF THE GABLES WORK ON BLDG 720A IS COMPLETE.

8:00A - EFI CALIBRATES AIR SAMPLING PUMPS & PLACES THEM AROUND THE WORK AREA.

10:00A - EFI OBSERVES 4 WORKER IN SUITS & ½ MASKS REMOVING TRANSITE SIDING FROM BLDG. EFI ASKS ARC TO WET SIDING PRIOR TO REMOVAL.

11:00A - EFI OBSERVES WORKERS REMOVING TRANSITE SHINGLES. IT APPEARS THAT THE MAJORITY OF THE SHINGLES ARE BEING REMOVED INTACT. EFI ASKS ARC TO UTILIZE BROKE WATER.

12:00p. WORKERS GO TO LUNCH.

1:00p WORKERS RETURN to WORK. EFI ASKS WORKERS TO CAREFULLY LOWER SHINGLES to GROUND TO PREVENT DAMAGE.

Site Representative (Print Name) _____ Signature/Date _____

Contractor Supervisor (Print Name) _____ Signature/Date _____

00065258

EFI
Engineering and Fire Investigations

Field Report

Date: 3-25, 2003 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

3:00p - WORKERS CONTINUE TO REMOVE SIDING & SHINGLES FROM BLDG. 719. WORKERS ARE ASKED TO USE WATER TO KEEP SHINGLES WET DURING REMOVAL.

4:00p - EFI PICKS UP ~~AIR~~ AIR SAMPLING EQUIP. ARC WORKERS HAVE COMPLETE REMOVAL ON THE EAST SIDE OF BUILDING 719 AND ARE STARTING ON EAST SIDE OF BUILDING 705. BLDG 705 & 719 ARE CONNECTED.

5:00p - EFI & ARC LEAVE AREA FOR DAY

Site Representative (Print Name) _____ Signature/Date _____

Contractor Supervisor (Print Name) _____ Signature/Date _____

00065259

EFI
Engineering and Fire Investigations

Field Report

Date: 3-26 , 2003 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

7:00A - EFI & ARC ON SITE.

8:00A - EFI CALIBRATES AIR SAMPLING EQUIPMENT AND PLACES THEM AROUND WORK AREA. EFI OBSERVES WORKER DROPPING SIDING TILES FROM top OF LADDER. EFI ASKS ARC TO CAREFULLY LOWER SHINGLES TO PREVENT DAMAGE.

9:00A - ARC HAS SAFETY TRAINING FOR USE OF HIGH LIFTS ON JOB.

11:00A - SAFETY TRAINING COMPLETED

11:30A - WORKERS GO TO LUNCH.

12:30p - WORKERS RETURN TO WORK AREA. WORKERS CONTINUE to REMOVE SIDING FROM THE 705 BUILDING. FOUR WORKERS IN SUITS & RESPIRATORS (½ FACE) ARE PERFORMING THE WORK.

2:30p - WORKERS CONTINUE REMOVAL OF SIDING SHINGLES ON BUILDING ~~708~~ 705.

5:00p. EFI & ARC OFF SITE.

Site Representative (Print Name) _____ Signature/Date _____

Contractor Supervisor (Print Name) _____ Signature/Date _____

EFI®
Engineering and Fire Investigations

Field Report

Date: 3-27 , 2003 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

7:00A - EFI & ARC ON SITE.

8:00A - EFI CALIBRATES AIR SAMPLING EQUIPMENT AND PLACES AROUND WORK AREA. IT APPEARS THAT ARC WILL BEGIN WORK ON BLDG 719 AND THEN MOVE TO BLDG. 707-E

10:00A - ARC HAS COMPLETED WORK ON THE EXTERIOR OF BLDG 719 AND HAVE MOVED TO BLDG 707E. FOUR WORKERS WILL REMOVE THE SIDING ON THIS BLDG. THE WORKERS ARE WEARING SUITS & ½ FACE RESPIRATORS.

11:30A - WORKERS LEAVE WORK AREA FOR LUNCH.

12:30p - WORKERS RETURN TO WORK AREA, TO CONTINUE REMOVAL OF SIDING SHINGLES

2:00p - WORKERS CONTINUE REMOVAL ON BLDG 707E

4:00p - WORKERS COMPLETE REMOVAL ON BLDG 707E. WORKERS LEAVE SITE.

5:00p - EFI & ARC LEAVE SITE

Site Representative (Print Name) Signature/Date

Contractor Supervisor (Print Name) Signature/Date

00065261

EFI
Engineering and Fire Investigations

CLEAR cool Sunny

Field Report

Date: 3/31, 2003 MONDAY | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0700 - @ gate; workers (5) already ½ ?
0715 - Guard shows sign in; workers to start on Admin. Bldg. 703 South face - set up barrier tape, poly on ground; JLG's running
0815 - Workers prepped; ½ masks; coveralls & lanyards. Begin removal of metal soffitt; Pumps set - Begin abate of transite panels in whole pieces.
0915 - operations - OK - removed in whole pieces
1000 - OP's OK; < ¼ done with south face 2 more workers have showed up 7 + 1 supv.
1100 - OP's OK > ½ done w/ south face; minor breaks - small pieces placed in bag - wetted first.
1145 - Workers break for lunch
1240 - workers suit up ½ face/ hard hats, coveralls resume operations on south face
1400 - South face done except minor clean-up 9 other workers on 719 top eaves 705 finish up
1435 - Workers on JLG on east face & around corner on north face - whole pieces
1530 - Workers on 2NP Interior east face & ~~south~~ north face operations OK.
1600 - Workers to start shut down for day; bag-up all waste.
1630 - Workers stop for day decon & areas cleaned up
1705 - Workers departing site for day.

ADAM Saiterfield
Site Representative (Print Name)

Adam Saiterfield 3/31/03
Signature/Date

Contractor Supervisor (Print Name)

Signature/Date

00065262

EFI®
Engineering and Fire Investigations

Sunny Warming up Breezy

BLDG 719

Field Report

Date: APRIL 1, 2003 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC workers: 7 + SUPV.

Description 0655 - Train debu 0710 - Access thraugh gate. Workers will continue transite panel removal on 703 - Main Admin Bldg + TOP ^ eaves of 719. Workers already suited up ½ Masks, coveralls, hardhat etc for work.
- 0800 - operations on east Center court under way - Barrier tape up and workers on lifts doing removal - whole Pieces.
- 0900 - operations ok; 2 other workers have finished eaves on 719 will do others as well. Waste stacked on palletts
- 1000 - operations OK - done w/east ½ face of 703 on South ½ face.
- 1045 - Workers OK start NE face removal by stairs. Operations OK; Waste stacked
- 1140 - Workers have stopped to clean-up for lunch.
- 1230 - Workers prepare to resume operations.
- 13[illegible] - Workers almost done w/ NE face
- 1330 - Hertz here to fix one of lifts - done in hour. Complete NE - Move other lift to west section - prep poly + barrier tape
- 1415 - Lift fixed. Move over to west face
- 1330 - operations on west area - OK. Put labels on Transite Pallets.
- 1630 - Workers cleaning up for day; on west section: Crew removed ~ 1/4 + of panels Waste bagged and whole pieces placed on palletts.
- 1650 - Crew has decon'd cleaned up and preparing to leave
- 1705 - Crew departing site; trailer locked up.

Adam Satterfield
Site Representative (Print Name)

Adam Satterfield 4/1/03
Signature/Date

Contractor Supervisor (Print Name)

Signature/Date

EFI® Engineering and Fire Investigations

Sunny/Windy to 80° BLDG 719

Field Report

Date: 4/2, 2003 WED. | Project Number: **98410-13709**

Project Name: **Longhorn Army Ammunition Plant**

Contractor: **ARC** 7 workers + 1 supv.

Description

0645 - crew & I on site
- 0700 - Trailer unlocked; Crew to continue on 703 WEST face transite panels today - when finished - to north face.
- 0800 - operations OK; workers in 1/2 face; hard hats coveralls removing pieces whole; poly on ground - pieces stacked.
- 0900 - Marianne - Supv. of DOD on site w/ J. Chavez discuss scope and invoices and disposal.
- 0935 - They depart site; workers continue both lifts.
- 1030 - 2 workers start lower panels on N. face work in WEST U section > 75%. OP's OK.
- 1130 - Crew breaks for lunch.
- 1230 - Crew back from lunch - will final west U area.
- 1335 - Crew done w/ west U section except minor area by S. stairs and clean-up.
- 1415 - Clean up almost complete; Lifts are at N. face. Removing panels whole - op's OK.
- 1515 - Area of west U done. All 7 on North face operations OK - barrier tape, etc. WET methods.
- 1600 - operations OK; removal panels whole pieces.
- 1630 - one LIFT GETS STUCK in MUD; work has stopped to free machine. Clean-up
- 1700 - T. Pilgrim can't get unit out - Workers have cleaned up general area - Will leave for the day
- 1710 - ARC & EFI Depart

Adam Satterfield
Site Representative (Print Name)

Signature/Date

Contractor Supervisor (Print Name)

Signature/Date

00065264

EFI® Engineering and Fire Investigations

CLOUDY AM TO ~70°

703 Done 451 - start lg. Panels Roof
736-A - Done
707-A - 1/3

Field Report

Date: 4/3, 2003 Thurs. | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description 0600-615- Workers have arrived - will set up and finish BLDG. 703 Exterior Panels and then start BLDG: #736A

* NOTE 703 Admin still has friable TSI - LINOLEUM & TSI *

- 0700 - Workers in north face zone of Bldg. 703 HEPA is still stuck; 1/2 face, hard hats, coveralls, safety etc & wet removal of whole pieces; poly under on ground & barrier tape
- 0750 - Lift removed out of Mud hole - continue removal
- 0830 - Workers have cleared brush from 736 - this

* Bldg. is AN ADD to contract. Chainsaw + bushes.

- 0900 - Bldg. 707A is in Area VIII Prep - barrier tape & workers to start transite removal.
Bldg. 736-A 2 workers start transite removal / work on 703 Admin - removal on last 10% Clean-up.
- 1000 - Workers on 736A - one side done; Workers on 707A on northeast face - stack panels on pallets - o'k
- 1045 - Lift done on 703 - clean-up operations
- 1100 - 703 is complete; work on other 2 Bldg's - OK.
- 1120 - Workers cleaning up for lunch
- 1130-1230 - Lunch for Crew
- 1245 - Workers set up for Bldg. 451 others to finish 736A then move to 707A.
- 1300 - Mike Kuczak on site; watch removal of roof on 451. Whole Pieces lowered to ground.
- 1400 - Removal @ 736A Complete - Minor clean-up; Operations @ 707A have resumed w/ 2 workers - Panels @ 451 from W. Roof
- 1530 - Operations being shut down for week; 1/3 done on 707A ON 451 ~> 1/4 of front n. roof slope is complete Workers clean-up
- 1610 - ARC + EFI depart site

Adam Satterfield
Site Representative (Print Name)

Adam Satterfield 4/3/03
Signature/Date

Contractor Supervisor (Print Name)

Signature/Date

00065265

EFI
Engineering and Fire Investigations

BLDG. 722-G
BLDG 451
704-A
[redacted]
601-B
25-G

Field Report

Date: 4-8 , 2003 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC | PAGE

Description

7:00A - EFI & ARC ON SITE. EFI IS INFORMED THAT WORKERS WILL BE COMPLETING WORK ON BLDGS 722G, 704A [redacted] at MID MORNING AND MOVING to BLDGS. 601-B and 25G. ONE CREW WILL CONTINUE to WORK ON BLDG 451.

8:00A - BECAUSE OF POWER OUTAGE DURING NITE. EFI WILL ALLOW PUMPS TO CHARGE PRIOR TO SETTING. EFI CALIBRATES PUMPS AND PREPARES CASSETTES.

9:00A - EFI OBSERVES THAT TWO WORKERS IN SUITS & ½ RESPIRATORS ARE FINISHING WORK @ BLDG 722-G. 2 WORKERS IN SUITS & ½ FACE RESPIRATORS ARE FINISHING WORK @ BLDG 704-A. THREE WORKERS IN SUITS & ½ FACE RESPIRATORS ARE WORKING ON BLDG 451 and 3 WORKERS ARE CUTTING TREES & BRUSH FROM AROUND BLDG 25G.

10:00A - WORKERS HAVE COMPLETED WORK @ BLDG 704A AND ARE MOVED TO BLDG 601-B.

10:30A - WORKERS HAVE COMPLETED TRIMMING TREES AND BRUSH AROUND BLDG. 25G & HAVE MOVED to BLDG.

11:00A - WORKERS HAVE COMPLETED WORK @ BLDG 722G AND HAVE MOVED to BLDG. 25G.

12:00p - WORKERS GO TO LUNCH

1:00p - WORKERS RETURN TO WORK. FOUR WORKERS WILL WORK @ BDG 25G & FIVE WILL WORK AT BLDG 451

2:00p - EFI ASKS ARC TO USE WATER WHEN REMOVING TRANSITE SHEETS. IN AN EFFORT TO MINIMIZE POTENTIAL FIBER RELEASE.

Site Representative (Print Name) Signature/Date

Contractor Supervisor (Print Name) Signature/Date

EFI®
Engineering and Fire Investigations

Field Report

Date: 4-8, 2003 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

3:00p - EFI SPEAKS WITH ARC ABOUT BREAKING SIDING SINGLES ON BLDG 25G. ARC WILL SPEAK TO WORKERS.

4:00p - WORKERS ARE FINISHING REMOVAL ON BLDG 25G. WORKERS CONTINUE REMOVING ROOF PANELS ON BLDG. 451. EFI COLLECTS AIR SAMPLING EQUIPMENT.

5:00p - EFI & ARC OFF-SITE

Site Representative (Print Name) _____ Signature/Date _____

Contractor Supervisor (Print Name) _____ Signature/Date _____

EFI
Engineering and Fire Investigations

BLDG. [redacted] 801F 18K
[redacted] 18K-1
25G-1

Field Report

Date: 4-9, 2003 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

7:00A - EFI & ARC ON SITE. EFI IS INFORMED THAT WORKERS WILL BE WORKING ON BLDGS. 25G-1, 18-K, 18K-1 & 801F. BECAUSE OF DIFFICULTIES WITH ACLESS THE BACKSIDE OF BUILDING 451 WILL WAIT UNTIL DRYER WEATHER.

8:00A - EFI CALIBRATES AIR SAMPLING EQUIPMENT AND PLACES IT AROUND THE WORK AREA. EFI OBSERVES THAT IT APPEARS THAT THREE WORKERS IN SUITS AND ½ FACE RESPIRATORS ARE PICKING UP AROUND BLDG 451 PREPARING TO MOVE TO BLDG 801F. FOUR WORKERS IN SUITS & ½ FACE RESPIRATORS ARE REMOVING TRANSITE SIDING ON BLDG 25G-1 (A SMALL OUT BLDG) AND WILL MOVE TO 18K WHEN COMPLETE. ~~THRE~~ THREE WORKERS ARE CLEANING AROUND THE WAREHOUSE BLDGS. 44W - 46W.

9:00A - WORK CONTINUES AS ABOVE. EFI OBSERVES ARC BREAKING SMALL PIECES OF PANEL DURING REMOVAL. EFI ASKS ARC TO USE WATER AS NECESSARY TO CONTROL POSSIBLE FIBER MIGRATION.

10:00A - WORK CONTINUES. AS NOTED EARLIER. WORK ON THE 18K BUILDING APPOX. 10% COMPLETE. WORK ON THE 801F BLDG IS ALSO ABOUT 10-15% COMPLETE

11:00A - REMOVAL OF TRANSITE BUILDING PANELS CONTINUES.

12:00p - WORKERS GO TO LUNCH.

12:30p - WORKERS RETURN TO WORK. WORK CONTINUES IN AREAS NOTED ABOVE.

2:00p - WORKERS CONTINUE TO REMOVE TRANSITE PANELS FROM BLDGS 18K & 801F WORKERS ARE APPROX.

Site Representative (Print Name) _____ Signature/Date _____

Contractor Supervisor (Print Name) _____ Signature/Date _____

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Engineering and Fire Investigations

Field Report

Date: 4-9, 2003 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

PAGE 2

Description

2:00p - WORKERS ARE ~~A~~ APPROX. 40% COMPLETE ON EACH BLDG.

3:00p - EFI COLLECTS PUMPS. FROM AROUND WORK AREA. WORKERS IN BOTH AREAS ARE APPROX. 50% COMPLETE.

5:00p - ~~ARC~~ & EFI LEAVE SITE.

Site Representative (Print Name) _____ Signature/Date _____

Contractor Supervisor (Print Name) _____ Signature/Date _____

EFI®
Engineering and Fire Investigations

BLDG. 18K 451
18K-1
801F

Field Report

Date: 4-10, 2003 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

6:00A - EFI & ARC ON SITE. ARC HAS SAFETY MEETING WITH WORKERS. ARC TALKS ABOUT PERSONAL SAFETY EQUIPMENT & LIFT SAFETY.

7:00A - ARC INFORMS EFI THAT THEY WILL BEGIN WORK ON BLDGS. 18K & 801F. WHEN THEY COMPLETE WORK ON THESE BLDGS. THEY WILL MOVE TO 18K1 & THE ROOF OF 451.

8:00A - EFI CALIBRATES AIR SAMPLING EQUIPMENT & PREPARES CASSETTES. EFI PLACES AIR SAMPLING EQUIPMENT AROUND THE WORK AREAS. EFI OBSERVES THAT 4 WORKERS ARE IN THE PROCESS OF REMOVING SIDING PANELS ON THE BACK SIDE OF BLDG. 18K & 4 WORKERS ARE IN THE PROCESS OF REMOVING SIDING PANELS FROM BLDG 801F.

9:00A - WORKERS CONTINUE SIDING REMOVAL IN BOTH LOCATIONS. ~~EFI~~ EFI IS ASKED BY ARC TO BEGIN COLLECTING TCLP SAMPLES ON BLDGS TO BE DEMO. EFI WILL BEGIN COLLECTING SAMPLES IN THE ADMIN AREA.

11:00A - WORKERS ARE COMPLETING WORK IN THE 801F AREA AND WILL MOVE TO 451.

12:00p - EFI & ARC GO TO LUNCH.

1:00p - WORKERS RETURN TO WORK AREA. EFI CONTINUES COLLECTION of TCLP SAMPLES.

3:00p - WORKERS CONTINUE. SIDING REMOVAL WORKERS ARE ABOUT COMPLETE WITH 18K BLDG & THE ROOF OF THE 451 BLDG.

4:00p - ARC & EFI OFF SITE

Site Representative (Print Name) Signature/Date

Contractor Supervisor (Print Name) Signature/Date

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EFI®
Engineering and Fire Investigations

BLDG 18K-1 703 41W

Field Report

Date: 4-14 , 2003 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

7:00A - EFI & ARC ON SITE. ARC INFORMS EFI THAT THEY WILL BE FINISHING WORK ON 18K & 18K-1, STARTING IN THE WAREHOUSE AREA & BEGINNING PIPE REMOVAL IN THE ADMIN BLDGS.

9:00A - EFI VISITS WORK AREAS. EFI OBSERVES THAT THERE ARE 3 WORKERS IN SUITS & ½ FACE MASKS ARE REMOVING SIDING PANELS FROM BLDG 18K-1, 3 WORKERS ~~ARE~~ IN SUITS & ½ FACE MASKS ARE REMOVING SIDING PANELS FROM ~~FROM~~ BLDG 41W, AND 3 WORKER IN SUITS & ½ FACE MASKS ARE DEMOING COLUMN ENCLOSURES IN BLDG. 703 IN PREPARATION TO REMOVE PIPE INSULATION.

10:00A - EFI CALIBRATES AIR SAMPLING EQUIPMENT & PREPARES CASSETTES. EFI PLACES AIR SAMPLING EQUIPMENT ~~AROUND~~ THE THREE WORK AREAS

12:00p - ARC WORKERS COMPLETE WORK ON BLDG 18K-1 AND MOVE TO BLDG. 703 TO ASSIST THE WORKERS IN THE AREA. WORKER GO TO LUNCH.

12:30p - WORKERS RETURN TO WORKER IN BLDG 703 AND BLDG 41W. EFI CONTINUES COLLETION OF TCLP SAMPLES.

2:00p - EFI VISITS THE BLDG 703 WORK AREA. EFI OBSERVES THAT WORKERS IN SUITS & ½ FACE MASKS ARE REMOVING PIPE INSULATION FROM THE VERTICAL RUNS OF PIPE. ARC IS ASKED TO ~~B~~ EITHER GLOVE BAG THE INSULATION OR CUT & WRAP THE PIPE.

Site Representative (Print Name) Signature/Date

Contractor Supervisor (Print Name) Signature/Date

EFI®
Engineering and Fire Investigations

BLDG. 41W 703

Field Report

Date: 4-15, 2003 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

PAGE 1

Description

7:00A - EFI & ARC ON SITE. EFI IS INFORMED THAT WORKERS WILL CONTINUE TO WORK ON BLDG. 41W & 703.

8:00A - EFI CALIBRATES PUMP & PREPARES CASSETTES EFI PLACES AIR SAMPLING EQUIPMENT AROUND THE WORK AREA. EFI OBSERVES THAT THREE WORKERS ARE IN THE PROCESS OF REMOVING SIDING PANELS IN THE BLDG 41W AREA & REMOVING PIPE INSULATION IN THE OFFICE AREA ON THE SOUTH SIDE OF BLDG 703. TWO other WORKERS ARE PREPPING THE BATHROOM ON FLOOR 1, SOUTH TO REMOVE THE LINOLEUM FLOOR TILE.

10:00A - PREP WORK COMPLETE IN THE BLDG 703 SOUTH, FLOOR 1 BATHROOM. ALL WORKERS (6) IN THE 703 WORK AREA. WILL BEGIN CUTTING & WRAPPING PIPE UNDER THE BLDG. TRANSITE PANEL REMOVAL CONTINUES ON BLDG 41W.

11:00A - WORK CONTINUES AS INDICATED EARLIER. EFI REQUESTS ARE to USE ADDITION WATER DURING THE REMOVAL PROCESS. EFI OBSERVES THE CENTRAL DEGN AREA TO BE DAMAGE ARC REQUESTED TO MAKE REPAIRS.

12:00p - WORKERS GO to LUNCH.

~~12:30p~~ 12:30p - WORKERS RETURN to WORK AREAS

Site Representative (Print Name) _____ Signature/Date _____

Contractor Supervisor (Print Name) _____ Signature/Date _____

EFI
Engineering and Fire Investigations

Field Report

Date: 4-15, 2003 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

2:00p - EFI VISITS WORK AREAS. IN THE WAREHOUSE AREA WORKERS HAVE COMPLETED THE FRONT FACE & HAVE MOVED TO THE SOUTH SIDE. AT BLDG. 703 WORKERS CONTINUE TO CUT & WRAP PIPE UNDER THE SOUTH BLDG.

3:00p - EFI VISITS WORK AREAS. WORK CONTINUES AS STATED EARLIER. IT DOES NOT APPEAR THAT THE LINOLEUM REMOVAL WILL HAPPEN TODAY.

4:00p - EFI VISITS WORK AREAS. EFI AGAIN OBSERVES LITTLE WATER BEING USED. EFI REQUEST WORKERS USE WATER DURING REMOVAL OF TRANSITE PANEL. EFI COLLECTS AIR SAMPLING EQUIPMENT.

5:00p - EFI & ARC OFF SITE.

Site Representative (Print Name) _____ Signature/Date _____

Contractor Supervisor (Print Name) _____ Signature/Date _____

00065273

EFI®
Engineering and Fire Investigations

BLDG 18K-1
41W
703

Field Report

Date: 7-14, 2003

Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

3:30p - WORKERS CONTINUE TO REMOVE SIDING FROM BLDG 41W. EFI REQUESTS THAT WORKER WET AREAS AROUND LAG BOLT, IN THE EVENT THE PANELS CRACK, THE WATER SHOULD MINIMIZE POTENTIAL FOR FIBER RELEASE. WORKERS IN BLDG 703 ARE CUTTING & WRAPPING PIPE W/ INSULATION.

4:00p - EFI COLLECTS AIR SAMPLING EQUIPMENT. WORK CONTINUES AS STATED EARLIER.

5:00p - EFI & ARC OFF SITE.

Site Representative (Print Name) _____ Signature/Date _____

Contractor Supervisor (Print Name) _____ Signature/Date _____

00065274

EFI®
Engineering and Fire Investigations

BLDGS. 4HW & 703

Field Report

Date: 4-16, 2003 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

6:30A - EFI & ARC ON SITE. EFI INFORMED WORK WILL CONTINUE ON BLDGS. 4HW & 703.

7:00A - EFI CALIBRATES PUMPS & PREPARES CASSETTES.

8:00A - EFI BEGINS PLACING AIR SAMPLING EQUIPMENT IN AND AROUND THE WORK AREAS. EFI OBSERVES THAT THERE ARE THREE WORKERS IN SUITS & RESPIRATORS REMOVING SIDING PANELS FROM BLDG 4HW IT APPEARS THAT THEY MAY FINISH REMOVING THE EXTERIOR PANELS ON THIS BLDG TODAY. FIVE WORKERS IN SUITS AND ½ FACE RESPIRATORS ARE IN THE PROCESS ON REMOVING (CUT & WRAPPING) PIPE AND INSULATION FROM UNDER BLDG 703 SOUTH.

9:00A - ARC RECEIVES AN ACM WASTE CONTAINER. THE CONTAINER IS SPOTTED NEAR BLDG 703.

10:00A - WORK CONTINUES AS NOTED EARLIER.

12:00p - WORKERS BREAK FOR LUNCH.

12:30p. WORKERS RETURN TO WORK AREAS.

2:00p - EFI VISITS WORK AREAS. WORKERS CONTINUE TO REMOVE SIDING ON THE WESTSIDE OF BLDG 4HW & ARE CUTTING & WRAPPING PIPE ON BLDG 703 NORTH. EFI ASKS ARC TO REPAIR REMOTE DECON NEAR BLDG 703.

4:00p - EFI COLLECT AIR SAMPLING EQUIPMENT.

5:15p - EFI & ARC OFF SITE

Site Representative (Print Name) _____ Signature/Date _____

Contractor Supervisor (Print Name) _____ Signature/Date _____

EFI®
Engineering and Fire Investigations

BLDG 42W
BLDG 703

Field Report

Date: 4-17, 2003 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

6:30A- EFI & ARC ON SITE. EFI IS INFORMED THAT WORKERS WILL BE REMOVING ~~VINYL~~ LINOLEUM FROM SEVERAL BATHROOM IN BLDG 703 & WILL BE STARTING ON BLDG 42W

7:00A- EFI CALIBRATES AIR SAMPLING EQUIPMENT & PREPARES CASSETTES.

8:00A- EFI BEGINS TO PLACE AIR SAMPLING EQUIPMENT AROUND THE WORK AREAS. EFI OBSERVES THAT WORKERS HAVE MOVED TO BLDG 42W, TWO WORKERS IN SUITS AND RESPIRATORS HAVE STARTED WORKING ON THE BACKSIDE OF BLDG 42W, ANOTHER WORKER IN A SUIT & RESPIRATOR PICKING UP WASTE (NON-HAZARDOUS), DOUBLE BAGGING ~~THE~~ ACM WASTE, AND WRAPPING THE TRANSITE SIDING PANELS. AT BLDG 703 WORKERS ARE IN THE PROCESS OF REMOVING LINOLEUM FLOOR COVERINGS FROM THE 1ST FLOOR OF THE SOUTH BLDG. EFI OBSERVES THAT CRITICAL BARRIERS ARE IN PLACE, A CURTAINED DOOR WAY AND A NEG. AIR MACHINE IN PLACE.

9:00A- EFI VISITS WORK AREAS. WORK CONTINUES AS NOTED EARLIER.

10:00A- EFI OBSERVES THAT WORKERS IN 703 HAVE COMPLETE LINOLEUM REMOVAL ON THE TWO SOUTH BLDG BATHROOMS & ~~H~~AVE MOVED TO THE NORTH BLDG.

~~1:30~~ 1:00p- EFI & ARC LEAVE SITE.

Site Representative (Print Name) _____ Signature/Date _____

Contractor Supervisor (Print Name) _____ Signature/Date _____

00065276

EFI®
Engineering and Fire Investigations

44W - SIDING WAREHOUSE
703A - PIPE, Linoleum
TO 78° Sun Pt. Cloud 703B - PIPE

Field Report

Date: 4/21, 2003 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC 10 workers + 1 SUPV. (BISHOP)

Description 0410 - W. Houston for Karnack

--0830 - on site ; site - workers in 1/2 mask, coveralls, PPE Will start PIPE under 703A. - on 44W - Panels on west of Warehouse started.

-0930- Removal of pipe on 703A - OK - WET - Have to demo wood base to Access pipe. Some of pipe on ground. & picked up - bagged. Workers prep restrooms for linoleum Removal of 44W Panels - OK bottom nails - break-outs.

-1030- operations OK ; Talk w/ BISHOP on week's scope - 2 more bldgs in original scope + MISC. Minor to finish

-1115- Lunch for crew 703A Bldg. North face done.

-1215 - 1230 - Crew returning to work zones. PPE T looking for more barrier tape.

-1330 - Crew removing pipe in 703B ; PIPE wrapped and loaded in dumpster behind 703A - OK ; Panels removed on 1/4 of 44W ; 703A Linoleum removal - wet; only one line glued to wood floor cut out. wrapped.

-1430 - operations of pipe 703A perim. wrapped - waste loaded into dumpster. 44W area - OK Whole pieces stacked. 703A PIPE Done

-1530 - operations OK 44W 1/3 of west panels Crew in 703B glovebag cut pipe after wrapin plastic + labels - To dumpster

-1640 - Crew cleaning up for day. Decon. Areas secured.

-1700 - ARC & EFI Departing site.

Adam Satterfield
Site Representative (Print Name)

Adam Satterfield 4/21/03
Signature/Date

Contractor Supervisor (Print Name)

Signature/Date

00065277

EFI®
Engineering and Fire Investigations

78° 42W - Panels 703B-

Field Report

Date: 4/22, 2003 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC 9 + 1 Misc. + 1 Supt.

Description

0630 - Workers on site; Today crew to continue the panel removal on 42 W and on 703B (Pipe + Panels).
-0730 - Workers in PPE ½ mask, coveralls, hard hat, etc. to work in 2 areas. Panels come off whole pieces and placed on pallets. 703B cut pipe after glovebag.
-0830 - Operations OK
-0900 - Lynn USFW Mgr. looked at Bldg. 44W - still have panels on NE office/lab area to do - found out that crew waiting for rain day to do that.
-1030 - operations OK; Bldg 42W - on north face panels the west side done. on 703B - Panels started - cleaning up the pipe abatement.
-1115 - Crew cleaning up for lunch. Decon out.
1130 - Noon - Lunch for crew
-1230 - Workers back in PPE continue work.
-1300 - West face panels on 703B done; North panels on 42 W done; All panels removed in whole pieces.
-1400 - operations OK; Panels started on east face 42W North panels on 703B. Review of completed bldg's with Lynn & Bishop - 16 Bldgs of 42 Complete.
-1500 - operations OK - 42W & 703 B on going.
-1600 - operations OK - start S. face of 703B & on NE corner of 42 W
-1640 - Workers cleaning up for day. Secure areas - To rain tomorrow
-1700 - Depart site for day.

Adam Satterfield — 4/22/03.
Site Representative (Print Name) — Signature/Date

Contractor Supervisor (Print Name) — Signature/Date

00065278

EFI Engineering and Fire Investigations

P.M. RAIN Expected 720 — 42W Panels 7226 — 703B 1ST-1 — 41W FLOOR

Field Report

Date: 4-23, 2003 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description – 0630 – on site; crew showing up – To work on 42W 703 B – only S. face Panels; 42W East & South face. EFI is to collect TCLP Samples on ±15 Bldgs. today

– 0715 – Workers in PPE @ bldgs. started work

– EFI collects TCLP

– 0900 – Workers on 703 B almost done; Work on 42W on E. face ~ 1/3 done.

– 1000 – Operations OK; collecting TCLP samples.

– 1100 – 703 B was completed and workers go to 7226 to start that shack.

– 1115 – 1130 – Workers decon for lunch.

– 1235 – Workers back from lunch. PPE; Continue TCLP Sampling misc. bldgs.

– 1330 – Workers 3/4 done w/ 722G; Work on 42W on east face > 1/2 of E. Panels. Using lift. Panels on ground wrapped with poly.

– 1430 – RAIN! 7226 Done; crew go to 1ST-1 for work in there; 42W work stops – will work 1/3 of 41W floor tile – 1/3 panels.

– 1330 – Crews in both areas – OK; TCLP done for day. Have to do 720A Again.

– 1615 – TCLP done for day – Crew back on 42W Panels Stop rain; will STOP & clean up soon – Suppose to storm tonight

– 1645 – Workers stopped for day

– 1700 – Departing site for day.

ADAM Satterfield
Site Representative (Print Name)

Adam Satterfield 4/23/03
Signature/Date

Contractor Supervisor (Print Name)

Signature/Date

EFI® Engineering and Fire Investigations

TCLP Sampling

Field Report

Date: 4/23, 2003

Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

31 W + 33 W + 35 = Waste Warehouses = Transite Sides + Roof on Struct. Steel (Red Primer) with only Red Paint on wood Exting. Boards (2) @ 12"x20" - Sampled. GRAY Paint on steel handrails 780% gone - flaked.

41 W-2 Small shack - METAL Skin Corr. on 2'x4' FRAME Painted cream door + overhang & lime green base + on int. frame boards & window. Sampled Painted Wood

41 W-1 Restroom N. of Warehouses. Transite S/R interior. LT. GRAY over LT. Green + Beige WOOD WINS + doors + MISC. Trim.

41 W Warehouse Receive + N. LAB WOOD DOORS + TRIM + Work stations All white - some over LT. Green + Beige @ S. office areas.

42 W Warehouse + N. office wood doors, wins. + CAGE LT. GRAY + Beige over lime green Multiple Wood on N. areas. S. areas - All warehouse - only Wood overhead doors.

44 W + 46 W - LT. GRAY on Door frames only & red on extinguisher boards Min. WOOD.

49 W - Recycle Area - OPEN SIDE W/ LT. GRAY PAINT WOOD framing; Green TBL + Red Extinguish Area VI

TS 39 Pistol Shack 8'x8' white wood frame

801 F 2-story loader METAL UP WOOD SIDE LIME + LT. GRAY on eaves and stairs. Struct. Steel on remainder

501 E 1-story 8'X10' S/R 1/S LIME Steel EXT. White + LIME WOOD

22 A - 1 story CMU Insp. offices S/R W/ WOOD TRIM FRAME ON WIN/DOORS LIME + Beige + White Wood

Site Representative (Print Name) ADAM Satterfield

Signature/Date 4/23/03

Contractor Supervisor (Print Name)

Signature/Date

00065280

EFI®
Engineering and Fire Investigations

42W - E. PANELS - S. PANELS
1ST-1 - done 9:15 20' PIPE done @1340
18K 20' PIPE + PANELS

Field Report

Date: 4/24, 2003

Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description - 0635 - on site; supv waiting on workers;
-0640 - Workers on site. Today 42W - FINISH E. PANELS 1ST-1 - 1/5 PIPE - FLOOR TILE - 18K - PANELS and +20' of thermal pipe.
-0715 - Workers in PPE both in 42W (LIFT) and 1ST-1 Removal has started. WET removal - CUT - ENTIRE PIPE @ flange of steam pipe to heater WRAP in plastic. PANELS removed in whole pieces. - OK
-0830 - 1ST-1 workers done - waste on pallet - will move to 18K. work on 42W - PANELS - eastside @ ~85% - whole pieces. - OK.
-0930 - Workers have started on 18K PANELS - on pipe SAWZALL used to cut metal flange - pipe removed intact and wrapped in poly for disposal. PANELS removed in whole pieces - placed on pallet and poly wrapped.
-1030 - operations @ both 18K & 42W - OK.
-1115 - Workers cleaning up for lunch.
1135 - 1215 - Lunch for crew
-1230 - Crew to finish eastface of 42W; finish 18K before storm to hit ~ 3pm. leave early MAybe.
-1300 - Removal of 18K complete - Friable waste taken to dumpster and locked; clean-up of area. The pipe was double wrap with poly bags. Crew clean area - load trailer, etc.
At 42W east panels are complete - only the South face remains. of transite panels - Crew cleans up area.
-1500 - Departing site for weekend

ADAM Satterfield
Site Representative (Print Name)

Adam Satterfield 4/24/03
Signature/Date

Contractor Supervisor (Print Name)

Signature/Date

00065281

Getting

EFI
Engineering and Fire Investigations

HOT Sunny + ~80° 20%

41W FLOOR TILE + PANELS
42W PANELS - FINISH → BIG PANELS
44W - Roof & side

Field Report

Date: 4/28, 2003 Monday

Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description 0630 - 6 workers + 1 misc. + 1 supt.
Today work on 41W FLOOR TILE + Panels + finish ext. panels on 42W - then start 44W.
- 0800 - 2 crews one is prepping 41W north office area for floor tile abatement. other crew is using lift to remove S. wall EXT. Panels (whole - pieces - lowered-stacked)
- 0900 - operations OK - Prep in 41W one 1/2 wall demod and tossed. Decon, criticals, neg-airs, etc. Work on 42 - 1/2 done w/ south ext. wall.
- 1000 - Removal of Panels continues; 41W Prep continues
- 1100 - Removal of S. EXT PANELS FINISH BLDG. 42W W Transite; Prep continues on 41W S. office lab. Move lift to 44W Bldg.
- 1120 - Crew cleaning up for lunch
1220 - Crew back - find prep on 41W and will wet entire floor and begin VFT abate. PPE, signs, extins, etc. in place @ 1300. other crew on 44W undoing roof bolts for Roof Panels.
- 1330 - Abatement of VFT - OK in 41W use more H_2O. 44W area OK
- 1500 - Abatement of VFT - More water - Waste placed in bags. on 44W Panels removed Whole - lowered and stacked. Supposedly water problem @ landfill pit - HIT Adjacent waste disposal area.
- 1600 - All VFT up and being bagged. 3 piles. Roof of 44W ~ 12+ Panels removed.
- 1640 - Work stops - workers cleaning up
- 1700 - Depart site

ADAM Satterfield
Site Representative (Print Name)

Adam Satterfield 4/28/03
Signature/Date

Contractor Supervisor (Print Name)

Signature/Date

00065282

EFI Engineering and Fire Investigations

84° warm

44W Roof Panels
41W - FLOOR TILE/MASTIC

Start Demo 703A

Field Report

Date: 4/29, 2003 TUES. | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC 6 workers + 1 supt.

Description 0630 - ARC + EFI on site; Crews to work in the 2 areas listed above. Demo to start today - Bldg. 703A
-0700 - Abate crews in PPE to start work.
-0800 - Removal of panels on Roof of 44W N. section. Crew 1's 41W N. VFT area - FINAL Abate of MASTIC.
-0900 - Abate of mastic - using buffer & solvent - OK Removal of panels whole and lowered from ROOF. Demo of 703A North section has begun - water sprayed during demo.
-1000 - Demo going fine - no signs of wall cavity TSI - only VFT - water used. At 41W Mastic removal complete - clean-up and visual - OK set pumps for working clearance. 44W Panels - OK
-1100 - operations OK
-1130 - Abate crew decon out for lunch. Done w/ VFT area in 41W. 44W ~ 1/4+ of N. section ROOF is done. Noon - lunch for demo crew.
-1230 - Crew back from lunch. PPE - Crew to get transite panels in NW section of 42W, others to 44W Roof.
-1330 - operations OK; clearances run in 41W. [will still have transite 1's panels on N. end].
-1430 - operations OK; water used on demo of 703A now on S. section @ T.
-1545 - Demo of S. Wing of 703A almost complete. Abate crew still working 42W & 44W.
-1640 - Crews cleaning up for day.
-1700 - ARC + EFI depart site

Adam Satterfield
Site Representative (Print Name)

Adam Satterfield 4/29/03
Signature/Date

Contractor Supervisor (Print Name)

Signature/Date

EFI® Engineering and Fire Investigations

Demo: 703A
Abate: 41W 1/s Panels
44W Roof + Wall Panels

TD 84°
AM. Sprinkles

Field Report

Date: 4/30, 2003 WED. | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC 6 + 1 Misc + 1 Supt. + 3 Demo.

Description

0640 - on site; workers show - Today crew to work in areas listed above; Demo crew to work in front areas.
- 0715 - Abate crews in PPE in 2 areas - ON 44W Roof Panels NW coming up - down in whole pieces. on 42 W crew cleaning last 60# of panels - stacked pallet.
- 0845 - Demo of 703A complete; other areas - 41W crew to start 1/s Transite Panels 44W - OK. EFI to collect more TCLP samples.
- 1000 - Waste Trailer arrives for Demo - haul - still Collecting TCLP's.
- 1045 - TCLP's complete; operations @ 2 abate areas - OK. Demo of 703A done except for center core brick area 20'x25'.
- 1120 - Workers break for lunch. Decon clean-up.
- 1230 - Workers back in PPE for Abatement on 41W 1/s PANELS + 44W EXT. PANELS. Demo to load 703A.
- 1330 - operations OK @ Abate areas - WALLS of 41W coming down - 1ST Demo LOAD of 703A to landfill.
- 1430 - 2ND LOAD to landfill along w/ Asb. Panels - some loose tiles fall off & tossed back into loader. Workers for demo crew are asbestos awareness trained. @ dump - waste pushed into 125'x 100' hole 20' H.
- 1530 - Ceiling down in 41W - BAG-up - Clean; 44W ROOF Panels 3/4 of North section done.
- 1630 - 41W FINAL BAG up of waste being done. 44W - work stops to clean waste. Demo crew done for day.
- 1700 - ARC + EFI Depart.

Adam Satterfield
Site Representative (Print Name)

Signature/Date

Contractor Supervisor (Print Name)

Signature/Date

00065284

EFI® Engineering and Fire Investigations

TCLP Sampling

Field Report

Date: 4/30, 2003 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description 25

TS-~~62~~ is ~~A Cassidy~~ TS-25 @ Recycle Sm. Restrm. Bldg. Yellow wood plank ext w/ White t/s. ~8'x8'

1ST-1 1 story sm. bunker type CMU - steel door/wins. only painted wood is door (2) + 2 door frames - rest is CMU or 2'x4'

414 Pump hs. Ext. Transite - t/s wood doors, frame work White All over Time

★TS 62 - Signal area Shed PAST LANDFILL METAL EXT. W/ WOOD DOOR, TRIM, WINDOWS shelves NOT Sampled - WASPS! ★ Leave for C.

Site Representative (Print Name) Signature/Date

Contractor Supervisor (Print Name) Signature/Date

00065285

EFI®
Engineering and Fire Investigations

LANDFILL Info.

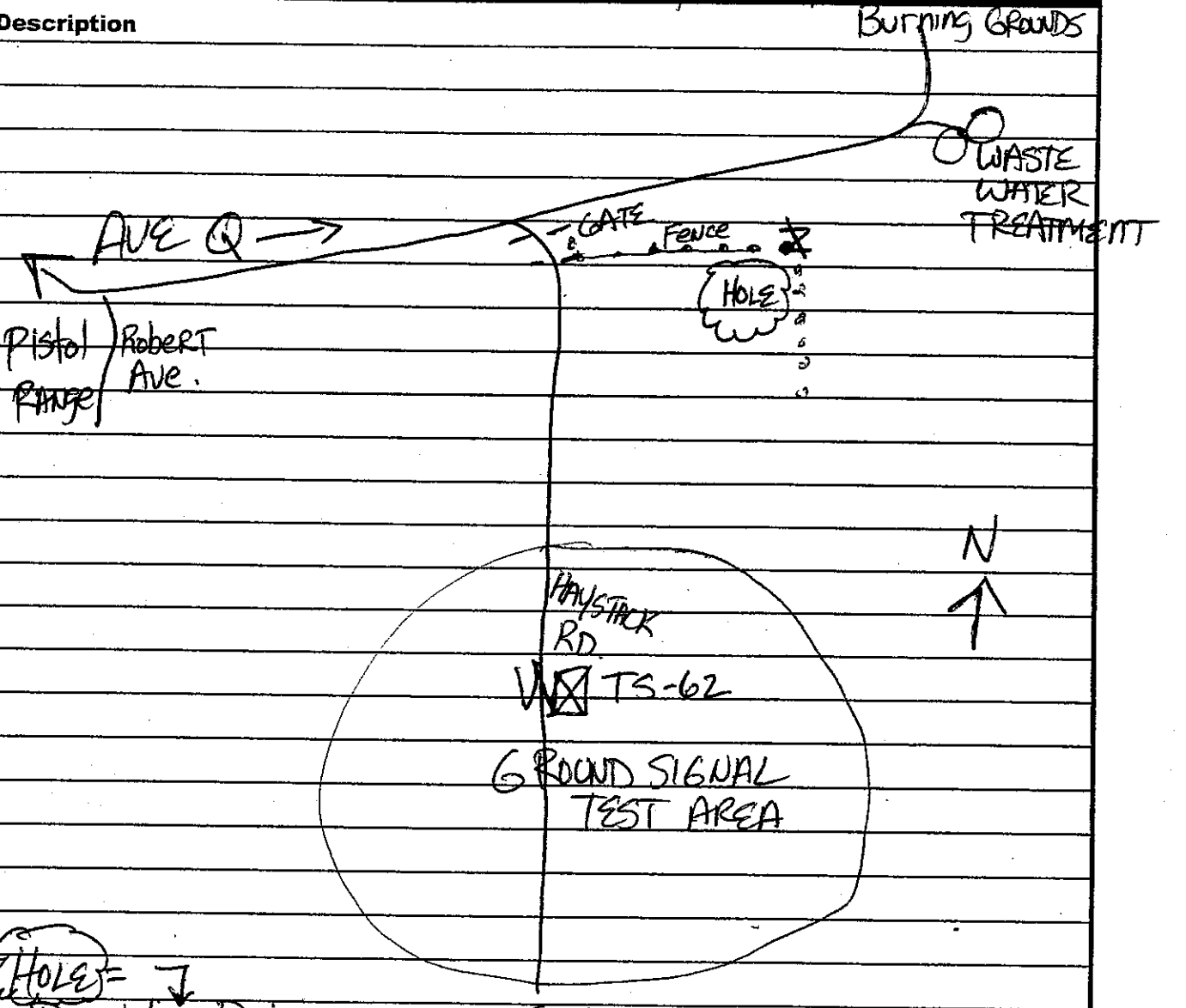
Field Report

Date: 4/30, 2003 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC A-1 Demolition of WACO, TX.

Description



℄HOLE = ↓

Demolition Debris + Non-Friable ACM

LANDFILL Area: 125' WEST 100' SOUTH

~ 30' off fence line ↕ 20' Deep

ADJACENT DEBRIS LANDFILL JUST WEST @ 130' W of fence line

Site Representative (Print Name) Signature/Date

Contractor Supervisor (Print Name) Signature/Date

00065286

EFI Engineering and Fire Investigations

80° 44W - Roof Overcast 41W-1 Ext. Panels 41W - FINAL CLEAN-UP

DEMO - WASTE of 703A

Field Report

Date: 5- , 2003

Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description 0635 - workers on site. Crews to finish North section roof panels of 44W; final clean - bag-out of 41W panels and remove panels off 41W-1 small restroom north of 41W. Demo crew to load waste - trips to landfill of 703A.
- 0715 - Workers in areas. operations start.
- 0830 - Abate operations OK - 41W almost done.
- 0930 - 41W done - crew to work on 41W-1 Crew on roof of 44W - 85% done a/n: roof panels lowered to ground - intact.
- 1030 - operations OK. 41W-1 panels intact & stacked. 44W almost done w/n. section.
- 1130 - Crew to work thru lunch. - operations ok. Removal continues - workers cleaning up areas. Demo crew to lunch.
- 1215 - Crews done w/ Removal on 41W-1 & 44 for day - clean-up areas.
- 1245 - Crew stops for day. Areas cleaned for weekend will depart soon.

Demo crew to work until 5PM. Supv. + 1 worker to stay.
- 1700 - ARC Departing site along w/ Demo crew.

Adam Satterfield
Site Representative (Print Name)

Adam Satterfield 5/1/03
Signature/Date

Contractor Supervisor (Print Name)

Signature/Date

00065287

EFI®
Engineering and Fire Investigations

Field Report

Date: 5/5, 2003 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

6:30 Am ARC & EFI on-site - Crew of 4 To work in Bldg 44W
Removing EXT. Transite Panel from TOP ROOF AREA

8:00 Am - EFI set AREA MONITORS (upwind & Downwind) & 1 personal.

10:20 Am - EFI collected TCLP sample from Bldg T562

11:15 AM - EFI observed workers wearing ½ HALF FACE RESPIRATOR WETTING TRANSITE @ BOLT HEAD Prior To Taking off Bolts & lowering Transite panels To BE Unwrapped

12:00 Am Workers Breaks For Lunch

1:40 pm Crews Completes ~ 60% of ROOF Removal

3:00 pm EFI Collects AREA & Personal Samples For Analysis. - Crew Continues w/ Removal & WRAPPING OF TRANSITE panels.

4:30 pm Crew Completes 90% of Roof Removal & will shut Down & Begin Clean-up of AREA & START AGAIN TOMORROW.

5:25 pm ARC'S Crew & EFI off-site.

CHONG NGUYEN
Site Representative (Print Name)

Signature/Date

Contractor Supervisor (Print Name)

Signature/Date

00065288

EFI®
Engineering and Fire Investigations

Field Report

Date: 5/6 , 2003 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

6:30 A - EFI & ARC ON-SITE - CREW OF 5 WILL CONTINUE TO REMOVE EXT TRANSITE PANELS FROM BLDG 44-W 10% OF REMAINING ROOF & 3 SIDES OF BLDG.

7:30 A - EFI SET AREA & PRESENT OSHA - CREW STARTED UP TO WORK

10:45 A - CREW REMOVED 100'S OF ROOF & CONTINUE REMOVAL WITH SIDES OF BLDG. (NOTE PB NAIL IS SEGREGATED & PLACED IN 55-Gallon Drum)

12:00 A - CREW BREAKS FOR LUNCH

1:05 P - 3 WORKERS will MOBILIZE TO LOAD & TRANSPORT STACKED ACM TRANSITE EXT. & INTERIOR TO LANDFILL @ BLDGS 703, 703B OTHER 3 WILL CONTINUE W/ BLDG. 44-W

3:40 P - WORKERS COMPLETED LOADING STACK ACM TRANSITE FROM BLDG 703A & 703B & will RETURN TO BLDG 44W TO HELP OTHER - EFI COLLECTS SAMPLES FOR ANALYSIS

5:05 P DEMO CREW CRUSHED DOWN BLDG 705 & 715 will HAUL DEBRIS TO LANDFILL TOMORROW.

5:15 P EFI & ARC OFF-SITE

GEORGE NGUYEN
Site Representative (Print Name)

Signature/Date

Contractor Supervisor (Print Name)

Signature/Date

EFI®
Engineering and Fire Investigations

Field Report

Date: 5/7, 2003 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

6:30 AM - ARC & EFI ON-SITE - CREW OF 4 will CONTINUE W/ ABATEMENT OF BLDG 44W. WHILE OTHER 2 WILL GO TO BUILDING 25A TO CLEAN CONSTRUCTION DEBRIS FROM INSIDE PRIOR TO PREP & Floor Tile Removal.

7:10 AM EFI SET AREA MONITOR @ BLDG 44-W. CREW DONE ON SITE RESPIRATOR, SAFETY GLASSES & HARD HATS PRIOR TO BEGINNING TRANSITE PANEL REMOVAL

10:40 AM. CREW COMPLETES WEST ~~EAST~~ DUCT OF BLDG 44W & will CONTINUE W/ REMOVAL ON NORTH WALL OF BLDG 44W.

12:30 AM. CREW BREAKS FOR LUNCH

2:15 PM EFI OBSERVED CREW SPRAY AMOUNT HAD ON THE BOLTS USED TO ATTACH PANELS PRIOR TO REMOVAL FOR LEAD WASTE SEGREGATION. PANELS WERE LOWER TO GROUND BY ROPE & PULLEY SYSTEM & THEN STACKED & WRAPPED IN 2-LAYERS OF 6-mil PLASTIC

3:50 pm EFI collecting AREA & PERSONAL CASSETTE FOR ANALYSIS OBSERVED THE DEMO CREW CRUSHING DOWN BRICK IN NEXT TO 71A & B

5:15 P CREW COMPLETES 100% OF NORTH WALL & EAST WALL & will REMOVE SOUTH WALL TOMORROW

DEMO CREW DID NOT HAVE CHANCE TO LOAD DEMO DEBRIS TO LANDFILL DUE TO SOAK GROUND CONDITION CAUSED BY LAST NIGHT RAIN ARC & EFI ~~DIFF~~-SET.

CLAUDE NELSON
Site Representative (Print Name)

Signature/Date

Contractor Supervisor (Print Name)

Signature/Date

00065290

EFI®
Engineering and Fire Investigations

Field Report

Date: 5/8, 2003

Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

6:30 A - ARC & EFI on-site - Crew will continue w/ Transite Removal & Debris clean up of Admin Bldg. 22A

8:25 A - Crew continues w/ Transite Removal 35% completed of East wall @ Bldg. 44W

10:45 A - EFI observed Crew Removing Transite panels utilizing WET method, Segregating Nail (PB) & Wrapping Panels)

12:00 Pm - Crew Break for lunch.

2:00 pm - 75% of West wall completed & 100% of South wall still Remains - Crew is 50% complete w/ Debris clean up @ Bldg. 22A

3:35 pm - EFI collection Cassette for Analysis -

5:15 pm - Crew completed 100% of Debris Demo clean up @ Bldg. 22A & Still has Remain South wall on Bldg. 44W Will continue work on Monday.

CUONG NGUYEN
Site Representative (Print Name)

Signature/Date

Contractor Supervisor (Print Name)

Signature/Date

00065291

EFI®
Engineering and Fire Investigations

Field Report

Date: 5-12, 2003 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 – ARC and EFI on site
– Work this shift will be on Bldg 44W

0830 – Transite removal underway, wetting and wrapping panels

1030 – Work continues on backside of Bldg No. 44W and 49W along with TS 25.

1200 – All work stops for lunch break.

1300 – Work resumes as described. Demo only hauling material from Bldgs they have already torn down. No new Bldg demo this shift.

1600 – ARC will nearly complete transite removal on Bldg. 44W this shift.

1730 – Shift ends

D. Pope
Site Representative (Print Name) — Signature/Date

Contractor Supervisor (Print Name) — Signature/Date

EFI®
Engineering and Fire Investigations

Field Report

Date: 5-13, 2003 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 – ARC AND EFI ON SITE.
– Work this shift will finish TRANSITE REMOVAL on Bldg. 44W AND START Bldg. 46W.
– ALSO this shift TRANSITE REMOVAL will BE COMPLETED on Bldg's 49W AND TS25.

0830 – Bldg List FAXED TO SITE FROM EFI HOUSTON FROM ALEX NGUYEN showing Ph. I AND Ph. II.
– Work continues as DESCRIBED.

1030 – Light RAIN, work continues AS PLANNED.

1200 – Work stops FOR LUNCH BREAK AT this TIME.

1300 – ARC moving ONE CREW to Bldg 501E to REMOVE 120 sq. FT OF FL. TILE.

1530 – Work complete on 49W AND TS25

1700 – Work complete on 501E SIGNAL AREA AND PISTON RANGE SHACK.

DD

Site Representative (Print Name) _____ Signature/Date _____

Contractor Supervisor (Print Name) _____ Signature/Date _____

EFI®
Engineering and Fire Investigations

Field Report

Date: 5-14, 2003 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 - ARC & EFI on site. Work this shift is on Bldg No. 46W at this time. Transite Removal.

0830 - Looks like it may rain but work continuing at this time.

1030 - ARC has 1 supervisor, 1 foreman and 6 workers on site.

1200 - All work stops for lunch break at this time.

1400 - Transite Removal continues on Bldg 46W.

1600 - Removal stopping for the day to allow workers time to wrap transite and label.

1730 - ARC and EFI departing site, end of shift.

Site Representative (Print Name) _____ Signature/Date _____

Contractor Supervisor (Print Name) _____ Signature/Date _____

00065294

EFI®
Engineering and Fire Investigations

Field Report

Date: 5-15, 2003 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 - ARC AND EFI ON SITE

0800 - WORK HAS RESUMED ON TRANSITE REMOVAL ON Bldg. 46 W.
- STORM LAST NIGHT WITH LOTS OF RAIN HAS CAUSED ARC TO WORK OFF OF THE ROAD SIDE OF THE Bldg. TOO WET TO GET THE LIFT ON THE BACK SIDE.

1000 - WORK CONTINUES AS DESCRIBED.

1200 - WORK STOPS FOR LUNCH BREAK AT THIS TIME.

1400 - NO RAIN SO FAR TODAY, WORK RESUMED AFTER LUNCH.

1600 - ARC MAY COMPLETE REMOVAL ON TRANSITE SIDING OF Bldg 46 W TODAY.

1730 - ARC REQUESTED ACM BULK SAMPLES OF PIPE FITTING ON STEAM LINE OF Bldg. 46 W EFI COLLECTED THEM
- SHIFT COMPLETE ARC EFI DEPART SITE FOR THE DAY.

Site Representative (Print Name) — Signature/Date

Contractor Supervisor (Print Name) — Signature/Date

EFI®
Engineering and Fire Investigations

Field Report

Date: 5-19, 2003 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 – ARC and EFI ON SITE

0830 – Work continuing on REMOVAL OF TRANSITE ON Bldg. 46W

1030 – REMOVAL continues AS PLANNED AT this TIME.

1200 – ALL work STOPS FOR lunch AT this TIME.

1300 – Work RESUMES, SAME LOCATION Bldg. 46W.

1500 – ARC MAY COMPLETE TRANSITE REMOVAL ON Bldg. 46W this SHIFT. Work CONTINUES.

1600 – LEAD BASED SAMPLES COLLECTED ON Bldg. 718-A AND 717

1730 – SHIFT ENDS.

Site Representative (Print Name) Signature/Date

Contractor Supervisor (Print Name) Signature/Date

EFI®
Engineering and Fire Investigations

Field Report

Date: 5-20, 2003 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 - ARC AND EFI ON SITE

0800 - ARC BEGINNING WORK ON BLDG 31 W THIS SHIFT. TRANSITE REMOVAL.

1000 - WEATHER BEGINNING TO LIGHTLY RAIN BUT WORK CONTINUING AT THIS TIME.

1200 - WORK STOPS FOR LUNCH BREAK AT THIS TIME.

1300 - WORK RESUMES AS DESCRIBED. ARC IS CUTING OF THE BOLT HEAD AND DRIVING IT BACK THROUGH TO RELEASE THE SHEETS AND LOWER THEM TO THE GROUND FOR WRAPING

1500 - ARC REMOVING TRANSITE ROOF PANELS AT THIS TIME.

1700 - REMOVAL STOPPED TO ALLOW WORKERS TO WRAP ALL REMOVED PANELS.

1730 - SHIFT ENDS

Site Representative (Print Name) _____ Signature/Date _____

Contractor Supervisor (Print Name) _____ Signature/Date _____

EFI®
Engineering and Fire Investigations

Field Report

Date: 5-21, 2003

Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 – ARC on site, EFI on site.

0730 – Works Resumes on transite removal on Bldg 31 W.

0930 – Method continues on grinding off Bolt heads and knocking Bolt down through the panels.

1100 – Workers lower each panel to the ground with [redacted]. ropes.

1200 – All work stops for Lunch.

1300 – ARC will nearly complete transite removal on Bldg 31 W today. A little will be left to complete next shift.

1500 – Removal continues as described at this time.

1730 – All work has ended for the day. ARC, EFI depart site

Site Representative (Print Name) Signature/Date

Contractor Supervisor (Print Name) Signature/Date

00065298

EFI®
Engineering and Fire Investigations

Field Report

Date: 5-22, 2003 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 - ARC, EFI on site.

0730 - Work resumes on Bldg 31 W
- One end remaining to be removed.

0930 - Work continues as planned on Bldg. 31 W transite removal.

1130 - Work stopping for lunch at this time.

1230 - Work resumes on the last few sheets of transite on Bldg 31 W.

1430 - Removal complete on transite Bldg 31 W
- Workers wrapping transite in poly at this time.

1630 - Work complete for this shift. ARC moving supplies and equipment back to their storage area.

1730 - ARC, EFI Depart site.

D. Pope
Site Representative (Print Name) — Signature/Date

Contractor Supervisor (Print Name) — Signature/Date

EFI®
Engineering and Fire Investigations

Field Report

Date: 5-27, 2003 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 – EFI on site, ARC on site

0800 – Work this shift is on transite removal Bldg. 33 W

0930 – ARC has full crew, all working at Bldg. 33 W.

1130 – Very dry around Bldg no rain extra caution being used on controling fire.

1200 – All work stops for lunch break at this time.

1300 – Work resumes as described on Bldg 33 W.

1500 – Approx 40% of the transite will likley be removed on Bldg 33W this shift.

1700 – Work stopped for workers to wrap transite in poly that the removed this shift.

1730 – Shift ends, all depart site

DP

Site Representative (Print Name) _____ Signature/Date

Contractor Supervisor (Print Name) _____ Signature/Date

00065300

EFI®
Engineering and Fire Investigations

Field Report

Date: 5-28, 2003 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 – EFI AND ARC ON SITE SAME CREW.

0800 – WORK THIS SHIFT WILL CONTINUE WITH TRANSITE REMOVAL OF BLDG. 33W.

1000 – ARC CONTINUES WITH BLDG 33W AS DESCRIBED.

1200 – WORK STOPS FOR LUNCH AT THIS TIME.

1300 – ARC RESUMES TRANSITE REMOVAL ON BLDG. 33W.

1500 – BLDG 33W HAS ONLY THE BACK SIDE TRANSITE REMAINING, ALL OF THE ROOF AND SIDES ARE DOWN.

1700 – WORK STOPS FOR THIS SHIFT AND THE WORKERS COVER TRANSITE WITH POLY SHEETING.

1730 – ARC, EFI DEPART SITE FOR SHIFT END

Site Representative (Print Name) _____ Signature/Date _____

Contractor Supervisor (Print Name) _____ Signature/Date _____

EFI®
Engineering and Fire Investigations

Field Report

Date: 5-29, 2003 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 – EFI on site, ARC on site same crew.

0800 – Work will continue on 33W and will be complete by noon.

1000 – ARC will be moving to Bldg 35W

1130 – Conditions very dry ARC using extra caution on fire control.

1200 – All work stops for lunch break.

1300 – Work resumes

1500 – ARC has completed work on Bldg 33W and moving to 35W At this time.

1700 – Work began on Bldg 35W on grinding bolt heads no removal – shift nearly over, workers cleaning up and wrapping tools in poly.

1730 – ARC, EFI Depart site.

Site Representative (Print Name) Signature/Date

Contractor Supervisor (Print Name) Signature/Date

EFI®
Engineering and Fire Investigations

Field Report

Date: 5-30, 2003

Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 – EFI, ARC on site with same crew.

0800 – Work continues on Bldg 35W as planned. Transite removal.

1030 – ARC continuing with entire crew on Bldg 35W.

1200 – Work stops for lunch break.

1300 – Work resumes.

1500 – Approx. 30% of the roof sheets will be removed this shift.

1700 – Work stops for clean up at this time.

1730 – EFI, ARC depart site.

Site Representative (Print Name) Signature/Date

Contractor Supervisor (Print Name) Signature/Date

EFI®
Engineering and Fire Investigations

CONTINUE BLDG 42W

Field Report

Date: 6/2/, 2003 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 – ARC & EFI ARRIVED ON SITE. ARC HAS 4 WORKERS TODAY AND THEY EXPECT TO WORK ON BUILDING 42W AS THEY CONTINUE REMOVAL OF TRANSITE SIDING FROM THE BACK SIDE.

0730 – EFI CALIBRATES PUMPS AND SETS AIR SAMPLES AT THE WORK SITE OF 42W.
EFI OBSERVES 4 ARC WORKERS WEARING ½ FACE RESPIRATORS, DISPOSABLE PROTECTIVE COVERALLS, RUBBER BOOTS AND WORK GLOVES AS THEY REMOVE BOLTS & FASTENERS FROM THE TRANSITE PANELS TO REMOVE THE PANELS FROM THE BUILDING.

0950 – ARC WORKERS ARE OBSERVED STACKING PANELS ON THE GROUND NEAR THE BUILDING. THE PANELS HAVE BEEN DOUBLE WRAPPED WITH 6 mil poly SHEETING AND ALL BOLTS AND FASTENERS HAVE BEEN REMOVED.

1130 – ARC BREAKS FOR LUNCH.

1230 – ARC RETURNS TO WORK AS THEY CONTINUE REMOVAL OF TRANSITE PANELS FROM BUILDING 42W.

1355 – ARC WORKERS ARE OBSERVED USING A MAN LIFT BUCKET TO ACCESS THE SIDES OF THE BUILDING AND REMOVE THE TRANSITE PANELS.

1510 – ARC WORKERS ARE WRAPPING TRANSITE PANELS WITH 6 mil poly FOR TRANSPORT LATER.

1700 – ARC WORKERS CLEAN UP THE WORK AREA AND COLLECT THEIR TOOLS AND SUPPLIES AS THEY COMPLETE THE WORK ON BUILDING 42W.

1730 – ARC AND EFI LEAVE THE SITE.

JOE PONTERELLA — Joe Ponterella — 6/2/03
Site Representative (Print Name) — Signature/Date

Contractor Supervisor (Print Name) — Signature/Date

EFI®
Engineering and Fire Investigations

Comp. BLDG 42W BLDG 25G (Floor Tile Removal)

Field Report

Date: 6 / 3 / , 2003 ~~TUESDAY~~ Project Number: **98410-13709**

Project Name: **Longhorn Army Ammunition Plant**

Contractor: **ARC**

Description

0630 - EFI AND ARC ARRIVE ON SITE. ARC HAS 4 WORKERS TODAY AND THEY EXPECT TO CONTINUE WITH FLOOR TILE REMOVAL FROM BUILDING 25G. THEY HAVE COMPLETED ABATEMENT IN 42W YESTERDAY AND STARTED FLOOR TILE REMOVAL IN 25G.

0740 - EFI CALIBRATES AIR PUMPS AND SETS AIR SAMPLES IN THE WORK AREA OF 25G BUILDING. ARC WORKERS ARE OBSERVED WEARING ½ FACE RESPIRATORS, 2 SETS OF DISPOSABLE PROTECTIVE OVERALLS, RUBBER BOOTS AND WORK GLOVES AS THEY CONTINUE FLOOR TILE REMOVAL USING SPUD BARS AND SCRAPERS. THE WORK AREA APPEARS TO BE ISOLATED, NEGATIVE PRESSURE IS ADEQUATE [redacted] AND A DECON IS AT THE ENTRANCE OF THE BUILDING. EFI OBSERVES SIGNS PLACED OUTSIDE THE BUILDING IN COMPLIANCE WITH TDH REGULATIONS.

1000 - ARC WORKERS ARE USING SOLVENT TO REMOVE THE BLACK MASTIC. THE MASTIC RESIDUE IS WIPED WITH RAGS FROM THE CONCRETE FLOOR AND SAWDUST IS USED TO DRY THE FLOOR.

1200 - ARC BREAKS FOR LUNCH.

1230 - ARC WORKERS RETURN TO CONTINUE FLOOR TILE AND MASTIC. THEY ALSO WILL REMOVE TRANSITE PANELS FROM THE WALLS AND CEILING IN SELECTED AREAS SPECIFICALLY THE RESTROOMS AND KITCHEN OR "WET AREAS".

1505 - ARC WORKERS ARE OBSERVED PLACING TILES INTO BAGS FOR DISPOSAL.

1700 - ARC WORKERS CLEAN UP THE AREA AND LEAVE THE SITE. EFI LEAVES THE SITE.

Joseph Pontarelli Jr.
Site Representative (Print Name)

Joseph Pontarelli Jr. 6/3/03
Signature/Date

Contractor Supervisor (Print Name)

Signature/Date

EFI
Engineering and Fire Investigations

BLDG. 25G Floor Tile & TRANSITE (INTERIOR) REMOVAL

Field Report

Date: 6/4/, 2003 WEDNESDAY | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description BUILDING 25G - FLOOR TILE + MASTIC + TRANSITE (INTERIOR) REMOVAL

0630 – EFI AND ARC ARRIVES ON SITE. ARC HAS 4 WORKERS AND EXPECTS TO CONTINUE REMOVAL of FLOOR TILE + MASTIC AND TRANSITE FROM THE INTERIOR OF BUILDING 25G.

0700 – EFI CALIBRATES PUMPS AND SETS AIR SAMPLES IN AND AROUND THE WORK AREA.

0740 – EFI OBSERVES ARC WORKERS HAVE 2 AIR MACHINES IN OPERATION. THE WORKERS ARE WEARING ½ FACE RESPIRATORS, 2 SETS OF DISPOSABLE COVERALLS, RUBBER BOOTS AND WORK GLOVES AS THEY CONTINUE CLEANING BLACK FLOOR MASTIC AND REMOVING TRANSITE PANELS FROM THE KITCHEN AREA CEILING of BLDG. 25G

1050 – EFI HAS 2 AIR MACHINES IN OPERATION AS THEY PLACE FLOOR TILE AND TRANSITE IN 6 MIL POLY BAGS FOR DISPOSAL.

1130 – ARC WORKERS BREAK FOR LUNCH.

1200 – ARC RETURNS TO 25G WORK AREA TO CONTINUE. THEY WILL BE DETAIL CLEANING AND EXPECT A VISUAL FOR COMPLETENESS ~~AROUND~~ AROUND 2 PM.

1430 – ARC REQUESTS A VISUAL OBSERVATION TO CONFIRM COMPLETION OF CLEANING AND REMOVAL IN BUILDING 25G. EFI MAKES A VISUAL OBSERVATION AND FINDS THE WORK TO BE IN GENERAL COMPLIANCE WITH THE SPECIFICATION.

1500 – EFI BEGINS FINAL AIR CLEARANCES IN BUILDING 25G.

1650 – AIR SAMPLE RESULTS INDICATE THAT 25G AREA HAS PASSED THE CRITERIA FOR FINAL AIR CLEARANCE. ARC WORKERS DISMANTLE THE DECON.

1700 – EFI AND ARC LEAVES THE SITE.

(TCLP SAMPLES FROM BLDGS 201, 203, 204, 713-B)

Joseph Pontarello JR
Site Representative (Print Name)

Joseph Pontarello 6/4/03
Signature/Date

Contractor Supervisor (Print Name)

Signature/Date

EFI
Engineering and Fire Investigations

PREP.
BLDG. 22A

Field Report

Date: 6 / 5 / , 2003

Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 – EFI AND ARC ARE ON SITE. ARC HAS 4 WORKERS AND THEY WILL BE TEARING DOWN THE POLY FROM BUILDING 25 G SINCE YESTERDAY'S COMPLETION, AND PREPARING FOR ACM REMOVAL IN BUILDING 22A.

0830 – ARC WORKERS ARE MOVING SUPPLIES FROM BUILDING 25 G TO BUILDING 22 A.

1050 – ARC WORKERS ARE USING 6 mil poly TO PREP AROUND BUILDING 22A FOR ACM REMOVAL

1200 – ARC WORKERS BREAK FOR LUNCH.

