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Time Critical Removal Action/Interim Measures Work Plan

**Surface Munitions of Explosives Concern at Munitions
Response Area-Live Impact Area, Munitions Response Sites
1 through 4, 6, 16, 17, and 30**

**Former Vieques Naval Training Range (VNTR)
Vieques, Puerto Rico**

Prepared for:

**Department of the Navy
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Acronyms and Abbreviations

AFWTF	Atlantic Fleet Weapons Training Facility
AMCOM	Army Aviation and Missile Command
amsl	Above Mean Sea Level
ATG	Air-to-Ground
BD	Base Detonating
BIP	Blow-in-Place
BRAC	Base Realignment and Closure
CAP	Corrective Action Plan
CCLI	Commerce Control List Items
CDC	Controlled Detonation Chamber
CERCLA	Comprehensive Environmental Response, Compensation and Liability
CLEAN	Comprehensive Long -Term Environmental Action Navy
CQC	Contractor Quality Control
CTO	Contract Task Order
CWM	Chemical Warfare Materiel
DDESB	Department of Defense Explosive Safety Board
DERP	Defense Environmental Restoration Program
DGM	Digital Geophysical Mapping
DMM	Discarded Military Munitions
DoD	Department of Defense
DOI	Department of Interior
DQO	Data Quality Objective
EBS	Environment Baseline Survey
ECA	Eastern Conservation Area
EHE	Explosive Hazard Evaluation
EIS	Environmental Impact Statement
EMA	Eastern Maneuver Area
EMM	Earth Moving Machinery
EOD	Explosive Ordnance Disposal
ERA	Expanded Range Assessment
ESS	Explosives Safety Submission
EZ	Exclusion Zone
°F	Degrees Fahrenheit
FAA	Federal Aviation Administration
FMFLANT	Fleet Marine Force, Atlantic
ft	feet/foot
FUDS	Formerly Used Defense Sites
GIS	Geographical Information System
GPO	Geophysical Prove-Out
GPS	Global Positioning System
HD	Hazard Division
HE	High Explosives
HTRW	Hazardous, Toxic, and Radioactive Waste
LIA	Live Impact Area
MC	Munitions Constituents
MD	Munitions Debris
MEC	Munitions and Explosives of Concern

MLI	Munitions List Items
mm	Millimeter
MPPEH	Material Potentially Presenting an Explosive Hazard
MR	Munitions Response
MRA	Munitions Response Area
MRS	Munitions Response Site
mV	Millivolts
NAD	North American Datum
NATO	North Atlantic Treaty Organization
NAVFAC	Naval Facilities Engineering Command
NEW	Net Explosive Weight
NGFS	Naval Gunfire Support
NOSSA	Naval Ordnance Safety and Security Activity
NOTAM	Notice to Airmen
OB/OD	Open Burn/Open Detonation
OE	Ordnance Explosives
OP	Observation Point
ORS	Ordnance-Related Scrap
OSHA	Occupational Safety and Health Administration
PLS	Professional Land Surveyor
PM	Project Manager
PRASA	Puerto Rico Aqueduct and Sewer Authority
PZ	Piezoelectric
QA	Quality Assurance
QC	Quality Control
QCP	Quality Control Plan
QRP	Qualified Recycling Program
RCRA	Resource Conservation and Recovery Act
RCWM	Recovered Chemical Warfare Materiel
RFA	RCRA Facility Assessment
RTK	Real Time Kinematic
SAM	Surface to Air Missile
SDS	Spatial Data Standards
SIA	Surface Impact Area
SOP	Standard Operating Procedure
SOW	Scope of Work
SSHP	Site Specific Health Plan
SUXOS	Senior UXO Supervisor
TCRA	Time Critical Removal Action
TSDS	Tri-Spatial Data Standards
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
UXO	Unexploded Ordnance
UXOQCS	UXO Quality Control Specialist
UXOSO	UXO Safety Officer
VNTR	Vieques Naval Training Range
WP	White Phosphorous

