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List of Acronyms

AEDA	Ammunition, Explosives, and Dangerous Articles
APHE	Armor Piercing High Explosive
ASCII	American Standard Code for Information Interchange
ATI	American Technologies, Inc.
CEHNC	Corps of Engineers – Huntsville Center
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CESWF	Corps of Engineers, Fort Worth District
DERP	Defense Environmental Restoration Program
DGPS	Differential Global Positioning System
DID	Data Item Description
DD	Department of Defense
DoD	Department of Defense
DQO	Data Quality Objective
EM	Electromagnetic
EE/CA	Engineering Evaluation/Cost Analysis
ESS	Explosive Safety Submission
Frag	Fragmentation
FUDS	Formerly Used Defense Site
GPO	Geophysical Prove Out
GPS	Global Positioning System
GSA	General Services Administration
HH	Hand Held
MV	Milli-volts
NA	Not Applicable
NAD	North American Datum
NAS	Naval Air Station
NCP	National Contingency Plan
NS	Not Seeded
OE	Ordnance and Explosives
OLF	Outlying Field
PC	Personal Computer
PPM	Parts Per Million

QC	Quality Control
QCI	Quality Conformance Inspection
QCIR	Quality Conformance Inspection Report
RTS	Robotic Total Station
SOW	Statement of Work
SUXOS	Senior UXO Supervisor
TDEM	Time Domain Electromagnetics
USACE	United States Army Corps of Engineers
USACE	U.S. Army Engineering and Support Center, Huntsville
USFS	United States Forest Service
UTM	Universal Traverse Mercator
UXO	Unexploded Ordnance
WP	Work Plan

1 INTRODUCTION

1.1 General Information

1.1.1 This Work Plan (WP) details the Ordnance and Explosive (OE) Removal Action as stipulated in the CEHNC/CESWF Statement of Work (SOW) for Task Order 0018 for contract DACA87-00-D-0035. The removal action will focus on conventional OE within the boundaries of the Former Five Points Outlying Field (OLF), Arlington, Texas (See B-2). The purpose of this WP is to present the site background, project management, objectives, methodology for OE removal actions, OE accountability, explosives storage, demolition procedures, project personnel, and the equipment to be used for the removal action.

1.1.2 The work required under the SOW falls under the Defense Environmental Restoration Program - Formerly Used Defense Sites (DERP-FUDS). OE exists on property formerly owned or leased by the Department of Defense (DOD). The SOW is contained at Appendix A.

1.2 Site Location

1.2.1 Former Five Points OLF is located in southeast Arlington, Texas, in Tarrant County. The former range is located at the southwest corner of Harris and Matlock Streets.

1.3 Site History

1.3.1 In 1940, the DOD acquired land for a number of outlying fields for the Dallas Naval Air Station. One of the outlying fields was established in Arlington and consisted of 162 acres. The Navy constructed four runways at the site and designated it Five Points Outlying Field. Navy aviators practiced “touch and go”s at the OLF for several years. At some unknown date, the purpose of Five Points OLF switched from practice landing fields to a practice bomb target.

1.3.2 It is thought that three types of practice bombs were used at the former OLF: M-47 practice chemical bombs; AN-MK 23 Mod I Navy practice bomb; and M38 practice bombs. Common practice was to pressure test the M-47 bombshell casings after manufacture to ensure they did not leak. Any M-47 shell casings that failed the pressure test and leaked were rejected from chemical warfare use, filled with inert material (sand or possibly water) and used as practice bombs. The practice bombs were fitted with black powder spotting charges that would mark the location of the practice bombs upon impact. Spotting charge material included, but was not limited to, stabilized red phosphorus, zinc oxide or fluorescein dye. The bombs thought to be used at the former OLF are therefore referred to as “M47 practice bombs” in this report.

1.3.3 The former practice bomb range was surface swept for ordnance in 1954. Clearance certificates were issued for the former range in 1954 and again in 1956. The 1954 clearance report documented that 75 M-47 practice bombs, 27 AN-MK 23 Mod I Navy, and 23 M38 practice bombs were removed from the former range.

1.3.4 Thirty-five acres of the former range were purchased in 1983, and Twin Parks Estates Mobile Home Park was developed from 1983-1984. The developer contracted Jet Research Corporation to perform clearance activities. Approximately 3,000 MK 23 practice bombs were reportedly removed.

1.3.5 An initial Inventory Project Report was completed for the former range under the FUDS program in 1996, and the report recommended an ordnance project for the former range with a Risk Assessment Code (RAC) score of 2. The RAC combines the hazard severity and accident probability into a single Arabic number on a scale of 1 to 5, with 1 being the greatest risk and 5 being the lowest. The RAC is used to assist with prioritize response actions.

1.3.6 The remainder of the former range was developed as a subdivision in 1998 by KB Homes, with approximately 700 homes projected for the subdivision (South Ridge Hills). Safety concerns, followed by lawsuits, arose with the finding of several MK23 practice bombs in developed lots. The RAC score was elevated to a 1, following the discovery that M47 practice practice bombs were used at the former range, and the Fort Worth District, Corps of Engineers, has proposed to perform an OE removal at the site.

1.4 Topography

1.4.1 The site is nearly flat with a gentle slope to the southeast. Historic aerial photos indicate the former presence of a small drainage depression in the southeastern part of the site, extending south to Bowman Branch. Grading activities associated with development of the site have leveled this part of the property. All of the Five Points site has been improved, with the exception of the area immediately adjoining Bowman Branch. Improvements include roadways, site built homes, mobile home lots, a cleared area held for light commercial development, and required utilities. A portion of the site located to the south along Bowman Branch is dedicated to the City of Arlington as a city park.

1.5 Climate

1.5.1 The nearest source of long record climatological data for this site is the Dallas-Fort Worth National Weather Service (NWS) office, located approximately 15 miles north-northeast of Five Points OLF. The Dallas-Fort Worth climate is humid subtropical with hot summers. It is also continental, characterized by a wide annual temperature range. Annual precipitation also varies considerably, ranging from less than 20 inches to more than 50 inches.

1.5.2 Throughout the year, rainfall occurs most frequently during the night. Usually, periods of rainy weather last for only a day or two, followed by several days of fair skies. A large part of the annual precipitation results from thunderstorm activity, with occasional heavy rainfall over brief periods. Thunderstorms occur throughout the year, but are most frequent in the spring. Hail falls about two or three days a year, ordinarily with only slight and scattered damage. Windstorms occurring during thunderstorms are sometimes destructive. Although wind gusts have reached a maximum of 72 knots, the average maximum wind speed is 61 knots.

1.5.3 The highest temperatures of summer are associated with fair skies, westerly winds, and low humidity. Characteristically, hot spells in summer are broken into three-to-five day periods by thunderstorm activity. Summer daytime high temperatures frequently exceed 100° F, but nighttime temperatures rarely exceed 80°F. Winters are mild, but winter storms called northers occur about three times each month during winter and are often short lived, so that even in January, mild weather occurs frequently. Snowfall averages 18 inches annually and occurs mainly during the months of January and February. The average length of the warm season (freeze-free period) is about 249 days. The average last occurrence of below-freezing temperatures is in mid-March, while the average first occurrence is in late November. During the period 1948—1995, temperature extremes ranged from a minimum of 1°F (Dec 1989) to a maximum of 113°F (June 1980).

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2 TECHNICAL MANAGEMENT PLAN

2.1 Guidance, Regulations and Policy

2.1.1 ATI received Contract Number DACA87-00-D-0035 issued by the U.S. Army Engineering and Support Center, Huntsville (USACE). Task Order 0018 was issued for the purpose of performing the work identified in the SOW, Ordnance and Explosives (OE) Removal Action at Five Points OLF, Arlington, TX, Project No. K06TX002801.

2.1.2 The work required under this SOW falls under the DERP-FUDS. OE exists on property formerly owned or leased by the DOD.

2.1.3 OE is a safety hazard and may constitute an imminent and substantial danger to the site personnel and local populace. Since this OE Removal Action will be conducted in accordance with the substantive requirements of CERCLA, 29 CFR 1910.120 applies. ATI's work is to be performed in a manner consistent with CERCLA, Section 104 and the National Contingency Plan (NCP), Sections 300.120(d) and 300.400(e), additional guidance and regulations used are listed in Section 16.

2.2 Chemical Warfare Materiel (CWM)

2.2.1 The areas covered under the Scope of Work for this task are not suspected to have CWM. As mentioned in Section 1.3 of this report, it is thought that practice bombs were used at the former OLF. These practice bombs were filled with inert material (sand or possibly water) and fitted with black powder spotting charges that would mark the location of the practice bombs upon impact. Spotting charge material included, but was not limited to, stabilized red phosphorus, zinc oxide or fluorescein dye.

2.2.2 If, during any work, ATI personnel identify or suspect CWM, all personnel will immediately withdraw upwind from the work area, and ATI will contact the USACE on-site OE Safety Specialist. ATI will secure the site by positioning two UXO Technicians (Level II) upwind of the suspected CWM until they are relieved by the Technical Escort Unit (TEU) or Explosive Ordnance Disposal (EOD) personnel.

2.2.3 ATI will consult with the USACE on-site OE Safety Specialist to determine and implement any evacuation of residents that may be required.

2.3 Procedures for OE that cannot be destroyed on site and unidentifiable OE

2.3.1 No OE is expected to be destroyed on site. All live OE that is expected at this site will be collected and secured until it can be shipped by commercial carrier to Clean Harbors Environmental Services, Inc., in Colfax, LA., where it will be rendered inert and disposed of. Alter Trading Corporation will accept and dispose of scrap metal that has been certified free of explosives content and will certify that this metal will not be released to the public until it has been processed through a smelter. OE will only be destroyed on site if some unexpected item is found and is unacceptable to move.

2.3.2 If OE is encountered that cannot be moved due to its condition and the location prevents disposal in place, the USACE on-site OE Safety Specialist will be notified.

2.3.3 If an unidentifiable OE is found the USACE on-site OE Safety Specialist will be notified.

2.4 Technical Scope of the Project

2.4.1 The overall objective as stated in the SOW for task order is to safely locate, identify, and dispose of all detected Unexploded Ordnance (UXO) and hazardous OE items to depth on the 162-acre site.

2.4.2 The terrain at the Former Five Points OLF is nearly flat with a gentle slope to the southeast. Grading activities associated with development of the site have leveled a small drainage depression in the southeast extending south to Bowman Branch. All of the Five Points OLF has been improved, with the exception of the area in the south, immediately adjoining Bowman Branch, which is included in a city park. Improvements include roadways, site built homes in the portion known as South Ridge Hills, mobile homes in the portion known as Twin Parks Estates, a cleared area held for light commercial development, and required utilities.

2.4.3 A geophysical prove out has been conducted to determine the best technology with which to locate anomalies to be investigated. Three prove out plots were established to correspond to the environments in which operations are to be conducted:

- Open area
- South Ridge Hills Subdivision
- Twin Parks Estates Mobile Home Park

2.4.4 The Geophysical Prove out Plan and Report is in Appendix I.

2.4.5 Grids will be established and surveyed in accordance with the Location Surveys & Mapping Plan in Chapter 7. Grids in the wooded and open areas will be 60 meters by 60 meters. Grids in the residential areas will be established to correspond with the property boundaries or lot boundaries. Grids will be marked by stakes and the southwest corner stake of each grid will be identified with the grid number. Grid locations will be entered in the Geographical Information Systems (GIS) data base in accordance with the GIS Plan in Chapter 13.

2.4.6 Prior to performing the land surveying and geophysical investigation, brush cutting and surface clearance will be performed, as necessary. Brush cutting will only be conducted to the extent necessary to accomplish surveying and geophysical investigation.

2.4.7 Geophysical mapping of each grid will be performed in accordance with the Geophysical Investigation Plan in Chapter 6.

2.4.8 Anomalies picked for investigation will be reacquired. Reacquisition will be accomplished with the same equipment with which it was initially acquired, or with other

equipment approved by USACE. Each anomaly will be marked by a nonmetallic pin flag. Each flag will be marked with the grid number and a discreet number for that anomaly.

2.4.9 An Intrusive Investigation of anomalies picked and marked will be performed in accordance with the CEHNC/CESWF Scope of Work. All OE operations will comply with EP 385-1-95a, Basic Safety Concepts and Considerations for Ordnance and Explosive Operations. A UXO Team, consisting of CEHNC/CESWF approved UXO personnel, will conduct the intrusive investigation activities. Personnel used to conduct intrusive investigation activities will meet the requirements and qualifications outlined in DID OE-25.01 of the basic contract. The UXO Team will be up to seven individuals with at least one UXO Technician Level III, at least one UXO Technician Level II, and up to five UXO Technician I/II's.

2.4.10 Each anomaly will be carefully investigated by digging with hand tools. Care will be taken to insure that lawns can be restored to their original condition after completion of the excavation. Prior to the commencement of each excavation, a sheet of plastic, canvas, or other material will be spread nearby to allow soil removed from the hole to be returned after completion of the excavation and investigation. Initial breaking of the ground will be done in such a way as to maintain the integrity of the sod, if possible, and allow it to be replaced after other soil is returned to the hole.

2.4.11 All OE items that are encountered will be expected to be acceptable to move. They will be collected and secured until they can be shipped to Clean Harbors for disposal.

2.4.12 ATI will not establish a separate Demolition Team. If any OE items are encountered that are not acceptable to move, they will be "blown in-place" on-site by the Removal Team. If demolition operations are actually required, the demolition Team will consist of a minimum of one UXO Technician III, and one UXO Technician Level II. The UXO Technician III, or one of the team members under his supervision, will meet any licensing requirements for a blaster in accordance with Texas laws and regulations. The UXO Technician III will be in charge of and oversee all operations of the Demolition Team. Only UXO qualified personnel and UXO Technician I's will be involved in actual explosive operations. Non-UXO qualified personnel may assist in the operation by performing duties such as road guards, etc.

2.4.13 Ordnance-related scrap will be collected and all OE or inert OE will be marked for Demilitarization/Demolition.

2.4.14 Inert OE items and ordnance-related scrap will be demilitarized using non-explosive means in accordance with applicable regulations. The Senior UXO Supervisor, UXO Safety Officer/UXO Quality Control Specialist will interact with all OE operations conducted on-site.

2.5 Procedures for change in Site Conditions

2.5.1 Unforeseen circumstances, such as severe weather events, may create a change in site conditions that could affect the performance of this Task Order. Regardless of the

reason for the change in site conditions, ATI will immediately notify the Contracting Officer and the Corps of Engineer Project Manager of the changed condition and the action taken. Telephone/fax communication will be followed up with a hard copy.

2.6 Organization

2.6.1 The project team consists of the USACE Fort Worth District, the USACE, ATI and subcontractors. Figure 2-1 is the project team's organization chart. Individuals assigned to the project team were chosen to meet the requirements of project job descriptions as outlined in this section of the WP.

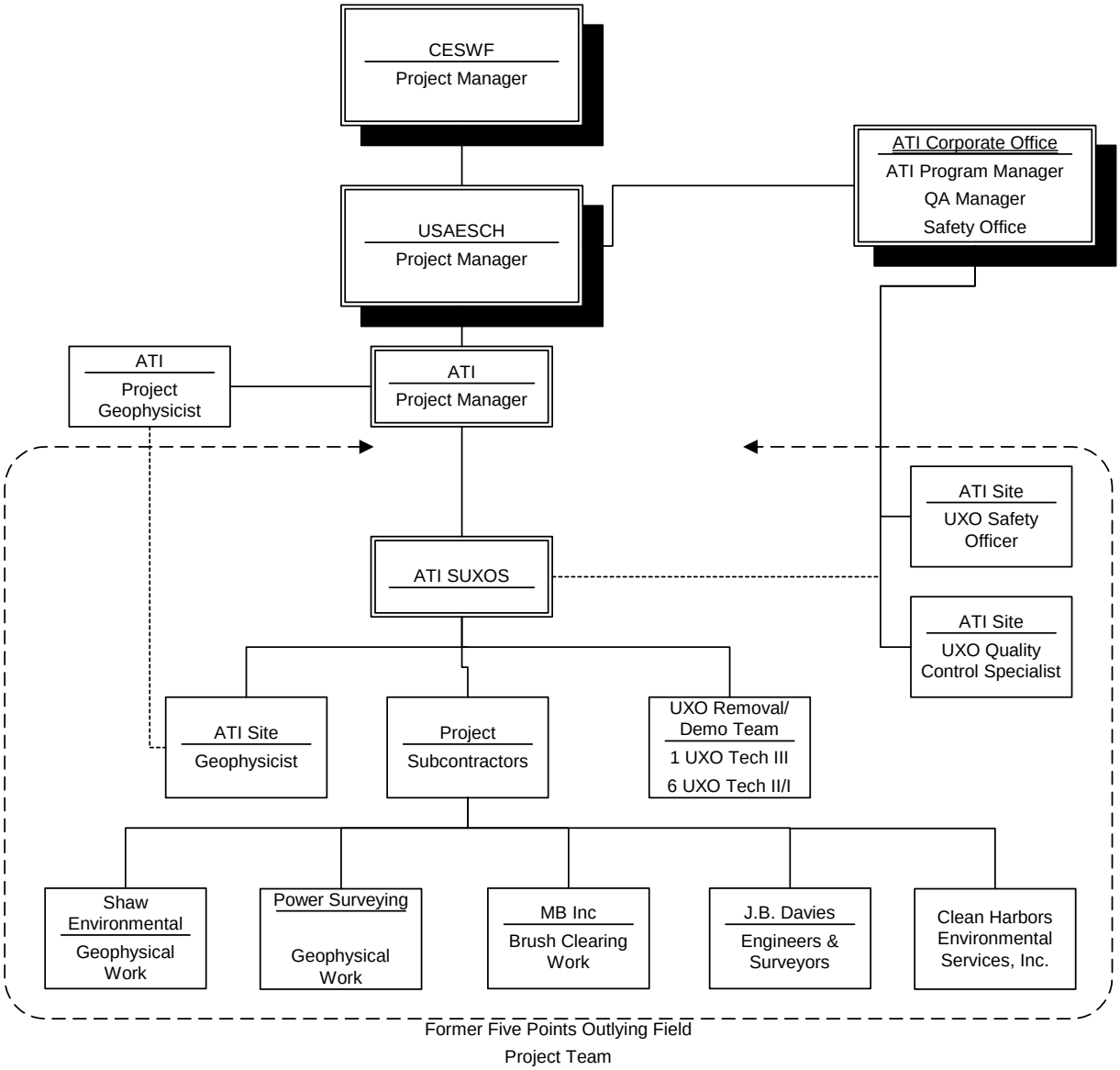

Figure 2-1. Organizational Chart

2.7 Vendors

2.7.1 ATI has identified five vendors that will be used during activities under this Task Order.

2.7.2 Power Surveying, Inc, will be assist in performing geophysical surveys. J. B. Davies Engineers and Surveyors will provide a registered state surveyor to perform all surveying activities. MBI Brush Clearing Service will provide brush cutting where required. Shaw Environmental, Inc. will provide positioning using Robotic Total Station (RTS) technology. Clean Harbors Environmental Services, Inc. will render inert and dispose of recovered UXO.