1230 – ARC WORKERS RETURN FROM LUNCH AND WILL CONTINUE POLY PREP ON BUILDING 22A.

1430 – ARC CONTINUES poly prep FOR THE REMOVAL OF TRANSITE EXTERIOR PANELS, FLOOR TILE + MASTIC AND TSI.

1600 – ARC WORKERS BEGAN TO CLEAN UP WASTE DEBRIS AND PREPARE TO LEAVE THE SITE.

1700 – ARC AND EFI LEAVE THE SITE.

Site Representative (Print Name) _____ Signature/Date _____

Contractor Supervisor (Print Name) _____ Signature/Date _____

EFI®
Engineering and Fire Investigations

BLDG 22A FLOOR TILE REMOVAL

Field Report

Date: 6/9/2003 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description BUILDING 22A FLOOR TILE REMOVAL.

0630 — ARC AND EFI ARRIVE ON SITE. ARC HAS 4 WORKERS AND THEY WILL BE REMOVING FLOOR TILE AND BLACK MASTIC FROM BUILDING 22A

0750 — ARC WORKERS ARE OBSERVED WEARING ½ FACE RESPIRATORS, 2 SETS OF DISPOSABLE PROTECTIVE COVERALLS, RUBBER BOOTS AND WORK GLOVES AS THEY BEGAN TO REMOVE FLOOR TILE USING SPUD BARS. THE WORK AREA APPEARS TO BE FULLY ENCLOSED AND UNDER NEGATIVE AIR PRESSURE. SIGNS AND FIRE EXTINGUISHERS ARE PLACED AROUND THE ENCLOSURE INSIDE AND OUTSIDE.

1030 — ARC WORKERS CONTINUE TO REMOVE FLOOR TILE USING SPUD BARS AND SCRAPERS.

1200 — ARC BREAKS FOR LUNCH.

1230 — ARC WORKERS RETURN TO THE WORK ENCLOSURE TO CONTINUE FLOOR TILE AND MASTIC REMOVAL.

1400 — EFI OBSERVES ARC WORKERS BAGGING FLOOR TILE IN 2 - 6mil POLY BAGS FOR DISPOSAL.

1530 — ARC WORKERS CONTINUE REMOVAL OF FLOOR TILE AND LINOLEUM FROM THE CONCRETE SLAB OF BUILDING 22A.

1700 — ARC AND EFI LEAVE THE SITE. ARC WILL CONTINUE REMOVAL IN BUILDING 22A.

JOSEPH PONTARELLI JR.
Site Representative (Print Name)

Joseph Pontarelli 6/9/03
Signature/Date

Contractor Supervisor (Print Name)

Signature/Date

EFI®
Engineering and Fire Investigations

BLDG 22A Floor Tile/Linoleum

Field Report

Date: 6/10/2003 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 – EFI AND ARC ABATEMENT ARRIVE ON STG. ARC HAS 4 WORKERS AND THEY EXPECT TO CONTINUE FLOOR TILE/LINOLEUM REMOVAL INSIDE BUILDING 22A.

0735 – EFI OBSERVES ARC WORKERS WEARING 1/2 FACE RESPIRATORS 2 SETS OF DISPOSABLE PROTECTIVE COVERALLS, RUBBER BOOTS AND WORK GLOVES. THE WORKERS ARE USING SPUD BARS AND SCRAPERS TO REMOVE LINOLEUM AND TILE FROM THE CONCRETE SLAB INSIDE BUILDING 22A.

0915 – EFI OBSERVES ARC USING SOLVENT TO REMOVE THE MASTIC FROM THE CONCRETE SLAB AFTER REMOVAL of FLOOR TILE. THE TILES AND LINOLEUM ARE PLACED IN 2 LAYERS of 6 mil POLY AND 6 mil POLY BAGS FOR DISPOSAL. GENERATOR LABELS HAVE BEEN PLACED ON EACH BAG.

1155 – ARC WORKERS CLEAN UP FOR LUNCH BREAK.

1230 – ARC RETURNS FROM LUNCH TO CONTINUE CLEANING MASTIC FROM BUILDING 22A.

1945 – ARC WORKERS ARE HAULING OUT ACM AND STAGING IT OUTSIDE THE BUILDING FOR TRANSFER TO THE LANDFILL.

1700 – ARC AND EFI LEAVE THE SITE

JOSEPH PONTERELLA JR. — Joseph Ponterella 6/11/03
Site Representative (Print Name) — Signature/Date

Contractor Supervisor (Print Name) — Signature/Date

00065309

EFI®
Engineering and Fire Investigations

BLDG. 22-A REMOVAL - CLEANING

Field Report

Date: 6/11/, 2003 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 - ARC AND EFI ARRIVE ON SITE. ARC HAS 4 WORKERS AND THEY EXPECT TO CONTINUE CLEANING INSIDE BUILDING 22A.

0750 - EFI OBSERVES ARC WORKERS WEARING 1/2 FACE RESPIRATORS, 2 SETS OF DISPOSABLE PROTECTIVE COVERALLS, RUBBER BOOTS AND WORK GLOVES AS THEY REMOVE MASTIC FROM THE FLOOR.

EFI SETS AIR SAMPLES IN AND AROUND THE WORK AREA.

1000 - ARC WORKERS CONTINUE CLEANING MASTIC INSIDE THE BUILDING.

1100 - ARC BEGAN TO HAUL OUT BAGS FOR DISPOSAL AS ACM.

1200 - ARC BREAKS FOR LUNCH.

1230 - ARC WORKERS RETURN TO BUILDING 22A TO CONTINUE CLEANING MASTIC FROM THE FLOOR.

1400 - ARC WORKERS ARE STILL CLEANING THE FLOOR WITH SOLVENT, MARINE SAWDUST AND RAGS. THEY DO NOT EXPECT TO COMPLETE THE WORK IN BUILDING 22A TODAY.

1635 - ARC WORKERS BEGAN TO CLEAN UP AND BAG ALL WASTE.

1700 - ARC AND EFI LEAVE THE SITE.

COLLECTED TCLP SAMPLES FROM BLDGS:
201-A
202
707F
201R

Joe Ponterello Jr.
Site Representative (Print Name)

Joe Ponterello 6/11/03
Signature/Date

Contractor Supervisor (Print Name)

Signature/Date

00065310

EFI
Engineering and Fire Investigations

BLDG. 22-A CLEANING & TILE/MASTIC
COMPLETED

Field Report

Date: 6/12/2003 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 – ARC AND EFI ARRIVE ON SITE. ARC HAS 4 WORKERS AND THEY EXPECT TO CONTINUE CLEANING BLDG. 22-A FOR POSSIBLE COMPLETION THIS AFTERNOON.

0750 – EFI OBSERVES ARC WORKERS WEARING 1/2 FACE RESPIRATORS 2 SETS of DISPOSABLE COVERALLS, RUBBER BOOTS AND WORK GLOVES AS THEY REMOVE MASTIC AND USE SOLVENT AND BRUSHES.

0840 – EFI OBSERVES ARC WORKERS APPEAR TO BE NEAR COMPLETION OF CLEANING THE MASTIC. THEY WILL PROBABLY BE READY FOR A VISUAL OBSERVATION FOR COMPLETION. LATER TODAY.

1000 – EFI OBSERVES ARC WORKERS HAULING OUT ACM WASTE IN DOUBLE BAGS FOR DISPOSAL.

1150 – ARC WORKERS CLEAN UP FOR LUNCH BREAK.

1200 – ARC BREAKS FOR LUNCH.

1230 – ARC WORKERS RETURN TO BUILDING 22-A AND REQUEST EFI TO PERFORM A VISUAL OF THE COMPLETION OF CLEANING. EFI OBSERVES THE WORK APPEARS COMPLETE IN ACCORDANCE WITH THE SPECIFICATION.

1330 – EFI BEGAN FINAL AIR CLEARANCE SAMPLING INSIDE BUILDING 22-A

1515 – EFI COLLECTS AIR SAMPLES FROM BUILDING 22-A FOR PCM ANALYSIS ON SITE. ARC WORKERS ARE MOVING EQUIPMENT AND SUPPLIES TO THE NEXT LOCATION.

1530 – EFI DETERMINES BUILDING 22-A HAS PASSED FINAL AIR CLEARANCE ARC IS INFORMED AND THE WORKERS ARE DIRECTED BY THEIR SUPERVISOR TO BEGIN TEARING DOWN THE ENCLOSURES.

1600 – ARC WORKERS DISPOSE OF BAGGED WASTE AND CONTINUE TO DISASSEMBLE THE ENCLOSURES FROM BUILDING 22-A.

1700 – TEAR DOWN IS COMPLETE. THE AREA IS CLEANED UP AND ARC LEAVES THE SITE.

Joe Ponterello JR.
Site Representative (Print Name)

Joe Ponterello J 6/12/03
Signature/Date

Contractor Supervisor (Print Name)

Signature/Date

EFI®
Engineering and Fire Investigations

BLDGS: 716 FL. TILE + MASTIC ~400 S.F (Completed)
744 SIDING
744A SIDING + TSI - (Completed)

Field Report

Date: 6/16/2003 MONDAY

Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 - ARC AND EFI ARE ON SITE. ARC HAS 3 WORKERS TODAY. SANTOS REYES IS NOT HERE. ARC PLANS TO START A SMALL FLOOR TILE REMOVAL OPERATION IN BUILDING 716 AND MOVE ON TO 744 AND 744A TO REMOVE SIDING AND SOME T.S.I.

0710 - EFI OBSERVES ARC WORKERS ENCLOSING THE FLOOR TILE AREA IN BUILDING 716 (ABOUT 400 S.F. OF TILE) AND APPEAR NEAR READY FOR REMOVAL.

0845 - EFI ~~WORKER~~ OBSERVES ARC WORKERS WEARING ½ FACE RESPIRATORS, RUBBER BOOTS, WORK GLOVES AND DISPOSABLE COVERALLS AS THEY USE SPUD BARS TO REMOVE THE FLOOR TILE INTACT.

0930 - THE FLOOR TILE AND MASTIC HAS BEEN REMOVED FROM BUILDING 716 AS ARC WORKERS CLEAN THE AREA.
EFI MAKES A VISUAL OBSERVATION AND FINDS 716 WORK AREA APPEARS TO BE CLEAN AND COMPLETED IN GENERAL ACCORDANCE WITH THE SPECIFICATION.

0940 - EFI BEGAN FINAL CLEARANCE SAMPLES IN BUILDING 716 WORK AREA. ARC WORKERS MOVE TO BUILDING 744 AND WILL START THE REMOVAL OF TRANSITE SIDING

1125 - EFI collects THE CLEARANCE SAMPLES FROM BUILDING 716 FOR PCM ~~ANALYSIS~~ ANALYSIS ON SITE. ARC WORKERS CONTINUE IN BUILDING 744

1200 - ARC BREAK FOR LUNCH. BUILDING 716 HAS ACHIEVED FINAL AIR CLEARANCE. ARC SUPERVISOR ASSIGNS 1 WORKER TO TEAR DOWN. ~~A~~ AFTER LUNCH.

1250 - ARC HAS 2 WORKERS IN BUILDING 744-A USING GLOVE BAGS TO REMOVE THE PIPE INSULATION.

1400 - ARC COMPLETES THE T.S.I. REMOVAL IN BUILDING 744-A AND MOVES TO 744 TO START REMOVAL OF TRANSITE SIDING.

1535 - ARC WORKERS CONTINUE SIDING REMOVAL FROM BUILDINGS: 744 AND 744-A. 744 WILL NOT BE COMPLETED TODAY.

1700 - ARC COMPLETES THE WORK IN BUILDING 744A AND ENDS THE SHIFT.

Joe Ponteroso Jr.
Site Representative (Print Name)

Joe Ponteroso Jr 6/16/03
Signature/Date

Contractor Supervisor (Print Name)

Signature/Date

00065312

EFI
Engineering and Fire Investigations

BLDG. 717 FL. TILE REMOVAL
TRANSITE "
GLOVE BAG - TSI "

Field Report

Date: 6/18/2003

Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 - ARC AND EFI ARE ON SITE. EFI OBSERVES ARC HAS 3 WORKERS AS THEY PLAN TO WORK INSIDE BUILDING 717 TODAY REMOVING FLOOR TILE AND ASSOCIATED MASTIC.

0715 - EFI OBSERVES ARC WORKERS WEARING 1/2 FACE RESPIRATORS, RUBBER BOOTS, 2 SETS of DISPOSABLE COVERALLS, AND WORK GLOVES, AS THEY REMOVE FLOOR TILE FROM BUILDING 717 USING LONG HANDLE SPUD BARS AND SCRAPERS.

0930 - EFI OBSERVES ARC WORKERS BAGGING FLOOR TILE AND SEALING THE BAGS FOR DISPOSAL.

1125 - ARC WORKERS ARE OBSERVED USING SOLVENT TO REMOVE THE MASTIC FROM THE CONCRETE FLOOR.

1200 - ARC BREAKS for LUNCH.

1230 - ARC WORKERS RETURN TO BUILDING 717 TO CONTINUE FLOOR TILE AND MASTIC REMOVAL FROM VARIOUS ROOMS INSIDE.

1455 - ARC WORKERS ARE NOW USING GLOVE BAGS TO REMOVE TSI FROM A PIPE RUN ACROSS THE ENCLOSURE WHERE FLOOR TILE WAS REMOVED.

1600 - ARC WORKERS CONTINUE FLOOR TILE REMOVAL IN ANOTHER ROOM IN BUILDING 717.

1700 - ARC WORKERS CLEAN UP DEBRIS AND LEAVE THE SITE. EFI LEAVES THE SITE

Joe Pontarelli Jr.
Site Representative (Print Name)

Joe Pontarelli J 6/18/03
Signature/Date

Contractor Supervisor (Print Name)

Signature/Date

00065313

EFI®
Engineering and Fire Investigations

BLDG 717 ~~FLOOR~~ TRANSITE TSI (glovebag) (INCOMPLETE)

Field Report

Date: 6/19/2003 THURSDAY | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 - ARC AND EFI ARE ON SITE. ARC HAS 3 WORKERS AND THEY ANTICIPATE COMPLETING THE WORK IN BUILDING 717 TODAY.

0730- ARC WORKERS ARE OBSERVED WEARING ½ FACE RESPITATORS, 2 SETS OF DISPOSABLE COVERALLS, RUBBER BOOTS AND WORK GLOVES AS THEY USE GLOVE BAGS TO REMOVE PIPE INSULATION WITH MASTIC FROM OVERHEAD PIPES. THE FLOOR TILE HAS BEEN REMOVED ALONG WITH ~~THE~~ MOST OF THE ASSOCIATED MASTIC. FINAL CLEANING WILL BE DONE LATER.

1015 - ARC WORKERS CONTINUE REMOVING T.S.I. WITH MASTIC AND ARE OBSERVED ATTACHING GLOVE BAGS TO THE OVERHEAD PIPE.

1030 - EFI IS REQUESTED TO OBSERVE THE WORK AREA FOR COMPLETION OF CLEANING IN ~~THE~~ THE FLOOR TILE AND MASTIC AREA. EFI FINDS THE FLOOR TILE AND MASTIC REMOVAL IS COMPLETED AND CLEANED IN ACCORDANCE WITH THE SPECIFICATION. EFI INFORMS ARE SUPERVISOR AND BEGINS FINAL AIR CLEARANCE SAMPLES IN THE AREA OF FLOOR TILE ONLY. ARC WORKERS WILL CONTINUE REMOVING TSI WITH GLOVE BAGS.

10:50 - EFI SETS FINAL AIR CLEARANCE SAMPLES INSIDE THE WORK AREA OF BUILDING 717

1200- ARC WORKERS BREAK FOR LUNCH.

1235 - EFI COLLECTS THE FINAL AIR CLEARANCE SAMPLES FOR PCM ANALYSIS ON SITE.

1250 - AIR SAMPLE ANALYSIS INDICATES THAT THE FLOOR TILE AREA PASSES CLEARANCE.

1325 - ARC WORKERS CONTINUE TSI REMOVAL INSIDE OTHER AREAS OF THE BUILDING

1500 - ARC CONTINUES REMOVAL OF TSI AND BEGINS TO CLEAN UP THE AREA.

1700 - ARC AND EFI LEAVE THE SITE. ARC DID NOT COMPLETE THE WORK IN BUILDING 717 AS THE TRANSITE STILL REMAINS IN PLACE.

JOE PONTERELLI JR
Site Representative (Print Name)

Joseph Ponterelli Jr 6/19/03
Signature/Date

Contractor Supervisor (Print Name)

Signature/Date

00065314

EFI®
Engineering and Fire Investigations

Field Report

Date: 6 - 23, 2003 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC 1 OF 1

Description

0630- CW ONSITE. 4 MEN & 1 SUPV. CW WILL
- PRE BRIEF 704 D FOR RT REMOVAL.
0730- PRE CONTINUES FOR R.T & MASKING RM
- 704 D.
0830- CW BEGINS R.T REMOVAL ON 704D.
0930- SAME AS ABOVE NOTED. UTILITY FACE RESP
- TYVEK SUITS & RUBBER BOOTS IN USE.
1030- R.T REMOVAL CONTINUES IN 704D.
1200- LUNCH.
1230- CW BACK TO WORK W/ RT IN 704D.
1330- R.T REMOVAL CONTINUES IN 704 D.
1430- CW CONTINUES W/ R.T. REMOVAL ON
- 704D.
1530- SAME AS ABOVE NOTED
1630- CW SIGNED OUT
1700- OFFSITE.

JOHN A. ROBERTS — 6-23-03
Site Representative (Print Name) — Signature/Date

Contractor Supervisor (Print Name) — Signature/Date

00065315

EFI
Engineering and Fire Investigations

Field Report

Date: 6-24, 2003 | Project Number: 98-110-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC 1 of 1

Description

0630- SW onsite. 4 ww & 1 supv. SW will
- continue w/ F.T Renwal on Bldg 704D.
- Half face Resp, Tyvek suits & Rubber
- Boots in use.
0800- SW continues w/ F.T Renwal on 704D.
0900- Same as above natal.
1000- SW continues w/ F.T Renwal on 704D
1120- F.T Renwal continues on 704D.
1200- Lunch.
1300- SW continues w/ F.T Renewal.
1430- SW offsite.

Jan A. Reiser
Site Representative (Print Name)

Signature/Date 6-24-03

Contractor Supervisor (Print Name)

Signature/Date

00065316

EFI®
Engineering and Fire Investigations

Field Report

Date: 6-25, 2003 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC 1 OF 1

Description

0630- CW ONSite. CW 4 MEN & 1 SUPV. CW
- WILL BEGIN MASTIC REMOVAL ON 704D.
- HALF FACE RESP/ TYVEK SUITS & RUBBER
- BOOTS IN USE.

0730- CW CONTINUES W/ MASTIC REMOVAL ON 704D.

0830- SAME AS ABOVE NOTED.

0930- MASTIC REMOVAL CONTINUES ON 704D

1030- CW CONTINUES W/ MASTIC REMOVAL
- ON 704D.

1200- LUNCH.

1230- CW BACK TO WORK W/ WASTE DEBRIS.

1300- VISUAL PASSES ON 704D.

1330- E-F-I STARTS RINGS ON 704D.

1540- E-F-I REMOVES RINGS ON 704D.

1600- CW WAY NOW TEAR DOWN CNT.
- ON 704D. RINGS PASS.

1700- OFFSITE.

JOHN W REINERT. 6-25-03
Site Representative (Print Name) Signature/Date

Contractor Supervisor (Print Name) Signature/Date

00065317

EFI
Engineering and Fire Investigations

Field Report

Date: 6-30, 2003 | Project Number: 98410 - 13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0330 - EFI INROUTE TO SITE

0730 - EFI ON SITE, ARC ON SITE.

0830 - Work this shift is TRANSITE REMOVAL on Bldg 414 (WATER PUMPING STATION).

1030 - ARC moving TRANSITE PANELS to Disposal SITE.

1130 - Approx. 25% of the TRANSITE on this Bldg. has BEEN TAKEN DOWN at this time. WORKERS Stopping and cleaning up FOR LUNCH BREAK.

1200 - Lunch.

1300 - Work RESUMES on TRANSITE REMOVAL Bldg 414.

1500 - ARC ADVISES THAT Approx 50% OF the TRANSITE REMOVAL will BE complete by shift END.

1700 - REMOVAL STOPS AND WORKERS CLEAN UP FOR END OF SHIFT.

1730 - EFI ARC DEPART SITE.

Site Representative (Print Name) _____ Signature/Date _____

Contractor Supervisor (Print Name) _____ Signature/Date _____

EFI
Engineering and Fire Investigations

Field Report

Date: 7-1, 2003 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 – EFI AND ARC ON SITE.

0730 – WORK THIS SHIFT WILL CONTINUE WITH TRANSITE REMOVAL ON Bldg. 414

0930 – WORK CONTINUES AS PLANNED AT THIS TIME.

1030 – ARC ADVISES THAT THEY WILL BE 75% COMPLETE WITH TRANSITE REMOVAL BY LUNCH BREAK.

1200 – LUNCH.

1300 – WORK RESUMES AS PLANNED. ONE SUPERVISOR AND 4 WORKERS.

1600 – ARC IS COMPLETE WITH TRANSITE REMOVAL AND IS HAULING IT TO THE DISPOSAL SITE.

1700 – ARC WILL MOVE TO ANOTHER LOCATION NEXT SHIFT.

1730 – EFI, ARC DEPART SITE.

Site Representative (Print Name) Signature/Date

Contractor Supervisor (Print Name) Signature/Date

EFI
Engineering and Fire Investigations

Field Report

Date: 7-2, 2003 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 - EFi, ARC on site.
- Work this shift will be Transite removal in the Richmond Magazines area.

0800 - Bildings have Transite siding on the front and rear.

0930 - Removal underway. Bush clearing moving ahead of removal.

1100 - Work as described continues as planned. ARC hauling waste to disposal site.

1200 - Work Stops for Lunch break.

1300 - Work resumes on transite removal on the Richmond Magazines.

1500 - ARC advises EFi that they will compleat transite removal on Magazine Bldg 811-1 thru 811-8 this shift

1630 - Another load of waste being hauled by ARC to the Disposal site.

Site Representative (Print Name) _____ Signature/Date _____

Contractor Supervisor (Print Name) _____ Signature/Date _____

EFI
Engineering and Fire Investigations

Field Report

Date: 7-3, 2003 | Project Number: 9840 - 13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 - EFI on site, ARC on site
ONE Supervisor 4 workers.

0830 - Transite removal continues as planned on the Richmond Magazines.

1030 - Very hot working conditions, Ample drinking water and drinks on site.

1130 - ARC hauling truck load of waste to the disposal site.

1200 - Work stops for lunch at this time.

1300 - Transite removal resumes as planned.

1430 - ARC advises EFI that they will complete transite removal on Richmond Magazines 811-9 thru 811-14 this shift.

1600 - Removal complete for this shift and crew cleaning up while waste is hauled to the disposal site.

Site Representative (Print Name) _____ Signature/Date _____

Contractor Supervisor (Print Name) _____ Signature/Date _____

00065321

EFI®
Engineering and Fire Investigations

Field Report

Date: 7-3, 2003 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

1700 - ARC EFI departing site as planned.

J. Pope
Site Representative (Print Name) — Signature/Date

Contractor Supervisor (Print Name) — Signature/Date

00065322

EFI
Engineering and Fire Investigations

Field Report

Date: 7-14, 2003 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 - EFI on site
- ARC on site. Work this shift will continue with transite sidding removal on the Richmond Magazines.

0830 - ARC starting on Bldg. 811-15 with transite removal.

1000 - Work continues as planned at this time.

1130 - ARC continuing to haul transite to the disposal site as they planned.

1200 - Work stops for lunch break at this time.

1300 - ARC resumes on transite removal.

1500 - ARC will complet Bldg. Numbers 811-15 through 811-19. This shift.

1700 - Work stops for this shift.

1730 - ARC and EFI depart site.

Site Representative (Print Name) Signature/Date

Contractor Supervisor (Print Name) Signature/Date

EFI
Engineering and Fire Investigations

Field Report

Date: 7-15, 2003 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 — EFI AND ARC ON SITE.

0830 — WORK BEGAN ON TRANSITE REMOVAL WITH RICHMOND MAGAZINE Bldg. No. 811-15

1000 — AS PLANNED ARC IS GOING TO HAUL WASTE TO THE ON SITE DISPOSAL SITE.

1130 — WORK STOPS FOR LUNCH BREAK AND ARC HAULS A LOAD TO THE DISPOSAL SITE.

1230 — ARC RETURNS TO WORK. CONDITIONS ARE HOT AND A LIGHT WIND AS TRANSITE REMOVAL ABOUT TO RESUME.

1430 — ARC WILL COMPLETE RICHMOND MAGAZINE Bldgs 811-15 THROUGH 811-20 THIS SHIFT.

1630 — TRANSITE REMOVAL HAS STOPPED FOR THIS SHIFT TO ALLOW ARC TO CLEAN UP LAST WORK SITE AND MOVE ALL EQUIPMENT TO

Site Representative (Print Name) _____ Signature/Date _____

Contractor Supervisor (Print Name) _____ Signature/Date _____

00065324

EFI®
Engineering and Fire Investigations

Field Report

Date: 7-15, 2003 | Project Number:

Project Name: Longhorn Army Ammunition Plant 98410 - 13709

Contractor: ARC

Description

- the starting location for tomorrow.

1730 — Shift ENDS, ARC and EFI Departing Site.

Site Representative (Print Name) _____ Signature/Date _____

Contractor Supervisor (Print Name) _____ Signature/Date _____

EFI
Engineering and Fire Investigations

Field Report

Date: 7-16, 2003 | Project Number: 98410 - 13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 - EFI, ARC ON SITE.

0730 - Work this shift will continue with TRANSITE REMOVAL ON THE Richmond MAGAZINES

0900 - ARC STARTED ON Bldg NO. 811-21 this shift.

1000 - WEATHER HOT, LITTLE OR NO WIND. WORK CONTINUES.

1100 - WORK CONTINUES AS PLANNED AT this TIME.

1200 - ALL WORK STOPS FOR LUNCH BREAK.

1300 - EFI collected LBP SAMPLES ON Bldgs. 630-A, 510-B-2, 536, TS-10.

1430 - ARC will complete TRANSITE REMOVAL ON Bldgs. 811-21 through 811-25 this shift

1630 - ARC HAULING A LOAD OF TRANSITE to THE DISPOSAL SITE.

1730 - SHIFT ENDS

Site Representative (Print Name) _____ Signature/Date _____

Contractor Supervisor (Print Name) _____ Signature/Date _____

00065326

EFI
Engineering and Fire Investigations

Field Report

Date: 7-17, 2003 | Project Number: 98410 - 13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 - EFI AND ARC ON SITE.

0730 - Work this shift will BE TRANSITE SIDING REMOVAL on the Richmond MAGAZINES Bldgs.

0900 - ARC underway with REMOVAL AS PLANNED.

1030 - Work slowed slightly do to the MAN LIFT BEING STUCK.

1200 - Work stops for Lunch BREAK AT this TIME.

1300 - ARC RESUMES WORK AS DESCRIBED.

1500 - ARC ADVISES EFI that they will complete TRANSITE REMOVAL on Bldg's, 811-26 Thru 811-30 this shift.

1600 - ARC hauling ACM WASTE to the DISPOSAL SITE.

1700 - ALL work STOPPED AND shift

Site Representative (Print Name) Signature/Date

Contractor Supervisor (Print Name) Signature/Date

EFI
Engineering and Fire Investigations

MONDAY
7-21-03

31-35

Field Report

98410-13709

Date: 7-21 , 2003

Project Name: Longhorn Army An

Contractor: ARC

Description

0630 - EFI ON SITE.

0745 - WORK THIS SHIFT WILL RESUME TRANSITE REMOVAL ON THE RICHMOND MAGAZINE Bldgs.

0945 - HOT, NO WIND, WORK UNDER WAY.

1130 - ARC will CONTINUE HAULING ACM FROM EACH REMOVAL SITE TO THE DISPOSAL SITE ON PROPERTY.

1200 - ALL WORK STOPS FOR LUNCH.

1300 - WORK RESUMES AS DESCRIBED ON TRANSITE REMOVAL.

1500 - ACCESS TO EACH Bldg is THE HARDEST WORK CUTTING TREES OUT OF THE WAY.

1700 - WORK STOPS FOR THIS SHIFT. TRANSITE REMOVAL WAS COMPLETED ON Bldgs 811-31 TO 811-35. ARC AND EFI DEPART SITE.

Site Representative (Print Name) Signature/Date

Contractor Supervisor (Print Name) Signature/Date

EFI
Engineering and Fire Investigations

Field Report

Date: 7-22, 2003 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 – EFI, ARC on site.

0730 – Work again this shift will be transite removal on the Richmond Magazine area.

0930 – Weather is hot with light wind. Removal underway.

1045 – ARC hauling ACM waste to the disposal site.

1200 – All work stopping for lunch at this time!

1300 – Work resumes, as planned. ARC has one worker and John moving ahead of the removal crew clearing trees and bush.

1500 – ARC will complete transite removal on Bldgs 811-36 → 811-40 this shift.

1700 – Work stops for this shift.

Site Representative (Print Name) Signature/Date

Contractor Supervisor (Print Name) Signature/Date

00065329

EFI
Engineering and Fire Investigations

Field Report

Date: 7-23, 2003 | Project Number: 98410 - 13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 - EFi AND ARC ON SITE.
RAIN LAST NIGHT MAY EFFECT WORK.

0830 - ARC STILL ABLE TO ACCESS THE WORK AREAS OF THE Richmond MAGAZINES.

1030 - Hot AND Humid This Shift, Work CONTINUES.

1200 - TRANSITE REMO STOPS FOR Lunch BREAK.

1300 - ARC RETURNS TO WORK. ARC ADVISES EFi THAT THEY ARE TRYING TO COMPLETE THE Richmond MAGAZINE Bldgs This WEEK.

1430 - ANOTHER LOAD OF ACM WASTE BEING HAULED TO THE DISPOSAL SITE.

1630 - ARC will complete Bldgs 811-40 THRU 811-47 this shift.

1730 - ARC, EFi DEPART SITE.

Site Representative (Print Name) _____ Signature/Date _____

Contractor Supervisor (Print Name) _____ Signature/Date _____

EFI
Engineering and Fire Investigations

Field Report

Date: 7-24, 2003 | Project Number:

Project Name: Longhorn Army Ammunition Plant 98410 - 13709

Contractor: ARC

Description

0630 - ARC AND EFI ON SITE

0730 - Work this shift will continue with transite removal on the Richmond Magazine Area.

0900 - Work underway as planned. ARC pushing to complete 10 Bldgs this shift. Brush was cleared on 5 of these Bldgs. last shift.

1100 - Extension Transite removal continues on Bldgs 811-48 and up. →

1200 - Lunch Break.

1300 - ARC hauling ACM to on site Disposal Site.

1500 - ARC advises that they will be able to complete Bldgs 811-48 through 811-58 with transite removal this shift.

1700 - Another load taken to Disposal Site.

1730 - Shift Ends.

Site Representative (Print Name) Signature/Date

Contractor Supervisor (Print Name) Signature/Date

EFI
Engineering and Fire Investigations

Field Report

Date: 7-28, 2003 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 - EFI AND ARC ON SITE.

0730 - ARC will BEGIN TRANSITE REMOVAL ON Bldg. 713 GENERAL PURPOSE WAREHOUSE this shift.

0930 - REMOVAL UNDERWAY AFTER ARC COMPLETED MOVING EQUIPMENT AND SUPPLIES TO CURRENT LOCATION.
- LEE BUCKLE, MICHAEL LUCZAK ON SITE.

1130 - LARGE Bldg. MAY TAKE 2-3 DAYS.

1200 - ALL work STOPS FOR LUNCH BREAK.

1300 - WORK RESUMES. VERY hot conditions AND WORKERS, TAKING FREQUENT BREAKS TO DRINK WATER.

1500 - ARC HAS A load OF TRANSITE ENROUTE to THE DISPOSAL SITE.
- ARC's TRANSPORTER FOR FRIABLE ACM HAS NOT SHOWN UP TO SWAP OUT THE 40 CU. YD. CONTAINER ON SITE.
- BUCKLE AND LUCZAK DEPART SITE

1700 - WORK STOPS FOR THIS SHIFT.

1730 - ARC, EFI DEPART SITE.

Site Representative (Print Name) Signature/Date

Contractor Supervisor (Print Name) Signature/Date

00065332

EFI®
Engineering and Fire Investigations

Field Report

Date: 7-29, 2003 | Project Number: 9810-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 – EFI on site as is ARC.

0800 – Work this shift will continue transite removal on Bldg. 713.

1000 – Work continues as planned.

1200 – ARC stops for lunch break at this time.

1300 – Work resumes on transite removal on Bldg 713.

1430 – Very Hot conditions, workers taking frequent water breaks.

1600 – ARC will continue on Bldg. 713 next shift.

1700 – Shift ends ARC, EFI departing site.

Site Representative (Print Name) Signature/Date

Contractor Supervisor (Print Name) Signature/Date

EFI
Engineering and Fire Investigations

Field Report

Date: 7-30 , 2003 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 - EFI on site. ARC on site.

0800 - ARC beaming with transite removal on Bldg. 713 at this time.

1000 - ARC will complete Bldg 713 with transite removal by lunch and move to Bldg. 722F.

1200 - Work stops for lunch at this time.

1300 - ARC completed Bldg 713 and is in process of moving to Bldg 722F which is a small Bldg.

1430 - Removal underway on transite Bldg 722E

1600 - ARC will complete transite removal on Bldg 722E by shift end.

1700 - Removal complete on Bldg 722E and shift ends.

1730 - EFI and ARC depart site.

Site Representative (Print Name) Signature/Date

Contractor Supervisor (Print Name) Signature/Date

EFI®
Engineering and Fire investigations

Field Report

Date: 7-31, 2003 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 - EFi on site, ARC on site.

0730 - ARC moving to Bldg. 718-A, A LARGE Bldg.

0900 - ARC starting TRANSITE REMOVAL on Bldg. 718-A.

1100 - ARC hauling ANOTHER load of TRANSITE SIDDING to the DISPOSAL SITE.

1200 - Work stops FOR LUNCH BREAK AT this TIME.

1300 - Work RESUMES AS DESCRIBED on Bldg 718-A.

1500 - Work continues, VERY hot conditions AND, workers CHANGE side OF THE Bldg TO GET IN THE SHADE.

1700 - ARC stopping FOR this shift AND cleaning up.

1730 - EFi AND ARC DEPART SITE.

Site Representative (Print Name) _____ Signature/Date _____

Contractor Supervisor (Print Name) _____ Signature/Date _____

00065335

EFI
Engineering and Fire Investigations

Field Report

Date: 8-4, 2003 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 - EFI, ARC on site.

0800 - Work has resumed on transite removal on Bldg 718-A

1000 - Weather heating up quickly. Workers taking frequent water breaks.

1200 - Work stops for lunch break at this time.

1300 - Work resumes, ARC hauling a load of transite to the disposal site.

1430 - Transite removal continues as planned.

1630 - Work continues as described at this time.

1730 - Shift ends ARC and EFI are departing site.

Site Representative (Print Name) _____ Signature/Date _____

Contractor Supervisor (Print Name) _____ Signature/Date _____

EFI
Engineering and Fire Investigations

Field Report

Date: 8-5, 2003

Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 – EFI, ARC on site.

0830 – ARC resumed transite removal on Bldg 718-A and will be complete with it by 10:30.

1030 – Bldg 718-A transite removal complete. Workers moving supplies and equipment to Bldg 714 which is ARC's storage area. They will be moving all of their supplies and equipment to Bldg. 50G

1200 – All work stops for lunch break at this time.

1300 – Work resumes on transite removal at Bldg 714.

1500 – ARC will finish transite removal on Bldg 714 by shift end.

1700 – ARC sent another load of transite to the disposal site.

1730 – All work stops for shift end.

Site Representative (Print Name) Signature/Date

Contractor Supervisor (Print Name) Signature/Date

00065337

EFI
Engineering and Fire Investigations

Field Report

Date: 8-6 , 2003 | Project Number: 98410 - 13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 - EFI ON SITE, ARC ON SITE.

0730 - ARC ADVISES THAT THE FRIABLE ACM 40 yd. CONTAINER IS SCHEDULED TO BE PICKED UP TODAY.

0830 - BAYOU CITY WASTE ON SITE TO DELIVER ANOTHER ACM, 40 yd. BOX AND TRANSPORT THE FULL CONTAINER.

0930 - ARC HAS BEEN WORKING ON MOVING THEIR WAREHOUSE FROM Bldg 714 to Bldg. 50 G.

1030 - WORK WAS HELD ON Bldg 722-E 800 SQ. FT OF FL. TILE AND MASTIC TO REMOVE.

1200 - DOEP VISUAL PASSED AND ARC BEGAN FL. TILE AND MASTIC REMOVAL.

1300 - ARC ASK FOR VISUAL ON REMOVAL AREA.

1330 - VISUAL PASSED AND EFI CONDUCTS PCM AIR CLEARANCE.

1530 - PCM AIR CLEARANCE PASSES AND

Site Representative (Print Name) Signature/Date

Contractor Supervisor (Print Name) Signature/Date

00065338

EFI®
Engineering and Fire Investigations

Field Report

Date: 8-6 , 2003 | Project Number:

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

-ARC is tearing down remaining poly.

1700 – Shift Ends.

Site Representative (Print Name) _____ Signature/Date _____

Contractor Supervisor (Print Name) _____ Signature/Date _____

EFI
Engineering and Fire Investigations

Field Report

Date: 8-7 , 2003 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 - ARC, EFi ON SITE.

0730 - ARC SETting up to START TRANSITE REMOVAL ON Bldg 717.

0930 - TRANSITE REMOVAL underway AT this TIME.

1100 - Work CONTINUES AS PLANNED AT this TIME.

1200 - All work STOPS FOR lunch.

1300 - ARC RESUMES TRANSITE REMOVAL ON Bldg 717

1500 - Work CONTINUES AS DESCRIBED ON Bldg 717

1700 - Work STOPS FOR SHIFT END

Site Representative (Print Name) Signature/Date

Contractor Supervisor (Print Name) Signature/Date

EFI®
Engineering and Fire Investigations

Field Report

Date: 8-11, 2003 | Project Number: 98410 - 13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 - EFI ON SITE. ARC ON SITE.

0730 - Work this shift is continuing with Bldg 717 TRANSITE REMOVAL.

0930 - ARC has A load of ACM WASTE hauling it to the DISPOSAL SITE.

1100 - TRANSITE REMOVAL continues AS PLANNED AT this TIME.

1200 - Work STOPS FOR LUNCH BREAK AT this TIME.

1300 - ARC RESUMES TRANSITE REMOVAL AS DESCRIBED.

1500 - WEATHER STARTING TO RAIN, ARC CONTINUING REMOVAL.

1600 - LIGHTING HAS STOPPED TRANSITE REMOVAL AND ARC CLEANING UP FOR SHIFT END.

1700 - EFI, ARC DEPART SITE FOR THE DAY.

Site Representative (Print Name) Signature/Date

Contractor Supervisor (Print Name) Signature/Date

00065341

EFI®
Engineering and Fire Investigations

Field Report

Date: 8-12, 2003 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 – EFI, ADC on site.

0830 – Weather lots of rain at this time. ADC moved to Bldg 206 to work on FL. tile & mastic removal during rain.

1000 – ADC is prepping area for FL. tile and mastic removal.

1130 – Area ready for visual passed and ADC taking lunch prior to starting removal.

1230 – ADC begins removal on FL. tile and mastic.

1400 – Work on FL. tile & mastic removal complete. Visual passes and EFI sets up air clearance.

1630 – EFI stopped and analysied for air clearance samples.

1700 – Air clearance passed and EFI and ADC depart site.

Site Representative (Print Name) Signature/Date

Contractor Supervisor (Print Name) Signature/Date

8-13-03

ALEX

IF YOU HAVE A LIST OF THE BLDG NUMBERS OF THE TCLP SAMPLES YOU HAVE HAD TESTED, WE COULD US IT HERE. THE LISTS OF BLDGS HERE ON SITE HAVE BEEN MARKED UP BY DIFFERENT PEOPLE, [redacted] IT IS HAD TO TELL WHITCH BLDGS, OTHER THAN THE ONES I SAMPLED HAVE BEEN DONE.

PLEASE FAX IT TO ME IF YOU HAVE SOMETHING.

POPE

EFI
Engineering and Fire Investigations

Field Report

Date: 8-13, 2003 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 – EFi AND ARC ON SITE.

0730 – WORK THIS SHIFT WILL BE TO GLOVEBAG PIPE IN Bldg 206

0930 – ARC USING NEG. PRESSURE GLOVEBAG METHOD. REMOVAL UNDERWAY.

1100 – WORK CONTINUES AS DESCRIBED WITH 2 MEN ON EACH BAG.

1200 – ALL WORK STOPS FOR LUNCH BREAK. ARC HAS A REMOTE DECON SETUP IN Bldg. 206.

1330 – ARC HAS RESUMED GLOVEBAG REMOVAL AS DESCRIBED.

1500 – WORK CONTINUES AS PLANNED, THIS AREA MAY TAKE A COUPLE OF DAY'S TO COMPLETE.

1630 – ARC IS HAULING THEIR SECOND LOAD OF ACM WASTE TO THE DISPOSAL SITE.

1730 – SHIFT ENDS AND ARC AND EFi ARE DEPARTING SITE.

Site Representative (Print Name) _____ Signature/Date _____

Contractor Supervisor (Print Name) _____ Signature/Date _____

EFI
Engineering and Fire Investigations

Field Report

Date: 8-14 , 2003 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 – EFi, ARC on site.

0730 – ARC has moved back to Bldg 717 to resume transite removal where they left off do to the rain.

0930 – Work on removal going as planned.
– ARC meeting on site with A-1 Demo, ARC – Michael Lucal, Jeddy Fields A-1, Bill

1130 – Very Hot conditions, workers continue to drink lots of water. Removal pace slows as heat increases.

1200 – Lunch.

1300 – Work resumes on transite removal as planned.

1500 – Note Saul Lopez is now a licensed TDH supervisor.

1700 – Work stops for the day.

Site Representative (Print Name) Signature/Date

Contractor Supervisor (Print Name) Signature/Date

EFI
Engineering and Fire Investigations

Field Report

Date: 8-18, 2003 | Project Number: 98410 - 13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 - EFI on site.
ARC on site, same crew.

0800 - Work this shift will resume on transite removal at Bldg. 717.

1000 - ARC continues transite removal as planned at this time.

1200 - Work stops for lunch break.

1300 - Transite removal resumes as planned.
- ARC hauls a load of ACM to the disposal site.

1500 - All work continues as described.

1600 - Another load of ACM being hauled to the disposal site.

1700 - Work stopped. Crew cleaning up.

1730 - EFI, ARC depart site.

Site Representative (Print Name) _____ Signature/Date _____

Contractor Supervisor (Print Name) _____ Signature/Date _____

00065346

EFI
Engineering and Fire Investigations

Field Report

Date: 8-19, 2003 | Project Number: 97410 - 13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 - EFI on site.
- ARC on site

0800 - ARC has resumed transite removal on Bldg. 717
- ARC is using a CAT 977 track loaded at this time to clear brush and trees away from other Bldgs in the area.

1000 - Transite removal on Bldg 717 complete and crew moved over to Bldg. 707F and 707G

1200 - All work stops for lunch at this time.

1300 - Bldgs 707F and 707G are small Bldgs for transite removal

1500 - ARC hauling another load of ACM to the disposal site. A-1 has covered the 1ST hole with soil cap.

1700 - Work stops for this shift and crew shower. ARC, EFI depart site.

Site Representative (Print Name) _____ Signature/Date _____

Contractor Supervisor (Print Name) _____ Signature/Date _____

00065347

EFI
Engineering and Fire Investigations

Field Report

Date: 8-20, 2003 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 - EFI on site, ARC on site with same crew.

0830 - ARC removing transite on Bldg 707J and [redacted]723 this shift. Laundry Bldg.

1000 - Work continues [redacted] as described.

1200 - Very Hot conditions. Work stops for lunch break.

1300 - Work resumes. Workers moving to Bldg. 734 to continue with transite removal.

1500 - ARC hauling a load of ACM to the disposal site.

1600 - Work continues as planned. ARC will not finish transite removal on Bldg. 734 this shift.

1700 - Work stops for end of shift.

1730 - ARC, EFI depart site.

Site Representative (Print Name) _____ Signature/Date _____

Contractor Supervisor (Print Name) _____ Signature/Date _____

EFI
Engineering and Fire Investigations

Field Report

Date: 8-21, 2003 | Project Number: 98410 - 13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 - EFI on site ARC on site.
ARC on site, same crew.

0730 - Work this shift will be inside Bldg. 723 Laundry Bldg. on GLOVEBAG REMOVAL OF TSI.

0900 - Glove Bag removal underway as planned at this time.

1030 - ARC has 2 men per Glovebag doing removal.

1200 - Work stops for lunch break.

1300 - ARC resumes Glovebag removal inside Bldg. 723.

1500 - ARC stopping removal to clean up work area and move glovebags to the ACM waste container

1600 - ACM bags all loaded and container is locked.

1700 - ARC and EFI depart site.

Site Representative (Print Name) Signature/Date

Contractor Supervisor (Print Name) Signature/Date

00065349

EFI
Engineering and Fire Investigations

Field Report

Date: 8-25, 2003 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 - EFi on site. ARC on site.

0800 - Work this shift is TRANSITE REMOVAL on Bldg. 723.

0930 - ARC hauling a load of TRANSITE to the DISPOSAL SITE.

1030 - ARC has ordered more glovebags but they may not arrive this shift.

1200 - Work stops for Lunch BREAK At this time.

1300 - ARC RESUMES TRANSITE REMOVAL AS DESCRIBED.

1500 - ARC will complete the large sheet TRANSITE REMOVAL on Bldg. 723 this shift. SMALL TRANSITE SHINGLE REMOVAL will BE DONE ANOTHER SHIFT.

1700 - ARC hauled another load of WASTE to the DISPOSAL SITE.

1730 - ARC AND EFI DEPART SITE.

Site Representative (Print Name) _____ Signature/Date _____

Contractor Supervisor (Print Name) _____ Signature/Date _____

EFI
Engineering and Fire Investigations

Field Report

Date: 8-26, 2003 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 – EFI AND ARC ON SITE.

0730 – ARC ADVISES THAT THEY WERE GOING TO REMOVE TRANSITE SIDING THIS SHIFT ON BLDGS 726-C, 726-D AND 4-ST.

0930 – TRANSITE REMOVAL UNDERWAY. ARC HAULS LOAD OF WASTE FROM LAST SHIFT TO THE DISPOSAL SITE.

1100 – ARC RECEIVES DELIVERY AND HAS GLOVE BAGS ON SITE SO THEY CAN RESUME GLOVEBAG REMOVAL WHENEVER THEY DECIDE TO.

1200 – ALL WORK STOPS FOR LUNCH.

1300 – ARC RESUMES TRANSITE REMOVAL AS MENTIONED ABOVE.

1500 – WORK CONTINUING AS DESCRIBED. ARC HAULING ANOTHER LOAD OF ACM WASTE TO THE DISPOSAL SITE.

1700 – ALL WORK STOPS, SHIFT ENDS.

Site Representative (Print Name) Signature/Date

Contractor Supervisor (Print Name) Signature/Date

EFI
Engineering and Fire Investigations

Field Report

Date: 8-27, 2003

Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 - EFI ON SITE. ARC ON SITE.

0800 - ARC will be conducting GLOVEBAG REMOVAL INSIDE 723 to START this morning.

1000 - WORK CONTINUES ON GLOVEBAG REMOVAL AT THIS TIME.

1200 - ARC STOPS FOR LUNCH BREAK AT THIS TIME.

1300 - GLOVEBAG REMOVAL WAS COMPLEATED ON BLDG 723 AND ARC HAS MOVED TO 722-P to CONTINUE GLOVEBAG REMOVAL.

1500 - ARC is hauling A load of ACM to the DISPOSAL SITE AS CREW CONTINUES WORK.

1630 - WORK STOPS FOR THE DAY AND CREW MOVING GLOVEBAGS to the ACM CONTAINER.

1730 - CREW SHOWERED AT REMOTE DECON AND ARC AND EFI DEPART SITE.

Site Representative (Print Name) Signature/Date

Contractor Supervisor (Print Name) Signature/Date

EFI
Engineering and Fire Investigations

Field Report

Date: 8-28, 2003 | Project Number: 98410 - 13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 - EFi and ARC on site.

0800 - Work this shift, will BE. GLOVE BAG REMOVAL inside Bldg 722P.

0930 - GLOVEBAG REMOVAL on 722P will BE COMPLETE this shift.

1100 - ARC will BE DUMPING ALL GLOVEBAG REMOVAL ACM into THE on SITE, ACM FRIABLE CONTAINER on SITE.

1200 - ALL work STOPS for LUNCH.

1300 - WORK RESUMES AS DESCRIBED, GLOVEBAG REMOVAL.

1500 - ARC NEARLY COMPLETE with ALL PIPE in Bldg. 722P

1600 - REMOVAL COMPLETE. WORKERS LOADING ACM BAGS in TO THE WASTE CONTAINER.

1700 - SHIFT ENDS.

Site Representative (Print Name) _____ Signature/Date _____

Contractor Supervisor (Print Name) _____ Signature/Date _____

00065353

EFI
Engineering and Fire Investigations

Field Report

Date: 9-2, 2003 | Project Number: 98410 - 13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 - EFI on site. (BULLSHIT)
- ARC on site.

0800 - Work this week will be Tuesday thru Friday.

1000 - ARC conducting Removal on Bldg. 723 Exterior Hot water tank. PREP underway.

1100 - PREP complete PRE visual passes. ARC will break for lunch and then begin insulation removal.

1200 - Removal begins on tank insulation.

1330 - Tank dusty, Removal easy.

1430 - Removal complete ALL material bagged up and bagged out. Detail underway.

1500 - Removal visual called for.

1530 - Removal visual passed and EFI starts PCM air clearance

Site Representative (Print Name) Signature/Date

Contractor Supervisor (Print Name) Signature/Date

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EFI
Engineering and Fire Investigations

Field Report

Date: 9-2, 2003 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

1700 - EFI STOPPED PCM AIR SAMPLES AND ANALYSIED THEM.

1730 - CLEARANCE PASSED AND ARC WILL TEARDOWN AREA NEXT SHIFT.

Site Representative (Print Name) _____ Signature/Date _____

Contractor Supervisor (Print Name) _____ Signature/Date _____

EFI®
Engineering and Fire Investigations

Field Report

Date: 9-3 , 2003 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description BULLSHIT

0630 - EFI on site. ADC on site.

0730 - Rain at this time so ADC is moving to Bldg 201A to prep the area with floor tile for removal.
WENT TO GET DONUTS @ 9:30 AM

0930 - Prep work continues as planned at this time.

1100 - ADC will begin FL. tile removal as soon as the prep visual passes. This area has carpet over tile which may be able to be pulled up prior to removing FL. tile.
- Jeremy Fields and Michael Luczak on site.

1200 - Work stops for lunch break

1300 - Work resumes on FL. tile removal.

1500 - Work on FL. tile removal is very tough. ADC may not

Site Representative (Print Name) Signature/Date

Contractor Supervisor (Print Name) Signature/Date

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EFI®
Engineering and Fire Investigations

Field Report

Date: 9-3, 2003 | Project Number: 9810-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

- Finish this AREA today.

1200 - Work stops for shift end. ARC will resume work here next shift.

Site Representative (Print Name) _____ Signature/Date _____

Contractor Supervisor (Print Name) _____ Signature/Date _____

EFI
Engineering and Fire Investigations

Field Report

Date: 9-4, 2003 | Project Number: 98410 - 13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 – EFI and ARC on site.

0730 – Work resumes on Bldg. 201A Fl. tile removal.

0900 – ARC hauling a load of non-friable ACM to the disposal site.

1100 – ARC completed Fl. tile removal and is conducting mastic removal at this time.

1200 – All work stops for lunch at this time.

1300 – ARC resumes work and EFI conducts visual on Fl. tile area

1500 – Work continues on outside transite shingles while clearance was collected on the inside Fl. tile area.

1700 – Bldg. 201A Fl. tile area clearance passed EFI and ARC depart site.

Site Representative (Print Name) _____ Signature/Date _____

Contractor Supervisor (Print Name) _____ Signature/Date _____

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EFI
Engineering and Fire Investigations

Field Report

Date: 9-5, 2003 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 - EFI AND ARC ON SITE

0730 - WORK THIS SHIFT WILL BE ON BLDG. 722-P O/S TRANSITE AND ROOF.

0930 - ARC GRINDING OFF BOLT HEADS AS BEFORE TO ALLOW TRANSITE ROOFING TO BE REMOVED IN WHOLE SHEETS.

1100 - WORK CONTINUES AS DESCRIBED AT THIS TIME.

1200 - ALL WORK STOPS FOR LUNCH.

1300 - WORK RESUMES ON BLDG 722-P TRANSITE REMOVAL.

1500 - ARC HAS COMPLETED GRINDING THE BOLTS ON ONE SIDE AND REMOVING OF ~~SB~~ THE SHEETS.

1600 - ARC HAULING LAST LOAD OF ACM TO THE WASTE DISPOSAL SITE FOR THIS SHIFT.

Site Representative (Print Name) Signature/Date

Contractor Supervisor (Print Name) Signature/Date

00065359

EFI®
Engineering and Fire Investigations

Field Report

Date: 9-8, 2003 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 - EFI on site, ARC on site.

0730 - ARC will resume Transite removal on Bldg. 722-P this shift.

0930 - Transite roof sheet being removed in tact and loaded on to ARCs truck for disposal.

1100 - ARC hauling a truck load of Transite to the land fill.

1200 - All work stops for lunch.

1300 - Work resumes, ARC completed Bldg. 722-P and moving to Bldg. 501-B.

1430 - Bldg. 501-B has Transite roof and sides that ARC will be removing.

1600 - Removal stops for this shift. ARC hauling another load of ACM waste to the disposal site.

1700 - Shift ends, ARC, EFI departing site.

Site Representative (Print Name) Signature/Date

Contractor Supervisor (Print Name) Signature/Date

EFI®
Engineering and Fire Investigations

Field Report

Date: 9-9, 2003 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 – EFi and ARC on site.

0730 – ARC will be continuing with transite removal this shift.

0930 – Removal is on Bldg. 204 at this time.

1100 – Work continues on transite removal as described.
– ARC hauling a load to the on-site disposal area.

1200 – All work stops for lunch at this time

1300 – Work resumes as planned. Light wind, FAIR SKYS

1500 – ARC will complete transite removal on Bldg. 204 this shift.

1630 – Removal on Bldg. 204 complete. ARC hauling another load of ACM waste to the disposal site.
– Crew cleaning up for shift

1700 – EFi, ARC depart site

Site Representative (Print Name) Signature/Date

Contractor Supervisor (Print Name) Signature/Date

00065361

EFI®
Engineering and Fire Investigations

Field Report

Date: 9-10, 2003 | Project Number: 98410 - 13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 – EFI, ARC on site.

0730 – ARC is not conducting any removal this shift and they will be repairing and cleaning up equipment at this time!

0930 – ARC continues to clean up left over trash and regular debri around work sites. Left over poly, tape bags ect.

1100 – Clean up continues at this time.

1200 – Work stops for lunch.

1300 – ARC resumes, same work as described above.

1500 – ARC advises that they will complete this shift and not do any removal.

1700 – Shift ends ARC and EFI depart sit

Site Representative (Print Name) Signature/Date

Contractor Supervisor (Print Name) Signature/Date

EFI
Engineering and Fire Investigations

Field Report

Date: 9-11, 2003 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 - EFI on site, ADC on site.

0730 - ADC advises that they were going to continue clean up work at this time.

0930 - Michael Laszak with ADC on site. ADC continuing with cleanup and maintenance

1130 - Work stopping for lunch at this time.

1230 - ADC resumes work, same operation.

1430 - All work continues as described At this time.

1630 - ADC advises that they would resume removal on Monday 9-15-03.

1700 - Shift ends

Site Representative (Print Name) _____ Signature/Date _____

Contractor Supervisor (Print Name) _____ Signature/Date _____

00065363

EFI
Engineering and Fire Investigations

Field Report

Date: 9-15, 2003 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 – EFI on site, ARC on site.

0730 – ARC resumes area clean up on sites.

0930 – EFI conducting personnel monitoring while workers pick up some broken transite pieces at various site.

1130 – ARC stops work for lunch break.

1230 – Work resumes as described on various locations

1430 – Transite clean up continues at this time.

1630 – Work stops for this shift. ARC hauls a load of waste to the disposal site.

1730 – ARC and EFI depart site.

Site Representative (Print Name) Signature/Date

Contractor Supervisor (Print Name) Signature/Date

EFI
Engineering and Fire Investigations

Field Report

Date: 9-16, 2003

Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 - EFI and ARC on site.

0730 - Work will continue this shift at this time on small broken pieces of transite around various sites.

1030 - ARC has crew stop with area clean up and move to Bldg 206 to start Glovebag removal on interior piping.

1200 - All work stops for lunch at this time.

1300 - ARC resumes work on Glovebag removal.

1530 - ARC has hung a number of bags for neg. pressure removal but has not started removal at this time.

1700 - ARC and crew EFI Depart site for the day.

Site Representative (Print Name) Signature/Date

Contractor Supervisor (Print Name) Signature/Date

EFI
Engineering and Fire Investigations

Field Report

Date: 9-17, 2003 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 - EFI AND ADC ON SITE.

0730 - ADC WILL BE BAGGING OUT ACM BAGS AND PIPE THAT WAS WRAPPED AND CUT THIS MORNING.

0930 - UPON BAG MOVEMENT ADC WILL RESUME AREA CLEANUP OF SOME SITES.

1100 - WORK CONTINUES ON SITE CLEAN UP AT THIS TIME.

1200 - ALL WORK STOPS FOR LUNCH

1300 - ADC RESUMES WITH DEMO DEBRI CLEANUP AS MENTIONED ABOVE.

1500 - ADC CONTINUES CLEANING UP BOARDS BRICKS AND SUCH.

1700 - SHIFT ENDS

Site Representative (Print Name) _____ Signature/Date _____

Contractor Supervisor (Print Name) _____ Signature/Date _____

EFI
Engineering and Fire Investigations

Field Report

Date: 9-18, 2003 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 – EFI AND ARC ON SITE.

0730 – ARC is going to continue with site cleanup at this time.

1000 – AREA CLEAN UP IS IN AREAS WHERE THE DEMO CONTRACTOR LEFT DEMO DEBRI.

1100 – Work continues as described.

1200 – ARC STOPS ALL work FOR lunch BREAK.

1300 – Work RESUMES. EFI will have PEOPLE ON SITE MONDAY 9-22-03 to conduct ~~EXPLOTION~~ SAFETY TESTING.

1530 – ARC advises that they will BE conducting ACM REMOVAL on Monday 9-22-03.

1700 – shift ENDS. ARC, EFI DEPART SITE.

Site Representative (Print Name) _____ Signature/Date _____

Contractor Supervisor (Print Name) _____ Signature/Date _____

EFI
Engineering and Fire Investigations

Field Report

Date: 9-22 , 2003 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 – EFI on site. ARC on site.

0730 – ARC setting up to conduct GloveBag removal in Bldg. 202

0930 – ARC begins hanging GloveBags on pipe insulation to be removed.

1100 – ARC stops for Lunch Break, and will be ready to start Neg. Measure GloveBag removal after Lunch.

1200 – Work resumes. Bldg. 202 GloveBag removal.

1400 – ARC advises that they may complete the GloveBag removal portion of Bldg. 202 this shift.

1600 – GloveBag removal in Bldg 202 is complete and workers moving crimped pipe and bags to the ACM container

1700 – Work stops shift ends.

Site Representative (Print Name) Signature/Date

Contractor Supervisor (Print Name) Signature/Date

EFI
Engineering and Fire Investigations

Field Report

Date: 9-23, 2003 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 – EFI on site, ARC on site.

0730 – Work this shift will be transite removal on Bldg 202.

0930 – Work underway on on transite sidding removal.

1100 – Transite removal going well. ARC hauls a load of waste to the disposal site.

1200 – All work stops for lunch at this time.

1300 – Work resumes on transite removal of Bldg. 202.

1500 – ARC will continue with transite removal until shift end.

1630 – Work stopped and ARC hauled another load of transite to the disposal

1700 – Shift ends

Site Representative (Print Name) Signature/Date

Contractor Supervisor (Print Name) Signature/Date

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EFI
Engineering and Fire Investigations

Field Report

Date: 9-24, 2003 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 – ARC and EFI on site.

0730 – ARC will be tearing down some shelving to access transite panels.

0930 – ARC will resume site clean up at this time.

1100 – Work continues as planned at this time.

1200 – All work [redacted] stops for lunch break

1300 – Work resumes as described on site clean up. ARC advises that next week the new demo people will start and ARC will go back to ACM removal at the more regular schedule.

1500 – Site clean up continues at this time

1700 – All work stops, End of Shift.

Site Representative (Print Name) _____ Signature/Date _____

Contractor Supervisor (Print Name) _____ Signature/Date _____

EFI
Engineering and Fire Investigations

Field Report

Date: 9-25, 2003 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 — EFI, ARC on site.

0730 — ARC moving some material to allow demo to resume.

0930 — A couple areas still need clean up and ARC is sending crew to address areas.

1130 — ARC stopping for lunch at this time.

1230 — Work resumes as described on site clean up.

1430 — ARC hauling a load of demo clean up to the disposal site.

1630 — Stoping work at this time to envintory supplies.

1700 — ARC and EFI depart site.

Site Representative (Print Name) Signature/Date

Contractor Supervisor (Print Name) Signature/Date

EFI
Engineering and Fire Investigations

Field Report

Date: 9-29, 2003 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 – EFI on site.
ARC on site.
– EFI has Alex and Don on site to begin Exp. safty survey.

0830 – ARC will be conducting transite removal on walkway 201R and on Bldg. 202 this shift.

1030 – Transite removal continues with workers stacking large panels in a pile for disposal later.

1200 – All work stops for lunch at this time.

1300 – Work resumes on transite removal.

1500 – Work continues on Bldg 202 with transite removal.

1700 – ARC stacked transite panels for disposal later.
– Shift ends.

Site Representative (Print Name) Signature/Date

Contractor Supervisor (Print Name) Signature/Date

EFI
Engineering and Fire Investigations

Field Report

Date: 9-30, 2003 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 - EFi on site, ARC on site.

0800 - ARC RESUMES TRANSITE REMOVAL on Bldg 202

1000 - This is a LARGE Bldg and will likley take several days.

1100 - ARC also removing transite on the 201R walkway.

1200 - All work stops for lunch at this time.

1300 - Work resumes as transite removal continues.

1500 - ARC hauling a load of waste to the land fill

1700 - Shift ends ARC and EFi depart site

Site Representative (Print Name) _____ Signature/Date _____

Contractor Supervisor (Print Name) _____ Signature/Date _____

EFI
Engineering and Fire Investigations

Field Report

Date: 10-6, 2003 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 - EFI on site.
- ARC on site with DEMO CREW.

0830 - ARC continuing with TRANSITE REMOVAL on Bldg. 202

1030 - LARGE Bldg with A high ROOF, TRANSITE REMOVAL going slow FOR SAFTY REASONS.

1200 - Work stops for Lunch AT this time.

1300 - ARC RESUMES WORK AS PLANNED on Bldg. 202 TRANSITE

1430 - Work continues AS planned At this time.

1630 - ARC stopping REMOVAL FOR this Shift TO STACK TRANSITE SHEETS THAT WERE REMOVED this SHIFT.

1730 - ARC, EFI DEPART SITE. SHIFT END

Site Representative (Print Name) Signature/Date

Contractor Supervisor (Print Name) Signature/Date

EFI
Engineering and Fire Investigations

Field Report

Date: 10 - 7 , 2003 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 - EFI AND ARC ON SITE.

0800 - WORK THIS SHIFT WILL BE TO GLOVEBAG TSI IN BLDG. 202 AT THIS TIME.

1000 - GLOVEBAG PREP COMPLETE AND ARC BEGINNING TO REMOVE WITH GLOVEBAGS.

1200 - WORK STOPS FOR LUNCH AT THIS TIME.

1300 - ARC RESUMES GLOVEBAG WORK AT THIS TIME

1530 - GLOVEBAG REMOVAL ON TSI IS COMPLETE IN BLG 202 AND ARC IS CLEANING UP THE WORK AREA AND HAULING ACM BAGS TO THE WASTE CONTAINER.

1700 - SHIFT ENDS ARC AND EFI DEPART SITE.

Site Representative (Print Name) Signature/Date

Contractor Supervisor (Print Name) Signature/Date

EFI
Engineering and Fire Investigations

Field Report

Date: 10 - 8 , 2003 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 - EFI ON SITE.
- ARC ON SITE.

0730 - Work this shift will BE TRANSITE REMOVAL ON Bldg 201

0900 - TRANSITE REMOVAL underway AS PLANNED. ANOTHER LARGE AND TALL Bldg.

1100 - ARC hauling A load of WASTE to the LAND FILL.

1200 - Work stops FOR LUNCH BREAK

1300 - ARC RESUMES TRANSITE REMOVAL

1500 - Work continues ON Bldg 201 AS PLANNED.

1630 - ARC STOPS work FOR THE DAY to clean up work AREA.

1730 - SHIFT ENDS

Site Representative (Print Name) _____ Signature/Date _____

Contractor Supervisor (Print Name) _____ Signature/Date _____

EFI
Engineering and Fire Investigations

Field Report

Date: 10-9, 2003 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 – EFI on site, ARC on site.

0800 – Work this shift will continue with the transite sidding removal on Bldg. 201

1000 – ARC continues to stack panels for disposal at a later time.

1200 – Work stops for lunch at this time.

1300 – ARC resumes with removal on Bldg. 201.

1500 – Work stops at this time to allow ARC to cover all removed transite panels in poly.

1630 – ARC will haul transite panels to the disposal site next week.

1700 – Work stops for shift end.

Site Representative (Print Name) _____ Signature/Date _____

Contractor Supervisor (Print Name) _____ Signature/Date _____

EFI
Engineering and Fire Investigations

Field Report

Date: 10-13, 2003 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 – EFI on site
– ARC on site

0800 – Work this shift will be on Bldg 201

1000 – ARC continuing with transite removal on Bldg. 201

1200 – Work stops for lunch break at this time.

1300 – ARC resumes transite removal on Bldg 201

1500 – ARC hauling a load of transite sheets to the land fill at this time
– A small area of floor tile is in Bldg 201 that ARC is about to remove.

1700 – Work stops for this shift to resume tomorrow.
– ARC and EFI depart site.

Site Representative (Print Name) Signature/Date

Contractor Supervisor (Print Name) Signature/Date

EFI
Engineering and Fire Investigations

Field Report

Date: 10 - 14 , 2003 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 – EFI on site.
– ARC on site.

0730 – ARC has a couple workers finishing up the 201 Bldg. Fl. tile and mastic while the others help in clean up on the Mag. Area. Demo clean up.

0930 – Fl. tile visual Bldg. 201 passed and air clearance collected.

1030 – Bldg. 201 Fl. tile area passed air clearance.

1200 – All work stops for lunch at this time.

1300 – Work resumes. ARC having Eutide crew go to the Richmond Mag. Area to cont. Debris pickup from Demo work.

1700 – Shift ends.

Site Representative (Print Name) Signature/Date

Contractor Supervisor (Print Name) Signature/Date

EFI
Engineering and Fire Investigations

Field Report

Date: 10-15, 2003 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 — EFI on site
— ARC on site

0830 — ARC continuing with transite removal on Bldg. 201.

1000 — ARC hauling a load of transite to the disposal site.

1200 — All work stops for lunch. At this time.

1300 — Work resumes as described conditions clear and cool.

1500 — ARC will be continuing with transite removal on this Bldg. 201 for several more days.

1630 — Work stops and ARC loading transite to haul another load to the disposal site.

1730 — Shift ends.

Site Representative (Print Name) Signature/Date

Contractor Supervisor (Print Name) Signature/Date

EFI
Engineering and Fire Investigations

Field Report

Date: 10-16, 2003 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 - EFi on site.
- ARC on site.

0830 - Work continues on transite removal on Bldg 201.

1030 - ARC loading transite sheets for disposal at the on site area.

1200 - All work stops for Lunch at this time.

1300 - ARC resumes transite removal on Bldg 201.

1500 - Another load of transite being hauled to the disposal site.

1630 - ARC stopping work for this shift to clean up work area for shift end.

1700 - Shift ends.

Site Representative (Print Name) _____ Signature/Date _____

Contractor Supervisor (Print Name) _____ Signature/Date _____

EFI
Engineering and Fire Investigations

Field Report

Date: 10-27, 2003 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 - EFI on site, ARC on site

0730 - ARC conducting TRANSITE REMOVAL on Bldg. 201

0930 - REMOVAL underway, but slow due to the large size of the Bldg.

1130 - ARC has loaded another load of TRANSITE SHEETS and is hauling it to the disposal site.

1200 - All work stops for lunch.

1300 - ARC RESUMES WORK AS DESCRIBED.

1500 - TRANSITE REMOVAL continues AS DESCRIBED.

1700 - Work stops for shift end.

Site Representative (Print Name) _____ Signature/Date _____

Contractor Supervisor (Print Name) _____ Signature/Date _____

00065382

EFI
Engineering and Fire Investigations

Field Report

Date: 10-28, 2003 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 - EFI on site, ARC on site.

0730 - ARC will continue with the extension transite removal on Bldg. 201.

0930 - ARC hauling another load of ACM waste to the disposal site.

1130 - North side of this Bldg may be difficult to access due to a large ditch next to the Bldg.

1200 - All work stops for lunch.

1300 - ARC resumes work as described.

1500 - Work continues as planned.

1700 - All work stops for shift end.

Site Representative (Print Name) Signature/Date

Contractor Supervisor (Print Name) Signature/Date

EFI
Engineering and Fire Investigations

Field Report

Date: 10-29, 2003 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 - EFI on site.
- ARC on site

0830 - Work this shift will continue with transite removal on Bldg 201

1030 - ARC hauling a load of transite to the disposal site.

1200 - Work stops for lunch break

1300 - Work resumes on removal on Bldg 201

1430 - ARC will continue with transite removal on this Bldg 201 for several more days.

1630 - Removal stops so workers can wrap removed transite sheets with plastic.

1730 - Shift end ARC and EFI depart site.

Site Representative (Print Name) Signature/Date

Contractor Supervisor (Print Name) Signature/Date

00065384

EFI
Engineering and Fire Investigations

Field Report

Date: 10-30, 2003 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 – EFI and ARC on site.

0800 – ARC continuing with removal on Bldg 201 of transite sheet.

1000 – Another load of transite siding being hauled to the disposal site.

1200 – Work stops for lunch break at this time.

1300 – ARC resumes work on transite sheet removal on Bldg 201

1500 – ARC has completed the high section of removal on Bldg 201 and is continuing with work.

1700 – Work stops for shift end ARC and EFI depart site.