CHAPTER 1 - INTRODUCTION

1.1 General Information

1.1.1

This Time Critical Removal Action/Interim Measures (TCRA/IM) Work Plan for the removal of surface Munitions and Explosives of Concern (MEC) from Munitions Response Area-Live Impact Area (MRA-LIA) Munitions Response Sites (MRSs) 1, 2,3,4,6, 16, 17, and 30 at the former Vieques Naval Training Range (VNTR), Vieques Island, Puerto Rico (Figure 1-1), has been prepared as part of the ongoing Munitions Response Program in order to reduce risks to human health and the environment where trespassing frequently occurs. ADVENT prepared this work plan, based upon ADVENT's Statement of work (SOW) and CH2M HILL's Time Critical Removal Action/Interim Measures (TCRA/IM) Work Plan date January, 2005, for the Naval Facilities Engineering Command (NAVFAC) Atlantic to meet current Department of Defense (DoD) guidelines for the investigation and clean-up of MEC as referenced in Section 2.2.

1.1.2

The TCRA will be completed within the MRA-LIA (Figure 1-2) for an area of 207 acres (Figure 1-3) and is based on limited available funding. Areas inundated by water or areas with standing water will not be addressed as part of this removal action. The objective of the TCRA/IM is to reduce risks at MRSs identified as posing an explosive hazard due to MEC present on the ground surface. The primary risk is posed to unauthorized personnel accessing the areas identified on Figure 1-3. Access to the areas identified for removal is currently restricted; however, trespassing occurs regularly in these areas. The restrictions to these areas are currently not anticipated to be lifted. The objectives will be met by removing MEC present on the ground surface or exposed at the ground surface.

1.1.3

This TCRA is administered and managed by NAVFAC Atlantic with quality assurance (QA) support from the Resident Officer in Charge of Construction (ROICC) personnel at Naval Activity Puerto Rico (NAPR). The Title II Services contractor will support NAVFAC Atlantic by providing site management, QA support to the ROICC, contract administration, and data management. The removal action will be performed by ADVENT who is contracted directly by NAVFAC Atlantic. ADVENT will perform all MEC removal action operations, implement safety processes, perform quality control (QC), and will subcontract all support personnel as needed to carry out the removal action.

1.14

This Work Plan is intended to comply with the guidance for conducting TCRA's under the Comprehensive Environmental Restoration, Compensation, and Liability Act (CERCLA; USEPA, January 1993) and was prepared by ADVENT under Navy Contract N62470-03-D-9992 Task Order 002

1.2 Site Location

1.2.1 Former Vieques Naval Training Range (VNTR)

Vieques is located in the Caribbean Sea approximately 7 miles southeast of the eastern tip of the island of Puerto Rico and 20 miles southwest of St. Thomas, U.S. Virgin Islands. Vieques is the largest offshore island of the Commonwealth of Puerto Rico. It is approximately 20 miles long and 4.5 miles wide, and has an area of approximately 33,088 acres (51 square miles). Figure 1-1 shows the location of Vieques with respect to the island of Puerto Rico. The former VNTR is situated in the eastern half of the Island of Vieques, and is bordered on the west by the community of Isabel Segunda, to the north by Vieques Sound, and to the south by the Caribbean Sea. The former VNTR consist of approximately 14,500 acres and is divided operationally into four MRAs that (from west to east) include: the EMA, an area approximately 10,673 acres; the SIA, approximately 2,500 acres; the 900-acre Live Impact Area (LIA) and the 200-acre Eastern Conservation Area (ECA) on the easternmost tip of Vieques. Figure 1-4 presents a site map of VNTR.

1.2.2 Munitions Response Area—Live Impact Area

In 1965, ATG training activity began in the MRA-LIA where several mock-ups, such as old tanks and vehicles, were used as targets for aerial bombing. Since the mid-1970s, Naval gunfire was practiced at the MRA-LIA, where several point and area targets for ships were constructed. Locations of the ATG bombing targets and the naval gunfire targets in the MRA-LIA are shown on Figure 1-4. Based on the naval gunfire and ATG gunfire that occurred from the 1970s through 2003, the entire 900 acres of the LIA has been impacted by MEC.