2.8 Project Personnel

2.8.1 Personnel required for this project will include geophysicists, UXO supervisors and technicians, all of whom possess the relevant personal training and experience requirements set forth in the SOW and Data Item Description OE-025.01. UXO Tech I's may be utilized to perform OE procedures when supervised by a UXO Technician III or the UXO-qualified individual of higher rank than the UXO Technician III. Personnel for this project have been selected from a pool of available UXO technicians. Resumes of ATI key personnel are included in Appendix H if not listed in the UXO database maintained by USACE. The following paragraphs describe the specific responsibilities of personnel assigned to the project team.

2.8.2 Project Manager

2.8.2.1 The ATI Project Manager is Doug Goehring. The Project Manager is responsible for communicating with USACE through the USACE Project Manager or the Contracting Officer Representative (COR). He will execute all directions received from the USACE Contracting Officer, manage all aspects of the project, oversee the overall performance of all individuals on the project team, coordinate all contract and subcontract work, and resolve project problems. The project manager is also responsible for controlling the contractual cost and schedule targets. The project manager will also coordinate the preparation of the WP and the implementation of on-site field activities. ATI has identified David Farmer as Project Manager.

2.8.2.2 The project manager will interface directly with subcontractors to keep them advised of the SOW, schedule, and budgets. The project manager is also responsible for ensuring that the subcontractor costs are within budget and that schedule commitments are achieved.

2.8.2.3 The project manager performs project management and is responsible for the following:

- Preparing and submitting Purchase Orders;
- Approving and forwarding Accounts Payable;
- Resolving site project problems;
- Reviewing and approving Daily Activity Report;

- Maintaining an inventory and tracking of government furnished equipment;
- Procuring necessary equipment and supplies;
- Establishing, maintaining and tracking petty cash expenditures;
- Establishing and maintaining a Consumable Supplies Log;
- Reviewing and approving time sheets, expense reports, and travel order requests;
- Submitting an Equipment Expense Report;
- Uses Certified Industrial Hygienist to ensure that health and safety requirements are met; and
- Supervises the SUXOS, UXOSO/UXOQC Specialist, UXO Technicians, Project and Site Geophysicist.

2.8.3 Site Project Manager

2.8.3.1 The Site Project Manager is located at the project site and assists the Project Manager in all duties of the Project Manager. The Site Project Manager is Dave Patton of ATI. Additionally, the Site Project Manager is responsible for interacting with residents of the communities located within the site and for scheduling the operational teams so as to provide the least inconvenience possible to the residents.

2.8.4 Certified Safety Professional (CSP)

2.8.4.1 A Certified Safety Professional (CSP), within the safety office, is responsible for overseeing the development of the SSHP, by the ATI Safety Office. The CSP for this project is Sheryl Riordan, The CSP reviews and approves initial safety plans and recommended changes submitted to the government's Contracting Officer for final approval.

2.8.5 Safety Manager

2.8.5.1 Under the guidance of the CSP, the Safety Manager (Charles Phillips of ATI) is responsible for preparation of the SSHP, and ensuring site compliance with the SSHP and the Corporate Safety and Health Program (CSHP). During the field effort, the Safety Manager will provide UXO safety and health consultation to the UXO Safety Officer and conduct training of site personnel, as required, and conduct periodic safety audits.

2.8.5.2 The ATI Safety Office may perform unannounced audits of this project safety program periodically during the course of contract work on this site.

2.8.6 QA/QC Manager

2.8.6.1 The QA/QC Manager is responsible for the following:

- Review of all QA/QC procedures to be used in the project to ensure compliance with the project QC guidelines presented in the WP;

- Quality review to ensure the quality of deliverables from the project team to USACE, and
- Interaction and communication with subcontractor and USACE QA personnel.

ATI has identified Rick Adkisson as the QA/QC manager.

2.9 Personnel and Qualifications in UXO Operations

2.9.1 Senior UXO Supervisor (SUXOS)

2.9.1.1 The Senior UXO Supervisor, Darryl Walden, has more than 15 years military/civilian EOD/UXO experience. The SUXOS will manage all on-site field activities. The SUXOS will keep the ATI Project Manager apprised of activities requiring his notification. The responsibilities of the SUXOS include:

- Serving as Site Manager;
- Assisting in the development of operating procedures and the work plan;
- Identification of personnel and equipment requirements;
- Supervision of all daily field team activities;
- Early detection and identification of potential problem areas and institution of corrective measures;
- Overseeing project equipment maintenance program;
- Assisting with the preparation of all project reports;
- Preparation of a daily report, which will include man-hours expended, grids cleared, explosives expended and any other information required by the Project manager;
- Providing on-the-job training for selected UXO Supervisor(s) who may be called upon to temporarily perform Senior UXO Supervisor duties during his absence from the site; and
- Supervision of UXO Technicians.

2.9.1.2 The SUXOS reports to the Project Manager and maintains day-to-day communications with him, assisting with documentation of site conditions and activities, and interfacing with the USACE on-site representative. His daily duties will include scheduling and executing a daily safety meeting, scheduling and coordinating subcontractor field team activities and oversight of all field activities.

2.9.2 UXO Safety Officer (UXOSO)

2.9.2.1 Due to the number of personnel on this site, this position will not be dual-hatted with the UXO Quality Control position. David Becker will be the UXOSO.

2.9.2.2 The UXOSO has more than ten years of military/civilian EOD/UXO experience. The UXOSO is responsible for implementing all site SSHP requirements, on-site training

requirements and recommending changes to level of personal protection equipment (PPE) to the SUXOS as site conditions warrant. The UXOSO has Stop Work Authority for safety conditions. He will report all safety work stoppages immediately to the USACE on site OE Safety Specialist. The UXOSO evaluates and analyzes any potential safety problems, implements safety-related corrective actions, and maintains a Daily Safety Log. The UXOSO reports to the Corporate Safety Manager. The UXOSO will:

- Perform on-the-job training for selected UXO technicians who may be called upon to temporarily perform the duties of UXOSO during his absence from the site, upon approval of the USACE OE Safety Specialist
- Maintain daily liaison with the USACE on-site representative
- Maintain Safety Log
- Coordinate issues w/safety manager and USACE OE safety specialist

2.9.3 Project Geophysicist

2.9.3.1 The Project Geophysicist has more than five years of applied geophysical experience. The Project Geophysicist is the geophysicist of record. The Project Geophysicist will perform daily data review, processing, and dig-list picks. The Project Geophysicist will review all site-specific activities, progress of the survey, and identified problems. The Project Geophysicist will report all problems to the Project Manager and will assist in correcting any problems as soon as possible.

2.9.4 Site Geophysicist

2.9.4.1 The Site Geophysicist has more than three years of applied geophysical experience. The Site Geophysicist is responsible for all onsite geophysical activities. He or she is responsible for ensuring the completion of all applicable forms and for notifying the Project Geophysicist of site-specific activities, survey progress, problems, and results on a weekly basis (at a minimum). The Site Geophysicist will be responsible for ensuring that survey activities are performed in accordance with the Geophysical Survey Plan and method-specific procedures.

2.9.5 UXO Quality Control Specialist (UXOQCS)

2.9.5.1 Due to the number of personnel on this site, this position will not be dual-hatted with the UXO Safety Officer's position. Craig Dougan will be the UXO Safety Officer. If, however, there are less than 15 people on-site, ATI will consider dual-hatting UXOQCS and UXOSO positions.

2.9.5.2 The UXOQCS has more than ten years of military/civilian EOD/UXO experience. The UXOQCS will inspect/review all project operations, including explosives inventories, daily reports, time sheets and other documentation, and will inspect and approve each grid prior to turnover to the government Representative. The UXOQCS specific duties

are outlined in Chapter 10. He maintains daily liaison with the USACE on-site representative.

2.9.6 UXO Technician III

2.9.6.1 This individual, who supervises a project team, shall be a graduate of a school listed in paragraph 10.2.a. or 10.2.b of DID OE-025.01. This individual shall have experience in OE clearance operations and supervising personnel, and shall have at least ten years combined active duty military EOD and contractor UXO experience. This individual must be able to fully perform all functions enumerated for UXO Sweep Personnel, UXO Technicians I and II.

2.9.6.2 Specific duties of the UXO Technician III's include:

- Supervision of UXO teams during intrusive operations.
- Supervision of demolition operations.
- Performance of explosive inventories.
- Supervision of equipment maintenance.
- Supervision/performance of ordnance related scrap inspection.
- Determining whether OE items are acceptable to move or need to be blown-in-place.
- Supervision of UXO Technician I and II.

2.9.7 UXO Technician II

2.9.7.1 This individual shall be a graduate of a school listed in paragraph 10.2.a. or 10.2.b of DID OE-025.01. As an exception, a UXO Technician II may be a UXO Technician I with at least five years combined military EOD and contractor UXO experience. This individual must be able to fully perform all functions enumerated for UXO Sweep Personnel and UXO Technician I.

2.9.7.2 The UXO Technician II's specific duties for this project will include:

- Performance of intrusive investigation operations;
- Performance of demolition operations to destroy OE;
- Assisting in ordnance-related scrap inspections under the Technician III's direction; and
- Performing equipment maintenance.

2.9.8 UXO Technician I

2.9.8.1 This individual shall be a graduate of the course listed in paragraph 10.2.c of DID OE-025.01. A UXO Technician I can advance to the UXO Technician II category after five years combined active duty military EOD and contractor UXO experience.

2.9.8.2 The UXO Technician I's specific duties (under the supervision of a UXO Technician III or a UXO-qualified individual of higher rank than the UXO Technician III) for this project will include:

- Assisting in intrusive investigation operations.
- Assisting in demolition operations to destroy OE.
- Assisting in ordnance-related scrap inspections.
- Assisting in performing equipment maintenance.

2.10 Subcontractor Management

2.10.1 Subcontractors on ATI prime Task Orders will be required to comply with requirements and procedures established in the work plan. Additionally, FAR subpart 45.5 will be incorporated by reference in all applicable subcontracts and purchase orders to ensure compliance with regulations regarding management of property in the possession of subcontractors.

2.11 Mobilization Plan

2.11.1 Mobilization will commence upon notification to proceed from the Contracting Officer.

2.11.2 Once on site, the SUXOS will coordinate the following activities:

- Locate the hospital and confirm phone numbers and directions to facility.
- Establish and set-up an office.
- Contact the phone company and have phone lines installed.
- Locate the site for and establish the Recovered OE magazine Area.
- Establish the scrap holding area.

2.12 Site Preparation

2.12.1 Brush Cutting

2.12.1.1 ATI will perform Brush Cutting only as required to perform Geophysical Surveying and Intrusive Investigation operations. Due to the urbanized nature of the project area, very little Brush Cutting is expected. As described in Chapter 11, ATI will avoid sensitive habitats, fauna, and cultural areas.

2.13 Site Control

2.13.1 The project area includes a Subdivision and a Mobile Home Park. Due to the types of OE expected at this site, minimal exclusion areas are required. The Site Project Manager will coordinate with residents to minimize their inconvenience during Intrusive Operations.

2.14 Equipment Field Test Plot

2.14.1 Test plots have been established in three locations at the site. Locations for two of these plots have been selected to approximate conditions around the homes. These plots contain representative OE surrogates. See Appendix I. A daily check of the geophysical sensors will be conducted at one or more of the test plots and annotated in the team leader's logbook.

2.15 Sampling Plan

2.15.1 Environmental sampling is not required for this Task Order

2.16 Reporting and Disposition of OE

2.16.1 All OE encountered is expected to be collected and transported to Clean Harbors Environmental Services, Inc., in Colfax, Louisiana for treatment and disposal. Found MK 23s will be stored in a portable magazine which meets or exceeds ATF requirements for storage of explosives. Transportation of OE items will be in accordance with paragraph 1-9, Army TB 8700-2 by a common carrier which will be arranged through Clean Harbors. Manifesting will be accomplished by Clean Harbors with information provided by ATI. OE items will be rendered safe or inert by a thermal process employed by Clean Harbors and approved by the EPA for Clean Harbors facilities. Although no items requiring on-site destruction by demolition are expected, the procedures in this Work Plan include provisions for this contingency. Due to the residential environment of this site, every safe alternative will be explored in close coordination with the on-site USACE Safety Specialist if any unexpected items are found that may require on-site destruction.

2.17 Personnel Responsibilities

2.17.1 SUXOS – The SUXOS has overall responsibility for reporting and disposition of OE. He will:

- Schedule and coordinate all disposal/demolition operations.
- Ensure an OE log is maintained.
- Assure that ordnance related scrap generated from any demolition operations is inspected prior to placement in the holding bins.
- Inspect all recovered ordnance related scrap and non-ordnance related scrap.

2.17.2 UXOSO – The UXOSO is responsible for insuring all OE operations meet safety requirements. He will:

- Observe and inspect all disposal/demolition operations
- Insure all requirements of the SSHP are complied with

2.17.3 UXOQCS - The UXOSQCS is responsible for insuring that all OE operations meet quality requirements. He will:

- Verify processes by which scrap is inspected and certified to be free of OE.
- Insure all requirements of the Quality Control Plan are complied with.

2.17.4 UXO Tech III – The UXO Tech III is responsible for the supervision of the OE disposal operation. He will:

- Post individuals at entry points (if required);
- Construct appropriate Engineering controls IAW "Use of Sandbags for Mitigation of Fragmentation and Blast Effects Due to Intentional Detonation of Munitions," HNC-ED-CS-S-98-7, August 1998 if required;
- Assign team members to specific demolition duties;
- Assure the area is clear prior to capping in; and
- Check the area following each shot or series of shots.

2.17.5 UXO Tech II – The UXO Technicians II will perform demolition duties as assigned.

2.17.6 UXO Tech I – The UXO Technicians I will perform demolition duties as assigned.

2.18 Safety Precautions

- A minimum of two UXO-qualified personnel, will be present during all OE operations so that one UXO personnel may act as a safety observer.

- During all OE operations, only the minimum number of personnel required to safely perform the task will be allowed on-site. All others will evacuate to a pre-designated assembly point.
- If an unidentifiable OE is found, or toxic chemical munition is found, the on-site USACE OE Safety Specialist will request EOD support.
- UXO personnel required for this project will include qualified UXO supervisors and technicians, all of who possess the relevant United States military EOD qualifications and experience. Personnel for this project have been selected from a pool of available qualified UXO technicians.
- All UXO personnel assigned to this project will meet the personnel training and experience requirements set forth in the SOW and Data Item Description OE-025.01.
- ATI personnel will not attempt to remove any fuse(s) from the OE and will not dismantle or strip components from any OE.
- ATI personnel are not authorized to inert any OE items found on-site.
- OE/UXO items will not be taken from the site as souvenirs.

2.19 OE Identification

2.19.1 If any unexpected OE item is found, the USACE Safety Specialist and Senior UXO Supervisor will jointly determine the item's status before any removal action is attempted. All available data sources will be consulted prior to this determination.

2.19.2 As OE is located it will be documented on the working map and entered into the UXO/OE Accountability Log, ATI Form 26 (Appendix F).

2.19.3 A detailed accounting of all live/suspected UXO or OE items encountered during the OE removal action will be accomplished. ATI Form 26, UXO/OE Accountability Log will be completed on each live/suspected UXO or OE item encountered. This accounting will include:

- Identification Number (a unique ID #)
- Grid Location
- Nomenclature
- Fuse Description
- Fuse Condition
- Additional comments if required

2.19.4 Each type of live or suspect OE item encountered will be identified using a unique numerical identifier, such as PR – G1 – 0001 (for first live/suspect type item (0001) encountered in Grid (G1) at the project site.

2.19.5 Photographs of live or suspect OE items will be taken for documentation purposes. A ruler or some similar item, to show scale, should be placed adjacent to the item. The photographer needs to remember these photographs will be utilized in the final report; thus, a focused, well thought out photograph, paying particular attention to lighting and shadows, is necessary.

2.20 Transportation

2.20.1 Off-Site Transportation

2.20.1.1 ATI plans to have all OE items transported off site to Clean Harbors Environmental Services, Inc. for disposal. This transportation will be done through a common carrier retained for that purpose. OE items being shipped will be packaged in sealed metal containers and will meet all legal and regulatory requirements. Manifesting for this transportation will be done by Clean Harbors using information and profiles provided by ATI.

2.20.1.2 OE items recovered on site will be transported to the collection point established on the site. Transportation between the place where the items are recovered and the collection point may require the vehicle to leave the site, travel on a public road, and return to another part of the site. These items will be secured within the cargo area of the transporting vehicle to prevent movement and will be covered to prevent any exposure. Vehicles being used for this purpose will meet all requirements for vehicles transporting explosives on public highways.

2.20.2 On-Site Transportation

2.20.2.1 Map B-1 in Appendix B, displays the location of the OE operational area. Due to the residential nature of the site, all movements of OE items or explosives will be considered to be on public roads. Accordingly, all applicable requirements for explosives shipments will be met.

2.20.2.2 Since any explosives to be used in demolition operations will be ordered and delivered for use on the day of delivery, magazines for donor explosives will not be required for this project. If ATI trucks are used to transport explosives on–site, donor explosives will be separated from blasting caps. Two-day boxes will be used and will be covered and secured to prevent movement within the cargo area. Two approved fire extinguishers will be available, one in the cab of the truck and the other separated from the day boxes in the cargo area and secured. Placards appropriate to the explosives being carried will be displayed on the front, rear, and both sides of the vehicle.