Site Representative (Print Name) _____ Signature/Date _____

Contractor Supervisor (Print Name) _____ Signature/Date _____

00065385

EFI
Engineering and Fire Investigations

Field Report

Date: 11-3, 2003 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 – EFI ON SITE

0730 – ARC HAS REDIRECTED THEIR CREW TO HOUSTON TO COMPLETE ANOTHER PROJECT THAT THEY STARTED LAST FRIDAY. EFI WAS NOT GIVEN ANY NOTICE THAT THIS CHANGE WAS PENDING.
– ARC APPROVED FOR EFI TO REMAIN ON SITE THIS WEEK IN THE EVENT THAT THEIR WORKERS FINISHED IN HOUSTON AND ARE SENT HERE TO CONDUCT REMOVAL HERE AT THIS SITE.

11-3-03 —— 11-6-03

Site Representative (Print Name) _____ Signature/Date _____

Contractor Supervisor (Print Name) _____ Signature/Date _____

00065386

EFI
Engineering and Fire Investigations

Field Report

Date: 11-6, 2003

Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0930 – PHONE CALL FROM THOMAS DILGHAN TO NOTIFY EFI THAT ARC MAY NOT WORK AT THE LONGHORN AMMO PLANT THE WEEK OF NOVEMBER 10TH THRU THE 13.
– THOMAS WILL CALL BACK WITH ANY MORE INFORMATION.

1230 – NOTE ARC WILL BE ON SITE THE WEEK OF NOVEMBER 10TH THRU NOVEMBER 13.

Site Representative (Print Name) Signature/Date

Contractor Supervisor (Print Name) Signature/Date

00065387

EFI
Engineering and Fire Investigations

Field Report

Date: 11-10, 2003 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 - EFI on site, ARC on site.

0800 - Work this shift will continue with transite removal on Bldg. 201. The removal on this Bldg may be completed this week.

1000 - Removal continues as planned at this time.

1200 - All work stops for lunch break.

1300 - ARC resumes transite removal as described.

1500 - ARC has loaded their truck and is hauling a load of transite to the disposal site.

1630 - ARC stops removal to load the truck for disposal next shift.

1730 - All work stops for shift end.

Site Representative (Print Name) _____ Signature/Date _____

Contractor Supervisor (Print Name) _____ Signature/Date _____

00065388

EFI
Engineering and Fire Investigations

Field Report

Date: 11-17, 2003 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 – EFI ON SITE, ARC ON SITE.

0730 – ARC WILL RESUME TRANSITE REMOVAL ON Bldg. 201 AT THIS TIME.

0930 – ARC HAULING ANOTHER LOAD OF TRANSITE TO THE DISPOSAL SITE.

1100 – WORK CONTINUES ON Bldg. 201 AT THIS TIME.

1200 – ALL WORK STOPS FOR LUNCH BREAK AT THIS TIME.

1300 – REMOVAL RESUMES ON Bldg 201

1500 – A DEEP AND WET DITCH ON THE NORTH SIDE OF THE Bldg IS MAKING REMOVAL SLOWER.

1700 – WORK STOPS FOR THE DAY. WORKERS WRAPPING BOLT ON TRANSITE NOT BEING HAULED TO THE DISPOSAL SITE THIS SHIFT.

1730 – ARC AND EFI DEPART SITE.

Site Representative (Print Name) _____ Signature/Date _____

Contractor Supervisor (Print Name) _____ Signature/Date _____

EFI
Engineering and Fire Investigations

Field Report

Date: 11 - 12 , 2003 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 - EFI on site.
- ARC on site to continue with transite removal on Bldg. 201

0800 - Transite removal resumes as planned on Bldg 201. This Bldg. should be finished by noon.

1000 - Removal complete on 201 and the workers are loading the transite to be disposed of at the on site landfill.

1200 - Work stops for lunch break.

1300 - ARC resumes work and moves to Bldg. 709 A (the old Fire Station)

1430 - Transite removal underway on Bldg 709 A.

1600 - Bldg 709 A has one small area of FL. tile to be addressed next shift.

1700 - Work stops for shift end.

Site Representative (Print Name) Signature/Date

Contractor Supervisor (Print Name) Signature/Date

00065390

EFI
Engineering and Fire Investigations

Field Report

Date: 11-13, 2003 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 – EFI on site. ARC on site.

0800 – Removal underway as planned on Bldg. 709A.

1000 – This Bldg has the small transide shingles and is quick to remove.
– FL. Tile area is < 160 sq. ft. Bathroom.

1200 – Work stops for lunch break.

1300 – ARC resumes on Bldg. 709A. Two workers conducting RFCI removal on the FL. Tile area.

1500 – Removal continues as planned at this time.

1630 – ARC will complete all removal on Bldg. 709A this shift.

1700 – Shift ends, ARC and EFI are departing site.

Site Representative (Print Name) Signature/Date

Contractor Supervisor (Print Name) Signature/Date

00065391

EFI
Engineering and Fire Investigations

Field Report

Date: 11-17, 2003 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 - EFI on site, ARC on site.

0730 - Work this shift will start TOPSOIL REMOVAL on Bldg 206

0930 - TOPSOIL REMOVAL underway at this time.

1100 - REMOVAL continues as planned. REMOVAL going quickly since this is a single story Bldg.

1200 - ALL work stops for lunch break.

1300 - TOPSOIL REMOVAL RESUMES AS DESCRIBED

1500 - ARC hauling another load of TOPSOIL to the DISPOSAL SITE.

1700 - Approx 3/4 of the TOPSOIL REMOVAL is complete on Bldg. 206 at this time.

1730 - ARC and EFI depart site

Site Representative (Print Name) _____ Signature/Date _____

Contractor Supervisor (Print Name) _____ Signature/Date _____

EFI
Engineering and Fire Investigations

Field Report

Date: 11-18, 2003 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 - EFI on site.
- ARC on site.

0800 - Transite removal has resumed on Bldg 206, on the back side. This area more difficult do to piping and conduit in the way.

1000 - Work continues as planned.

1100 - ARC hauling another load of transite to the land fill.

1200 - All work stops for lunch break

1300 - Work resumes as described on transite removal.

1500 - Transite removal going well. Large sheets in good shape, not breaking.

1700 - Work stopped for this shift. ARC and EFI depart site.

Site Representative (Print Name) _____ Signature/Date _____

Contractor Supervisor (Print Name) _____ Signature/Date _____

EFI
Engineering and Fire Investigations

Field Report

Date: 11-19, 2003

Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 — EFI ON SITE.
— ARC ON SITE.

0830 — ARC HAS RESUMED TRANSITE REMOVAL ON Bldg. 206.

1030 — ANOTHER LOAD OF TRANSITE LOADED AND BEING HAULED TO THE DISPOSAL SITE.

1200 — ALL WORK STOPS FOR THE LUNCH BREAK.

1300 — ARC RESUMES ON Bldg. 206 WITH TRANSITE REMOVAL.

1500 — TRANSITE REMOVAL ON Bldg 206 IS COMPLETE. WORKERS ARE LOADING TRANSITE FOR DISPOSAL.

1700 — WORK STOPS FOR THIS SHIFT. ARC AND EFI DEPARTING SITE.

Site Representative (Print Name) Signature/Date

Contractor Supervisor (Print Name) Signature/Date

00065394

EFI
Engineering and Fire Investigations

Field Report

Date: 11-20, 2003 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 – EFI on site.
– ARC on site. Work this shift will begin Transite removal on the old water treatment plant Bldg. 413A.

0830 – ARC removing some sheet metal to access Transite panels.

1030 – ARC continues taking sheet metal down to access Transite.

1200 – All work stops for lunch.

1300 – ARC is beginning to remove Transite panels from Bldg 413A

1500 – One area of the Bldg on the East will be demolished to allow ARC access to the Transite panels.

1700 – Work stops for shift end. ARC will be working five days this week to make up for a three day week next week.

Site Representative (Print Name) Signature/Date

Contractor Supervisor (Print Name) Signature/Date

EFI
Engineering and Fire Investigations

Field Report

Date: 11-21, 2003 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 - EFI ON SITE.
- ARC ON SITE

0830 - ARC HAS RESUMED TRANSITE REMOVAL ON Bldg. 413A

1000 - ARC HAULING A load OF TRANSITE REMOVED LAST SHIFT TO THE DISPOSAL SITE.

1030 - TRANSITE REMOVAL CONTINUES AS PLANNED.

1200 - ALL WORK STOPS FOR LUNCH AT THIS TIME.

1300 - ARC RESUMES TRANSITE REMOVAL ON Bldg. 413A.

1500 - TRANSITE REMOVAL MAY TAKE SEVERAL DAYS, THIS IS ANOTHER LARGE Bldg.

1600 - ARC HAULING ANOTHER LOAD OF TRANSITE TO THE DISPOSAL SITE.

1700 - WORK STOPS FOR SHIFT END.

Site Representative (Print Name) Signature/Date

Contractor Supervisor (Print Name) Signature/Date

EFI
Engineering and Fire Investigations

Field Report

Date: 11-24, 2003 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 - EFI on site.
- ADC on site to continue TRANSITE REMOVAL on Bldg 413A.

0830 - ADC is only working 3 DAY's this WEEK DUE to the THANKSGIVING holidays on THURSDAY AND FRIDAY.

1030 - Work continues on EXTERIOR TRANSITE REMOVAL.

1130 - ADC is hauling a LARGE LOAD of the long TRANSITE SHEETS to the DISPOSAL SITE. EFI CHECKS THE ROUTE TO ASSURE NO DEBRI FELL OUT OF THE TRUCK.

1200 - Work stops for Lunch

1300 - TRANSITE REMOVAL RESUMES.

1500 - ADC RECEIVES THE CLEARANCE TO DO ABATEMENT AND DEMO ON ANY Bldg. LABELED 5X BY EFI EXPLOSION SURVEY OF 2003.

1700 - SHIFT ENDS, ADC AND EFI ARE DEPARTING SITE.

Site Representative (Print Name) _____ Signature/Date _____

Contractor Supervisor (Print Name) _____ Signature/Date _____

EFI
Engineering and Fire Investigations

Field Report

Date: 11-25, 2003 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 - EFI ON SITE
- ARC ON SITE.

0800 - ARC HAS BEGUN REMOVING SHEET METAL SO A PORTION OF THE EAST SIDE OF THE Bldg. 413A CAN BE DEMOED TO ACCESS THE TRANSITE SIDING ON THE ORGINAL Bldg.

1100 - ARC STOPS WORK TO ALLOW FOR DEMO.

1200 - DEMO ON EAST PORTION OF Bldg 413A COMPLETE AND ALL WORK STOPS FOR LUNCH.

1300 - ARC RESUMES TRANSITE REMOVAL ON Bldg. 413 A.

1500 - ANOTHER LOAD OF LONG TRANSITE SHEETS BEING HAULED TO THE DISPOSAL SITE.

1700 - ANOTHER SHIFT ENDS. ARC AND EFI DEPART SITE. RETURN TO WORK AFTER THANKSGIVING

Site Representative (Print Name) _____ Signature/Date _____

Contractor Supervisor (Print Name) _____ Signature/Date _____

00065398

EFI
Engineering and Fire Investigations

Field Report

Date: 12-01, 2003 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

— Note, ARC has pulled off the Longhorn project this week on Asbestos work and will resume on Dec. 8, 2003.

Site Representative (Print Name) Signature/Date

Contractor Supervisor (Print Name) Signature/Date

00065399

EFI
Engineering and Fire Investigations

Field Report

Date: 12-4, 2003

Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

— ARC HAS NOTIFIED EFI THAT THEY HAVE CHANGED THEIR PLANS AND ARE NOT GOING TO CONDUCT ANY ASBESTOS REMOVAL THROUGH THE END OF DECEMBER 2003.
— THEIR PLAN AS WE UNDERSTAND IS TO RESUME ASBESTOS REMOVAL JANUARY 5 2004.

Site Representative (Print Name) _____ Signature/Date _____

Contractor Supervisor (Print Name) _____ Signature/Date _____

EFI
Engineering and Fire Investigations

Field Report

Date: 01-12, 2004 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 - EFi on site, ARC on site.

0800 - Saul Lopez is the ABATEMENT Supervisor And John Jordon site Superintendent.

0900 - Work this shift is TRANSITE REMOVAL on Bldg 413A, picking up where they LEFT OFF.

1030 - AREA OF WORK is on the high SECTION 3rd STORY AND the BACK or North side.

1130 - DECON WAS LOCATED ADJACENT TO the work AREA and work is now stopping FOR lunch BREAK.

1200 - Lunch.

1300 - Work RESUMED AS DESCRIBED ABOVE.

1430 - TRANSITE PANELS BEING STACKED on the ground until the DISPOSAL SITE IS READY FOR USE.

1530 - Work continues AS PLANNED.

Site Representative (Print Name) _____ Signature/Date _____

Contractor Supervisor (Print Name) _____ Signature/Date _____

00065401

EFI®
Engineering and Fire Investigations

Field Report

Date: 01-12, 2004 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

1630 – Work stops for this shift. Workers Decon for shift end.

1700 – ADC, EFI Depart site.

Site Representative (Print Name) _____ Signature/Date _____

Contractor Supervisor (Print Name) _____ Signature/Date _____

EFI
Engineering and Fire Investigations

Field Report

Date: 01-13, 2004 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 – EFI on site, ARC on site

0730 – Work this shift will be transite removal on Bldg. 413A.

0830 – Removal underway as described on exterior transite panels.

0930 – Removal is on the north side this date.

1030 – Work continues on digging additional space at the disposal site. Area may be ready today to begin hauling ACM "transite" to dispose of.

1200 – All work stops for lunch break.

1300 – Work resumes as described.

1430 – No transite will be hauled to the disposal site this shift.

1530 – ARC is continuing removal and stacking sheets on the ground.

1630 – Removal stopping for the day and area clean up underway.

Site Representative (Print Name) Signature/Date

Contractor Supervisor (Print Name) Signature/Date

EFI
Engineering and Fire Investigations

Field Report

Date: 01-13, 2004 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

1700 - ARC and EFI Departing Site.

Site Representative (Print Name) _____ Signature/Date _____

Contractor Supervisor (Print Name) _____ Signature/Date _____

EFI
Engineering and Fire Investigations

Field Report

Date: 01-14, 2004 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 - EFI on site. ARC on site.

0730 - Work this shift will be Transite removal on Bldg. 413A.

0830 - Very damp and foggy conditions this morning.

0930 - Work beginning on Transite removal at this time

1100 - ARC loading their truck with transite to haul it to the Disposal site.

1200 - Work stops for lunch.

1300 - All work resumes as planned at this time.

1500 - Third load of transite going to the Disposal site.

1630 - Removal stops for the day and the workers cleaning up for shift end.

1500 - ARC and EFI depart site.

Site Representative (Print Name) _____ Signature/Date _____

Contractor Supervisor (Print Name) _____ Signature/Date _____

EFI
Engineering and Fire Investigations

Field Report

Date: 01-15, 2004 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 – EFI on site. ARC on site.

0730 – Work this shift will be on Bldg. 413A, transite removal.

0830 – Removal underway as planned. ARC advises that they will not finish Bldg. 413A this shift.

1000 – Transite removal continues as planned at this time

1200 – Work stops for lunch.

1300 – ARC resumes work.
– A load of transite being sent to the disposal site.

1430 – Removal has stopped and the workers are cleaning up the work area at this time.

1600 – All poly picked up and site cleaned up.

1700 – Shift ends ARC and EFI depart site.

Site Representative (Print Name) _____ Signature/Date _____

Contractor Supervisor (Print Name) _____ Signature/Date _____

EFI
Engineering and Fire Investigations

Field Report

Date: 01-19, 2004 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 – EFI on site, ARC on site.

0730 – Work this shift will be on Bldg 413A and is likley to finish removal on this Bldg today.

0900 – Transite removal underway. Area very wet, do to a lot of rain.

1030 – Removal nearly complete on Bldg 413A. ARC will stack transite until the disposal site is accessable.

1200 – Bldg 413A Removal complete. Work stops for lunch at this time.

1300 – Work resumes. ARC moving all of the equipment and supplies to the 800 area.

1600 – ARC set up in the 800 area to begin glovebag removal next shift.

Site Representative (Print Name) Signature/Date

Contractor Supervisor (Print Name) Signature/Date

EFI
Engineering and Fire Investigations

Field Report

Date: 1-20, 2004 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 - EFI on site, ARC on site.

0700 - ARC is going to pick up and load the transite sheet at Bldg 413A this morning and get them out of the demo contractors way.

0900 - Transite loads and out of demo contractors way.

1000 - ARC continues moving supplies and Equipment ie; manlift to the 800 ASEA.

1200 - Work stops for lunch at this time.

1300 - All Equipment in place and work Ready to Begin on transite Removal on Bldg 814

1400 - Removal underway on transite sheeting and a couple of Glovebags.

1530 - Disposal site still too wet to gain access.

1630 - Removal stops for this shift.

Site Representative (Print Name) _____ Signature/Date _____

Contractor Supervisor (Print Name) _____ Signature/Date _____

EFI
Engineering and Fire Investigations

Field Report

Date: 1-20 , 2004 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

1700 - Little Amount of Demo work was done this shift.

→ ACC and EFI Departing site.

Site Representative (Print Name) _____ Signature/Date _____

Contractor Supervisor (Print Name) _____ Signature/Date _____

EFI
Engineering and Fire Investigations

Field Report

Date: 1-21, 2004 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 - EFi on site., ARC on Site.

0730 - Work this shift will be on Bldg. 814 Transite Removal and a couple more glove bags.

0900 - Work on Removal underway at this time.

1030 - ARC loading transite and hauling it to the Disposal site as the truck gets full.

1200 - Work stops for Lunch Break.

1300 - Work Resumes on transite removal.

1430 - Removal of transite complete and ARC working on Glove Bag Removal to cut and wrap the pipe.

1600 - Work on 814 complete and moves to 813.

1700 - Work stops for this shift and ARC and EFi depart site.

Site Representative (Print Name) Signature/Date

Contractor Supervisor (Print Name) Signature/Date

00065410

EFI
Engineering and Fire Investigations

Field Report

Date: 1-22, 2004 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 - EFi on site, ARC on site.

0730 - Work this shift will continue with transite removal in the 800 AREA.

0900 - ARC advises that they will likley complete the 800 Bldg AREA this shift.

1030 - Work continues as planned at this time.

1200 - Work stops for Lunch BREAK.

1300 - Work Resumes. Removal in the 800 AREA complete. Workers Loading ACM BAGS into the ACM Dumpster and the transite sheets being loaded for Disposal at the Disposal site.

1430 - ARC hauling transite to the Disposal site.

1600 - Work complet For this shift.

1700 - ARC, EFi Depart site.

Site Representative (Print Name) _____ Signature/Date _____

Contractor Supervisor (Print Name) _____ Signature/Date _____

EFI
Engineering and Fire Investigations

Field Report

Date: 1-26, 2004 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 - EFI on site. ARC on site. Same crew with Johe as the superintendant and Saul as the Asbestos supervisor.

0730 - Work this shift is moving to the "Y" area. This morning may consist of clearing brush away from Bldgs to access transite siding.

0900 - ARC clearing brush as planned at this time.

1100 - Recon set up and ARC prepairs to begin transite removal in the Y area on Bldg. 4Y2 and 4Y

1200 - All work stops for lunch break

1300 - Removal resumes on transite panel removal.

1500 - Removal on 4Y and 4Y2 is complete. Transite loaded and ready to haul to the disposal site.

1600 - Workers cleaning out around Bldg.

Site Representative (Print Name) _____ Signature/Date _____

Contractor Supervisor (Print Name) _____ Signature/Date _____

EFI
Engineering and Fire Investigations

Field Report

Date: 1-26, 2004 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

-38y at this time.
1700 - Work complete for this shift And ARC and EFI DEPARTING SITE.

Site Representative (Print Name) _____ Signature/Date _____

Contractor Supervisor (Print Name) _____ Signature/Date _____

EFI
Engineering and Fire Investigations

Field Report

Date: 1-27, 2004 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 – EFI on site, ARC on site with the same crew.

0730 – Work this shift will be transite removal on Bldg. 3Y, 4Y2, 13Y 16Y

0900 – Removal underway as planned at this time.

1030 – ARC hauling a load of transite to the disposal site.

1200 – Work stops for lunch break.

1300 – Work resumes on transite removal.

1430 – ARC continuing to clear brush as to access the Y area Bldgs.

1600 – Another load of transite being hauled to the disposal site.
– ARC has ordered their ACM Dumpster to be hauled, but has not received the swap for and empty as yet.

1700 – Work stops for the day

Site Representative (Print Name) _____ Signature/Date _____

Contractor Supervisor (Print Name) _____ Signature/Date _____

EFI
Engineering and Fire Investigations

Field Report

Date: 1-28, 2004 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 - EFI on site, ARC on site.

0730 - ARC beginning work on Bldg. 16Y this shift.

6800 - Demo crew stayed in the office until now before they went to work. ARC has already begun transite removal on Bldg. 16Y.

0930 - Alex called and advised they Lee and Alex would be on site next week for the meeting.

1100 - Work continues as planned at this time. Bldg 16Y will take several day.

1200 - All work stops for lunch.

1300 - Work resumes as described on Bldg. 16Y.

1500 - Work continues as described on transite removal.

1700 - Work stops for this shift. Workers stood out and ARC and EFI depart site

Site Representative (Print Name) Signature/Date

Contractor Supervisor (Print Name) Signature/Date

EFI
Engineering and Fire Investigations

Field Report

Date: 1-29, 2003

Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 – EFI and ARC on site.

0730 – Work this shift will continue on Bldg. 16Y transite removal

0900 – Removal continues.
– ARC hauling another load of transite panels to the disposal site.

1030 – Work continues as planned on Bldg. 16Y.

1200 – All work stops for lunch break.

1300 – Work resumes on transite removal on Bldg. 16Y.

1500 – ARC hauling another load of transite to the disposal site.
– Removal stops for the day to complete area clean up.

1630 – All work stops for the day.
1700 – ARC and EFI depart site.

Site Representative (Print Name) Signature/Date

Contractor Supervisor (Print Name) Signature/Date

EFI
Engineering and Fire Investigations

Field Report

Date: 02-02, 2004 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 – EFi on site.
ARC on site, John, Superintendant with Saul Asbestos Supervisor.

0830 – Removal this shift is continuing with transite removal on Bldg. 16Y.

0930 – WET conditions today will limit any disposal this shift.

1030 – ARC stacking transite in locations around Bldg. 16Y at this time.

1200 – Work stops for lunch break.

1300 – Work Resumes on transite removal as planned.

1430 – ARC will be approx. 50% complete on removal on Bldg 16Y by shift end.

1630 – Removal stops to allow for area cleanup.

1730 – ARC and EFi depart site.

Site Representative (Print Name) Signature/Date

Contractor Supervisor (Print Name) Signature/Date

EFI
Engineering and Fire Investigations

Field Report

Date: 02-03, 2003 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 – EFI ON SITE, ARC ON SITE.

0730 – WORK THIS SHIFT WILL BE TRANSITE REMOVAL ON BLDG. 16Y.

0830 – TRANSITE REMOVAL UNDERWAY. APPARENTLY THERE IS A LARGE PROJECT MEETING SCHEDULED ON SITE TODAY.

0930 – WORK CONTINUES AS DESCRIBED ON TRANSITE REMOVAL.

1030 – LEE BUCKLE AND ALEX ON SITE TO REVIEW PROJECT STATUS.

1100 – REMOVAL ON TRANSITE CONTINUES AS PLANNED AT THIS TIME.

1200 – ALL WORK STOPS FOR LUNCH.

1300 – WORK RESUMES. CREW BEGINNING TO REMOVE TRANSITE SHEETS FROM THE BACK SIDE OF BLDG. 16Y

1500 – STILL "NOT" HAULING TO THE DISPOSAL SITE. ARC STACKING TRANSITE SHEETS ON THE GROUND AT THIS TIME.

Site Representative (Print Name) _____ Signature/Date _____

Contractor Supervisor (Print Name) _____ Signature/Date _____

00065418

EFI
Engineering and Fire Investigations

Field Report

Date: 02-03 , 2004 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

1600 - LEE AND ALEX DEPART SITE AFTER CONDUCTING A MATERIAL REVIEW ON QUANTITYS OF WOOD TO BE BURNED ON 3X BLDGS.

1700 - SHIFT ENDS

Site Representative (Print Name) _____ Signature/Date _____

Contractor Supervisor (Print Name) _____ Signature/Date _____

EFI
Engineering and Fire Investigations

Field Report

Date: 02 - 04 , 2008 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 - EFI on site. ARC on site.

0730 - Depending on rain this date removal will start out on transite panels and may change to glovebag removal.

0830 - Removal continuing on transite on Bldg. 16Y at this time.

0930 - Michael w/ ARC on site observing all operations underway.

1030 - Transite removal continues on Bldg. 16Y

1200 - All work stops for lunch.

1300 - Work resumes as described on Bldg. 16Y.
- Michael w/ ARC departs site.

1500 - ARC hauls one load of transite to the disposal site.

1600 - Removal stops for this shift to allow for area clean up.

1700 - ARC and EFI depart site.

Site Representative (Print Name) Signature/Date

Contractor Supervisor (Print Name) Signature/Date

EFI
Engineering and Fire Investigations

Field Report

Date: 02-05, 2004 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 - EFI ON SITE. ARC ON SITE.
- A GOOD BIT OF RAIN OVER NIGHT AND MORE THIS MORNING MAY SLOW WORK THIS SHIFT.

0730 - WORK WILL BE GLOVEBAG REMOVAL IN Bldg. 16Y

0900 - ONLY GLOVEBAG REMOVAL BEING DONE IS TO GIVE A CLEAN ACCESS POINT TO [redacted] WRAP THE REMAINING INSULATION, IN PLACE THEN CUT THE PIPE AND DISPOSE OF PIPE AND ACM INSULATION together.

1100 - WORK CONTINUES AS DESCRIBED.

1200 - ALL WORK STOPS FOR LUNCH.

1300 - WORK AT THIS TIME IS CUTTING PIPE. GLOVEBAGS COMPLETED, PIPE IS WRAPPED IN 2 LAYERS OF 6MIL POLY AND LABELED.

1500 - WORK STOPS FOR THIS SHIFT. ACM BOX IS FULL AND A CHANGE OUT OF THE BOX IS SCHEDULED FOR MON. 2-9-04.

Site Representative (Print Name) _____ Signature/Date _____

Contractor Supervisor (Print Name) _____ Signature/Date _____

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EFI
Engineering and Fire Investigations

Field Report

Date: 02-05, 2004

Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

1630 - AREA ALL CLEANED UP. ARC MOVING EQUIPMENT TO THE WAREHOUSE BLDG. 506 FOR THE WEEKEND.

1730 - ARC AND EFI DEPART SITE.

Site Representative (Print Name) _____ Signature/Date _____

Contractor Supervisor (Print Name) _____ Signature/Date _____

EFI
Engineering and Fire Investigations

Field Report

Date: 02-09, 2004 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 - EFI on site, ARC on site.

0730 - Work this shift will Begin TRANSITE REMOVAL on Bldg. 18Y.

0830 - TRANSITE REMOVAL underway. Work will continue on TRANSITE REMOVAL as long as the RAIN holds OFF.

1000 - Work continues as described on TRANSITE REMOVAL.

1200 - No RAIN as of this time. Work stops for LUNCH BREAK.

1300 - ARC RESUMES Work on TRANSITE REMOVAL on Bldg. 18Y.

1500 - light RAIN. CREW STOPPED REMOVAL and STACKING TRANSITE SHEETS.

1630 - AREA CLEANED UP AND READY FOR NEXT SHIFT.

1700 - ARC AND EFI DEPART SITE.

Site Representative (Print Name) _____ Signature/Date _____

Contractor Supervisor (Print Name) _____ Signature/Date _____

EFI
Engineering and Fire Investigations

Field Report

Date: 2-10, 2008 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 - EFI ON SITE
- ARC ON SITE, SAME CREW.

0730 - Work this shift will BE ON Bldg. 18Y

0830 - WORKERS REMOVING TRANSITE SHEETS ON Bldg. 18Y

0930 - Bayou City WASTE is on site to pick up THE FULL ACM 40 cu yd. containER. They Did not Bring AND EMPTY BOX. John called MICHAEL to ADVISE. This poses A PROBLEM FOR FRIABLE ACM REMOVAL. NO MORE FRIABLE REMOVAL will BE DONE until ANOTHER ACM WASTE containER is ON SITE.

1030 - TRANSITE SHEET REMOVAL continues At this time.

1200 - ALL work STOPS FOR Lunch.

1300 - Work RESUMES

1400 - Work continues AS DESCRIBED.

Site Representative (Print Name) _____ Signature/Date _____

Contractor Supervisor (Print Name) _____ Signature/Date _____

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EFI
Engineering and Fire Investigations

Field Report

Date: 2-10, 2004 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

1600 — RAIN continues to hamper access to the Disposal Area.

1700 — Shift ends, ARC and EFI are departing site.

Site Representative (Print Name) _____ Signature/Date _____

Contractor Supervisor (Print Name) _____ Signature/Date _____

EFI
Engineering and Fire Investigations

Field Report

Date: 2-11, 2008 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 - EFI ON SITE, ARC ON SITE.

0730 - Work this shift will continue on transite removal of Bldg 18Y.

0930 - Transite removal underway at this time.

1030 - Workers stacking transite as planned untill access to the Disposal site is possable.

1200 - Work stops for lunch break.

1300 - Work resumes as planned on Bldg 18Y.

1430 - Work continues as planned at this time

1600 - Removal stops for the day for crew to stack transite in locations to load for transport to Disposal site.

1700 - Shift ends

Site Representative (Print Name) _____ Signature/Date _____

Contractor Supervisor (Print Name) _____ Signature/Date _____

EFI
Engineering and Fire Investigations

Field Report

Date: 2-12, 2004 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 - EFI on site, ARC on site.

0730 - Work this shift will continue with transite removal on Bldg. 18Y.

0930 - Still unable to access the disposal site to haul transite.
- No asbestos box has yet been delivered.
- John shoves Michael w/ ARC in Houston to inquire about the ACM box.

1030 - Crew continues transite removal at this time.

1200 - Work stops for lunch break.

1300 - Work resumes as planned.

1400 - No word on ACM box at this time.

1530 - Removal stops for this shift to clean up the work area.

1630 - ARC moved all equipment inside for the week end.

1700 - ARC and EFI depart site.

Site Representative (Print Name) Signature/Date

Contractor Supervisor (Print Name) Signature/Date

EFI
Engineering and Fire Investigations

Field Report

Date: 2-16, 2004 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 – EFI ON SITE. ARC ON SITE. SAME CREW.
0730 – Work this shift will continue transite REMOVAL on Bldg. 18Y.
0830 – WEATHER cold But NO RAIN this DATE. ARC MAY BE ABLE to haul ACM to the DISPOSAL SITE.
1000 – Work continues on transite REMOVAL.
– ARC having to CLEAR AWAY heavy Brush to ACCESS the BACK SIDE of Bldg. 18Y.
1200 – ALL work STOPS FOR Lunch BREAK.
– ARC hauled A load OF transite to the DISPOSAL SITE.
1300 – Work RESUMES AS planned AT this TIME.
1400 – EFI RECEIVES ACM SURVEY on Bldg. 703 FROM LAST WEEK.
1600 – REMOVAL STOPS FOR this SHIFT SO AREA CAN BE CLEANED up.
1700 – ARC and EFI DEPART SITE.

Site Representative (Print Name) _____ Signature/Date _____

Contractor Supervisor (Print Name) _____ Signature/Date _____

EFI
Engineering and Fire Investigations

Field Report

Date: 2-17, 2004 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 - EFI on site. ARC on site.

0730 - Work this shift will continue with transite removal on Bldg. 18Y.

0830 - ARC will need to conduct several glovebags to remove pipe on the outside of Bldg. 18Y this shift.

1000 - Work continues as planned at this time.

1100 - ARC hauling a load of transite to the disposal site.

1200 - Work stops for lunch break.

1300 - Work resumes as described.

1400 - Transite removal will reach approx. 60% complete

1600 - Second load of transite loaded and being hauled to the disposal site.

1700 - Shift ends, ARC and EFI depart site.

Site Representative (Print Name) Signature/Date

Contractor Supervisor (Print Name) Signature/Date

EFI
Engineering and Fire Investigations

Field Report

Date: 2-18, 2004 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 - EFi on site, ARC on site.

0730 - Work this shift will continue with brush clearing and transite removal on Bldg. 18Y.

0830 - Bayou City Waste told ARC that they would deliver and ACM waste container this morning.

1000 - Work continues on transite removal at this time.

1200 - All work stops for lunch, No ACM box as yet.

1300 - Work resumes on transite removal Bldg. 18Y

1500 - ARC hauling another load of transite to the land fill.

1630 - ARC completed transite removal on Bldg. 18Y

1700 - Shift ends.

Site Representative (Print Name) _____ Signature/Date _____

Contractor Supervisor (Print Name) _____ Signature/Date _____

EFI
Engineering and Fire Investigations

Field Report

Date: 2-19, 2004 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 - EFI ON SITE, ARC ON SITE.

0730 - WORK THIS SHIFT WILL BE TO GLOVEBAG AND CUT AND WRAP PIPE IN BLDG. 164

0830 - REMOVAL UNDERWAY.
- BAYOU CITY WASTE "DID NOT" DELIVER AND EMPTY BOX

0930 - ARC IS HAULING ONE LOAD OF TARS/TE FROM YESTERDAYS REMOVAL TO THE DISPOSAL SITE.

1100 - ARC HAS COMPLETED 6 GLOVEBAGS AT THIS TIME AND ARE WRAPPING AND CUTTING PIPE.

1200 - WORK STOPS FOR LUNCH BREAK.

1300 - ARC RESUMES WORK AS DESCRIBED. NO ACM CONTAINE ON SITE AS YET.

1500 - BAYOU CITY DELIVERED AND EMPTY BOX FOR ACM WASTE.

1700 - SHIFT ENDS ARC AND EFI DEPART SITE.

Site Representative (Print Name) Signature/Date

Contractor Supervisor (Print Name) Signature/Date

00065431

EFI
Engineering and Fire Investigations

Field Report

Date: 2-23, 2004 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 – EFI on site, ARC on site.

0730 – Bldg 18Y will continue with removal this shift.

0930 – ARC receives a delivery of consumeables, ie poly, tap, suits ect.

1030 – Work has shifted to Bldg 601A which is near the front gate. Small transite shingles. Approx 200 sq. Foot Bldg. Old RR Schale Bldg.

1200 – Work stops for lunch break.

1300 – Work resumes on transite as planned.

1430 – Bldg 601-A is complete. Workers hauling transite to the disposal site.

1600 – Crew moves equipment and supplies back to the Y area.

1700 – Shift ends.

Site Representative (Print Name) _____ Signature/Date _____

Contractor Supervisor (Print Name) _____ Signature/Date _____

EFI
Engineering and Fire Investigations

Field Report

Date: 7-24, 2004 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 – EFi on site. ARC on site

0730 – Work this shift will be Transite removal on Bldgs 324 and 384

0930 – Rain again this shift may slow progress.

1030 – Work continues as described at this time.

1200 – All work stops for lunch break.

1300 – ARC bought a power washer to use on decontamination of the 3x Bldgs prior to abatement.

1400 – ARC testing powerwasher.
– Transite removal continues as planned.

1600 – Too wet at the disposal site to haul transite so ARC is stacking sheet for later transport.

1700 – Shift ends, ARC and EFi depart site.

Site Representative (Print Name) Signature/Date

Contractor Supervisor (Print Name) Signature/Date

EFI
Engineering and Fire Investigations

Field Report

Date: 2-25, 2004 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 – EFI on Site ARC on Site.
– HEAVY RAIN during the night and moderate RAIN at this time. MAY slow work this shift.

0730 – Work BEGINS on GLOVE BAG REMOVAL in Bldg. 45Y

0830 – Work continues on [redacted] GLOVEBAG REMOVAL AS PLANNED.

1000 – PAUL W/US Fish & Wildlife and another visitor drove through and walked around the Y AREA. [redacted] UNKNOWN REASON.

1200 – All work stops for Lunch at this time.

1300 – ARC RESUMES work on Bldg. 45Y GLOVEBAG REMOVAL and WRAP and cut PIPE RUN SECTIONS.

1500 – ARC is going to try and dump the load of TRANSITE that they loaded YESTERDAY.

1700 – Shift ends, ARC and EFI DEPART site.

Site Representative (Print Name) _____ Signature/Date _____

Contractor Supervisor (Print Name) _____ Signature/Date _____

EFI
Engineering and Fire Investigations

Field Report

Date: 2-26 ,2008 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 – EFi on site. ARC on site.

0730 – Work this shift will continue with removal on Bldg 45Y

0900 – Transite removal continues as planned at this time.

1030 – Steady rain forcing slow production at this time.

1200 – Work stops for Lunch break

1300 – Work resumes, Rain continues. ARC was able to dump one load of transite at the disposal site.

1430 – Transite removal stops for this shift and six glovebags hung and ready for removal.

1600 – 6 glovebag removal complete and pipe wrapped in 2 layers of poly labeled lead to cut down.

1700 – Shift ends, ARC and EFi depart site.

Site Representative (Print Name) _____ Signature/Date _____

Contractor Supervisor (Print Name) _____ Signature/Date _____

EFI
Engineering and Fire Investigations

Field Report

Date: 2-26, 2004 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 - EFI on site. ARC on site.

0730 - Work this shift will be to remove transite from Bldg. 34Y

0930 - Weather clear this shift work conditions much better.

1100 - Transite removal continues as planned.
- ARC may complete the Y area next week.

1200 - All work stops for lunch at this time.

1300 - Work resumes as described.

1400 - Removal stops for this shift so workers can stack transite for disposal next shift.

1600 - Work complete for this shift. Crew moving equipment to safe storage area, office, warehouse.

1700 - ARC and EFI depart site.

Site Representative (Print Name) _____ Signature/Date _____

Contractor Supervisor (Print Name) _____ Signature/Date _____

EFI
Engineering and Fire Investigations

Field Report

Date: 3-[redacted]1, 2003 4 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 – EFI on site, ARC on site.

0730 – Work this shift will continue with TRANSITE REMOVAL on Bldg. 34Y.

0930 – Phoned EFI office to check in And talked with LEE BOOCKLE.

1030 – TRANSITE REMOVAL continues AS PLANNED on THE 34Y Bldg.

1200 – All work stops For lunch BREAK AT this time.

1300 – Work RESUMES AS DESCRIBED on TRANSITE REMOVAL.

1430 – WEATHER Dry TODAY AND ACCESS to TRANSITE much EASYER.

1600 – ARC has the truck loaded AND READY to HAUL to the DISPOSAL SITE.

1700 – Shift ENDS ARC AND EFI DEPART SITE.

Site Representative (Print Name) _____ Signature/Date _____

Contractor Supervisor (Print Name) _____ Signature/Date _____

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EFI
Engineering and Fire Investigations

Field Report

Date: 3-2, 2003 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 – EFI on site. ARC on site.

0730 – Work this shift will continue with transite removal on Bldg. 34Y at this time.

0830 – Weather 30% chance of rain work continues as planned.

1000 – Work continues on transite removal at Bldg. 34Y.

1200 – All work stops for lunch at this time

1300 – ARC resumes work on transite removal on the roof of Bldg. 34Y

1500 – ARC hauling a load of transite to the disposal site.

1600 – Work stops for this shift for site clean up.

1700 – Shift End

Site Representative (Print Name) Signature/Date

Contractor Supervisor (Print Name) Signature/Date

EFI
Engineering and Fire Investigations

Field Report

Date: 3-3, 2003

Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 – EFI on site, ARC on site.

0730 – Work this shift will continue on Bldg 34Y.

0830 – Weather not raining at this time but heavy rain predicted for the afternoon.

1000 – ARC will likley finish in the Y area this week and will be moving to the T area next week.

1200 – All work stops for lunch at this time.

1300 – Work resumes as planned transite removal at Bldg 34Y.

1500 – ARC hauls another load of transite to the disposal site

1600 – Work stops on removal for this shift to clean up the work area.

1700 – Shift ends, ARC and EFI depart site.

Site Representative (Print Name) _____ Signature/Date _____

Contractor Supervisor (Print Name) _____ Signature/Date _____

EFI
Engineering and Fire Investigations

Field Report

Date: 3-4 ,2008 4 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 - EFI on site ARC on site.

0730 - Work this shift will continue with and complete the TRANSITE REMOVAL in the Y AREA. Work today is on Bldg. 34Y

0900 - Weather today calling for a lot of rain, possably severe storms.

1000 - Work continues at this time and on schedule.

1200 - All work stops for lunch break at this time.

1300 - Work resumes as described on Bldg 34Y.

1430 - ARC hauling the last load of transite to the disposal site from the Y AREA.

1530 - ARC Moving equipment and supplies to the T AREA for startup there on Monday.

1700 - Shift ends.

Site Representative (Print Name) Signature/Date

Contractor Supervisor (Print Name) Signature/Date

00065440

EFI
Engineering and Fire Investigations

Field Report

Date: 3-8, 2004 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 – EFI on site,
– ARC on site.
0730 – Work this shift will be clearing around and moving inside of Bldg. 8T.
0930 – Work continues as described at this time.
1030 – ARC moving more supplies out of the Y AREA down to the T AREA.
1200 – Work stops for lunch at this time.
1300 – ARC resumes work in the T-AREA on Bldg. 8T.
1430 – Work continues as described.
1630 – ARC will continue with MEP and MAG start FL. Tile removal next shift in Bldg. 8T.
1700 – Shift ends.

Site Representative (Print Name) Signature/Date

Contractor Supervisor (Print Name) Signature/Date

00065441

EFI
Engineering and Fire Investigations

Field Report

Date: 3-9, 2004

Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 - EFI ON SITE. ARC ON SITE.

0730 - Work this shift will continue at this time on Bldg. 8T with prep for FL. tile removal. Outside cleaning also will continue.

1030 - Work continues as planned. FL. tile removal has begun.

1200 - Work stops for lunch break.

1300 - Talked with Alex and advised him that Ph. II work on asbestos is likley to be by the end of April 04.

1500 - FL. tile removal continues in Bldg. 8T

1600 - Work stops for this shift to clean up.

1700 - Shift ends

Site Representative (Print Name) Signature/Date

Contractor Supervisor (Print Name) Signature/Date

EFI
Engineering and Fire Investigations

Field Report

Date: 3-10, 2004 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 – EFI on site ARC on site.

0730 – Work continues on Bldg 8T at this time.

0830 – Work on Removal is on transite at this time.

10:00 – Work on Removal continues on Bldg 8T as planned.

11:00 – FL. tile Removal is complete and transite Removal underway.

1200 – All work stops for lunch break At this time.

1300 – Work resumes as described on transite Removal.

1500 – Work continues at this time.

1600 – ARC stops work for Area clean up.

1700 – Work will continue on this Bldg next [redacted] shift, ARC and EFI depart site.

Site Representative (Print Name) Signature/Date

Contractor Supervisor (Print Name) Signature/Date

EFI
Engineering and Fire Investigations

Field Report

Date: 3-11 ,2004 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 - EFI on site. ARC on site.

0730 - Work this shift is continuing on Bldg 8T.

0930 - Transite removal continuing as planned at this time.

1030 - ARC hauling a load of transite to the disposal site.

1200 - All work stops for lunch at this time.

1300 - Work resumes on Bldg 8T as described.

1500 - Another load of transite loaded but will not go to the disposal site until Monday.

1600 - Work stops for the shift and crew cleaning up work area.

1700 - Shift ends.

Site Representative (Print Name) Signature/Date

Contractor Supervisor (Print Name) Signature/Date

EFI
Engineering and Fire Investigations

Field Report

Date: 3-15, 2004 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 - EFI on site, ARC on site.

0730 - Work this shift will continue with transite removal on Bldg. 8T.

0900 - Area received a lot of rain over night and ARC will be stacking transite that they remove until which time they can access the disposal site.

1030 - Transite removal continues as planned at this time.

1200 - All work stops for lunch break.

1300 - Work resumes as described on Bldg. 8T.

1500 - Workers continue to stack the transite panels for disposal at a later time.

1700 - Shift ends.

Site Representative (Print Name) Signature/Date

Contractor Supervisor (Print Name) Signature/Date

EFI
Engineering and Fire Investigations

Field Report

Date: 3-16, 2004 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

06:30 – EFI ON SITE, ARC ON SITE, SAME CREW.

07:30 – WORK this shift will continue with REMOVAL ON Bldg. 8T.

0930 – ARC talking about adding two additional workers to the crew. Not confirmed at this time.

1030 – Disposal site may be accessable later today. No rain yesterday or last night.

1200 – All work stops for lunch break at this time.

1300 – Work resumes on transite removal of Bldg 8T.

1400 – ARC hauling a load of transite to the disposal site.

1600 – Removal stops for this shift to allow for work area clean up.

1700 – Shift ends

Site Representative (Print Name) _____ Signature/Date _____

Contractor Supervisor (Print Name) _____ Signature/Date _____

EFI
Engineering and Fire Investigations

Field Report

Date: 3-17 , 2004 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 - EFI on site. ARC on site.

0730 - ARC continues with transite removal on Bldg 8T this shift.

0830 - ARC also clearing around Bldg.
- Dump truck has a flat tire which will slow removal for repair.

1030 - Tire repair complete and work resumes as planned.

1200 - ARC hauling a load of transite to the disposal site.

1300 - Work resumes.

1400 - Removal of transite is complete on Bldg. 8T and crew moving supplies & equipment to Bldg 13T.

1600 - ARC setting up to start Bldg. 13T.

1700 - Shift ends

Site Representative (Print Name) _____ Signature/Date _____

Contractor Supervisor (Print Name) _____ Signature/Date _____

00065447

EFI
Engineering and Fire Investigations

Field Report

Date: 3-18, 2004 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 - EFI on site. ARC on site.

0730 - Transite removal begins on Bldg. 13T at this time.

0830 - ARC hauling a load of transite to the disposal site.
- ARC advises they are keeping the same crew size until further notice.

1000 - Work continues as planned at this time.

1200 - All work stops for lunch

1300 - Work resumes on Bldg 13T with transite removal.

1400 - ARC hauling their last load of transite to the disposal site for this shift.

1600 - ARC stopping to clean up work area

1700 - Shift ends.

Site Representative (Print Name) _____ Signature/Date _____

Contractor Supervisor (Print Name) _____ Signature/Date _____

00065448

EFI
Engineering and Fire Investigations

Field Report

Date: 3-22, 2004 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 - EFI on site, ARC on site.

0730 - Work this shift will be to remove transite on Bldg. 13T.

0930 - Work underway as described. Weather

1100 - Work continues as planned at this time.

1200 - All work stops for lunch break.

1300 - Work resumes.

1500 - ARC will likely complete the transite demo on Bldg. 13T this shift.

1600 - ARC hauling final load for this shift to the disposal site.

1700 - Shift ends.

Site Representative (Print Name) Signature/Date

Contractor Supervisor (Print Name) Signature/Date

EFI
Engineering and Fire Investigations

Field Report

Date: 3-23, 2004

Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 - EFI on site, ARC on site.

0730 - Work this shift will continue on Bldg. 13T, to clean up and complete.

0930 - Work on Bldg 13T complete. ARC has been cleaning around 16T to access work area.

1030 - ARC moving equipment and supplies to Bldg. 16T to start. Work will be transite removal.

1200 - All work stops for lunch break at this time.

1300 - Work resumes as described on Bldg. 16T.

1430 - ARC loading a load of transite to the disposal site.

1530 - Work continues as described.

1700 - Work stops for shift end.

Site Representative (Print Name) _____ Signature/Date _____

Contractor Supervisor (Print Name) _____ Signature/Date _____

EFI
Engineering and Fire Investigations

Field Report

Date: 3-24, 2004 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 - EFi on site, ARC on site.

0730 - Work this shift will be on Bldg 16T Transite removal.

0830 - Weather clear at this time and ARC hauling a load of transite to the disposal site.

1000 - Light rain, ARC continues to work on Bldg. 16T.

1200 - All work stops for lunch at this time.

1300 - ARC resumes work as planned on Bldg. 16T.

1430 - ARC hauling a load of transite to the disposal site.

1600 - Work continues on Bldg 16T as planned.

1700 - Shift ends.

Site Representative (Print Name) _____ Signature/Date _____

Contractor Supervisor (Print Name) _____ Signature/Date _____

00065451

EFI
Engineering and Fire Investigations

Field Report

Date: 3-25 ,2004 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 – EFI on site, ARC on site.
– Light rain at this time

0730 – Work this shift will continue on Bldg 16T.

0930 – ARC hauling a load of trans. site to the disposal site.

1030 – Work beginning on Bldg 16T2 at this time on trans.

1130 – Removal continues as planned at this time.

1200 – All work stops for lunch break.

1300 – Work resumes as described on Bldg 16T

1500 – Work stopping to clean up work area.

1700 – Shift ends.

Site Representative (Print Name) Signature/Date

Contractor Supervisor (Print Name) Signature/Date

EFI
Engineering and Fire Investigations

Field Report

Date: 3-29, 2004 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 – EFI on site. ARC on site with same crew.

0730 – Work this shift will begin with brush cleaning around Bldg. 20T

0930 – ARC beginning to prepair for transite removal on Bldg. 20T

1100 – Transite removal on Bldg 20T underway.

1200 – All work stops for lunch at this time.

1300 – Work resumes as described on Bldg. 20T.

1430 – ARC's dump truck for hauling the transite to the disposal site is broken down at this time. Repair will take place at the beginning of next shift.

1600 – Work stops for area cleanup.

1700 – Shift ends.

Site Representative (Print Name) Signature/Date

Contractor Supervisor (Print Name) Signature/Date

EFI
Engineering and Fire Investigations

Field Report

Date: 3-30, 2004 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 - EFI on site, ARC on site, same crew.

0730 - ARC prepairs to do repair on dump truck while crew continues transite removal on Bldg 20T.

0900 - Transite removal underway. Crew stacking sheets until the dump truck is ready for service.

1100 - Dump truck repair complete and ARC loading transite sheets at this time.

1200 - All work stops for lunch break.

1300 - Work resumes on Bldg 20T transite removal.

1500 - ARC hauling a load of transite to the disposal site.

1700 - Work stops for shift end.

Site Representative (Print Name) _____ Signature/Date _____

Contractor Supervisor (Print Name) _____ Signature/Date _____

EFI
Engineering and Fire Investigations

Field Report

Date: 3-31, 2008 4 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 – EFI on site, ARC on site.

0730 – Work this shift will be to continue transite removal on Bldg. 20T, 35T & 39T

0930 – ARC ready to haul another load of transite to the disposal site.

1030 – Work continues as described at this time.

1130 – ARC is likely to finish the TARA next week.

1200 – All work stops for lunch at this time.

1300 – Work resumes as described. These are small Bldgs and ARC is also going to get 39T1 this shift.

1500 – Work continues as planned. Michael called from ARC and requested John and I to gather square footage info on all of the Bldgs in Plant 2 and Plant 3,

Site Representative (Print Name) Signature/Date

Contractor Supervisor (Print Name) Signature/Date

00065455

EFI
Engineering and Fire Investigations

Field Report

Date: 3.31, 2008

Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

- ON THE TRANSITE AND ANY FLOOR TILE REMOVAL. LINEAR FOOT QUANTITIES ON ANY PIPE ALSO TO BE NOTED.

1700 - SHIFT ENDS.

Site Representative (Print Name) _____ Signature/Date _____

Contractor Supervisor (Print Name) _____ Signature/Date _____

00065456

EFI
Engineering and Fire Investigations

Field Report

Date: 4/-1, 2004 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 – Work this shift will begin on Bldg. 39T to complete and move to Bldg. 21T

0730 – Transite removal underway. ARC also going to do removal on another small bldg this shift Bldg. 101

0930 – Weather clear this entire week.

1100 – ARC hauling a load of transite to the land fill.

1200 – All work stops for lunch.

1300 – Work resumes as described above.

1500 – Work is on Bldg 101 at this time.

1700 – All transite removal on the bldgs listed has been completed for this date.
– Shift ends, ARC and EFI depart site.

Site Representative (Print Name) Signature/Date

Contractor Supervisor (Print Name) Signature/Date

EFI
Engineering and Fire Investigations

Field Report

Date: 4-05, 2004 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 – EFi on site. ARC on site. Same crew.

0730 – Work this shift will be transite removal on Bldg. 31T. Weather good, work begins.

0900 – Transite removal underway as planned.

1030 – ARC hauling a load of transite to the Disposal Site.

1130 – Demo equipment for digging the Disposal Site has been broke down for a couple of weeks now. Present site approaching full. Known Resolution.

1200 – All work stops for lunch.

1300 – Work resumes.

1400 – EFi calls Lee Buckle to advise on work shut down.

1600 – Another load of transite going to the Disposal Site.

Site Representative (Print Name) Signature/Date

Contractor Supervisor (Print Name) Signature/Date

00065458

EFI
Engineering and Fire Investigations

Field Report

Date: 4-5, 2004 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

— EFI And John w/ ARC have been collecting quantity est. on remove in Plant 2 and Plant 3 areas

1700 — Demo crew did not work this shift due to equipment problems.
— ARC and EFI depart site shift end.

Site Representative (Print Name) _____ Signature/Date _____

Contractor Supervisor (Print Name) _____ Signature/Date _____

EFI
Engineering and Fire Investigations

Field Report

Date: 4-6, 2004 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 - EFI on site. ARC on site.

0730 - Work this shift will continue with transite removal on Bldg. 31T.

0930 - Transite removal continues as planned.
- ARC hauling a load of transite to the disposal site.

1100 - EFI talked with Lee Cook LE and he talked with Michal Luzcak and [redacted] there will be no work on abatement during the weeks of April 12 thru 16 or 19th thru. 23. As EFI understands at this time.

1200 - All work stops for lunch at this time.

1300 - Work resumes on transite removal at Bldg. 31T.

1500 - Transite removal going well at this time.

Site Representative (Print Name) Signature/Date

Contractor Supervisor (Print Name) Signature/Date

EFI
Engineering and Fire Investigations

Field Report

Date: 4-6, 2006

Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

1700 – Work stops for shift END.
ARC will finish the T AREA Bldgs with ABATEMENT this week.

– ARC and EFI DEPART site.

Site Representative (Print Name) _____ Signature/Date _____

Contractor Supervisor (Print Name) _____ Signature/Date _____

EFI
Engineering and Fire Investigations

Field Report

Date: 4-7, 2004 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 - EFI on site, ARC on site same crew.

0730 - Work this shift will continue with transite removal on Bldg. 31T this shift.

0930 - ARC hauling a load of transite to the disposal site.

1030 - Work continues as described on transite removal at Bldg 31T.

1200 - Work stops for lunch at this time

1300 - Work resumes as described on 31T

1500 - ARC will complete removal of Bldg. 31T this shift.

1700 - Shift ends, ARC and EFI depart site

Site Representative (Print Name) _____ Signature/Date _____

Contractor Supervisor (Print Name) _____ Signature/Date _____

EFI
Engineering and Fire Investigations

Field Report

Date: 4-8, 2008 4 | Project Number: 98410-13709

Project Name: Longhorn Army Ammunition Plant

Contractor: ARC

Description

0630 – EFI on SITE. ARC on SITE.

0730 – Only WORK ARC has to do this SHIFT is haul ACM TRANSITE PANELS to the Disposal Site.

0930 – Second load of TRANSITE going to the Disposal Site.

1200 – Work stops for lunch.

1300 – ASBESTOS WORK in the T AREA is COMPLETE.

– – CREW Advised they would BE OFF FOR the NEXT 2 WEEKS.

Site Representative (Print Name) Signature/Date

Contractor Supervisor (Print Name) Signature/Date

APPENDIX D
TEXAS DEPARTMENT OF HEALTH NOTIFICATIONS/RELATED DOCUMENTS

For Office Use Only ☐ TAHPA ☐ NESHAP ☐ T ☐ H ☐ I POSTMARK / / / / ☐ YES ☐ NO RCVD / / / / plation?

TEXAS DEPARTMENT OF HEALTH DEMOLITION / RENOVATION NOTIFICATION FORM

NOTE: CIRCLE ITEMS THAT ARE AMENDED

T P H

NOTIFICATION# _____

1) Abatement Contractor: ARC Abatement, Inc. TDH License No.: 60-0443
Address: 207 Panther Way City: Hewitt State: TX Zip: 76643
Office Phone Number: 713-896-0668 Job Site Phone Number: N/A
Site Supervisor: See Attached List TDH License Number: See Attached
Site Supervisor: N/A TDH License Number: N/A
Trained On-Site NESHAP Individual: N/A Certification Date: N/A

Demolition Contractor: A-1 Demolition Office Phone Number: 254-826-4074
Address: 922 John Nors Road City: West State: TX Zip: 76691

2) Project Consultant or Operator: Engineering & Fire Investigations TDH License No.: 10-0305
Mailing address: 9700 Richmond Ave., Suite 201
City: Houston State: TX Zip: 77042 Office Phone Number: (713) 975-7031

3) Facility Owner: U.S. Army Industrial Operation-BRAC Technical Support Office
Attention: Brian Gebhart
Mailing address: DAIM-BO-O, 1 Rock Island Arsenal
City: Rock Island State: IL Zip: 61299 Owner Phone Number: 309-782-1387

4) Description or Facility Name: Longhorn Army Ammunition Plant
Physical Address: Hwy 43 @ Spur 449 County: Harrison
City: Karnack Zip: 75671 Facility Phone Number: 903-679-3181
Facility Contact Person: Lynn Muckelrath
Description of Area/Room Number: See Attached List
Prior Use: Ammunition Plant Future Use: To Be Demolished
Age of Building/Facility: 30+ Size: 170,000sf Number of Floors: 2
School (K-12) ☐ YES ☒ NO

5) Type of Work: ☒ Demolition ☐ Renovation (Abatement) ☐ Annual Consolidated
Work will be during: ☒ Day ☐ Evening ☐ Night ☐ Phased Project
Description of work schedule: Mon-Thur. 7am-5:30pm

6) Is this a Public Building? ☐ YES ☒ NO Federal Facility? ☒ YES ☐ NO Industrial Site? ☒ YES ☐ NO
NESHAP-Only Facility? ☒ YES ☐ NO Is Building/Facility Occupied? ☐ YES ☒ NO

7) Notification Type: CHECK ONLY ONE
☒ Original (10 Working Days) ☐ Cancellation Amendment ☐ Emergency/Ordered

If this is an amendment, which amendment number is this? N/A (Enclose copy of original)
If an emergency, who did you talk with at TDH? N/A Emergency# No
Date and Hour of Emergency (HH/MM/DD/YY): N/A
Description of the sudden, unexpected event and explanation of how the event caused unsafe conditions or would cause equipment damage (computers, machinery, etc.): N/A

8) Description of procedures to be followed in the event that unexpected asbestos is found or previously non-friable asbestos material becomes crumbled, pulverized, or reduced to powder: Area will be sealed off and barricaded. The owner, federal, state and local authorities will be notified. All suspect material will be treated as ACM.

9) Was an Asbestos survey performed? ☒ YES ☐ NO Date: 1/30/95 TDH Inspector License No: n/a
Analytical Method: ☒ PLM ☐ TEM ☐ Assumed TDH Laboratory License No: n/a
(For TAHPA (public building) projects: an assumption must be made by a TDH Licensed Inspector)

10) Description of planned demolition or renovation work, type of material, and method(s) to be used: Removal of friable and non-friable asbestos containing materials from schedule buildings and subsequent demolish of building leaving all concrete slabs and foundations in place.

11) Description of work practices and engineering controls to be used to prevent emissions of asbestos at the demolition/renovation site: HEPA vacuum, wet methods, containment, criticals, barricades, glove bag Methods, and PPE.

12) ALL applicable items in the following table must be completed: IF NO ASBESTOS PRESENT CHECK HERE ☐

Asbestos-Containing Building Material Type	Approximate amount of Asbestos		Check unit of measurement					
	Pipes	Surface Area	Ln Ft	Ln M	SQ Ft	SQ M	Cu Ft	Cu M
RACM to be removed	7,350	2500	X		X			
RACM NOT removed								
Interior Category I non-friable removed		14,860			X			
Exterior Category I non-friable removed								
Category I non-friable NOT removed								
Interior Category II non-friable removed		191,633			X			
Exterior Category II non-friable removed								
Category II non-friable NOT removed								
RACM Off-Facility Component								

13) Waste Transporter Name: ARC Abatement, Inc. TDH License No.: 40-0105
Address: 207 Panther Way City: Hewitt State: TX Zip: 76643
Contact Person: Jerry Fields Phone Number: 713-896-0668

14) Waste Disposal Site Name: BFI McCarty Road Landfill
Address: 11013 Old Beaumont Highway City: Houston State: TX Zip: 77078
Telephone: 713-675-6101 TNRCC Permit Number: 261-A

15) For structurally unsound facilities, attach a copy of demolition order and identify Governmental Official below:
Name: N/A Registration No: N/A
Title: N/A
Date of order (MM/DD/YY) N/A Date order to begin (MM/DD/YY) N/A

16) Scheduled Dates of Asbestos Abatement (MM/DD/YY) Start: 3/19/03 Complete: 7/11/03

17) Scheduled Dates Demolition/Renovation (MM/DD/YY) Start: 5/1/03 Complete: 9/5/03

** Note: If the start date on this notification can not be met, the TDH Regional or Local Program office *Must* be contacted by phone prior to the start date. Failure to do so is a violation in accordance to TAHPA, Section 295.61.**

I hereby certify that all information I have provided is correct, complete, and true to the best of my knowledge. I acknowledge that I am responsible for all aspects of the notification form, including, but not limiting, content and submission dates. The maximum penalty is $10,000 per day per violation.

Fields Contractor — Jerry Fields "Contractor" — 3/5/03 — 713-896-0668
(Signature of Building Owner/Operator or Delegated Consultant/Contractor) (Printed Name) (Date) (Telephone)
713-896-1772 (Fax Number)

MAIL TO:

ASBESTOS NOTIFICATION SECTION
TOXIC SUBSTANCES CONTROL DIVISION
TEXAS DEPARTMENT OF HEALTH
PO BOX 149538
AUSTIN, TX 78714-3538
PH: 512-834-6600, 1-800-572-5548

Faxes are not accepted

Faxes are not accepted

Form APB#5, dated 07/13/01 Replaces TDH form dated 09/15/97. For assistance in completing form, call 1-800-572-5548.

APPENDIX E
AIR MONITORING CERTIFICATIONS AND LICENSES
&
WORK PROCEDURES

TEXAS
DEPARTMENT OF HEALTH

BE IT KNOWN THAT

ENGINEERING AND FIRE INVESTIGATIONS, INC

is Licensed and authorized to perform as an

Asbestos Consultant Agency

in the State of Texas within the purview of Texas Civil Statutes, Article 4477-3a, as amended, so long as this license is not suspended or revoked and is renewed according to the rules adopted by the Texas Board of Health.

10-0305
License Number

10/24/2003
Issue Date

10/23/2004
Expiration Date

This certificate is void after expiration date.

Todd F. Wingler, P.E.
Chief, Asbestos Programs Branch
Occupational Safety and Health Division

Eduardo J. Sanchez, M.D., M.P.H.
Commissioner of Health

VOID IF ALTERED NON-TRANSFERABLE

75225

00065467

00065468

Texas Department of Health certifies that:

DANIEL POPE

License Number **105185**
is Licensed as an
Individual Asbestos Consultant

From 02/27/2003 To 02/26/2004

Eduardo J. Sanchez, M.D., M.P.H.
Commissioner of Health

Control No. 70141

If found return postage guaranteed:Texas Department of Health
1100 West 49th Street 7C790-178 Austin, Texas 78756

It is a violation of Texas Department of Health Rules and a violation of the Texas Penal Code Sec. 37.10 to submit any forged or fraudulent documents in order to obtain a license.

Es una violación de los Reglamentos del Departamento De Salud y del Texas Penal Code Sec. 37.10 al someter cualquier tipo de documentos que esten alterados o falsificados para obtener una licencia.

2003

NOT VALID
WITHOUT STICKER

TDH
TEXAS DEPARTMENT OF HEALTH

TDH TDH TDH

Texas Department of Health certifies that:

ADAM W SATTERFIELD

is Licensed as

Asbestos Air Monitoring Technician

License Number: 705500

From: 02/27/2004

To: 02/26/2005

Control No: 77257

TDH TDH TDH

Texas Department of Health certifies that:

JON DABAAK

is Licensed as

Asbestos Air Monitoring Technician

License Number: 700830

From: 11/01/2003

To: 10/31/2004

Control No: 75161

If found return postage guaranteed:
Texas Department of Health
1100 West 49th Street 7C790-178
Austin, Texas 78756

It is a violation of Texas Department of Health Rules and a violation of the Texas Penal Code Sec. 37.10 to submit any forged or fraudulent documents in order to obtain a license.

Es una violación de los Reglamentos del Departamento De Salud y del Texas Penal Code Sec. 37.10 al someter cualquer tipo de documentos que esten alterados o falsificados para obtener una licencia.

TDH

Eduardo J. Sanchez, M.D., M.P.H.
Commissioner of Health

WORK PROCEDURES

FOR

REMOVAL OF ASBESTOS-CONTAINING MATERIALS

AT

LONGHORN ARMY AMMUNITION PLANT

Karnack, Texas

Prepared by:

Engineering and Fire investigations, Inc.
9700 Richmond
Houston, Texas 77042
(713) 975-7031

March, 2003

CERTIFICATION PAGE

DISCLOSURE STATEMENT

THIS DOCUMENT HAS BEEN PREPARED ON BEHALF OF AND EXCLUSIVELY FOR THE USE OF U.S. ARMY INDUSTRIAL OPERATION – BRAC TECHNICAL SUPPORT OFFICE. IF THE DOCUMENT SHOULD BE REPRODUCED IT SHOULD BE REPRODUCED IN WHOLE, AND SUCH REPRODUCTION AND DISTRIBUTION SHALL BE AT U.S. ARMY INDUSTRIAL OPERATION – BRAC TECHNICAL SUPPORT OFFICE. ADDITIONALLY, U.S. ARMY INDUSTRIAL OPERATION – BRAC TECHNICAL SUPPORT OFFICE IS CAUTIONED THAT, SHOULD INTERPRETATIONS BE MADE, OPINIONS FORMED, AND CONCLUSIONS DRAWN AS A RESULT OF EXAMINING THE DOCUMENT, THESE INTERPRETATIONS, OPINIONS, AND CONCLUSIONS WILL BE THOSE MADE, FORMED AND DRAWN SOLELY BY THE PARTY REVIEWING THE DOCUMENT.

TDH Asbestos Consultant Name: Cuong Nguyen

TDH Asbestos Consultant Signature: _____

TDH Asbestos Consultant License No./Expiration: 10-5516 – 10/06/2003

By signing this document, the Asbestos Consultant for the project authorizes and delegates the visual observation requirements of these Work Procedures and the applicable federal, state and local regulations to the following EFI personnel and/or EFI Subcontractor:

END OF CERTIFICATION PAGE

PROJECT DIRECTORY

		Representative
Owner:	U.S. Army Industrial Operation BRAC Technical Support Office	Brian Gebhart
Owner's Representative:	U.S. Army Industrial Operation Hwy 43 @ Spur 449 Karnack, Texas 75671 (903) 679-3181	Lynn Muckelrath
Asbestos Abatement Contractor:	ARC Abatement, Inc. 6630 Roxburgh Drive, Suite 130 Houston, Texas 77041 (713) 896-0668, Fax (713) 896-1772	Michael Luczak
Engineer:	Engineering and Fire Investigations 9700 Richmond Avenue Houston, Texas 77042 (713) 975-7031, Fax (713) 975-7336	Lee A. Burckle, P.E. Cuong Nguyen
Testing Laboratory:	Engineering and Fire Investigations 9700 Richmond Avenue Houston, Texas 77042 (713) 975-7031, Fax (713) 975-7336	Lee A. Burckle, P.E.

END OF PROJECT DIRECTORY

1.0 SUMMARY OF WORK

PART 1 - GENERAL

1.01 DESCRIPTION

A. Project Description

The Longhorn Army Ammunition Plant is located on Hwy 43 @ Spur 449 in Karnack, Texas. The Longhorn Army Ammunition Plant is situated on an approximate 8,000 acres site, which contains of multiple process, warehouse, administrative, and ancillary buildings constructed in the 1950's and 1960's. The majority of the buildings contain interior and exterior transite siding and roofing and composition shingle/roll sheeting roofs. The building structures consist of metal stud and wood joist/roof framing. Typical administrative building interior finishes include carpet and tile/sheeting over concrete slabs, wall partitions constructed of gypsum wallboard with paint texture finishes and/or transite board, and suspended acoustical ceiling tile ceiling system.

B. The Scope of Work (SOW) will include, but not be limited to:

1. Removal and disposal of all Regulated Asbestos-Containing Material (RACM), which is currently RACM or may become RACM during demolition activities of the 41 identified buildings (see attached table in Appendix A). Generally, the RACM identified in the building to be removed is as listed below.
   a. Friable ACM - Thermal System Insulation (Steam - Block/Mudded).
   b. Friable ACM – Thermal System Insulation (Boiler Flue - Block).
   c. Category II, Non Friable – Exterior Corrugated Transite Sidings / Roofing.
   d. Category II, Non Friable - Interior Transite Siding.
2. Removal and disposal of loose and flaking lead-based paint from surfaces of identified buildings scheduled for demolition.
3. Testing of oil-fluids from identified buildings scheduled for demolition to determine if fluids contain PCB.
4. Removal and disposal of identified PCB and PCB contaminated equipment from identified buildings scheduled for demolition.
5. Erection of permanent security fencing and placement of warning barricade around buildings with open pit areas at completion of demolition.

C. Include all work listed in these specifications and incidentals thereto. Require that all phases of the Work be executed by skilled craftsman experienced in their respective trades.

D. Contractor may subcontract any phase or portion of the Work. However, such subcontract shall not relieve Contractor from enforcing the use of all required safety equipment by subcontractor and its employees providing any phase of the Work in contaminated areas. Require and verify that all materials and methods used by subcontractor are consistent with materials and methods for established

and safe asbestos, lead-based paint components, and PCB removal procedures and consistent with the Work Procedures.

1.02 WORK INCLUDED IN THE CONTRACT DOCUMENTS

A. General items include but are not necessarily limited to:

1. Isolation of all HVAC, electrical, fire alarm and security systems servicing the work area.
2. Coordination with Owner for use of building utilities (if feasible), or supply temporary power, water, etc. necessary to execute the Work.
3. Development of special fire protection and security procedures to be compatible with existing building systems and procedures.
4. Preparation of the work area as specified elsewhere.
5. Personal air monitoring for abatement workers and subcontractor's workers as required by regulatory agencies.
6. Removal of existing items that are in the work area to provide access to asbestos-containing materials.
7. Performance of incidental mechanical, electrical and plumbing work necessary for conducting the Work.
8. Removal of friable and Category II non-friable asbestos-containing materials prior to demolition of building structures and disposal of (friable) ACM waste to an approved off-site landfill, (Category II non-friable) to an on-site landfill.
9. Demolition of building structures with Category I non-friable ACM and disposal of ACM waste to an on-site landfill.
10. Removal and disposal of PCB containing transformers.
11. Removal of loose and flaking paint from building structures and characterization of lead waste prior to disposal.
12. Maintain security of Work Area (s) and buildings until Work is completed for each specific property.
13. Clean-up of the work area as specified elsewhere.

B. Mechanical/Plumbing items include but are not limited to:

1. Coordinate with Owner for isolation of any mechanical systems that are to be dismantled, and drain and purge piping systems to be dismantled.
2. Removal and disposal of asbestos-containing pipe/equipment insulation (block/mudded) and pipe/equipment insulation and all associated piping.