1.2.3 Area for Performance of Time Critical Removal Action

A TCRA will be carried out at MRA-LIA MRSs 1 through 4, 6, 16, 17, and 30. These areas are identified on Figure 1-3. These MRSs have been selected based on the high explosive hazards associated with the munitions identified at these locations and due to the trespassing of recreational boaters in these areas from the north and south of the MRSs. Table 1-1 lists the MRSs where the TCRA will be performed and past use. Numerous different munitions items have been used at these sites and they include, but are not limited to: 5-inch/54-caliber (5"/54), 5"/38, 4.5"/38, 3"/50, MK-16 and Mk-84

bombs, and submunitions. Table 1-2 lists the recorded munitions used at the VNTR from the 1970s through 1990s.

TABLE 1-1

MRA-LIA MRSs Included in TCRA

Time Critical Removal Action/Interim Measures Work Plan, Vieques, Puerto Rico

MRS	Historical Use
1	SAM west-site, NGF target area
2	NGF target area
3	ATG targets
4	ATG targets
6	ATG targets
16	OB/OD site and ATG targets
17	OB/OD site and ATG targets
30	ATG targets

SAM - Surface-to-Air Missile, *NGF* - Naval Gunfire, *ATG* - Air-to-Ground, *OB/OD* - open burn/open detonation

TABLE 1-2

Munitions Items Reported to Have Been Fired at the Former VNTR
Time Critical Removal Action/Interim Measures Work Plan, Vieques, Puerto Rico

Royal Navy 4.5-Inch (HE)
3-Inch/50 (HE)
5-Inch/38 (HE)
5-Inch/54 (HE & TP)
16-Inch/50 (HE & TP)
81mm Mortar (WP) (Simulate Counter-Battery Fire)
MK 80-series Bombs (HE, TP, & Inert)
MK 118 Sub-munitions (HEAT & Inert)
MK 77 Sub-munitions (HEDP)
BLU-97 Sub-munitions (HEAT)
BLU-63/86 Sub-munitions(HE)
AGM 114 HELLFIRE Missile (HEAT)
2.75" and 5" Rockets (HE, WP, & Inert)
20/25/27/30mm A/C Ammo (HE & TP)
MK 76 & BDU 33 Practice Bombs
M-47 DRAGON Missile (HEAT)
AT4 Missile (HEAT)
LAW Rocket (HEAT)
SMAW Rocket (HE & HEAT)
60/81/107mm Mortars (HE & WP)
105/155/175mm & 8-Inch Projectiles (HE)
40mm Projected Grenades (HE & HEDP)
Hand Grenades (HE & Smoke)

1.3 Site History**1.3.1**

The Navy has owned portions of Vieques since 1941, when land was purchased for use as ammunition storage facility in support of World War II training requirements. Although the Island of Culebra was the focal point for naval gunfire in the 1960s and early 1970s, VNTR, formerly known as the Atlantic Fleet Weapons Training Facility (AFWTF), began developing facilities on the eastern end of Vieques in 1964, when it established a gunnery range in the LIA. In 1965, the Navy established the LIA, also known as the Air Impact Area, and began construction of Observation Point (OP) 1 on Cerro Matias.

1.3.2

By the 1970s, the LIA maintained several targets for aerial bombing including old tanks and vehicles used as mock-ups, two bulls-eye targets and a strafing target. Additionally, several point and area targets for ships to practice naval gunfire support (NGFS) were established in the LIA. The locations of these targets are shown on Figure 1-4.

1.3.3.

The Environmental Impact Statement (EIS) for Vieques (Tippetts, et al., 1979) provides a detailed discussion on the development of training facilities in the VNTR leading up to 1979. The VNTR provided logistics support, scheduling assistance, and facilities for NGFS and air-to-ground (ATG) ordnance delivery training for Atlantic Fleet ships, North Atlantic Treaty Organization (NATO) ships, air wings, and smaller air units from other allied nations and the Puerto Rican National Guard. The Fleet Marine Force, Atlantic (FMFLANT), conducted training for Marine amphibious units, battalion landing teams, and combat engineering units in the Eastern Maneuver Area (EMA). Occasionally, naval units of allied nations having a presence in the Caribbean and the Puerto Rican National Guard also utilized the EMA.