2.21 Safe Holding Areas

2.21.1 ATI will establish a Safe Holding Area, as all live or suspected-live OE is expected to be deemed acceptable to move. Recovered OE will be collected and secured pending shipment to Clean Harbors for treatment and disposal. The Safe Holding Area will consist of a transportable magazine that meets or exceeds ATF requirements for safety and security.

2.21.2 The safe holding area will be located near the office and will require minimal separation from the public because no high explosives material is anticipated.

2.22 Demolition and Post Demolition Operations

2.22.1 Although no demolition operations are anticipated, any demolition activities that may be required will be in compliance with:

- CEHNC/CESWF Basic Safety Concepts and Considerations for Ordnance and Explosives Operations.
- DoD 6055.9 Std., DoD Ammunition and Explosive Safety Standards.
- TM 60A 1-1-31, Explosive Ordnance Disposal Procedures.

2.22.2 Electric Firing Procedures

2.22.2.1 General

- Review electromagnetic radiation (EMR) hazards and precautions and electrical grounding procedures.
- Carry blasting caps in approved containers and keep them out of the direct rays of the sun.
- Do not handle, use, or remain near explosives during the approach or progress of an electrical storm. All persons should retire to a place of safety.
- Do not use explosives or accessory equipment that are obviously deteriorated or damaged. They may detonate prematurely or fail completely.
- Do not abandon any explosives. Fatal or serious accidents can result from such careless practice.
- Do not use unexploded dud ordnance items for demolition purposes. They may be in an extremely sensitive and hazardous condition.
- Disposal operations will not be initiated until at least one-half hour after sunrise and will be concluded by at least one-half hour prior to sunset.
- Restrict and control access to the disposal site to a minimum of authorized personnel necessary for safe conduct of the disposal operations.

- Do not carry fire- or spark-producing devices into a disposal site except as specifically authorized.
- Do not smoke except in areas specifically designated. After smoking, assure that all burning tobacco is extinguished.
- Avoid inhaling, and skin contact with explosives, the smoke, fumes, vapors of explosives, and related hazardous materials.
- When connecting or splicing wires, do so in accordance with the drawings in Figure 2-2.

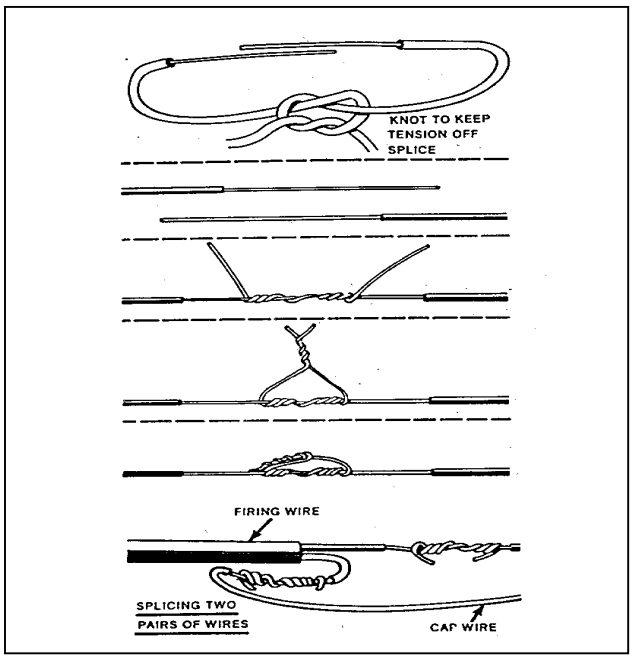

Figure 2-2. Connecting the Circuit

2.22.3 Handling Demolition Materials

- Do not strike, tamper with, or attempt to remove or investigate the contents of a blasting cap (electric or non-electric), detonator, or other explosive initiating device. A detonation may occur.
- Do not pull on the electrical lead wires of electric blasting caps, detonators or other electro-explosive devices. A detonation may occur.
- Do not attempt to remove an unfired or misfired primer or blasting cap from a coupling base. There is a high risk of an explosion.

- Always point the explosive end of blasting caps, detonators, and explosive devices away from the body during handling. This will minimize injury should the item explode.
- Shaped charges - be certain there is no obstruction in the conical cavity or between the charge and the target, as any obstruction will materially reduce the penetration effect.

2.22.4 Preparation for Firing

- Use only standard blasting caps of at least the equivalent of a commercial No. 8 blasting cap.
- Use electric blasting caps of the same manufacture, whenever possible, for each demolition shot involving more than one cap.
- Keep blasting caps in approved containers, located at least 7.62 meters (25 feet) from other explosives, until needed for priming.
- Do not bury blasting caps. Use detonating cord to position blasting caps above the ground. Buried blasting caps are subject to unobserved pressures and movement, which could lead to premature firing or misfires.

2.22.5 Electric Priming

- Test electric-blasting caps for continuity at least 50 feet downwind from any explosives prior to connecting them to the firing circuit. Upon completion of testing, the lead wires will be short-circuited by twisting the bare ends of the wires together. The wires will remain shunted until ready to connect to the firing circuit.
- Unroll the lead wires so that the cap is as far as possible from the operator and pointing away from him/her. Place the blasting cap under a sandbag or behind a barricade before removing the shunt and testing for continuity. Make sure the cap does not point toward other personnel or explosives.
- Use only the special silver-chloride dry cell battery in the testing galvanometer. Other types of dry cells may produce sufficient voltage to detonate blasting caps.
- Do not connect the blasting machine to the firing wires until all pre-firing tests have been completed and until ready in all respects to fire the charges.
- Do not hold the blasting cap directly in the hand when uncoiling the leads. Hold the wires approximately 152 millimeters (6 inches) from the cap. This will minimize injury should the cap explode. The lead wires should be straightened by hand and not thrown, waved, or snapped to loosen the coils.
- Do not remove the shunt from the lead wires of blasting caps except for testing for continuity or actual connection into the firing circuit. The individual removing the shunts will ground himself prior to this operation to prevent accumulated static electricity from firing the blasting cap.

- Keep both ends of the firing wires shorted or twisted together except for testing or firing. Do not connect the blasting caps to the circuit firing unless the power ends of the circuit firing leads are shorted.
- Keep all parts of the firing circuit insulated from the ground or other conductors such as bare wires, rails, pipes, or other paths of stray current.
- The UXO person in-charge will order the final priming of the shot.

2.22.6 Firing Demolition Charges

- Keep the power end of the firing wire shunted until ready to connect the blasting machine.
- The signal for detonation will be given by the UXO person in-charge only after all personnel in the area have reached cover or a safe distance from the charge.
- Prior to making connections to the blasting machine, test the firing circuit for electrical continuity.
- The UXO person in-charge will order the firing wires to be connected to the blasting machine, maintaining control over the activating device, while verifying that the area is clear of personnel, animals, and equipment, including aircraft.
- When using a firing panel, lock the switch in the open position until ready to fire. The single key will be in the possession of the UXO person in-charge.
- Do not complete the circuit at the blasting machine (panel) or give the signal for detonation until directed to do so by the UXO person in-charge.
- Do not attempt to fire a single electric blasting cap, or a combination of electric blasting caps in a circuit with less than the minimum current required by the total circuit. Misfires can be expected where this occurs.
- The UXO person in charge and a safety observer shall check the shot following the detonation.
- The team will search the area after each firing for any remaining explosive components and loose explosives. Scattered explosive material should be carefully gathered and destroyed by detonation with the next shot. If left in place these items can create an additional explosive hazard. This search includes verifying that a secondary item is not present in the area after conducting “blow-in-place” operations. Always check the “blow-hole” for secondary items and remove all Ordnance-related scrap and fragmentation

2.22.7 Electro-Magnetic Radiation (EMR) Hazards.

2.22.7.1 Prior to the application of detonation-in-place procedures, an EMR survey shall be conducted to determine if there are any transmitting antennas of radio, radar, or other electro-magnetic-generating devices located in the vicinity.

2.22.8 Radio Frequency (RF) EMR.

2.22.8.1 RF EMR consists of waves of electrical energy. These waves are radiated in a line-of-site from the antennas of electronic devices that transmit radio, radar, television, or other communication, to include cellular telephones, or other communication or navigation radio frequency signals. Table 2-1, states the minimum safe distance from electro-explosive devices (EEDs) and the transmitting antenna of all RF emitters. The factors to be considered when evaluating the degree of hazard that the EMR RF energy represents are:

- The strength of the field (its power);
- The frequencies transmitted;
- The distance from the transmitter antenna to the ordnance; and
- The amount or type of protection available.

Table 2-1

Recommended Distances of Mobile Transmitters and Cellular Telephones Including Amateur and Citizens' Band

	MINIMUM DISTANCE (Feet)				
Transmitter(1) Power (Watts)	MF 1.7 to 3.4 MHz Fixed, Mobile, Maritime	HF 28 to 29.7 MHz Amateur	VHF 35 to 36 MHz Public Use 42 to 44 MHz Public Use 50 to 54 MHz Amateur	VHF 144-148 MHz Amateur 150.8-161.6 MHz Public Use	UHF 450 to 470 MHz Public Use Cellular Telephones Above 800 MHz
1	15	47	37	12	8
5	32	105	82	27	18
10	46	148	116	38	25
50	102	331	259	85	55
100	144	468	366	120	78
180(2)	193	627	491	161	104
200	204	661	518	170	110
250	228	739	579	190	123
500(3)	322	1045	818	268	174
600(4)	353	1145	897	294	190
1,000	455	1,478	1157	379	245
1,500(5)	557	1,810	1,417	464	300
10,000(6)	1,438	4,673	3,689	1198	775

2.22.9 Lightning, Electric Power Lines and Static Electricity.

2.22.9.1 Lightning is a hazard to both electric and non-electric blasting caps. A strike or a nearby miss is almost certain to initiate either type of cap and other sensitive explosive elements such as caps in delay detonators. Lightning strikes, even at remote locations, may cause extremely high local earth currents, which may initiate electrical firing circuits. Effects of remote lightning strikes are multiplied by proximity to conducting elements, such as those found in buildings, fences, railroads, bridges, streams, and underground cables or conduit. The only safe procedure is to suspend all blasting activities during electrical storms and when one is impending. All blasting activities will be suspended when lightning-thunder storms are within ten miles of the project site.

2.22.9.2 Electrical firing will not be performed within 155 meters of energized power transmission lines. When it is necessary to conduct disposal operations at distances closer than 155m to electric power lines, non-electric firing systems will be used or the power lines de-energized.

2.22.9.3 Many electric blasting caps have been detonated because they grounded static electricity that was in the air. Static electricity is produced by a great variety of causes; among them, dust storms, which have caused a large number of detonations; snow storms, less dangerous, but known to have caused premature explosions; and escaping steam, known to have charged the air and detonated electric caps. Enough static electricity to detonate electric caps also can be generated by such sources as moving belts and revolving automobile (truck) tires. Static electricity is an increased hazard when operating in an extremely cold climate or area of low humidity.

2.22.10 Preparation and Priming of an Electric Firing System

2.22.10.1 An electric firing system is one in which electricity is used to fire the primary initiating element. The chief components of an electric firing system are the electric blasting cap, firing wire, and the blasting machine, or remote system.

2.22.10.2 Preparations

2.22.10.2.1 Prepare and place all explosive charges. After determining and locating a safe location away from the charges, lay out the firing wire.

2.22.11 Test Firing Wire

2.22.11.1 If using the blasting galvanometer/M51 test set - check the galvanometer by holding a piece of metal across its terminals. If the battery is good, there should be a wide deflection of the needle. Check the M51 test set by holding a piece of wire across its terminals and depress handle - lamp should glow.

2.22.11.2 When using a Model “D” Blaster’s Ohmmeter with the Lawrence Silver Chloride Dry Cell, a full needle indication is required. Frequently cells, which have been stored for long periods of time, will require re-activation. To obtain full-scale deflection of the meter needle, the meter contact posts should be shorted with a metal instrument such as

a screwdriver or knife blade. Place the metal blade in full contact with both terminals simultaneously for a period of twenty seconds to one minute. This should activate the cell to full-scale deflection. If it does not, do not use the ohmmeter.

2.22.11.3 Separate firing wire connectors at both ends, and touch those at one end to galvanometer/test set posts. The needle should not move nor lamp glow. If either occurs, the firing wire has a short circuit.

2.22.11.4 Twist wires together at one end and touch those at the other end to the galvanometer/test set posts. This should cause a wide deflection of the needle or the lamp to glow. No movement of the needle indicates a break; a slight movement indicates a point of high resistance, which may be caused by a dirty wire, loose wire connections, or wires with several strands broken off at connections. Note: Firing wire can be tested on the reel, but unnoticed broken wires could produce false readings. Firing wire must be tested after unreeling. Caution: Do not drag a firing cable over sand or other insulated surfaces as this can generate a static charge that will electrically fire blasting caps.

2.22.11.5 Twist free ends of firing wire together to prevent an electric charge from building up in the firing wire.

2.22.12 Test Blasting Caps

- Test galvanometer/M51 test set as outlined above.
- Test electric-blasting caps for continuity at least 50 feet downwind from any explosives prior to connecting them to the firing circuit.
- Place the cap under a sandbag or other protective device in the event that the cap accidentally functions.
- Individual conducting this test will ground himself prior to removing the shunt.
- Remove short circuit shunt.
- Touch one cap lead wire to one post and the other cap lead wire to the other post. If the galvanometer's needle deflects slightly less than it did when instrument was tested, or the lamp glows, the blasting cap is satisfactory; if not the cap is defective. Destroy it on the detonation.

Note: If the battery is fresh, the galvanometer should read at least half scale when the instrument is tested and when a good blasting cap is tested.

2.22.13 Connecting the circuit.

2.22.13.1 At the firing position, keep the free ends of the firing wire twisted together until ready to connect the blasting machine.

- A continuity check will be made of the firing wire and blasting cap circuit before inserting cap into charge.

- Individual will ground himself prior to performing next step.
- Splice free cap lead wires to firing wire.
- Insert cap into charge.
- Move to the firing position and test the entire firing circuit with the galvanometer or test set as outlined above. If the firing circuit is defective, shunt wires; go down-range and recheck circuit. If the splice is found defective, re-splice wires. If cap is found defective, replace it.
- Twist free ends of firing wire together.
- Exercise the blasting machine. Test blasting machine by actuating it several times with nothing attached to the terminals.
- Connect blasting machine.
- Sound a warning (siren, horn, etc.) and loudly call out "Fire in the hole"! Three times.
- Activate blasting machine.

2.22.14 Electric Misfire

2.22.14.1 Prevention of Electric Misfires.

2.22.14.1.1 In order to prevent misfires, insure that:

- All blasting caps are included in the firing circuit;
- All connections between blasting cap wires, connecting wires, and firing wires are properly made;
- Short circuits are avoided;
- Grounds are avoided;
- Number of blasting caps in any circuit does not exceed rated capacity of power source on hand; and
- Firing wire is completely unrolled from the reel.

2.22.14.2 Causes of Electric Misfires.

2.22.14.2.1 Common specific causes of electric misfires include:

- Inoperative or weak blasting machines or power source;
- Improperly operated blasting machine or power source;
- Defective and damaged connections, causing either a short circuit, a break in the circuit, or high resistance with resulting low current;
- Faulty blasting caps;

- The use in the same circuit of blasting caps made by different manufacturers or different design;
- The use of more blasting caps than power source rating permits; and
- Excessive resistance resulting from wire left rolled on the reel.

2.22.14.3 Clearing electric misfires.

2.22.14.3.1 If charge is primed electrically, proceed as follows:

- Make several successive attempts to fire.
- Check firing wire connections to blasting machine terminals to be sure those contacts are good.
- Make 2 or 3 more attempts to fire charge.
- If available, try again with another blasting machine or power source.
- Make 2 or 3 more attempts to fire charge.
- Disconnect blasting machine, or other power source, and shunt firing wire.
- Allow a minimum of 30 minutes to elapse from the last attempt to fire, before starting to investigate.
- Test firing circuit with circuit tester for breaks and short circuits, and correct any defects noted.
- Remove and disconnect old blasting caps and shunt wires; Note: do not strike or dig into a buried misfired charge. Uncover only enough to position a fresh charge immediately adjacent to the misfired charge.
- Connect wires of new blasting cap(s) to firing circuit and re-prime charge.
- Reconnect firing wire ends to blasting machine and fire charge.

2.23 Engineering Controls

2.23.1 Intentional Detonations

2.23.1.1 If unexpected OE items are found in the project area, it is likely that the Q-D or MSD cannot be met. Depending on the item, a sandbag enclosure may be used to meet the requirements. The sandbag enclosure shall be constructed in accordance with (IAW) HNC-ED-CS-98-7, paragraph 3.2 and other guidance that may be coordinated through the on-site USACE Safety Representative. The walls and sides will have a thickness calculated for the specific item.

2.24 Ordnance Related Scrap and Other Scrap

2.24.1 Scrap Procedures

2.24.1.1 Inert items, including all ordnance-related metallic debris, shrapnel or fragments, and other scrap cleared will be collected, demilitarized if needed, transported to the demilitarization/securable container location, and placed into securable/sealable containers.

2.24.1.2 Ordnance-related scrap found while conducting Intrusive Investigations will be inspected by a UXO Technician II or III to verify the item is inert or safe to handle before moving. It will then be collected at a pre-designated location on the grid. Before the collected material leaves the grid, the UXO Removal Team Leader (UXO Technician III) will perform an additional inspection of the scrap. Once the inspection has taken placed, the materials will be loaded onto a truck for transportation to the demilitarization/securable container location. The materials will then be downloaded and placed in securable/sealable containers.

2.24.1.3 All OE items will be investigated to insure that there are no explosives remaining in the items and that only inert filled or empty items are transported to the scrap area. Inert items that need to be mechanically demilitarized will be collected within the grid and transported to the secure collection point until being demilled. Inert items that require demilitarization will be done in accordance with DoD 4160.21-M-1, Defense Demilitarization Manual. They will be processed as required and placed in securable/sealable containers.

2.24.1.4 All final processed material will be placed in lockable/sealable containers, for security, before transport to Alter Trading Corporation. ATI has arranged for Alter to accept scrap and process it through a smelter or furnace prior to resale or release.