C. Electrical items include but are not limited to:

1. Installation of temporary electrical power panels with Ground Fault Circuit Interrupters (GFCI) for Contractor's and Testing Laboratory's equipment. All electrical tie-ins are to be performed by licensed electricians.
2. Installation of temporary lighting.
3. Installation of temporary electrical power as required by Testing Laboratory.
4. Isolate all electrical circuits that are within the work area.

5. Provide generators for source of power should existing utility/power are not available at the site.

1.03 WORK NOT INCLUDED IN THE CONTRACT DOCUMENTS

A. Re-installation of any removed items that are part of the removal work.

1.04 EXISTING CONDITIONS

A. Existing conditions are reflected correctly to the best of Owner's knowledge. Should minor conditions be encountered which are not exactly as indicated, modification to new work shall be made as required at no additional expense to Owner.

B. Results of tests of asbestos-containing materials (which are specifically excluded from these Contract Documents) taken from building surfaces within the scope of this Project are available for review at the office of the Engineer. However, Contractor is cautioned that, should interpretations be made, opinions be formed, and conclusions be drawn as a result of examining the test results, those interpretations, opinions, and conclusions will be those made, formed, and drawn solely by Contractor.

C. Inasmuch as randomly or arbitrarily selected areas were sampled, Engineer and Owner make no representation, warranty, or guaranty that the conditions indicated by the test reports either are representative of those conditions existing throughout the area, or that unforeseen developments may not occur, or that materials other than, or in proportions different from those indicated may not exist.

D. Contractor is advised that the locations of asbestos-containing materials are not clearly known and that the Contractor shall proceed with caution in all phases of the Work. Contractor shall verify all locations of asbestos-containing materials and shall remove similar associated materials that may exist at no extra cost to owner.

1.05 STORAGE

A. Storage space is available at the facility. Supply any additional temporary storage required for storage of equipment and materials for duration of Project. Contractor will be responsible for the security of the equipment and materials utilized for duration of Project.

1.06 BUILDING OCCUPANCY

A. Owner will occupy portions of the facility for the conduct of normal business operations during the abatement operations. Coordinate work with Owner and conduct activities so as to minimize disruption to the building occupants.

B. Predetermine and obtain approval, in advance from Owner, for horizontal transportation of contaminated waste materials, labor and construction materials into and out of building.

1.07 BUILDING SECURITY

A. Maintain personnel on the site at all times any portion of the work areas are open or not properly secured. Secure work areas completely at the end of each working day.

1.08 FIRE PREVENTION

A. Provide Type "A" fire extinguishers for temporary offices and similar spaces where there is minimal danger of electrical or grease-oil-flammable liquid fires. In other locations, provide type "ABC" dry chemical fire extinguishers, or a combination of several extinguishers per National Fire Protection Association (NFPA) recommendations and OSHA regulations.

B. Abatement Contractor's employees shall not enter building areas with cigarette lighters, matches, cigarettes, cigars, pipes or other flame emitting items. Abatement Contractor's employees shall not smoke cigarettes, cigars, pipes or the like within the building areas.

C. Flammable materials shall not be stored in the work area.

1.09 CONTINGENCY PLAN

A. Prepare a contingency plan for emergencies including fire, fire alarms, accident, power failure, or any other emergency event. Incorporate building's emergency procedures as required. Note that nothing in the Work Procedures should impede safe exiting or providing of adequate medical attention in the event of an emergency.

B. Post at the entrance to the work area telephone numbers and locations of emergency services including but not limited to the building security office.

1.10 PROJECT SUPERINTENDENT

A. Maintain a "competent" full-time superintendent as defined by OSHA and EPA, and necessary assistants who shall be in attendance at the building during the progress of the work. The superintendent shall be satisfactory to Owner's Representative and shall not be changed without prior approval by the Owner's Representative.

1.11 SEGREGATION OF WORK AREAS

A. Segregate the work areas from the surrounding occupied or unoccupied areas.
   1. Demarcate the work areas with asbestos and lead warning barrier tape (maintain a minimum clear distance of 15 feet from the work location and the demarcated perimeter) and post asbestos warning signage as required.

1.12 OBSERVATIONS

A. Engineer will observe the status and progress of the Work for completeness and general compliance with the requirements of the Work Procedures. At a minimum, the observations will be conducted at the following times during the Project:

1. Following pre-cleaning of work areas.
2. Following complete preparation of work areas and prior to proceeding with actual removal of asbestos-containing materials.
3. During removal of asbestos-containing materials.
4. At designated times during the cleaning phases.
5. At designated time during the demolition of building structures.
6. Following Demobilization of all equipment and materials.
7. As appropriate during the work outlined elsewhere in the Work Procedures.

1.13 SIGN-IN/OUT LOG

A. Maintain a Sign-In/Out Log in the immediate vicinity of the Change Room of the personnel decontamination enclosure. Maintain log from the time the first activity is performed involving the application of plastic sheeting until acceptance of the final air test results by Engineer. Require all persons entering the work areas, including the Contractor's workers, Engineer, Owner or agents of the Owner, government officials to register each time upon entering and leaving work areas. Indicate name, social security number, time, companies or agencies represented and reason for entering work area.

1.14 UTILITIES

A. Contractor may temporarily connect to existing permanent utilities during execution of the Work. Make connections in locations designated by Owner. The cost of utilities consumed will be paid by Owner.

1.15 SALVAGEABLE MATERIALS

A. Consider all materials and items demolished or removed in the execution of the Work unsalvageable unless specifically noted otherwise in the pre-job walkthrough.

1.16 CLEAN-UP

A. Dismantle and dispose of all temporary barriers erected to isolate the work areas at completion of Work.

B. Leave all areas visibly clean at completion of Work.

2.0 SUBMITTALS

2.01 DESCRIPTION

A. Make submittals required by the Work Procedures in a timely manner and at approximately times in the execution of the Work to allow fur sufficient and prompt review by Engineer. Revise and resubmit as necessary to establish compliance with the specified requirements.

2.02 WORK INCLUDED

A. Submit complete, bound sets of the submittals required herein. Submit separate sets entitled "Project Submittals".

B. Update submittals to Owner to account for all new equipment and employees used on the Project.

C. Project Submittals

1. Submit one complete set of "Project Submittals" to Engineer for review, of the completion of Work. Bind project submittals in a three-ring binder or cover with metal fasteners.

2.03 PROJECT SUBMITTALS

A. Notice of impending commencement of asbestos removal work, and any amendments if required, in writing via regular mail to:

Asbestos Notification and Information Section
P. O. Box 143538
Austin, Texas 78714-3538

Or overnight to:

Asbestos Notification and Information Section
8407 Wall Street
Suite N320
Austin, Texas 78754

and to comply with the applicable notice period set forth in 40 CFR 61.146. Include one copy of notifications in submittal package. Any required notification fees shall be paid by the Contractor.

B. Insurance certificate listing all coverages as required by Owner, listing Owner, and Testing Laboratory as additional insureds'.

C. Personnel Submittals (Asbestos).

1. General certificates from Contractor.
   a. Certification that each and every worker to be utilized on the Project by Contractor or subcontractor is actively involved in medial surveillance, respirator, and asbestos material hazard training programs.
   b. Certification that each and every employee to be utilized on the Project by Contractor or sub-contractor has had instruction on the hazards of asbestos exposure, protective dress, use of showers, entry to and exit from work areas on all aspects of work procedures and protective measures regarding asbestos removal, in an EPA approved course, as required by state and federal laws and regulations.
2. A copy of physician's written opinion per OSHA and TDH regulations for each person to be utilized on the Project.
3. Individually signed and notarized respiratory protection training certificate forms by each and every worker to be utilized on the Project by contractor or subcontractor, documenting that each is actively involved in a company employee Respirator Protection Program and has had appropriate training in respiratory protection.
4. A copy of Texas Department of Health license for each worker to be utilized on the Project or NESHAP accredited Training Certificates.
5. Individually signed and notarized Certificate of Worker's Release Form for each and every worker to be utilized on the project by Contractor or subcontractor.

D. Personnel Submittals (Lead)

1. "Worker Training Form" (SF-1) verifying workers to be utilized on the Project have received the proper training as specified by OSHA and all other pertinent regulatory agencies.
2. "Worker Training Certification Form" (SF-2) certifying that each and every employee has received instruction regarding the hazards of asbestos and lead-based paint exposure, protective dress, use of showers, entry and exit from a Work Area, and in all aspects of work procedures and protective measures regarding asbestos and lead-based paint removal. Employees utilized in asbestos abatement activities shall have successfully completed a course at least as stringent as that required under AHERA regulations for Asbestos Abatement Worker certification, Texas Department of Health regulations, and any other applicable and more stringent City, State, or Federal regulations. Employees utilized in lead abatement activities shall have successfully completed a Lead Abatement Worker training course as described by the Texas Department of Health regulations, and any other applicable more stringent City, State, or Federal regulations. Employees utilized shall have successfully completed all the required refresher training courses.

3. Copy of Blood Lead Determination for each and every worker to be utilized for lead-based paint abatement on the Project by the Contractor or Subcontractor and that each employee is involved in a Medical Surveillance Program in conformance with OSHA 29 CFR 1926.62.

E. Properly completed copies of the Uniform Hazardous Waste Manifest, Texas Natural Resource Conservation Commission form TNRCC-0311 (Current Edition) from the landfill, documenting the disposal of the asbestos containing/contaminated waste material (Off-Site Landfill Facility).

F. Copies of the chain of custody documenting the acceptance, transport, and delivery, by the waste transporter, of lead waste from the Work Site to the specified disposal or recycling facility. Chain of custody documentation should clearly correlate the quantity of material accepted by the transporter with the quantity of materials removed from the Work Site.

G. Copies of the lead waste manifest or Bill of Sale documenting the disposal of lead-based paint waste at the specified landfill or sale of material to a recycling facility. The waste manifest should clearly correlate the quantity of material accepted by the landfill with the quantity of material transported by the waste transporter.

H. A copy of the Sign In/Out Log showing the following: date, name, social security number, entering and leaving time, company or agency represented for asbestos & lead activities.

I. A copy of employee air monitoring results relative to Occupational Health and Safety Administration respiratory protection level compliance for asbestos & lead activities.

J. Physician opinion, training, TDH license and other required forms for each new employee used on the project for asbestos & lead activities..

K. Updated or renewed physicians opinion, training and licensing as necessary for personnel on Project.

2.04 ENGINEER'S REVIEW

A. Partial submittals may be rejected for non-compliance with the Work Procedures.
B. Review by Engineer does not relieve Contractor from responsibility for errors, which may exist in the submitted data.
C. Make revisions when required by Engineer and resubmit for review.

END OF SECTION

3.0 TESTING LABORATORY SERVICES

3.01 DESCRIPTION

A. Contractor will provide a qualified Testing Laboratory to perform routine and special testing of the Work performed under the Work Procedures.

B. Testing Laboratory representative will, in addition to performing routine and special testing necessary to determine general compliance with the Work Procedures, observe and document, on a daily basis, the execution and progress of the Work. Such observation and documentation shall be for the sole benefit of Owner and Contractor and shall not be construed in any way as to include responsibility for Contractor's means, methods, techniques, sequences or procedures involved with the execution of the Work. Nor shall such observation and documentation by Testing Laboratory be construed as to include responsibility for any safety programs or procedures either utilized or not utilized by Contractor during the Work.

3.02 QUALITY ASSURANCE

A. All environmental and final air testing shall be performed in general accordance with the procedures outlined in the National Institute for Occupational Safety and Health (NIOSH) Method No. 7400 and also will follow guidelines issued by Environmental Protection Agency regarding detection limits.

B. Final air samples will be analyzed in general accordance with the sample analysis procedures outlined in NIOSH Method No. 7400, as applicable.

3.03 PAYMENT FOR TESTING

A. Initial Services: Contractor will pay for Daily Environmental Air Testing, and initial Final Air Clearance testing required by the Work Procedures.

B. Retesting: When final air clearance tests indicate non-compliance with the Work Procedures, subsequent retesting will be performed by the same Testing Laboratory, and all associated costs will be paid by Contractor.

3.04 SCHEDULING

A. Testing Laboratory will perform tests in areas and at times during the Work as deemed necessary by the Testing Laboratory and as specified in the Work Procedures.

B. Should advance notice not be give to Engineer, Engineer will make reasonable effort to comply with time of required observations. Do no proceed until such observations by Engineer are made. Any delay in the completion of the Project

caused by lack of advance notice by Contractor to Engineer shall not be sufficient cause for any extension of time or extension of the Project completion deadline.

C. Notify Testing Laboratory of need for final air testing at least 4-hours prior to desired time of testing.

D. Coordinate other scheduling with Testing Laboratory as necessary.

3.05 SCHEDULE OF AIR SAMPLES

A. Before Start of Work (Background Level) per Work Area:

1. Testing Laboratory will collect, at a minimum, the following air samples to establish a base line before the start of work:

BASE LINE SAMPLES				
Sample Location	Number of Samples	Analysis Method	Minimum Volume (Liters)	Rate LPM*
Work Area	2 Minimum	PCM	1250	10-16

* LPM - Liters per Minutes

2. Base Line: An action level expressed in fibers per cubic centimeter, which is equal to the following:
   a. PCM: The greater of the average of the samples collected on mixed cellulose ester filters in the work area prior to abatement activities or 0.01 fibers per cubic centimeter.

B. During The Course of the Work / Final Air Clearance Samples: For Category II – Non Friable ACM.

1. Testing Laboratory will collect the following air samples to determine if the Contractor may remove critical barriers and demobilize from the site:

FINAL AIR CLEARANCE					
Sample Location	Number of Samples	Analysis Method	Minimum Volume (Liters)	Rate LPM *	F/cc
Upwind	1 Minimum Per Work Area	PCM	1250	4-16	≤0.01 or ≤ Background
Downwind	1 Minimum Per Work Area	PCM	1250	4-16	≤0.01 or ≤ Background

B. Daily During the Course of the Work: For Friable ACM.

1. Testing Laboratory will collect area samples in areas and at times during the work as deemed necessary by the Testing Laboratory, required by the Engineer, or as specified in the Contract Documents. Daily samples will be analyzed using Phase Contrast Microscopy.

C. Final Air Clearance Samples: For Friable ACM.

1. Testing Laboratory will collect the following air samples to determine if the Contractor may remove critical barriers and demobilize from the site:

FINAL AIR CLEARANCE					
Sample Location	Number of Samples	Analysis Method	Minimum Volume (Liters)	Rate LPM *	F/cc
Inside Work Area	1 Minimum Per Work Area Less Than 160 SQ. FT	PCM	1250	10-16	≤0.01
Inside Work Area	3 Minimum Per Work Area Greater Than Or Equal To 160 SQ. FT	PCM	1250	10-16	≤0.01

* Liters per Minutes
F/cc Fibers per cubic centimeter

3.06 RESULTS

A. Testing Laboratory will perform all testing and analysis promptly and issue results expeditiously in order to minimize any possible delay in the progress of the Work.

B. Test results shall be available to Owner and Contractor as follows:

1. Air clearance results: PCM - 4 hours following tests, TEM- 24 hours following receipt at laboratory.
2. Results of other tests deemed necessary by Engineer; as quickly as possible but not earlier than 4 hours following completion of tests.

C. Air tests will be made both inside, outside of work areas and OSHA personnel for the Contractor, as necessary. Contractor is cautioned, however, that should interpretations be made, opinions be formed and conclusions be drawn as a result of examining the test results, these interpretations, opinions and conclusions will be those made, formed and drawn solely by Contractor.

END OF SECTION

4.0 ASBESTOS ABATEMENT

4.01 DESCRIPTION

A. Perform all planning, administration, execution, and cleaning necessary to safely remove and dispose of asbestos-containing materials. Asbestos-containing materials to be removed for each project will be identified in a pre-job walkthrough.

B. Approval of or acceptance by Owner of various construction activities or methods proposed by Contractor does not constitute an assumption of liability either by the Engineer or Owner for inadequacy or adverse consequences of said activities or methods.

4.02 DEFINITIONS

The following definitions pertain to the work of this section.

A. Asbestos Definitions.

1. **Abatement** - procedures to decrease or eliminate fiber release from precast, spray- or trowel-applied asbestos-containing building materials. Includes encapsulation, enclosure and removal.
2. **Abatement Contractor** - the contractor designated in the contract documents as being responsible to the Owner for the control or abatement of asbestos-containing or contaminated materials, and other hazardous materials.
3. **Abatement Contractor's Testing Laboratory** - Testing Laboratory, designated herein as Abatement Contractor's Testing Laboratory, hired by Abatement Contractor to provide employee personal air monitoring services.
4. **ACM** - asbestos-containing material.
5. **Adequately Wet** - a term as defined in 40 CFR 61, Subpart M and EPA 340/1-90-019 that means to sufficiently mix or penetrate with liquid to prevent the release of particulates. If visible emissions are observed coming from asbestos-containing material (ACM), then that material has not been adequately wetted. However, the absence of visible emissions is not sufficient evidence of being adequately wetted.
6. **Airlock** - system for permitting ingress or egress of personnel without permitting air movement between a contaminated area and a uncontaminated area, typically consisting of two curtained doorways at least 3 feet apart.
7. **Air Monitoring** - the process of measuring the fiber content of a specific volume of air during a stated period of time.
8. **Amended Water** - water containing a wetting agent or surfactant with a surface tension of at least 29 dynes per square centimeter when tested in accordance with ASTM D 1331.
9. **Asbestos** - the general name given to a group of fibrous mineral forms including chrysotile, amosite, crocidolite, anthophyllite, tremolite, and actinolite.

10. **Asbestos Regulated Work Area** - An asbestos regulated work area is an area contained and controlled either by an enclosed containment (full containment area or mini-containment area), modified containment, glove bag or outdoor techniques, where asbestos-containing materials (ACM) operations are performed and isolated by physical boundaries to prevent the spread of ACM and control access to authorized persons. A full containment, mini-containment area, modified containment, and glove bag work area is isolated within a containment enclosure in which ACM operations are performed. An outdoor regulated work area is not isolated within a containment enclosure, but is otherwise secured by means of physical barriers, boundary warning tape, and signage, etc., to control access by unauthorized persons.

11. **Asbestos Consultant** - Asbestos Consultant hired by the Government to provide asbestos abatement consulting services as specified herein.

12. **Category I Non friable ACM** - A term as defined in 40 CFR 61, Subpart M and EPA 340/1-90-018 that means asbestos-containing packings, gaskets, resilient floor covering, and asphalt roofing products containing more than 1 percent asbestos as determined using the method specified in 40 CFR 763, Appendix A, Subpart F, Section 1, Polarized Light Microscopy.

13. **Category II Non friable ACM** - A term as defined in 40 CFR 61, Subpart M and EPA 340/1-90-018 that means any material, excluding Category I non friable ACM, containing more than 1 percent asbestos as determined using the methods specified in Appendix A, Subpart F, 40 CFR 763, Section 1, Polarized Light Microscopy, that when dry, cannot be crumbled, pulverized, or reduced to powder by hand pressure.

14. **Class I Asbestos Work** - Activities involving the removal of TSI and surfacing ACM and PACM.

15. **Class II Asbestos Work** - Activities involving the removal of ACM that is not TSI or surfacing material. This includes, but is not limited to, the removal of asbestos-containing wallboard, floor tile and sheeting, roofing and siding shingles, and construction mastics.

16. **Class III Asbestos Work** - Repair and maintenance operations, where ACM, including TSI and surfacing ACM and PACM, may be disturbed.

17. Class IV Asbestos Work - Maintenance and custodial activities during which employees handle but do not disturb ACM or PACM and activities to clean up dust, waste and debris resulting from Class I, II and III activities.

18. **Clean Room** - an uncontaminated area or room which is part of the worker decontamination enclosure system, with provisions for storage of workers' street clothes and protective equipment. Also known as the "Change Room".

19. **Contracting Officer's Representative (COR)** - the authorized representative of the Contracting Officer.

20. **Critical Barrier** - Seal applied to openings connecting the abatement area with adjacent spaces that will not be included in the containment. Critical barriers shall not be exposed to the gross removal environment. Examples of openings requiring critical barriers include, but are not limited to: heating, ventilating and air conditioning (HVAC) vents and diffusers; doorways; windows; floor, wall, and ceiling penetrations; and air plenums.

21. **Curtained Doorway** - a device to allow ingress or egress from one room to another while minimizing air movement between the rooms. Two curtained doorways spaced a minimum of 3 feet apart form an airlock.

22. **Decontamination Enclosure System** - a series of connected rooms, with curtained doorways between any two adjacent rooms, for the decontamination of workers or of materials and equipment. A worker decontamination enclosure system typically contains five airlocks (rooms). An equipment decontamination system typically contains three airlocks (rooms).

23. **Encapsulation** - the sealing of asbestos surfaces involving application of a material (encapsulant) that will envelop or coat the fiber matrix and eliminate fiber fallout and protect against contact damage.

24. **Enclosure** - procedures necessary to completely enclose material containing asbestos behind airtight, impermeable, permanent barriers.

25. **Equipment Decontamination Enclosure System (or Load-Out Unit)** - a decontamination enclosure system for materials and equipment, typically consisting of an airlock, a washroom, and a holding area.

26. **Equipment Room** - a contaminated area or room which is part of the worker decontamination enclosure system, with provisions for storage of contaminated clothing and equipment.

27. **Fixed Object (Immoveable object)** - a unit of equipment or furniture in the work area which cannot be removed from the work area.

28. **Friable ACM** - A term as defined in 40 CFR 61, Subpart M and EPA 340/1-90-018 that means any material containing more than 1 percent asbestos as determined using the method specified in 40 CFR 763, Appendix A, Subpart F, Section 1, Polarized Light Microscopy, that when dry, can be crumbled, pulverized, or reduced to powder by hand pressure.

29. **Glove-Bag** - A 6 to 12-mil plastic bag fitted with long-sleeved gloves, a tool pouch and an opening for amended water and sealant application.

30. **Government's Testing Laboratory** - Testing Laboratory employed by the Government to provide area ambient monitoring, monitoring during removal, clearance monitoring and other special testing services.

31. **HEPA Filter** - a High Efficiency Particulate Absolute (HEPA) filter capable of trapping and retaining 99.97 percent of asbestos fibers greater than 0.3 microns in length.

32. **HEPA Vacuum Equipment** - vacuuming equipment equipped with a HEPA-filtration system.

33. **Holding Area** - a chamber between the washroom and uncontaminated area in the equipment decontamination enclosure system. The holding area comprises an airlock.

34. **Moveable Object** - a unit of equipment or furniture in the work area which can be removed from the work area.

35. **Non friable ACM** - A term as defined in 40 CFR 61, Subpart M and EPA 340/1-90-018 that means any material containing more than 1 percent asbestos as determined using the method specified in 40 CFR 763, Appendix A, Subpart F, Section 1, Polarized Light Microscopy, that, when dry, cannot be crumbled, pulverized or reduced to powder by hand pressure.

36. **Plastic Sheeting** - plastic sheet material of specified type and thickness used for protection of walls, floors, etc., and used to seal openings into the work area.

37. **Presumed ACM (PACM)** - Thermal system insulation, surfacing material and resilient flooring material found in buildings constructed no later than 1980.

38. **Procuring Contracting Officer (PCO)** - the authorized representative of the government.
39. **Removal** - the act of removing asbestos-containing or contaminated materials from the structure under properly controlled conditions to a suitable disposal site.
40. **Shower Room** - a room constituting an airlock, between the clean room and the equipment room in the worker decontamination enclosure system, with hot and cold or warm running water suitably arranged for complete showering during decontamination.
41. **Surfacing Material** - Material that is sprayed, troweled-on or otherwise applied to surfaces (such as acoustical plaster on ceilings and fireproofing materials on structural members, or other materials on surfaces for acoustical, fireproofing, and other purposes).
42. **Surfactant** - a chemical wetting agent added to water to improve penetrating ability, thus reducing the quantity of water required to saturate asbestos-containing materials.
43. **Thermal System Insulation (TSI)** - Material applied to pipes, fittings, boilers, breaching, tanks, ducts, or other structural components to prevent heat loss or gain.
44. **Time-Weighted Average (TWA)** - The TWA is an 8-hour time weighted average of airborne concentration of fibers (longer than 5 micrometers) per cubic centimeter of air which represents the employee's 8-hour workday as determined by Appendix A of 29 CFR 1926, Section 1926.1101.
45. **Washroom** - a room between the work area and the holding area in the equipment decontamination enclosure system. The washroom comprises an air lock.
46. **Wet Cleaning** - the process of eliminating asbestos contamination from building surfaces and objects by using cloths, mops, or other cleaning tools which have been dampened with amended water, disposing of these cleaning tools as asbestos-contaminated waste.
47. **Work Area** - area or areas of project which undergo abatement or are contaminated.
48. **Worker Decontamination Enclosure System** - a decontamination enclosure system for workers, typically consisting of a clean room, an airlock, a shower room, an airlock, and an equipment room.

4.03 REFERENCE STANDARDS

A. Acknowledge, by execution of the Contract, awareness and familiarity with the contents and requirements of the following regulations, codes, standards, and guidance documents. Assume responsibility for the performance of the Work in strict compliance with these documents and for every instance of failure to comply with these documents. The current issue of each document shall govern. Where conflict exists between these documents and the Work Procedures, the more stringent requirements shall apply.

1. EPA Regulations for Asbestos (40 CFR 61.140 - 61.157 and 40 CFR 763).
2. OSHA Asbestos Regulations (29 CFR 1910, 29 CFR 1926).

3. EPA Office of Toxic Substances Guidance Document, "Asbestos-Containing Materials in School Buildings", Part I and Part II.
4. U.S. Department of Education, Office of Elementary and Secondary Education (Code of Federal Regulations Title 34, Parts 230 and 231), Federal Register, Vol. 46, No. 11, January 16, 1981.
5. EPA Office of Pesticide and Toxic Substances Guidance Document, "Guidance for Controlling Friable Asbestos-Containing Materials in Buildings", EPA 560/5-85-024, June, 1985.
6. All state, county, and city codes and ordinances as applicable. Make available for review at the site one copy of EPA, OSHA, and applicable state, county and city regulations governing the Work.

4.04 WORKSITE CONDITIONS

A. Worker and Visitor Procedures: Contractor is hereby advised that asbestos has been determined by the U.S. Government to be a CANCER-CAUSING AGENT. Provide workers and visitors with respirators [which, as a minimum, meet the requirements of OSHA 29 CFR 1926.1101(h)(2)(i)] and protective clothing during all phases of the Work and until final air tests are accepted by Engineer.

4.05 PERSONNEL PROTECTION

A. Prior to commencement of work, instruct all workers in the appropriate procedures for personnel protection and asbestos removal. Ensure that workers are knowledgeable in these procedures.

B. Provide respiratory protection at all times, which is in compliance with OSHA requirements. When not in violation of the above, the minimum acceptable respiratory protection used for this project is half-face dual cartridge respirators, unless airborne fiber concentration inside the face mask exceed 0.01 fibers per cubic centimeter. In the event that airborne fiber concentrations inside the mask exceed 0.01 fibers per cubic centimeter, respiratory protection required to achieve 0.01 fibers per cubic centimeter shall be used. Provide additional "piggy-back" cartridges recommended by the product or solvent manufacturer whenever solvents are used.

C. Submit copies of personal air monitoring results to COR at completion of project.

D. Permit no visitors, except for governmental inspectors having jurisdiction, or as authorized by Engineer or Owner, in the work areas after commencement of asbestos disturbance or removal.

E. Provide workers sufficient sets of protective disposable clothing, consisting of full-body coveralls, head covers, gloves, and foot covers, of sizes to properly fit individual workers.

F. Leave reusable equipment, apparel and protection devices (excluding respirators) in the work area until the end of the asbestos abatement work, at which time such items shall be disposed of as contaminated waste or decontaminated for reuse.

G. Provide suitable respirators and protective equipment for use by authorized visitors, Owner, Engineer and Testing Laboratory's representatives. Furnish these in as many sets as required for full-time monitoring by Testing Laboratory.

H. Provide and post in the Clean Room the asbestos removal decontamination and work procedures to be followed by workers.

4.06 MATERIALS

A. **Mastic Remover** - Manufactured by a reputable, established manufacturer of floor mastic (adhesive) remover materials and approved specifically for use in asbestos-contaminated environments. Provide product compatibility for usage in confined areas. Flash Point shall be greater than 140 degrees Fahrenheit as determined by ASTM D 92. Product waste shall not meet the definition of hazardous waste under the EPA hazardous waste regulations 40 CFR 261.

B. **Glove-Bag** - Six-mil or greater thickness, in size sufficient to allow airtight seal around pipe. Separate tool pouch and openings for amended water or sealant and HEPA-vacuum must be present.

C. **Impermeable Containers** - suitable to receive and retain asbestos-containing or contaminated materials until disposal at an approved site and labeled. Containers shall be both air and water tight.

D. **Plastic Sheeting** - thickness as specified, in sizes to minimize the frequency of joints. Use of "spray-on poly" is not permitted without Owner's approval.

E. **Sealant (encapsulant)** - manufactured by reputable, established manufacturer of encapsulant/sealant materials and approved specifically for use in asbestos-contaminated environments. Determine compatibility of the sealant with the materials and conditions.

F. **Surfactant (Wetting Agent)** - mixture of "Dust-Set Amended Water Base: (Matheson Chemical Corporation) or equivalent and water, mixed to manufacturer's specifications.

G. **Tape** - glass fiber or other type capable of sealing joints of adjacent sheets of plastic and for attachment of plastic sheet to finished or unfinished surfaces under both dry and wet conditions.

H. **Warning Labels and Signs** - as required by OSHA 29 CFR 1926.58 and EPA 40 CFR 61.150.

I. **Other Materials** - provide all other materials, such as lumber, nails and hardware, which may be required to construct and dismantle the decontamination system and the barriers that isolate the work area. All lumber to be used shall be fire-retardant.

4.07 TOOLS AND EQUIPMENT

A. Provide suitable tools for asbestos-containing material removal.

1. **Air Purifying Equipment** (for internal recirculation in the work area) - HEPA Filtration Systems or Electronic Precipitators. Verify that no internal air movement system or purification equipment exhausts contaminated air from inside the work area into uncontaminated areas.
2. **Glove-Bag** - suitable for the removal of the pipe insulation.
3. **Scaffolding** - as required to accomplish the specified work and meet all applicable safety regulations.
4. **Transportation** - as required for loading, temporary storage, transit, and unloading of contaminated waste without exposure to persons or property. Use only enclosed or covered trucks to haul waste containers to prevent loss or damage of containers in route to the landfill.
5. **Water Sprayer** - utilize airless or other low pressure sprayer for amended water application.

4.08 PREPARATION

A. Coordinate sequence of work area preparation throughout the building with Owner and other trades to properly segregate work areas from areas that must remain fully or partially operational or in which other construction is being performed.

B. Preparation of Glovebag for Removal of Friable - Thermal System Insulation (Pipe and Equipment Insulation).

1. Coordinate with Owner for HVAC supplying work area to remain off during all abatement activities.
2. Install one layer 6-mil (true thickness) plastic sheeting on floor below work area extending at least 3 feet beyond the glove-bag in each direction.
3. Check pipe along entire length for damaged insulation. If damaged insulation is found, wrap the area with one layer of 6-mil plastic sheeting and seal with duct tape during the removal. If a large portion of the insulation is damaged wrap the entire length in one layer, 6-mil plastic sheeting and seal with duct tape.
4. Place all necessary tools for removal in glove-bag before attaching to pipe.
5. Place at least one layer of duct tape around the pipe at each location where the glove-bag will be attached to ensure an airtight seal. Secure glove-bag to pipe with sufficient duct tape to ensure the bag does not pull loose during removal.
6. Attach the HEPA-vacuum unit to the glove-bag to provide a negative pressure in the bag.

7. In the presence of Engineer, smoke test the glove-bag. If a leak is detected, reseal and retest bag. Turn on the HEPA-vacuum to clear the smoke and further test the seal.
8. Construct a three-stage worker/equipment decontamination unit consisting of an airlock, shower, and a clean room. Construct decontamination unit of appropriate materials (including plastic sheeting) to provide airtight barriers and allow continuous diminished pressure to be maintained in work areas. Provide proper decontamination equipment (water sprayer, towels, etc.) in the airlock to allow workers to properly decontaminate prior to exiting the airlock or removing materials from the work area. Post OSHA decontamination procedures in Change Room for duration of Project.
9. Use decontamination procedures, as described here, for personnel in work area.
   a. Two sets of protective disposable clothing will be work while in work area.
   b. Remove the outer set of protective clothing inside the work area, immediately before entering the airlock.
   c. HEPA-vacuum and remove the inner suit prior to leaving the airlock.
   d. Dispose of all used protective clothing as asbestos-contaminated waste.
10. Notify Engineer for observation of the completion of work area preparation prior to disturbing asbestos-containing material.

C. Preparation of Work Area for Removal of Transite (Interior & Exterior)

1. Remove movable and fixed objects from the work area as necessary to access asbestos-containing materials and dispose of as construction waste.
2. Install barriers of asbestos warning tape along the perimeter of the work area and post warning signs at 15 foot intervals around the perimeter. Maintain a minimum distance of 10 feet between where asbestos-containing materials are being removed and the work area perimeter.
3. Maintain a Sign In/Out Log near the work area to be utilized by every person, each time upon entering and leaving the work area.
4. Use "double-suit" decontamination procedures as follows:
   a. One set of protective disposable clothing will be worn while performing glove-bag removal.
   b. Remove the outer set of protective clothing in the work area and proceed to the centralized decontamination unit to complete the decontamination process.
   c. Inside the decontamination unit airlock, wet clean or HEPA-vacuum respirator and exposed portions of the body. Then HEPA-vacuum and remove the inner suit prior to entering shower.
   d. Maintain respiratory protection throughout the decontamination process. Dispose of all used protective clothing and disposable filter cartridges as asbestos-contaminated waste.
5. Install scaffolding as required to access the asbestos-containing materials.

6. Install one layer of 6-mil plastic sheeting on the floor below the work area extending at least 3 feet beyond the material to be removed in each direction.
7. Establish and maintain a Sign In/Out Log in the immediate vicinity of the work area to be utilized by every person, each time upon entering and leaving the work area.
8. Notify Engineer for observation of the completion of work area preparation prior to disturbing asbestos-containing material. Observation by Engineer must indicate substantial compliance with the preparation requirements to continue with the Work.

D. Preparation of Work Area Enclosure for Removal of Floor Tile.
(RFCI) – Should walls enclosing Work Area not present

1. Remove movable and fixed objects from the work area as necessary to access asbestos-containing materials and clean and relocate to area designated by Owner for future disposal by demolition contractor as construction waste.
2. Install asbestos warning barrier tape and signs to segregate and demarcate work area from occupied or non-occupied areas. Maintain a minimum clear distance of 10 feet from the work location and the demarcated perimeter.
3. Maintain a Sign In/Out Log in the immediate area of the entrance to the work area to be utilized by every person, each time upon entering and leaving the work area.
4. Use decontamination procedures, as described here, for personnel in work area.
   a. Two sets of protective disposable clothing will be work while in work area.
   b. Remove the outer set of protective clothing inside the work area.
   c. HEPA-vacuum and remove the inner suit prior to leaving the work area.
   d. Dispose of all used protective clothing as asbestos-contaminated waste.
5. Place work area under diminished air pressure utilizing HEPA filtration systems which comply with ANSI Z9.2-79, local exhaust ventilation. Ensure that odors from solvents to be used do not permeate to other occupied or public areas of the facility.
6. Notify Asbestos Consultant for observation of the completion of work area preparation prior to disturbing asbestos-containing material.

E. Preparation of Work Area Enclosure for Removal of Floor Tile.
(Walls remaining intact in Work Area)

1. Coordinate with Owner for HVAC inside or supplying work area to remain off during all abatement activities.
2. Install critical barriers and seal all openings and equipment within work area with a minimum of two layers of 6-mil (true thickness) plastic

sheeting. Where fire hazards exist install fire retardant plastic sheeting with the minimum of same thickness as stated above.
Notify Engineer for observation of the critical barriers prior to pre-cleaning work area.

4. Wet clean and HEPA-vacuum all immovable objects, equipment, walls and floor in the work area
5. Install two layers of 4-mil (true thickness) plastic sheeting on walls at a minimum height of 18 inches to serve as splashguard.. Where fire hazards exist install fire retardant plastic sheeting with the minimum of same thickness as stated above.
6. Should the ceiling not be intact, install two layers of 4-mil (true thickness) plastic sheeting to extend the wall sheeting up and over the work area to provide a complete, segregated work area enclosure. Provide at least 18 inches of overlap with wall sheeting. Where fire hazards exist install fire retardant plastic sheeting with the minimum of same thickness as stated above.
7. Construct a three-stage worker/equipment decontamination unit consisting of an airlock, shower, and a clean room. Construct decontamination unit of appropriate materials (including plastic sheeting) to provide airtight barriers and allow continuous diminished pressure to be maintained in work areas. Provide proper decontamination equipment (water sprayer, towels, etc.) in the airlock to allow workers to properly decontaminate prior to exiting the airlock or removing materials from the work area. Post OSHA decontamination procedures in Change Room for duration of Project.
8. Use decontamination procedures, as described here, for personnel in work area.
   a. Two sets of protective disposable clothing will be work while in work area.
   b. Remove the outer set of protective clothing inside the work area, immediately before entering the airlock.
   c. HEPA-vacuum and remove the inner suit prior to leaving the airlock.
   d. Dispose of all used protective clothing as asbestos-contaminated waste.
9. Place each work area under diminished air pressure utilizing HEPA filtration systems, which comply with ANSI Z9.2-79, local exhaust ventilation. Ensure that odors from solvents to be used do not permeate to other occupied or public areas of the facility.
10. Notify Engineer for observation of the completion of work area preparation prior to disturbing asbestos-containing material.

4.09 REMOVAL OF ASBESTOS-CONTAINING MATERIAL

A. Remove and properly dispose of all asbestos-containing materials scheduled for removal in the Work Procedures in accordance with the methods and procedures outlined in the OSHA 29 CFR 1926.1101 and as more stringently specified.

B. Removal of Thermal System Insulation (Pipe & Equipment Insulation)

1. Prepare work area as previously specified in Paragraph 4.08.B.
2. Use two people for glove-bag operation. One shall remove insulation, the other shall operate water sprayer and repair any leaks in bag.
3. At all times, keep insulation thoroughly wetted.
4. Care shall be taken not to puncture bag while cutting insulation.
5. Gently remove insulation from pipe and place it in bottom of bag.
6. After removal of insulation, brush and wet clean pipe or equipment to remove residual material. Continue wet cleaning until surfaces are free of visible material.
7. Spray all tools with water inside bag and place back in pouch.
8. Wet and double seal with plastic sheeting and duct tape, visible ends of remaining pipe insulation.
9. Spray the inside of the bag with amended water and remove the watering wand.
10. Insert the encapsulation wand and encapsulate all abated surfaces of the pipe and remaining pipe insulation. Remove the encapsulation wand and tape the bag opening closed.
11. Using the HEPA-vacuum, collapse the bag and seal off the lower portion containing the asbestos-containing material and gloves of the bag.
12. Remove the bag from the pipe, the tools from the pouch and the HEPA-vacuum from the bag.
13. Consider the glove-bag the first container for the material. Place the glove-bag in an appropriately labeled, 6-mil plastic bag and remove from work area. Dispose of sealed bags properly using appropriate disposal procedures.
14. After removal of the glove-bag, wet clean and HEPA-vacuum all surfaces in the work area to remove residual accumulated material. Continue wet cleaning until surfaces are visibly free of material.
15. Notify Engineer for observation of the completion of cleaning. Surfaces will be considered clean when free from dust, dirt, residue, film, or discoloration resultant from abatement operations or other activities subordinate to these operations.

C. Removal of Thermal System Insulation (Pipe & Equipment Insulation) as an Individual Component

1. Prepare work area as previously specified in Paragraph 4.08.B.
2. Drain and purge all piping to be removed.
3. Cut pipe hangers and piping safely to the ground prior to wrapping with plastic sheeting.
4. Wrap entire pipe or ductwork in 2 layers of 6-mil plastic sheeting, seal ends with duct tape.
5. Cut the pipe or ductwork at sealed ends.
6. Double seal with 6-mil plastic sheeting and duct tape, the exposed ends of cut piping or ductwork. Remove sealed material from the work area and dispose of using appropriate disposal procedures.

7. Notify Engineer for observation of the completion of removal of pipe and pipe insulation.

D. Removal of Transite Panels (Interior & Exterior)

1. Prepare work area as previously specified in Paragraph 4.08.C.
2. Utilize vertical lift equipment as necessary to access transite panels for removal.
3. Spray amended water to areas of transite where bolt/nail attachments are utilized to secure the panels to the building structure.
4. Remove bolt/nail attachments and detach the transite panels in whole pieces from the structure, lower to the ground and wrap in two layers of 6-mil properly labeled plastic sheeting. After removal of the asbestos-containing material, wet clean and HEPA-vacuum all surfaces in the work area to remove residual accumulated material. Continue wet cleaning until surfaces are visibly free of material.
5. Notify Engineer for observation of the completion of cleaning. Surfaces will be considered clean when free from dust, dirt, residue, film, or discoloration resultant from abatement operations or other activities subordinate to these operations.

E. Removal of Floor Tile and Mastic. (RFCI)

1. Prepare work area as previously specified.
2. Utilize a radiant heat source to reduce the adhesion strength of the floor tile with the mastic and floor substrate per manufacturer's recommendation.
3. Allow floor tile and mastic to cool prior to placing the material in a properly labeled sealable plastic bag of 6-mil minimum thickness, and remove from work area.
4. Spray amended water as necessary to keep the floor tile and mastic under a wet-condition to minimize fiber dispersion during the removal process.
5. As necessary, apply mastic remover to dissolve the mastic used to adhere the floor tile to the concrete slab. The mastic remover is to be used per the manufacturer's recommendations.
6. After removal of asbestos-containing material, wet-clean and HEPA-vacuum all surfaces in the work area to remove residual accumulated material. Continue wet-cleaning until surfaces are visibly free of material.
7. Notify Asbestos Consultant for observation of the completion of cleaning.

F. Removal of Floor Tile and Mastic. (Non – RFCI)

1. Prepare work area as previously specified.
2. Spray areas of asbestos-containing material with amended water using spray equipment capable of providing a "mist" application to reduce the release of fibers. Spray the asbestos-containing material repeatedly

during work process to maintain wet condition but do not use excessive amounts of water.

3. As necessary, apply mastic remover to dissolve the mastic used to adhere the floor tile or floor sheeting to the concrete slab. The mastic remover is to be used per the manufacturer's recommendations.
4. Remove floor tile or floor sheeting. As it is removed, place the material in a properly labeled sealable plastic bag of 6-mil minimum thickness, and remove from work area.
5. After removal of asbestos-containing material, wet-clean and HEPA-vacuum all surfaces in the work area to remove residual accumulated material. Continue wet-cleaning until surfaces are visibly free of material.
6. Notify Engineer for observation of the completion of cleaning.

4.10 CLEAN UP AND CLEARANCE TESTING

A. Provide general clean-up of work area concurrent with the removal of all asbestos-containing materials. Do not permit accumulation of debris on workspace floor.

B. Clean-Up Sequence

1. Remove all visible accumulations of asbestos-containing material and debris.
2. Wet clean and HEPA-vacuum all surfaces in the work area.
3. Clean all equipment and materials used in the work area and remove from work area.

C. Final Air Clearance Testing

1. Testing Laboratory will test for the final air clearance levels upon notice from Contractor that work areas are considered by Engineer as visually decontaminated. Final air clearance testing shall be performed using Phase Contrast Microscopy (PCM) analysis.
   a. If the final air clearance samples indicate a fiber level of less than or equal to background levels or 0.01 fibers per cubic centimeter, whichever is greater in the work will be considered completed.
   b. Re-clean and continue to clean at Contractor's expense, areas which do not comply with the specified final clearance level. Contractor to bear cost of all follow-up tests necessitated by the failure of the air tests to meet the specified clearance level.
2. Upon achieving final air clearance, dismantle Decontamination Enclosure Systems and thoroughly wet clean and HEPA-vacuum immediate areas.
3. Dispose of debris from removal operations, used cleaning materials, unsalvageable materials used for sturdy barriers, and any other remaining materials. Consider the materials to be contaminated, and dispose of accordingly.
4. Dispose of debris from removal operations, used cleaning materials, unsalvageable materials used for sturdy barriers, and any other remaining

materials. Consider the materials to be contaminated, and dispose of accordingly.

4.11 DISPOSAL OF ASBESTOS-CONTAMINATED WASTE

A. Perform bag decontamination procedures as follows:

1. As bags is moved out through the air lock, wet-wipe bags to remove all contamination from them before they are moved into an uncontaminated space.
2. Place bagged waste into appropriately labeled second 6-mil (true thickness) bag for transport to landfill.
3. Label asbestos-containing/contaminated waste in accordance with EPA 40 CFR 61.150.
4. Transport bagged waste on-site inside an enclosed dolly. Enclose and secure top of dolly with a minimum of 6-mil opaque plastic sheeting.

B. Transportation to landfill shall be performed in accordance with all federal, state, and local laws and regulations.

1. Place bags in the lockable, fully enclosed, metal waste disposal container, which has been lined with a minimum of one layer of 6-mil plastic sheeting.
2. Transport contaminated waste using a transporter licensed by the Texas Department of Health to transport asbestos waste.
3. Provide Texas Natural Resource Conservation Commission manifests for transportation of all contaminated waste to landfill.

C. Removal sealed and labeled bags of contaminated material and wastes and transport them for disposal to an approved landfill as follows:

1. Notify Engineer prior to removing each waste disposal container from the jobsite.
2. Notify Owner and Engineer not less than 48 hours prior to the proposed time of delivery of contaminated waste to the landfill. Owner and Engineer may elect to observe this operation.
3. Dispose of treated, packaged, labeled, asbestos-containing waste material in accordance with EPA 40CFR 61.150.
4. Allow only sealed plastic bags or impermeable containers to be deposited in landfill.
5. Ensure that there are no visible emissions to the outside air from site where materials and waste are deposited.
6. Submit copies of receipts from authorized representative of landfill operator for each delivery of waste material to Engineer after each delivery and a complete set of copies of receipts for all deliveries.

4.12 INSPECTION/FINAL ACCEPTANCE

A. Provide general clean-up of work area concurrent with the removal of all asbestos-containing materials and demolition waste. Do not permit accumulation of debris on workspace floor.

B. The COR will observe each work area and review the abatement documentation records for completeness.

C. Upon satisfactory review status by the COR, the COR will notify the cognizant HQ, JMC Procuring Contracting Officer (PCO) in writing to that effect.

END OF SECTION

5.0 LEAD ABATEMENT

5.01 DESCRIPTION

A. Perform all planning, administration, execution, and cleaning necessary to safely remove and dispose of loose and flaking lead-based paint. Loose and flaking lead-based paint are to be removed prior to demolition of building structures.

B. Approval of or acceptance by Owner of various construction activities or methods proposed by Contractor does not constitute an assumption of liability either by the Engineer or Owner for inadequacy or adverse consequences of said activities or methods.

5.02 WORK INCLUDED

A. The Work includes, but is not limited to, the following

1. Demolition of items as necessary to access lead materials.
2. Waste characterization of lead-containing materials for proper disposal.
3. Removal and containerization of lead materials identified.
5. Placement of all lead waste generated as a result of work activities in DOT approved drums.
6. Disposal of all lead materials and lead waste.

5.03 DEFINITIONS

A. The following definitions pertain to this section of these Contract Documents.

1. **Abatement** - the elimination of exposure to lead-containing substances that may result in lead toxicity or poisoning by the removal, encapsulation, or enclosure of lead-containing substances, by thorough cleanup procedures, and by post-cleanup treatment of surfaces.
2. **Air Monitoring** - the process of measuring the lead content of a specific volume of air during a stated period of time.
3. **ANSI** - American National Standards Institute.
4. **ASTM** - American Society for Testing and Materials.
5. **Clean Room** - an uncontaminated area of room which is part of the worker decontamination enclosure system, with provisions for storage of workers' street clothes and protective equipment. Also known as the "Change Room."
6. **Cleaning Solution** - TSP detergent and hot water mixed according to the manufacturer's recommendations.
7. **Decontamination Enclosure System** - a series of connected rooms, with curtained doorways between any two adjacent rooms, for the decontamination of workers or of materials and equipment. A worker decontamination enclosure system always contains at least five airlocks (rooms). An equipment decontamination system always contains at least three airlocks (rooms).
8. **Encapsulation** - to resurface or cover surfaces and to seal or caulk seams with durable material, so as to prevent or control chalking, flaking lead-containing substances from being reduced to dust.

9. **Enclosure** - procedures necessary to completely enclose material containing lead-containing substances behind airtight, impermeable, permanent barriers.
10. **EPA** - United States Environmental Protection Agency.
11. **Equipment Decontamination Enclosure System** - a decontamination enclosure system for materials and equipment, typically consisting of an airlock, a washroom, and a holding area.
12. **Equipment Room** - a contaminated area or room which is part of the worker decontamination enclosure system, with provisions for storage of contaminated clothing and equipment.
13. **Fixed Object (Immoveable object)** - a unit of equipment or furniture in the work area which cannot be removed from the work area.
14. **HEPA Filter** - a High Efficiency Particulate Absolute (HEPA) filter capable of trapping and retaining at least 99.97 percent of all monodispersed particles 0.3 microns in diameter or larger.
15. **HEPA Vacuum Equipment** - vacuuming equipment equipped with a HEPA-filtration system.
16. **Holding Area** - a chamber between the washroom and uncontaminated area in the equipment decontamination enclosure system. The holding area comprises an airlock.
17. **Lead Abatement Project** - any work performed in order to abate the presence of a lead-containing substance.
18. **Lead-Containing Substance** - any paint, plaster or other surface coating material containing more than 0.5 percent lead by weight calculated as lead metal in the dried solid, or more than 1.0 milligrams per square centimeter by X-ray fluorescence.
19. **Movable Object** - a unit of equipment or furniture in the work area which can be removed from the work area.
20. **MSHA** - Mine Safety and Health Administration.
21. **NEC** - National Electrical Code.
22. **NIOSH** - National Institute for Occupational Safety and Health.
23. **OSHA** - Occupational Safety and Health Administration.
24. **Plastic Sheeting** - plastic sheet material of specified thickness used for protection of walls, floors, etc., and used to seal openings into the work area.
25. **Removal** - the act of removing lead-containing or contaminated materials from the structure under properly controlled conditions to a suitable disposal site.
26. **Shower Room** - a room constituting an airlock, between the clean room and the equipment room in the worker decontamination enclosure system, with hot and cold or warm running water suitably arranged for complete showering during decontamination.
27. **TCLP** - EPA Toxic Characteristic Leaching Procedure (TCLP) for determining toxicity characteristics of waste materials.
28. **TSP** - Trisodium Phosphate.
29. **Wet Cleaning** - the process of eliminating lead contamination from building surfaces and objects by using cloths, mops, or other cleaning tools which have been dampened with cleaning solution, disposing of these cleaning tools as lead waste.

30. **Washroom** - a room between the work area and the holding area in the equipment decontamination enclosure system. The washroom comprises an air lock.
31. **Work Area** - area or areas of Project which undergo abatement or are contaminated.
32. **Worker Decontamination Enclosure System** - a decontamination enclosure system for workers, typically consisting of a clean room, an airlock, a shower room, an airlock, and an equipment room.

5.04 QUALIFICATIONS FOR PERFORMANCE OF WORK

A. Contractor (or subcontractor) engaged to perform the Work of this Section shall have a record of not less than three years successful experience in lead-based paint removal and related work similar in scope and magnitude to this Project.

B. Maintain on site a Superintendent and one Job Foreman. Superintendent and Job Foreman must be approved by Owner prior to the start of the Work of this Section and shall not be changed without prior approval from Owner. Job Foreman shall remain in the work area at all times work is in progress.

C. Use only trained and experienced lead-based paint removal workers to perform the Work in this Section.

5.05 REFERENCE STANDARDS

A. Acknowledge, by execution of the Contract, awareness and familiarity with the contents and requirements of the following regulations, codes, standards, and guidance documents. Assume responsibility for the performance of the Work in strict compliance with these documents and for every instance of failure to comply with these documents. The current issue of each document shall govern. Where conflict exists between these documents and the Contract Documents, the more stringent requirements shall apply.

1. Environmental Protection Agency (EPA) Regulations: Regulations Identifying Hazardous Waste (40CFR 261); Regulations for Hazardous Waste Generators (40CFR 262); Regulations for Hazardous Waste Transporters (40CFR 263).
2. Occupational Safety and Health Administration (OSHA) Regulations: Respiratory Protection Standard (29CFR 1910.134); General Industry Standards for Lead (29CFR 1910.1025); Hazard Communication Program (29CFR 1926.59); Construction Industry Standards for Lead (29CFR 1926.62)
3. Department of Housing and Urban Development (HUD) Lead-Based Paint Guidelines for Public and Indian Housing (55CFR 14556-14789).
4. U.S. Department of Transportation (DOT) Hazardous Material Regulations (49CFR 171-179).
5. EPA Resource and Recovery Act (RCRA).
6. National Institute of Occupational Safety and Health (NIOSH) Occupational Health Guidelines for Chemical Hazards (NIOSH 81-123).
7. American National Standard Institute (ANSI) Publication on Practices for Respiratory Protection (Z88.2-80).

8. All federal, state, county, and city codes and ordinances as applicable. Make available for review at the site one copy of EPA, OSHA, HUD, and applicable state, county and city regulations governing the Work.

5.06 PRODUCT HANDLING

A. Deliver all materials in the original packages, containers, or bundles bearing the name of the manufacturer and the brand name.

B. Store all materials subject to damage off the ground, away from wet or damp surfaces, and under cover sufficient to prevent damage or contamination.

C. Remove from the premises all damaged or deteriorated materials. Dispose of materials that become contaminated with lead-containing substances in accordance with applicable regulatory standards and these specifications.

5.07 WORKSITE CONDITIONS

A. Worker and Visitor Procedures: Contractor is hereby advised that lead has been determined by the U.S. Government to be a toxic substance. Provide workers and visitors with respirators [which, as a minimum, meet the requirements of OSHA 29CFR 1910.134] and protective clothing during all phases of the Work and until final observation and/or testing is completed.

5.08 PERSONNEL PROTECTION

A. Prior to commencement of work, instruct all workers in the appropriate procedures for personnel protection and lead removal. Ensure that workers are knowledgeable in these procedures.

B. Acknowledge and agree to sole responsibility for enforcing worker protection requirements at least equal to those specified in this Section.

C. Provide workers with personally issued and marked respiratory equipment approved by NIOSH and MSHA for the type of work being performed.

D. Where respirators with disposable filters are used, provide sufficient filters for replacement as necessary.

E. Provide respiratory protection at all times, which is in compliance with OSHA requirements. When not in violation of the above, the minimum acceptable respiratory protection used for this project shall be as follows:

1. Provide a minimum of half-face dual cartridge respirators for workers during pre-cleaning of work area, installation of plastic sheeting, and waste handling and disposal activities outside the work area.
2. Provide a minimum of Powered Air Purifying Respirator (PAPR) equipment for workers during all phases of the Work from the time of first disturbance of the lead materials until final observation or testing is performed.

3. Provide additional "piggy-back" cartridges recommended by the chemical manufacturer whenever chemicals are used, including but not limited to, chemical stripping.

F. Be solely responsible for scheduling necessary air sampling by an independent testing laboratory for compliance monitoring of own respiratory protection with OSHA regulations. Pay for all costs associated with such testing. In addition, submit copies of personal air monitoring results to Engineer daily.

G. Permit no visitors, except for governmental inspectors having jurisdiction, or as authorized by Engineer or Owner, in the work areas after commencement of lead disturbance or removal.

H. Provide workers with sufficient sets of protective disposal clothing, consisting of full-body coveralls, head covers, gloves, and foot covers, of sizes to properly fit individual workers.

I. Leave reusable equipment, apparel and protection devices (excluding respirators) in the contaminated equipment room until the end of the lead abatement work, at which time such items shall be disposed of as contaminated waste or decontaminated for reuse.

J. Provide suitable respirators and protective equipment for use by authorized visitors, Owner, Engineer and Testing Laboratory's representative.

K. Provide and post in an appropriately designated common area the lead removal decontamination and work procedures to be followed by workers.

5.09 MATERIALS

A. **Chemical Stripping Agents** - Shall be commercially available products intended for paint removal such as the "Peel Away Series" manufactured by Dumond Chemicals, or equivalent. Provide incidental products, such as neutralizers, as required by manufacturer's instructions and recommendations.

B. **Impermeable Containers** - Shall be suitable to receive and retain lead-containing or contaminated materials until disposal at an approved site and shall be labeled in accordance with U.S. DOT 49CFR 171-179. Containers shall be both air and water tight. As a minimum, utilize one of the following types of impermeable containers:

1. All lead-containing waste (lead-based paint debris) generated as a result of work activities shall be placed in 6-mil (true thickness), plastic bags. The bagged waste shall then be placed in sealed DOT 17C open top 55 gallon drums lined with 6-mil (true thickness) plastic bags sized to fit within each drum.
2. All loose flaking lead-based paint debris on surfaces of (walls, ceiling and floors) removed shall be stored in sealed DOT 17C open top 55 gallon drums lined with 6-mil (true thickness) plastic bags sized to fit within each drum.
3. All lead-contaminated disposable items used in the course of the work (rags, sorbents, protective clothing, plastic sheeting, etc.) shall be placed

in 6-mil (true thickness), plastic bags. The bagged waste shall then be placed in sealed DOT 17C open top 55 gallon drums lined with 6-mil (true thickness) plastic bags sized to fit within each drum. Contractor shall not place lead-containing waste in the same drum as the items described in this paragraph.

4. All liquids generated as a result of clean-up activities shall be disposed of in DOT 17E closed top drums.

C. **Plastic Sheeting** - thickness shall be six-mil or greater, in sizes to minimize the frequency of joints. Use of "spray-on poly" is not permitted without Owner's approval.

D. **Trisodium Phosphate Cleaning Solution** - Trisodium phosphate cleaning solution, such as Sentinel 805 (Sentinel Chemical Company) or equivalent and water, mixed to manufacturer's specifications.

E. **Tape** - glass fiber or other tape capable of sealing joints of adjacent sheets of plastic and for attachment of plastic sheet to finished or unfinished surfaces under both dry and wet conditions.

F. **Warning labels and signs** - Shall be as required by OSHA regulation 29CFR 1926.62 and U.S. DOT 49CFR 171-179 (for impermeable containers).

G. **Other Materials** - provide all other materials, such as lumber, nails and hardware, which may be required to construct and dismantle the decontamination system and the barriers that isolate the work area(s).

5.10 TOOLS AND EQUIPMENT

A. Provide suitable tools for asbestos-containing material removal.

1. **Air Purifying Equipment** - HEPA Filtration Systems. Verify that no internal air movement system or purification equipment exhausts contaminated air from inside the work area into uncontaminated areas.
2. **Half-Face Respirator Equipment** - negative pressure, half-face air purifying respirators approved by NIOSH and MSHA for lead removal work.
3. **Powered Air Purifying Respirator (PAPR) Equipment** - powered air purifying respirators (PAPRs) approved by NIOSH and MSHA for lead removal work.
4. **Scaffolding** - as required to accomplish the specified work and meet all applicable safety regulations.
5. **Transportation** - as required for loading, temporary storage, transit, and unloading of contaminated waste without exposure to persons or property. Use only enclosed vehicles or dumpsters to haul waste containers to prevent loss or damage of containers in route to the landfill.
6. **Water Sprayer** - utilize airless or other low pressure sprayer for cleaning solution application.

5.11 PREPARATION

A. Coordinate sequence of work area preparation throughout the site with Owner and other trades to properly segregate work areas from areas that must remain fully or partially operational or in which other construction is being performed.

B. Initial Work Area Preparation

1. Segregate the work area from other areas with lead abatement warning/barrier tape and caution signs. The warning/barrier tape and caution signs shall be placed a minimum of 25 feet away from each work area. The signs shall be at least 20" by 14" and include the phrase "Caution Lead Hazard, Keep Out" in bold lettering at least 2 inches high.
2. The following warning signs shall be posted immediately outside each work area.

"WARNING
LEAD WORK AREA
POISON
NO SMOKING OR EATING"

3. Maintain emergency and fire exits from the work areas, or establish alternative exits satisfactory to fire officials. Provide fire extinguishers inside and outside the work area.

C. Preparation of Work Area for Removal of Lead-Based Paint Coated Components

1. No further work area preparation is required as long as the lead coated components are removed intact and in their entirety.

5.12 REMOVAL OF LEAD-CONTAINING MATERIALS

A. Remove and properly dispose of lead-based paint scheduled for removal in the Contract Documents in accordance with the methods and procedures outlined in 40CFR 263, 49CFR 171-179, 55CFR 14556-14789 and as more stringently specified herein.

B. Clean Up and Disposal of Loose and Flaking Lead-Based Paint

1. Prepare work area as previously specified. Maintain diminished air pressure in the immediate vicinity of the stripping operation.
2. Spray areas where lead-based paint materials will be stripped with cleaning solution using spray equipment capable or providing a "mist" application to reduce the release of lead dust.
3. Carefully remove and place all paint chips and associated waste in 6-mil, plastic bags. The bagged waste shall then be placed in sealed DOT 17C open top 55 gallon drums lined with 6-mil plastic bags sized to fit within each drum.
4. Spray the lead-based paint materials repeatedly during the work process to control lead dust.
5. At the end of each work day, perform daily cleanup of the work area. The daily cleanup will include:

a. HEPA vacuum all surfaces in the work area.
b. Using disposable towels, wet clean all surfaces in the work area with TSP cleaning solution. To minimize recontamination, do not recycle TSP cleaning solution or reuse towels.

6. Notify Engineer for observation of the completion of cleaning. Surfaces will be considered clean when free from dust, dirt, and residue.

C. Removal of Lead-Based Paint Coated Components

1. Remove designated lead-based paint coated components and place in a secure area until TCLP tests are performed.
2. If lead-coated items are determined through TCLP testing to be non-hazardous, dispose of as construction waste. If items are determined to be hazardous, double-wrap items in two individually sealed layers of 6-mil (true thickness) plastic sheeting, appropriately labeled, and dispose as hazardous waste.
3. Notify Engineer for observation of the completion of the removal.

5.13 CLEAN UP OF WORK AREA

A. Consider work areas and all other decontaminated and cleaned areas clean when:

1. A visual observation of work area(s) has been performed by the Engineer and that the Engineer determines that the Abatement Contractor has met the specification requirements.
2. As deemed appropriate by the Engineer, wipe samples will be obtained on abated areas or adjacent surfaces during the project for Quality Control (QC) purposes. Sampled areas must have a lead residue level of 40 micrograms per square foot or less for floors and/or 100 micrograms per square foot or less for walls and ceilings to be considered decontaminated. If any wipe samples exceed the above allowable lead level, the Abatement Contractor will reclean these areas at his own expense.

5.14 LEAD RECYCLING/RECLAIMING

A. Lead materials may be sold to a recycler for reuse or a reclaimer for remelt that will accept the materials "as is". Lead materials that may be recycled or reclaimed include sheeting and window frames.

B. Alternatively, lead materials are to be containerized and disposed of as hazardous waste.

5.15 CONTAINERIZATION AND MARKING

A. All lead-containing waste (lead-based paint strippings and debris) generated as a result of work activities shall be placed in 6-mil (true thickness), plastic bags. The bagged waste shall then be placed in sealable DOT 17C open top 55 gallon drums lined with 6-mil (true thickness) plastic bags sized to fit within each drum.

B. All lead sheeting and window frames removed shall be stored in sealable DOT 17C open top 55 gallon drums lined with 6-mil (true thickness) plastic bags sized to fit within each drum.

C. All lead-contaminated disposable items used in the course of the work (rags, sorbents, protective clothing, plastic sheeting, etc.) shall be placed in 6-mil (true thickness), plastic bags. The bagged waste shall then be placed in sealable DOT 17C open top 55 gallon drums lined with 6-mil (true thickness) plastic bags sized to fit within each drum. Contractor shall not place lead-containing waste in the same drum as the items described in this paragraph.

D. All liquids generated as a result of clean-up activities shall be disposed of in DOT 17E closed top drums.

E. All drums shall be permanently marked as to specific contents and dated. In addition, each drum shall be marked with the standard EPA, PCB, M_L label, shown below:

CAUTION

CONTAINS
LEAD

A toxic environmental contaminant requiring special handling and disposal in accordance with US Environmental Protection Agency Regulations 40 CFR 761 - For Disposal Information contact the nearest US EPA Office

In case of accident or spill call toll free the US Coast Guard National Response Center
800 424-8802

Also Contact:
Tel. No.:

F. All drums shall be marked with the label (properly completed) shown below.

HAZARDOUS WASTE

FEDERAL LAW PROHIBITS IMPROPER DISPOSAL

IF FOUND, CONTACT THE NEAREST POLICE OF PUBLIC SAFETY AUTHORITY, OR THE U.S. ENVIRONMENTAL PROTECTION AGENCY

GENERATOR INFORMATION

NAME _____

ADDRESS _____ PHONE _____

CITY _____ STATE _____ ZIP _____

EPA MANIFEST
ID NO./DOCUMENT NO. _____/_____

ACCUMULATION
START DATE _____ EPA
WASTE NO. _____

_____

_____

_____

D.O.T. PROPER SHIPPING NAME AND UN OR NA NO. WITH PREFIX

HANDLE WITH CARE!

G. Notify Engineer for observation of the labeling of the drum(s) prior to moving the drum(s) to the storage area.

5.16 TEMPORARY ON-SITE STORAGE

A. All drums shall be sealed, secured and labeled before being moved to a temporary on-site storage location designated by the Owner. Handle drums with utmost care during transportation between removal area and storage area.

5.17 WASTE CHARACTERIZATION AND DISPOSAL

A. Lead waste materials (including strippings, wash water, protective clothing, plastic sheeting, etc.) from stripping and removal operations shall be

containerized separately by type of material and TCLP tested by Engineer to determine hazardous or non-hazardous toxicity characteristics prior to disposal. All non-hazardous waste shall be disposed as construction waste at a construction waste landfill. All hazardous waste shall be disposed at a Texas Natural Resource Conservation Commission registered hazardous waste facility.

B. All hazardous waste generated on this Project shall be disposed of at a registered hazardous waste disposal facility. Disposal facility to be used shall meet all Environmental Protection Agency and Texas Natural Resource Conservation Commission regulatory standards for disposal of hazardous waste.

C. Transportation to disposal facility shall be performed in accordance with all federal, state, and local laws and regulations.

1. Place sealed containers in enclosed truck, trailer or dumpster.
2. Transport hazardous waste using a transporter registered to transport hazardous materials.
3. Provide Uniform Hazardous Waste Manifests (Texas Natural Resource Conservation Commission form TNRCC-0311, current edition) for transportation of all hazardous waste to disposal facility.
4. Submit copies of waste manifests from authorized representative of disposal facility for each delivery of waste material to Engineer after each delivery and a complete set of copies of receipts for all deliveries.

5.18 PROCEDURE FOR DETERMINING COMPLIANCE

A. The Engineer will observe each work area during the lead abatement project to monitor compliance with regulations and specifications.

B. The observations performed shall be a visual observation to monitor whether surfaces requiring abatement have been abated.

C. As deemed appropriate by the Engineer, wipe samples will be obtained on abated areas or adjacent surfaces during the project for Quality Control (QC) purposes. If any wipe samples exceed the above allowable lead level, the contractor will reclean at his own expense these areas.

5.19 INSPECTION/FINAL ACCEPTANCE

A. Provide general clean-up of work area concurrent with the removal of all Lead-based paint materials and demolition waste. Do not permit accumulation of debris on workspace floor.

B. The COR will observe each work area and review the abatement documentation records for completeness.

C. Upon satisfactory review status by the COR, the COR will notify the cognizant HQ, JMC Procuring Contracting Officer (PCO) in writing to that effect.

END OF SECTION

6.0 SITE WORK - DEMOLITION

6.01 SUMMARY

6.01.1 This section specifies the requirements for demolition of facilities and structures.

6.01.2 Demolition may, but not necessarily, require removal and disposal, of the following:

6.01.2.1 Remove all facilities above the floor slab and dispose of legally.

6.01.2.2 Remove all grass, shrubs, vegetation, organic matter, and top soil in work areas, and stockpile topsoil at a location approved by the Owner.

6.01.2.3 Remove and dispose of shrubs and heavy vegetation hindering facilitation of demolition activities.

6.01.2.4 Abandon in place all utilities including, but not limited to: electrical, telephone, water, cable and gas safely and in accordance with the local governing agency. Nothing shall remain active or live on site.

6.01.2.5 Cap or plug each pipe, utility, and conduit left below ground.

6.01.2.6 Remove building structures, and other items not shown but which can be determined by visual inspection. Items indicated to be property of the Owner will be removed prior to start of work.

6.01.2.7 Provide site drainage during and at completion demolition of above ground structures.

6.01.2.8 Restore topsoil and evenly spread as required by Owner.

6.02 DEFINITIONS

6.02.1 Cap / Plug: Plug PVC plastic pipe with PVC cap glued to end of clean primered pipe.

6.02.2 Structures: All man-made facilities above and below ground.

6.03 SUBMITTALS

6.03.1 Submit demolition plan, proposed methods and operations of building demolition to Owner for review and approval prior to starting of work. Include required coordination by agencies for shut off, capping, and continuation of utility services

as required. Indicate site ingress/egress, haul roads, Pollution Prevention Plan (PPP), and provisions for protecting off site property.

6.03.2 Submit a drainage plan for demolition and completion of demolition.

6.03.3 Submit Notice of Intent for Pollution Prevention Plan by certified mail to appropriate governmental agencies at least 48 hours before Work begins.

6.04 QUALITY ASSURANCE

6.04.1 Unless they are modified or exceeded by the requirements of this Specification, conform to applicable parts of the following:

6.04.1.1 ANSI A10.6 "Safety Requirements for Demolition".

6.04.1.2 NFPA 30 Flammable and Combustible Liquids Code.

6.04.1.3 NFPA 241 Standard for Safeguarding Building Construction and Demolition Operations

6.04.2 Comply with applicable OSHA and EPA regulations and codes and local ordinances.

6.04.3 Occupancy: Structure on site may be utilized by contractor during a portion of the construction time for purposes of storage or offices.

6.04.4 Conditions of Structures: The owner assumes no responsibility for actual condition of structures to be demolished. Conditions existing at time of inspection for bidding purposes will be maintained by the Owner insofar as practicable. However, variations within structure and work site may occur prior to start of demolition work.

6.04.5 Salvaged Materials: Unless otherwise indicated, material and debris resulting from demolition operations is the property of the Contractor who shall remove them from the site often enough to prevent unsightly or unsafe accumulation. No sale of surplus materials shall be conducted on the site.

6.04.6 Traffic: Conduct demolition operations and removal of debris to ensure minimum interference with roads, streets, walks, and other adjacent occupied and used facilities. Do not close or obstruct streets, walks, or other occupied or used facilities without permission from authorities having jurisdiction. Provide alternate routes around closed or obstructed traffic ways if required by governing regulations.

6.04.6.1 Prepare traffic control plan.

6.04.7 Damages: Promptly repair damages caused to adjacent facilities by demolition operations.

6.04.8 Utility Services: Maintain existing utilities to stay in service and protect against damage during demolition operations. Make arrangements and pay the costs for disconnection, capping, and relocating services. Do not start demolition work until utility disconnections have been completed and verified in writing.

6.05 PROTECTION

6.05.1 General: Construct temporary dustproof barricades, walks, passage-ways, etc., that are necessary to protect persons and property from hazard or damage due to construction operations, and as required by applicable regulations. Design and construct such protections to have sufficient strength and of such materials as will accomplish their protective function.

6.05.2 Site: Offsite walks, lawns, other building, and other work on site, whether specifically indicated on the Project Drawings or not.

6.05.3 Streets and Sidewalks: Protect streets, sidewalks, curbs, etc., as necessary to prevent damage to them. Repair any damage caused by these operations. The entire section between expansion joints in which the damage occurs shall be replaced.

6.05.3.1 Patching of sidewalks or curbs shall be permitted.

6.05.3.2 Prevent soil, mud and debris from remaining on offsite property.

6.05.3.3 Clean offsite property daily.

6.05.4 Persons: Provide warning signs, hazard and service lights, etc., as necessary for the protection of persons from injury due to construction operations and as required by applicable regulations.

6.05.5 Remaining Structures - Fencing: Take precautions not to damage existing structures and perimeter fencing which are to remain. Promptly repair damages caused by demolition operations at no cost to Owner or adjacent property owners.

6.06 DEMOLITION SEQUENCE

6.06.1 Strip organic matter, topsoil and stockpile topsoil at location approved by Owner.

6.06.2 Demolish above slab as required.

6.06.3 Establish and maintain site drainage as required.

6.07 DEMOLITION

6.07.1 Pollution Controls: Use water sprinkling, temporary enclosures, and other suitable methods to limit dust and dirt rising and scattering in the air. Comply with governing EPA. OSHA, and local regulations pertaining to environmental protection. Do not create hazardous or objectionable conditions such as flooding and water pollution. Clean adjacent structure and improvements of dust, dirt, and debris caused by demolition operations, as directed by Owner's Representative, or governing authorities. Return adjacent areas to condition existing prior to start of work.

6.07.2 Existing Structures: Demolish building and structures to slab and remove from Work site. Use such methods as required to complete Work within limitations of governing regulations. Proceed with demolition in systematic manner, from top of structure to ground. Demolish concrete and masonry in small sections. Remove structural framing members and lower to ground by hoists, derricks, or other suitable methods. Break up and remove concrete slabs-on-grade, unless otherwise shown to remain. Locate demolition equipment throughout structure and remove materials so as to not impose excessive loads to supporting walls, floors, or framing. Demolish above grade structures to the level of existing grade.

6.08 DISPOSAL OF DEMOLISHED MATERIALS

3.3.1 General: Remove from work site debris, rubbish, and other materials resulting from demolition operations.

3.3.1.1 Burial of removed materials from demolished structures will be permitted at approved landfill location on site.

3.3.1.2 Dispose of legally.

3.3.2 Removal: Safely transport demolished materials and dispose of legally. Transportation and disposal shall be conducted by an authorized, licensed and insured transporter.

END OF SECTION

7.0 MECHANICAL WORK

5.01 DESCRIPTION

A. Coordinate with Owner to establish isolation and removal sequence and procedures to shutdown building HVAC and mechanical/domestic water pipe systems to the affected area.

B. Perform other incidental mechanical work not specified herein but necessary for the successful execution of the Work as set forth in the Work Procedures.

C. Install temporary mechanical work necessary to comply with Work Procedures.

D. Remove temporary mechanical work necessary to comply with Work Procedures at completion of Project and correct any damage to property.

END OF SECTION

8.0 ELECTRICAL WORK

6.01 DESCRIPTION

A.. Installation of temporary lighting and power necessary to perform the Work of the Work Procedures.

B. All materials and equipment required shall be:

1. Approved by Underwriters Laboratories and so labeled.
2. For wire and cable, marked as required by Article 310-10 National Electrical Code.
3. Installed by mechanics skilled in their trades, working under the direct supervision of competent experienced foremen or superintendents.
4. Installed in compliance with all applicable Occupational Safety and Health Administration and city electrical codes.

C. Perform and install items specified at the proper time during progress of construction. Coordinate work operations with other trades as necessary. Refer to Section 1.02.

D. Decontaminate and remove all temporary lighting and other electrical items after removal of asbestos-containing material operations.

END OF SECTION

RESPIRATOR TRAINING CERTIFICATION FORM

I hereby certify that I have been trained in the use of each type of respiratory protection equipment required for use on this project. The training included the following:

1. Explanation of dangers related to misuse.
2. Instruction on putting on, fitting, testing and wearing the respirator.
3. Instruction on inspection, cleaning and maintaining respirator.
4. Instruction on emergency situations.

I further certify that I understand the use, care and inspection of the respirator and have tested and worn the unit.

Name: _____

Signature: _____

Social Security Number: _____

Date: _____

Notary: _____
(Signature)

( )
( )
(Seal)
( )
( )

(Submit one copy for each employee prior to starting work)

CERTIFICATE OF WORKER'S RELEASE FORM

DATE: _____

TO: _____

RE: _____
(Insert Project Name and Address)

1. In consideration of my employment by _____ in conjunction with
(Contractor)
the removal and disposal of asbestos, or other work in asbestos-contaminated work area(s), and in consideration of the sum of ONE AND NO/100 ($1.00) DOLLAR and other good and valuable consideration in hand paid, at and before the sealing and delivery of these presents, the receipt , sufficiency, and adequacy of which are hereby acknowledged, the undersigned does hereby acknowledge, warrant, represent, covenant, and agree as follows:

(a) I acknowledge and understand that I have been or will be employed in connection with the removal of, disposal of, or other work in asbestos-contaminated work areas, and I acknowledge that I have been advised of and I understand the dangers inherent in handling asbestos and breathing asbestos dust, including, but not limited to, THE FACT THAT ASBESTOS CAN CAUSE ASBESTOSIS AND IS A KNOWN CARCINOGEN AND CAN, THEREFORE, CAUSE VARIOUS TYPES OF CANCER.

(b) I acknowledge and understand that ANY CONTACT WITH ASBESTOS, WHETHER IT CAN BE SEEN OR NOT, MAY CAUSE ASBESTOSIS AND VARIOUS FORMS OF CANCER, WHICH MAY NOT SHOW UP FOR MANY YEARS, and I covenant and agree faithfully to take all precautions required of me.

(c) I hereby warrant and represent that I have not been disabled, laid-off, or compensated in damages or otherwise, because of the disease of asbestosis or any other cancer disease.

(d) I represent that I can read the English language, or that I have had someone read this instrument to me, and that I understand the meaning of all the provisions contained herein.

Name: _____

Signature: _____

Social Security Number: _____

Signed in presence of: ____

Notary: _
(Signature)

( )
( )
(Seal)
( )
( )

TABLE 1
SCOPE OF WORK (SOW)
LONGHORN ARMY AMMUNITION PLANT

SECTIONS	LOCATIONS	DESCRIPTION	ASBESTOS-CONTAINING MATERIALS									
			Transite Siding/Roof/ Ceiling/Wall	Tar Shingle Roof	Fire Door	Floor Tile & Mastic	Linoleum	TSI - Steam	TSI - Domestic	PCB	Ceiling Tile	Boiler Flue
N.W. SECTION	501 E	Radio Transmission Building	100 S.F +/-	"	"	"	"	"	"	"	"	"
N.W. SECTION	414	Water Pumping Station	5,200 S.F +/-	"	"	"	"	"	"	3 +/-	"	"
ADMIN. AREA	701	General Purpose Warehouse	2,640 S.F +/-	1,800 S.F +/-	"	"	"	"	"	"	"	"
ADMIN. AREA	703 & 703-A	Admin. General Purpose	21,000 S.F +/-	38,400 S.F +/-	400 S.F +/-	38,000 S.F +/-	900 S.F +/-	2,300 L.F +/-	"	"	"	"
ADMIN. AREA	703-C	Heating Plant - Gas Fired Building	4,700 S.F +/-		"	"	"	"	"	"	"	80 S.F +/-
ADMIN. AREA	705	Personnel / Purchasing	5,300 S.F +/-	2,200 S.F +/-	"	3,000 S.F +/-	1,000 S.F +/-	"	"	"	"	"
ADMIN. AREA	707-E	Electronic Main Building	1,500 S.F +/-	2,600 S.F +/-	"	"	"	"	"	"	"	"
ADMIN. AREA	719	Medical Clinic	5,000 S.F +/-		"	"	"	"	"	"	6,100 S.F +/-	"
ADMIN. AREA	720-A	Admin. Old Security Building	5,300 S.F +/-	6,500 S.F +/-	"	"	"	"	"	"	"	"
ADMIN. AREA	730	Vehicle Parking	2 S.F +/-	"	"	"	"	"	"	"	"	"
MAGAZINE AREA	722-G	Dunnage Building	1,000 S.F +/-	"	"	"	"	"	"	"	"	"
MAGAZINE AREA	TS-84	Small Building on Slab	1,000 S.F +/-	"	"	"	"	"	"	"	"	"
MAGAZINE AREA	TS-Guard	3 Guard Shacks on Skids	"	"	"	"	"	"	"	"	"	"
MAGAZINE AREA	TS-64	Shack	"	"	"	50 S.F +/-	"	"	"	"	"	"
WAREHOUSE AREA	31-W	Flammable Material Storage	14,240 +/-	"	"	"	"	"	"	"	"	"
WAREHOUSE AREA	33-W	Flammable Material Storage	14,240 +/-	"	"	"	"	"	"	"	"	"
WAREHOUSE AREA	35- W	Flammable Material Storage	14,240 +/-	"	"	"	"	"	"	"	"	"
WAREHOUSE AREA	41-W-2	Clock House	"	"	"	"	"	"	"	"	"	"
WAREHOUSE AREA	41-W-1	Public Toilet	550 S.F +/-	"	"	"	"	"	"	"	"	"
WAREHOUSE AREA	41-W	Quality Assurance Building	6,500 S.F +/-	"	"	2,700 S.F +/-	"	100 L.F +/-	"	"	"	"
WAREHOUSE AREA	42-W	General Purpose Warehouse	18,000 S.F +/-	"	"	"	"		"	"	"	"
WAREHOUSE AREA	44-W	General Purpose Warehouse	18,000 S.F +/-	"	"	"	"	100 L.F +/-	"	"	"	"
WAREHOUSE AREA	46-W	General Purpose Warehouse	22,000 S.F +/-	"	"	"	"	1,000 L.F +/-	"	"	"	"
BATTERY SHOP AREA	18-K	Battery Charging Building	5,100 S.F +/-	"	"	"	"	200 L.F +/-	"	"	"	"
BATTERY SHOP AREA	18-K-1	Restroom	400 S.F +/-	"	"	"	"	"	"	"	"	"
SCRAP YARD	49-W	Loading Dock	2,000 S.F +/-	"	"	"	"	"	"	"	"	"
SCRAP YARD	TS_25	Restroom	100 S.F +/-	"	"	50 S.F +/-	"	"	"	"	"	"
SOUTH TEST AREA	IST-2	Ammunition Quality Building	300 S.F +/-	"	"	"	"	100 L.F +/-	"	"	"	"
SOUTH TEST AREA	DST-3	Earth Covered Magazine	"	"	"	"	"	"	"	"	"	"
SOUTH TEST AREA	BST-4	Earth Covered High Explosive Mag.	"	"	"	"	"	"	"	"	"	"
SOUTH TEST AREA	BST-2	Earth Covered High Explosive Mag.	"	"	"	"	"	"	"	"	"	"

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TABLE 1
SCOPE OF WORK (SOW)
LONGHORN ARMY AMMUNITION PLANT

SECTIONS	LOCATIONS	DESCRIPTION	ASBESTOS-CONTAINING MATERIALS									
			Transite Siding/Roof/ Ceiling/Wall	Tar Shingle Roof	Fire Door	Floor Tile & Mastic	Linoleum	TSI - Steam	TSI - Domestic	PCB	Ceiling Tile	Boiler Flue
SIGNAL AREA	TS-62	Shed	100 S.F +/-	-	-	60 S.F +/-	-	-	-	-	-	-
TNT PRODUCTION AREA	707-A	Change House	3,900 S.F +/-	2,900 S.F +/-	-	-	-	-	-	-	-	-
TNT PRODUCTION AREA	704-A	Admin. Building	1,500 S.F +/-	1,800 S.F +/-	-	-	-	-	-	-	-	-
TNT PRODUCTION AREA	707-C	General Purpose Warehouse	2,900 S.F +/-	2,900 S.F +/-	-	-	-	-	-	-	-	-
TNT PRODUCTION AREA	451	Compressed Air Plant Building	10,400 S.F +/-	-	-	-	-	-	-	4 +/-	-	-
TNT PRODUCTION AREA	801F	Large Caliber Rocket Landing	600 S.F +/-	-	-	-	-	-	-	-	-	-
TNT PRODUCTION AREA	601 B	Truck Weigh Station	150 S.F +/-	-	-	-	-	-	-	-	-	-
MISC. BUILDING	25-G	Old Cafeteria	3,000 S.F +/-	-	-	4,950 S.F +/-	-	50 L.F +/-	-	-	-	-
MISC. BUILDING		Pistol Range Shack	100 S. F +/-	-	-	-	-	-	-	-	-	-
MISC. BUILDING	22-G	Sewage Pump Station	200 S. F +/-	-	-	-	-	-	-	-	-	-
MISC. BUILDING	22-A	Admin. Building - 51st. Street	-	-	-	3,000 S.F +/-	1,800 S.F +/-	-	-	-	-	-

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APPENDIX F
LEAD – TCLP TRANSMITTAL OF ANALYTICAL RESULTS

EFI®
Engineering and Fire
Investigations

9700 Richmond
Suite 201
Houston, TX 77042
Tel: 866-464-2127
Fax: 713-975-7336
www.efiinfo.com

December 16, 2003

Mr. Michael Luczak
ARC Abatement, Inc.
6630 Roxburgh Drive, Suite 130
Houston, Texas 77041

Subject: **TRANSMITTAL OF ANALYTICAL RESULTS No. 6**
Longhorn Army Ammunition Plant – (TCLP Testing, Phase II)
Karnack, Texas 77055
EFI PROJECT NO. 98410-13709

Dear Mr. Luczak:

Engineering and Fire Investigations (EFI) has completed sampling and analysis for Toxicity Characteristic Leaching Procedure (TCLP) of demolition debris sample suspect for lead-based paint from a total of 35 buildings. These samples were collected as composite samples (i.e. building materials used in their construction) per building. This work was performed at the verbal request of Mr. Michael Luczak of ARC Abatement, Inc.

The samples were analyzed by our subcontract laboratory (EMSL Analytical in Westmont, New Jersey) using test methods SW846-1311/7420 to determine leachable concentrations of lead by use of Flame Atomic Absorption.

Based on the results TCLP lead concentrations of the 35 buildings tested (Bldgs. 413-A, 704-D, 707-G, 707-J, 713, 722E, 722F, 715, 205, 201, 203, 204, 713B, 744-A, 272, 813, 814, 815, 4-Y-2, 3Y, 29Y, 32Y, 48Y, 45Y, 34Y, 38Y, 40Y, TS-87, 18-Y-1, 18Y, 16Y, 16-Y-1, 13-Y-1, 16-Y-2 and Y-Area Walkways) were below 5mg/l. Environmental Protection Agency (EPA) defines that waste materials with concentrations of leachable lead below 5 mg/l as non-hazardous and can be disposed of as construction materials.

A complete analytical report is presented in Appendix A. In addition, we have included the chain of custody for the samples collected in Appendix B.

We appreciate the opportunity to provide consulting services to ARC Abatement, Inc. in this matter. If there are any questions, please contact us.

Sincerely,
ENGINEERING AND FIRE INVESTIGATIONS

Cuong Nguyen
Project Manager

Lee A. Burckle, P.E.
Branch Manager

Attachments: Appendix A – Laboratory Result Sheets
Appendix B – Chain Of Custody

CN/cn(e:\projects 2003\Longhorn Army Ammunition Plant\TCLP Sampling – Transrpt6.doc

APPENDIX A

LABORATORY RESULT SHEETS

EMSL Analytical
3 Cooper St., Westmont, NJ 08108
Phone: (856) 858-4800 Fax: (856) 858-9551 Email: gmiller1@emsl.com

EMSL

Attn: EFI
9700 Richmond
Suite 201
Houston, TX 77042
Fax: (713) 975-7336 Phone: (713) 975-7031
Project: 98410-13709

Customer ID: ENGF50
Customer PO:
Received: 06/23/03 10:50 AM
EMSL Order: 200306372
EMSL Project ID:

Toxicity Characteristic Leaching Procedure (SW846, 1311/7420)

Client Sample Description	*Lab ID*	*Analyzed*	*Lead Concentration*
Bldg 713-A	0001	6/24/03	<0.4 mg/L
Bldg 704-D	0002	6/24/03	<0.4 mg/L
Bldg 707-G	0003	6/24/03	<0.4 mg/L
Bldg 707-J	0004	6/24/03	<0.4 mg/L

Gerald J. Miller, Ph.D.
Laboratory Director
NJ-NELAP: 04653
AIHA: 100194
or other approved signatory

Date Printed: 6/24/03 1:12:37 PM

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EMSL Analytical
3 Cooper St., Westmont, NJ 08108
Phone: (856) 858-4800 Fax: (856) 858-9551 Email: gmiller1@emsl.com

EMSL

Attn: EFI
9700 Richmond
Suite 201
Houston, TX 77042
Fax: (713) 975-7336 Phone: (713) 975-7031
Project: 98410-13709

Customer ID: ENGF50
Customer PO:
Received: 06/30/03 11:25 AM
EMSL Order: 200306675
EMSL Project ID:

Toxicity Characteristic Leaching Procedure (SW846, 1311/7420)

Client Sample Description	Lab ID	Analyzed	Lead Concentration
Bldg 713	0001	7/1/03	0.4 mg/L
Bldg 722 E	0002	7/1/03	0.5 mg/L
Bldg 722 F	0003	7/1/03	0.6 mg/L
Bldg 715	0004	7/1/03	<0.4 mg/L

Gerold J. Miller, Ph.D.
Laboratory Director
NJ-NELAP: 04653
AIHA: 100194
or other approved signatory

Date Printed: 7/1/03 2:05:23 PM

EMSL Analytical
3 Cooper St., Westmont, NJ 08108
Phone: (856) 858-4800 Fax: (856) 858-4851 Email: gmiller@emsl.com

EMSL

Attn: Alex Nguyen
EFI
9700 Richmond
Suite 201
Houston, TX 77042
Fax: (713) 975-7336 Phone: (713) 724-2709
Project: 98410-13709

Customer ID: ENGF50
Customer PO:
Received: 06/03/03 10:30 AM

EMSL Order: 200305460
EMSL Project ID:

Toxicity Characteristic Leaching Procedure (SW846, 1311/7420)

Client Sample Description	*Lab ID*	*Analyzed*	*Lead Concentration*
205	0001	6/4/03	<0.4 mg/L

Gerald J. Miller, Ph.D.
Laboratory Director
NJ-NELAP: 04653
AIHA: 100194
or other approved signatory

Date Printed: 6/5/03 8:54:18 AM

EMSL Analytical
3 Cooper St., Westmont, NJ 08108
Phone: (856) 858-4800 Fax: (856) 858-0551 Email: gmiller1@emsl.com

Attn: Alex Nguyen
EFI,
9700 Richmond
Suite 201
Houston, TX 77042
Fax: (713) 975-7336 Phone: (713) 724-2709
Project: 98410-13709

Customer ID: ENGF50
Customer PO:
Received: 06/10/03 12:00 PM

EMSL Order: 200305885
EMSL Project ID:

Toxicity Characteristic Leaching Procedure (SW846, 1311/7420)

Client Sample Description	*Lab ID*	*Analyzed*	*Lead Concentration*
Bldg 201	0001	6/11/03	<0.4 mg/L
Bldg 203	0002	6/11/03	<0.4 mg/L
Bldg 204	0003	6/11/03	<0.4 mg/L
Bldg 713 B	0004	6/11/03	<0.4 mg/L

Gerald J. Miller, Ph.D.
Laboratory Director
NJ-NELAP: 04653
AIHA: 100194
or other approved signatory

Date Printed: 6/11/03 5:41:36 PM

EMSL Analytical
3 Cooper St., Westmont, NJ 08108
Phone: (856) 858-4800 Fax: (856) 858-9551 Email: gmiller1@emsl.com

Attn: Alex Nguyen
EFI
9700 Richmond
Suite 201
Houston, TX 77042
Fax: (713) 975-7336 Phone: (713) 724-2709
Project: **98410-13709**

Customer ID: ENGF50
Customer PO:
Received: 08/12/03 1:30 PM

EMSL Order: 200308677
EMSL Project ID:

Toxicity Characteristic Leaching Procedure (SW846, 1311/7420)

Client Sample Description	*Lab ID*	*Analyzed*	*Lead Concentration*
744-A	*0001*	8/13/03	<0.4 mg/L

Gerold J. Miller, Ph.D.
Laboratory Director
NJ-NELAP: 04653
AIHA: 100194
or other approved signatory

Date Printed: 8/13/03 1:16:18 PM

00065529

EMSL Analytical
3 Cooper St., Westmont, NJ 08108
Phone: (856) 858-4800 Fax: (856) 858-9551 Email: gmiller1@emsl.com

Attn:	Alex Nguyen EFI 9700 Richmond Suite 201 Houston, TX 77042	Customer ID:	ENGF50
		Customer PO:	
		Received:	08/12/03 1:30 PM
Fax:	(713) 975-7336 Phone: (713) 724-2709	EMSL Order:	200308676
Project:	98410-13709	EMSL Project ID:	

Toxicity Characteristic Leaching Procedure (SW846, 1311/7420)

Client Sample Description	*Lab ID*	*Analyzed*	*Lead Concentration*
272	*0001*	8/13/03	<0.4 mg/L

Geroid J. Miller, Ph.D.
Laboratory Director
NJ-NELAP: 04653
AIHA: 100194
or other approved signatory

Date Printed: 8/13/03 1:15:48 PM

EMSL Analytical
3 Cooper St., Westmont, NJ 08108
Phone: (856) 858-4800 Fax: (856) 858-9551 Email: gmiller1@emsl.com

00065530

Attn: Alex Nguyen
EFI
9700 Richmond
Suite 201
Houston, TX 77042
Fax: (713) 975-7336 Phone: (713) 724-2709
Project: 98410-13709/ Bldg. 813

Customer ID: ENGF50
Customer PO:
Received: 08/20/03 10:00 AM

EMSL Order: 200309073
EMSL Project ID:

Toxicity Characteristic Leaching Procedure (SW846, 1311/7420)

Client Sample Description	*Lab ID*	*Analyzed*	*Lead Concentration*
Bldg. 813	0001	8/21/03	<0.4 mg/L

Gerold J. Miller, Ph.D.
Laboratory Director
NJ-NELAP: 04653
AIHA: 100194
or other approved signatory

Date Printed: 8/21/03 3:18:07 PM

PB-w/o-Q

EMSL Analytical
3 Cooper St., Westmont, NJ 08108
Phone: (856) 858-4800 Fax: (856) 858-9551 Email: gmiller1@emsl.com

00065531

Attn: Alex Nguyen
EFI
9700 Richmond
Suite 201
Houston, TX 77042
Fax: (713) 975-7336 Phone: (713) 724-2709
Project: 98410-13709/ Bldg 814

Customer ID: ENGF50
Customer PO:
Received: 08/20/03 10:00 AM

EMSL Order: 200309072
EMSL Project ID:

Toxicity Characteristic Leaching Procedure (SW846, 1311/7420)

Client Sample Description	*Lab ID*	*Analyzed*	*Lead Concentration*
Bldg 814	0001	8/21/03	<0.4 mg/L

Gerold J. Miller, Ph.D.
Laboratory Director
NJ-NELAP: 04853
AIHA: 100194
or other approved signatory

Date Printed: 8/21/03 3:14:37 PM

PB w/o Qual

EMSL Analytical
3 Cooper St., Westmont, NJ 08108
Phone: (856) 858-4800 Fax: (856) 858-9551 Email: gmiller1@emsl.com

Attn: Alex Nguyen
EFI
9700 Richmond
Suite 201
Houston, TX 77042
Fax: (713) 975-7336 Phone: (713) 724-2709
Project: **98410-13709/ Bldg 815**

Customer ID: ENGF50
Customer PO:
Received: 08/20/03 10:00 AM

EMSL Order: 200309071
EMSL Project ID:

Toxicity Characteristic Leaching Procedure (SW846, 1311/7420)

Client Sample Description	*Lab ID*	*Analyzed*	*Lead Concentration*
Bldg 815	*0001*	8/21/03	<0.4 mg/L

Gerold J. Miller, Ph.D.
Laboratory Director
NJ-NELAP: 04653
AIHA: 100194
or other approved signatory

Date Printed: 8/21/03 3:13:56 PM

PLM/work/

00065533

EMSL Analytical

3 Cooper St., Westmont, NJ 08108

Phone: (856) 858-4800 Fax: (856) 858-9551 Email: gmiller1@emsl.com

Attn:	Alex Nguyen EFI 9700 Richmond Suite 201 Houston, TX 77042	Customer ID:	ENGF50
		Customer PO:	
		Received:	09/24/03 2:50 PM
Fax:	(713) 975-7336 Phone: (713) 724-2709	EMSL Order:	200310748
Project:	**98410-13709**	EMSL Project ID:	

Toxicity Characteristic Leaching Procedure (SW846, 1311/7420)

Client Sample Description	*Lab ID*	*Analyzed*	*Lead Concentration*
4-Y-2	*0001*	9/26/03	<0.4 mg/L

Gerold J. Miller, Ph.D.
Laboratory Director
NJ-NELAP: 04653
AIHA: 100194
or other approved signatory

Date Printed: 9/26/03 4:01:44 PM

PB/w/o QC

00065534

EMSL Analytical

3 Cooper St., Westmont, NJ 08108

Phone: (856) 858-4800 Fax: (856) 858-9551 Email: gmiller1@emsl.com

Attn:	Alex Nguyen EFI 9700 Richmond Suite 201 Houston, TX 77042	Customer ID:	ENGF50
		Customer PO:	
		Received:	09/24/03 11:45 AM
Fax:	(713) 975-7336 Phone: (713) 724-2709	EMSL Order:	200310734
Project:	**98410-13709/ Bldg 3Y**	EMSL Project ID:	

Toxicity Characteristic Leaching Procedure (SW846, 1311/7420)

Client Sample Description	*Lab ID*	*Analyzed*	*Lead Concentration*
3 Y	*0001*	9/26/03	<0.4 mg/L

Gerold J. Miller, Ph.D.
Laboratory Director
NJ-NELAP: 04653
AIHA: 100194
or other approved signatory

Initial Calibration Verified: 9/26/03 4:03:55 PM

PB w/o QC

EMSL Analytical
3 Cooper St., Westmont, NJ 08108
Phone: (856) 858-4800 Fax: (856) 858-9551 Email: gmiller1@emsl.com

Attn: Alex Nguyen
EFI
9700 Richmond
Suite 201
Houston, TX 77042
Fax: (713) 975-7336 Phone: (713) 724-2709
Project: **98410-13709**

Customer ID: ENGF50
Customer PO:
Received: 10/13/03 10:30 AM

EMSL Order: 200311655
EMSL Project ID:

Toxicity Characteristic Leaching Procedure (SW846, 1311/7420)

Client Sample Description	*Lab ID*	*Analyzed*	*Lead Concentration*
29 Y	*0001*	10/15/03	<0.4 mg/L

Gerold J. Miller, Ph.D.
Laboratory Director
NJ-NELAP: 04653
AIHA: 100194
or other approved signatory

Date Printed: 10/15/03 9:08:04 AM

PB w/o QC

EMSL Analytical
3 Cooper St., Westmont, NJ 08108
Phone: (856) 858-4800 Fax: (856) 858-9551 Email: gmiller1@emsl.com

Attn:	Alex Nguyen EFI 9700 Richmond Suite 201 Houston, TX 77042	Customer ID:	ENGF50
		Customer PO:	
		Received:	10/13/03 10:30 AM
Fax:	(713) 975-7336 Phone: (713) 724-2709	EMSL Order:	200311656
Project:	**98410-13709**	EMSL Project ID:	

Toxicity Characteristic Leaching Procedure (SW846, 1311/7420)

Client Sample Description	*Lab ID*	*Analyzed*	*Lead Concentration*
32 Y	*0001*	10/15/03	<0.4 mg/L

Gerold J. Miller, Ph.D.
Laboratory Director
NJ-NELAP: 04653
AIHA: 100194
or other approved signatory

Date Printed: 10/15/03 9:08:41 AM

PB w/o QC

00065537

EMSL Analytical

3 Cooper St., Westmont, NJ 08108

Phone: (856) 858-4800 Fax: (856) 858-9551 Email: gmiller1@emsl.com

Attn:	Alex Nguyen EFI 9700 Richmond Suite 201 Houston, TX 77042	Customer ID:	ENGF50
		Customer PO:	
		Received:	10/13/03 10:30 AM
Fax:	(713) 975-7336 Phone: (713) 724-2709		
Project:	**98410-13709**	EMSL Order:	200311657
		EMSL Project ID:	

Toxicity Characteristic Leaching Procedure (SW846, 1311/7420)

Client Sample Description	*Lab ID*	*Analyzed*	*Lead Concentration*
48 Y	*0001*	10/15/03	<0.4 mg/L

Gerold J. Miller, Ph.D.
Laboratory Director
NJ-NELAP: 04653
AIHA: 100194
or other approved signatory

What: Printed: 10/15/03 9:09:19 AM

PB w/o QC

EMSL Analytical
3 Cooper St., Westmont, NJ 08108
Phone: (856) 858-4800 Fax: (856) 858-9551 Email: gmiller1@emsl.com

00065538

Attn: Alex Nguyen
EFI
9700 Richmond
Suite 201
Houston, TX 77042
Fax: (713) 975-7336 Phone: (713) 724-2709
Project: **98410-13709**

Customer ID: ENGF50
Customer PO:
Received: 10/15/03 11:45 AM

EMSL Order: 200311764
EMSL Project ID:

Toxicity Characteristic Leaching Procedure (SW846, 1311/7420)

Client Sample Description	*Lab ID*	*Analyzed*	*Lead Concentration*
Bldg 45 Y	*0001*	10/17/03	<0.4 mg/L

Gerold J. Miller, Ph.D.
Laboratory Director
NJ-NELAP: 04653
AIHA: 100194
or other approved signatory

Date Printed: 10/17/03 2:02:36 PM

PB w/o QC

EMSL Analytical
3 Cooper St., Westmont, NJ 08108
Phone: (856) 858-4800 Fax: (856) 858-9551 Email: gmiller1@emsl.com

Attn: Alex Nguyen
EFI
9700 Richmond
Suite 201
Houston, TX 77042
Fax: (713) 975-7336 Phone: (713) 724-2709
Project: **98410-13709**

Customer ID: ENGF50
Customer PO:
Received: 10/15/03 11:45 AM

EMSL Order: 200311763
EMSL Project ID:

Toxicity Characteristic Leaching Procedure (SW846, 1311/7420)

Client Sample Description	*Lab ID*	*Analyzed*	*Lead Concentration*
Bldg 34 Y	*0001*	10/17/03	<0.4 mg/L

Gerold J. Miller, Ph.D.
Laboratory Director
NJ-NELAP: 04653
AIHA: 100194
or other approved signatory

Date Printed: 10/17/03 2:03:11 PM

PB w/o 00

EMSL Analytical
3 Cooper St., Westmont, NJ 08108
Phone: (856) 858-4800 Fax: (856) 858-9551 Email: gmiller1@emsl.com

Attn: Alex Nguyen
EFI
9700 Richmond
Suite 201
Houston, TX 77042
Fax: (713) 975-7336 Phone: (713) 724-2709
Project: 98410-13709

Customer ID: ENGF50
Customer PO:
Received: 10/15/03 11:45 AM

EMSL Order: 200311761
EMSL Project ID:

Toxicity Characteristic Leaching Procedure (SW846, 1311/7420)

Client Sample Description	*Lab ID*	*Analyzed*	*Lead Concentration*
Bldg 38 Y	*0001*	10/17/03	<0.4 mg/L

Gerold J. Miller, Ph.D.
Laboratory Director
NJ-NELAP: 04653
AIHA: 100194
or other approved signatory

Date Printed: 10/17/03 2:03:58 PM

PE w/o QC

EMSL Analytical
3 Cooper St., Westmont, NJ 08108
Phone: (856) 858-4800 Fax: (856) 858-9551 Email: gmiller1@emsl.com

Attn: Alex Nguyen
EFI
9700 Richmond
Suite 201
Houston, TX 77042
Fax: (713) 975-7336 Phone: (713) 724-2709
Project: **98410-13709**

Customer ID: ENGF50
Customer PO:
Received: 11/10/03 11:19 AM

EMSL Order: 200312912
EMSL Project ID:

Toxicity Characteristic Leaching Procedure (SW846, 1311/7420)

Client Sample Description	*Lab ID*	*Analyzed*	*Lead Concentration*
40Y	0001	11/11/03	<0.4 mg/L

Gerold J. Miller, Ph.D.
Laboratory Director
NJ-NELAP: 04653
AIHA: 100194
or other approved signatory

Date Printed: 11/11/03 1:16:49 PM

PB w/o QC

EMSL Analytical
3 Cooper St., Westmont, NJ 08108
Phone: (856) 858-4800 Fax: (856) 858-9551 Email: gmiller1@emsl.com

Attn: Alex Nguyen
EFI
9700 Richmond
Suite 201
Houston, TX 77042
Fax: (713) 975-7336 Phone: (713) 724-2709
Project: 98410-13709

Customer ID: ENGF50
Customer PO:
Received: 11/10/03 11:19 AM

EMSL Order: 200312909
EMSL Project ID:

Toxicity Characteristic Leaching Procedure (SW846, 1311/7420)

Client Sample Description	*Lab ID*	*Analyzed*	*Lead Concentration*
TS-87	0001	11/11/03	<0.4 mg/L

Gerold J. Miller, Ph.D.
Laboratory Director
NJ-NELAP: 04653
AIHA: 100194
or other approved signatory

Date Printed: 11/11/03 1:18:57 PM

PB w/o Qual

EMSL Analytical
3 Cooper St., Westmont, NJ 08108
Phone: (856) 858-4800 Fax: (856) 858-9551 Email: gmiller1@emsl.com

Attn: Alex Nguyen
EFI
9700 Richmond
Suite 201
Houston, TX 77042
Fax: (713) 975-7336 Phone: (713) 724-2709
Project: **98410-13709**

Customer ID: ENGF50
Customer PO:
Received: 09/22/03 11:25 AM

EMSL Order: 200310581
EMSL Project ID:

Toxicity Characteristic Leaching Procedure (SW846, 1311/7420)

Client Sample Description	*Lab ID*	*Analyzed*	*Lead Concentration*
18 Y-1	0001	9/23/03	<0.4 mg/L

Gerold J. Miller, Ph.D.
Laboratory Director
NJ-NELAP: 04653
AIHA: 100194
or other approved signatory

Date Printed: 9/23/03 4:50:43 PM

PB w/o QC

EMSL Analytical
3 Cooper St., Westmont, NJ 08108
Phone: (856) 858-4800 Fax: (856) 858-9551 Email: gmiller1@emsl.com

00065544

Attn: Alex Nguyen
EFI
9700 Richmond
Suite 201
Houston, TX 77042
Fax: (713) 975-7336 Phone: (713) 724-2709
Project: 98410-13709

Customer ID: ENGF50
Customer PO:
Received: 09/22/03 11:25 AM

EMSL Order: 200310580
EMSL Project ID:

Toxicity Characteristic Leaching Procedure (SW846, 1311/7420)

Client Sample Description	*Lab ID*	*Analyzed*	*Lead Concentration*
18 Y	0001	9/23/03	<0.4 mg/L

Gerold J. Miller, Ph.D.
Laboratory Director
NJ-NELAP: 04653
AIHA: 100194
or other approved signatory

Date Printed: 9/23/03 4:50:13 PM

PB w/o QC

EMSL Analytical
3 Cooper St., Westmont, NJ 08108
Phone: (856) 858-4800 Fax: (856) 858-9551 Email: gmiller1@emsl.com

Attn: Alex Nguyen
EFI
9700 Richmond
Suite 201
Houston, TX 77042
Fax: (713) 975-7336 Phone: (713) 724-2709
Project: **98410-13709**

Customer ID: ENGF50
Customer PO:
Received: 09/22/03 11:25 AM

EMSL Order: 200310579
EMSL Project ID:

Toxicity Characteristic Leaching Procedure (SW846, 1311/7420)

Client Sample Description	*Lab ID*	*Analyzed*	*Lead Concentration*
16 Y	*0001*	9/23/03	<0.4 mg/L

Gerold J. Miller, Ph.D.
Laboratory Director
NJ-NELAP: 04653
AIHA: 100194
or other approved signatory

Date Printed: 9/23/03 4:49:40 PM

PB:w/o QC

EMSL Analytical
3 Cooper St., Westmont, NJ 08108
Phone: (856) 858-4800 Fax: (856) 858-9551 Email: gmiller1@emsl.com

00065546

Attn: Alex Nguyen
EFI
9700 Richmond
Suite 201
Houston, TX 77042
Fax: (713) 975-7336 Phone: (713) 724-2709
Project: 98410-13709

Customer ID: ENGF50
Customer PO:
Received: 11/10/03 11:19 AM

EMSL Order: 200312913
EMSL Project ID:

Toxicity Characteristic Leaching Procedure (SW846, 1311/7420)

Client Sample Description	*Lab ID*	*Analyzed*	*Lead Concentration*
16 Y-1	0001	11/11/03	<0.4 mg/L

Gerold J. Miller, Ph.D.
Laboratory Director
NJ-NELAP: 04653
AIHA: 100194
or other approved signatory

Date Printed: 11/11/03 1:19:30 PM

PB w/o QC

EMSL Analytical
3 Cooper St., Westmont, NJ 08108
Phone: (856) 858-4800 Fax: (856) 858-9551 Email: gmiller1@emsl.com

Attn: Alex Nguyen
EFI
9700 Richmond
Suite 201
Houston, TX 77042
Fax: (713) 975-7336 Phone: (713) 724-2709
Project: 98410-13709

Customer ID: ENGF50
Customer PO:
Received: 11/20/03 1:54 PM

EMSL Order: 200313449
EMSL Project ID:

Toxicity Characteristic Leaching Procedure (SW846, 1311/7420)

Client Sample Description	*Lab ID*	*Analyzed*	*Lead Concentration*
13Y-1	*0001*	11/21/03	<0.4 mg/L
Y-Area Walkways	*0002*	11/21/03	<0.4 mg/L
16-Y-2	*0003*	11/21/03	<0.4 mg/L

Gerold J. Miller, Ph.D.
Laboratory Director
NJ-NELAP: 04653
AIHA: 100194
or other approved signatory

Date Printed: 11/24/03 11:56:24 AM

PB w/o QC

APPENDIX B

CHAIN OF CUSTODY

00065549

EMSL ANALYTICAL CHAIN OF CUSTODY LEAD

Revised 7/1/99

EMSL Rep:	Gary	DATE:	Third party billing requires written authorization from third party
Your Company Name:	EFI	EMSL-Bill to:	Alex Nguyen - EFI
Street:	9700 Richmond, St. 210	Street:	9700 Richmond, Suite 210
Box #:		Box #:	
City/State:	Houston, Tx Zip: 77042	City/State:	Houston, Tx Zip: 77042
Phone Results to:		Fax Results to:	
Name:	Alex Nguyen	Name:	Alex Nguyen
Telephone #:	(713) 975-7031	Fax #:	(713) 975-7336
Project Name/Number:	98410-13709	Purchase Order #:	

MATRIX	METHOD	INSTRUMENT	mdls	TAT
Lead Chips*	SW846-7420 or AOAC 5.009 (974.02)	Flame Atomic Absorption	0.01% ++	
Lead Wastewater	SW846-7420	Flame Atomic Absorption	0.4 mg/l water	
Lead Soil +			50 mg/kg (ppm) soil	
	or SW846-6010	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	SW846-7420	Flame Atomic Absorption	10 ug/wipe	
	or SW846-6010	ICP	3.0 ug/wipe	
TCLP Lead **	SW846-1311/7420	Flame Atomic Absorption	0.4 mg/l (ppm)	30 HRS -
	or SW846-6010	ICP	0.1 mg/l (ppm)	W/IN WORK WEEK
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 0500-0600	Gravimetric Reduction	0.0001g	

TAT (Turnaround) - 3 hours, 6 hours, Please call ahead to schedule.
12 hours (must arrive by 11:00 a.m),
24 hours (1day), 48 hours (2 days), 72 hours, 96 hours (3 days), 120 hours(4 days), 144 + hours (6-10 days)
*, **, ***, ****, +, ++ Please Refer to Price Quote

SAMPLE #	LOCATION	Air volume, L Area, in²	LAB #
BLDG. 413-A: WOOD FRAME, INSULATION, CONCRETE, METAL PANELS ON EXT. PUMPS			
BLDG. 704-D: FIBER BOARD WALLS, WATERPROOF SHEET, WOOD FRAME, CEILING TILE, FL. TILE.			
BLDG 707-G: WOOD FRAME, GYPSUM WALLS + CEILING, INSULATION			
BLDG. 707-J: WOOD FRAME, GYPSUM WALLS + CEILING, INSULATION			

Relinquished By; (Person) Joseph Contreras Jr	Received at EMSL By:
Date: 6/20/03	Date:

Note: Please duplicate this form and use additional sheets if necessary.

00065550

EMSL ANALYTICAL — CHAIN OF CUSTODY — 261061.75 LEAD

Revised 7/1/99

EMSL Rep: Gary

DATE:

Third party billing requires written authorization from third party

Your Company Name:	EFI	EMSL-Bill to:	Alex Nguyen - EFI
Street:	9700 Richmond, St. 210	Street:	9700 Richmond, Suite 210
Box #:		Box #:	
City/State:	Houston, Tx Zip: 77042	City/State:	Houston, Tx Zip: 77042
Phone Results to: Name:	Alex Nguyen	Fax Results to: Name:	Alex Nguyen
Telephone #:	(713) 975-7031	Fax #:	(713) 975-7336
Project Name/Number:	98410-13709	Purchase Order #:	

MATRIX	METHOD	INSTRUMENT	mdls	TAT
Lead Chips*	SW846-7420 or AOAC 5.009 (974.02)	Flame Atomic Absorption	0.01% ++	
Lead Wastewater	SW846-7420	Flame Atomic Absorption	0.4 mg/l water	
Lead Soil +			50 mg/kg (ppm) soil	
	or SW846-6010	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	SW846-7420	Flame Atomic Absorption	10 ug/wipe	
	or SW846-6010	ICP	3.0 ug/wipe	
TCLP Lead ++	SW846-1311/7420	Flame Atomic Absorption	0.4 mg/l (ppm)	30 HRS -
	or SW846-6010	ICP	0.1 mg/l (ppm)	W/IN WEEK WEEK
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 0500-0600	Gravimetric Reduction	0.0001g	

TAT (Turnaround) 3 hours, 6 hours, Please call ahead to schedule.
12 hours (must arrive by 11:00 a.m),
24 hours (1day), 48 hours (2 days), 72 hours, 96 hours (3 days), 120 hours(4 days), 144 + hours (6-10 days)
*, **, ***, ****, +, ++ Please Refer to Price Quote

SAMPLE #	LOCATION	Air volume, L Area, in²	LAB #
	Bldg 713		66075-1
	Bldg 722 E		2
	Bldg 722 F		3
	Bldg 715		4

Relinquished By: (Person) S. Bitter — Received at EMSL By:

Date: 6/27/07 — Date: 6/30/07

Note: Please duplicate this form and use additional sheets if necessary.

00065551

EMSL ANALYTICAL
Revised 7/1/99

CHAIN OF CUSTODY 203084C

LEAD

EMSL Rep: Gary

DATE:

Third party billing requires written authorization from third party

Your Company Name:	EFI	EMSL-Bill to:	Alex Nguyen - EFI
Street:	9700 Richmond, St. 210	Street:	9700 Richmond, Suite 210
Box #:		Box #:	
City/State:	Houston, Tx Zip: 77042	City/State:	Houston, Tx Zip: 77042
Phone Results to:		Fax Results to:	
Name:	Alex Nguyen	Name:	Alex Nguyen
Telephone #:	(713) 975-7031	Fax #:	(713) 975-7336
Project Name/Number:	98410-13709	Purchase Order #:	

MATRIX	METHOD	INSTRUMENT	mdls	TAT
Lead Chips*	SW846-7420 or AOAC 5.009 (974.02)	Flame Atomic Absorption	0.01% ++	
Lead Wastewater	SW846-7420	Flame Atomic Absorption	0.4 mg/l water	
Lead Soil +			50 mg/kg (ppm) soil	
	or SW846-6010	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	SW846-7420	Flame Atomic Absorption	10 ug/wipe	
	or SW846-6010	ICP	3.0 ug/wipe	
TCLP Lead **	SW846-1311/7420	Flame Atomic Absorption	0.4 mg/l (ppm)	30 Hrs -
	or SW846-6010	ICP	0.1 mg/l (ppm)	W/24 WORK HRS
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 0500-0600	Gravimetric Reduction	0.0001g	

TAT (Turnaround) - 3 hours, 6 hours, Please call ahead to schedule.
12 hours (must arrive by 11:00 a.m),
24 hours (1day), 48 hours (2 days), 72 hours, 96 hours (3 days), 120 hours(4 days), 144 + hours (6-10 days)
*, **, ***, ****, +, ++ Please Refer to Price Quote

SAMPLE #	LOCATION	Air volume, L Area, in²	LAB #
205	CMU Block with Limited CMU wood interior		0840-1

Relinquished By; (Person) D. Pope

Date: 5-28-03

Received at EMSL By:

Date: 6/3/03 1030

Note: Please duplicate this form and use additional sheets if necessary.

00065552

EMSL ANALYTICAL — CHAIN OF CUSTODY — 200305885 — LEAD

Revised 7/1/99

EMSL Rep: Gary

DATE:

Third party billing requires written authorization from third party

Your Company Name: EFI

EMSL-Bill to: Alex Nguyen - EFI

Street: 9700 Richmond, St. 210

Box #:

City/State: Houston, Tx Zip: 77042

Street: 9700 Richmond, Suite 210

Box #:

City/State: Houston, Tx Zip: 77042

Phone Results to:
Name: Alex Nguyen
Telephone #: (713) 975-7031
Project Name/Number: 98410-13709

Fax Results to:
Name: Alex Nguyen
Fax #: (713) 975-7336
Purchase Order #:

MATRIX	METHOD	INSTRUMENT	mdls	TAT
Lead Chips*	SW846-7420 or AOAC 5.009 (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 SW846-6010	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	SW846-7420	Flame Atomic Absorption	10 ug/wipe	
	or SW846-6010	ICP	3.0 ug/wipe	
TCLP Lead ** ✓	SW846-1311/7420	Flame Atomic Absorption	0.4 mg/l (ppm)	30 HRS -
	or SW846-6010	ICP	0.1 mg/l (ppm)	W/IN WORK WEEK
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 0500-0600	Gravimetric Reduction	0.0001g	

TAT (Turnaround) - 3 hours, 6 hours, Please call ahead to schedule,
12 hours (must arrive by 11:00 a.m),
24 hours (1day), 48 hours (2 days), 72 hours, 96 hours (3 days), 120 hours(4 days), 144 + hours (6-10 days)
*, **, ***, ****, +, ++ Please Refer to Price Quote

SAMPLE #	LOCATION		Air volume, L Area, in²	LAB #
BLDG 201	BLDG 201	DECKING / INS. WOOD W/ PAINT		65885-1
BLDG 203	BLDG 203	DECKING; Roof Support		2
BLDG 204	BLDG 204	DECKING Roof SUPPORT		3
BLDG 713B	BLDG 713B	WALBOARD W/ PAINT, INSUL. DECKING		4

Relinquished By: (Person) Joseph Bonteville J

Received at EMSL By:

Date: 6/6/03

Date: 6/10/03 12 pm

Note: Please duplicate this form and use additional sheets if necessary.

00065553

EMSL ANALYTICAL — CHAIN OF CUSTODY — 240877 — LEAD

Revised 7/1/99

EMSL Rep: Gary — DATE:

Third party billing requires written authorization from third party

Your Company Name:	EFI	EMSL-Bill to:	Alex Nguyen - EFI
Street:	9700 Richmond, St. 210	Street:	9700 Richmond, Suite 210
Box #:		Box #:	
City/State:	Houston, Tx Zip: 77042	City/State:	Houston, Tx Zip: 77042
Phone Results to:		Fax Results to:	
Name:	Alex Nguyen	Name:	Alex Nguyen
Telephone #:	(713) 975-7031	Fax #:	(713) 975-7336
Project Name/Number:	98410-13709	Purchase Order #:	

MATRIX	METHOD	INSTRUMENT	mdls	TAT
Lead Chips*	SW846-7420 or AOAC 5.009 (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 SW846-6010	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	
d in Wipe	SW846-7420	Flame Atomic Absorption	10 ug/wipe	
	~~or SW846-6010~~	~~ICP~~	~~3.0 ug/wipe~~	
TCLP Lead **	SW846-1311/7420	Flame Atomic Absorption	0.4 mg/l (ppm)	30 HRS -
	or SW846-6010	ICP	0.1 mg/l (ppm)	W/IN WORK WEEK
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 0500-0600	Gravimetric Reduction	0.0001g	

TAT (Turnaround) - 3 hours, 6 hours, Please call ahead to schedule.
12 hours (must arrive by 11:00 a.m),
24 hours (1day), 48 hours (2 days), 72 hours, 96 hours (3 days), 120 hours(4 days), 144 + hours (6-10 days)
*, **, ***, ****, +, ++ Please Refer to Price Quote

SAMPLE #	LOCATION	Air volume, L Area, in²	LAB #
744-A			064775

Relinquished By; (Person) DP	Received at EMSL By:
Date: 08-06-03	Date: 8/7/03 1300

Note: Please duplicate this form and use additional sheets if necessary.

00065554

EMSL ANALYTICAL CHAIN OF CUSTODY 2003 08276 LEAD

Revised 7/1/99

EMSL Rep: Gary DATE:

Third party billing requires written authorization from third party

Your Company Name: EFI EMSL-Bill to: Alex Nguyen - EFI

Street: 9700 Richmond, St. 210 Street: 9700 Richmond, Suite 210

Box #: Box #:

City/State: Houston, Tx Zip: 77042 City/State: Houston, Tx Zip: 77042

Phone Results to: Fax Results to:

Name: Alex Nguyen Name: Alex Nguyen

Telephone #: (713) 975-7031 Fax #: (713) 975-7336

Project Name/Number: 98410-13709 Purchase Order #:

MATRIX	METHOD	INSTRUMENT	mdls	TAT
Lead Chips*	SW846-7420 or AOAC 5.009 (974.02)	Flame Atomic Absorption	0.01% ++	
Lead Wastewater	SW846-7420	Flame Atomic Absorption	0.4 mg/l water	
Lead Soil +			50 mg/kg (ppm) soil	
	or SW846-6010	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	
...d in Wipe	SW846-7420	Flame Atomic Absorption	10 ug/wipe	
	or SW846-6010	ICP	3.0 ug/wipe	
TCLP Lead **	SW846-1311/7420	Flame Atomic Absorption	0.4 mg/l (ppm)	30 HRS -
	or SW846-6010	ICP	0.1 mg/l (ppm)	W/IN WORK WEEK
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 0500-0600	Gravimetric Reduction	0.0001g	

TAT (Turnaround) - 3 hours, 6 hours, Please call ahead to schedule.
12 hours (must arrive by 11:00 a.m),
24 hours (1day), 48 hours (2 days), 72 hours, 96 hours (3 days), 120 hours(4 days), 144 + hours (6-10 days)
*, **, ***, ****, +, ++ Please Refer to Price Quote

SAMPLE #	LOCATION	Air volume, L Area, in²	LAB #
272			03-76-1

Relinquished By: (Person) DP Received at EMSL By:

Date: 08-06-03 Date: 8/12/03 130p

Note: Please duplicate this form and use additional sheets if necessary.

00065555

2031973

EMSL ANALYTICAL CHAIN OF CUSTODY LEAD

Revised 7/1/99

EMSL Rep: Gary

DATE:

Third party billing requires written authorization from third party

Your Company Name: EFI

EMSL-Bill to: Alex Nguyen - EFI

Street: 9700 Richmond, St. 210

Street: 9700 Richmond, Suite 210

Box #:

Box #:

City/State: Houston, Tx Zip: 77042

City/State: Houston, Tx Zip: 77042

Phone Results to:

Name: Alex Nguyen

Telephone #: (713) 975-7031

Project Name/Number: 98410-13709

Fax Results to:

Name: Alex Nguyen

Fax #: (713) 975-7336

Purchase Order #:

MATRIX	METHOD	INSTRUMENT	mdls	TAT
Lead Chips*	SW846-7420 or AOAC 5.009 (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 SW846-6010	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	SW846-7420	Flame Atomic Absorption	10 ug/wipe	
	or SW846-6010	ICP	3.0 ug/wipe	
TCLP Lead **	SW846-1311/7420	Flame Atomic Absorption	0.4 mg/l (ppm)	30 HRS -
	or SW846-6010	ICP	0.1 mg/l (ppm)	W/IN WORK WEEK
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 0500-0600	Gravimetric Reduction	0.0001g	

TAT (Turnaround) - 3 hours, 6 hours, Please call ahead to schedule.
12 hours (must arrive by 11:00 a.m),
24 hours (1day), 48 hours (2 days), 72 hours, 96 hours (3 days), 120 hours(4 days), 144 + hours (6-10 days)
*, **, ***, ****, +, ++ Please Refer to Price Quote

SAMPLE #	LOCATION	Air volume, L Area, in²	LAB #
Bldg. 813	METAL FRAME, SHEET METAL ROOF AND SIDDING WOOD TRIM		05673.1

Relinquished By; (Person) [signature]

Received at EMSL By: [signature]

Date: 8-14-03

Date: 8/20/03

Note: Please duplicate this form and use additional sheets if necessary.

2070907L

00065556

EMSL ANALYTICAL CHAIN OF CUSTODY LEAD

Revised 7/1/99

EMSL Rep: Gary

DATE:

Third party billing requires written authorization from third party

Your Company Name: EFI

EMSL-Bill to: Alex Nguyen - EFI

Street: 9700 Richmond, St. 210

Box #:

City/State: Houston, Tx Zip: 77042

Street: 9700 Richmond, Suite 210

Box #:

City/State: Houston, Tx Zip: 77042

Phone Results to:

Name: Alex Nguyen

Telephone #: (713) 975-7031

Project Name/Number: 98410-13709

Fax Results to:

Name: Alex Nguyen

Fax #: (713) 975-7336

Purchase Order #:

MATRIX	METHOD	INSTRUMENT	mdls	TAT
Lead Chips*	SW846-7420 or AOAC 5.009 (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 SW846-6010	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	
ad in Wipe	SW846-7420	Flame Atomic Absorption	10 ug/wipe	
	or SW846-6010	ICP	3.0 ug/wipe	
TCLP Lead **	SW846-1311/7420	Flame Atomic Absorption	0.4 mg/l (ppm)	30 HRS -
	or SW846-6010	ICP	0.1 mg/l (ppm)	W/IN WORK WEEK
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 0500-0600	Gravimetric Reduction	0.0001g	

TAT (Turnaround) - 3 hours, 6 hours, Please call ahead to schedule.
12 hours (must arrive by 11:00 a.m),
24 hours (1day), 48 hours (2 days), 72 hours, 96 hours (3 days), 120 hours(4 days), 144 + hours (6-10 days)
*, **, ***, ****, +, ++ Please Refer to Price Quote

SAMPLE #	LOCATION	Air volume, L Area, in²	LAB #
Bldg. 814	METAL FRAME, Red Brick		09072-1
	WALL, Torosite ROOF		
	WOOD Trim		

Relinquished By; (Person) D. Pope

Date: 8-14-03

Received at EMSL By: L...

Date: 8/20/3

Note: Please duplicate this form and use additional sheets if necessary.

00065557

EMSL ANALYTICAL CHAIN OF CUSTODY 26038907 LEAD

Revised 7/1/99

EMSL Rep: Gary DATE:

Third party billing requires written authorization from third party

Your Company Name:	EFI	EMSL-Bill to:	Alex Nguyen - EFI
Street:	9700 Richmond, St. 210	Street:	9700 Richmond, Suite 210
Box #:		Box #:	
City/State:	Houston, Tx Zip: 77042	City/State:	Houston, Tx Zip: 77042

Phone Results to:		Fax Results to:	
Name:	Alex Nguyen	Name:	Alex Nguyen
Telephone #:	(713) 975-7031	Fax #:	(713) 975-7336
Project Name/Number:	98410-13709	Purchase Order #:	

MATRIX	METHOD	INSTRUMENT	mdls	TAT
Lead Chips*	SW846-7420 or AOAC 5.009 (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 SW846-6010	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	SW846-7420	Flame Atomic Absorption	10 ug/wipe	
	or SW846-6010	ICP	3.0 ug/wipe	
TCLP Lead **	SW846-1311/7420	Flame Atomic Absorption	0.4 mg/l (ppm)	30 HRS -
	or SW846-6010	ICP	0.1 mg/l (ppm)	W/IN WORK WEEK
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 0500-0600	Gravimetric Reduction	0.0001g	

TAT (Turnaround) - 3 hours, 6 hours, Please call ahead to schedule.
12 hours (must arrive by 11:00 a.m),
24 hours (1day), 48 hours (2 days), 72 hours, 96 hours (3 days), 120 hours(4 days), 144 + hours (6-10 days)
*, **, ***, ****, +, ++ Please Refer to Price Quote

SAMPLE #	LOCATION	Air volume, L Area, in²	LAB #
Bldg. 815	SHEETMETAL SIDING WITH COMP. ROOF WOOD FRAME		69076 1

Relinquished By; (Person) D. Pope	Received at EMSL By: L Rodriguez
Date: 8-14-03	Date: 8/20/03 10A

Note: Please duplicate this form and use additional sheets if necessary.

00065558

EMSL ANALYTICAL CHAIN OF CUSTODY 2003/074Y LEAD

Revised 7/1/99

EMSL Rep: Gary DATE:

Third party billing requires written authorization from third party

Your Company Name:	EFI	EMSL-Bill to:	Alex Nguyen - EFI
Street:	9700 Richmond, St. 210	Street:	9700 Richmond, Suite 210
Box #:		Box #:	
City/State:	Houston, Tx Zip: 77042	City/State:	Houston, Tx Zip: 77042

Phone Results to:		Fax Results to:	
Name:	Alex Nguyen	Name:	Alex Nguyen
Telephone #:	(713) 975-7031	Fax #:	(713) 975-7336
Project Name/Number:	98410-13709	Purchase Order #:	

MATRIX	METHOD	INSTRUMENT	mdls	TAT
Lead Chips*	SW846-7420 or AOAC 5.009 (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 SW846-6010	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	
ad in Wipe	SW846-7420	Flame Atomic Absorption	10 ug/wipe	
	or SW846-6010	ICP	3.0 ug/wipe	
TCLP Lead **	SW846-1311/7420	Flame Atomic Absorption	0.4 mg/l (ppm)	30 HRS -
	or SW846-6010	ICP	0.1 mg/l (ppm)	W/IN WORK WEEK
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 0500-0600	Gravimetric Reduction	0.0001g	

TAT (Turnaround) - 3 hours, 6 hours, Please call ahead to schedule.
12 hours (must arrive by 11:00 a.m),
24 hours (1day), 48 hours (2 days), 72 hours, 96 hours (3 days), 120 hours(4 days), 144 + hours (6-10 days)
*, **, ***, ****, +, ++ Please Refer to Price Quote

SAMPLE #	LOCATION	Air volume, L Area, in²	LAB #
4-Y-2	CMU Block, wood walls with transite sheets composition roof felt		1074Y 1

Relinquished By; (Person) DRope	Received at EMSL By: LWright
Date:	Date: 9/24/03

Note: Please duplicate this form and use additional sheets if necessary.

00065559

EMSL ANALYTICAL CHAIN OF CUSTODY 2003107344 LEAD

Revised 7/1/99

EMSL Rep: Gary DATE:

Third party billing requires written authorization from third party

Your Company Name:	EFI	EMSL-Bill to:	Alex Nguyen - EFI
Street:	9700 Richmond, St. 210	Street:	9700 Richmond, Suite 210
Box #:		Box #:	
City/State:	Houston, Tx Zip: 77042	City/State:	Houston, Tx Zip: 77042

Phone Results to:		Fax Results to:	
Name:	Alex Nguyen	Name:	Alex Nguyen
Telephone #:	(713) 975-7031	Fax #:	(713) 975-7336
Project Name/Number:	98410-13709	Purchase Order #:	

MATRIX	METHOD	INSTRUMENT	mdls	TAT
Lead Chips*	SW846-7420 or AOAC 5.009 (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 SW846-6010	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	
ad in Wipe	SW846-7420	Flame Atomic Absorption	10 ug/wipe	
	or SW846-6010	ICP	3.0 ug/wipe	
TCLP Lead **	SW846-1311/7420	Flame Atomic Absorption	0.4 mg/l (ppm)	30 HRS -
	or SW846-6010	ICP	0.1 mg/l (ppm)	W/IN WORK WEEK
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 0500-0600	Gravimetric Reduction	0.0001g	

TAT (Turnaround) - 3 hours, 6 hours, Please call ahead to schedule.
12 hours (must arrive by 11:00 a.m),
24 hours (1day), 48 hours (2 days), 72 hours, 96 hours (3 days), 120 hours(4 days), 144 + hours (6-10 days)
*, **, ***, ****, +, ++ Please Refer to Price Quote

SAMPLE #	LOCATION	Air volume, L Area, in²	LAB #
3Y	Bldg 3Y		
	TRANSITE SIDDING WOOD		
	FRAME TRANSITE ROOF		

Relinquished By: (Person) D. Pope	Received at EMSL By:
Date:	Date: 9/24/03 1145

Note: Please duplicate this form and use additional sheets if necessary.

00065560

EMSL ANALYTICAL CHAIN OF CUSTODY 2003/1155 LEAD

Revised 7/1/99

EMSL Rep: Gary DATE:

Third party billing requires written authorization from third party

Your Company Name:	EFI	EMSL-Bill to:	Alex Nguyen - EFI
Street:	9700 Richmond, St. 210	Street:	9700 Richmond, Suite 210
Box #:		Box #:	
City/State:	Houston, Tx Zip: 77042	City/State:	Houston, Tx Zip: 77042
Phone Results to:		Fax Results to:	
Name:	Alex Nguyen	Name:	Alex Nguyen
Telephone #:	(713) 975-7031	Fax #:	(713) 975-7336
Project Name/Number:	98410-13709	Purchase Order #:	

MATRIX	METHOD	INSTRUMENT	mdls	TAT
Lead Chips*	SW846-7420 or AOAC 5.009 (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 SW846-6010	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	SW846-7420	Flame Atomic Absorption	10 ug/wipe	
	or SW846-6010	ICP	3.0 ug/wipe	
TCLP Lead **	SW846-1311/7420	Flame Atomic Absorption	0.4 mg/l (ppm)	30 HRS -
	or SW846-6010	ICP	0.1 mg/l (ppm)	W/IN WORK WEEK
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 0500-0600	Gravimetric Reduction	0.0001g	

TAT (Turnaround) - 3 hours, 6 hours, Please call ahead to schedule.
12 hours (must arrive by 11:00 a.m),
24 hours (1day), 48 hours (2 days), 72 hours, 96 hours (3 days), 120 hours(4 days), 144 + hours (6-10 days)
*, **, ***, ****, +, ++ Please Refer to Price Quote

SAMPLE #	LOCATION	Air volume, L Area, in²	LAB #
29Y			11655-1

Relinquished By; (Person) D. Pope	Received at EMSL By:
Date: 9-23-03	Date: 9/19/03 10:20

Note: Please duplicate this form and use additional sheets if necessary.

00065561

EMSL ANALYTICAL CHAIN OF CUSTODY 2603/1652 LEAD

Revised 7/1/99

EMSL Rep: Gary DATE:

Third party billing requires written authorization from third party

Your Company Name: EFI

Street: 9700 Richmond, St. 210

Box #:

City/State: Houston, Tx Zip: 77042

EMSL-Bill to: Alex Nguyen - EFI

Street: 9700 Richmond, Suite 210

Box #:

City/State: Houston, Tx Zip: 77042

Phone Results to:

Name: Alex Nguyen

Telephone #: (713) 975-7031

Project Name/Number: 98410-13709

Fax Results to:

Name: Alex Nguyen

Fax #: (713) 975-7336

Purchase Order #:

MATRIX	METHOD	INSTRUMENT	mdls	TAT
Lead Chips*	SW846-7420 or AOAC 5.009 (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 SW846-6010	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	
ad in Wipe	SW846-7420	Flame Atomic Absorption	10 ug/wipe	
	or SW846-6010	ICP	3.0 ug/wipe	
TCLP Lead **	SW846-1311/7420	Flame Atomic Absorption	0.4 mg/l (ppm)	30 HRS -
	or SW846-6010	ICP	0.1 mg/l (ppm)	W/IN WORK WEEK
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 0500-0600	Gravimetric Reduction	0.0001g	

TAT (Turnaround) - 3 hours, 6 hours, Please call ahead to schedule.
12 hours (must arrive by 11:00 a.m),
24 hours (1day), 48 hours (2 days), 72 hours, 96 hours (3 days), 120 hours(4 days), 144 + hours (6-10 days)
*, **, ***, ****, +, ++ Please Refer to Price Quote

SAMPLE #	LOCATION	Air volume, L Area, in²	LAB #
32Y			1652-1

Relinquished By: (Person) D. Pope

Date: 9-23-03

Received at EMSL By: Lvvz

Date: 10/1/03 10:20

Note: Please duplicate this form and use additional sheets if necessary.

00065562

Lab # 11657

EMSL ANALYTICAL CHAIN OF CUSTODY LEAD

Revised 7/1/99

EMSL Rep: Gary DATE:

Third party billing requires written authorization from third party

Your Company Name: EFI EMSL-Bill to: Alex Nguyen - EFI

Street: 9700 Richmond, St. 210 Street: 9700 Richmond, Suite 210

Box #: Box #:

City/State: Houston, Tx Zip: 77042 City/State: Houston, Tx Zip: 77042

Phone Results to:

Name: Alex Nguyen Fax Results to: Name: Alex Nguyen

Telephone #: (713) 975-7031 Fax #: (713) 975-7336

Project Name/Number: 98410-13709 Purchase Order #:

MATRIX	METHOD	INSTRUMENT	mdls	TAT
Lead Chips*	SW846-7420 or AOAC 5.009 (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 SW846-6010	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	
ad in Wipe	SW846-7420	Flame Atomic Absorption	10 ug/wipe	
	or SW846-6010	ICP	3.0 ug/wipe	
TCLP Lead **	SW846-1311/7420	Flame Atomic Absorption	0.4 mg/l (ppm)	30 HRS -
	or SW846-6010	ICP	0.1 mg/l (ppm)	W/IN WORK WEEK
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 0500-0600	Gravimetric Reduction	0.0001g	

TAT (Turnaround) - 3 hours, 6 hours, Please call ahead to schedule.
12 hours (must arrive by 11:00 a.m),
24 hours (1day), 48 hours (2 days), 72 hours, 96 hours (3 days), 120 hours(4 days), 144 + hours (6-10 days)
*, **, ***, ****, +, ++ Please Refer to Price Quote

SAMPLE #	LOCATION	Air volume, L Area, in²	LAB #
48Y			11657.1

Relinquished By; (Person) D. Pope Received at EMSL By:

Date: 9-23-03 Date: 10/1/03 10:30a

Note: Please duplicate this form and use additional sheets if necessary.

00065563

2031164

EMSL ANALYTICAL — CHAIN OF CUSTODY — LEAD

Revised 7/1/99

EMSL Rep: Gary — DATE:

Third party billing requires written authorization from third party

Your Company Name:	EFI	EMSL-Bill to:	Alex Nguyen - EFI
Street:	9700 Richmond, St. 210	Street:	9700 Richmond, Suite 210
Box #:		Box #:	
City/State:	Houston, Tx Zip: 77042	City/State:	Houston, Tx Zip: 77042
Phone Results to: Name:	Alex Nguyen	Fax Results to: Name:	Alex Nguyen
Telephone #:	(713) 975-7031	Fax #:	(713) 975-7336
Project Name/Number:	98410-13709	Purchase Order #:	

MATRIX	METHOD	INSTRUMENT	mdls	TAT
Lead Chips*	SW846-7420 or AOAC 5.009 (974.02)	Flame Atomic Absorption	0.01% ++	
Lead Wastewater	SW846-7420	Flame Atomic Absorption	0.4 mg/l water	
Lead Soil +			50 mg/kg (ppm) soil	
	or SW846-6010	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	SW846-7420	Flame Atomic Absorption	10 ug/wipe	
	or SW846-6010	ICP	3.0 ug/wipe	
TCLP Lead **	SW846-1311/7420	Flame Atomic Absorption	0.4 mg/l (ppm)	30 HRS -
	or SW846-6010	ICP	0.1 mg/l (ppm)	W/IN WORK WEEK
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 0500-0600	Gravimetric Reduction	0.0001g	

TAT (Turnaround) - 3 hours, 6 hours, Please call ahead to schedule.
12 hours (must arrive by 11:00 a.m),
24 hours (1day), 48 hours (2 days), 72 hours, 96 hours (3 days), 120 hours(4 days), 144 + hours (6-10 days)
*, **, ***, ****, +, ++ Please Refer to Price Quote

SAMPLE #	LOCATION	Air volume, L Area, in²	LAB #
Bldg. 45Y	CMU Block		11764-1
	STEEL FRAME		
	WOOD TRIM		
	TRANSITE ROOF		

Relinquished By: (Person) J. Pope — Received at EMSL By: Lmh

Date: — Date: 10/10/03 1145 h

Note: Please duplicate this form and use additional sheets if necessary.

00065564

2003117C3

EMSL ANALYTICAL CHAIN OF CUSTODY LEAD

Revised 7/1/99

EMSL Rep: Gary DATE:

Third party billing requires written authorization from third party

Your Company Name:	EFI	EMSL-Bill to:	Alex Nguyen - EFI
Street:	9700 Richmond, St. 210	Street:	9700 Richmond, Suite 210
Box #:		Box #:	
City/State:	Houston, Tx Zip: 77042	City/State:	Houston, Tx Zip: 77042
Phone Results to:		Fax Results to:	
Name:	Alex Nguyen	Name:	Alex Nguyen
Telephone #:	(713) 975-7031	Fax #:	(713) 975-7336
Project Name/Number:	98410-13709	Purchase Order #:	

MATRIX	METHOD	INSTRUMENT	mdls	TAT
Lead Chips*	SW846-7420 or AOAC 5.009 (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 SW846-6010	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	SW846-7420	Flame Atomic Absorption	10 ug/wipe	
	or SW846-6010	ICP	3.0 ug/wipe	
TCLP Lead **	SW846-1311/7420	Flame Atomic Absorption	0.4 mg/l (ppm)	30 HRS -
	or SW846-6010	ICP	0.1 mg/l (ppm)	W/IN WORK WEEK
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 0500-0600	Gravimetric Reduction	0.0001g	

TAT (Turnaround) - 3 hours, 6 hours, Please call ahead to schedule.
12 hours (must arrive by 11:00 a.m),
24 hours (1day), 48 hours (2 days), 72 hours, 96 hours (3 days), 120 hours(4 days), 144 + hours (6-10 days)
*, **, ***, ****, +, ++ Please Refer to Price Quote

SAMPLE #	LOCATION	Air volume, L Area, in²	LAB #
Bldg. 34 Y	WOOD TRIM		11763-1
	CMU BLOCK & PLASTER		
	& CONCRETE WALLS		

Relinquished By; (Person) Abpe	Received at EMSL By: Lorry
Date:	Date: 1/17/03 1145

Note: Please duplicate this form and use additional sheets if necessary.