2.24.2 The remaining non-ordnance-related scrap from these operations will be recovered and transported to the scrap holding area and placed into appropriate containers.

2.24.3 A UXO Supervisor will double-check to ensure all items are inert prior to transportation to the demilitarization/securable container location.

2.24.4 Redundancy is built into the investigation process to assure no live items are removed from the site.

2.24.5 Turn-in of Recovered Inert OE-Related

2.24.5.1 All properly demilled inert ordnance and ordnance-related scrap will be turned-in to Alter Corporation. Demilling will occur on-site for inert MK 23s only. As shown in Figure 2-3, ATI has an agreement with Alter to accept the scrap and process it through a smelter or furnace prior to resale or release. The SUXOS will complete a DD Form 1348-1A in accordance with DoD 4160.21-M. Both the SUXOS and the UXO Quality Control Specialist will sign the form. A certificate will be prepared with the following statement: "This certifies and verifies that the AEDA residue, Range Residue, OE scrap and/or Explosive Contaminated property listed has been 100 percent properly inspected and to the best of our knowledge and belief, are inert and/or free of explosives or related material."

2.25 OE Accountability and Records Management

2.25.1 A detailed accounting of all live OE items encountered during the investigation activities will be accomplished. Items will be accounted for as specified in Section 2.19.3. The Removal Team Leader will provide validated data to the SUXOS at the close of each working day.

2.25.2 The SUXOS will:

- Collect and review the raw OE field data for accuracy; and
- Provide the verified data to the home office for entry into ATI's GIS ProCommander Web Site.

2.25.3 The USACE Project Manager will have access to ProCommander.

2.25.4 For documentation purposes, photographs will be taken of selected live OE and ordnance-related scrap. The photographs will be posted on ProCommander and used for the Final Report. Subjects to be photographed will be selected to be representative of types of OE and Ordnance Related Scrap. Unusual items and items in unusual circumstances will also be photographed.

2.25.5 Photographic records will also be used to supplement information recorded as needed.

2.26 Additional Tasks

2.26.1.1 Meetings

2.26.1.2 ATI personnel, as directed by the Contracting Officer, will be available to participate in public meetings as required. ATI is prepared to make presentations and answer questions concerning project activities at the site.

2.26.1.3 Community Relations

2.26.1.4 The ATI Site Project Manager will be responsible to interact with residents of the communities within the project area and coordinate with the SUXOS to schedule operations in such a way as to minimize the impact and inconvenience to the residents. The person assigned to this position will be selected for his or her organizational skills and ability to interact with the public.

2.27 Final Report

ATI will prepare a Site Specific Report IAW DID OE-030.01.

ALTER TRADING CORPORATION

689 Craig Road
St. Louis, MO 63141-7124
(314) 872-2436 Voice
(314) 378-9436 Mobile
(314) 872-2420 Fax
(888) 337-2727 Ext. 2436

2/24/2004

Mr. Ken Adams
UXO Resource Coordinator
American Technologies Inc.
142 Fairbanks Road
Oak Ridge TN 37830

Dear Ken,

We can receive your scrap metal at our Davenport, Iowa facility for the project that you will doing at the Former Five Points Naval station Outlying Fields, Arlington, Texas. We would either prepare the material for a smelter or shred through our shredder and then remove whatever magnetics and then ship to the smelters furnace.

This material would be delivered by your company in 55 gal drums and this material would be 100% inspected by your company to insure that it would free of explosives and related materials. This material would be received at Alter Trading at no value with no monies being transacted. At the time of disposal please contact Mr. Rodney Deaton at 563-328-3611 for directions to our yard.

Ken, we look forward to hearing back from you in the near future regarding this project. Thanks for your consideration.

Sincerely,

Michael Rubin
Metals Trading

Figure 2-3. Statement from Alter: To accept the scrap and process it through a smelter or furnace prior to resale or release

2.28 Lessons Learned

2.28.1 The Senior UXO Supervisor, the UXOQCS, Project Geophysicist, and the ATI Project Manager will all be responsible for logging and reporting Lessons Learned as specified in Section 10. The Project Manager will record these items in the Weekly Status report, and will ensure they are included in the final report.

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3 EXPLOSIVE MANAGEMENT PLAN

3.1 General

3.1.1 This plan details the management of explosives that may be required for the destruction or venting of live, suspected live, or inert OE items at the former Five Points Outlying Field (OLF), Arlington, Texas. All OE items that are expected to be found at this site will be acceptable to move, and will be transported for disposal off site. ATI expects that no disposal or venting operations will be required. However, we have made plans, including this Explosives Management Plan, to cover this contingency.

3.2 Licenses/permits

3.2.1 ATI will have and, upon request, make available to any local, state, or federal authority a copy of all licenses/permits required to authorize ATI to purchase, store, transport, or use explosives. If no other licenses or permits are required by the state, ATI will maintain on site a copy of its Federal ATF license.

3.3 Description and Quantities

3.3.1 If any explosive materials are used during the commission of the work at the former Five Points Outlying Field (OLF), Arlington, TX, they will be obtained from commercial sources. These explosive materials will be for the specific purpose of disposal of live or suspect OE and explosive venting of inert OE items, if required, located during the removal action. An electrical firing system will be utilized.

3.3.2 Quantities of explosive materials required to conduct the day's operation will be ordered from a local vendor when needed and will be delivered to the site by the vendor.

3.3.3 ATI will not store explosives on the site for this operation. Explosives will be ordered only in quantities needed for demolition operations on the day when they are ordered and delivered.

3.3.4 ATI estimates 2 ea. Electric Blasting Caps (1.4B); and 2 ea. 32 gram Perforators (1.1D) will be used during disposal or venting operations for a single item and Detonation Cord (1.1D) will be used to link Perforators. It is noted that detonation cord is provided in rolls, and the entire roll is to be expended during disposal activities if needed.

3.4 Acquisition Source

3.4.1 ATI has obtained an agreement with a vendor, Owen Oil Tools, 8900 Forum Way, Fort Worth, Texas, (Phone number 817.551.0540 ext. 153) who has agreed to supply and deliver the necessary quantities of demolition explosives on call, as needed. Explosives will be delivered, as required, upon request by ATI. A guard will be assigned to the located UXO item until explosives are delivered and the item destroyed. This could possibly require a 24-hour surveillance of the item.

3.5 List of Explosive Materials

3.5.1 As stated above, explosives that will be used, if needed, are:

- Electric Blasting Caps (1.4B)
- Shaped Charge perforators, 32 gram (1.1.D)
- Detonation Cord, (1.1D)

3.6 Initial Receipt Procedures

3.6.1 Receipt of explosives will be from Owen Oil Tools, 8900 Forum Way, Fort Worth, Texas, (Phone number 817.551.0540 ext. 153).

3.6.2 Upon receipt of donor materials, an inventory will be conducted to ascertain:

- correct type
- serviceable condition

3.6.3 A copy of the invoice(s) for the incoming donor materials will be kept in the on-site donor materials accountability file.

3.6.4 Upon receipt, a separate ATI Memorandum will be prepared, with the following information, and retained on-site:

- Date of acquisition
- Name or brand name of manufacturer
- Manufacturer's marks of identification
- Quantity
- Description
- Name, address, and license number of the persons from whom the explosive materials are received
- Items for which these explosives are being used to destroy or vent
- A statement that all explosives received were used the same day as received

3.7 Procedures for Variances between quantities shipped and quantities received.

3.7.1 Because explosives are being ordered only as-needed and shipped directly from the supplier to the site in the custody of the supplier's employee(s), there should be no discrepancies. However, if any discrepancies of any kind should be found during the initial receipt inventory and inspection, the following procedures will be followed:

- If during the initial receipt inventory a discrepancy if found between the quantity listed on the invoice and the quantity being delivered, the quantity received will be annotated on the invoice.
- The SUXOS will notify the supplier of the discrepancy before the explosives are accepted from the supplier's representative.
- The Project Manager will be notified telephonically, with a copy of the memorandum and a copy of the invoice being faxed as soon as possible.

3.8 Establishment of explosive storage facility

ATI does not anticipate using an explosives storage facility for this project as all explosives will be used as they are received.

3.9 Physical security of explosive storage facility

Since no explosives storage facility will be used, there will be no requirement for security of a storage facility.

3.10 Transportation

3.10.1 Transportation of Donor Explosives to Project Site/Transportation of OE items to the disposal location.

ATI does not expect to dispose of any OE on site. However, if an unexpected requirement for on-site disposal by detonation should arise, the following procedures will be used.

- Vehicles used for transportation of explosive materials shall not be loaded beyond their rated capacity and the explosive materials shall be secured to prevent shifting of load or dislodgment from the vehicle; when explosive materials are transported by a vehicle with an open body, a magazine or closed container shall be securely mounted on the bed to contain the cargo.
- All vehicles transporting explosive materials shall display all placards, lettering, and/or numbering required by DOT and will have two each 10BC fire extinguishers on board.
- Explosive materials and blasting supplies shall not be transported with other materials or cargos. Blasting caps (including electric) shall not be transported in

the vehicle or conveyance with other explosives unless the conditions of 49 CFR 177.835(g) are met (i.e., an IME-22 Container is used to transport the blasting caps).

- All vehicles used for transportation of explosive materials shall be in the charge of and operated by a person who is physically fit, careful, reliable, able to read and understand safety instructions, and not under the influence of intoxicants or narcotics.
- Only the authorized driver and his or her helper shall be permitted to ride on any conveyance transporting explosive materials or detonators.
- Explosives shall not be exposed to sparking metal during transportation of materials and all electric wiring will be completely protected and securely fastened to prevent short circuits; a written record of such inspection shall be kept on file.
- Vehicles transporting explosive materials shall be operated with extreme care; full stops shall be made at approaches to all railroad crossings and main highways and the vehicles shall not proceed until it is known that the way is clear.
- No vehicle shall be refueled while explosive materials are on the motor vehicle except in an emergency.
- Persons employed in the transportation, handling, or other use of explosive materials shall not smoke or carry on their persons or in the vehicle, matches, firearms, ammunition, or flame-producing devices.
- Provision shall be made for safe transfer of explosive materials to magazine vessels including substantial ramps or walkways free of tripping hazards.
- Vehicles transporting explosive materials shall not be left unattended.

3.11 Requirements for vehicles transporting explosives at the OE removal site

3.11.1 All applicable requirements of Section 3.10.2 shall apply to transportation of explosives at the OE removal site.

3.12 Receipt Procedures/ATI Form 27

3.12.1 Daily transactions, which include receipt, issue, and/or turn-in of donor materials, will be annotated on ATI Form 27 (Instructions for completing the form are on the back of the form).

3.13 Designated Individuals

3.13.1 The following individuals are authorized to order and receive explosives from the supplier:

- Senior UXO Supervisor
- Site Safety and Health Officer

3.13.2 The following individuals are authorized to transport and use donor explosives:

- Senior UXO Supervisor
- Site Safety and Health Officer
- UXO Technician III
- UXO Technician II

3.14 Explosive Use Certification

3.14.1 At the conclusion of the RA effort at former Five Points OLF, Arlington, TX, the SUXOS will complete an ATI Memorandum stating all the donor explosives expended during OE removal operations were used for their intended purpose.

3.15 Inventory

3.15.1 Physical Inventories

3.15.1.1 Physical inventories will not be required since no explosives will be stored.

3.15.2 Weekly Inventories

3.15.3 Weekly inventories of explosives in stock will not be required since no explosives will be stored.

3.16 Lost, Stolen, or Unauthorized Use of Explosives

3.16.1 Procedures upon discovery of lost, stolen, or unauthorized use of explosives

3.16.2 Lost, stolen or unauthorized use of explosive materials will be reported as follows:

- The SUXOS will give an immediate telephonic notification to the Contracting Officer, followed up by a written report within 24 hours
- Notify the Bureau of Alcohol, Tobacco, and Firearms (ATF) at 800-800-3855, within 24 hours of discovery (complete ATF Form 5400.5, Report of Theft or Loss - Explosive Materials and mail to nearest ATF office. Instructions for completion of the form are on the reverse side.); and
- Notify the local law enforcement agency.

3.17 Returning Explosives to the Explosive Storage Area

3.17.1 No explosives will be stored. All explosives ordered and received will be used the same day.

3.18 Disposal of Unused Explosive Materials

3.18.1 All explosive materials ordered and received will be used the same day.

3.19 Perform an economic analysis for different alternatives

3.19.1 Due to the urbanized nature of this project site, ATI does not plan to dispose of any OE on site. All OE that is known to have been used on this site is expected to be acceptable to move and will be collected and shipped off-site for disposal. Contingency plans are included to provide for on-site destruction of any unexpected OE that might be discovered that is not deemed acceptable to move. However, it must be considered that on-site destruction would require extensive evacuation of residents and significant engineering controls or protective works. If evacuations are necessary, residents will be relocated to a recreation center or school facility for a short time period. Evacuations will be planned as far in advance as possible, by contacting residents either by phone or by going from door-to-door. On-site destruction of OE is not believed to be economically feasible if other safe alternatives exist.

4 EXPLOSIVES SITING PLAN

4.1 Ordnance and Explosives Areas

4.1.1 Minimum Separation Distance

4.1.1.1 The Minimum Separation Distance (MSD) has been calculated, by the USACE, Engineering Directorate, based on the Most Probable Munition (MPM). The MPM has been established by the Government, based on the EE/CA sampling data, as the Practice Bomb, MK 23. While M38 practice bombs were found during a previous clearance operation at Five Points in 1954, none have been reported since that time. The Minimum Separation Distance (MSD) has been calculated by CEHNC as 12 feet and shall be used as the Exclusion Zone (EZ) for the protection of non-essential project personnel and the public from blast overpressure and fragmentation hazards. (See calculation Sheet in Appendix G.) During the course of the Removal Action if UXO other than the MK 23 is discovered, ATI will stop intrusive activities, control the area for public safety, and contact the Huntsville Technical Project Manager and Safety Office. The ATI Project Manager and the CEHNC Safety Office will then work as a team to resolve the hazard this item presents and reevaluate the MPM.

4.1.1.2 Planned or Established Demolition Areas

4.1.1.3 ATI will not use Planned or Established Demolition Areas

4.1.1.4 OE items deemed unacceptable-to-move will be blown in place.

4.1.1.5 OE items deemed acceptable-to-move will be transported to the UXO Holding Magazine to await shipment to Clean Harbors Environmental Services, Inc., in Colfax, LA. All OE items anticipated in this project are expected to be acceptable to move.

4.1.2 Foot Print Areas

4.1.2.1 Blow-in-Place

4.1.2.1.1 No munitions that are known or suspected to have been used on this site are expected to require Blow-in-Place procedures. Demolition procedures are included in this work plan to prepare for the unlikely discovery of an unexpected OE item on the site. If such an item is located and is deemed unacceptable to move, the EZ for blow-in-place will be determined for the specific item. Although no demolition operations are anticipated, the MSD is 12 feet for a mark 23 Practice Bomb (see map in Appendix B, page B-2). The exclusion zones for all munitions known or suspected to have been used at this site are shown the MSD calculation sheets in Appendix G.

4.1.2.1.2 The UXO Tech III in charge of the OE removal team will assign team members to specific demolition duties.

4.1.2.1.3 Destruction of UXO/OE will be accomplished by detonation utilizing electrical or non-electrical (nonel shock tube) firing systems (depending on weather conditions: i.e. high wind with blowing sand possibly causing static electricity to build up) to assure maximum control and safety. Disposal by detonation will be conducted within approved procedures, regulations and guidelines.

4.1.2.2 Collection Points

4.1.2.2.1 A Collection Points will be established as all live OE or suspected live OE is expected to be collected and transported to Clean Harbors.

4.1.2.3 In-Grid Consolidated Shots

4.1.2.3.1 In-Grid Consolidated Shots will not be used as all live OE or suspected live OE will be transported to Clean Harbors.

4.2 Explosives Storage Magazines

4.2.1 Magazine Types

4.2.1.1 No magazines will be used for storage of explosives.

4.2.2 Quantity Distance

4.2.2.1 Not applicable.

4.2.3 Engineering Controls

4.2.3.1 Not required

4.3 UXO Storage Magazine

4.3.1 Magazine type

4.3.1.1 OE items that are deemed acceptable to move will be placed in an ATF approved 4' X 4' X 4' magazine to await shipment to Clean Harbors, Colfax, LA.

4.3.1.2 A chain-link fence with a swing gate will be placed around the magazine (see Map B-2).

4.3.2 Net Explosive Weight (NEW)

4.3.2.1 A NEW of items placed in the magazine will not exceed 3 pounds. No OE items containing High Explosives (HE) are expected to be found at the project site.

4.3.3 Quantity Distance

4.3.3.1 An exclusion zone of 200 feet from inhabited buildings and 120 feet from roads will be established (see Map B-2).

4.4 Site Map

4.4.1 Site maps are in Appendix B.

- Map B-1 depicts the area where the OE removal actions will take place.
- Map B-2 depicts the proposed location for the UXO Storage Magazine, fencing, and Magazine Exclusion Zone. Available data reflecting building locations has also been included. More recent data will be incorporated into the web site as it becomes available.

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5 GPO PLAN AND REPORT

The GPO Plan and report are included as Appendix I.

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6 GEOPHYSICAL INVESTIGATION PLAN

6.1 General

This Geophysical Plan describes in detail the approach, methods, and operational procedures ATI will use to collect geophysical data to identify anomalies potentially related to OE. Specifically, this Work Plan documents the site-specific application of the geophysical sensors, navigation equipment, data analysis, data management, and associated equipment and personnel in a manner capable of meeting data quality objectives for project performance goals. The USACE authorized this geophysical task under Contract DACA87-00-D-0035, Task Order 0018. This plan was developed in accordance with DID OE-005-05.01.

6.1.1 Site Description

6.1.1.1 The site is nearly flat with a gentle slope to the southeast. Historic aerial photos indicate the former presence of a small drainage depression in the southeastern part of the site, extending south to Bowman Branch. Grading activities associated with development of the site have leveled this part of the property. All of the Five Points site has been improved, with the exception of the area immediately adjoining Bowman Branch. Improvements include roadways, site built homes, mobile home lots, a cleared area held for light commercial development, and required utilities. A portion of the site located to the south along Bowman Branch is dedicated to the City of Arlington as a city park.