00065565

20031701

EMSL ANALYTICAL CHAIN OF CUSTODY LEAD

Revised 7/1/99

EMSL Rep: Gary DATE:

Third party billing requires written authorization from third party

Your Company Name:	EFI	EMSL-Bill to:	Alex Nguyen - EFI
Street:	9700 Richmond, St. 210	Street:	9700 Richmond, Suite 210
Box #:		Box #:	
City/State:	Houston, Tx Zip: 77042	City/State:	Houston, Tx Zip: 77042
Phone Results to:		Fax Results to:	
Name:	Alex Nguyen	Name:	Alex Nguyen
Telephone #:	(713) 975-7031	Fax #:	(713) 975-7336
Project Name/Number:	98410-13709	Purchase Order #:	

MATRIX	METHOD	INSTRUMENT	mdls	TAT
Lead Chips*	SW846-7420 or AOAC 5.009 (974.02)	Flame Atomic Absorption	0.01% ++	
Lead Wastewater	SW846-7420	Flame Atomic Absorption	0.4 mg/l water	
Lead Soil +			50 mg/kg (ppm) soil	
	or SW846-6010	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	SW846-7420	Flame Atomic Absorption	10 ug/wipe	
	or SW846-6010	ICP	3.0 ug/wipe	
TCLP Lead **	SW846-1311/7420	Flame Atomic Absorption	0.4 mg/l (ppm)	30 HRS –
	or SW846-6010	ICP	0.1 mg/l (ppm)	W/IN WORK WEEK
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 Cerification Requirements)	EPA 239.2	Graphite Furnace Atomic Absorption	0.003 mg/l (ppm)	
Total Dust	NIOSH 0500-0600	Gravimetric Reduction	0.0001g	

TAT (Turnaround) - 3 hours, 6 hours, Please call ahead to schedule.
12 hours (must arrive by 11:00 a.m),
24 hours (1day), 48 hours (2 days), 72 hours, 96 hours (3 days), 120 hours(4 days), 144 + hours (6-10 days)
*, **, ***, ****, +, ++ Please Refer to Price Quote

SAMPLE #	LOCATION	Air volume, L Area, in²	LAB #
Bldg. 384	CONCRETE WALLS		11761-1
	WOOD TRIM		
	WOOD BEAMS		
	TRANSITE ROOF		

Relinquished By; (Person) D. Pope	Received at EMSL By:
Date:	Date: 10/15/03 1145A

Note: Please duplicate this form and use additional sheets if necessary.

00065566

EMSL ANALYTICAL CHAIN OF CUSTODY

2603129IV

LEAD

Revised 7/1/99

EMSL Rep: Gary

DATE:

Third party billing requires written authorization from third party

Your Company Name: EFI

EMSL-Bill to: Alex Nguyen - EFI

Street: 9700 Richmond, St. 210

Box #:

City/State: Houston, Tx Zip: 77042

Street: 9700 Richmond, Suite 210

Box #:

City/State: Houston, Tx Zip: 77042

Phone Results to:

Name: Alex Nguyen

Telephone #: (713) 975-7031

Project Name/Number: 98410-13709

Fax Results to:

Name: Alex Nguyen

Fax #: (713) 975-7336

Purchase Order #:

MATRIX	METHOD	INSTRUMENT	mdls	TAT
Lead Chips*	SW846-7420 or AOAC 5.009 (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 SW846-6010	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	SW846-7420	Flame Atomic Absorption	10 ug/wipe	
	or SW846-6010	ICP	3.0 ug/wipe	
TCLP Lead **	SW846-1311/7420	Flame Atomic Absorption	0.4 mg/l (ppm)	30 HRS -
	or SW846-6010	ICP	0.1 mg/l (ppm)	W/IN WORK WEEK
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 0500-0600	Gravimetric Reduction	0.0001g	

RECEIVED
2003 NOV 10 AM 11:19
WESTMONT, N.J.
EMSL

TAT (Turnaround) - 3 hours, 6 hours, Please call ahead to schedule.
12 hours (must arrive by 11:00 a.m),
24 hours (1day), 48 hours (2 days), 72 hours, 96 hours (3 days), 120 hours(4 days), 144 + hours (6-10 days)
*, **, ***, ****, +, ++ Please Refer to Price Quote

SAMPLE #	LOCATION	Air volume, L Area, in²	LAB #
40Y	CMU Block with wood Trim and Built-up Roof		1094 12-1

Relinquished By; (Person)

Date: 10-29-03

Received at EMSL By:

Date: 11/10/03

Note: Please duplicate this form and use additional sheets if necessary.

00065567

EMSL ANALYTICAL CHAIN OF CUSTODY 7003 12909 LEAD

Revised 7/1/99

EMSL Rep: Gary

DATE:

Third party billing requires written authorization from third party

Your Company Name: EFI

EMSL-Bill to: Alex Nguyen - EFI

Street: 9700 Richmond, St. 210

Street: 9700 Richmond, Suite 210

Box #:

Box #:

City/State: Houston, Tx Zip: 77042

City/State: Houston, Tx Zip: 77042

Phone Results to:

Name: Alex Nguyen

Telephone #: (713) 975-7031

Project Name/Number: 98410-13709

Fax Results to:

Name: Alex Nguyen

Fax #: (713) 975-7336

Purchase Order #:

MATRIX	METHOD	INSTRUMENT	mdls	TAT
Lead Chips*	SW846-7420 or AOAC 5.009 (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 SW846-6010	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	SW846-7420	Flame Atomic Absorption	10 ug/wipe	
	or SW846-6010	ICP	3.0 ug/wipe	
TCLP Lead **	SW846-1311/7420	Flame Atomic Absorption	0.4 mg/l (ppm)	30 HRS -
	or SW846-6010	ICP	0.1 mg/l (ppm)	W/IN WEEK
Lead in Air ****	NIOSH 7105	Graphite Furnace Atomic Absorption	0.03 ug/filter	6
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 0500-0600	Gravimetric Reduction	0.0001g	

RECEIVED 2003 NOV 10 WESTMONT, NJ

TAT (Turnaround) - 3 hours, 6 hours, Please call ahead to schedule.
12 hours (must arrive by 11:00 a.m),
24 hours (1day), 48 hours (2 days), 72 hours, 96 hours (3 days), 120 hours(4 days), 144 + hours (6-10 days)
*, **, ***, ****, +, ++ Please Refer to Price Quote

SAMPLE #	LOCATION	Air volume, L Area, in²	LAB #
TS-87	CONCRETE FL. CMU		12909-1
	Block with WOOD		
	Trim		

Relinquished By; (Person)

Received at EMSL By:

Date: 10-29-03

Date: 11/10/03

Note: Please duplicate this form and use additional sheets if necessary.

00065568

2031581

EMSL ANALYTICAL CHAIN OF CUSTODY LEAD

Revised 7/1/99

EMSL Rep: Gary

DATE:

Third party billing requires written authorization from third party

Your Company Name: EFI

EMSL-Bill to: Alex Nguyen - EFI

Street: 9700 Richmond, St. 210

Street: 9700 Richmond, Suite 210

Box #:

Box #:

City/State: Houston, Tx Zip: 77042

City/State: Houston, Tx Zip: 77042

Phone Results to:

Name: Alex Nguyen

Telephone #: (713) 975-7031

Fax Results to:

Name: Alex Nguyen

Fax #: (713) 975-7336

Project Name/Number: 98410-13709

Purchase Order #:

MATRIX	METHOD	INSTRUMENT	mdls	TAT
Lead Chips*	SW846-7420 or AOAC 5.009 (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 SW846-6010	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	SW846-7420	Flame Atomic Absorption	10 ug/wipe	
	or SW846-6010	ICP	3.0 ug/wipe	
TCLP Lead **	SW846-1311/7420	Flame Atomic Absorption	0.4 mg/l (ppm)	30 HRS -
	or SW846-6010	ICP	0.1 mg/l (ppm)	W/IN WORK WEEK
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 0500-0600	Gravimetric Reduction	0.0001g	

TAT (Turnaround) - 3 hours, 6 hours, Please call ahead to schedule.
12 hours (must arrive by 11:00 a.m),
24 hours (1day), 48 hours (2 days), 72 hours, 96 hours (3 days), 120 hours(4 days), 144 + hours (6-10 days)
*, **, ***, ****, +, ++ Please Refer to Price Quote

SAMPLE #	LOCATION	Air volume, L Area, in²	LAB #
18Y-1	Bldg. 18Y-1		10587-1
	CMU Block with		
	TAR & GRAVEL ROOF AND		
	WOOD FRAME		

Relinquished By: (Person) D. Pope

Received at EMSL By: L. Rogers

Date:

Date: 9/12/03 1125

Note: Please duplicate this form and use additional sheets if necessary.

00065569

2003/1580

EMSL ANALYTICAL CHAIN OF CUSTODY LEAD

Revised 7/1/99

EMSL Rep: Gary

DATE:

Third party billing requires written authorization from third party

Your Company Name: EFI

EMSL-Bill to: Alex Nguyen - EFI

Street: 9700 Richmond, St. 210

Street: 9700 Richmond, Suite 210

Box #:

Box #:

City/State: Houston, Tx Zip: 77042

City/State: Houston, Tx Zip: 77042

Phone Results to:

Name: Alex Nguyen

Telephone #: (713) 975-7031

Project Name/Number: 98410-13709

Fax Results to:

Name: Alex Nguyen

Fax #: (713) 975-7336

Purchase Order #:

MATRIX	METHOD	INSTRUMENT	mdls	TAT
Lead Chips*	SW846-7420 or AOAC 5.009 (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 SW846-6010	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	SW846-7420	Flame Atomic Absorption	10 ug/wipe	
	or SW846-6010	ICP	3.0 ug/wipe	
TCLP Lead **	SW846-1311/7420	Flame Atomic Absorption	0.4 mg/l (ppm)	30 HRS –
	or SW846-6010	ICP	0.1 mg/l (ppm)	W/IN WORK WEEK
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 0500-0600	Gravimetric Reduction	0.0001g	

TAT (Turnaround) - 3 hours, 6 hours, Please call ahead to schedule.
12 hours (must arrive by 11:00 a.m),
24 hours (1day), 48 hours (2 days), 72 hours, 96 hours (3 days), 120 hours(4 days), 144 + hours (6-10 days)
*, **, ***, ****, +, ++ Please Refer to Price Quote

SAMPLE #	LOCATION	Air volume, L Area, in²	LAB #
18Y	WOOD FRAME, TRANSITE SIDING & ROOF		1058D-1

Relinquished By; (Person) D. Pope

Received at EMSL By:

Date:

Date: 7/22/03 1215

Note: Please duplicate this form and use additional sheets if necessary.

00065570

2003/0579

EMSL ANALYTICAL CHAIN OF CUSTODY LEAD

Revised 7/1/99

EMSL Rep: Gary DATE:

Third party billing requires written authorization from third party

Your Company Name: EFI EMSL-Bill to: Alex Nguyen - EFI

Street: 9700 Richmond, St. 210 Street: 9700 Richmond, Suite 210

Box #: Box #:

City/State: Houston, Tx Zip: 77042 City/State: Houston, Tx Zip: 77042

Phone Results to:

Name: Alex Nguyen

Telephone #: (713) 975-7031

Project Name/Number: 98410-13709

Fax Results to:

Name: Alex Nguyen

Fax #: (713) 975-7336

Purchase Order #:

MATRIX	METHOD	INSTRUMENT	mdls	TAT
Lead Chips*	SW846-7420 or AOAC 5.009 (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 SW846-6010	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	
ad in Wipe	SW846-7420	Flame Atomic Absorption	10 ug/wipe	
	or SW846-6010	ICP	3.0 ug/wipe	
TCLP Lead **	SW846-1311/7420	Flame Atomic Absorption	0.4 mg/l (ppm)	30 HRS -
	or SW846-6010	ICP	0.1 mg/l (ppm)	W/IN WORK WEEK
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 0500-0600	Gravimetric Reduction	0.0001g	

TAT (Turnaround) - 3 hours, 6 hours, Please call ahead to schedule.
12 hours (must arrive by 11:00 a.m),
24 hours (1day), 48 hours (2 days), 72 hours, 96 hours (3 days), 120 hours(4 days), 144 + hours (6-10 days)
*, **, ***, ****, +, ++ Please Refer to Price Quote

SAMPLE #	LOCATION	Air volume, L Area, in²	LAB #
164	Transite siding and roof w/ wood frame		18579.1

Relinquished By: (Person) D. Pope Received at EMSL By: L. Rahgozar

Date: Date: 9/22/03 11:20

Note: Please duplicate this form and use additional sheets if necessary.

00065571

EMSL ANALYTICAL CHAIN OF CUSTODY 2003129/3 LEAD

Revised 7/1/99

EMSL Rep: Gary DATE:

Third party billing requires written authorization from third party

Your Company Name: EFI EMSL-Bill to: Alex Nguyen - EFI

Street: 9700 Richmond, St. 210 Street: 9700 Richmond, Suite 210

Box #: Box #:

City/State: Houston, Tx Zip: 77042 City/State: Houston, Tx Zip: 77042

Phone Results to:

Name: Alex Nguyen Fax Results to:

Telephone #: (713) 975-7031 Name: Alex Nguyen

Project Name/Number: 98410-13709 Fax #: (713) 975-7336

Purchase Order #:

MATRIX	METHOD	INSTRUMENT	mdls	TAT
Lead Chips*	SW846-7420 or AOAC 5.009 (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 SW846-6010	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	SW846-7420	Flame Atomic Absorption	10 ug/wipe	
	or SW846-6010	ICP	3.0 ug/wipe	
TCLP Lead **	SW846-1311/7420	Flame Atomic Absorption	0.4 mg/l (ppm)	30 HRS -
	or SW846-6010	ICP	0.1 mg/l (ppm)	W/IN WORK WEEK
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 0500-0600	Gravimetric Reduction	0.0001g	

RECEIVED 2003 NOV -6 A 11:19 WESTMONT, N.J. EMSL

TAT (Turnaround) - 3 hours, 6 hours, Please call ahead to schedule.
12 hours (must arrive by 11:00 a.m),
24 hours (1day), 48 hours (2 days), 72 hours, 96 hours (3 days), 120 hours(4 days), 144 + hours (6-10 days)
*, **, ***, ****, +, ++ Please Refer to Price Quote

SAMPLE #	LOCATION	Air volume, L Area, in²	LAB #
16Y-1	CMU Block walls		12913 1
	Transite Roof with		
	some TAR & GRAVEL		
	wood Trim		

Relinquished By; (Person) Received at EMSL By:

Date: 10-30-03 Date: 11/6/03

Note: Please duplicate this form and use additional sheets if necessary.

2003134119

00065572

EMSL ANALYTICAL CHAIN OF CUSTODY LEAD

Revised 7/1/99

EMSL Rep: Gary DATE:

Third party billing requires written authorization from third party

Your Company Name:	EFI	EMSL-Bill to:	Alex Nguyen - EFI
Street:	9700 Richmond, St. 210	Street:	9700 Richmond, Suite 210
Box #:		Box #:	
City/State:	Houston, Tx Zip: 77042	City/State:	Houston, Tx Zip: 77042
Phone Results to:		Fax Results to:	
Name:	Alex Nguyen	Name:	Alex Nguyen
Telephone #:	(713) 975-7031	Fax #:	(713) 975-7336
Project Name/Number:	98410-13709	Purchase Order #:	

RECEIVED WESTMONT, N.J. 2003 NOV 20 PM 1:54

MATRIX	METHOD	INSTRUMENT	mdls	TAT
Lead Chips*	SW846-7420 or AOAC 5.009 (974.02)	Flame Atomic Absorption	0.01% ++	
Lead Wastewater	SW846-7420	Flame Atomic Absorption	0.4 mg/l water	
Lead Soil +			50 mg/kg (ppm) soil	
	or SW846-6010	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	SW846-7420	Flame Atomic Absorption	10 ug/wipe	
	or SW846-6010	ICP	3.0 ug/wipe	
TCLP Lead **	SW846-1311/7420	Flame Atomic Absorption	0.4 mg/l (ppm)	30 HRS -
	or SW846-6010	ICP	0.1 mg/l (ppm)	W/IN WORK WEEK
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 0500-0600	Gravimetric Reduction	0.0001g	

TAT (Turnaround) - 3 hours, 6 hours, Please call ahead to schedule.
12 hours (must arrive by 11:00 a.m),
24 hours (1day), 48 hours (2 days), 72 hours, 96 hours (3 days), 120 hours(4 days), 144 + hours (6-10 days)
*, **, ***, ****, +, ++ Please Refer to Price Quote

SAMPLE #	LOCATION	Air volume, L Area, in²	LAB #
13Y-1	Bldg. 13Y-1		
	CMU Block Wood		
	Farm, Transite Roof		

Relinquished By: (Person) JP. Received at EMSL By: JJA

Date: 11-11-03 Date: 11/20

Note: Please duplicate this form and use additional sheets if necessary.

2003134219 00065573

EMSL ANALYTICAL CHAIN OF CUSTODY LEAD

Revised 7/1/99

EMSL Rep: Gary DATE:

Third party billing requires written authorization from third party

Your Company Name: EFI EMSL-Bill to: Alex Nguyen - EFI

Street: 9700 Richmond, St. 210 Street: 9700 Richmond, Suite 210

Box #: Box #:

City/State: Houston, Tx Zip: 77042 City/State: Houston, Tx Zip: 77042

Phone Results to:

Name: Alex Nguyen

Telephone #: (713) 975-7031

Project Name/Number: 98410-13709

Fax Results to:

Name: Alex Nguyen

Fax #: (713) 975-7336

Purchase Order #:

RECEIVED 2003 NOV 20 PM 1:54 EMSL WESTMONT, N.J.

MATRIX	METHOD	INSTRUMENT	mdls	TAT
Lead Chips*	SW846-7420 or AOAC 5.009 (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 SW846-6010	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	SW846-7420	Flame Atomic Absorption	10 ug/wipe	
	or SW846-6010	ICP	3.0 ug/wipe	
TCLP Lead **	SW846-1311/7420	Flame Atomic Absorption	0.4 mg/l (ppm)	30 HRS -
	or SW846-6010	ICP	0.1 mg/l (ppm)	W/IN WORK WEEK
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 0500-0600	Gravimetric Reduction	0.0001g	

TAT (Turnaround) - 3 hours, 6 hours, Please call ahead to schedule.
12 hours (must arrive by 11:00 a.m),
24 hours (1day), 48 hours (2 days), 72 hours, 96 hours (3 days), 120 hours(4 days), 144 + hours (6-10 days)
*, **, ***, ****, +, ++ Please Refer to Price Quote

SAMPLE #	LOCATION	Air volume, L Area, in²	LAB #
Y-AREA WALKWAYS	WOOD WITH BUILT UP ROOF		

Relinquished By; (Person) Received at EMSL By:

Date: 11-12-03 Date:

Note: Please duplicate this form and use additional sheets if necessary.

200315444

00065574

EMSL ANALYTICAL CHAIN OF CUSTODY LEAD

Revised 7/1/99

EMSL Rep: Gary

DATE:

Third party billing requires written authorization from third party

Your Company Name: EFI

EMSL-Bill to: Alex Nguyen - EFI

Street: 9700 Richmond, St. 210

Street: 9700 Richmond, Suite 210

Box #:

Box #:

City/State: Houston, Tx Zip: 77042

City/State: Houston, Tx Zip: 77042

Phone Results to:

Name: Alex Nguyen

Telephone #: (713) 975-7031

Project Name/Number: 98410-13709

Fax Results to:

Name: Alex Nguyen

Fax #: (713) 975-7336

Purchase Order #:

RECEIVED
2003 NOV 20 PM 1:51
EMSL WESTMONT, N.J.

MATRIX	METHOD	INSTRUMENT	mdls	TAT
Lead Chips*	SW846-7420 or AOAC 5.009 (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 SW846-6010	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	SW846-7420	Flame Atomic Absorption	10 ug/wipe	
	or SW846-6010	ICP	3.0 ug/wipe	
TCLP Lead **	SW846-1311/7420	Flame Atomic Absorption	0.4 mg/l (ppm)	30 HRS -
	or SW846-6010	ICP	0.1 mg/l (ppm)	W/IN WORK WEEK
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 0500-0600	Gravimetric Reduction	0.0001g	

TAT (Turnaround) - 3 hours, 6 hours, Please call ahead to schedule.
12 hours (must arrive by 11:00 a.m),
24 hours (1day), 48 hours (2 days), 72 hours, 96 hours (3 days), 120 hours(4 days), 144 + hours (6-10 days)
*, **, ***, ****, +, ++ Please Refer to Price Quote

SAMPLE #	LOCATION	Air volume, L Area, in²	LAB #
16-Y-2	CMU Block walls		
	with TRANSITE ROOF		
	WOOD TRIM		

Relinquished By: (Person)

Received at EMSL By:

Date: 11-13-03

Date:

Note: Please duplicate this form and use additional sheets if necessary.

00065575

EFI®
Engineering and Fire
Investigations

9700 Richmond
Suite 201
Houston, TX 77042
Tel: 866-464-2127
Fax: 713-975-7336
www.efiglobal.com

May 11, 2004

Mr. Michael Luczak
ARC Abatement, Inc.
6630 Roxburgh Drive, Suite 130
Houston, Texas 77041

Subject: **TRANSMITTAL OF ANALYTICAL RESULTS No. 7**
Longhorn Army Ammunition Plant – (TCLP Testing – "T" Area")
Karnack, Texas 77055
EFI PROJECT NO. 98410-13709

Dear Mr. Luczak:

Engineering and Fire Investigations (EFI) has completed sampling and analysis for Toxicity Characteristic Leaching Procedure (TCLP) of demolition debris sample suspect for lead-based paint from a total of 6 buildings representative of each type and construction (same paint scheme) from the "T-Area". These samples were collected as composite samples (i.e. building materials used in their construction) per building group. This work was performed at the verbal request of Mr. Michael Luczak of ARC Abatement, Inc.

The samples were analyzed by our subcontract laboratory (EMSL Analytical in Westmont, New Jersey) using test methods SW846-1311/7420 to determine leachable concentrations of lead by use of Flame Atomic Absorption.

Based on the results TCLP lead concentrations of the 6 buildings tested (Bldgs. 31T, 20T-1, 35T, 20T, 39T, and 39T-1) were below 5mg/l. Environmental Protection Agency (EPA) defines that waste materials with concentrations of leachable lead below 5 mg/l as non-hazardous and can be disposed of as construction materials.

A complete analytical report is presented in Appendix A. In addition, we have included the chain of custody for the samples collected in Appendix B.

We appreciate the opportunity to provide consulting services to ARC Abatement, Inc. in this matter. If there are any questions, please contact us.

Sincerely,
ENGINEERING AND FIRE INVESTIGATIONS

Cuong Nguyen
Project Manager

Lee A. Burckle, P.E.
Branch Manager

Attachments: Appendix A – Laboratory Result Sheets
Appendix B – Chain Of Custody

CN/cn(e:\projects 2003\Longhorn Army Ammunition Plant\TCLP Sampling – Transrpt7.doc

APPENDIX A

LABORATORY RESULT SHEETS

00065577

EMSL Analytical
3 Cooper St., Westmont, NJ 08108
Phone: (856) 858-4800 Fax: (856) 858-9551 Email: skauffman@emsl.com

EMSL

Attn: Alex Nguyen
EFI
9700 Richmond
Suite 201
Houston, TX 77042
Fax: (713) 975-7336 Phone: (713) 724-2709
Project: 98410-13709

Customer ID: ENGF50
Customer PO:
Received: 05/07/04 10:14 AM

EMSL Order: 200405215
EMSL Proj:

Toxicity Characteristic Leaching Procedure (SW846, 1311/7420)

Client Sample Description	*Lab ID*	*Analyzed*	*Lead Concentration*
31T	0001	5/10/04	<0.4 mg/L

William Chamberlin
Laboratory Director
or other approved signatory

The test results contained within this report meet the requirements of NELAC unless otherwise noted. This report relates only to those items tested.
ACCREDITATIONS: NJ-NELAP: 04653, AIHA Environmental Lead Laboratory Approval Program: 100194

Date Printed: 5/10/04 12:35:14 PM

EMSL Analytical
3 Copper St., Westmont, NJ 08108
Phone: (856) 858-4800 Fax: (856) 858-6551 Email: skauffman@emsl.com

EMSL

Attn: Alex Nguyen
EFI
9700 Richmond
Suite 201
Houston, TX 77042
Fax: (713) 975-7336 Phone: (713) 724-2709
Project: 98410-13709

Customer ID: ENGF50
Customer PO:
Received: 05/07/04 10:14 AM

EMSL Order: 200405213
EMSL Proj:

Toxicity Characteristic Leaching Procedure (SW846, 1311/7420)

Client Sample Description	*Lab ID*	*Analyzed*	*Lead Concentration*
20T-1	0001	5/10/04	<0.4 mg/L

William Chamberlin
Laboratory Director
or other approved signatory

The test results contained within this report meet the requirements of NELAC unless otherwise noted. This report relates only to those items tested.
ACCREDITATIONS: NJ-NELAP: 04853, AIHA Environmental Lead Laboratory Approval Program: 100194

Date Printed: 5/10/04 12:34:33 PM

EMSL Analytical
3 Cooper St., Westmont, NJ 08108
Phone: (856) 858-4800 Fax: (856) 858-0551 Email: skauffman@emsl.com

EMSL

Attn: Alex Nguyen
EFI
9700 Richmond
Suite 201
Houston, TX 77042
Fax: (713) 975-7336 Phone: (713) 724-2709
Project: 98410-13709

Customer ID: ENGF50
Customer PO:
Received: 05/07/04 10:14 AM

EMSL Order: 200405210
EMSL Proj:

Toxicity Characteristic Leaching Procedure (SW846, 1311/7420)

Client Sample Description	*Lab ID*	*Analyzed*	*Lead Concentration*
35T	0001	5/10/04	<0.4 mg/L

William Chamberlin
Laboratory Director
or other approved signatory

The test results contained within this report meet the requirements of NELAC unless otherwise noted. This report relates only to those items tested.
ACCREDITATIONS: NJ-NELAP; 04653, AIHA Environmental Lead Laboratory Approval Program; 100194

Date Printed: 5/10/04 12:34:01 PM

EMSL Analytical
3 Cooper St., Westmont, NJ 08108
Phone: (856) 858-4800 Fax: (856) 858-8551 Email: skauffm emsl.com

EMSL

Attn: Alex Nguyen
EFI
9700 Richmond
Suite 201
Houston, TX 77042
Fax: (713) 975-7336 Phone: (713) 724-270
Project: 98410-13709

Customer ID: ENGF50
Customer PO:
Received: 05/07/04 10:14 AM

EMSL Order: 200405209
EMSL Proj:

Toxicity Characteristic Leac g Procedure (SW846, 1311/7420)

Client Sample Description	*Lab ID*	*Analyz*	*Lead Concentration*
20T	0001	5/10/	<0.4 mg/L

William Chamberlin
Laboratory Director
or other approved signatory

The test results contained within this report meet the requirements of NELAC unless otherwise noted. This report relates only to those items tested.
ACCREDITATIONS: NJ-NELAP: 04653, AIHA Environmental Lead Laboratory Approval Program: 100194

Date Printed: 5/10/04 12:33:15 PM

EMSL Analytical
3 Cooper St., Westmont, NJ 08108
Phone: (856) 858-4800 Fax: (856) 858-8551 Email: skauffman@emsl.com

EMSL

Attn: Alex Nguyen
EFI
9700 Richmond
Suite 201
Houston, TX 77042
Fax: (713) 975-7336 Phone: (713) 724-2709
Project: 98410-13709

Customer ID: ENGF50
Customer PO:
Received: 05/07/04 10:14 AM

EMSL Order: 200405208
EMSL Proj:

Toxicity Characteristic Leaching Procedure (SW846, 1311/7420)

Client Sample Description	*Lab ID*	*Analyzed*	*Lead Concentration*
39T	0001	5/10/04	<0.4 mg/L

William Chamberlin
Laboratory Director
or other approved signatory

The test results contained within this report meet the requirements of NELAC unless otherwise noted. This report relates only to these items tested.
ACCREDITATIONS: NJ-NELAP: 04653, AIHA Environmental Lead Laboratory Approval Program: 100184

Date Printed: 5/10/04 12:32:39 PM

EMSL Analytical
3 Cooper St., Westmont, NJ 08108
Phone: (856) 858-4800 Fax: (856) 858-9551 Email: skauffman@emsl.com

EMSL

Attn: Alex Nguyen
EFI
9700 Richmond
Suite 201
Houston, TX 77042
Fax: (713) 975-7336 Phone: (713) 724-2709
Project: 98410-13709

Customer ID: ENGF50
Customer PO:
Received: 05/07/04 10:14 AM

EMSL Order: 200405207
EMSL Proj:

Toxicity Characteristic Leaching Procedure (SW846, 1311/7420)

Client Sample Description	*Lab ID*	*Analyzed*	*Lead Concentration*
39T-1	0001	5/10/04	<0.4 mg/L

William Chamberlin
Laboratory Director
or other approved signatory

Test results contained within this report meet the requirements of NELAC unless otherwise noted. This report relates only to those items tested.
ACCREDITATIONS: NJ-NELAP: 04652, AIHA Environmental Lead Laboratory Approval Program: 100194

Date Printed: 5/10/04 12:32:05 PM

APPENDIX B

CHAIN OF CUSTODY

00065584

EMSL ANALYTICAL — CHAIN OF CUSTODY — 200405215 — LEAD

Revised 7/1/99

EMSL Rep: Gary — DATE:

Third party billing requires written authorization from third party

Your Company Name:	EFI	EMSL-Bill to:	Alex Nguyen - EFI
Street:	9700 Richmond, St. 210	Street:	9700 Richmond, Suite 210
Box #:		Box #:	
City/State:	Houston, Tx Zip: 77042	City/State:	Houston, Tx Zip: 77042
Phone Results to: Name:	Alex Nguyen	Fax Results to: Name:	Alex Nguyen
Telephone #:	(713) 975-7031	Fax #:	(713) 975-7336
Project Name/Number:	98410-13709	Purchase Order #:	

MATRIX	METHOD	INSTRUMENT	mdls	TAT
Lead Chips*	SW846-7420 or AOAC 5.009 (974.02)	Flame Atomic Absorption	0.01% ++	24HR 48HR 72HR 96HR 3-6 DAYS 7-10 DAYS
Lead Wastewater	SW846-7420	Flame Atomic Absorption	0.4 mg/l water	
Lead Soil +			50 mg/kg (ppm) soil	
	or SW846-6010	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	SW846-7420	Flame Atomic Absorption	10 ug/wipe	
	or SW846-6010	ICP	3.0 ug/wipe	
TCLP Lead **	SW846-1311/7420	Flame Atomic Absorption	0.4 mg/l (ppm)	30 HRS -
	or SW846-6010	ICP	0.1 mg/l (ppm)	WITHIN WORK WEEK
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 0500-0600	Gravimetric Reduction	0.0001g	

RECEIVED MAY -7 AM 10:45

TAT (Turnaround) - 3 hours, 6 hours, Please call ahead to schedule,
12 hours (must arrive by 11:00 a.m),
24 hours (1day), 48 hours (2 days), 72 hours, 96 hours (3 days), 120 hours(4 days), 144 + hours (6-10 days)
*, **, ***, ****, +, ++ Please Refer to Price Quote

SAMPLE #	LOCATION	Air volume, L Area, in²	LAB #
317			05215-1

Relinquished By: (Person) [signature] — Received at EMSL By: [signature]

Date: 5/4/04 — Date: 5/7/04

Note: Please duplicate this form and use additional sheets if necessary.

00065585

EMSL ANALYTICAL
Revised 7/1/99

CHAIN OF CUSTODY

2004052 13

LEAD

EMSL Rep: Gary

DATE:

Third party billing requires written authorization from third party

Your Company Name:	EFI	EMSL-Bill to:	Alex Nguyen - EFI
Street:	9700 Richmond, St. 210	Street:	9700 Richmond, Suite 210
Box #:		Box #:	
City/State:	Houston, Tx Zip: 77042	City/State:	Houston, Tx Zip: 77042
Phone Results to:		Fax Results to:	
Name:	Alex Nguyen	Name:	Alex Nguyen
Telephone #:	(713) 975-7031	Fax #:	(713) 975-7336
Project Name/Number:	98410-13709	Purchase Order #:	

MATRIX	METHOD	INSTRUMENT	mdls	TAT
Lead Chips*	SW846-7420 or AOAC 5.009 (974.02)	Flame Atomic Absorption	0.01% ++	
Lead Wastewater	SW846-7420	Flame Atomic Absorption	0.4 mg/l water	
Lead Soil +			50 mg/kg (ppm) soil	
	or SW846-6010	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	SW846-7420	Flame Atomic Absorption	10 ug/wipe	
	or SW846-6010	ICP	3.0 ug/wipe	
TCLP Lead **	SW846-1311/7420	Flame Atomic Absorption	0.4 mg/l (ppm)	30 HRS -
	or SW846-6010	ICP	0.1 mg/l (ppm)	W/IN WORK WEEK
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 0500-0600	Gravimetric Reduction	0.0001g	

RECEIVED EMSL - N.J. 2004 MAY 7 AM 10:45

TAT (Turnaround) - 3 hours, 6 hours, Please call ahead to schedule.
12 hours (must arrive by 11:00 a.m),
24 hours (1day), 48 hours (2 days), 72 hours, 96 hours (3 days), 120 hours(4 days), 144 + hours (6-10 days)
*, **, ***, ****, +, ++ Please Refer to Price Quote

SAMPLE #	LOCATION	Air volume, L Area, in²	LAB #
* EFI-L			05213-1
20-T-1 per Alex Nguyen 5/7 7345			

Relinquished By: (Person) Dan Cameron
Date: 5/6/04

Received at EMSL By: Lmayo
Date: 5/7/04

Note: Please duplicate this form and use additional sheets if necessary.

* Sample ID on bag 20-T-1

00065586

YTICAL CHAIN OF CUSTODY 2004062?? LEAD

ny	Gary	DATE:	Third party billing requires written authorization from third party
	EFI	EMSL-Bill to:	Alex Nguyen - EFI
	9700 Richmond, St. 210	Street:	9700 Richmond, Suite 210
		Box #:	
e:	Houston, Tx Zip: 77042	City/State:	Houston, Tx Zip: 77042
Results to:	Alex Nguyen	Fax Results to: Name:	Alex Nguyen
/hone #:	(713) 975-7031	Fax #:	(713) 975-7336
ect ne/Number:	98410-13709	Purchase Order #:	

MATRIX	METHOD	INSTRUMENT	mdls	TAT
Lead Chips*	SW846-7420 or AOAC 5.009 (974.02)	Flame Atomic Absorption	0.01% ++	
Lead Wastewater	SW846-7420	Flame Atomic Absorption	0.4 mg/l water	
Lead Soil +	or SW846-6010	ICP	50 mg/kg (ppm) soil 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	SW846-7420	Flame Atomic Absorption	10 ug/wipe	
	or SW846-6010	ICP	3.0 ug/wipe	
TCLP Lead **	SW846-1311/7420	Flame Atomic Absorption	0.4 mg/l (ppm)	30 HRS -
	or SW846-6010	ICP	0.1 mg/l (ppm)	W/IN WORK WEEK
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 0500-0600	Gravimetric Reduction	0.0001g	

TAT (Turnaround) - 3 hours, 6 hours, Please call ahead to schedule.
12 hours (must arrive by 11:00 a.m),
24 hours (1day), 48 hours (2 days), 72 hours, 96 hours (3 days), 120 hours(4 days), 144 + hours (6-10 days)
*, **, ***, ****, +, ++ Please Refer to Price Quote

SAMPLE #	LOCATION	Air volume, L Area, in²	LAB #
351			852161

Relinquished By: (Person) Don Lorenzen — Received at EMSL By:
Date: 5/4/04 — Date:

Note: Please duplicate this form and use additional sheets if necessary.

RECEIVED EMSL HOUSTON, TX

00065587

EMSL ANALYTICAL
Revised 7/1/99

CHAIN OF CUSTODY

2005209 LEAD

EMSL Rep: Gary

DATE:

Third party billing requires written authorization from third party

Your Company Name:	EFI	EMSL-Bill to:	Alex Nguyen - EFI
Street:	9700 Richmond, St. 210	Street:	9700 Richmond, Suite 210
Box #:		Box #:	
City/State:	Houston, Tx Zip: 77042	City/State:	Houston, Tx Zip: 77042
Phone Results to: Name:	Alex Nguyen	Fax Results to: Name:	Alex Nguyen
Telephone #:	(713) 975-7031	Fax #:	(713) 975-7336
Project Name/Number:	98410-13709	Purchase Order #:	

MATRIX	METHOD	INSTRUMENT	mdls	TAT
Lead Chips'	SW846-7420 or AOAC 5.009 (974.02)	Flame Atomic Absorption	0.01% ++	
Lead Wastewater	SW846-7420	Flame Atomic Absorption	0.4 mg/l water	
Lead Soil +			50 mg/kg (ppm) soil	
	or SW846-6010	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	SW846-7420	Flame Atomic Absorption	10 ug/wipe	
	or SW846-6010	ICP	3.0 ug/wipe	
TCLP Lead **	SW846-1311/7420	Flame Atomic Absorption	0.4 mg/l (ppm)	30 HRS -
	or SW846-6010	ICP	0.1 mg/l (ppm)	W/IN WORK WK
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 0500-0600	Gravimetric Reduction	0.0001g	

TAT (Turnaround) - 3 hours, 6 hours, Please call ahead to schedule.
12 hours (must arrive by 11:00 a.m),
24 hours (1day), 48 hours (2 days), 72 hours, 96 hours (3 days), 120 hours(4 days), 144 + hours (6-10 days)
*, **, ***, ****, +, ++ Please Refer to Price Quote

SAMPLE #	LOCATION	Air volume, L Area, in²	LAB #
201			05209

Relinquished By: (Person) Don Corcoran — Received at EMSL By:

Date: 5/4/04 — Date: 5/7/04

Note: Please duplicate this form and use additional sheets if necessary.

RECEIVED
2004 MAY 7 AM 10:14
EMSL
WESTMONT, NJ

00065588

EMSL ANALYTICAL
Revised 7/1/99

CHAIN OF CUSTODY

2006052604

LEAD

EMSL Rep: Gary

DATE:

Third party billing requires written authorization from third party

Your Company Name: EFI

EMSL-Bill to: Alex Nguyen - EFI

Street: 9700 Richmond, St. 210

Box #:

City/State: Houston, Tx Zip: 77042

Street: 9700 Richmond, Suite 210

Box #:

City/State: Houston, Tx Zip: 77042

Phone Results to:
Name: Alex Nguyen
Telephone #: (713) 975-7031
Project Name/Number: 98410-13709

Fax Results to:
Name: Alex Nguyen
Fax #: (713) 975-7336
Purchase Order #:

MATRIX	METHOD	INSTRUMENT	mdls	TAT
Lead Chips'	SW846-7420 or AOAC 5.009 (974.02)	Flame Atomic Absorption	0.01% ++	
Lead Wastewater	SW846-7420	Flame Atomic Absorption	0.4 mg/l water	
Lead Soil +			50 mg/kg (ppm) soil	
	or SW846-6010	ICP	0.1 mg/l water	
			10 mg/kg (ppm) soil	2004 MAY -1
Lead in Air***	NIOSH 7082	Flame Atomic Absorption	5 ug/filter	
	or NIOSH 7300	ICP	3.0 ug/filter	
Lead in Wipe	SW846-7420	Flame Atomic Absorption	10 ug/wipe	
	or SW846-6010	ICP	3.0 ug/wipe	
TCLP Lead **	SW846-1311/7420	Flame Atomic Absorption	0.4 mg/l (ppm)	30 HRS F-
	or SW846-6010	ICP	0.1 mg/l (ppm)	W/IN WORK WEEK
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 0500-0600	Gravimetric Reduction	0.0001g	

RECEIVED EMSL WESTMONT, NJ. MAY 10

TAT (Turnaround) - 3 hours, 6 hours. Please call ahead to schedule.
12 hours (must arrive by 11:00 a.m),
24 hours (1day), 48 hours (2 days), 72 hours, 96 hours (3 days), 120 hours(4 days), 144 + hours (6-10 days)
*, **, ***, ****, +, ++ Please Refer to Price Quote

SAMPLE #	LOCATION	Air volume, L Area, in²	LAB #
397			00065-1

Relinquished By: (Person) Don Cameron
Date: 5/4/04

Received at EMSL By:
Date: 5/7/04

Note: Please duplicate this form and use additional sheets if necessary.

00065589

EMSL ANALYTICAL
Revised 7/1/99

CHAIN OF CUSTODY 20840524 LEAD

EMSL Rep: Gary
DATE:

Third party billing requires written authorization from third party

Your Company Name: EFI
EMSL-Bill to: Alex Nguyen - EFI

Street: 9700 Richmond, St. 210
Box #:
City/State: Houston, Tx Zip: 77042

Street: 9700 Richmond, Suite 210
Box #:
City/State: Houston, Tx Zip: 77042

Phone Results to:
Name: Alex Nguyen
Telephone #: (713) 975-7031
Project Name/Number: 98410-13709

Fax Results to:
Name: Alex Nguyen
Fax #: (713) 975-7336
Purchase Order #:

MATRIX	METHOD	INSTRUMENT	mdls	TAT
Lead Chips'	SW846-7420 or AOAC 5.009 (974.02)	Flame Atomic Absorption	0.01% ++	
Lead Wastewater	SW846-7420	Flame Atomic Absorption	0.4 mg/l water	
Lead Soil +	or SW846-6010	ICP	50 mg/kg (ppm) soil 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	SW846-7420	Flame Atomic Absorption	10 ug/wipe	
	or SW846-6010	ICP	3.0 ug/wipe	
TCLP Lead ''	SW846-1311/7420	Flame Atomic Absorption	0.4 mg/l (ppm)	30 HRS -
	or SW846-6010	ICP	0.1 mg/l (ppm)	W/IN WORK WEEK
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 0500-0600	Gravimetric Reduction	0.0001g	

RECEIVED EMSL ANALYTICAL, INC. WESTMONT, N.J. 2004 MAY 7 AM 10 15

TAT (Turnaround) - 3 hours, 6 hours, Please call ahead to schedule.
12 hours (must arrive by 11:00 a.m),
24 hours (1day), 48 hours (2 days), 72 hours, 96 hours (3 days), 120 hours(4 days), 144 + hours (6-10 days)
', '', ''', '''', +, ++ Please Refer to Price Quote

SAMPLE #	LOCATION	Air volume, L Area, in²	LAB #
39T-1			65207

Relinquished By: (Person) Don Chaveon
Date: 5/4/04

Received at EMSL By: [illegible]
Date: 5/7/04

Note: Please duplicate this form and use additional sheets if necessary.

APPENDIX G
BUILDING 451 – TNT PRODUCTION AREA
PCBs - TRANSMITTAL OF ANALYTICAL RESULTS

EFI®
Engineering and Fire
Investigations

9700 Richmond
Suite 201
Houston, TX 77042
Tel: 866-464-2127
Fax: 713-975-7336
www.efiglobal.com

April 3, 2003

Mr. Michael Luczak
ARC Abatement, Inc.
6630 Roxburgh Drive, Suite 130
Houston, Texas 77041

Subject: **TRANSMITTAL OF ANALYTICAL RESULTS**
Longhorn Army Ammunition Plant – (PCB Testing)
Karnack, Texas 77055
EFI PROJECT NO. 98410-13709

Dear Mr. Luczak:

Engineering and Fire Investigations (EFI) has completed sampling and analysis of dielectric fluid oil sample suspect for Polychlorinated Biphenyls (PCBs). The fluid sample was collected from a 6-gallons transform reservoir located in the TNT Production Area (Building 451) at the Longhorn Army Ammunition Plant located in Karnack, Texas. This work was performed at the verbal request of Mr. Michael Luczak of ARC Abatement, Inc.

The samples were analyzed by our subcontract laboratory (E-Lab) in Houston, Texas) using test methods SW8082 to determine concentrations of PCBs as Aroclors or as individual PCB congeners in extracts from solid and aqueous matrices by use of gas chromatography.

Based on the results the dielectric fluid collected from a 6-gallons transform reservoir located in the TNT Production Area (Building 451) is not considered to be PCB as defined by the Environmental Protection Agency (EPA).

A complete analytical report is presented in Appendix A. In addition, we have included the chain of custody for the samples collected in Appendix B.

We appreciate the opportunity to provide consulting services to ARC Abatement, Inc. in this matter. If there are any questions, please contact us.

Sincerely,

ENGINEERING AND FIRE INVESTIGATIONS

Cuong Nguyen
Project Manager

Lee A. Burckle, P.E.
Branch Manager

Attachments: Appendix A – Laboratory Result Sheets
Appendix B – Chain Of Custody

CN/cn(e:\projects 2003\Longhorn Army Ammunition Plant\PCB Sampling – Transrpt.doc

APPENDIX A

LABORATORY RESULT SHEETS

e-Lab
QUALITY · INTEGRITY · SERVICE

e-Lab, Inc.
10450 Stancliff Road, Suite 210 • Houston, Texas 77099 • Ph: 281.530.5656 • Fax: 281.530.5887

March 26, 2003

Wellington Joe
Engineering and Fire Investigations (EFI)
9700 Richmond
Suite 201
Houston, TX 77042

Tel: (713) 975-7031
Fax: (713) 975-7336

Re: LAA Plant/Bldg 451 Work Order : **0303152**

Dear Wellington Joe,

e-Lab, Inc. received 1 sample on 3/24/2003 5:30:00 PM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by e-Lab, Inc. and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by e-Lab Inc. The total number of pages in this report is 7.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

Hector Coronado
Project Manager

e-Lab, Inc.

Date: *March 26, 2003*

CLIENT: Engineering and Fire Investigations (EFI)
Project: LAA Plant/Bldg 451
Work Order: **0303152**

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
0303152-01	LAAP-01/Bldg. 451	Oil		3/20/2003 12:00	3/24/2003 17:30	☐

e-Lab, Inc. **Date:** *March 26, 2003*

CLIENT:	Engineering and Fire Investigations (EFI)
Project:	LAA Plant/Bldg 451
Work Order:	0303152

Case Narrative

Analytical comment for QC samples labeled "PLCSO1-030325 & PLCSDO1-030325 for the PCB analysis: The recovery for Aroclor 1016 was marginally high for both the PLCSO and the PLCSDO. The samples were ND, so the data was accepted.

e-Lab, Inc.

Date: *March 26, 2003*

CLIENT: Engineering and Fire Investigations (EFI)
Work Order: 0303152
Project: LAA Plant/Bldg 451
Lab ID: 0303152-01

Client Sample ID: LAAP-01/Bldg. 451
Collection Date: 3/20/2003 12:00:00 PM
Matrix: OIL

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
PCBS IN OIL		**SW8082**			Prep Date: **3/25/2003**	Analyst: **JLJ**
Aroclor 1016	ND	500		µg/Kg	1	3/25/2003 11:06:00 AM
Aroclor 1221	ND	500		µg/Kg	1	3/25/2003 11:06:00 AM
Aroclor 1232	ND	500		µg/Kg	1	3/25/2003 11:06:00 AM
Aroclor 1242	ND	500		µg/Kg	1	3/25/2003 11:06:00 AM
Aroclor 1248	ND	500		µg/Kg	1	3/25/2003 11:06:00 AM
Aroclor 1254	ND	500		µg/Kg	1	3/25/2003 11:06:00 AM
Aroclor 1260	ND	500		µg/Kg	1	3/25/2003 11:06:00 AM
Surr: Decachlorobiphenyl	118	30-150		%REC	1	3/25/2003 11:06:00 AM
Surr: Tetrachloro-m-xylene	120	30-150		%REC	1	3/25/2003 11:06:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

METHOD 8082

POLYCHLORINATED BIPHENYLS (PCBs)
BY GAS CHROMATOGRAPHY

1.0 SCOPE AND APPLICATION

1.1 Method 8082 is used to determine the concentrations of polychlorinated biphenyls (PCBs) as Aroclors or as individual PCB congeners in extracts from solid and aqueous matrices. Open-tubular, capillary columns are employed with electron capture detectors (ECD) or electrolytic conductivity detectors (ELCD). When compared to packed columns, these fused-silica, open-tubular columns offer improved resolution, better selectivity, increased sensitivity, and faster analysis. The target compounds listed below may be determined by either a single- or dual-column analysis system. The PCB congeners listed below have been tested by this method, and the method may be appropriate for additional congeners.

Compound	CAS Registry No.	IUPAC #
Aroclor 1016	12674-11-2	-
Aroclor 1221	11104-28-2	-
Aroclor 1232	11141-16-5	-
Aroclor 1242	53469-21-9	-
Aroclor 1248	12672-29-6	-
Aroclor 1254	11097-69-1	-
Aroclor 1260	11096-82-5	-
2-Chlorobiphenyl	2051-60-7	1
2,3-Dichlorobiphenyl	16605-91-7	5
2,2',5-Trichlorobiphenyl	37680-65-2	18
2,4',5-Trichlorobiphenyl	16606-02-3	31
2,2',3,5'-Tetrachlorobiphenyl	41464-39-5	44
2,2',5,5'-Tetrachlorobiphenyl	35693-99-3	52
2,3',4,4'-Tetrachlorobiphenyl	32598-10-0	66
2,2',3,4,5'-Pentachlorobiphenyl	38380-02-8	87
2,2',4,5,5'-Pentachlorobiphenyl	37680-73-2	101
2,3,3',4',6-Pentachlorobiphenyl	38380-03-9	110
2,2',3,4,4',5'-Hexachlorobiphenyl	35065-28-2	138
2,2',3,4,5,5'-Hexachlorobiphenyl	52712-04-6	141
2,2',3,5,5',6-Hexachlorobiphenyl	52663-63-5	151
2,2',4,4',5,5'-Hexachlorobiphenyl	35065-27-1	153
2,2',3,3',4,4',5-Heptachlorobiphenyl	35065-30-6	170
2,2',3,4,4',5,5'-Heptachlorobiphenyl	35065-29-3	180
2,2',3,4,4',5',6-Heptachlorobiphenyl	52663-69-1	183
2,2',3,4',5,5',6-Heptachlorobiphenyl	52663-68-0	187
2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl	40186-72-9	206

00065598

e-Lab, Inc.

Date: *Mar 26 2003*

CLIENT: Engineering and Fire Investigations (EFI)

Work Order: 0303152

Project: LAA Plant/Bldg 451

QC BATCH REPORT

Batch ID: 5186 InstrumentID: **ECD_3**

MBLK Sample ID: **PBLKO1-030325** Test Code: **SW8082** Units: **µg/Kg** Analysis Date **03/25/03 9:22**

Client ID: Run ID: **ECD_3_030324A** SeqNo: **302693** Prep Date: **3/25/2003**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aroclor 1016	ND	500								
Aroclor 1221	ND	500								
Aroclor 1232	ND	500								
Aroclor 1242	ND	500								
Aroclor 1248	ND	500								
Aroclor 1254	ND	500								
Aroclor 1260	ND	500								
Surr: Decachlorobiphenyl	235	0	200	0	117	30-150	0			
Surr: Tetrachloro-m-xylene	250.2	0	200	0	125	30-150	0			

LCS Sample ID: **PLCSO1-030325** Test Code: **SW8082** Units: **µg/Kg** Analysis Date **03/25/03 9:57**

Client ID: Run ID: **ECD_3_030324A** SeqNo: **302694** Prep Date: **3/25/2003**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aroclor 1016	6889	500	5000	0	138	50-130	0			S
Aroclor 1260	5886	500	5000	0	118	50-130	0			
Surr: Decachlorobiphenyl	255	0	200	0	128	30-150	0			
Surr: Tetrachloro-m-xylene	292.5	0	200	0	146	30-150	0			

LCSD Sample ID: **PLCSDO1-030325** Test Code: **SW8082** Units: **µg/Kg** Analysis Date **03/25/03 10:32**

Client ID: Run ID: **ECD_3_030324A** SeqNo: **302695** Prep Date: **3/25/2003**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aroclor 1016	6720	500	5000	0	134	50-130	6889	2.48	30	S
Aroclor 1260	6140	500	5000	0	123	50-130	5886	4.22	30	
Surr: Decachlorobiphenyl	233.6	0	200	0	117	30-150	255	8.8	30	
Surr: Tetrachloro-m-xylene	272.9	0	200	0	136	30-150	292.5	6.94	30	

The following samples were analyzed in this batch: 0303152-01A

Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

O - Referenced analyte value is > 4 times amount spiked

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

P - Dual Column results percent difference > 40%

B - Analyte detected in assoc. Method Blank

U - Analyzed for but not detected

E - Value above quantitation range

APPENDIX B

CHAIN OF CUSTODY

e-Lab, Inc.
10450 Stancliff Rd. Suite 210
Houston, Texas 77099
Tel. 281.530.5656
Fax. 281.530.5887

Chain of Custody Form

e-Lab Work Order No. 0303152

CUSTOMER INFORMATION		PROJECT INFORMATION		PARAMETER/METHOD REQUEST FOR ANALYSIS	
Purchase Order:	N/A	Project Name:	LAA Plant / Bldg 451	A	PCB's on oil
Work Order:		Project Number:	98410-13709	B	
Company Name:	EFI	Bill To Company:		C	
Send Report To:	Wellington Joe	Invoice Attn.:		D	
Address:	9700 Richmond Ave. Suite 201	Address:		E	
				F	
City/State/Zip:	Hou, TX 77042	City/State/Zip:		G	
Phone:	713 975 7031	Phone:		H	
Fax:	713 975 7336	Fax:		I	
E-mail:	wellington_joe@efinfo.com	E-mail:		J	

No.	Sample Description	Date	Time	Matrix	No. of Bottles	A	B	C	D	E	F	G	H	I	J	HOLD
1	LAAP-01 / Bldg. 451	3/20/03	12h0a	transformer oil	1	X										
2																
3																
4																
5																
6																
7																
8																
9																
10																

Sampler(s): Please Print & Sign — Wellington Joe

Shipment Method:

Airbill No.:

Required TAT: 3-4 days

Results Due Date: 3/28/03

Relinquished By:	Date:	Time:	Received By:	Date:	Time:
	3/24/03	5:30P			
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By (Laboratory):	Date: 3/24/03	Time: 5:30P

Notes:

QC Package : (Check Box Below)
☐ Standard QC ☐ Level IV - SW846 Methods
☐ Standard QC + Raw Data ☐ Level IV - CLP SOW

IMPORTANT NOTE: Any changes must be made in writing once samples and COC Form have been submitted to e-Lab, Inc.

Copyright 1999 by e-Lab, Inc.
COC Form.xls

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00065601

e-Lab, Inc.

Sample Receipt Checklist

Client Name EFI Date/Time Received: 3/24/2003 5:30:00 PM

Work Order Number 0303152 Received by: SLT

Checklist completed by RICHARD SANCHEZ 3.24.03 (Signature / Date) Reviewed by [illegible] 3/25/03 (Initials / Date)

Matrix: transformer oil Carrier name: Client

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
ntainer/Temp Blank temperature in compliance?	Yes ☐	No ☑	
Temperature(s)/Thermometer(s):	Ambient	NA	
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑

Adjusted? _____ Checked by _____

Login Notes:

Any No and/or NA (not applicable) response must be detailed in the comments section below.

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding: _____

Comments: _____

Corrective Action _____

APPENDIX F
LEAD – TCLP TRANSMITTAL OF ANALYTICAL RESULTS

EFI®
Engineering and Fire
Investigations

9700 Richmond
Suite 201
Houston, TX 77042
Tel: 866-464-2127
Fax: 713-975-7336
www.efiinfo.com

May 2, 2003

Mr. Michael Luczak
ARC Abatement, Inc.
6630 Roxburgh Drive, Suite 130
Houston, Texas 77041

Subject: **TRANSMITTAL OF ANALYTICAL RESULTS**
Longhorn Army Ammunition Plant – (TCLP Testing)
Karnack, Texas 77055
EFI PROJECT NO. 98410-13709

Dear Mr. Luczak:

Engineering and Fire Investigations (EFI) has completed sampling and analysis for Toxicity Characteristic Leaching Procedure (TCLP) of demolition debris sample suspect for lead-based paint from a total of 21 buildings. These samples were collected as composite samples (i.e. building materials used in their construction) per building. This work was performed at the verbal request of Mr. Michael Luczak of ARC Abatement, Inc.

The samples were analyzed by our subcontract laboratory (EMSL Analytical in Westmont, New Jersey) using test methods SW846-1311/7420 to determine leachable concentrations of lead by use of Flame Atomic Absorption.

Based on the results TCLP lead concentrations of the 21 buildings tested were below 5mg/l with the exception of Building 720-A. Environmental Protection Agency (EPA) defines that waste materials with concentrations of leachable lead below 5 mg/l as non-hazardous and can be disposed of as construction materials.

We recommend retesting Building 720-A for quality assurance to determine the composite testing protocol to represent the type and percentage of each constituent material utilized during the construction of Building 720-A.

A complete analytical report is presented in Appendix A. In addition, we have included the chain of custody for the samples collected in Appendix B.

We appreciate the opportunity to provide consulting services to ARC Abatement, Inc. in this matter. If there are any questions, please contact us.

Sincerely,
ENGINEERING AND FIRE INVESTIGATIONS

Cuong Nguyen
Project Manager

Lee A. Burckle, P.E.
Branch Manager

Attachments: Appendix A – Laboratory Result Sheets
Appendix B – Chain Of Custody

CN/cn(e:\projects 2003\Longhorn Army Ammunition Plant\TCLP Sampling – Transrpt.doc

APPENDIX A

LABORATORY RESULT SHEETS

EMSL Analytical
3 Cooper St., Westmont, NJ 08108
Phone: (856) 858-4800 Fax: (856) 858-9551 Email: gmiller1@emsl.com

00065605

Attn: Alex Nguyen
EFI
9700 Richmond
Suite 201
Houston, TX 77042
Fax: (713) 975-7336 Phone: 713-724-2709 cell
Project: **98410-13709**

Customer ID: ENGF50
Customer PO:
Received: 04/11/03 11:25 AM

EMSL Order: 200303266
EMSL Project ID:

Toxicity Characteristic Leaching Procedure (SW846, 1311/7420)

Client Sample Description	*Lab ID*	*Analyzed*	*Lead Concentration*
Bldg 704-A	*0001*	4/15/03	<0.4 mg/L
Bldg 707-C	*0002*	4/15/03	<0.4 mg/L
Bldg 451	*0003*	4/15/03	<0.4 mg/L
Bldg 601-B	*0004*	4/15/03	<0.4 mg/L
Bldg 701	*0005*	4/15/03	<0.4 mg/L
Bldg 703 - 703A	*0006*	4/15/03	0.7 mg/L
Bldg 705	*0007*	4/15/03	1.3 mg/L
Bldg 707- E	*0008*	4/15/03	0.5 mg/L
Bldg 719	*0009*	4/15/03	1.0 mg/L
Bldg 720-A	*0010*	4/15/03	13.0 mg/L
[illegible]g 730	*0011*	4/15/03	0.9 mg/L
[illegible]g 707- A	*0012*	4/15/03	<0.4 mg/L

Gerold J. Miller, Ph.D.
Laboratory Director
NJ-NELAP: 04653
AIHA: 100194
or other approved signatory

Date Printed: 4/15/03 2:53:48 PM

PBW/dmc21

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EMSL Analytical
3 Cooper St., Westmont, NJ 08108
Phone: (856) 858-4800 Fax: (856) 858-9551 Email: gmiller1@emsl.com

00065606

EMSL

Attn: Alex Nguyen
EFI
9700 Richmond
Suite 201
Houston, TX 77042
Fax: (713) 975-7336 Phone: 713-724-2709 cell
Project: **98410-13709**

Customer ID: ENGF50
Customer PO:
Received: 04/16/03 11:43 AM

EMSL Order: 200303424
EMSL Project ID:

Toxicity Characteristic Leaching Procedure (SW846, 1311/7420)

Client Sample Description	*Lab ID*	*Analyzed*	*Lead Concentration*
TS-84	*0001*	4/17/03	2.1 mg/L
18-K-1	*0002*	4/17/03	1.7 mg/L
22 G	*0003*	4/17/03	<0.4 mg/L
25 G	*0004*	4/17/03	0.6 mg/L
18 K	*0005*	4/17/03	<0.4 mg/L
736 A	*0006*	4/17/03	0.4 mg/L
TS-64	*0007*	4/17/03	<0.4 mg/L
BLDG 722-G	*0008*	4/17/03	<0.4 mg/L
TS- GUARD	*0009*	4/17/03	2.2 mg/L

Gerold J. Miller, Ph.D.
Laboratory Director
NJ-NELAP: 04653
AIHA: 100194
or other approved signatory

Date Printed: 4/21/03 5:18:09 PM

PRELIMINARY

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APPENDIX B

CHAIN OF CUSTODY

EMSL ANALYTICAL
Revised 7/1/99

CHAIN OF CUSTODY

2-03-2CC

00065608
LEAD

EMSL Rep: Gary
DATE:

Third party billing requires written authorization from third party

Your Company Name: EFI
Street: 9700 Richmond, St. 210
Box #:
City/State: Houston, Tx Zip: 77042

EMSL-Bill to:
Street: Alex Nguyen - EFI
9700 Richmond, Suite 210
Box #:
City/State: Houston, Tx Zip: 77042

Phone Results to:
Name: Alex Nguyen
Telephone #: (713) 975-7031
Project Name/Number: 98410-13709

Fax Results to:
Name: Alex Nguyen
Fax #: (713) 975-7336
Purchase Order #:

MATRIX	METHOD	INSTRUMENT	mdls	TAT
Lead Chips*	SW846-7420 or AOAC 5.009 (974.02)	Flame Atomic Absorption	0.01% ++	
Lead Wastewater	SW846-7420	Flame Atomic Absorption	0.4 mg/l water	
Lead Soil +			50 mg/kg (ppm) soil	
	or SW846-6010	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	SW846-7420	Flame Atomic Absorption	10 ug/wipe	
	or SW846-6010	ICP	3.0 ug/wipe	
TCLP Lead **	SW846-1311/7420	Flame Atomic Absorption	0.4 mg/l (ppm)	30 HRS -
	or SW846-6010	ICP	0.1 mg/l (ppm)	W/IN WORK WEEK
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 0500-0600	Gravimetric Reduction	0.0001g	

TAT (Turnaround) - 3 hours, 6 hours, Please call ahead to schedule.
12 hours (must arrive by 11:00 a.m),
24 hours (1day), 48 hours (2 days), 72 hours, 96 hours (3 days), 120 hours(4 days), 144 + hours (6-10 days)
*, **, ***, ****, +, ++ Please Refer to Price Quote

SAMPLE #	LOCATION	Air volume, L Area, in²	LAB #
BLDG 719	BLDG 719		03266-9
BLDG 720-A	BLDG 720-A		10
BLDG 730	BLDG 730		11
BLDG 707-A	BLDG 707-A		12

Relinquished By; (Person) [signature]
Date: 4-10-03
Received at EMSL By: [signature]
Date: 4/11/03 1125A

Note: Please duplicate this form and use additional sheets if necessary.

* Sample bag matrix Bldg 720

EMSL ANALYTICAL CHAIN OF CUSTODY 2003226 00065609
Revised 7/1/99 LEAD

EMSL Rep: Gary DATE:

Third party billing requires written authorization from third party

Your Company Name:	EFI	EMSL-Bill to:	Alex Nguyen - EFI
Street:	9700 Richmond, St. 210	Street:	9700 Richmond, Suite 210
Box #:		Box #:	
City/State:	Houston, Tx Zip: 77042	City/State:	Houston, Tx Zip: 77042
Phone Results to:		Fax Results to:	
Name:	Alex Nguyen	Name:	Alex Nguyen
Telephone #:	(713) 975-7031	Fax #:	(713) 975-7336
Project Name/Number:	98410-13709	Purchase Order #:	

MATRIX	METHOD	INSTRUMENT	mdls	TAT
Lead Chips*	SW846-7420 or AOAC 5.009 (974.02)	Flame Atomic Absorption	0.01% ++	
Lead Wastewater	SW846-7420	Flame Atomic Absorption	0.4 mg/l water	
Lead Soil +	or SW846-6010	ICP	50 mg/kg (ppm) soil 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	SW846-7420	Flame Atomic Absorption	10 ug/wipe	
	or SW846-6010	ICP	3.0 ug/wipe	
TCLP Lead **	SW846-1311/7420	Flame Atomic Absorption	0.4 mg/l (ppm)	30 HRS -
	or SW846-6010	ICP	0.1 mg/l (ppm)	W/IN WORK WEEK
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 0500-0600	Gravimetric Reduction	0.0001g	

TAT (Turnaround) - 3 hours, 6 hours, Please call ahead to schedule.
12 hours (must arrive by 11:00 a.m),
24 hours (1day), 48 hours (2 days), 72 hours, 96 hours (3 days), 120 hours(4 days), 144 + hours (6-10 days)
*, **, ***, ****, +, ++ Please Refer to Price Quote

SAMPLE #	LOCATION	Air volume, L Area, in²	LAB #
BLDG 701	BLDG 701		03226-5
BLDG 703 - 703A	BLDG. 703-703A		6
BLDG 705	BLDG 705		7
BLDG 707-E	BLDG 707E		8

Relinquished By; (Person) Received at EMSL By:

Date: 4-10-03 Date: 4/11/03 1125 hrs

Note: Please duplicate this form and use additional sheets if necessary.

2C0303424

00065610

EMSL ANALYTICAL CHAIN OF CUSTODY LEAD

Revised 7/1/99

EMSL Rep:	Gary	**DATE:**	Third party billing requires written authorization from third party
Your Company Name:	EFI	**EMSL-Bill to:**	Alex Nguyen - EFI
Street:	9700 Richmond, St. 210	**Street:**	9700 Richmond, Suite 210
Box #:		**Box #:**	
City/State:	Houston, Tx **Zip:** 77042	**City/State:**	Houston, Tx **Zip:** 77042
Phone Results to:		**Fax Results to:**	
Name:	Alex Nguyen	**Name:**	Alex Nguyen
Telephone #:	(713) 975-7031	**Fax #:**	(713) 975-7336
Project Name/Number:	98410-13709	**Purchase Order #:**	

MATRIX	METHOD	INSTRUMENT	mdls	TAT
Lead Chips*	SW846-7420 or AOAC 5.009 (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 SW846-6010	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	SW846-7420	Flame Atomic Absorption	10 ug/wipe	
	or SW846-6010	ICP	3.0 ug/wipe	
TCLP Lead **	SW846-1311/7420	Flame Atomic Absorption	0.4 mg/l (ppm)	30 HRS -
	or SW846-6010	ICP	0.1 mg/l (ppm)	W/IN WORK WEEK
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 0500-0600	Gravimetric Reduction	0.0001g	

TAT (Turnaround) - 3 hours, 6 hours, Please call ahead to schedule.
12 hours (must arrive by 11:00 a.m),
24 hours (1day), 48 hours (2 days), 72 hours, 96 hours (3 days), 120 hours(4 days), 144 + hours (6-10 days)
*, **, ***, ****, +, ++ Please Refer to Price Quote

SAMPLE #	LOCATION	Air volume, L Area, in²	LAB #
TS-84	BLDG. TS-84		03424-1
18-K-1	BLDG 18-K-1		2
22G	BLDG 22G		3
25G	BLDG 25G		4

Relinquished By; (Person)	Received at EMSL By:
Date: 4-15-03	Date: 4/16/03 11:43 AM

Note: Please duplicate this form and use additional sheets if necessary.

2003424

00065611

EMSL ANALYTICAL CHAIN OF CUSTODY LEAD

Revised 7/1/99

EMSL Rep: Gary DATE:

Third party billing requires written authorization from third party

Your Company Name:	EFI	EMSL-Bill to:	Alex Nguyen - EFI
Street:	9700 Richmond, St. 210	Street:	9700 Richmond, Suite 210
Box #:		Box #:	
City/State:	Houston, Tx Zip: 77042	City/State:	Houston, Tx Zip: 77042
Phone Results to:		Fax Results to:	
Name:	Alex Nguyen	Name:	Alex Nguyen
Telephone #:	(713) 975-7031	Fax #:	(713) 975-7336
Project Name/Number:	98410-13709	Purchase Order #:	

MATRIX	METHOD	INSTRUMENT	mdls	TAT
Lead Chips*	SW846-7420 or AOAC 5.009 (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 SW846-6010	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	SW846-7420	Flame Atomic Absorption	10 ug/wipe	
	or SW846-6010	ICP	3.0 ug/wipe	
TCLP Lead **	SW846-1311/7420	Flame Atomic Absorption	0.4 mg/l (ppm)	30 HRS -
	or SW846-6010	ICP	0.1 mg/l (ppm)	W/IN WORK WEEK
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 0500-0600	Gravimetric Reduction	0.0001g	

TAT (Turnaround) - 3 hours, 6 hours, Please call ahead to schedule.
12 hours (must arrive by 11:00 a.m),
24 hours (1day), 48 hours (2 days), 72 hours, 96 hours (3 days), 120 hours(4 days), 144 + hours (6-10 days)
*, **, ***, ****, +, ++ Please Refer to Price Quote

SAMPLE #	LOCATION	Air volume, L Area, in²	LAB #
TS - GUARD	THREE GUARD SHACKS		03424-9

Relinquished By; (Person) [signature] Received at EMSL By: LVHughes

Date: 4-15-03 Date: 4/16/03 1133

Note: Please duplicate this form and use additional sheets if necessary.

2030424

00065612

EMSL ANALYTICAL CHAIN OF CUSTODY LEAD

Revised 7/1/99

EMSL Rep:	Gary	DATE:	Third party billing requires written authorization from third party
Your Company Name:	EFI	**EMSL-Bill to:**	Alex Nguyen - EFI
Street:	9700 Richmond, St. 210	**Street:**	9700 Richmond, Suite 210
Box #:		**Box #:**	
City/State:	Houston, Tx **Zip:** 77042	**City/State:**	Houston, Tx **Zip:** 77042
Phone Results to:		**Fax Results to:**	
Name:	Alex Nguyen	**Name:**	Alex Nguyen
Telephone #:	(713) 975-7031	**Fax #:**	(713) 975-7336
Project Name/Number:	98410-13709	**Purchase Order #:**	

MATRIX	METHOD	INSTRUMENT	mdls	TAT
Lead Chips*	SW846-7420 or AOAC 5.009 (974.02)	Flame Atomic Absorption	0.01% ++	
Lead Wastewater	SW846-7420	Flame Atomic Absorption	0.4 mg/l water	
Lead Soil +			50 mg/kg (ppm) soil	
	or SW846-6010	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	SW846-7420	Flame Atomic Absorption	10 ug/wipe	
	or SW846-6010	ICP	3.0 ug/wipe	
CLP Lead **	SW846-1311/7420	Flame Atomic Absorption	0.4 mg/l (ppm)	30 HRS -
	or SW846-6010	ICP	0.1 mg/l (ppm)	W/IN WORK WEEK
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 0500-0600	Gravimetric Reduction	0.0001g	

TAT (Turnaround) - 3 hours, 6 hours, Please call ahead to schedule.
12 hours (must arrive by 11:00 a.m),
24 hours (1day), 48 hours (2 days), 72 hours, 96 hours (3 days), 120 hours(4 days), 144 + hours (6-10 days)
*, **, ***, ****, +, ++ Please Refer to Price Quote

SAMPLE #	LOCATION	Air volume, L Area, in²	LAB #
18K	BLDG 18K		07424-5
736A	BLDG 736A		6
TS64	BLDG TS64		7
BLDG 722-G	BLDG 722-G		8

Relinquished By; (Person) [signature] Received at EMSL By: [signature]

Date: 4-15-03 Date: 4/16/03 1143 hrs

Note: Please duplicate this form and use additional sheets if necessary.

May 15, 2003

Mr. Michael Luczak
ARC Abatement, Inc.
6630 Roxburgh Drive, Suite 130
Houston, Texas 77041

Subject: **TRANSMITTAL OF ANALYTICAL RESULTS (No.2)**
Longhorn Army Ammunition Plant – (TCLP Testing)
Karnack, Texas 77055
EFI PROJECT NO. 98410-13709

Dear Mr. Luczak:

Engineering and Fire Investigations (EFI) has completed sampling and analysis for Toxicity Characteristic Leaching Procedure (TCLP) of demolition debris sample suspect for lead-based paint from a total of 12 buildings. These samples were collected as composite samples (i.e. building materials used in their construction) per building. This work was performed at the verbal request of Mr. Michael Luczak of ARC Abatement, Inc.

The samples were analyzed by our subcontract laboratory (EMSL Analytical in Westmont, New Jersey) using test methods SW846-1311/7420 to determine leachable concentrations of lead by use of Flame Atomic Absorption.

Based on the results, 4 buildings (Bldg. TS 39, Bldg. 42-W, Bldg. 44-W, Bldg. 46-W) had TCLP lead concentrations exceeding 5mg/l. Remaining buildings tested were below 5mg/l including the retesting of Building 720-A. Environmental Protection Agency (EPA) defines that waste materials with concentrations of leachable lead below 5 mg/l as non-hazardous and can be disposed of as construction materials.

Building materials collected from 42-W, 44-W and 46-W which have lead concentrations exceeding 5mg/l consists of painted fire hose cabinets and represents less than one percent of the building material used in its construction. We recommend that the painted fire hose cabinets from buildings 42-W, 44-W, and 46W be segregated and disposed of as hazardous waste and retesting of the remaining representative building materials from buildings 42-W, 44-W and 46-W. In addition, Building TS 39 that has lead concentrations exceeding 5mg/l should also be disposed of as hazardous waste.

A complete analytical report is presented in Appendix A. In addition, we have included the chain of custody for the samples collected in Appendix B.

We appreciate the opportunity to provide consulting services to ARC Abatement, Inc. in this matter. If there are any questions, please contact us.

Sincerely,
ENGINEERING AND FIRE INVESTIGATIONS

Cuong Nguyen
Project Manager

Lee A. Burckle, P.E.
Branch Manager

Attachments: Appendix A – Laboratory Result Sheets
Appendix B – Chain Of Custody

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APPENDIX A

LABORATORY RESULT SHEETS

EMSL Analytical
3 Cooper St., Westmont, NJ 08108
Phone: (856) 858-4800 Fax: (856) 858-9551 Email: gmiller1@emsl.com

Attn: Alex Nguyen
EFI
9700 Richmond
Suite 201
Houston, TX 77042
Fax: (713) 975-7336 Phone: 713-724-2709 cell
Project: **98410-13709**

Customer ID: ENGF50
Customer PO:
Received: 04/28/03 11:10 AM

EMSL Order: 200303876
EMSL Project ID:

Toxicity Characteristic Leaching Procedure (SW846, 1311/7420)

Client Sample Description	*Lab ID*	*Analyzed*	*Lead Concentration*
720 A -	-0001	5/1/03	0.9 mg/L

Geroid J. Miller, Ph.D.
Laboratory Director
NJ-NELAP: 04653
AIHA: 100194
or other approved signatory

Date Printed: 5/1/03 9:46:29 AM

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EMSL Analytical
3 Cooper St., Westmont, NJ 08108
Phone: (856) 858-4800 Fax: (856) 858-9551 Email: gmiller1@emsl.com

Attn: Alex Nguyen
EFI
9700 Richmond
Suite 201
Houston, TX 77042
Fax: (713) 975-7336 Phone: 713-724-2709 cell
Project: **98410-13709**

Customer ID: ENGF50
Customer PO:
Received: 04/28/03 11:10 AM

EMSL Order: 200303866
EMSL Project ID:

Toxicity Characteristic Leaching Procedure (SW846, 1311/7420)

Client Sample Description	*Lab ID*	*Analyzed*	*Lead Concentration*
49 W	*0001*	5/1/03	0.8 mg/L

Gerold J. Miller, Ph.D.
Laboratory Director
NJ-NELAP: 04853
AIHA: 100194
or other approved signatory

Date Printed: 5/1/03 9:51:21 AM

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EMSL Analytical
3 Cooper St., Westmont, NJ 08108
Phone: (856) 858-4800 Fax: (856) 858-9551 Email: gmiller1@emsl.com

Attn: Alex Nguyen
EFI
9700 Richmond
Suite 201
Houston, TX 77042
Fax: (713) 975-7336 Phone: 713-724-2709 cell
Project: **98410-13709**

Customer ID: ENGF50
Customer PO:
Received: 04/28/03 11:10 AM
EMSL Order: 200303867
EMSL Project ID:

Toxicity Characteristic Leaching Procedure (SW846, 1311/7420)

Client Sample Description	*Lab ID*	*Analyzed*	*Lead Concentration*
41 W-1	*0001*	5/1/03	1.8 mg/L

Gerold J. Miller, Ph.D.
Laboratory Director
NJ-NELAP: 04653
AIHA: 100194
or other approved signatory

Date Printed: 5/1/03 9:50:55 AM

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EMSL Analytical
3 Cooper St., Westmont, NJ 08108
Phone: (856) 858-4800 Fax: (856) 858-9551 Email: gmiller1@emsl.com

Attn: Alex Nguyen
EFI
9700 Richmond
Suite 201
Houston, TX 77042
Fax: (713) 975-7336 Phone: 713-724-2709 cell
Project: **98410-13709**

Customer ID: ENGF50
Customer PO:
Received: 04/28/03 11:10 AM

EMSL Order: 200303868
EMSL Project ID:

Toxicity Characteristic Leaching Procedure (SW846, 1311/7420)

Client Sample Description	*Lab ID*	*Analyzed*	*Lead Concentration*
TS-39	*~ 0001*	5/1/03	12.0 mg/L

Gerold J. Miller, Ph.D.
Laboratory Director
NJ-NELAP: 04653
AIHA: 100194
or other approved signatory

Date Printed: 5/1/03 9:50:30 AM

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EMSL Analytical
3 Cooper St., Westmont, NJ 08108
Phone: (856) 858-4800 Fax: (856) 858-9551 Email: gmiller1@emsl.com

00065619

Attn: Alex Nguyen
EFI
9700 Richmond
Suite 201
Houston, TX 77042
Fax: (713) 975-7336 Phone: 713-724-2709 cell
Project: **98410-13709**

Customer ID: ENGF50
Customer PO:
Received: 04/28/03 11:10 AM

EMSL Order: 200303869
EMSL Project ID:

Toxicity Characteristic Leaching Procedure (SW846, 1311/7420)

Client Sample Description	*Lab ID*	*Analyzed*	*Lead Concentration*
41-W	~ 0001	5/1/03	1.9 mg/L

Gerold J. Miller, Ph.D.
Laboratory Director
NJ-NELAP: 04853
AIHA: 100194
or other approved signatory

Date Printed: 5/1/03 9:50:01 AM

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EMSL Analytical
3 Cooper St., Westmont, NJ 08108
Phone: (856) 858-4800 Fax: (856) 858-9551 Email: gmiller1@emsl.com

00065620

Attn:	Alex Nguyen EFI 9700 Richmond Suite 201 Houston, TX 77042		Customer ID: ENGF50 Customer PO: Received: 04/28/03 11:10 AM
Fax:	(713) 975-7336	Phone: 713-724-2709 cell	EMSL Order: 200303870
Project:	**98410-13709**		EMSL Project ID:

Toxicity Characteristic Leaching Procedure (SW846, 1311/7420)

Client Sample Description	*Lab ID*	*Analyzed*	*Lead Concentration*
44 W -	~0001	5/1/03	16.0 mg/L

Gerold J. Miller, Ph.D.
Laboratory Director
NJ-NELAP: 04653
AIHA: 100194
or other approved signatory

Date Printed: 5/1/03 9:49:35 AM

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EMSL Analytical
3 Cooper St., Westmont, NJ 08108
Phone: (856) 858-4800 Fax: (856) 858-9551 Email: gmiller1@emsl.com

Attn: Alex Nguyen
EFI
9700 Richmond
Suite 201
Houston, TX 77042
Fax: (713) 975-7336 Phone: 713-724-2709 cell
Project: **98410-13709**

Customer ID: ENGF50
Customer PO:
Received: 04/28/03 11:10 AM

EMSL Order: 200303871
EMSL Project ID:

Toxicity Characteristic Leaching Procedure (SW846, 1311/7420)

Client Sample Description	*Lab ID*	*Analyzed*	*Lead Concentration*
42 W	~ 0001	5/1/03	16.0 mg/L

Gerold J. Miller, Ph.D.
Laboratory Director
NJ-NELAP: 04653
AIHA: 100194
or other approved signatory

Date Printed: 5/1/03 9:49:10 AM

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EMSL Analytical
3 Cooper St., Westmont, NJ 08108
Phone: (856) 858-4800 Fax: (856) 858-9551 Email: gmiller1@emsl.com

00005622

EMSL

Attn: Alex Nguyen
EFI
9700 Richmond
Suite 201
Houston, TX 77042
Fax: (713) 975-7336 Phone: 713-724-2709 cell
Project: **98410-13709**

Customer ID: ENGF50
Customer PO:
Received: 04/28/03 11:10 AM

EMSL Order: 200303872
EMSL Project ID:

Toxicity Characteristic Leaching Procedure (SW846, 1311/7420)

Client Sample Description	*Lab ID*	*Analyzed*		*Lead Concentration*
801 F	~0001	5/1/03	-	0.4 mg/L

Gerold J. Miller, Ph.D.
Laboratory Director
NJ-NELAP: 04653
AIHA: 100194
or other approved signatory

Date Printed: 5/1/03 9:48:40 AM

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EMSL Analytical
3 Cooper St., Westmont, NJ 08108
Phone: (856) 858-4800 Fax: (856) 858-9551 Email: gmiller1@emsl.com

00065623

Attn: Alex Nguyen
EFI
9700 Richmond
Suite 201
Houston, TX 77042
Fax: (713) 975-7336 Phone: 713-724-2709 cell
Project: **98410-13709**

Customer ID: ENGF50
Customer PO:
Received: 04/28/03 11:10 AM

EMSL Order: 200303873
EMSL Project ID:

Toxicity Characteristic Leaching Procedure (SW846, 1311/7420)

Client Sample Description	*Lab ID*	*Analyzed*	*Lead Concentration*
22 A	~ 0001	5/1/03	<0.4 mg/L

Gerold J. Miller, Ph.D.
Laboratory Director
NJ-NELAP: 04063
AIHA: 100194
or other approved signatory

Date Printed: 5/1/03 9:48:14 AM

PB w/o MC

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EMSL Analytical
3 Cooper St., Westmont, NJ 08108
Phone: (856) 858-4800 Fax: (856) 858-9551 Email: gmiller1@emsl.com

00065624

Attn: Alex Nguyen
EFI
9700 Richmond
Suite 201
Houston, TX 77042
Fax: (713) 975-7336 Phone: 713-724-2709 cell
Project: **98410-13709**

Customer ID: ENGF50
Customer PO:
Received: 04/28/03 11:10 AM

EMSL Order: 200303874
EMSL Project ID:

Toxicity Characteristic Leaching Procedure (SW846, 1311/7420)

Client Sample Description	*Lab ID*	*Analyzed*	*Lead Concentration*
46 W -	~0001	5/1/03	39.0 mg/L

Gerold J. Miller, Ph.D.
Laboratory Director
NJ-NELAP: 04655
AIHA: 100194
or other approved signatory

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EMSL Analytical
3 Cooper St., Westmont, NJ 08108
Phone: (856) 858-4800 Fax: (856) 858-9551 Email: gmiller1@emsl.com

00065625

EMSL

Attn: Alex Nguyen
EFI
9700 Richmond
Suite 201
Houston, TX 77042
Fax: (713) 975-7336 Phone: 713-724-2709 cell
Project: **98410-13709**

Customer ID: ENGF50
Customer PO:
Received: 04/28/03 11:10 AM

EMSL Order: 200303875
EMSL Project ID:

Toxicity Characteristic Leaching Procedure (SW846, 1311/7420)

Client Sample Description	*Lab ID*	*Analyzed*	*Lead Concentration*
501 E	*0001*	5/1/03	1.1 mg/L

Gerold J. Miller, Ph.D.
Laboratory Director
NJ-NELAP: 04653
AIHA: 100194
or other approved signatory

Date Printed: 5/1/03 9:46:55 AM

PB w/QC

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EMSL Analytical
3 Cooper St., Westmont, NJ 08108
Phone: (856) 858-4800 Fax: (856) 858-9551 Email: gmiller1@emsl.com

00065626

Attn: Alex Nguyen
EFI
9700 Richmond
Suite 201
Houston, TX 77042
Fax: (713) 975-7336 Phone: 713-724-2709 cell
Project: **98410-13709**

Customer ID: ENGF50
Customer PO:
Received: 04/28/03 11:10 AM

EMSL Order: 200303877
EMSL Project ID:

Toxicity Characteristic Leaching Procedure (SW846, 1311/7420)

Client Sample Description	*Lab ID*	*Analyzed*	*Lead Concentration*
41 W-2	*0001*	5/1/03	1.7 mg/L

Gerold J. Miller, Ph.D.
Laboratory Director
NJ-NELAP: 04653
AIHA: 100194
or other approved signatory

Date Printed: 5/1/03 9:51:48 AM

PBW/8010C

THIS IS THE LAST PAGE OF THE REPORT.

APPENDIX B

CHAIN OF CUSTODY

EMSL ANALYTICAL
Revised 7/1/99

CHAIN OF CUSTODY

1 CUSTODY

LEAD

00065628

EMSL Rep:	Gary	DATE:	Third party billing requires written authorization from third party
Your Company Name:	EFI	**EMSL-Bill to:**	Alex Nguyen - EFI
Street:	9700 Richmond, St. 210	**Street:**	9700 Richmond, Suite 210
Box #:		**Box #:**	
City/State:	Houston, Tx **Zip:** 77042	**City/State:**	Houston, Tx **Zip:** 77042
Phone Results to:		**Fax Results to:**	
Name:	Alex Nguyen	**Name:**	Alex Nguyen
Telephone #:	(713) 975-7031	**Fax #:**	(713) 975-7336
Project Name/Number:	98410-13709	**Purchase Order #:**	

MATRIX	METHOD	INSTRUMENT	mdls	TAT
Lead Chips*	SW846-7420 or AOAC 5.009 (974.02)	Flame Atomic Absorption	0.01% ++	
Lead Wastewater	SW846-7420	Flame Atomic Absorption	0.4 mg/l water	
Lead Soil +			50 mg/kg (ppm) soil	
	or SW846-6010	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	SW846-7420	Flame Atomic Absorption	10 ug/wipe	
	or SW846-6010	ICP	3.0 ug/wipe	
TCLP Lead **	SW846-1311/7420	Flame Atomic Absorption	0.4 mg/l (ppm)	30 HRS -
	or SW846-6010	ICP	0.1 mg/l (ppm)	W/IN WORK WEEK
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 0500-0600	Gravimetric Reduction	0.0001g	

TAT (Turnaround) - 3 hours, 6 hours, Please call ahead to schedule.
12 hours (must arrive by 11:00 a.m),
24 hours (1day), 48 hours (2 days), 72 hours, 96 hours (3 days), 120 hours(4 days), 144 + hours (6-10 days)
*, **, ***, ****, +, ++ Please Refer to Price Quote

SAMPLE #	LOCATION	Air volume, L Area, in²	LAB #
49 W	Recycle open side Area Red Extinq GRAY WOOD frame		03816-1

Relinquished By; (Person) [signature]
Date: 4/23/03

Received at EMSL By: [signature]
Date: 4/24/03 11:00 a

Note: Please duplicate this form and use additional sheets if necessary.

EMSL ANALYTICAL
Revised 7/1/99

CHAIN OF CUSTODY

2030827 LEAD

00065629

EMSL Rep: Gary

DATE:

Third party billing requires written authorization from third party

Your Company Name: EFI

EMSL-Bill to: Alex Nguyen - EFI

Street: 9700 Richmond, St. 210

Street: 9700 Richmond, Suite 210

Box #:

Box #:

City/State: Houston, Tx Zip: 77042

City/State: Houston, Tx Zip: 77042

Phone Results to:

Name: Alex Nguyen

Telephone #: (713) 975-7031

Project Name/Number: 98410-13709

Fax Results to:

Name: Alex Nguyen

Fax #: (713) 975-7336

Purchase Order #:

MATRIX	METHOD	INSTRUMENT	mdls	TAT
Lead Chips*	SW846-7420 or AOAC 5.009 (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 SW846-6010	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	SW846-7420	Flame Atomic Absorption	10 ug/wipe	
	or SW846-6010	ICP	3.0 ug/wipe	
TCLP Lead **	SW846-1311/7420	Flame Atomic Absorption	0.4 mg/l (ppm)	30 HRS -
	or SW846-6010	ICP	0.1 mg/l (ppm)	W/IN WORK WEEK
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 0500-0600	Gravimetric Reduction	0.0001g	

TAT (Turnaround) - 3 hours, 6 hours, Please call ahead to schedule.
12 hours (must arrive by 11:00 a.m),
24 hours (1day), 48 hours (2 days), 72 hours, 96 hours (3 days), 120 hours(4 days), 144 + hours (6-10 days)
*, **, ***, ****, +, ++ Please Refer to Price Quote

SAMPLE #	LOCATION	Air volume, L Area, in²	LAB #
41W-1	R/R Bldg. Lt. Gray over Green + Beige		03827-1

Relinquished By; (Person) [signature]

Received at EMSL By:

Date: 4/23/03

Date: 4/25/03 11:04

Note: Please duplicate this form and use additional sheets if necessary.

EMSL ANALYTICAL
Revised 7/1/99

CHAIN OF CUSTODY

L0030827 LEAD

00065630

EMSL Rep: Gary

DATE:

Third party billing requires written authorization from third party

Your Company Name:	EFI	EMSL-Bill to:	Alex Nguyen - EFI
Street:	9700 Richmond, St. 210	Street:	9700 Richmond, Suite 210
Box #:		Box #:	
City/State:	Houston, Tx Zip: 77042	City/State:	Houston, Tx Zip: 77042
Phone Results to:		Fax Results to:	
Name:	Alex Nguyen	Name:	Alex Nguyen
Telephone #:	(713) 975-7031	Fax #:	(713) 975-7336
Project Name/Number:	98410-13709	Purchase Order #:	

MATRIX	METHOD	INSTRUMENT	mdls	TAT
Lead Chips*	SW846-7420 or AOAC 5.009 (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 SW846-6010	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	SW846-7420	Flame Atomic Absorption	10 ug/wipe	
	or SW846-6010	ICP	3.0 ug/wipe	
CLP Lead **	SW846-1311/7420	Flame Atomic Absorption	0.4 mg/l (ppm)	30 HRS –
	or SW846-6010	ICP	0.1 mg/l (ppm)	W/IN WORK WEEK
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 0500-0600	Gravimetric Reduction	0.0001g	

TAT (Turnaround) - 3 hours, 6 hours, Please call ahead to schedule.
12 hours (must arrive by 11:00 a.m),
24 hours (1day), 48 hours (2 days), 72 hours, 96 hours (3 days), 120 hours(4 days), 144 + hours (6-10 days)
*, **, ***, ****, +, ++ Please Refer to Price Quote

SAMPLE #	LOCATION	Air volume, L Area, in²	LAB #
TS-39	Pistol Shack White Wood Frame 8'x8'		

Relinquished By; (Person)	Received at EMSL By:
Date: 4/23/03	Date: 4/28/03 11:10

Note: Please duplicate this form and use additional sheets if necessary.

EMSL ANALYTICAL
Revised 7/1/99

CHAIN OF CUSTODY

2003825

LEAD

00065631

EMSL Rep: Gary

DATE:

Third party billing requires written authorization from third party

Your Company Name:	EFI	EMSL-Bill to:	Alex Nguyen - EFI
Street:	9700 Richmond, St. 210	Street:	9700 Richmond, Suite 210
Box #:		Box #:	
City/State:	Houston, Tx Zip: 77042	City/State:	Houston, Tx Zip: 77042
Phone Results to:		Fax Results to:	
Name:	Alex Nguyen	Name:	Alex Nguyen
Telephone #:	(713) 975-7031	Fax #:	(713) 975-7336
Project Name/Number:	98410-13709	Purchase Order #:	

MATRIX	METHOD	INSTRUMENT	mdls	TAT
Lead Chips*	SW846-7420 or AOAC 5.009 (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 SW846-6010	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	SW846-7420	Flame Atomic Absorption	10 ug/wipe	
	or SW846-6010	ICP	3.0 ug/wipe	
TCLP Lead **	SW846-1311/7420	Flame Atomic Absorption	0.4 mg/l (ppm)	30 HRS -
	or SW846-6010	ICP	0.1 mg/l (ppm)	W/IN WORK WEEK
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 0500-0600	Gravimetric Reduction	0.0001g	

TAT (Turnaround) - 3 hours, 6 hours, Please call ahead to schedule.
12 hours (must arrive by 11:00 a.m),
24 hours (1day), 48 hours (2 days), 72 hours, 96 hours (3 days), 120 hours(4 days), 144 + hours (6-10 days)
*, **, ***, ****, +, ++ Please Refer to Price Quote

SAMPLE #	LOCATION	Air volume, L Area, in²	LAB #
41 W	Warehouse + LAB white Somerover + Beige @ S. office window	Lt. Green	03589-1

Relinquished By; (Person)	Received at EMSL By:
Date: 4/23/03	Date: 4/24/03 11:45

Note: Please duplicate this form and use additional sheets if necessary.

EMSL ANALYTICAL
Revised 7/1/99

CHAIN OF CUSTODY

2033870

LEAD
00065632

EMSL Rep: Gary

DATE:

Third party billing requires written authorization from third party

Your Company Name: EFI

EMSL-Bill to: Alex Nguyen - EFI

Street: 9700 Richmond, St. 210

Street: 9700 Richmond, Suite 210

Box #:

Box #:

City/State: Houston, Tx Zip: 77042

City/State: Houston, Tx Zip: 77042

Phone Results to:

Name: Alex Nguyen

Telephone #: (713) 975-7031

Project Name/Number: 98410-13709

Fax Results to:

Name: Alex Nguyen

Fax #: (713) 975-7336

Purchase Order #:

MATRIX	METHOD	INSTRUMENT	mdls	TAT
Lead Chips*	SW846-7420 or AOAC 5.009 (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 SW846-6010	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	SW846-7420	Flame Atomic Absorption	10 ug/wipe	
	or SW846-6010	ICP	3.0 ug/wipe	
TCLP Lead **	SW846-1311/7420	Flame Atomic Absorption	0.4 mg/l (ppm)	30 HRS –
	or SW846-6010	ICP	0.1 mg/l (ppm)	W/IN WORK WEEK
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 0500-0600	Gravimetric Reduction	0.0001g	

TAT (Turnaround) - 3 hours, 6 hours, Please call ahead to schedule.
12 hours (must arrive by 11:00 a.m),
24 hours (1day), 48 hours (2 days), 72 hours, 96 hours (3 days), 120 hours(4 days), 144 + hours (6-10 days)
*, **, ***, ****, +, ++ Please Refer to Price Quote

SAMPLE #	LOCATION	Air volume, L Area, in²	LAB #
44 W	LT. GRAY on Wood door frames + Red on Extinguish Boards		03870-1

Relinquished By: (Person) [signature]

Received at EMSL By: [signature]

Date: 4/29/09

Date: 4/29/09 11:40 a

Note: Please duplicate this form and use additional sheets if necessary.

EMSL ANALYTICAL
Revised 7/1/99

CHAIN OF CUSTODY

2003871 LEAD 00065633

EMSL Rep: Gary

DATE:

Third party billing requires written authorization from third party

Your Company Name: EFI

EMSL-Bill to: Alex Nguyen - EFI

Street: 9700 Richmond, St. 210

Street: 9700 Richmond, Suite 210

Box #:

Box #:

City/State: Houston, Tx Zip: 77042

City/State: Houston, Tx Zip: 77042

Phone Results to:

Name: Alex Nguyen

Telephone #: (713) 975-7031

Project Name/Number: 98410-13709

Fax Results to:

Name: Alex Nguyen

Fax #: (713) 975-7336

Purchase Order #:

MATRIX	METHOD	INSTRUMENT	mdls	TAT
Lead Chips*	SW846-7420 or AOAC 5.009 (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 SW846-6010	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	SW846-7420	Flame Atomic Absorption	10 ug/wipe	
	or SW846-6010	ICP	3.0 ug/wipe	
TCLP Lead **	SW846-1311/7420	Flame Atomic Absorption	0.4 mg/l (ppm)	30 HRS -
	or SW846-6010	ICP	0.1 mg/l (ppm)	W/IN WORK WEEK
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 0500-0600	Gravimetric Reduction	0.0001g	

TAT (Turnaround) - 3 hours, 6 hours, Please call ahead to schedule.
12 hours (must arrive by 11:00 a.m),
24 hours (1day), 48 hours (2 days), 72 hours, 96 hours (3 days), 120 hours(4 days), 144 + hours (6-10 days)
*, **, ***, ****, +, ++ Please Refer to Price Quote

SAMPLE #	LOCATION	Air volume, L Area, in²	LAB #
42W	Warehouse office N. LT. GRAY over lime + Beige Multiple wood on N. End.		038711

Relinquished By; (Person) [signature]

Received at EMSL By: [signature]

Date: 4/23/03

Date: 4/24/03 11:15

Note: Please duplicate this form and use additional sheets if necessary.

EMSL ANALYTICAL
Revised 7/1/99

CHAIN OF CUSTODY

2103872 LEAD 00065634

EMSL Rep: Gary

DATE:

Third party billing requires written authorization from third party

Your Company Name: EFI

EMSL-Bill to: Alex Nguyen - EFI

Street: 9700 Richmond, St. 210

Street: 9700 Richmond, Suite 210

Box #:

Box #:

City/State: Houston, Tx Zip: 77042

City/State: Houston, Tx Zip: 77042

Phone Results to:

Name: Alex Nguyen

Telephone #: (713) 975-7031

Project Name/Number: 98410-13709

Fax Results to:

Name: Alex Nguyen

Fax #: (713) 975-7336

Purchase Order #:

MATRIX	METHOD	INSTRUMENT	mdls	TAT
Lead Chips*	SW846-7420 or AOAC 5.009 (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 SW846-6010	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	SW846-7420	Flame Atomic Absorption	10 ug/wipe	
	or SW846-6010	ICP	3.0 ug/wipe	
CLP Lead **	SW846-1311/7420	Flame Atomic Absorption	0.4 mg/l (ppm)	30 HRS -
	or SW846-6010	ICP	0.1 mg/l (ppm)	W/IN WORK WEEK
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 0500-0600	Gravimetric Reduction	0.0001g	

TAT (Turnaround) - 3 hours, 6 hours, Please call ahead to schedule.
12 hours (must arrive by 11:00 a.m),
24 hours (1day), 48 hours (2 days), 72 hours, 96 hours (3 days), 120 hours(4 days), 144 + hours (6-10 days)
*, **, ***, ****, +, ++ Please Refer to Price Quote

SAMPLE #	LOCATION	Air volume, L Area, in²	LAB #
801 F	Wood Door Frame LT. GRAY + Green 2 story load rm.		03872-1

Relinquished By; (Person) [signature]

Received at EMSL By:

Date: 4/23/03

Date: 4/25/03 11:00

Note: Please duplicate this form and use additional sheets if necessary.

EMSL ANALYTICAL
Revised 7/1/99

CHAIN OF CUSTODY

2403873

LEAD 00065635

EMSL Rep: Gary

DATE:

Third party billing requires written authorization from third party

Your Company Name: EFI

EMSL-Bill to: Alex Nguyen - EFI

Street: 9700 Richmond, St. 210

Box #:

City/State: Houston, Tx Zip: 77042

Street: 9700 Richmond, Suite 210

Box #:

City/State: Houston, Tx Zip: 77042

Phone Results to:
Name: Alex Nguyen
Telephone #: (713) 975-7031
Project Name/Number: 98410-13709

Fax Results to:
Name: Alex Nguyen
Fax #: (713) 975-7336
Purchase Order #:

MATRIX	METHOD	INSTRUMENT	mdls	TAT
Lead Chips*	SW846-7420 or AOAC 5.009 (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 SW846-6010	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	SW846-7420	Flame Atomic Absorption	10 ug/wipe	
	or SW846-6010	ICP	3.0 ug/wipe	
TCLP Lead **	SW846-1311/7420	Flame Atomic Absorption	0.4 mg/l (ppm)	30 HRS -
	or SW846-6010	ICP	0.1 mg/l (ppm)	W/IN WORK WEEK
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 0500-0600	Gravimetric Reduction	0.0001g	

TAT (Turnaround) - 3 hours, 6 hours, Please call ahead to schedule.
12 hours (must arrive by 11:00 a.m),
24 hours (1day), 48 hours (2 days), 72 hours, 96 hours (3 days), 120 hours(4 days), 144 + hours (6-10 days)
*, **, ***, ****, +, ++ Please Refer to Price Quote

SAMPLE #	LOCATION	Air volume, L Area, in²	LAB #
22A	WOOD LIME, Beige White WINS/DOORS/TRIM/Frame		03877-1

Relinquished By: (Person) [signature]
Date: 4/23/03

Received at EMSL By: [signature]
Date: 4/24/03 11:00 a

Note: Please duplicate this form and use additional sheets if necessary.

EMSL ANALYTICAL
Revised 7/1/99

CHAIN OF CUSTODY

2403874

LEAD 00065636

EMSL Rep: Gary

DATE:

Third party billing requires written authorization from third party

Your Company Name: EFI
Street: 9700 Richmond, St. 210
Box #:
City/State: Houston, Tx Zip: 77042

EMSL-Bill to: Alex Nguyen - EFI
Street: 9700 Richmond, Suite 210
Box #:
City/State: Houston, Tx Zip: 77042

Phone Results to:
Name: Alex Nguyen
Telephone #: (713) 975-7031
Project Name/Number: 98410-13709

Fax Results to:
Name: Alex Nguyen
Fax #: (713) 975-7336
Purchase Order #:

MATRIX	METHOD	INSTRUMENT	mdls	TAT
Lead Chips*	SW846-7420 or AOAC 5.009 (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 SW846-6010	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	SW846-7420	Flame Atomic Absorption	10 ug/wipe	
	or SW846-6010	ICP	3.0 ug/wipe	
TCLP Lead **	SW846-1311/7420	Flame Atomic Absorption	0.4 mg/l (ppm)	30 HRS -
	or SW846-6010	ICP	0.1 mg/l (ppm)	W/IN WORK WEEK
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 0500-0600	Gravimetric Reduction	0.0001g	

TAT (Turnaround) - 3 hours, 6 hours, Please call ahead to schedule.
12 hours (must arrive by 11:00 a.m),
24 hours (1day), 48 hours (2 days), 72 hours, 96 hours (3 days), 120 hours(4 days), 144 + hours (6-10 days)
*, **, ***, ****, +, ++ Please Refer to Price Quote

SAMPLE #	LOCATION	Air volume, L Area, in²	LAB #
46 W	LT. GRAY on WOOD DOOR Frames + Red on Extinguish Boards		03874-1

Relinquished By; (Person) [signature]
Date: 4/23/03

Received at EMSL By: [signature]
Date: 4/25/03 11:40 AM

Note: Please duplicate this form and use additional sheets if necessary.

EMSL ANALYTICAL
Revised 7/1/99

CHAIN OF CUSTODY

2030375 LEAD

00065637

EMSL Rep:	Gary	DATE:	Third party billing requires written authorization from third party
Your Company Name:	EFI	EMSL-Bill to:	Alex Nguyen - EFI
Street:	9700 Richmond, St. 210	Street:	9700 Richmond, Suite 210
Box #:		Box #:	
City/State:	Houston, Tx Zip: 77042	City/State:	Houston, Tx Zip: 77042
Phone Results to:		Fax Results to:	
Name:	Alex Nguyen	Name:	Alex Nguyen
Telephone #:	(713) 975-7031	Fax #:	(713) 975-7336
Project Name/Number:	98410-13709	Purchase Order #:	

MATRIX	METHOD	INSTRUMENT	mdls	TAT
Lead Chips*	SW846-7420 or AOAC 5.009 (974.02)	Flame Atomic Absorption	0.01% ++	
Lead Wastewater	SW846-7420	Flame Atomic Absorption	0.4 mg/l water	
Lead Soil +			50 mg/kg (ppm) soil	
	or SW846-6010	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	SW846-7420	Flame Atomic Absorption	10 ug/wipe	
	or SW846-6010	ICP	3.0 ug/wipe	
TCLP Lead **	SW846-1311/7420	Flame Atomic Absorption	0.4 mg/l (ppm)	30 HRS -
	or SW846-6010	ICP	0.1 mg/l (ppm)	W/IN WORK WEEK
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 0500-0600	Gravimetric Reduction	0.0001g	

TAT (Turnaround) - 3 hours, 6 hours, Please call ahead to schedule.
12 hours (must arrive by 11:00 a.m),
24 hours (1day), 48 hours (2 days), 72 hours, 96 hours (3 days), 120 hours(4 days), 144 + hours (6-10 days)
*, **, ***, ****, +, ++ Please Refer to Price Quote

SAMPLE #	LOCATION	Air volume, L Area, in²	LAB #
501 E	White + LIME Wood Trim		0387-1

Relinquished By; (Person)	Received at EMSL By:
Date: 4/03/03	Date: 4/4/03 11:00 AM

Note: Please duplicate this form and use additional sheets if necessary.

EMSL ANALYTICAL
Revised 7/1/99

CHAIN OF CUSTODY

LEAD
00065638

EMSL Rep: Gary
DATE:
Third party billing requires written authorization from third party

Your Company Name: EFI
EMSL-Bill to: Alex Nguyen - EFI

Street: 9700 Richmond, St. 210
Box #:
City/State: Houston, Tx Zip: 77042

Street: 9700 Richmond, Suite 210
Box #:
City/State: Houston, Tx Zip: 77042

Phone Results to:
Name: Alex Nguyen
Telephone #: (713) 975-7031
Project Name/Number: 98410-13709

Fax Results to:
Name: Alex Nguyen
Fax #: (713) 975-7336
Purchase Order #:

MATRIX	METHOD	INSTRUMENT	mdls	TAT
Lead Chips*	SW846-7420 or AOAC 5.009 (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 SW846-6010	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	SW846-7420	Flame Atomic Absorption	10 ug/wipe	
	or SW846-6010	ICP	3.0 ug/wipe	
TCLP Lead **	SW846-1311/7420	Flame Atomic Absorption	0.4 mg/l (ppm)	30 HRS –
	or SW846-6010	ICP	0.1 mg/l (ppm)	W/IN WORK WEEK
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 0500-0600	Gravimetric Reduction	0.0001g	

TAT (Turnaround) - 3 hours, 6 hours, Please call ahead to schedule.
12 hours (must arrive by 11:00 a.m),
24 hours (1day), 48 hours (2 days), 72 hours, 96 hours (3 days), 120 hours(4 days), 144 + hours (6-10 days)
*, **, ***, ****, +, ++ Please Refer to Price Quote

SAMPLE #	LOCATION	Air volume, L Area, in²	LAB #
720 A	Beige, White, Yellow Red Wood		03470-1

Relinquished By; (Person) Adam Sutton
Date: 4/23/03

Received at EMSL By:
Date: 4/24/03 11:00 AM

Note: Please duplicate this form and use additional sheets if necessary.

EMSL ANALYTICAL
Revised 7/1/99

CHAIN OF CUSTODY 2003877 LEAD

00065639

EMSL Rep: Gary

DATE:

Third party billing requires written authorization from third party

Your Company Name:	EFI	EMSL-Bill to:	Alex Nguyen - EFI
Street:	9700 Richmond, St. 210	Street:	9700 Richmond, Suite 210
Box #:		Box #:	
City/State:	Houston, Tx Zip: 77042	City/State:	Houston, Tx Zip: 77042
Phone Results to:		Fax Results to:	
Name:	Alex Nguyen	Name:	Alex Nguyen
Telephone #:	(713) 975-7031	Fax #:	(713) 975-7336
Project Name/Number:	98410-13709	Purchase Order #:	

MATRIX	METHOD	INSTRUMENT	mdls	TAT
Lead Chips*	SW846-7420 or AOAC 5.009 (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 SW846-6010	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	SW846-7420	Flame Atomic Absorption	10 ug/wipe	
	or SW846-6010	ICP	3.0 ug/wipe	
TCLP Lead **	SW846-1311/7420	Flame Atomic Absorption	0.4 mg/l (ppm)	30 HRS -
	or SW846-6010	ICP	0.1 mg/l (ppm)	W/IN WORK WEEK
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 0500-0600	Gravimetric Reduction	0.0001g	

TAT (Turnaround) - 3 hours, 6 hours, Please call ahead to schedule.
12 hours (must arrive by 11:00 a.m),
24 hours (1day), 48 hours (2 days), 72 hours, 96 hours (3 days), 120 hours(4 days), 144 + hours (6-10 days)
*, **, ***, ****, +, ++ Please Refer to Price Quote

SAMPLE #	LOCATION	Air volume, L Area, in²	LAB #
H1 W-2	Sm. Shack Cream over lime green window sill, door frame 1/2 2'x4' Frame Exter CANOPY 4'x4'		03877-1

Relinquished By; (Person) [signature] Received at EMSL By: [signature]

Date: 4/22/03 Date: 4/23/03 11:00 a

Note: Please duplicate this form and use additional sheets if necessary.

00065640

EFI®
Engineering and Fire
Investigations

9700 Richmond
Suite 201
Houston, TX 77042
Tel: 866-464-2127
Fax: 713-975-7336
www.efiinfo.com

August 14, 2003

Mr. Michael Luczak
ARC Abatement, Inc.
6630 Roxburgh Drive, Suite 130
Houston, Texas 77041

Subject: **TRANSMITTAL OF ANALYTICAL RESULTS No. 3**
Longhorn Army Ammunition Plant – (TCLP Testing)
Karnack, Texas 77055
EFI PROJECT NO. 98410-13709

Dear Mr. Luczak:

Engineering and Fire Investigations (EFI) has completed sampling and analysis for Toxicity Characteristic Leaching Procedure (TCLP) of demolition debris sample suspect for lead-based paint from a total of 4 buildings. These samples were collected as composite samples (i.e. building materials used in their construction) per building. This work was performed at the verbal request of Mr. Michael Luczak of ARC Abatement, Inc.

The samples were analyzed by our subcontract laboratory (EMSL Analytical in Westmont, New Jersey) using test methods SW846-1311/7420 to determine leachable concentrations of lead by use of Flame Atomic Absorption.

Based on the results TCLP lead concentrations of the 4 buildings tested (Bldgs. 414, 1ST-1, TS-62-1, TS-25,) were below 5mg/l. Environmental Protection Agency (EPA) defines that waste materials with concentrations of leachable lead below 5 mg/l as non-hazardous and can be disposed of as construction materials.

A complete analytical report is presented in Appendix A. In addition, we have included the chain of custody for the samples collected in Appendix B.

We appreciate the opportunity to provide consulting services to ARC Abatement, Inc. in this matter. If there are any questions, please contact us.

Sincerely,
ENGINEERING AND FIRE INVESTIGATIONS

Cuong Nguyen
Project Manager

Lee A. Burckle, P.E.
Branch Manager

Attachments: Appendix A – Laboratory Result Sheets
Appendix B – Chain Of Custody

CN/cn(e:\projects 2003\Longhorn Army Ammunition Plant\TCLP Sampling – Transrpt3.doc

APPENDIX A

LABORATORY RESULT SHEETS

EMSL Analytical
3 Cooper St., Westmont, NJ 08108
Phone: (856) 858-4800 Fax: (856) 858-9551 Email: gmiller1@emsl.com

00065642

Attn:	Alex Nguyen EFI 9700 Richmond Suite 201 Houston, TX 77042			Customer ID:	ENGF50
				Customer PO:	
				Received:	05/13/03 11:20 AM
Fax:	(713) 975-7336	Phone:	(713) 724-2709	EMSL Order:	200304480
Project:	**98410-13709**			EMSL Project ID:	

Toxicity Characteristic Leaching Procedure (SW846, 1311/7420)

Client Sample Description	*Lab ID*	*Analyzed*	*Lead Concentration*
414	-0001	5/14/03	<0.4 mg/L

Gerold J. Miller, Ph.D.
Laboratory Director
NJ-NELAP: 04653
AIHA: 100194
or other approved signatory

Date Printed: 5/14/03 2:16:58 PM

PBLM/COC1

EMSL Analytical
3 Cooper St., Westmont, NJ 08108
Phone: (856) 858-4800 Fax: (856) 858-9551 Email: gmiller1@emsl.com

00065643

Attn: Alex Nguyen
EFI
9700 Richmond
Suite 201
Houston, TX 77042
Fax: (713) 975-7336 Phone: (713) 724-2709
Project: **98410-13709**

Customer ID: ENGF50
Customer PO:
Received: 05/13/03 11:20 AM

EMSL Order: 200304481
EMSL Project ID:

Toxicity Characteristic Leaching Procedure (SW846, 1311/7420)

Client Sample Description	*Lab ID*	*Analyzed*	*Lead Concentration*
1 ST-1	-0001	5/14/03	1.4 mg/L

Gerold J. Miller, Ph.D.
Laboratory Director
NJ-NELAP: 04653
AIHA: 100194
or other approved signatory

Date Printed: 5/14/03 2:17:54 PM

PBLab/COC1

EMSL Analytical
3 Cooper St., Westmont, NJ 08108
Phone: (856) 858-4800 Fax: (856) 858-9551 Email: gmiller1@emsl.com

00065644

EMSL

Attn: Alex Nguyen
EFI
9700 Richmond
Suite 201
Houston, TX 77042
Fax: (713) 975-7336 Phone: (713) 724-2709
Project: **98410-13709**

Customer ID: ENGF50
Customer PO:
Received: 05/13/03 11:20 AM

EMSL Order: 200304484
EMSL Project ID:

Toxicity Characteristic Leaching Procedure (SW846, 1311/7420)

Client Sample Description	*Lab ID*	*Analyzed*	*Lead Concentration*
TS 62-1	-0001	5/14/03	1.0 mg/L

Gerold J. Miller, Ph.D.
Laboratory Director
NJ-NELAP: 04653
AIHA: 100194
or other approved signatory

Date Printed: 5/14/03 2:18:54 PM

PBLV/COC

EMSL Analytical
3 Cooper St., Westmont, NJ 08108
Phone: (856) 858-4800 Fax: (856) 858-9551 Email: gmiller1@emsl.com

00065645

EMSL

Attn: Alex Nguyen
EFI
9700 Richmond
Suite 201
Houston, TX 77042
Fax: (713) 975-7336 Phone: (713) 724-2709
Project: **98410-13709**

Customer ID: ENGF50
Customer PO:
Received: 05/13/03 11:20 AM

EMSL Order: 200304482
EMSL Project ID:

Toxicity Characteristic Leaching Procedure (SW846, 1311/7420)

Client Sample Description	*Lab ID*	*Analyzed*	*Lead Concentration*
TS-25	-0001	5/14/03	2.0 mg/L

Gerold J. Miller, Ph.D.
Laboratory Director
NJ-NELAP: 04653
AIHA: 100194
or other approved signatory

Date Printed: 5/14/03 2:18:25 PM

PB/V/QAQC1

APPENDIX B

CHAIN OF CUSTODY

00065647

EMSL ANALYTICAL — CHAIN OF CUSTODY — 260344 — LEAD

Revised 7/1/99

EMSL Rep:	Gary	DATE:	Third party billing requires written authorization from third party
Your Company Name:	EFI	EMSL-Bill to:	Alex Nguyen - EFI
Street:	9700 Richmond, St. 210	Street:	9700 Richmond, Suite 210
Box #:		Box #:	
City/State:	Houston, Tx Zip: 77042	City/State:	Houston, Tx Zip: 77042
Phone Results to:		Fax Results to:	
Name:	Alex Nguyen	Name:	Alex Nguyen
Telephone #:	(713) 975-7031	Fax #:	(713) 975-7336
Project Name/Number:	98410-13709	Purchase Order #:	

MATRIX	METHOD	INSTRUMENT	mdls	TAT
Lead Chips*	SW846-7420 or AOAC 5.009 (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 SW846-6010	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	SW846-7420	Flame Atomic Absorption	10 ug/wipe	
	or SW846-6010	ICP	3.0 ug/wipe	
TCLP Lead **	SW846-1311/7420	Flame Atomic Absorption	0.4 mg/l (ppm)	30 HRS -
	or SW846-6010	ICP	0.1 mg/l (ppm)	W/IN WORK WEEK
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 0500-0600	Gravimetric Reduction	0.0001g	

TAT (Turnaround) - 3 hours, 6 hours, Please call ahead to schedule.
12 hours (must arrive by 11:00 a.m),
24 hours (1day), 48 hours (2 days), 72 hours, 96 hours (3 days), 120 hours(4 days), 144 + hours (6-10 days)
*, **, ***, ****, +, ++ Please Refer to Price Quote

SAMPLE #	LOCATION	Air volume, L Area, in²	LAB #
414	White over lime green		04480 -1

Relinquished By; (Person) Adam Sattler	Received at EMSL By: LNguyen
Date: 4/30/03	Date: 5/13/03 1120 A

Note: Please duplicate this form and use additional sheets if necessary.

00065648

EMSL ANALYTICAL
Revised 7/1/99

CHAIN OF CUSTODY

2030481 LEAD

EMSL Rep: Gary

DATE:

Third party billing requires written authorization from third party

Your Company Name: EFI

EMSL-Bill to: Alex Nguyen - EFI

Street: 9700 Richmond, St. 210

Street: 9700 Richmond, Suite 210

Box #:

Box #:

City/State: Houston, Tx Zip: 77042

City/State: Houston, Tx Zip: 77042

Phone Results to:

Name: Alex Nguyen

Telephone #: (713) 975-7031

Project Name/Number: 98410-13709

Fax Results to:

Name: Alex Nguyen

Fax #: (713) 975-7336

Purchase Order #:

MATRIX	METHOD	INSTRUMENT	mdls	TAT
Lead Chips*	SW846-7420 or AOAC 5.009 (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 SW846-6010	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	SW846-7420	Flame Atomic Absorption	10 ug/wipe	
	or SW846-6010	ICP	3.0 ug/wipe	
TCLP Lead **	SW846-1311/7420	Flame Atomic Absorption	0.4 mg/l (ppm)	30 HRS -
	or SW846-6010	ICP	0.1 mg/l (ppm)	W/IN WORK WEEK
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 0500-0600	Gravimetric Reduction	0.0001g	

TAT (Turnaround) - 3 hours, 6 hours, Please call ahead to schedule.
12 hours (must arrive by 11:00 a.m),
24 hours (1day), 48 hours (2 days), 72 hours, 96 hours (3 days), 120 hours(4 days), 144 + hours (6-10 days)
*, **, ***, ****, +, ++ Please Refer to Price Quote

SAMPLE #	LOCATION	Air volume, L Area, in²	LAB #
1ST-1	White wood Door/frame		04481-1

Relinquished By; (Person) [signature]

Date: 4/30/03

Received at EMSL By: [signature]

Date: 5/1/03 10:45 AM

Note: Please duplicate this form and use additional sheets if necessary.

00065649

EMSL ANALYTICAL — CHAIN OF CUSTODY 200304484 — LEAD

Revised 7/1/99

EMSL Rep:	Gary	DATE:	Third party billing requires written authorization from third party
Your Company Name:	EFI	**EMSL-Bill to:**	Alex Nguyen - EFI
Street:	9700 Richmond, St. 210	**Street:**	9700 Richmond, Suite 210
Box #:		**Box #:**	
City/State:	Houston, Tx **Zip:** 77042	**City/State:**	Houston, Tx **Zip:** 77042
Phone Results to:		**Fax Results to:**	
Name:	Alex Nguyen	**Name:**	Alex Nguyen
Telephone #:	(713) 975-7031	**Fax #:**	(713) 975-7336
Project Name/Number:	98410-13709	**Purchase Order #:**	

MATRIX	METHOD	INSTRUMENT	mdls	TAT
Lead Chips*	SW846-7420 or AOAC 5.009 (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 SW846-6010	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	SW846-7420	Flame Atomic Absorption	10 ug/wipe	
	or SW846-6010	ICP	3.0 ug/wipe	
TCLP Lead **	SW846-1311/7420	Flame Atomic Absorption	0.4 mg/l (ppm)	30 HRS -
	or SW846-6010	ICP	0.1 mg/l (ppm)	W/IN WORK WEEK
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 0500-0600	Gravimetric Reduction	0.0001g	

TAT (Turnaround) - 3 hours, 6 hours, Please call ahead to schedule.
12 hours (must arrive by 11:00 a.m),
24 hours (1day), 48 hours (2 days), 72 hours, 96 hours (3 days), 120 hours(4 days), 144 + hours (6-10 days)
*, **, ***, ****, +, ++ Please Refer to Price Quote

SAMPLE #	LOCATION	Air volume, L Area, in²	LAB #
TS 62-1	White Wood Door / Grey Window Frame / yellow/white wall panel		64487-1

Relinquished By: (Person)	Received at EMSL By:
Date: 5/5/03	Date: 5/13/03

Note: Please duplicate this form and use additional sheets if necessary.

00065650

EMSL ANALYTICAL — CHAIN OF CUSTODY

Revised 7/1/99

, Jun 03 4492 LEAD

EMSL Rep:	Gary	DATE:	Third party billing requires written authorization from third party
Your Company Name:	EFI	**EMSL-Bill to:**	Alex Nguyen - EFI
Street:	9700 Richmond, St. 210	**Street:**	9700 Richmond, Suite 210
Box #:		**Box #:**	
City/State:	Houston, Tx **Zip:** 77042	**City/State:**	Houston, Tx **Zip:** 77042
Phone Results to:		**Fax Results to:**	
Name:	Alex Nguyen	**Name:**	Alex Nguyen
Telephone #:	(713) 975-7031	**Fax #:**	(713) 975-7336
Project Name/Number:	98410-13709	**Purchase Order #:**	

MATRIX	METHOD	INSTRUMENT	mdls	TAT
Lead Chips*	SW846-7420 or AOAC 5.009 (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 SW846-6010	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	SW846-7420	Flame Atomic Absorption	10 ug/wipe	
	or SW846-6010	ICP	3.0 ug/wipe	
TCLP Lead **	SW846-1311/7420	Flame Atomic Absorption	0.4 mg/l (ppm)	30 HRS -
	or SW846-6010	ICP	0.1 mg/l (ppm)	W/IN WORK WEEK
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 0500-0600	Gravimetric Reduction	0.0001g	

TAT (Turnaround) - 3 hours, 6 hours, Please call ahead to schedule.
12 hours (must arrive by 11:00 a.m),
24 hours (1day), 48 hours (2 days), 72 hours, 96 hours (3 days), 120 hours(4 days), 144 + hours (6-10 days)
*, **, ***, ****, +, ++ Please Refer to Price Quote

SAMPLE #	LOCATION	Air volume, L Area, in²	LAB #
TS-25	Yellow & white Rectrm @ Recycle		04492-1

Relinquished By: (Person)	Received at EMSL By:
Date: 4/30/03	Date: 5/13/03

Note: Please duplicate this form and use additional sheets if necessary.

EMSL Analytical
3 Cooper St., Westmont, NJ 08108
Phone: (856) 858-4800 Fax: (856) 858-9551 Email: gmiller1@emsl.com

00065651

EMSL

Attn: Alex Nguyen
EFI
9700 Richmond
Suite 201
Houston, TX 77042
Fax: (713) 975-7336 Phone: (713) 724-2709
Project: 98410-13709

Customer ID: ENGF50
Customer PO:
Received: 05/19/03 11:15 AM

EMSL Order: 200304811
EMSL Project ID:

Toxicity Characteristic Leaching Procedure (SW846, 1311/7420)

Client Sample Description	*Lab ID*	*Analyzed*	*Lead Concentration*
TS36	*0001*	5/21/03	3.1 mg/L

Gerold J. Miller, Ph.D.
Laboratory Director
NJ-NELAP: 04653
AIHA: 100194
or other approved signatory

Date Printed: 5/21/03 11:43:38 AM

PBW/GJM

EMSL Analytical
3 Cooper St., Westmont, NJ 08108
Phone: (856) 858-4800 Fax: (856) 858-9551 Email: gmiller1@emsl.com

00065652

Attn: Alex Nguyen
EFI
9700 Richmond
Suite 201
Houston, TX 77042
Fax: (713) 975-7336 Phone: (713) 724-2709
Project: 98410-13709

Customer ID: ENGF50
Customer PO:
Received: 05/19/03 11:15 AM

EMSL Order: 200304814
EMSL Project ID:

Toxicity Characteristic Leaching Procedure (SW846, 1311/7420)

Client Sample Description	*Lab ID*	*Analyzed*	*Lead Concentration*
726	*0001*	5/21/03	<0.4 mg/L

Gerald J. Miller, Ph.D.
Laboratory Director
NJ-NELAP: 04853
AIHA: 100194
or other approved signatory

Date Printed: 5/21/03 11:40:18 AM

PB/V/4.0C1

EMSL Analytical
3 Cooper St., Westmont, NJ 08108
Phone: (856) 858-4800 Fax: (856) 858-9551 Email: gmiller1@emsl.com

00065653

Attn: Alex Nguyen
EFI
9700 Richmond
Suite 201
Houston, TX 77042
Fax: (713) 975-7336 Phone: (713) 724-2709
Project: 98410-13709

Customer ID: ENGF50
Customer PO:
Received: 05/19/03 11:15 AM

EMSL Order: 200304813
EMSL Project ID:

Toxicity Characteristic Leaching Procedure (SW846, 1311/7420)

Client Sample Description	*Lab ID*	*Analyzed*	*Lead Concentration*
726 D	*0001*	5/21/03	2.4 mg/L

Gerold J. Miller, Ph.D.
Laboratory Director
NJ-NELAP: 04653
AIHA: 100194
or other approved signatory

Date Printed: 5/21/03 11:40:49 AM

PBLV4.00.01

EMSL Analytical
3 Cooper St., Westmont, NJ 08108
Phone: (856) 858-4800 Fax: (856) 858-9551 Email: gmiller1@emsl.com

00065654

Attn: Alex Nguyen
EFI
9700 Richmond
Suite 201
Houston, TX 77042
Fax: (713) 975-7336 Phone: (713) 724-2709
Project: 98410-13709

Customer ID: ENGF50
Customer PO:
Received: 05/19/03 11:15 AM

EMSL Order: 200304813
EMSL Project ID:

Toxicity Characteristic Leaching Procedure (SW846, 1311/7420)

Client Sample Description	*Lab ID*	*Analyzed*	*Lead Concentration*
726 D	*0001*	5/21/03	2.4 mg/L

Geroid J. Miller, Ph.D.
Laboratory Director
NJ-NELAP: 04653
AIHA: 100194
or other approved signatory

Date Printed: 5/21/03 11:40:49 AM

PB w/QC

EMSL Analytical
3 Cooper St., Westmont, NJ 08108
Phone: (856) 858-4800 Fax: (856) 858-9551 Email: gmiller1@emsi.com

00065655

EMSL

Attn: Alex Nguyen
EFI
9700 Richmond
Suite 201
Houston, TX 77042
Fax: (713) 975-7336 Phone: (713) 724-2709
Project: 98410-13709

Customer ID: ENGF50
Customer PO:
Received: 05/19/03 11:15 AM

EMSL Order: 200304815
EMSL Project ID:

Toxicity Characteristic Leaching Procedure (SW846, 1311/7420)

Client Sample Description	*Lab ID*	*Analyzed*	*Lead Concentration*
726 C	*0001*	5/21/03	<0.4 mg/L

Gerold J. Miller, Ph.D.
Laboratory Director
NJ-NELAP: 04653
AIHA: 100194
or other approved signatory

Date Printed: 5/21/03 11:39:00 AM

PB w/ LCS

EMSL Analytical
3 Cooper St., Westmont, NJ 08108
Phone: (856) 858-4800 Fax: (856) 858-9551 Email: gmiller1@emsl.com

00065656

Attn: Alex Nguyen
EFI
9700 Richmond
Suite 201
Houston, TX 77042
Fax: (713) 975-7336 Phone: (713) 724-2709
Project: 98410-13709

Customer ID: ENGF50
Customer PO:
Received: 05/28/03 10:35 AM

EMSL Order: 200305213
EMSL Project ID:

Toxicity Characteristic Leaching Procedure (SW846, 1311/7420)

Client Sample Description	*Lab ID*	*Analyzed*	*Lead Concentration*
718-A	*0001*	5/29/03	<0.4 mg/L

Gerold J. Miller, Ph.D.
Laboratory Director
NJ-NELAP: 04853
AIHA: 100194
or other approved signatory

Date Printed: 5/30/03 8:46:59 AM

PBW/QC1

EMSL Analytical
3 Cooper St., Westmont, NJ 08108
Phone: (856) 858-4800 Fax: (856) 858-9551 Email: gmiller1@emsl.com

00065657

Attn: Alex Nguyen
EFI
9700 Richmond
Suite 201
Houston, TX 77042
Fax: (713) 975-7336 Phone: (713) 724-2709
Project: 98410-13709

Customer ID: ENGF50
Customer PO:
Received: 05/28/03 10:35 AM

EMSL Order: 200305214
EMSL Project ID:

Toxicity Characteristic Leaching Procedure (SW846, 1311/7420)

Client Sample Description	*Lab ID*	*Analyzed*	*Lead Concentration*
717	*0001*	5/29/03	<0.4 mg/L

Gerold J. Miller, Ph.D.
Laboratory Director
NJ-NELAP: 04663
AIHA: 100194
or other approved signatory

Date Printed: 5/30/03 8:46:15 AM

PBW/0005

EMSL Analytical
2 Cooper St., Westmont, NJ 08108
Phone: (856) 858-4800 Fax: (856) 858-9551 Email: gmiller1@emsl.com

00065658

Attn: Alex Nguyen
EFI
9700 Richmond
Suite 201
Houston, TX 77042
Fax: (713) 975-7336 Phone: (713) 724-2709
Project: 98410-13709

Customer ID: ENGF50
Customer PO:
Received: 05/28/03 10:35 AM

EMSL Order: 200305211
EMSL Project ID:

Toxicity Characteristic Leaching Procedure (SW846, 1311/7420)

Client Sample Description	*Lab ID*	*Analyzed*	*Lead Concentration*
Bldg 734	*0001*	5/29/03	<0.4 mg/L

Gerold J. Miller, Ph.D.
Laboratory Director
NJ-NELAP: 04653
AIHA: 100194
or other approved signatory

Date Printed: 5/30/03 8:48:03 AM

PB/w/COC

EMSL Analytical
3 Cooper St., Westmont, NJ 08108
Phone: (856) 858-4800 Fax: (856) 858-9551 Email: gmiller1@emsl.com

00065659

Attn: Alex Nguyen
EFI
9700 Richmond
Suite 201
Houston, TX 77042
Fax: (713) 975-7336 Phone: (713) 724-2709
Project: 98410-13709

Customer ID: ENGF50
Customer PO:
Received: 05/28/03 10:35 AM

EMSL Order: 200305212
EMSL Project ID:

Toxicity Characteristic Leaching Procedure (SW846, 1311/7420)

Client Sample Description	*Lab ID*	*Analyzed*	*Lead Concentration*
Bldg 723	*0001*	5/29/03	<0.4 mg/L

Gerold J. Miller, Ph.D.
Laboratory Director
NJ-NELAP: 04653
AIHA: 100194
or other approved signatory

Date Printed: 5/30/03 8:47:34 AM

PBW/COC

EMSL Analytical
3 Cooper St., Westmont, NJ 08108
Phone: (856) 858-4800 Fax: (856) 858-9551 Email: gmiller1@emsl.com

00065660

Attn: Alex Nguyen
EFI
9700 Richmond
Suite 201
Houston, TX 77042
Fax: (713) 975-7336 Phone: (713) 724-2709
Project: 98410-13709

Customer ID: ENGF50
Customer PO:
Received: 06/03/03 10:30 AM

EMSL Order: 200305461
EMSL Project ID:

Toxicity Characteristic Leaching Procedure (SW846, 1311/7420)

Client Sample Description	*Lab ID*	*Analyzed*	*Lead Concentration*
722-P	0001	6/4/03	0.4 mg/L

Gerold J. Miller, Ph.D.
Laboratory Director
NJ-NELAP: 04653
AIHA: 100194
or other approved signatory

Date Printed: 6/5/03 8:53:54 AM

EMSL Analytical
3 Cooper St., Westmont, NJ 08108
Phone: (856) 858-4800 Fax: (856) 858-9551 Email: gmiller1@emsl.com

00065662

Attn: Alex Nguyen
EFI
9700 Richmond
Suite 201
Houston, TX 77042
Fax: (713) 975-7336 Phone: (713) 724-2709
Project: 98410-13709

Customer ID: ENGF50
Customer PO:
Received: 06/03/03 10:30 AM

EMSL Order: 200305462
EMSL Project ID:

Toxicity Characteristic Leaching Procedure (SW846, 1311/7420)

Client Sample Description	*Lab ID*	*Analyzed*	*Lead Concentration*
725	*0001*	6/4/03	<0.4 mg/L

Gerold J. Miller, Ph.D.
Laboratory Director
NJ-NELAP: 04653
AIHA: 100194
or other approved signatory

Date Printed: 6/5/03 8:53:29 AM

PB w/ QC

EMSL Analytical
3 Cooper St., Westmont, NJ 08108
Phone: (856) 858-4800 Fax: (856) 858-9551 Email: gmiller1@emsl.com

Attn: Alex Nguyen
EFI
9700 Richmond
Suite 201
Houston, TX 77042
Fax: (713) 975-7336 Phone: (713) 724-2709
Project: 98410-13709

Customer ID: ENGF50
Customer PO:
Received: 06/03/03 10:30 AM

EMSL Order: 200305463
EMSL Project ID:

Toxicity Characteristic Leaching Procedure (SW846, 1311/7420)

Client Sample Description	*Lab ID*	*Analyzed*	*Lead Concentration*
206	*0001*	6/4/03	0.5 mg/L

Gerold J. Miller, Ph.D.
Laboratory Director
NJ-NELAP: 04653
AIHA: 100194
or other approved signatory

Date Printed: 6/5/03 8:52:53 AM

PBW/TQC1

EMSL Analytical
3 Cooper St., Westmont, NJ 08108
Phone: (856) 858-4800 Fax: (856) 858-9551 Email: gmiller1@emsl.com

00067664

Attn: EFI
9700 Richmond
Suite 201
Houston, TX 77042
Fax: (713) 975-7336 Phone: (713) 975-7031
Project: 98410-13709

Customer ID: ENGF50
Customer PO:
Received: 06/16/03 9:40 AM

EMSL Order: 200306075
EMSL Project ID:

Toxicity Characteristic Leaching Procedure (SW846, 1311/7420)

Client Sample Description	*Lab ID*	*Analyzed*	*Lead Concentration*
201-A	*0001*	6/17/03	<0.4 mg/L
201-R	*0002*	6/17/03	<0.4 mg/L
202	*0003*	6/17/03	<0.4 mg/L
707F	*0004*	6/17/03	<0.4 mg/L

Gerold J. Miller, Ph.D.
Laboratory Director
NJ-NELAP: 04653
AIHA: 100194
or other approved signatory

Date Printed: 6/17/03 3:52:47 PM

EMSL Analytical
3 Cooper St., Westmont, NJ 08108
Phone: (856) 858-4800 Fax: (856) 858-9551 Email: gmiller1@emsl.com

Attn: Alex Nguyen
EFI
9700 Richmond
Suite 201
Houston, TX 77042
Fax: (713) 975-7336 Phone: (713) 724-2709
Project: **98410-13709**

Customer ID: ENGF50
Customer PO:
Received: 06/10/03 12:00 PM

EMSL Order: 200305885
EMSL Project ID:

Toxicity Characteristic Leaching Procedure (SW846, 1311/7420)

Client Sample Description	*Lab ID*	*Analyzed*	*Lead Concentration*
Bldg 201	*0001*	6/11/03	<0.4 mg/L
Bldg 203	*0002*	6/11/03	<0.4 mg/L
Bldg 204	*0003*	6/11/03	<0.4 mg/L
Bldg 713 B	*0004*	6/11/03	<0.4 mg/L

Gerold J. Miller, Ph.D.
Laboratory Director
NJ-NELAP: 04653
AIHA: 100194
or other approved signatory

Date Printed: 6/11/03 5:41:36 PM

PLM/TEM

EMSL Analytical
3 Cooper St., Westmont, NJ 08108
Phone: (856) 858-4800 Fax: (856) 858-9551 Email: gmiller1@emsl.com

00065666

Attn: Alex Nguyen
EFI
9700 Richmond
Suite 201
Houston, TX 77042
Fax: (713) 975-7336 Phone: (713) 724-2709
Project: **98410-13709**

Customer ID: ENGF50
Customer PO:
Received: 06/03/03 10:30 AM

EMSL Order: 200305460
EMSL Project ID:

Toxicity Characteristic Leaching Procedure (SW846, 1311/7420)

Client Sample Description	*Lab ID*	*Analyzed*	*Lead Concentration*
205	*0001*	6/4/03	<0.4 mg/L

Gerold J. Miller, Ph.D.
Laboratory Director
NJ-NELAP: 04653
AIHA: 100194
or other approved signatory

Date Printed: 6/5/03 8:54:18 AM

PB w/ QC

EMSL Analytical
3 Cooper St., Westmont, NJ 08108
Phone: (856) 858-4800 Fax: (856) 858-9551 Email: gmiller1@emsl.com

Attn: EFI
9700 Richmond
Suite 201
Houston, TX 77042
Fax: (713) 975-7336 Phone: (713) 975-7031
Project: **98410-13709**

Customer ID: ENGF50
Customer PO:
Received: 07/09/03 11:20 AM
EMSL Order: 200307036
EMSL Project ID:

Toxicity Characteristic Leaching Procedure (SW846, 1311/7420)

Client Sample Description	*Lab ID*	*Analyzed*	*Lead Concentration*
Bldg 744	*0001*	7/10/03	0.7 mg/L

Gerold J. Miller, Ph.D.
Laboratory Director
NJ-NELAP: 04653
AIHA: 100194
or other approved signatory

Date Printed: 7/10/03 4:26:00 PM
PB w/o QC

EMSL Analytical
3 Cooper St., Westmont, NJ 08108
Phone: (856) 858-4800 Fax: (856) 858-9551 Email: gmiller1@emsl.com

Attn: EFI
9700 Richmond
Suite 201
Houston, TX 77042
Fax: (713) 975-7336 Phone: (713) 975-7031
Project: **98410-13709**

Customer ID: ENGF50
Customer PO:
Received: 07/09/03 11:20 AM

EMSL Order: 200307034
EMSL Project ID:

Toxicity Characteristic Leaching Procedure (SW846, 1311/7420)

Client Sample Description	*Lab ID*	*Analyzed*	*Lead Concentration*
Bldg. 716	*0001*	7/10/03	0.5 mg/L

Gerold J. Miller, Ph.D.
Laboratory Director
NJ-NELAP: 04653
AIHA: 100194
or other approved signatory

Date Printed: 7/10/03 4:27:46 PM

PE w/o Qual

EMSL Analytical
3 Cooper St., Westmont, NJ 08108
Phone: (856) 858-4800 Fax: (856) 858-9551 Email: gmiller1@emsl.com

00065669

Attn: EFI
9700 Richmond
Suite 201
Houston, TX 77042
Fax: (713) 975-7336 Phone: (713) 975-7031
Project: 98410-13709

Customer ID: ENGF50
Customer PO:
Received: 07/09/03 11:20 AM
EMSL Order: 200307034
EMSL Project ID:

Toxicity Characteristic Leaching Procedure (SW846, 1311/7420)

Client Sample Description	*Lab ID*	*Analyzed*	*Lead Concentration*
Bldg. 716	0001	7/10/03	0.5 mg/L

Gerold J. Miller, Ph.D.
Laboratory Director
NJ-NELAP: 04653
AIHA: 100194
or other approved signatory

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PE w/o 00[illegible]

EMSL Analytical
3 Cooper St., Westmont, NJ 08108
Phone: (856) 858-4800 Fax: (856) 858-9551 Email: gmiller1@emsl.com

00065670

Attn: EFI
9700 Richmond
Suite 201
Houston, TX 77042
Fax: (713) 975-7336 Phone: (713) 975-7031
Project: **98410-13709**

Customer ID: ENGF50
Customer PO:
Received: 07/09/03 11:20 AM

EMSL Order: 200307037
EMSL Project ID:

Toxicity Characteristic Leaching Procedure (SW846, 1311/7420)

Client Sample Description	*Lab ID*	*Analyzed*	*Lead Concentration*
Bldg 714	*0001*	7/10/03	<0.4 mg/L

Gerold J. Miller, Ph.D.
Laboratory Director
NJ-NELAP: 04653
AIHA: 100194
or other approved signatory

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EMSL Analytical
3 Cooper St., Westmont, NJ 08108
Phone: (856) 858-4800 Fax: (856) 858-9551 Email: gmiller1@emsl.com

00065671

Attn: EFI
9700 Richmond
Suite 201
Houston, TX 77042
Fax: (713) 975-7336 Phone: (713) 975-7031
Project: **98410-13709**

Customer ID: ENGF50
Customer PO:
Received: 07/09/03 11:20 AM
EMSL Order: 200307035
EMSL Project ID:

Toxicity Characteristic Leaching Procedure (SW846, 1311/7420)

Client Sample Description	*Lab ID*	*Analyzed*	*Lead Concentration*
632-A	*0001*	7/10/03	<0.4 mg/L

Gerold J. Miller, Ph.D.
Laboratory Director
NJ-NELAP: 04653
AIHA: 100194
or other approved signatory

Date Printed: 7/10/03 4:27:15 PM

PB w/o QC

EMSL Analytical
3 Cooper St., Westmont, NJ 08108
Phone: (856) 858-4800 Fax: (856) 858-9551 Email: gmiller1@emsi.com

00065672

Attn: Alex Nguyen
EFI
9700 Richmond
Suite 201
Houston, TX 77042
Fax: (713) 975-7336 Phone: (713) 724-2709
Project: **98410-13709**

Customer ID: ENGF50
Customer PO:
Received: 07/23/03 10:10 AM

EMSL Order: 200307622
EMSL Project ID:

Toxicity Characteristic Leaching Procedure (SW846, 1311/7420)

Client Sample Description	*Lab ID*	*Analyzed*	*Lead Concentration*
630-A	*0001*	7/24/03	<0.4 mg/L

Gerold J. Miller, Ph.D.
Laboratory Director
NJ-NELAP: 04853
AIHA: 100194
or other approved signatory

Date Printed: 7/24/03 2:40:21 PM

EMSL Analytical
3 Cooper St., Westmont, NJ 08108
Phone: (856) 858-4800 Fax: (856) 858-9551 Email: gmiller1@emsl.com

00065673

Attn: Alex Nguyen
EFI
9700 Richmond
Suite 201
Houston, TX 77042
Fax: (713) 975-7336 Phone: (713) 724-2709
Project: **98410-13709**

Customer ID: ENGF50
Customer PO:
Received: 07/23/03 10:10 AM

EMSL Order: 200307623
EMSL Project ID:

Toxicity Characteristic Leaching Procedure (SW846, 1311/7420)

Client Sample Description	*Lab ID*	*Analyzed*	*Lead Concentration*
510-B-2	*0001*	7/24/03	<0.4 mg/L

Gerold J. Miller, Ph.D.
Laboratory Director
NJ-NELAP 04653
AIHA: 100194
or other approved signatory

Date Printed: 7/24/03 2:40:53 PM

EMSL Analytical
3 Cooper St., Westmont, NJ 08108
Phone: (856) 858-4800 Fax: (856) 858-9551 Email: gmiller1@emsl.com

00065674

Attn: Alex Nguyen
EFI
9700 Richmond
Suite 201
Houston, TX 77042
Fax: (713) 975-7336 Phone: (713) 724-2709
Project: 98410-13709

Customer ID: ENGF50
Customer PO:
Received: 07/23/03 10:10 AM

EMSL Order: 200307620
EMSL Project ID:

Toxicity Characteristic Leaching Procedure (SW846, 1311/7420)

Client Sample Description	*Lab ID*	*Analyzed*	*Lead Concentration*
S 36	0001	7/24/03	<0.4 mg/L

Gerold J. Miller, Ph.D.
Laboratory Director
NJ-NELAP: 04653
AIHA: 100194
or other approved signatory

Date Printed: 7/24/03 2:39:18 PM

P.w/o 01

EMSL Analytical
3 Cooper St., Westmont, NJ 08108
Phone: (856) 858-4800 Fax: (856) 858-9551 Email: gmiller1@emsl.com

00065675

EMSL

Attn: Alex Nguyen
EFI
9700 Richmond
Suite 201
Houston, TX 77042
Fax: (713) 975-7336 Phone: (713) 724-2709
Project: 98410-13709

Customer ID: ENGF50
Customer PO:
Received: 07/23/03 10:10 AM

EMSL Order: 200307621
EMSL Project ID:

Toxicity Characteristic Leaching Procedure (SW846, 1311/7420)

Client Sample Description	*Lab ID*	*Analyzed*	*Lead Concentration*
TS-10	0001	7/24/03	0.6 mg/L

Gerold J. Miller, Ph.D.
Laboratory Director
NJ-NELAP: 04653
AIHA: 100194
or other approved signatory

Date Printed: 7/24/03 2:39:51 PM

Pl w/d

APPENDIX B

CHAIN OF CUSTODY

00065677

EMSL ANALYTICAL — CHAIN OF CUSTODY — 2103612 . LEAD

Revised 7/1/99

EMSL Rep: GARY PERMENTER

DATE:

Third party billing requires written authorization from third party

Your Company Name:	EFI	EMSL-Bill to:	ALEX NGUYEN - EFI
Street:	9700 RICHMOND, ST. 210	Street:	9700 RICHMOND, ST. 210
Box #:		Box #:	
City/State:	HOUSTON / TX Zip: 77042	City/State:	HOUSTON, TX Zip: 77042
Phone Results to:		Fax Results to:	
Name:	ALEX NGUYEN	Name:	ALEX NGUYEN
Telephone #:	(713) 975-7031	Fax #:	(713) 975-7336
Project Name/Number:	9840 - 13709	Purchase Order #:	

MATRIX	METHOD	INSTRUMENT	mdls	TAT
Lead Chips*	SW846-7420 or AOAC 5.009 (974.02)	Flame Atomic Absorption	0.01% ++	
Lead Wastewater	SW846-7420	Flame Atomic Absorption	0.4 mg/l water	
Lead Soil +			50 mg/kg (ppm) soil	
	or SW846-6010	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	SW846-7420	Flame Atomic Absorption	10 ug/wipe	
	or SW846-6010	ICP	3.0 ug/wipe	
TCLP Lead **	SW846-1311/7420	Flame Atomic Absorption	0.4 mg/l (ppm)	30 Hrs
	or SW846-6010	ICP	0.1 mg/l (ppm)	W/IN WORK WEEK
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 0500-0600	Gravimetric Reduction	0.0001g	

TAT (Turnaround) - 3 hours, 6 hours, Please call ahead to schedule.
12 hours (must arrive by 11:00 a.m),
24 hours (1day), 48 hours (2 days), 72 hours, 96 hours (3 days), 120 hours(4 days), 144 + hours (6-10 days)
*, **, ***, ****, +, ++ Please Refer to Price Quote

SAMPLE #	LOCATION	Air volume, L Area, in²	LAB #
709-A	GREEN & GRAY WOOD INTERIOR FRAMING		64512-1

Relinquished By; (Person): [signature]
Date: 5-15-03

Received at EMSL By: [signature]
Date: 5/19/03 11:15

Note: Please duplicate this form and use additional sheets if necessary.