6.1.2 Data Quality Objectives

6.1.2.1 The Geophysical Data Quality Objectives are to perform a geophysical survey in conjunction with an OE removal action in accordance with the data quality objectives outlined in the SOW and the GPO. The following DQOs are noted:

- No “zigzag” or “chevron” effects are visible in the data maps when plotted at the scales used to detect the smallest amplitude signal for any given UXO item expected at this site.
- All processing to produce final datasets (including processing to level the data) will be evaluated on a dataset by dataset basis to confirm that those routines do not significantly alter the original measured peak responses (above background) over anomalies. For producing final datasets, processing routines shall not alter the peak responses of anomalies by more than 10%.
- Data positioning errors in the final datasets will not exceed 20 cm.
- Along track sampling is not to exceed 20cm.
- Across-line spacing not to exceed 0.8m for EM61.
- Daily GPS checks against a known point within 5 cm.

6.1.3 Specific Areas to be Investigated

6.1.3.1 The project area consists of the South Ridge Hills and Twin Parks Estates Mobile Home Park in Arlington, Texas. A topographic site map is included as Figure 6-1.

6.1.4 Past, Current, and Future Use

6.1.4.1 The government acquired 162.06 acres in 1940 as an Outlying Field (OLF) for the Dallas Naval Air station (NAS) at Grand Prairie, Texas. The property was developed and designated as the Five Points OLF. Aircraft from the Dallas NAS used Five Points OLF for practice landings and takeoffs. The site was later used as a practice bombing range. Improvements constructed at the field included a practice landing field, a target bull's-eye ring and a boundary fence. The date that the Navy declared Five Points OLF surplus is unknown. The GSA conveyed the former range to Gordon and Pope Supply Company on 19 July 1956. Ownership of the former range has changed several times since 1956. On October 31, 1977, the 8.8 Corporation conveyed the former range to the James Knapp Estate. The Knapp Estate conveyed 74.59 fee acres to the Twin Park Estate Partnership on March 25, 1983.

6.1.4.2 Approximately 35 acres of the site is called Twin Parks Estates and is a developed mobile home park. The remainder of the property is a developed residential subdivision with new home construction. Most homes have been sold to individual owners. KB Home owns the unsold lots.

6.1.5 Anticipated UXO types

6.1.5.1 Anticipated UXO types are M-47 practice bombshell casings, MK23s, and M38 practice bombs.

6.1.6 Depth Anticipated

6.1.6.1 Historical information and previous data indicates that UXO most likely did not penetrate below a depth of four feet. Because of earth work and fill material it is possible that UXO material may be present at depths greater than four feet, however, any items at these depths present very little risk due to minimal access by the public.

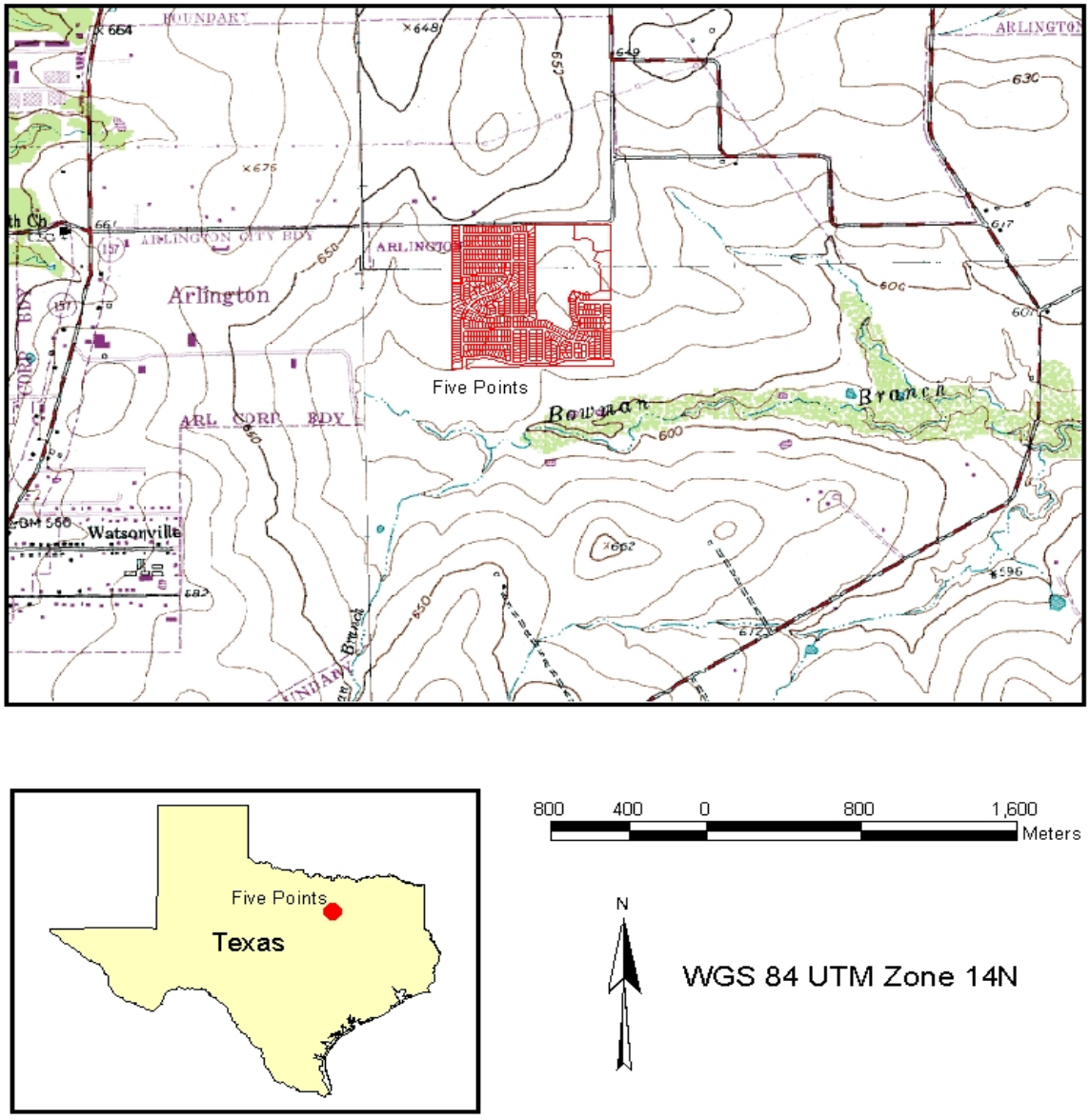


Figure 6-1 Topographic Site Map

6.1.7 Vegetation

6.1.7.1 Currently there is little vegetation on site that will require removal or be allowed for geophysical surveys. Brush and tree clearing will be performed using qualified personnel for that task, if needed.

6.1.8 Geologic Conditions

6.1.8.1 The soil and rock will cause little to no geophysical background response using time domain electromagnetic induction (TDEMI). Based on the GPO findings, ATI will use Time Gate number 3 for anomaly selection using the EM61 MK2.

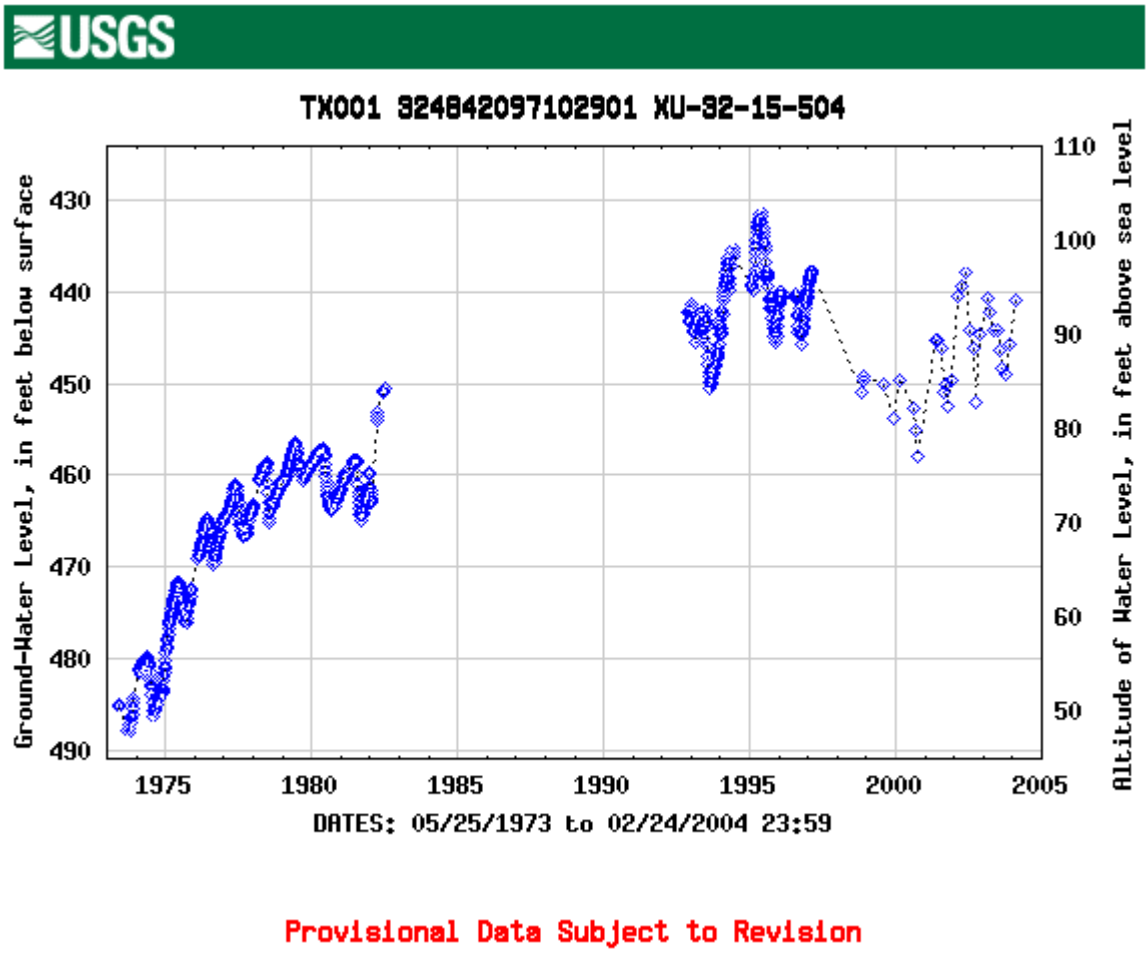
6.1.9 Soil Conditions

6.1.9.1 The soil throughout the site is mostly fill clay with some disturbed areas during construction.

6.1.10 Shallow Groundwater Conditions

6.1.10.1 The ground water table at the site is approximately 440-450 feet below surface (http://nwis.waterdata.usgs.gov/tx/nwis/gwlevels/?site_no=324842097102901&agency_cd=TX001). While isolated lenses of water may be present in soils at more shallow depths than this, shallow ground water penetration is unlikely during excavations associated with intrusive investigation (Figure 6-2).

Figure 6-2 Ground Water Depth for Arlington Area



6.1.11 Geophysical Conditions

6.1.11.1 ATI has determined there are no known geophysical conditions that will have an adverse affect on the geophysical surveys based on the GPO findings.

6.1.12 Site Utilities

6.1.12.1 This site contains some low power lines, possible water, underground sprinklers, gas, and phone lines. It is anticipated that this will have an impact on geophysical data. In areas where digital geophysics is unobtainable (near foundations and metal fencing), "detect and dig" will be used for clearance.

6.1.13 Man-made Features Potentially Affecting Geological Investigations

6.1.13.1 Interference from man-made objects is anticipated. Many different types of metallic items are present on personal property. These items will be identified on site field maps to eliminate unnecessarily anomaly investigation. Some of these items include: chairs, tables, sprinklers, tools, fences, poles, houses, construction debris, sheds, air conditioning units, rebar in concrete driveways and sidewalks, clotheslines, sheds, garbage cans, swimming pool pumps, lawn mowers, parked vehicles, bicycles, some lawn ornaments, and stakes.

6.1.14 Site-specific Dynamic Events

6.1.14.1 There are no known site-specific dynamic events that may interfere with the geophysical surveys.

6.1.15 Overall Site Accessibility

6.1.15.1 Roads within the site are paved and are generally open to access. Private residences, however, will require homeowner permission to perform a geophysical survey for each property. Some landowners may potentially decline permission for access and, in other cases, ATI may have to accommodate landowner's schedules. It is the responsibility of the USACE to obtain rights of entry for all properties.

6.1.16 Potential Worker Hazards

6.1.16.1 Aside from the potential to encounter UXO, there are no known unique potential worker hazards.

6.2 GEOPHYSICAL INVESTIGATION

6.2.1 Survey Type

6.2.1.1 As many as three different geophysical methods will be used for detection of UXO.

- A single EM-61 MK2 with GPS or/and RTS
- A single hand-held EM-61 with GPS and/or RTS

- Analog handheld detectors (near houses) if anomalies cannot be distinguished by the first two techniques

6.2.2 Equipment

6.2.2.1 EM61 MK2

6.2.2.1.1 The EM61 MK2 is a Time Domain Electromagnetic (TDEM) system. The EM61 MK2 generates 150 electromagnetic (EM) pulses per second and measures during the off time between pulses. After each pulse, secondary EM fields are induced briefly in moderately conductive soils and for a longer time in metallic objects. Between each pulse, the EM61 MK2 waits until the response from the conductive earth dissipates and then measures the prolonged buried metal response. This response is recorded in millivolts (mV). By sensing only the buried metal response, the EM61 MK2 detects metallic targets that might otherwise be missed. The EM61 MK2 measures multiple time gates (216, 366, 660, and 1266 usec) to provide a more complete measurement of the response decay rate. The MK2 can record up to 12 records per second, four (4) time gates per record, or 3 time gates of better channel data coupled with one reading for top channel per second.

6.2.2.1.2 For the Geonics EM61 MK2 single metal detector with GPS or RTS, data will be collected at 20cm intervals or better along the grid using 0.8 meter line spacing. ATI will use the three bottom coil time gates and the one top coil time gate for collection of data.

6.2.2.2 Hand Held EM-61

6.2.2.2.1 This instrument may be used for DGM and, because it is significantly smaller than the EM-61, will be able to access more areas. In addition, because the hand held version smaller and therefore averages its signal over a smaller area, it may collect better quality closer to the housing/cultural interferences. This will potentially reduce the overall area in which discrimination between cultural interferences and UXO-like items is not possible.

6.2.2.3 Analog Handheld Detectors

6.2.2.3.1 Analog handheld detectors may be used where EM data collection is too noisy. This may include near house foundations and metallic cultural artifacts areas where the EM61 MK2 receives high interference. A handheld detector, such as a White or the Minelab Explorer II may be used by the dig teams during excavation activities to clear these areas. The area will be identified from the geophysical map and flagged during the Intrusive Investigation. During the Intrusive Investigation, lanes will be set up as appropriate and anomalies identified with one of the handheld devices will be investigated by the dig team.

6.2.2.4 GPS System

6.2.2.4.1 The Z-Extreme RTK® or Trimble 5800 RTK GPS will be used during data collection for precise navigation. The GPS accuracy will be checked by verifying position dilution of precision (PDOP) or horizontal dilution of precision (HDOP) and two known GPS points daily, before data collection. If the GPS reading is more than 5 cm different than the known point, data will not be collected until more satellites are available and the accuracy is within 5 cm. Mission Planner® 4.10 software will be used to check satellite availability.

6.2.2.5 Robotic Total Station

6.2.2.5.1 ATI will use the Leica Robotic Total Station (LRTS) or equivalent for data collection where GPS satellite available is limited due to houses or obstructions. During the GPO, the accuracy of the RTS system was demonstrated to be within 5 cm. If a new system is implemented, it will be tested at the Prove-Out grid before data collection. RTS accuracy will be checked daily before field operations. The base station will be set up as far away from the RTS as possible to minimize 'proximity effects' that may slow down data collection. In addition, the base station may be set raised so that, in the case of collected data on a set of houses, set-up time can be minimized.

6.2.2.6 Fiducial Mode

6.2.2.6.1 Collection in Fiducial Mode will be performed only if needed, and with the consent of SWF and HNC.

6.2.3 Procedures

6.2.3.1 Geophysical EM-61 MK2 data will be collected after the area designated for investigation has been defined. Daily QC tests will be performed in accordance with

OE-005-05.01 Attachment B. Geophysical data will be downloaded and transferred to ATI's office after the subcontractor has completed initial data processing. ATI or the subcontractor will prepare a detailed map and Anomaly Investigation Report (dig sheet, DID OE-005-05.01 Attachment C) depicting the northing and easting location of all anomalies that meet the identification criteria of potential ordnance items for this site. Each grid anomaly will be assigned a unique reference number for field reacquisition and excavation. Any change in personnel or equipment will result in re-testing the GPO with the new configuration.

6.2.4 Personnel

6.2.4.1 A qualified geophysicist who meets or exceeds the qualification requirements listed in DID OE-025.01 will manage all geophysical activities. Specific field activities, such as setting up grids, data collection, and reacquisition, shall be supervised by a person well trained in geophysical operations and certified by ATI's geophysicist. UXO-qualified personnel who meet or exceed the qualification requirements listed in DID OE-025.01 will perform all excavation activities.

6.2.5 Production Rates

6.2.5.1 It is anticipated that approximately 1.5 acres of geophysical data will be collected and processed daily. Geophysical data will be processed after the day of collection or as soon as possible.

6.2.6 Data Spatial Density

6.2.6.1 The EM survey will be performed by collecting data at intervals of approximately 0.20 cm along lines spaced ~0.8 meter apart.

6.3 **INSTRUMENT STANDARDIZATION**

6.3.1 Data Processing

6.3.1.1 Data recorded in the geophysical instruments will be downloaded to processing computers and copied to storage media for backup purposes. Once copied to the processing computers, the data will be imported to Geosoft, Oasis Montaj, which is a geophysical data processing and mapping software package created by Geosoft, Inc. This software package will be used to process, analyze, and present the findings of the geophysical surveys. The processing and analysis consisted of applying standard corrections to the data (i.e. correcting magnetic data for diurnal variations) and producing color contour maps for the purposes of interpreting the data.

6.3.1.2 The data analyses performed by the project geophysicist or data processor will focus on identifying anomaly responses that could be associated with individual anomalies that represent UXO or OE. These interpretations will be compared with historical and site information that includes: past and current buildings/structures, and utilities.

6.3.2 Initial Field Processing

6.3.2.1 Geophysical data will be downloaded with Dat61® and proprietary G-Tek software and verified for completeness by the field geophysicist. Once data has been accepted, data will be electronically transferred to the ATI Geophysics Manager and data processors to review. The following will be performed during initial field processing:

- Grid name and location on field notes
- Line numbers, survey direction, fiducial locations (if used), start and end points of field notes.

6.3.2.2 Standard Data Analysis

6.3.2.3 The primary geophysical data processing and interpretation software will be: Oasis Montaj® (Geosoft®) with the UX-Detect extension for the EM-61. UX-Detect will first find large anomalies that may represent a UXO item. The data processor will then analyze the data to find smaller/difficult anomalies by reviewing each line profile and mapped data. The following will be performed during standard data analysis if necessary:

- Removal of spikes and physical feature interference sources.
- Positional offset correction
- Sensor bias, background leveling and/or standardization adjustment
- Sensor drift removal
- Latency Correction
- Geophysical noise identification and removal (if possible).
- Gridding of data will be accomplished by using Geosoft and UX-Detect. Search criteria will be completed by manual interpretation of each profile and using UX-Detect to select large well defined anomalies.
- Geosoft Linear Transform Contour level selection for the EM61 will be approximately:
    - -5 minimum
    - 20 maximum
    - 0 Contour interval

6.3.3 Advanced Data Processing, Digital Filtering and Enhancement

6.3.3.1 Advanced data processing is not anticipated for this task.

6.3.4 Anomaly Selection and Decision Criteria

6.3.4.1 The threshold will be magnitude based on the GPO results. The Geophysics Manager will determine if additional suspicious or potentially valid anomalies require investigation. Completed Dig Sheets will be analyzed to revise the threshold cut-off values throughout the duration of the project with CEHNC/CESWF's approval.

6.4 DIG SHEET DEVELOPMENT

6.4.1 Dig Sheets will be developed in accordance with DID OE-005-05.01 Attachment C.

6.5 ANOMALY REACQUISITION

6.5.1 ATI will perform anomaly reacquisition and verification with the same detector/positioning that was used during data collection. The RTS, Z-extreme system, Trimble 5800, EM61 MK2 and TM5 EMU will be used once the Anomaly Investigation Sheet (Dig Sheet) has been developed/reviewed by the ATI Geophysics Manager. All measurements after reacquisition will be recorded on the dig sheet and provided to CEHNC/CESWF. Instruments will be tested before daily use.

6.6 FEED-BACK PROCESS

6.6.1 Completed Dig Sheets will be analyzed by ATI's geophysicists to potentially revise the threshold cut-off values throughout the project with CEHNC/CESWF's approval. False positive anomalies will be carefully analyzed to verify the interpretation and excavation activities are being followed correctly.

6.7 QUALITY CONTROL

6.7.1 The following measures outlined in Attachment B of DID OE-005-05-01 will be implemented to insure the geophysical objectives are achieved.

6.7.1.1 QC Steps/Tests

6.7.1.1.1 The required equipment tests and frequency of testing are summarized in Table 6.1.

TABLE 6-1: TEST FREQUENCY

Test #	Test Description	Specific detector	Power on	Beginning of Day	Beginning & End of Day	1st Day of Project for each operator	1 Line per Grid or 100 ft. per Linear Mile
1	Equipment Warm-up		X				
2	Record Sensor Positions			X			
3	Personnel Test			X			
4	Vibration Test (Cable Shake)			X			
5	Static Background and Static Spike				X		
6	Azimuthal Test	Magnetometer Only				X	
7	Height Optimization					X	
8	6 Line Test					X	
9	Octant Test - (Heading Error Test)	Magnetometer Only				X	
10	Repeat Lines						X

6.7.1.2 Equipment/Electronics Warm-up

6.7.1.2.1 Equipment/electronics warm-up will be conducted to minimize sensor drift due to thermal stabilization. Most instruments need a few minutes to warm up before data collection begins. Follow the manufacturer's instructions or, if none are given, observe the data readings until they stabilize, typically 5 minutes will suffice.

6.7.1.3 Record Relative Sensor Positions

6.7.1.3.1 The purpose of recording relative sensor positions is to document relative navigation and sensor offsets, detector separation, and detector heights above the ground surface. This will ensure that detector offset corrections and can be done correctly and that the surveys are repeatable. Acceptance criteria of +/- 6 inches will be used.

6.7.1.4 Personnel Test

6.7.1.4.1 Personnel test will be conducted to ensure survey personnel have removed all potential interference sources from their "bodies". Common interference sources are ballpoint pens in the operator's pocket and steel-toed boots or large metallic belt buckles, which can produce data anomalies similar to OE targets. All personnel who will be coming within close proximity of the sensor during survey operations must approach the sensor and have a second person monitor and record the results. Acceptance criteria of EM61 +/- 2mV.

6.7.1.5 Vibration Test (Cable Shake)

6.7.1.5.1 The purpose of the vibration test is to identify and replace shorting cables and broken pin-outs on connectors. With the instrument held in a static position and collecting data, shake all cables to test for shorts and broken pin-outs. If shorts are found, the cable should be immediately repaired or replaced. After repair, cables need to be rigorously tested before use. If the Data Profile exhibits data spike responses, the malfunctioning equipment must be replaced.

6.7.1.6 Static Background and Static Standard Response (Spike) Test

6.7.1.6.1 To quantify instrument background readings, electronic drift, locate potential interference spikes in the time domain, and determine impulse response and repeatability of the instrument to a standard test item, the operator will conduct a static background and static standard response (spike) test. A minimum of three minutes static background collection after instrument warm-up, followed by a 1-minute standard (spike) test followed by a 1-minute static background data will be performed. A standard 2" diameter steel trailer ball (Uniball - available from U-haul) will be used for the EM-61. Improper instrument function, the presence of local sources of ambient noise (such as EM transmissions from high-voltage electric lines), and instability in the earth's magnetic field (as during a magnetic storm) are all potential causes of inconsistent, non-repeatable readings. The operator will monitor the readings to confirm their stability prior to continuing with the geophysical survey.

6.7.1.6.2 Acceptance Criteria: Static Background Test: EM61 +/- 2.5 mV.

6.7.1.6.3 Static Spike Test: EM61 +/- 20% of standard item response, after background correction.

6.7.1.7 Six Line Test

6.7.1.7.1 This test will be performed in an area relatively clear of anomalous response at least 100 ft in length. The test line will be well marked to facilitate data collection over the exact same line each time the test is performed. Background response over the test line is established in Lines 1 and 2. A standard test item, such as a steel trailer hitch ball or larger will be placed under the coil and be used for Lines 3 through 6. Repeatability of response amplitude, positional accuracy, and latency will be evaluated. ATI will use graphs with each line of the 6-line test plotted together on one graph to show results. Figure 6-3 shows the Six line Test. The acceptance criteria for this test are repeatability of response amplitude +/-20%, positional accuracy +/- 20cm.

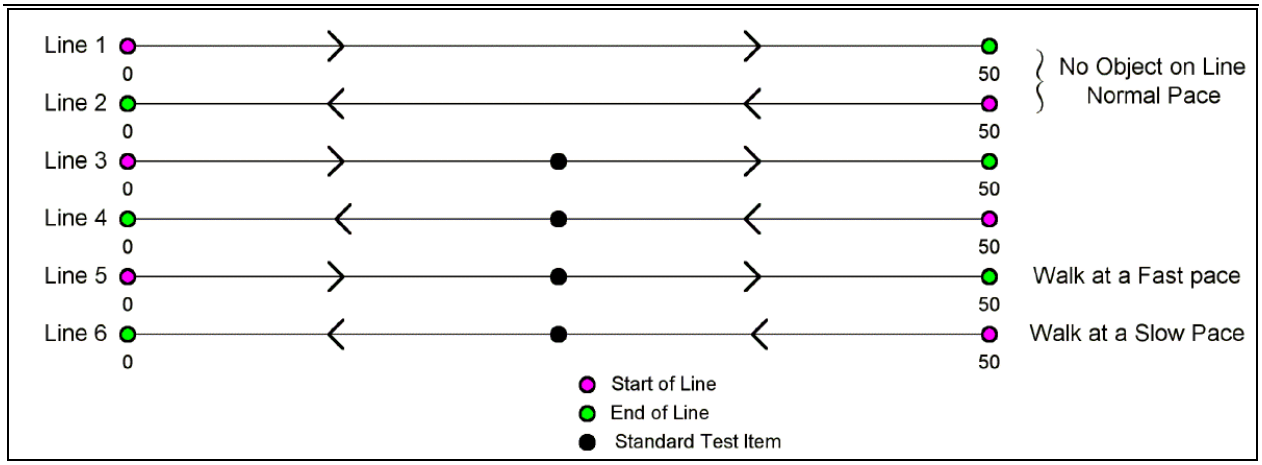


FIGURE 6-3: SIX LINE TEST

6.7.1.8 Repeat Data

6.7.1.8.1 To determine positional and geophysical data repeatability, the first line of each grid will be repeated after the survey.

6.7.1.8.2 When viewed in profile and compared to original data, repeat data provides a means of evaluating the ability of the instrument to respond consistently, and evaluates the positional accuracy of the data. Errors in positional repeatability outside acceptable tolerances indicate a problem in the method of navigation or navigational equipment operation. Errors outside acceptable tolerances for the amplitude repeatability response indicate a problem in the detector system or in the ability of the operator to perform an adequate survey. Repeatability of response amplitude +/-20%, positional accuracy +/- 20cm will be used.

6.7.2 Corrective Measures

6.7.2.1 In the event that the geophysical QC investigation indicates the presence of an OE item, ATI will intrusively investigate and remove the anomaly. If the anomaly constitutes a QC failure, the entire grid will be redone at no cost to the government. ATI shall investigate the cause of the failure, then provide full documentation to CEHNC/CESWF detailing what failed the QC process, why it failed, and how the problem was corrected.

6.8 RECORDS MANAGEMENT

6.8.1 All raw data files, final processed data files, hard copies, and field notes will be maintained for the duration of the project. ATI will transmit data to CEHNC/CESWF within 36 hour of collection. All raw files will be available to CEHNC/CESWF on-site representative for quality and/or control processing to assure the implemented field and data processing procedures within 24 hour of collection.

6.9 INTERIM REPORTING

6.9.1 Geophysical mapping data will be provided in accordance with DID OE-005-05.01. As soon as practical after collection, the geophysical field data shall be provided in delineated fields as x, y, z, v(1), v(2), etc., for delivery to CEHNC/CESWF. After completion of survey and processing activities, all final geophysical maps, dig-sheets and supporting geophysical interpretations shall be provided to CEHNC/CESWF by e-mail or an FTP site. Maps that display the geophysical anomalies with annotated, interpreted and identified physical features shall be delivered in .jpg compatible format.

6.10 MAP FORMAT

6.10.1 All Geophysical maps will be in accordance with DID OE-005-05.01 Attachment D.

6.11 GEOPHYSICAL INVESTIGATION GOALS

6.11.1 The geophysical investigation goal is to provide a defendable data set in support of the removal action at Five Points Outlying Field by May 7, 2004.

6.12 OE DETECTION

6.12.1 The primary geophysical data processing and interpretation softwares will be: Oasis Montaj® (Geosoft®) with the UX-Detect extension for the EM-61. A threshold cutoff magnitude was determined by the GPO at 5 mV, but may be re-evaluated as reacquisition and excavation data returns from the project to the Geophysics Manager. Completed Dig Sheets will be analyzed to revise the threshold cut-off values throughout the length of the project with CEHNC/CESWF's approval. Maximum depth of detection is calculated as:

6.12.2 The Estimated Detection Depth (meters) = 11*diameter (mm) / 1000

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7 LOCATION SURVEYS AND MAPPING PLAN

7.1 GENERAL

7.1.1 Site Specific Requirements

7.1.1.1 In accordance with the SOW and DID OE-005-07.01, this chapter describes the survey techniques, which ATI will utilize to perform the OE Removal Action (RA) at Five Points Outlying Field, Arlington, Texas.

7.1.1.2 ATI will conduct a Removal Action on the approximately 162 acre site.

7.1.1.3 As necessary, surveying of the monuments and test plots has been performed by J. B. Davies Engineers and Surveyors of Fort Worth, Texas. Additional surveying will be performed as required, by J. B. Davies with a survey grade GPS unit and/or a Leica Total Station or any unit that can measure to the nearest ½ foot.

7.1.2 OE Safety Provisions

7.1.2.1 During fieldwork, ATI will use qualified UXO technicians to escort the survey crew.

7.1.2.2 The qualified UXO technicians will conduct visual surveys for surface ordnance. Prior to driving marking stakes in the area, the UXO escort will check the area using a Garret Sea Hunter or equivalent metal detector. The metal detectors will be checked against a MK 23 practice bomb (or item of similar size and mass) buried to a depth of one foot, on a daily basis to ensure the instrument is operating correctly.

7.1.3 Accuracy

7.1.3.1 J. B. Davies Engineers and Surveyors will establish horizontal and vertical control of "Class 1, Third Order" or better for all control monuments.

7.1.3.2 All coordinates will be in UTM and referenced to the North American Datum of 1983 (NAD83). J. B. Davies Engineers and Surveyors will certify all surveying requirements including all boundary points and internal grids (250m X 250m).

7.1.3.3 OE will be plotted to an accuracy of plus or minus one foot.

7.1.4 Plotting

7.1.4.1 All control points (i.e., boundary points), will be plotted on reproducible electronic maps at scales of 1:2400 (1" = 200'). Area maps of 100 acres will be provided and will show sheet breakdown for subsequent sheets required for the set.

7.1.5 Mapping

7.1.5.1 Maps shall be produced in accordance with the DID OE-005-007.01 for submission with the Removal Report.

7.1.5.2 The location, identification and coordinates of all control points recovered and/or established at the site shall be plotted on reproducible electronic format.

7.1.5.3 Each map will include a grid north, a true north, and a magnetic north arrow with the differences in degrees, minutes and seconds shown.

7.1.5.4 Grid lines or tic marks, with their values shown on the edge of map will be provided.

7.1.5.5 Grid corners, with appropriate UTM coordinates will be shown on the map. The coordinates for OE will be plotted to an accuracy of one foot.

7.2 DIGITAL DATA

7.2.1 General Design File Requirements

7.2.1.1 An overall planimetric design file will be created and digitized into a Microstation ".dgn" file if it is created in CADD at in accordance DID OE-005-007.01.

7.2.1.2 Sheet Sizing and Formatting. Each sheet shall be a standard metric A-1 size drawing. Each sheet shall have a standard border, revision block, title block, bar scale, legend, and grid lines or tic lay out in meters. Each sheet shall also contain a True North, a Magnetic North and a Grid North arrow.

7.2.1.3 Data Manual. All production and work files shall be fully documented into a concise data manual. The manual will be included as an ASCII file titled READ.ME and will be included with all distributed digital data.

7.2.1.4 All digital data will be compatible with the USACE Graphics System.

7.3 Digital Format for Survey/Mapping Data

7.3.1 All data will conform to the Spatial Data Standards for Facilities, Infastructure, and Environment (SDSFIE).

7.3.2 Sources and Standard: Deliverables will be designed so that they will interface with other surveying firms, Government contractors and customers so that the final product will be usable with consistent CADD documents.

7.3.3 Electronic Submittal: Data will be submitted on PC CD-ROM.

7.4 ITEMS AND DATA

7.4.1 Field Survey

7.4.1.1 ATI will provide, as required, original copies of all field books, grid layout sheets, computation sheets, abstracts, and computer printouts of the method used to establish grids and boundaries of the clearance activities for this project.

7.4.2 Control Point List

7.4.2.1 A tabulated list of all control points used for this survey shall be provided.

7.4.3 Aerial Photographs

7.4.3.1 There has been no task established for the taking of aerial photograph during activities under the SOW.

7.4.4 OE List

7.4.4.1 ATI shall provide a tabulated list of OE and ordnance related-scrap cleared.

7.4.5 Report on Establishment of Survey Mark

7.4.5.1 A report on establishment of Survey Marks will be provided for any monuments installed for this project. Reports shall be as per DID OE-005-07.01.

7.4.6 Drawings and Digital Data

7.4.6.1 Drawings and digital data shall be submitted, in accordance with DID OE-005-07.01 and the SOW, with the Removal Report.

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8 WORK, DATA AND COST MANAGEMENT PLAN

8.1 Work, Data, and Cost Management

8.1.1 Work Management

8.1.1.1 The SUXOS will be responsible for the day-to-day operations on-site. He will accomplish the tasks, outlined in the SOW, in a timely manner. The SUXOS' duties are outlined in Section 2, Technical Management Plan.

8.1.1.2 The site UXOQCS in the key person to insure management is conforming to established procedures and that work is completed in a timely manner. He will perform quality inspections of all work tasks as specified in Section 11, Quality Control Plan. Any nonconformance that cannot be immediately resolved on site will be elevated to the Project Manager and/or the Corporate Quality Manager.

8.1.2 Data Management

8.1.2.1 ATI will establish a data management system, which will provide data storage and transmission for the project. The digital data will be stored in database format on a secure server at ATI's Oak Ridge, TN Corporate Office. Data transmission will take place through a secure, restricted access web site, which will provide user-friendly real time access to all survey data. Immediately after the data is posted, interpreters and the CEHNC/CESWF will be notified by email that the data is available, and will be able to retrieve the data via the website. Interpretive results will also be posted as soon as they are completed. A visual tracking system will be posted on the web, which will indicate progress in the field, and what data is available. The website will be monitored on a daily basis. An archive copy of all data will be made on an as received basis. All data files can be retrieved on an as needed basis through custom queries on the web site by the ATI project team and the CEHNC/CESWF.

8.1.2.2 Data will be collected from various operations on the work site and recorded on computer disks, in logbooks and on the various ATI, ATF, and DoD forms. Records of the limits of the areas mapped, and cleared, the type and location of OE encountered, and the disposition of OE will be recorded. The forms, logs and disks will remain in the ATI site office while portions of the data will be copied and sent to the PM for inclusion in reports that need to be submitted.