00065678

EMSL ANALYTICAL — CHAIN OF CUSTODY — LEAD

Revised 7/1/99

5/15 04911

EMSL Rep: GARY PERMILLER

DATE:

Third party billing requires written authorization from third party

Your Company Name:	EFI	EMSL-Bill to:	ALEX NGUYEN - EFI
Street:	9700 RICHMOND, ST. 210	Street:	9700 RICHMOND, ST. 210
Box #:		Box #:	
City/State:	HOUSTON / TX Zip: 77042	City/State:	HOUSTON, TX Zip: 77042
Phone Results to:		Fax Results to:	
Name:	ALEX NGUYEN	Name:	ALEX NGUYEN
Telephone #:	(713) 975-7031	Fax #:	(713) 975-7336
Project Name/Number:	9840 - 13709	Purchase Order #:	

MATRIX	METHOD	INSTRUMENT	mdls	TAT
Lead Chips*	SW846-7420 or AOAC 5.009 (974.02)	Flame Atomic Absorption	0.01% ++	
Lead Wastewater	SW846-7420	Flame Atomic Absorption	0.4 mg/l water	
Lead Soil +	or SW846-6010	ICP	50 mg/kg (ppm) soil 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	
ad in Wipe	SW846-7420	Flame Atomic Absorption	10 ug/wipe	
	or SW846-6010	ICP	3.0 ug/wipe	
TCLP Lead **	SW846-1311/7420	Flame Atomic Absorption	0.4 mg/l (ppm)	30 HRS
	or SW846-6010	ICP	0.1 mg/l (ppm)	W/IN WORK WEEK
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 0500-0600	Gravimetric Reduction	0.0001g	

TAT (Turnaround) - 3 hours, 6 hours, Please call ahead to schedule.
12 hours (must arrive by 11:00 a.m),
24 hours (1day), 48 hours (2 days), 72 hours, 96 hours (3 days), 120 hours(4 days), 144 + hours (6-10 days)
*, **, ***, ****, +, ++ Please Refer to Price Quote

SAMPLE #	LOCATION	Air volume, L Area, in²	LAB #
T536	GRAY INTERIOR WOOD		04911-1

Relinquished By; (Person): David R. Pape

Date: 5-15-03

Received at EMSL By:

Date: 5/16/03 11:15 AM

Note: Please duplicate this form and use additional sheets if necessary.

EMSL ANALYTICAL
Revised 7/1/99

CHAIN OF CUSTODY

220364814

LEAD

EMSL Rep: GARY PERMILLION

DATE:

Third party billing requires written authorization from third party

Your Company Name:	EFI	EMSL-Bill to:	ALEX NGUYEN - EFI
Street:	9700 RICHMOND, ST. 210	Street:	9700 RICHMOND, ST. 210
Box #:		Box #:	
City/State:	HOUSTON / TX Zip: 77042	City/State:	HOUSTON, TX Zip: 77042

Phone Results to: Name:	ALEX NGUYEN	Fax Results to: Name:	ALEX NGUYEN
Telephone #:	(713) 975-7031	Fax #:	(713) 975-7336
Project Name/Number:	98410 - 13709	Purchase Order #:	

MATRIX	METHOD	INSTRUMENT	mdls	TAT
Lead Chips*	SW846-7420 or AOAC 5.009 (974.02)	Flame Atomic Absorption	0.01% ++	
Lead Wastewater	SW846-7420	Flame Atomic Absorption	0.4 mg/l water	
Lead Soil +			50 mg/kg (ppm) soil	
	or SW846-6010	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	
ad in Wipe	SW846-7420	Flame Atomic Absorption	10 ug/wipe	
	or SW846-6010	ICP	3.0 ug/wipe	
TCLP Lead **	SW846-1311/7420	Flame Atomic Absorption	0.4 mg/l (ppm)	30 HRS
	or SW846-6010	ICP	0.1 mg/l (ppm)	W/IN WORK WEEK
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 0500-0600	Gravimetric Reduction	0.0001g	

TAT (Turnaround) - 3 hours, 6 hours, Please call ahead to schedule.
12 hours (must arrive by 11:00 a.m),
24 hours (1day), 48 hours (2 days), 72 hours, 96 hours (3 days), 120 hours(4 days), 144 + hours (6-10 days)
*, **, ***, ****, +, ++ Please Refer to Price Quote

SAMPLE #	LOCATION	Air volume, L Area, in²	LAB #
726	GREEN PAINTED WOOD FRAME & BASE BOARD		04814-1

Relinquished By: (Person) David R. Pope
Date: 5-15-03

Received at EMSL By:
Date: 5/19/03 11:15

Note: Please duplicate this form and use additional sheets if necessary.

00065680

EMSL ANALYTICAL — CHAIN OF CUSTODY — LEAD

Revised 7/1/99

Z03048/3

EMSL Rep: GARY PERMUTER

DATE:

Third party billing requires written authorization from third party

Your Company Name:	EFI	EMSL-Bill to:	ALEX NGUYEN - EFI
Street:	9700 RICHMOND, ST. 210	Street:	9700 RICHMOND, ST. 210
Box #:		Box #:	
City/State:	HOUSTON / TX Zip: 77042	City/State:	HOUSTON, TX Zip: 77042
Phone Results to:		Fax Results to:	
Name:	ALEX NGUYEN	Name:	ALEX NGUYEN
Telephone #:	(713) 975-7031	Fax #:	(713) 975-7336
Project Name/Number:	9840 - 13709	Purchase Order #:	

MATRIX	METHOD	INSTRUMENT	mdls	TAT
Lead Chips*	SW846-7420 or AOAC 5.009 (974.02)	Flame Atomic Absorption	0.01% ++	
Lead Wastewater	SW846-7420	Flame Atomic Absorption	0.4 mg/l water	
Lead Soil +			50 mg/kg (ppm) soil	
	or SW846-6010	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	
ad in Wipe	SW846-7420	Flame Atomic Absorption	10 ug/wipe	
	or SW846-6010	ICP	3.0 ug/wipe	
TCLP Lead **	SW846-1311/7420	Flame Atomic Absorption	0.4 mg/l (ppm)	30 HRS
	or SW846-6010	ICP	0.1 mg/l (ppm)	W/IN WORK WEEK
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 0500-0600	Gravimetric Reduction	0.0001g	

TAT (Turnaround) - 3 hours, 6 hours, Please call ahead to schedule.
12 hours (must arrive by 11:00 a.m),
24 hours (1day), 48 hours (2 days), 72 hours, 96 hours (3 days), 120 hours(4 days), 144 + hours (6-10 days)
*, **, ***, ****, +, ++ Please Refer to Price Quote

SAMPLE #	LOCATION	Air volume, L Area, in²	LAB #
726 D	White, Blue Gray Painted wood		64873-1

Relinquished By: (Person) [signature]

Date: 5-15-03

Received at EMSL By: [signature]

Date: 5/19/03 11:15

Note: Please duplicate this form and use additional sheets if necessary.

00065681

EMSL ANALYTICAL
Revised 7/1/99

CHAIN OF CUSTODY

2603648 15.

LEAD

EMSL Rep: GARY PERMILTER

DATE:

Third party billing requires written authorization from third party

Your Company Name:	EFI	EMSL-Bill to:	ALEX NGUYEN - EFI
Street:	9700 RICHMOND, ST. 210	Street:	9700 RICHMOND, ST. 210
Box #:		Box #:	
City/State:	HOUSTON / TX Zip: 77042	City/State:	HOUSTON, TX Zip: 77042
Phone Results to:		Fax Results to:	
Name:	ALEX NGUYEN	Name:	ALEX NGUYEN
Telephone #:	(713) 975-7031	Fax #:	(713) 975-7336
Project Name/Number:	9840 - 13709	Purchase Order #:	

MATRIX	METHOD	INSTRUMENT	mdls	TAT
Lead Chips*	SW846-7420 or AOAC 5.009 (974.02)	Flame Atomic Absorption	0.01% ++	
Lead Wastewater	SW846-7420	Flame Atomic Absorption	0.4 mg/l water	
Lead Soil +			50 mg/kg (ppm) soil	
	or SW846-6010	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	SW846-7420	Flame Atomic Absorption	10 ug/wipe	
	or SW846-6010	ICP	3.0 ug/wipe	
TCLP Lead **	SW846-1311/7420	Flame Atomic Absorption	0.4 mg/l (ppm)	30 HRS
	or SW846-6010	ICP	0.1 mg/l (ppm)	W/IN WORK WEEK
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 0500-0600	Gravimetric Reduction	0.0001g	

TAT (Turnaround) - 3 hours, 6 hours, Please call ahead to schedule.
12 hours (must arrive by 11:00 a.m),
24 hours (1day), 48 hours (2 days), 72 hours, 96 hours (3 days), 120 hours(4 days), 144 + hours (6-10 days)
*, **, ***, ****, +, ++ Please Refer to Price Quote

SAMPLE #	LOCATION	Air volume, L Area, in²	LAB #
726 C	BEIGE & GREEN WOOD INTERIOR FRAMING		04415.1

Relinquished By; (Person) David R. Pope

Date: 5-15-03

Received at EMSL By: Livingston

Date: 5/19/03 1115A

Note: Please duplicate this form and use additional sheets if necessary.

00065682

EMSL ANALYTICAL — CHAIN OF CUSTODY — LEAD

Revised 7/1/99

2030513

EMSL Rep: Gary

DATE:

Third party billing requires written authorization from third party

Your Company Name:	EFI	EMSL-Bill to:	Alex Nguyen - EFI
Street:	9700 Richmond, St. 210	Street:	9700 Richmond, Suite 210
Box #:		Box #:	
City/State:	Houston, Tx Zip: 77042	City/State:	Houston, Tx Zip: 77042
Phone Results to:		Fax Results to:	
Name:	Alex Nguyen	Name:	Alex Nguyen
Telephone #:	(713) 975-7031	Fax #:	(713) 975-7336
Project Name/Number:	98410-13709	Purchase Order #:	

MATRIX	METHOD	INSTRUMENT	mdls	TAT
Lead Chips*	SW846-7420 or AOAC 5.009 (974.02)	Flame Atomic Absorption	0.01% ++	
Lead Wastewater	SW846-7420	Flame Atomic Absorption	0.4 mg/l water	
Lead Soil +			50 mg/kg (ppm) soil	
	or SW846-6010	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	SW846-7420	Flame Atomic Absorption	10 ug/wipe	
	or SW846-6010	ICP	3.0 ug/wipe	
TCLP Lead **	SW846-1311/7420	Flame Atomic Absorption	0.4 mg/l (ppm)	30 HRS -
	or SW846-6010	ICP	0.1 mg/l (ppm)	W/IN WORK WEEK
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 0500-0600	Gravimetric Reduction	0.0001g	

TAT (Turnaround) - 3 hours, 6 hours, Please call ahead to schedule.
12 hours (must arrive by 11:00 a.m),
24 hours (1day), 48 hours (2 days), 72 hours, 96 hours (3 days), 120 hours(4 days), 144 + hours (6-10 days)
*, **, ***, ****, +, ++ Please Refer to Price Quote

SAMPLE #	LOCATION	Air volume, L Area, in²	LAB #
718-A	WOOD FRAME, INTERIOR		05213-1

Relinquished By; (Person) D. Pope	Received at EMSL By:
Date: 5-19-03	Date: 5/20/03 10:35

Note: Please duplicate this form and use additional sheets if necessary.

00065683

EMSL ANALYTICAL — CHAIN OF CUSTODY — 200305214 — LEAD

Revised 7/1/99

EMSL Rep: Gary

DATE:

Third party billing requires written authorization from third party

Your Company Name: EFI

EMSL-Bill to: Alex Nguyen - EFI

Street: 9700 Richmond, St. 210

Box #:

City/State: Houston, Tx Zip: 77042

Street: 9700 Richmond, Suite 210

Box #:

City/State: Houston, Tx Zip: 77042

Phone Results to:

Name: Alex Nguyen

Telephone #: (713) 975-7031

Project Name/Number: 98410-13709

Fax Results to:

Name: Alex Nguyen

Fax #: (713) 975-7336

Purchase Order #:

MATRIX	METHOD	INSTRUMENT	mdls	TAT
Lead Chips*	SW846-7420 or AOAC 5.009 (974.02)	Flame Atomic Absorption	0.01% ++	
Lead Wastewater	SW846-7420	Flame Atomic Absorption	0.4 mg/l water	
Lead Soil +			50 mg/kg (ppm) soil	
	or SW846-6010	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	SW846-7420	Flame Atomic Absorption	10 ug/wipe	
	or SW846-6010	ICP	3.0 ug/wipe	
TCLP Lead **	SW846-1311/7420	Flame Atomic Absorption	0.4 mg/l (ppm)	30 HRS -
	or SW846-6010	ICP	0.1 mg/l (ppm)	W/IN WORK WEEK
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 0500-0600	Gravimetric Reduction	0.0001g	

TAT (Turnaround) - 3 hours, 6 hours, Please call ahead to schedule.
12 hours (must arrive by 11:00 a.m),
24 hours (1day), 48 hours (2 days), 72 hours, 96 hours (3 days), 120 hours(4 days), 144 + hours (6-10 days)
*, **, ***, ****, +, ++ Please Refer to Price Quote

SAMPLE #	LOCATION	Air volume, L Area, in²	LAB #
717	WOOD TAN PAINT INTERIOR FRAME		05214-1

Relinquished By; (Person) O. Pope

Date: 5-19-03

Received at EMSL By: Lvchyn

Date: 5/20/03 1075

Note: Please duplicate this form and use additional sheets if necessary.

00065684

EMSL ANALYTICAL — CHAIN OF CUSTODY — 2003052111 — LEAD

Revised 7/1/99

EMSL Rep: Gary — DATE:

Third party billing requires written authorization from third party

Your Company Name:	EFI	EMSL-Bill to:	Alex Nguyen - EFI
Street:	9700 Richmond, St. 210	Street:	9700 Richmond, Suite 210
Box #:		Box #:	
City/State:	Houston, Tx Zip: 77042	City/State:	Houston, Tx Zip: 77042
Phone Results to: Name:	Alex Nguyen	Fax Results to: Name:	Alex Nguyen
Telephone #:	(713) 975-7031	Fax #:	(713) 975-7336
Project Name/Number:	98410-13709	Purchase Order #:	

MATRIX	METHOD	INSTRUMENT	mdls	TAT
Lead Chips*	SW846-7420 or AOAC 5.009 (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 SW846-6010	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	SW846-7420	Flame Atomic Absorption	10 ug/wipe	
	or SW846-6010	ICP	3.0 ug/wipe	
TCLP Lead **	SW846-1311/7420	Flame Atomic Absorption	0.4 mg/l (ppm)	30 HRS -
	or SW846-6010	ICP	0.1 mg/l (ppm)	W/IN WORK WEEK
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 0500-0600	Gravimetric Reduction	0.0001g	

TAT (Turnaround) - 3 hours, 6 hours, Please call ahead to schedule.
12 hours (must arrive by 11:00 a.m),
24 hours (1day), 48 hours (2 days), 72 hours, 96 hours (3 days), 120 hours(4 days), 144 + hours (6-10 days)
*, **, ***, ****, +, ++ Please Refer to Price Quote

SAMPLE #	LOCATION	Air volume, L Area, in²	LAB #
Bldg. 734	Ceiling Joint Wood Frame & Interior		05111-1

Relinquished By; (Person) R. Pope — Received at EMSL By:

Date: 5-20-03 — Date: 5/19/03 1:35

Note: Please duplicate this form and use additional sheets if necessary.

00065685

EMSL ANALYTICAL — CHAIN OF CUSTODY — 2B3052/2 — LEAD

Revised 7/1/99

EMSL Rep: Gary — DATE:

Third party billing requires written authorization from third party

Your Company Name:	EFI	EMSL-Bill to:	Alex Nguyen - EFI
Street:	9700 Richmond, St. 210	Street:	9700 Richmond, Suite 210
Box #:		Box #:	
City/State:	Houston, Tx Zip: 77042	City/State:	Houston, Tx Zip: 77042
Phone Results to:		**Fax Results to:**	
Name:	Alex Nguyen	Name:	Alex Nguyen
Telephone #:	(713) 975-7031	Fax #:	(713) 975-7336
Project Name/Number:	98410-13709	Purchase Order #:	

MATRIX	METHOD	INSTRUMENT	mdls	TAT
Lead Chips*	SW846-7420 or AOAC 5.009 (974.02)	Flame Atomic Absorption	0.01% ++	
Lead Wastewater	SW846-7420	Flame Atomic Absorption	0.4 mg/l water	
Lead Soil +			50 mg/kg (ppm) soil	
	or SW846-6010	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	SW846-7420	Flame Atomic Absorption	10 ug/wipe	
	or SW846-6010	ICP	3.0 ug/wipe	
TCLP Lead **	SW846-1311/7420	Flame Atomic Absorption	0.4 mg/l (ppm)	30 HRS -
	or SW846-6010	ICP	0.1 mg/l (ppm)	W/IN WORK WEEK
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 0500-0600	Gravimetric Reduction	0.0001g	

TAT (Turnaround) - 3 hours, 6 hours, Please call ahead to schedule.
12 hours (must arrive by 11:00 a.m),
24 hours (1day), 48 hours (2 days), 72 hours, 96 hours (3 days), 120 hours(4 days), 144 + hours (6-10 days)
*, **, ***, ****, +, ++ Please Refer to Price Quote

SAMPLE #	LOCATION	Air volume, L Area, in²	LAB #
Bldg. 723	GRAY PAINT WOOD FRAME & INTERIOR		65717-1

Relinquished By; (Person) D. Pope — Received at EMSL By: Lbuyer

Date: 5-20-03 — Date: 5-20-03 5:45 PM

Note: Please duplicate this form and use additional sheets if necessary.

00065686

EMSL ANALYTICAL — CHAIN OF CUSTODY — LEAD

Revised 7/1/99

260305401

EMSL Rep:	Gary	DATE:	Third party billing requires written authorization from third party
Your Company Name:	EFI	EMSL-Bill to:	Alex Nguyen - EFI
Street:	9700 Richmond, St. 210	Street:	9700 Richmond, Suite 210
Box #:		Box #:	
City/State:	Houston, Tx Zip: 77042	City/State:	Houston, Tx Zip: 77042
Phone Results to: Name:	Alex Nguyen	Fax Results to: Name:	Alex Nguyen
Telephone #:	(713) 975-7031	Fax #:	(713) 975-7336
Project Name/Number:	98410-13709	Purchase Order #:	

MATRIX	METHOD	INSTRUMENT	mdls	TAT
Lead Chips*	SW846-7420 or AOAC 5.009 (974.02)	Flame Atomic Absorption	0.01% ++	
Lead Wastewater	SW846-7420	Flame Atomic Absorption	0.4 mg/l water	
Lead Soil +			50 mg/kg (ppm) soil	
	or SW846-6010	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	SW846-7420	Flame Atomic Absorption	10 ug/wipe	
	or SW846-6010	ICP	3.0 ug/wipe	
TCLP Lead **	SW846-1311/7420	Flame Atomic Absorption	0.4 mg/l (ppm)	30 HRS -
	or SW846-6010	ICP	0.1 mg/l (ppm)	W/IN WORK WEEK
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 0500-0600	Gravimetric Reduction	0.0001g	

TAT (Turnaround) - 3 hours, 6 hours, Please call ahead to schedule.
12 hours (must arrive by 11:00 a.m),
24 hours (1day), 48 hours (2 days), 72 hours, 96 hours (3 days), 120 hours(4 days), 144 + hours (6-10 days)
*, **, ***, ****, +, ++ Please Refer to Price Quote

SAMPLE #	LOCATION	Air volume, L Area, in²	LAB #
722-P	WOOD FRAME GRAY/GREEN INTERIOR WOOD		0526C1-1

Relinquished By: (Person) D. Lope	Received at EMSL By:
Date: 5-27-03	Date: 6/3/03 1030

Note: Please duplicate this form and use additional sheets if necessary.

00065687

EMSL ANALYTICAL
Revised 7/1/99

CHAIN OF CUSTODY 20030542 LEAD

EMSL Rep: Gary
DATE:

Third party billing requires written authorization from third party

Your Company Name: EFI
Street: 9700 Richmond, St. 210
Box #:
City/State: Houston, Tx Zip: 77042

EMSL-Bill to: Alex Nguyen - EFI
Street: 9700 Richmond, Suite 210
Box #:
City/State: Houston, Tx Zip: 77042

Phone Results to:
Name: Alex Nguyen
Telephone #: (713) 975-7031
Project Name/Number: 98410-13709

Fax Results to:
Name: Alex Nguyen
Fax #: (713) 975-7336
Purchase Order #:

MATRIX	METHOD	INSTRUMENT	mdls	TAT
Lead Chips*	SW846-7420 or AOAC 5.009 (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 SW846-6010	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	SW846-7420	Flame Atomic Absorption	10 ug/wipe	
	or SW846-6010	ICP	3.0 ug/wipe	
TCLP Lead **	SW846-1311/7420	Flame Atomic Absorption	0.4 mg/l (ppm)	30 HRS -
	or SW846-6010	ICP	0.1 mg/l (ppm)	W/IN WORK WEEK
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 0500-0600	Gravimetric Reduction	0.0001g	

TAT (Turnaround) - 3 hours, 6 hours, Please call ahead to schedule.
12 hours (must arrive by 11:00 a.m),
24 hours (1day), 48 hours (2 days), 72 hours, 96 hours (3 days), 120 hours(4 days), 144 + hours (6-10 days)
*, **, ***, ****, +, ++ Please Refer to Price Quote

SAMPLE #	LOCATION	Air volume, L Area, in²	LAB #
725	WOOD FRAME GRAY WOOD INTERIOR		65402.1

Relinquished By; (Person) D. Pope
Date: 5-27-03

Received at EMSL By:
Date: 6/3/03

Note: Please duplicate this form and use additional sheets if necessary.

00065688

EMSL ANALYTICAL — CHAIN OF CUSTODY — 2000542 — LEAD

Revised 7/1/99

EMSL Rep: Gary

DATE:

Third party billing requires written authorization from third party

Your Company Name:	EFI	EMSL-Bill to:	Alex Nguyen - EFI
Street:	9700 Richmond, St. 210	Street:	9700 Richmond, Suite 210
Box #:		Box #:	
City/State:	Houston, Tx Zip: 77042	City/State:	Houston, Tx Zip: 77042
Phone Results to:		Fax Results to:	
Name:	Alex Nguyen	Name:	Alex Nguyen
Telephone #:	(713) 975-7031	Fax #:	(713) 975-7336
Project Name/Number:	98410-13709	Purchase Order #:	

MATRIX	METHOD	INSTRUMENT	mdls	TAT
Lead Chips*	SW846-7420 or AOAC 5.009 (974.02)	Flame Atomic Absorption	0.01% ++	
Lead Wastewater	SW846-7420	Flame Atomic Absorption	0.4 mg/l water	
Lead Soil +			50 mg/kg (ppm) soil	
	or SW846-6010	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	SW846-7420	Flame Atomic Absorption	10 ug/wipe	
	or SW846-6010	ICP	3.0 ug/wipe	
TCLP Lead **	SW846-1311/7420	Flame Atomic Absorption	0.4 mg/l (ppm)	30 HRS -
	or SW846-6010	ICP	0.1 mg/l (ppm)	W/IN WORK WEEK
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 0500-0600	Gravimetric Reduction	0.0001g	

TAT (Turnaround) - 3 hours, 6 hours, Please call ahead to schedule.
12 hours (must arrive by 11:00 a.m),
24 hours (1day), 48 hours (2 days), 72 hours, 96 hours (3 days), 120 hours(4 days), 144 + hours (6-10 days)
*, **, ***, ****, +, ++ Please Refer to Price Quote

SAMPLE #	LOCATION	Air volume, L Area, in²	LAB #
725	WOOD FRAME GRAY WOOD INTERIOR		65462.1

Relinquished By; (Person) J. Pope — Received at EMSL By:

Date: 5-27-03 — Date: 6/3/03

Note: Please duplicate this form and use additional sheets if necessary.

00065689

EMSL ANALYTICAL — CHAIN OF CUSTODY — LEAD

2CM05463

Revised 7/1/99

EMSL Rep:	Gary	DATE:	Third party billing requires written authorization from third party
Your Company Name:	EFI	EMSL-Bill to:	Alex Nguyen - EFI
Street:	9700 Richmond, St. 210	Street:	9700 Richmond, Suite 210
Box #:		Box #:	
City/State:	Houston, Tx Zip: 77042	City/State:	Houston, Tx Zip: 77042
Phone Results to:		Fax Results to:	
Name:	Alex Nguyen	Name:	Alex Nguyen
Telephone #:	(713) 975-7031	Fax #:	(713) 975-7336
Project Name/Number:	98410-13709	Purchase Order #:	

MATRIX	METHOD	INSTRUMENT	mdls	TAT
Lead Chips*	SW846-7420 or AOAC 5.009 (974.02)	Flame Atomic Absorption	0.01% ++	
Lead Wastewater	SW846-7420	Flame Atomic Absorption	0.4 mg/l water	
Lead Soil +			50 mg/kg (ppm) soil	
	or SW846-6010	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	SW846-7420	Flame Atomic Absorption	10 ug/wipe	
	or SW846-6010	ICP	3.0 ug/wipe	
TCLP Lead **	SW846-1311/7420	Flame Atomic Absorption	0.4 mg/l (ppm)	30 HRS -
	or SW846-6010	ICP	0.1 mg/l (ppm)	W/IN WORK WEEK
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 0500-0600	Gravimetric Reduction	0.0001g	

TAT (Turnaround) - 3 hours, 6 hours, Please call ahead to schedule.
12 hours (must arrive by 11:00 a.m),
24 hours (1day), 48 hours (2 days), 72 hours, 96 hours (3 days), 120 hours(4 days), 144 + hours (6-10 days)
*,**, ***, ****, +, ++ Please Refer to Price Quote

SAMPLE #	LOCATION	Air volume, L Area, in²	LAB #
206	CMU Block Gray		05463-1
	wood interior		

Relinquished By: (Person) D. Pope	Received at EMSL By:
Date: 5-28-03	Date: 6/3/03

Note: Please duplicate this form and use additional sheets if necessary.

00065690

EMSL ANALYTICAL — CHAIN OF CUSTODY — 260306075 — LEAD

Revised 7/1/99

EMSL Rep: ~~Gary~~ Joe Pontarelli DATE: 6/13/03

Third party billing requires written authorization from third party

Your Company Name:	EFI	EMSL-Bill to:	Alex Nguyen - EFI
Street:	9700 Richmond, St. 210	Street:	9700 Richmond, Suite 210
Box #:		Box #:	
City/State:	Houston, Tx Zip: 77042	City/State:	Houston, Tx Zip: 77042
Phone Results to:		**Fax Results to:**	
Name:	Alex Nguyen	Name:	Alex Nguyen
Telephone #:	(713) 975-7031	Fax #:	(713) 975-7336
Project Name/Number:	98410-13709	Purchase Order #:	

MATRIX	METHOD	INSTRUMENT	mdls	TAT
Lead Chips*	SW846-7420 or AOAC 5.009 (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 SW846-6010	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	SW846-7420	Flame Atomic Absorption	10 ug/wipe	
	or SW846-6010	ICP	3.0 ug/wipe	
TCLP Lead **	SW846-1311/7420	Flame Atomic Absorption	0.4 mg/l (ppm)	30 HRS –
	or SW846-6010	ICP	0.1 mg/l (ppm)	W/IN WORK WEEK
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 0500-0600	Gravimetric Reduction	0.0001g	

TAT (Turnaround) - 3 hours, 6 hours, Please call ahead to schedule.
12 hours (must arrive by 11:00 a.m),
24 hours (1day), 48 hours (2 days), 72 hours, 96 hours (3 days), 120 hours(4 days), 144 + hours (6-10 days)
*, **, ***, ****, +, ++ Please Refer to Price Quote

SAMPLE #	LOCATION	Air volume, L Area, in²	LAB #
201-A	WOOD, CARPET, CEILING TILE, GRID INSULATION, TAR PAPER, Gypsum		0607-1
201-B	CONCRETE, WOOD CEILING		2
202	WOOD DOOR, GYPSUM WALLBOARD, INSULATION		3
7M7F	GYPSUM WALLBOARD, INSULATION, WOOD STUDS.		4

Relinquished By: (Person) Joseph Pontarelli — Received at EMSL By: [signature]

Date: 6/13/03 — Date: 6/16/03 approx

Note: Please duplicate this form and use additional sheets if necessary.

EMSL ANALYTICAL
Revised 7/1/99

CHAIN OF CUSTODY

20030585

00065691
LEAD

EMSL Rep: Gary

DATE:

Third party billing requires written authorization from third party

Your Company Name:	EFI	EMSL-Bill to:	Alex Nguyen - EFI
Street:	9700 Richmond, St. 210	Street:	9700 Richmond, Suite 210
Box #:		Box #:	
City/State:	Houston, Tx Zip: 77042	City/State:	Houston, Tx Zip: 77042
Phone Results to: Name:	Alex Nguyen	Fax Results to: Name:	Alex Nguyen
Telephone #:	(713) 975-7031	Fax #:	(713) 975-7336
Project Name/Number:	98410-13709	Purchase Order #:	

MATRIX	METHOD	INSTRUMENT	mdls	TAT
Lead Chips*	SW846-7420 or AOAC 5.009 (974.02)	Flame Atomic Absorption	0.01% ++	
Lead Wastewater	SW846-7420	Flame Atomic Absorption	0.4 mg/l water	
Lead Soil +			50 mg/kg (ppm) soil	
	or SW846-6010	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	SW846-7420	Flame Atomic Absorption	10 ug/wipe	
	or SW846-6010	ICP	3.0 ug/wipe	
TCLP Lead ** ✓	SW846-1311/7420	Flame Atomic Absorption	0.4 mg/l (ppm)	30 HRS -
	or SW846-6010	ICP	0.1 mg/l (ppm)	W/IN WORK WEEK
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 0500-0600	Gravimetric Reduction	0.0001g	

TAT (Turnaround) - 3 hours, 6 hours, Please call ahead to schedule.
12 hours (must arrive by 11:00 a.m),
24 hours (1day), 48 hours (2 days), 72 hours, 96 hours (3 days), 120 hours(4 days), 144 + hours (6-10 days)
*, **, ***, ****, +, ++ Please Refer to Price Quote

SAMPLE #	LOCATION	Air volume, L Area, in²	LAB #
BLDG 201	BLDG 201 DECKING, INS. WOOD W/PAINT		65855-1
BLDG 203	BLDG 703 DECKING, ROOF SUPPORT		2
BLDG 204	BLDG 204 DECKING ROOF SUPPORT		3
BLDG 713 B	BLDG 713 B WALLBOARD W/PAINT, INSUL, DECKING.		4

Relinquished By; (Person) Jonathan Bontemps Jr. | Received at EMSL By: L.V. Cayer

Date: 6/6/03 | Date: 6/10/03 12 pm

Note: Please duplicate this form and use additional sheets if necessary.

00065692

EMSL ANALYTICAL — CHAIN OF CUSTODY — 2030840 — LEAD

Revised 7/1/99

EMSL Rep: Gary — DATE:

Third party billing requires written authorization from third party

Your Company Name:	EFI	EMSL-Bill to:	Alex Nguyen - EFI
Street:	9700 Richmond, St. 210	Street:	9700 Richmond, Suite 210
Box #:		Box #:	
City/State:	Houston, Tx Zip: 77042	City/State:	Houston, Tx Zip: 77042
Phone Results to:		Fax Results to:	
Name:	Alex Nguyen	Name:	Alex Nguyen
Telephone #:	(713) 975-7031	Fax #:	(713) 975-7336
Project Name/Number:	98410-13709	Purchase Order #:	

MATRIX	METHOD	INSTRUMENT	mdls	TAT
Lead Chips*	SW846-7420 or AOAC 5.009 (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 SW846-6010	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	SW846-7420	Flame Atomic Absorption	10 ug/wipe	
	or SW846-6010	ICP	3.0 ug/wipe	
TCLP Lead **	SW846-1311/7420	Flame Atomic Absorption	0.4 mg/l (ppm)	30 HRS -
	or SW846-6010	ICP	0.1 mg/l (ppm)	W/IN WORK WEEK
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 0500-0600	Gravimetric Reduction	0.0001g	

TAT (Turnaround) - 3 hours, 6 hours, Please call ahead to schedule.
12 hours (must arrive by 11:00 a.m),
24 hours (1day), 48 hours (2 days), 72 hours, 96 hours (3 days), 120 hours(4 days), 144 + hours (6-10 days)
*, **, ***, ****, +, ++ Please Refer to Price Quote

SAMPLE #	LOCATION	Air volume, L Area, in²	LAB #
205	CMU Block with Limited Gray wood INTERIOR		0526-1

Relinquished By; (Person) D. Pope — Received at EMSL By:

Date: 5-28-03 — Date: 6/3/03 1030

Note: Please duplicate this form and use additional sheets if necessary.

00065693

EMSL ANALYTICAL — CHAIN OF CUSTODY — LEAD

Revised 7/1/99

2030703C

EMSL Rep: Gary

DATE:

Third party billing requires written authorization from third party

Your Company Name:	EFI	EMSL-Bill to:	Alex Nguyen - EFI
Street:	9700 Richmond, St. 210	Street:	9700 Richmond, Suite 210
Box #:		Box #:	
City/State:	Houston, Tx Zip: 77042	City/State:	Houston, Tx Zip: 77042
Phone Results to:		Fax Results to:	
Name:	Alex Nguyen	Name:	Alex Nguyen
Telephone #:	(713) 975-7031	Fax #:	(713) 975-7336
Project Name/Number:	98410-13709	Purchase Order #:	

MATRIX	METHOD	INSTRUMENT	mdls	TAT
Lead Chips*	SW846-7420 or AOAC 5.009 (974.02)	Flame Atomic Absorption	0.01% ++	
Lead Wastewater	SW846-7420	Flame Atomic Absorption	0.4 mg/l water	
Lead Soil +			50 mg/kg (ppm) soil	
	or SW846-6010	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	SW846-7420	Flame Atomic Absorption	10 ug/wipe	
	or SW846-6010	ICP	3.0 ug/wipe	
TCLP Lead **	SW846-1311/7420	Flame Atomic Absorption	0.4 mg/l (ppm)	30 HRS -
	or SW846-6010	ICP	0.1 mg/l (ppm)	W/IN WORK WEEK
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 0500-0600	Gravimetric Reduction	0.0001g	

TAT-(Turnaround)- 3 hours, 6 hours, Please call ahead to schedule.
12 hours (must arrive by 11:00 a.m),
24 hours (1day), 48 hours (2 days), 72 hours, 96 hours (3 days), 120 hours(4 days), 144 + hours (6-10 days)
*, **, ***, ****, +, ++ Please Refer to Price Quote

SAMPLE #	LOCATION	Air volume, L Area, in²	LAB #
Bldg 744	WOOD INTERIOR AND EXTERIOR GRAY GREEN		07036-1

Relinquished By; (Person) D. Pope

Date: 7/3/03

Received at EMSL By: Lindsey

Date: 7/9/03 1020

Note: Please duplicate this form and use additional sheets if necessary.

00065694

EMSL ANALYTICAL — CHAIN OF CUSTODY — 207634 — LEAD

Revised 7/1/99

MSL Rep:	Gary	DATE:	Third party billing requires written authorization from third party
Your Company Name:	EFI	EMSL-Bill to:	Alex Nguyen - EFI
Street:	9700 Richmond, St. 210	Street:	9700 Richmond, Suite 210
Box #:		Box #:	
City/State:	Houston, Tx Zip: 77042	City/State:	Houston, Tx Zip: 77042
Phone Results to:		Fax Results to:	
Name:	Alex Nguyen	Name:	Alex Nguyen
Telephone #:	(713) 975-7031	Fax #:	(713) 975-7336
Project Name/Number:	98410-13709	Purchase Order #:	

MATRIX	METHOD	INSTRUMENT	mdls	TAT
Lead Chips*	SW846-7420 or AOAC 5.009 (974.02)	Flame Atomic Absorption	0.01% ++	
Lead Wastewater	SW846-7420	Flame Atomic Absorption	0.4 mg/l water	
Lead Soil +			50 mg/kg (ppm) soil	
	or SW846-6010	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	SW846-7420	Flame Atomic Absorption	10 ug/wipe	
	or SW846-6010	ICP	3.0 ug/wipe	
TCLP Lead **	SW846-1311/7420	Flame Atomic Absorption	0.4 mg/l (ppm)	30 HRS -
	or SW846-6010	ICP	0.1 mg/l (ppm)	W/IN WORK WEEK
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 0500-0600	Gravimetric Reduction	0.0001g	

TAT (Turnaround) - 3 hours, 6 hours, Please call ahead to schedule.
12 hours (must arrive by 11:00 a.m),
24 hours (1day), 48 hours (2 days), 72 hours, 96 hours (3 days), 120 hours(4 days), 144 + hours (6-10 days)
*, **, ***, ****, +, ++ Please Refer to Price Quote

SAMPLE #	LOCATION	Air volume, L Area, in²	LAB #
Bldg. 716	WOOD FRAME, METAL siding		07634-1

Relinquished By; (Person) D. Pope	Received at EMSL By: L. Belanger
Date: 7/3/03	Date: 7/7/03 1120 AM

Note: Please duplicate this form and use additional sheets if necessary.

00065695

EMSL ANALYTICAL CHAIN OF CUSTODY 200307037 LEAD

Revised 7/1/99

EMSL Rep: Gary DATE:

Third party billing requires written authorization from third party

Your Company Name:	EFI	EMSL-Bill to:	Alex Nguyen - EFI
Street:	9700 Richmond, St. 210	Street:	9700 Richmond, Suite 210
Box #:		Box #:	
City/State:	Houston, Tx Zip: 77042	City/State:	Houston, Tx Zip: 77042
Phone Results to:		Fax Results to:	
Name:	Alex Nguyen	Name:	Alex Nguyen
Telephone #:	(713) 975-7031	Fax #:	(713) 975-7336
Project Name/Number:	98410-13709	Purchase Order #:	-

MATRIX	METHOD	INSTRUMENT	mdls	TAT
Lead Chips*	SW846-7420 or AOAC 5.009 (974.02)	Flame Atomic Absorption	0.01% ++	
Lead Wastewater	SW846-7420	Flame Atomic Absorption	0.4 mg/l water	
Lead Soil +			50 mg/kg (ppm) soil	
	or SW846-6010	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	SW846-7420	Flame Atomic Absorption	10 ug/wipe	
	or SW846-6010	ICP	3.0 ug/wipe	
TCLP Lead **	SW846-1311/7420	Flame Atomic Absorption	0.4 mg/l (ppm)	30 HRS -
	or SW846-6010	ICP	0.1 mg/l (ppm)	W/IN WORK WEEK
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 0500-0600	Gravimetric Reduction	0.0001g	

TAT (Turnaround) - 3 hours, 6 hours, Please call ahead to schedule.
12 hours (must arrive by 11:00 a.m),
24 hours (1day), 48 hours (2 days), 72 hours, 96 hours (3 days), 120 hours(4 days), 144 + hours (6-10 days)
*, **, ***, ****, +, ++ Please Refer to Price Quote

SAMPLE #	LOCATION	Air volume, L Area, in²	LAB #
Bldg 714	WOOD, FELT PAPER INSIDE		07037-1
	GRAY GREEN EXTERIOR		

Relinquished By; (Person) D. Pope Received at EMSL By:

Date: 7/3/03 Date: 7/3/03 1320

Note: Please duplicate this form and use additional sheets if necessary.

00065696

EMSL ANALYTICAL — CHAIN OF CUSTODY — LEAD

2007635

Revised 7/1/99

EMSL Rep: Gary — DATE:

Third party billing requires written authorization from third party

Your Company Name:	EFI	EMSL-Bill to:	Alex Nguyen - EFI
Street:	9700 Richmond, St. 210	Street:	9700 Richmond, Suite 210
Box #:		Box #:	
City/State:	Houston, Tx Zip: 77042	City/State:	Houston, Tx Zip: 77042
Phone Results to:		Fax Results to:	
Name:	Alex Nguyen	Name:	Alex Nguyen
Telephone #:	(713) 975-7031	Fax #:	(713) 975-7336
Project Name/Number:	98410-13709	Purchase Order #:	

MATRIX	METHOD	INSTRUMENT	mdls	TAT
Lead Chips*	SW846-7420 or AOAC 5.009 (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 SW846-6010	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	SW846-7420	Flame Atomic Absorption	10 ug/wipe	
	or SW846-6010	ICP	3.0 ug/wipe	
TCLP Lead **	SW846-1311/7420	Flame Atomic Absorption	0.4 mg/l (ppm)	30 HRS -
	or SW846-6010	ICP	0.1 mg/l (ppm)	W/IN WORK WEEK
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 0500-0600	Gravimetric Reduction	0.0001g	

TAT (Turnaround) - 3 hours, 6 hours, Please call ahead to schedule.
12 hours (must arrive by 11:00 a.m),
24 hours (1day), 48 hours (2 days), 72 hours, 96 hours (3 days), 120 hours(4 days), 144 + hours (6-10 days)
*, **, ***, ****, +, ++ Please Refer to Price Quote

SAMPLE #	LOCATION	Air volume, L Area, in²	LAB #
632-A	Concrete & Block Tank		67035-1
	Wood walkway		

Relinquished By; (Person) D. Pope — Received at EMSL By: L. Rogers

Date: 7/3/03 — Date: 7/9/03 11:20 am

Note: Please duplicate this form and use additional sheets if necessary.

00065697

EMSL ANALYTICAL CHAIN OF CUSTODY 2003 07622 LEAD

Revised 7/1/99

EMSL Rep: Gary DATE:

Third party billing requires written authorization from third party

Your Company Name:	EFI	EMSL-Bill to:	Alex Nguyen - EFI
Street:	9700 Richmond, St. 210	Street:	9700 Richmond, Suite 210
Box #:		Box #:	
City/State:	Houston, Tx Zip: 77042	City/State:	Houston, Tx Zip: 77042
Phone Results to:		Fax Results to:	
Name:	Alex Nguyen	Name:	Alex Nguyen
Telephone #:	(713) 975-7031	Fax #:	(713) 975-7336
Project Name/Number:	98410-13709	Purchase Order #:	

MATRIX	METHOD	INSTRUMENT	mdls	TAT
Lead Chips*	SW846-7420 or AOAC 5.009 (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 SW846-6010	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	
d in Wipe	SW846-7420	Flame Atomic Absorption	10 ug/wipe	
	or SW846-6010	ICP	3.0 ug/wipe	
TCLP Lead **	SW846-1311/7420	Flame Atomic Absorption	0.4 mg/l (ppm)	30 HRS -
	or SW846-6010	ICP	0.1 mg/l (ppm)	W/IN WORK WEEK
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 0500-0600	Gravimetric Reduction	0.0001g	

TAT (Turnaround) - 3 hours, 6 hours, Please call ahead to schedule.
12 hours (must arrive by 11:00 a.m),
24 hours (1day), 48 hours (2 days), 72 hours, 96 hours (3 days), 120 hours(4 days), 144 + hours (6-10 days)
*, **, ***, ****, +, ++ Please Refer to Price Quote

SAMPLE #	LOCATION	Air volume, L Area, in²	LAB #
630-A	CMU-Block w/Tin Roof		07622-1
	Wood Door		

Relinquished By; (Person) D. Pope Received at EMSL By: L. Rhoden

Date: Date: 7/23/3 1010

Note: Please duplicate this form and use additional sheets if necessary.

00065698

2c307623

EMSL ANALYTICAL CHAIN OF CUSTODY LEAD

Revised 7/1/99

EMSL Rep: Gary

DATE:

Third party billing requires written authorization from third party

Your Company Name: EFI

EMSL-Bill to: Alex Nguyen - EFI

Street: 9700 Richmond, St. 210

Street: 9700 Richmond, Suite 210

Box #:

Box #:

City/State: Houston, Tx Zip: 77042

City/State: Houston, Tx Zip: 77042

Phone Results to:

Name: Alex Nguyen

Telephone #: (713) 975-7031

Project Name/Number: 98410-13709

Fax Results to:

Name: Alex Nguyen

Fax #: (713) 975-7336

Purchase Order #:

MATRIX	METHOD	INSTRUMENT	mdls	TAT
Lead Chips*	SW846-7420 or AOAC 5.009 (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 SW846-6010	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	
ad in Wipe	SW846-7420	Flame Atomic Absorption	10 ug/wipe	
	or SW846-6010	ICP	3.0 ug/wipe	
TCLP Lead **	SW846-1311/7420	Flame Atomic Absorption	0.4 mg/l (ppm)	30 HRS -
	or SW846-6010	ICP	0.1 mg/l (ppm)	W/IN WORK WEEK
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 0500-0600	Gravimetric Reduction	0.0001g	

TAT (Turnaround) - 3 hours, 6 hours, Please call ahead to schedule.
12 hours (must arrive by 11:00 a.m),
24 hours (1day), 48 hours (2 days), 72 hours, 96 hours (3 days), 120 hours(4 days), 144 + hours (6-10 days)
*, **, ***, ****, +, ++ Please Refer to Price Quote

SAMPLE #	LOCATION	Air volume, L Area, in²	LAB #
510-B-2	Wood Frame, Textured siding and roof		07623 1

Relinquished By; (Person) D. Pope

Received at EMSL By:

Date:

Date: 7/23/03 1010

Note: Please duplicate this form and use additional sheets if necessary.

00065699

EMSL ANALYTICAL CHAIN OF CUSTODY 20307120 LEAD

Revised 7/1/99

EMSL Rep: Gary DATE:

Third party billing requires written authorization from third party

Your Company Name:	EFI	EMSL-Bill to:	Alex Nguyen - EFI
Street:	9700 Richmond, St. 210	Street:	9700 Richmond, Suite 210
Box #:		Box #:	
City/State:	Houston, Tx Zip: 77042	City/State:	Houston, Tx Zip: 77042
Phone Results to:		Fax Results to:	
Name:	Alex Nguyen	Name:	Alex Nguyen
Telephone #:	(713) 975-7031	Fax #:	(713) 975-7336
Project Name/Number:	98410-13709	Purchase Order #:	

MATRIX	METHOD	INSTRUMENT	mdls	TAT
Lead Chips*	SW846-7420 or AOAC 5.009 (974.02)	Flame Atomic Absorption	0.01% ++	
Lead Wastewater	SW846-7420	Flame Atomic Absorption	0.4 mg/l water	
Lead Soil +			50 mg/kg (ppm) soil	
	or SW846-6010	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	
ead in Wipe	SW846-7420	Flame Atomic Absorption	10 ug/wipe	
	or SW846-6010	ICP	3.0 ug/wipe	
TCLP Lead **	SW846-1311/7420	Flame Atomic Absorption	0.4 mg/l (ppm)	30 HRS -
	or SW846-6010	ICP	0.1 mg/l (ppm)	W/IN WORK WEEK
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 0500-0600	Gravimetric Reduction	0.0001g	

TAT (Turnaround) - 3 hours, 6 hours, Please call ahead to schedule.
12 hours (must arrive by 11:00 a.m),
24 hours (1day), 48 hours (2 days), 72 hours, 96 hours (3 days), 120 hours(4 days), 144 + hours (6-10 days)
*, **, ***, ****, +, ++ Please Refer to Price Quote

SAMPLE #	LOCATION	Air volume, L Area, in²	LAB #
S 36	WOOD FRAME WOOD Siding, TRANSITE ROOF		07120-1

Relinquished By; (Person) D. Pope	Received at EMSL By: L Rung
Date:	Date: 7/23/07 1010 L

Note: Please duplicate this form and use additional sheets if necessary.

00065700

2003 07621

EMSL ANALYTICAL CHAIN OF CUSTODY LEAD

Revised 7/1/99

EMSL Rep: Gary DATE:

Third party billing requires written authorization from third party

Your Company Name:	EFI	EMSL-Bill to:	Alex Nguyen - EFI
Street:	9700 Richmond, St. 210	Street:	9700 Richmond, Suite 210
Box #:		Box #:	
City/State:	Houston, Tx Zip: 77042	City/State:	Houston, Tx Zip: 77042

Phone Results to:		Fax Results to:	
Name:	Alex Nguyen	Name:	Alex Nguyen
Telephone #:	(713) 975-7031	Fax #:	(713) 975-7336
Project Name/Number:	98410-13709	Purchase Order #:	

MATRIX	METHOD	INSTRUMENT	mdls	TAT
Lead Chips*	SW846-7420 or AOAC 5.009 (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 SW846-6010	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	
d in Wipe	SW846-7420	Flame Atomic Absorption	10 ug/wipe	
	or SW846-6010	ICP	3.0 ug/wipe	
TCLP Lead **	SW846-1311/7420	Flame Atomic Absorption	0.4 mg/l (ppm)	30 HRS -
	or SW846-6010	ICP	0.1 mg/l (ppm)	W/IN WORK WEEK
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 0500-0600	Gravimetric Reduction	0.0001g	

TAT (Turnaround) - 3 hours, 6 hours, Please call ahead to schedule.
12 hours (must arrive by 11:00 a.m),
24 hours (1day), 48 hours (2 days), 72 hours, 96 hours (3 days), 120 hours(4 days), 144 + hours (6-10 days)
*, **, ***, ****, +, ++ Please Refer to Price Quote

SAMPLE #	LOCATION	Air volume, L Area, in²	LAB #
TS-10	SMALL WOOD Bldg. TIN ROOF		07621-1

Relinquished By; (Person) D. Pope	Received at EMSL By:
Date:	Date: 7/21/03 1010

Note: Please duplicate this form and use additional sheets if necessary.

EFI®
Engineering and Fire
Investigations

9700 Richmond
Suite 201
Houston, TX 77042
Tel: 866-464-2127
Fax: 713-975-7336
www.efiinfo.com

August 18, 2003

Mr. Michael Luczak
ARC Abatement, Inc.
6630 Roxburgh Drive, Suite 130
Houston, Texas 77041

Subject: **TRANSMITTAL OF ANALYTICAL RESULTS No. 5**
Longhorn Army Ammunition Plant – (TCLP Testing, Phase II)
Karnack, Texas 77055
EFI PROJECT NO. 98410-13709

Dear Mr. Luczak:

Engineering and Fire Investigations (EFI) has completed sampling and analysis for Toxicity Characteristic Leaching Procedure (TCLP) of demolition debris sample suspect for lead-based paint from a total of 5 buildings (a 10% representative of the "811-Buildings"). These samples were collected as composite samples (i.e. building materials used in their construction) per building. This work was performed at the verbal request of Mr. Michael Luczak of ARC Abatement, Inc.

The samples were analyzed by our subcontract laboratory (EMSL Analytical in Westmont, New Jersey) using test methods SW846-1311/7420 to determine leachable concentrations of lead by use of Flame Atomic Absorption.

Based on the results TCLP lead concentrations of the 5 buildings tested (Bldgs. 811-2, 811-20, 811-30, 811-47, & 811-39), which represent 10% of the "811-Building" on site, were below 5mg/l. Environmental Protection Agency (EPA) defines that waste materials with concentrations of leachable lead below 5 mg/l as non-hazardous and can be disposed of as construction materials.

A complete analytical report is presented in Appendix A. In addition, we have included the chain of custody for the samples collected in Appendix B.

We appreciate the opportunity to provide consulting services to ARC Abatement, Inc. in this matter. If there are any questions, please contact us.

Sincerely,
ENGINEERING AND FIRE INVESTIGATIONS

Cuong Nguyen
Project Manager

Lee A. Burckle, P.E.
Branch Manager

Attachments: Appendix A – Laboratory Result Sheets
Appendix B – Chain Of Custody

CN/cn(e:\projects 2003\Longhorn Army Ammunition Plant\TCLP Sampling – Transrpt5.doc

EMSL Analytical
3 Cooper St., Westmont, NJ 08108
Phone: (856) 858-4800 Fax: (856) 858-9551 Email: gmiller1@emsl.com

Attn: Alex Nguyen
EFI
9700 Richmond
Suite 201
Houston, TX 77042
Fax: (713) 975-7336 Phone: (713) 724-2709
Project: **98410-13709**

Customer ID: ENGF50
Customer PO:
Received: 07/29/03 10:25 AM

EMSL Order: 200307882
EMSL Project ID:

Toxicity Characteristic Leaching Procedure (SW846, 1311/7420)

Client Sample Description	*Lab ID*	*Analyzed*	*Lead Concentration*
811-2	*0001*	7/30/03	<0.4 mg/L

Gerold J. Miller, Ph.D.
Laboratory Director
NJ-NELAP: 04653
AIHA: 100194
or other approved signatory

Date Printed: 7/30/03 3:34:14 PM

Pg w/o Chg

EMSL Analytical
3 Cooper St., Westmont, NJ 08108
Phone: (856) 858-4800 Fax: (856) 858-9551 Email: gmiller1@emsl.com

Attn: Alex Nguyen
EFI
9700 Richmond
Suite 201
Houston, TX 77042
Fax: (713) 975-7336 Phone: (713) 724-2709
Project: **98410-13709**

Customer ID: ENGF50
Customer PO:
Received: 07/29/03 10:25 AM

EMSL Order: 200307883
EMSL Project ID:

Toxicity Characteristic Leaching Procedure (SW846, 1311/7420)

Client Sample Description	*Lab ID*	*Analyzed*	*Lead Concentration*
811-20	*0001*	7/30/03	<0.4 mg/L

Gerold J. Miller, Ph.D.
Laboratory Director
NJ-NELAP: 04053
AIHA: 100194
or other approved signatory

Date Printed: 7/30/03 3:35:06 PM

Rpt w/o QC

EMSL Analytical
3 Cooper St., Westmont, NJ 08108
Phone: (856) 858-4800 Fax: (856) 858-9551 Email: gmiller1@emsl.com

Attn: Alex Nguyen
EFI
9700 Richmond
Suite 201
Houston, TX 77042
Fax: (713) 975-7336 Phone: (713) 724-2709
Project: 98410-13709

Customer ID: ENGF50
Customer PO:
Received: 07/29/03 10:25 AM

EMSL Order: 200307884
EMSL Project ID:

Toxicity Characteristic Leaching Procedure (SW846, 1311/7420)

Client Sample Description	*Lab ID*	*Analyzed*	*Lead Concentration*
811-30	*0001*	7/30/03	<0.4 mg/L

Gerold J. Miller, Ph.D.
Laboratory Director
NJ-NELAP: 04653
AIHA: 100194
or other approved signatory

Date Printed: 7/30/03 3:35:35 PM

PE w/o [illegible]

EMSL Analytical
3 Cooper St., Westmont, NJ 08108
Phone: (856) 858-4800 Fax: (856) 858-9551 Email: gmiller1@emsl.com

00065705

Attn: Alex Nguyen
EFI
9700 Richmond
Suite 201
Houston, TX 77042
Fax: (713) 975-7336 Phone: (713) 724-2709
Project: 98410-13709

Customer ID: ENGF50
Customer PO:
Received: 07/29/03 10:25 AM

EMSL Order: 200307886
EMSL Project ID:

Toxicity Characteristic Leaching Procedure (SW846, 1311/7420)

Client Sample Description	*Lab ID*	*Analyzed*	*Lead Concentration*
811-47	0001	7/30/03	<0.4 mg/L

Gerald J. Miller, Ph.D.
Laboratory Director
NJ-NELAP: 04653
AIHA: 100194
or other approved signatory

Date Printed: 7/30/03 3:38:31 PM

Pg w/d

EMSL Analytical
3 Cooper St., Westmont, NJ 08108
Phone: (856) 858-4800 Fax: (856) 858-9551 Email: gmiller1@emsl.com

Attn: Alex Nguyen
EFI
9700 Richmond
Suite 201
Houston, TX 77042
Fax: (713) 975-7336 Phone: (713) 724-2709
Project: **98410-13709**

Customer ID: ENGF50
Customer PO:
Received: 07/29/03 10:25 AM

EMSL Order: 200307885
EMSL Project ID:

Toxicity Characteristic Leaching Procedure (SW846, 1311/7420)

Client Sample Description	*Lab ID*	*Analyzed*	*Lead Concentration*
811-39	*0001*	7/30/03	<0.4 mg/L

Gerold J. Miller, Ph.D.
Laboratory Director
NJ-NELAP: 04653
AIHA: 100194
or other approved signatory

Date Printed: 7/30/03 3:36:06 PM

Pg w/d

APPENDIX B

CHAIN OF CUSTODY

00065708

EMSL ANALYTICAL CHAIN OF CUSTODY LEAD

Revised 7/1/99

EMSL Rep: Gary DATE:

Third party billing requires written authorization from third party

Your Company Name: EFI EMSL-Bill to: Alex Nguyen - EFI

Street: 9700 Richmond, St. 210 Street: 9700 Richmond, Suite 210

Box #: Box #:

City/State: Houston, Tx Zip: 77042 City/State: Houston, Tx Zip: 77042

Phone Results to:

Name: Alex Nguyen Fax Results to: Name: Alex Nguyen

Telephone #: (713) 975-7031 Fax #: (713) 975-7336

Project Name/Number: 98410-13709 Purchase Order #:

MATRIX	METHOD	INSTRUMENT	mdls	TAT
Lead Chips*	SW846-7420 or AOAC 5.009 (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 SW846-6010	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	
ad in Wipe	SW846-7420	Flame Atomic Absorption	10 ug/wipe	
	or SW846-6010	ICP	3.0 ug/wipe	
TCLP Lead **	SW846-1311/7420	Flame Atomic Absorption	0.4 mg/l (ppm)	30 HRS -
	or SW846-6010	ICP	0.1 mg/l (ppm)	W/IN WORK WEEK
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 0500-0600	Gravimetric Reduction	0.0001g	

TAT (Turnaround) - 3 hours, 6 hours, Please call ahead to schedule.
12 hours (must arrive by 11:00 a.m),
24 hours (1day), 48 hours (2 days), 72 hours, 96 hours (3 days), 120 hours(4 days), 144 + hours (6-10 days)
*, **, ***, ****, +, ++ Please Refer to Price Quote

SAMPLE #	LOCATION	Air volume, L Area, in²	LAB #
811-2	CONCRETE SIDES & FLOOR		07882-1
	WOOD FRONT & REAR		
	SHEETROCK WOOD ROOF		

Relinquished By; (Person) DP. Received at EMSL By:

Date: 7-24-03 Date:

Note: Please duplicate this form and use additional sheets if necessary.

00065709

EMSL ANALYTICAL — CHAIN OF CUSTODY — 200307883 — LEAD

Revised 7/1/99

EMSL Rep: Gary

DATE:

Third party billing requires written authorization from third party

Your Company Name: EFI

EMSL-Bill to: Alex Nguyen - EFI

Street: 9700 Richmond, St. 210

Street: 9700 Richmond, Suite 210

Box #:

Box #:

City/State: Houston, Tx Zip: 77042

City/State: Houston, Tx Zip: 77042

Phone Results to:

Name: Alex Nguyen

Telephone #: (713) 975-7031

Project Name/Number: 98410-13709

Fax Results to:

Name: Alex Nguyen

Fax #: (713) 975-7336

Purchase Order #:

MATRIX	METHOD	INSTRUMENT	mdls	TAT
Lead Chips*	SW846-7420 or AOAC 5.009 (974.02)	Flame Atomic Absorption	0.01% ++	
Lead Wastewater	SW846-7420	Flame Atomic Absorption	0.4 mg/l water	
Lead Soil +			50 mg/kg (ppm) soil	
	or SW846-6010	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	SW846-7420	Flame Atomic Absorption	10 ug/wipe	
	or SW846-6010	ICP	3.0 ug/wipe	
TCLP Lead **	SW846-1311/7420	Flame Atomic Absorption	0.4 mg/l (ppm)	30 HRS -
	or SW846-6010	ICP	0.1 mg/l (ppm)	W/IN WORK WEEK
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 0500-0600	Gravimetric Reduction	0.0001g	

TAT (Turnaround) - 3 hours, 6 hours, Please call ahead to schedule.
12 hours (must arrive by 11:00 a.m),
24 hours (1day), 48 hours (2 days), 72 hours, 96 hours (3 days), 120 hours(4 days), 144 + hours (6-10 days)
*, **, ***, ****, +, ++ Please Refer to Price Quote

SAMPLE #	LOCATION	Air volume, L Area, in²	LAB #
811-20	CONCRETE SIDES & FLOOR		07883-1
	WOOD FRONT & REAR		
	SHEETROCK WOOD ROOF		

Relinquished By; (Person) DP

Received at EMSL By:

Date: 7-24-03

Date: 7/24/03

Note: Please duplicate this form and use additional sheets if necessary.

00065710

EMSL ANALYTICAL — CHAIN OF CUSTODY — LEAD

20067884

Revised 7/1/99

EMSL Rep: Gary

DATE:

Third party billing requires written authorization from third party

Your Company Name: EFI

EMSL-Bill to: Alex Nguyen - EFI

Street: 9700 Richmond, St. 210

Street: 9700 Richmond, Suite 210

Box #:

Box #:

City/State: Houston, Tx Zip: 77042

City/State: Houston, Tx Zip: 77042

Phone Results to:

Name: Alex Nguyen

Telephone #: (713) 975-7031

Project Name/Number: 98410-13709

Fax Results to:

Name: Alex Nguyen

Fax #: (713) 975-7336

Purchase Order #:

MATRIX	METHOD	INSTRUMENT	mdls	TAT
Lead Chips*	SW846-7420 or AOAC 5.009 (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 SW846-6010	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	SW846-7420	Flame Atomic Absorption	10 ug/wipe	
	or SW846-6010	ICP	3.0 ug/wipe	
TCLP Lead **	SW846-1311/7420	Flame Atomic Absorption	0.4 mg/l (ppm)	30 HRS -
	or SW846-6010	ICP	0.1 mg/l (ppm)	W/IN WORK WEEK
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 0500-0600	Gravimetric Reduction	0.0001g	

TAT (Turnaround) - 3 hours, 6 hours, Please call ahead to schedule.
12 hours (must arrive by 11:00 a.m),
24 hours (1day), 48 hours (2 days), 72 hours, 96 hours (3 days), 120 hours(4 days), 144 + hours (6-10 days)
*, **, ***, ****, +, ++ Please Refer to Price Quote

SAMPLE #	LOCATION	Air volume, L Area, in²	LAB #
811-30	CONCRETE SIDES & FLOOR		07584-1
	WOOD FRONT & REAR		
	SHEETROCK WOOD ROOF		

Relinquished By; (Person) DP

Received at EMSL By:

Date:

Date: 7/19/05

Note: Please duplicate this form and use additional sheets if necessary.

00065711

EMSL ANALYTICAL CHAIN OF CUSTODY 20030788 LEAD

Revised 7/1/99

EMSL Rep: Gary

DATE:

Third party billing requires written authorization from third party

Your Company Name:	EFI	EMSL-Bill to:	Alex Nguyen - EFI
Street:	9700 Richmond, St. 210	Street:	9700 Richmond, Suite 210
Box #:		Box #:	
City/State:	Houston, Tx Zip: 77042	City/State:	Houston, Tx Zip: 77042

Phone Results to:		Fax Results to:	
Name:	Alex Nguyen	Name:	Alex Nguyen
Telephone #:	(713) 975-7031	Fax #:	(713) 975-7336
Project Name/Number:	98410-13709	Purchase Order #:	

MATRIX	METHOD	INSTRUMENT	mdls	TAT
Lead Chips*	SW846-7420 or AOAC 5.009 (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 SW846-6010	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	SW846-7420	Flame Atomic Absorption	10 ug/wipe	
	or SW846-6010	ICP	3.0 ug/wipe	
TCLP Lead **	SW846-1311/7420	Flame Atomic Absorption	0.4 mg/l (ppm)	30 HRS -
	or SW846-6010	ICP	0.1 mg/l (ppm)	W/IN WORK WEEK
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 0500-0600	Gravimetric Reduction	0.0001g	

TAT (Turnaround) - 3 hours, 6 hours, Please call ahead to schedule.
12 hours (must arrive by 11:00 a.m),
24 hours (1day), 48 hours (2 days), 72 hours, 96 hours (3 days), 120 hours(4 days), 144 + hours (6-10 days)
*, **, ***, ****, +, ++ Please Refer to Price Quote

SAMPLE #	LOCATION	Air volume, L Area, in²	LAB #
811-47	Concrete Sides & Floor		07886-1
	wood Front & Rear		
	Sheetrock wood Roof		

Relinquished By: (Person) JP Received at EMSL By:

Date: Date: 7/29/03

Note: Please duplicate this form and use additional sheets if necessary.

00065712

EMSL ANALYTICAL CHAIN OF CUSTODY 2amo7855 LEAD

Revised 7/1/99

EMSL Rep: Gary DATE:

Third party billing requires written authorization from third party

Your Company Name: EFI EMSL-Bill to: Alex Nguyen - EFI

Street: 9700 Richmond, St. 210 Street: 9700 Richmond, Suite 210

Box #: Box #:

City/State: Houston, Tx Zip: 77042 City/State: Houston, Tx Zip: 77042

Phone Results to:

Name: Alex Nguyen

Telephone #: (713) 975-7031

Project Name/Number: 98410-13709

Fax Results to:

Name: Alex Nguyen

Fax #: (713) 975-7336

Purchase Order #:

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

SAMPLE #	LOCATION	Air volume, L Area, in²	LAB #
811-39	CONCRETE SIDES & FLOOR		07887-1
	WOOD FRONT & REAR		
	SHEETROCK WOOD ROOF		

Relinquished By; (Person) Received at EMSL By:

Date: Date: 7/9/13 10:30

Note: Please duplicate this form and use additional sheets if necessary.