8.1.2.3 All data, whether electronic or paper, will be reviewed by the site UXOQCS.

8.1.3 Schedule

8.1.3.1 ATI has prepared a Project Schedule in accordance with the SOW. This schedule is updated as necessary and shows due dates for deliverables.

8.1.4 Cost Control and Tracking

8.1.4.1 The PM and SUXOS will control and manage cost through the use of Purchase Orders and Travel Orders. A record of expenditures will be kept by the SUXOS and monitored by the PM. The PM will, using an Excel Cost Tracking Program, monitor man-hours and monies used.

8.1.5 Recurring Deliverables

8.1.5.1 A Monthly Status Report shall be forwarded to the Contracting Officer to arrive not later than the 10th calendar day of each month. The report will contain an OE Progress Summary and will include the status of all work completed during the previous month. The report will also contain Exposure Data required by EM 385-1-1, Section 01.D.04.

8.1.5.2 A Project Status Report will be submitted to the CEHNC Project Manager, the CEHNC TM, and the CESWF Project Manager to arrive on the first working day of each week. The report will be prepared in accordance with DID OE-085.01.

8.1.5.3 A Draft Removal Report shall be submitted to the government not later than 30 calendar days following completion of fieldwork.

8.1.5.4 A Final Removal Report shall be submitted to the government not later than 21 calendar days following receipt of comments from the Contracting Officer.

9 PROPERTY MANAGEMENT PLAN (NOT USED)

9.1.1 American Technologies, Inc. does not anticipate the use of Government Property during activities under this Task Order.

9.1.2 The requirement of this chapter does not apply.

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10 QUALITY CONTROL PLAN

10.1 QC Objectives

10.1.1 This section presents the project Quality Control Plan as required by the CEHNC/CESWF Scope of Work (SOW). The QC procedures described in this section will be used for all work performed during the Explosives Removal Action at the Five Points Outlying Field, Arlington, Texas. This site-specific QC plan is designed to manage, control, and document performance of work efforts in accordance with the CEHNC/CESWF SOW to ensure quality throughout the execution of the tasks described therein. This QC Plan will achieve the following objectives.

- Identify QC procedures and responsibilities for OE removal actions.
- Ensure CEHNC/CESWF notifications as required by the CEHNC/CESWF SOW.
- Document the quality of work efforts via audits and independent staff reviews of deliverables.
- Ensure data integrity through implementation of data management QC procedures.
- Ensure the development of an appropriate ordnance accountability ledger and appropriate OE chain of custody and disposal.

10.1.2 QC Responsibility

10.1.2.1 ATI is solely responsible for the control of product quality. Only those products/services that conform to contractual requirements will be offered to the Government for acceptance.

10.1.3 Quality Management

10.1.3.1 The Project Manager has the responsibility of ensuring that QC procedures are implemented in accordance with the CEHNC/CESWF Scope of Work.

10.1.3.2 The ATI Quality Manager will provide the Quality Management oversight for the project. The Quality Manager is a part of the project team, but is authorized to elevate any quality problems that cannot be resolved by the project team. The Quality Manager interacts with the Project Manager, Senior UXO Supervisor, UXOQC Specialist, subcontractor QC staff, as appropriate, and CEHNC QA personnel to prevent and/or correct problem situations, as necessary. Vendors and subcontractors will be monitored to assure that they supply items and services, which meet ATI's Quality Assurance requirements. Periodic audits will be performed to verify that the quality system and the UXOQC Specialist are performing as required. He also ensures that:

- Required site training is conducted prior to the start of field activities.
- The UXOQC Specialist is qualified and trained.

- Quality controls are built into the Project Work Plan to support the OE removal action.
- The requirements of the Quality Control Plan are adhered to.

10.1.3.3 Effective day-to-day field QC management is delegated to the on-site ATI UXOQC Specialist. He will interact daily with the project team to ensure that all QC procedures presented in the Project Work Plan are followed in the accomplishment of all project tasks. The UXOQC Specialists reports directly to the ATI Quality Manager. Scheduled activities are coordinated with the Project Manager, Senior UXO Supervisor, ATI Health and Safety Manager, and all other project team members as needed. He has the authority to:

- Initiate action to prevent the occurrence of nonconformances relating to the provided services.
- Identify and record any problems relating to the services.
- Initiate, recommend or provide solutions through the on-site management channel.
- Verify the implementation of solutions.
- Control further actions of any nonconforming services until the unsatisfactory conditions have been corrected.
- Elevate quality concerns, which cannot be resolved on-site to the Quality Manager.

10.1.3.4 All project team members are responsible for and will be held accountable for the quality of their work. Every team member has Stop-Work-Authority when an immediate safety situation is observed which could cause personal injury or damage to property and equipment. All project team members are encouraged to identify potential quality problems and are encouraged to suggest solutions or corrective actions to ensure all work conforms to the approved work plan and Quality Assurance requirements. During site-specific training, personnel will be briefed by the Quality Manager or the UXOQC Specialist, on the importance of quality work and the above stated requirements. This briefing is aimed at insuring that all site personnel understand ATI's dedication to quality.

10.2 QC Plan Processes

10.2.1 This section documents the processes affecting quality. These are essential steps to ensure a quality product is delivered to the Government.

10.2.2 Specific Procedures. Described below are the specific procedures that will be used to assure quality in this SOW regarding; Audits, Corrective/Preventive Action, Data Management, Anomaly Acquisition and Reacquisition, Field Operations, Equipment Calibration and Maintenance, and Personnel Protective Equipment

10.2.2.1 Scheduled Audits

10.2.2.1.1 Periodic audits will be performed by the ATI Quality Manager to ensure that the requirements of this Quality Plan are being followed. This may include on-site visits as well as frequent document review activities. Training records, periodic reports, and adherence to all aspects of this QC Plan will be monitored to assure compliance.

10.2.2.2 Daily QC Audits

10.2.2.2.1 All instruments, vehicles/machinery, and equipment will be checked prior to the start of each workday, batteries will be replaced as needed, and instruments requiring calibration will be checked against a known source. Schonstedt magnetometers will be checked against a MK23 practice bomb (or item of similar size and mass) buried to a depth of one foot. The UXOQC Specialist is responsible for ensuring that personnel accomplish all QC checks and that the appropriate logbook entries are made. The UXOQC Specialist performs random, unscheduled Quality Conformance Inspections (QCI) to ensure that personnel accomplish all work specified in the Project Work Plan. The QCI Schedule will adhere to Table 10-1. The UXOQC Specialist has the latitude to modify this schedule based on the quality of work being performed and the frequency of noted activities.

QCI Schedule
Table 10-1

TASK	100%	DAILY	WEEKLY	BI-WEEKLY	AS NEEDED
Personnel Qualifications	✓				
Accident/Incident Reporting	✓				
Search Effectiveness	✓				
Turn-in of Recovered Ordnance Related Scrap		✓			
Preventive Maintenance		✓			
Communications Equipment Inspection		✓			
Safety Inspections			✓		
Medical Support			✓		
Communications Effectiveness			✓		
Explosives Storage & Accountability			✓		
Explosives – UXO/OE Transportation			✓		
Physical Security (After hours)			✓		
Surveying and Mapping			✓		
Brush – Vegetation Removal			✓		
Geophysical Detection Operations			✓		
Excavation Activities			✓		
UXO/OE Final Disposal			✓		
UXO/OE Accountability			✓		
Fire Protection – Prevention			✓		
Project Administration			✓		
Safety and Health Programs				✓	
Management of ATI Property				✓	
Management of Government Furnished Property				✓	
Conservation of Utilities				✓	
Environmental – Cultural – Historical Resources Practices				✓	
Current status of WP/SSHP				✓	
Re-inspection of completed grids due to adverse weather conditions					✓
Visitor Briefing					✓
Site – Specific Training					✓
Hazard Assessment – Risk Analysis					✓

10.2.3 Quality Assurance/Quality Control (QA/QC) Standards

10.2.3.1 Intrusive Investigation

10.2.3.1.1 Any UXO or UXO-like item meeting or exceeding the dimensions of a MK23 (approximately 200mm x 50mm) found during Government QA activities will be considered a failure for the area being inspected.

10.2.3.1.2 Every grid will under go a Search Effectiveness QC Inspection (SE QCI) involving a minimum of 10% of the square footage. The exact location of this square footage is at the discretion of the UXOQC Specialist. The location of the SE QCI will be documented on the QCI record.

10.2.3.2 QC Files

10.2.3.2.1 The following two files will be established and maintained by the UXOQC Specialist.

- QCI Record File
- Customer Action Request (CAR) File

10.2.3.2.2 The QCI Record File will be a two-part file containing Active and Inactive Sub-files.

- The Inactive Sub-file will contain those QCIR for tasks that were found to be in compliance with the Work Plan and those that were not in compliance, but have been re-inspected and found to have been corrected.
- The Active Sub-file will contain those QCIR for tasks that were found to be not in compliance with the Work Plan and have not yet been corrected.

10.2.3.2.3 The CAR File will be a two-part file containing an Active Sub-file and an Inactive Sub-file. A CAR will be maintained in the Active File until follow-up has been conducted and deemed satisfactory. Once the follow-up is completed, the CAR will be placed in the Inactive File.

10.2.3.3 Corrective/Preventative Action

- Nonconformances will be documented on a Quality Conformance Inspection Record (QCIR). The QCIR will document the reason for the nonconformance and describe the corrective actions taken to resolve the problem and the actions taken to prevent reoccurrence. QCI are generally intended to be preventative, rather than corrective in nature. Through preventative QCI, continuous improvement of site operations will occur.
- The QCIR may be legibly hand completed, in ink, but the preferred method is via computer (Word) on the site.
- A QCIR will be completed for tasks when they are in conformance with the Work Plan. QCIRs for conforming tasks will not generally be distributed off the project site.

- A QCIR will be completed for tasks when they do not conform to the Work Plan. Nonconformance QCIRs will be forwarded by facsimile or email to the Project Manager and the ATI Quality Manager.
- A QCIR will be completed for re-inspection of non-conformances. If the re-inspection indicates that the nonconformance has been corrected, both QCIRs will be filed in the Inactive Sub-file and a copy of the re-inspection QCIR will be forwarded to the Project Manager and the ATI Quality Manager. If the re-inspection indicates the nonconformance has NOT been corrected, both QCIRs will be filed in the Active Sub-file. A copy of the re-inspection QCIR will be forwarded to the Project Manager and the ATI Quality Manager.
- Non-conformances will be evaluated immediately and corrective action implemented immediately by on-site management whenever possible. The Project Manager and ATI Quality Manager will track all non-conformances to assure that they have been resolved, actions to prevent re-occurrence have been implemented and that lessons learned are communicated effectively.

10.2.3.4 Customer Complaints

10.2.3.4.1 Customer complaints will be addressed immediately. The complaint may come in the form of a verbal comment, written correspondence, or a HND Form 948, etc. Whatever the vehicle, the ATI Project Manager will conduct an investigation to analyze the complaint and assure corrective action has been initiated. The corrective action will address not only the root cause but also the application of controls to assure its effectiveness.

- The Project Manager will utilize ATI Form 5, Customer Action Request (CAR) to document the complaint or nonconformance and the investigation.
- The Project Manager will look for the root cause.
- Lessons Learned will be documented on the CAR and communicated to Project personnel and the ATI QA Manager.
- The action on the CAR is not complete until the UXOQC Specialist and/or SUXOS have completed follow-up. The corrective/preventative actions have to be adequate to prevent reoccurrence and the customer must be satisfied with these actions.
- The issue addressed in the CAR will be an item for a future QCI to ensure that the corrective/preventative actions have in fact addressed the issue and the solution was effective.

10.2.3.5 Document Control and Data Management

10.2.3.5.1 Rigid control must be maintained over the production of QC documents. The following guidelines will apply to all documentation generated by QC staff:

10.2.3.6 Document Completion

- All sections of forms shall be completed. Any unused spaces will be marked N/A. In long columns of empty lines, N/A may be written in the first and last lines of that column with a single line connecting the entries. Large areas of unused spaces may be designated N/A by drawing a single line through the unused areas with the letters N and A on either side of that line.
- Time and date formats: To eliminate misunderstanding, the following formats will be used on all official reports and correspondence:
    - Time: 24-hour
    - Examples: 0730H, 1930H
    - Date: MM/DD/YY
    - Examples: 04/05/01, 11/15/01
- All report work will be accomplished by word processor or with a BLACK ink pen. No pencils or colored-ink pens may be used.
- All signatures will be accompanied by the date the signature was made, either in a date block or with the date written following the signature.
- White opaque correction fluids/tape may not be applied to records to correct mistakes.
- Incorrect entries shall be drawn through with a single line with the initials of the author and the date of the correction immediately adjacent. Corrected entries will be placed above or immediately following the line through or otherwise entered on the document in legible, understandable means.
- Any entries or corrections to a document, other than in document control blocks, made after its date of inception, shall be considered a “late entry”. Late entries will be clearly designated with the capital letters “LE”, the initials of the person making the late entry, and the date the late entry is made.
- Any impressions made on an official document with rubber stamps shall be inked with an intense red ink. The red ink will indicate that the sheet is an original, but standard photocopiers will reproduce the red ink as black.
- A Field Document Control Log shall be maintained for all inspection records generated. Each document will be registered in the logbook and assigned a registration number from the log, which will be inscribed on each page of the original document.

10.2.3.7 Data Management

10.2.3.7.1 Electronic data and records will be managed to prevent accidental loss of information. All data will be backed up periodically and data will not be stored only on one single media. Floppy disks, Zip disks, CDs or other means of storage will be used in addition to standard computer hard drives to assure data is not lost by the failure of any one device. Since conventional Document Control Practices do not always lend themselves to electronic records, the following additional guidelines will be followed for all electronic QC records.

- Once an electronic record is completed and saved to disk, the file name will be used as the registration number for that document and shall appear on each page of the electronic record such that it also appears on printed copies. This file name will be entered in the Field Document Control Log as that documents registration number.
- Changes, additions, late entries and corrections to completed electronic records will be accomplished by creating a revision to the previously completed record. Included in the file name of the completed record will be the sequential revision number of that record. The first such revision of any record will be designated as R1 at the end of the file name. Subsequent revisions will be designated R2, R3, etc.
- The original Record will not be deleted electronically, and each revised record will include a description of the changes made on that particular revision as well as retaining the description of any previous revisions.
- Any document that is revised after any required distribution either off-site or to any electronic or hard copy file will be likewise distributed to all recipients as the original document. The revision will be filed along with the original and any previous revisions.
- Electronic forms, which require signatures, will be printed, and the printed original signed and dated in black ink as required. The words “signature on file” shall be entered on the electronic copy, in the signature space, of all documents requiring signatures. The signed original will be filed in the proper location. Subsequent revisions to forms requiring signatures will also be printed, signed and filed.
- Logs maintained electronically may be updated as required for daily activities without going through the above revision process. Each daily log, however shall be saved electronically with the date included in the file name. Previous logs will not be deleted from the database and will serve as additional back up should the current log be damaged or lost.

10.2.3.8 Photographic Records

10.2.3.8.1 Photographic records will be maintained by site personnel in accordance with the CEHNC/CESWF SOW. Photographs and videotape will be utilized to document

significant site activities, the locations of ordnance occurrence before and after it is cleared. Locations, along with orientations of picture/videos shall be indicated on a map. OE discoveries may be documented by color prints. Photographic records may be used to supplement information recorded in the daily logs, to include photographs of equipment prior to use, and the condition of the site prior to any activity. Photographs and videos should clearly show the task being accomplished and provide for a visual record of the operations. Operations are to be staged. Photographic records should be taken during normal conduct of the operations. These photographic records will be included in the Final Report.

10.2.3.9 Logs and Reports

10.2.3.9.1 Field activity logbooks will be maintained in ink. All personnel will use bound and numbered field logbooks with consecutively numbered pages. These logbooks are QA records and will be completed in accordance with this section of this QC Plan. These activity logbooks will become part of the Final Report; thus, it is imperative that they be completed clearly and legibly. Appropriate documentation will be maintained regarding the location and disposition of all OE and ordnance-related scrap. Locations will be documented on a site map and entered in the Ordnance Accountability Log. Daily and Weekly Summary Reports will be prepared by the UXOQC Specialist and forwarded via facsimile or email to the Project Manager on a timely basis.

10.2.3.9.2 Daily Activity Log

10.2.3.9.2.1 Daily Activity Logs will be maintained and will include the following:

- Date and recorder of field information
- Start and end time of work activities including lunch and down time
- Visitors
- Weather conditions
- Important telephone calls
- Any deviations form planned activities
- Equipment checks and calibrations
- Equipment monitoring results, if applicable
- QCI Performed
- Nonconforming conditions
- Lessons Learned
- Signatures of the Senior UXO Supervisor and UXOQC Specialist indicating concurrence

10.2.3.9.3 Safety Log

10.2.3.9.3.1 Safety Logs will include the following:

- Date and recorder of log
- Significant site events relating to safety
- Accidents
- Stop Work due to safety concerns
- Lessons Learned
- Safety Audits
- Signatures of the Senior UXO Supervisor and UXOQC Specialist indicating concurrence

10.2.3.9.4 Training Log

10.2.3.9.4.1 Training will be documented in the Training Log as follows:

- Date and recorder of log
- Nature of training
- Tailgate safety briefings (including time conducted, person conducting the briefing and attendees)
- Visitor Training (including names of visitors, description of training, and person performing training)
- Signatures of the Senior UXO Supervisor and UXOQC Specialist indicating concurrence

10.2.3.9.5 Ordnance Accountability Log

10.2.3.9.5.1 The Ordnance Accountability Log will include:

- Date and recorder of log
- Assigned Identification Number
- Type, condition and location
- Disposition
- Signatures of the Senior UXO Supervisor and UXOQC Specialist indicating concurrence

10.2.3.9.6 Field Office/Communications

10.2.3.9.6.1 Field QC Procedures will include establishing field office entry requirements and communication protocols. All official ATI visitors will report to the Senior UXO Supervisor and/or the UXOQC Specialist to sign in, receive a safety briefing/training and obtain an escort within the project site. ALL visitors will be announced to the site via 2-way radio or verbally. All internal communications will be by Motorola MTX portable radios or equivalent (radios will NOT be operated within 10 feet of electric blasting caps or firing circuits). All official external communications shall be via cellular telephone, landline, or in some case email.

10.2.4 Lessons Learned

10.2.4.1 Lessons learned from day to day activities are an important part of the continuous improvement process. They can prove vital to prevent similar problems from occurring at other sites. Lessons learned from daily activities and from the occurrence of nonconforming conditions will be documented by the UXOQC Specialist and/or the Senior UXO Supervisor, as appropriate. Lessons Learned as a result of nonconforming conditions are captured and documented on the QCIR as a result of its investigation and disposition. Other Lessons Learned, from both positive and negative events will be documented in the Daily Activity Log and/or Safety Log. These items will be included in the Final Report. The ATI Quality Manager will maintain a database of Lessons Learned for communication to other sites and for incorporation into Training Requirements.

10.2.5 Reviews and Approvals

10.2.5.1 All contract submittals (reports, work plans, etc.) undergo review by various ATI personnel to ensure that they meet contract requirements prior to being submitted to the Government for acceptance. This review will include, but is not limited to the Project Manager and the ATI Quality Manager. Work Plans and Reports are checked against the SOW and applicable Data Item Descriptions to assure they are in conformance. Changes to approved documents will undergo the same review process as the original document and will be communicated to all personnel affected by the revision.

10.2.6 Training

10.2.6.1 The Project Manager will verify that all project personnel have completed the following training prior to their assignment:

- US Naval Explosive Ordnance Disposal, Indian Head, Maryland / Eglin AFB, FL or EOD Assistance Course, Redstone Arsenal, AL / Eglin AFB, FL or other DoD Certified Equivalent Course.
- OSHA 40 Hour HAZWOPER in accordance with 29CFR1910.120 and 8 hour refreshers as need.
- Current Physical Examination

10.2.6.2 Personnel without a CEHNC UXO# will be submitted to CEHNC/CESWF for approval prior to assignment

10.2.6.3 Site Specific Training on this WP and additional training, as needed, will be performed and documented on a QCIR, which will be forwarded to the Project Manager for review.

10.2.6.4 Safety Meetings will also be documented. The UXOQC Specialist will ensure that all personnel using geophysical detection equipment are properly trained to use that piece of equipment. This may include verification of past experience as well as on-site training on using specific equipment in site-specific conditions, which will be documented on a QCIR and forwarded to the Project Manager.

10.2.6.5 The UXOQC Specialist will conduct, as necessary, site-specific training and/or review of known OE to ensure that all site personnel are thoroughly familiar with the hazards and the general safety precautions and procedures required. Contractor personnel and site visitors will also receive site-specific training and safety briefings, as required, to ensure safety on the project. Visitors must be briefed on all of the known or anticipated hazards of the site, required PPE to be worn while on the site, and site emergency procedures. Visitors will be escorted by a UXO qualified person whenever they enter the exclusion zone and all UXO operations will cease whenever a visitor is within the exclusion zone.

10.2.7 Chemical Quality Data Management (CQDM)

10.2.7.1 No Hazardous, Toxic and Radiological Waste (HTRW) or Chemical Warfare Materials (CWM) is expected at this site per the CEHNC/CESWF SOW, therefore a CQDM sub-plan is not applicable.

10.3 QC Documentation Submittal

10.3.1 All QC documentation required by this Work Plan will be submitted as part of or as supporting documentation for the Final Report.

10.4 QC Record Retention

All original QC Records and documentation will be maintained on-site and made available for government inspection upon request.

11 ENVIRONMENTAL PROTECTION

11.1 Site Characterization and Mitigation Approach

11.1.1 This Environmental Protection Plan is a site specific plan that describes ATI's methods and procedures during site activities to minimize pollution, protect and preserve natural resources, and control noise and dust within reasonable limits. ATI's goal is to complete the scope of work on schedule and without a safety incident or environmental incident. ATI will achieve this goal through careful planning, training, supervision and quality control related to all aspects of the project.

11.1.2 The project site work and restoration (as required) will be performed in accordance with applicable regulations, guidance and procedures and in coordination with appropriate officials and agencies.

11.1.3 ATI will perform a sub-surface clearance of the available portion, approximately 162 acres of the Former Five Points Outlying Field, Arlington, Texas.

11.2 Existing Conditions Survey

11.2.1 The SUXOS and the Contracting Officer's Representative, or other on-site government inspection personnel, will make a joint existing conditions survey prior to beginning fieldwork. The purpose of the survey is to identify areas within the project site where proposed work may have a negative environmental impact. Sensitive areas will be identified and marked. Workers will be given instructions on the activities that can and cannot be performed in these areas.

11.3 Potential Environmental Resource Impact

11.3.1 Endangered / Threatened Species within the Project Site

11.3.1.1 There are a number of threatened, endangered or sensitive species that may exist in the vicinity of the Five Points Outlying Field. The Interior Least Tern is an endangered species that may forage and possibly nest in the area. Other federal and state listed threatened or endangered species include: Whooping Crane, Black Tailed Prairie Dog, and the Bald Eagle. The removal action is a sub-surface clearance and involves primarily intrusive activities, but these activities are not likely to impact endangered or threatened species or their habitat. Employees working on the site will receive awareness training and will be instructed to report any potential sighting of these species.

11.3.2 Wetlands

11.3.2.1 There are no wetlands within the project site.

11.3.3 Cultural, Archaeological, and Water Resources within the Project Area

11.3.3.1 Although there may be cultural and archaeological resources in or near the project site there are no known sites within the project area. Employees will be made aware of any known cultural and archaeological sites and instructed to avoid them. If an item is discovered during work activities that may be culturally or archaeologically significant, its location will be noted and ATI will notify the USACE Fort Worth.

11.3.4 Coastal Zones within the Project Site

11.3.4.1 There are no costal zones within the project site.

11.3.5 Trees and Shrubs that will be removed within the Project Site

11.3.5.1 Vegetation removal may be required under the scope of work associated with this project. The vegetation on-site consists mostly of residential lawns and gardens with natural vegetation along the southern boundary of the work area. Removal of vegetation will only be done if no other alternative exists and will be to the smallest extent necessary to complete the project.

11.3.6 Existing Waste Disposal Sites within the Project Site

11.3.6.1 There are no active waste disposal sites within the project site. The site was used for military training activities during World War II to include the development of gravel runways. The site was later used as a practice bombing range for aircraft from NAS Dallas. Any ordnance related scrap recovered at the project site will be controlled, handled and accounted for in accordance with the procedures describe in this work plan.

11.4 Mitigating Procedures

11.4.1 Manifesting, Transportation, and Disposal of Waste

11.4.1.1 The only significant waste generated during this project will be MK23 practice bomb, M-38 practice bomb, and sand or water filled M-47 bomb, and ordnance related scrap recovered during the sub-surface clearance. Any item expected to contain a potential hazard will be properly packaged and transported to Clean Harbors Environmental Services, Inc., Colfax, Louisiana for inerting and disposal. Qualified UXO technicians will perform a 100% inspection of ordnance-related scrap and complete a DD Form 1348-1A, in accordance with the Defense Utilization and Disposal Manual. DOD 4160-M. The scrap certification will contain the following statement:

"This certifies and verifies that the AEDA residue, range residue, OE scrap and/or Explosive Contaminated property listed has been 100 percent inspected and to the best of our knowledge and belief, are inert and/or free of explosives or related material."

11.4.1.2 All certified scrap and residue will be turned over to Alter Trading Corporation, a scrap dealer located in St. Louis, Missouri. The scrap dealer has provided a statement that the material will be processed through a smelter and therefore making it unrecognizable. This certification is presented in Chapter 2 of this Work Plan.

11.4.1.3 Other non-hazardous solid waste generated as a result of activities associated with this project will be transported to and disposed of in a municipal landfill. No tracking or manifesting of this type of waste is required.

11.4.2 Burning Activities

11.4.2.1 There are no burning activities associated with this project.

11.4.3 Dust and Emission Control

11.4.3.1 No heavy equipment is required on this project. The Five Points OLF is now a residential area with most driving surfaces being paved. Vehicles will be used on a limited basis during this project. ATI will also limit the operation of vehicles off-road to the extent practicable, and avoid creating high traffic areas. All vehicles will be operated at low rate of speed within the project area to reduce the dust emitted. Dust emissions will also be controlled through the use of administrative controls, such as varied traffic patterns.

11.4.4 Spill Control and Prevention

11.4.4.1 Vehicles will be fueled at commercial filling stations that are designed to prevent and control potential spills. Little to no brush removal is anticipated and will be performed by a local subcontractor; therefore the storage of fuel on site is not required.

11.4.4.2 Storage Areas and Temporary Facilities

11.4.4.3 There are no temporary facilities required. Scrap collected during the removal action will be removed from the grid and transferred to a central storage location, where it will be secured until it is turned over to a scrap dealer.

11.4.5 Access Routes

11.4.5.1 ATI does not anticipate the need to construct access routes. The site will be accessed from existing roads. Any off-road routes will be modified and / or varied to prevent erosion and / or dust problems.

11.4.6 Trees and Shrubs Protection and Restoration

11.4.6.1 ATI's sub-surface clearance may affect trees or shrubs during the performance of work associated with this removal action. Any disruption to local vegetation will be to the minimum extent necessary to complete the project and will be conducted in accordance with chapter 2 of this work plan.

11.4.7 Control of Water Run-on and Run-off

11.4.7.1 There are no anticipated concerns with run-on or run-off on the site.

11.4.8 Decontamination and Disposal of Equipment

11.4.8.1 At the completion of the project and during the project, as required, equipment will be cleaned to remove dirt and dust. Methods will include both dry decontamination and wet decontamination. Wet methods will be preformed in an approved location or wash facility. Disposable equipment will not be decontaminated. It will be transferred to an appropriate disposal facility.

11.4.9 Minimizing Areas of Disturbance

11.4.9.1 The work required by the scope is intrusive and may cause disturbance in the work area. ATI will always utilize work techniques to minimize these disturbances. Such as only working in areas defined by the SOW, backfilling all digs, and replacement of original sod after a dig.

11.5 Post-Activity Clean-up

11.5.1 After completing the removal action, the SUXOS will be responsible to insure that all areas included in the scope are properly cleaned up. No debris will be left as a result of ATI's activities on the site. Facilities used by ATI will be cleaned and restored to their original condition.

11.6 Air Monitoring

11.6.1 The requirements and methods of monitoring are described in Appendix D, Site Safety and Health Plan of this work plan. No air monitoring requirements are anticipated during the work associated with this removal action.

12 INVESTIGATIVE DERIVED WASTE PLAN

12.1 In accordance with the Scope of Work, the Investigative Derived Waste Plan is not required by the Task Order.

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13 GEOGRAPHICAL INFORMATION SYSTEM PLAN

13.1 General

13.1.1 ATI will develop and maintain a GIS for the life cycle of this project. The Geographical Information System Plan will be developed in accordance with DID OE-005-14.01.

13.1.1.1 All spatial data shall conform to the CADD/GIS Technology Center Spatial Data Standards (SDSIF). All OE related spatial data will conform to the USACE OE-GIS standards. Federal Geographic Data Committee (FGDC) standards will apply only to the core spatial data layers, which are defined as part of the USACE OE-GIS standards as outlined in this task order.

13.1.2 Sources and Standard

13.1.2.1 The developed GIS deliverables for this task order comply with the standard for GIS implementation at Department of Defense installations and Army Corps of Engineers Civil Works activities. This provides a GIS implementation scheme for approved Federal Geographic Data Committee (FGDC) Data Standards, to provide a "nonproprietary" standard designed for use with commercially available "off-the shelf" CADD, GIS, and relational database software, and to provide a de facto standard for GIS implementation in other Federal, State, and local government organizations, public utilities, and private industry.

13.2 Geographic Information Systems (GIS) Incorporation

13.2.1 ATI will implement the USACE OE-GIS standards, SDSIF standards, and the FGDC metadata standards to all core spatial data entered into the project specific GIS, and apply it to the project to the extent required to create the products outlined in the specific task order SOW. The standard will be used as a starting point to load data and to create a GIS tailored for this task. All GIS data will be created, modified, and updated using ESRI ArcGIS ArcView 8.3 software and other ESRI ArcGIS software or extensions. The main purpose of the project-specific GIS is to assemble all the data required to associate the intrusive and non-intrusive subsurface geophysics investigative data to its correct geographical location and data that is associated with the investigation including relational databases, mapping, and remote sensing data. Soil sampling location and analysis data will also be included in the GIS data. GIS technology is used to manage the project, assemble data for the administrative record, help determine areas requiring further investigation, and to discriminate OE from background anomalies. A program that uses a subset of the GIS data does the discrimination between background anomalies and OE items.

13.2.2 All final versions of the project specific spatial data will conform to the SDTS format in an ESRI shape file and or an ESRI geo-database. All imagery (such as ortho-photography, remote sensing, data, and satellite-photography) will be provided in either Tagged Image File Format (TIFF) or Lizardtech MrSID encoded image format.

13.2.3 Tabular data supporting the site-specific GIS will be developed, converted, and or maintained in Microsoft Access format throughout the life cycle of the project. GIS will be created, managed and updated throughout the life cycle of the project.

13.2.4 Existing non OE spatial data will be gathered by the GIS Specialist from past USACE projects and or State run GIS clearing houses to aid in created a solid base map for the project area. Spatial data to be added are structures, property boundaries, utility lines, and road layers. These layers will aid in navigation to and definition of work areas. Additionally the layers will display obstacles to the removal progress. Grid design will be submitted to the GIS Specialist from the surveyor to be added into the GIS. Next, Geophysical survey data will be uploaded to procommander.com for pick up by the GIS Specialist. The Geophysical data (anomaly information, dig sheets, grid data, imagery, etc.) will be formatted to the OE-GIS and the SDSIF standards. FGDC metadata will also be created for the core OE-GIS data. Data will be posted on the Internet mapping portion of Procommander.com to track progress and findings. Maps are created for reports that relate to the project. A public website will be created to display project information and progress. The website will display the progress map from ATI's Procommander website, but will be edited for public viewing. The GIS Specialist will update the site as changes are received, and both sites will reflect the most up to date data. A final version of the GIS will be packaged to a CD for submittal to the USACE.

13.3 Computer Files

13.3.1 ATI will submit the GIS data in a format compatible to the ESRI ArcGIS (ArcView) system. All modeling files will be provided with the GIS data.

13.3.2 All final text files generated by this task will be furnished to USACE in MS Office 97 or higher software, IBM PC compatible format and in Adobe Portable Document Format (PDF), suitable for viewing, without modification, on the Internet. Freeware versions of Adobe Acrobat Reader, Netscape, and Internet Explorer will accompany the text files on CD-ROM, so that the user can use the CD to either install the programs and text files on a machine, or use the CD in a stand-alone mode to view the text files. The basic software supported to the field will be capable of operating on a typical single Intel Pentium processor PC utilizing the Windows NT Version 4.0 operating system with a minimum of 64 megabytes of memory and adequate disk storage for project data.

13.3.3 Selected GIS data, design drawings, survey data, relational databases and related data generated will be available on line to the government through ATI's Project Commander ® project collaboration website: www.procommander.com. Formal submittals for all GIS, survey and mapping data, and design drawings, generated for this task will be submitted in the proper format and media that will permit their loading, storage, and use without modification or additional software on the USACE GIS workstations.

14 INTERIM HOLDING FACILITY SITING PLAN FOR RCWM PROJECTS

14.1 Not Used

14.1.1 In accordance with the Scope of Work, the Interim Holding Facility Siting Plan for RCWM Projects is not required by the Task Order.

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15 PHYSICAL SECURITY PLAN FOR RCMW PROJECT SITES

15.1 Not Used

15.1.1 In accordance with the Scope of Work, the Physical Security Plan for RCWM Project Sites is not required by the Task Order.

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16 REFERENCES

- DOD Manual 4160.21.M, Defense Utilization and Disposal Manual.
- AR 200-1, Environmental Protection and Enhancement.
- AR 385-40 with USACE Supplement.
- AR 386-63, Policies and Procedures for Firing Ammunition for Training, Target Practice, and Combat.
- EM 385-1-1, CE Safety and Health Requirements Manual.
- DA PAM 385-64, Ammunition and Explosive Standards.
- EP 385-1-95a, Basic Safety Concepts and Considerations for Ordnance and Explosive Operations.
- DoD 6055.9 Std. DoD Ammunition and Explosive Safety Standards
- TM 60A 1-1-31, Explosive Ordnance Disposal Procedures
- National Contingency Plan, 40 CFR 300.
- Federal Acquisition Regulation, F.A.R. Clause 52.236-13: Accident Prevention.
- Occupational Safety and Health Administration (OSHA) General Industry Standards, 29 CFR 1910 and Construction Industry Standards, 29 CFR 1926
- DID OE-005-01.01 Removal Action Work Plan
- DID OE-005-02.01 Technical Management Plan
- DID OE-005-03.01 Explosives Management Plan
- DID OE-005-04.01 Explosives Siting Plan
- DID OE-005-05.05 Geophysical Investigation Plan
- DID OE-005-06.01 Site Safety and Health Plan
- DID OE-005-07.01 Location Surveys and Mapping Plan
- DID OE-005-08.01 Work, Data, and Cost Management Plan
- DID OE-005-11.01 Quality Control Plan
- DID OE-005-12.01 Environmental Protection Plan
- DID OE-15.01 Accident reports
- DID OE-025.01 Personnel and Work Standards
- DID OE-030.01 Site Specific Removal Report
- DID OE-045.01 Reports
- DID OE-055.01 Telephone Conversations
- DID OE-085.01 Weekly Status Report
- DID OE-080.01 Monthly Status Report

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17 APPENDICES

Appendix A	**Task Order Scope of Work**
Appendix B	**Site Maps**
Appendix C	**Local Points of Contact**
Appendix D	**Site Safety and Health Plan**
Appendix E	**Not Required**
Appendix F	**Contractor Forms**
Appendix G	**MSD Calculation Sheets**
Appendix H	**Resumes**
Appendix I	**GPO Plan and Report**
Appendix J	**Project Schedule**