1.3.4

Adjacent to and west of the Surface Impact Area (SIA), the 10,673-acre EMA provided maneuvering space and ranges for the training of marine amphibious units and battalion landing teams in amphibious landing exercises, small-arms fire, artillery and tank fire, shore fire control, and combat engineering tasks. The EMA was first established in 1947. It is demarcated by the western property line east to the western front friendly-fire line where the SIA begins. Marine artillery was fired from gun positions in the EMA and SIA toward targets in the LIA and SIA. Figure 1-4 presents a map showing the locations of the primary target areas, artillery gun positions and ranges established by the 1970s.

1.3.5

Portions of the training areas within the VNTR were in continuous use since World War II, when the Navy acquired title to the land, until 2003. The Atlantic Fleet's ships, aircraft, and marine forces carried out training in all aspects of NGFS, ATG ordnance delivery, air-to-surface mine delivery, amphibious landings, small-arms fire, artillery and tank fire, and combat engineering. As part of normal operations, unexploded ordnance (UXO) was cleared periodically from the LIA and treated on-site by detonation. The Navy also operated a waste munitions open burn and open detonation (OB/OD) facility under a USEPA interim status Subpart X permit within the LIA.

1.4 Topography, Vegetation, Geology, and Hydrology

1.4.1 Topography

The topography of Vieques is characterized by gentle to steep rolling hills and valleys throughout the island, with the eastern side exhibiting a more rugged terrain. Figure 1-5 illustrates the topography of the VNTR. The LIA is relatively flat with elevations ranging from 0 to approximately 50 ft above mean sea level (amsl). Cerro Matias, located within the EMA as OP-1 (Figure 1-5) is the highest point on VNTR, at approximately 420 ft

amsl. The average elevation across Vieques is approximately 246 ft amsl. The coastal area is relatively narrow; however, the southern coast exhibits wider expanses of beach.

1.4.2 Vegetation

Vegetative cover on the eastern third of Vieques consists of thick vegetation dominating most available land space. The canopy consists primarily of deciduous trees, with the nonnative mesquite dominating the species distribution. A number of tree species are thorny, and low-lying brush is present throughout. Tall grasses also populate the landscape in areas where the thorny tree and brush species have not populated. Most of the former VNTR's vegetation tends to form a complete ground cover. Leaves are mostly small and sclerophyllous (hard and dry). Vegetation on the island's eastern side is slightly less dense than on the western side, with a larger percentage of thorny species, especially young to mid-age mesquite trees. Lower precipitation levels on the island's eastern end contribute to the thornier, rugged terrain observed there. The hillsides are densely vegetated, similar to the western side of the island. The coastal areas in the island's eastern side contain level terrain made up primarily of lagoons and mangrove swamps. Coastal dunes and associated vegetation, including sea oats, are present throughout open beach areas on both the northern and southern sides of the EMA and SIA.

1.4.3 Geology

1.4.3.1

The geology of Vieques is characterized by volcanic rocks generally overlain by alluvial deposits and patches of limestone. The upland areas contain three rock types consisting of sedimentary rocks composed of limestone and volcanic rocks composed of granodiorite and diorite. The Upper Cretaceous volcanic rocks in the upland areas appear to be the oldest exposed rocks on Vieques, and are believed to have been in a marine environment, as were rocks of the same age on the island of Puerto Rico. Limestone of Upper Tertiary age is found on peninsulas extending into the sea from the southern and eastern coasts. Limestone of the Tertiary-Miocene age is also found along these coasts, and is referred to as the "Puerto Ferro" limestone. Quaternary age deposits are found in the valleys and coastal areas and include beach, swamp, and alluvial deposits. Deposits of sand, swamp, and salt mud occur in the coastal areas and floodplains.

1.4.3.2

Limestone occurs in sectors of the island's northern, southern, and eastern parts. The most extensive areas of limestone are found on the southern coastal peninsulas. The limestone is generally soft, yellowish, and well-indurated where exposed to the atmosphere. The sedimentary deposits consist of a mixture of sand, silt, and clay. Alluvial deposits are found in the valleys and coastal areas and include beach, swamp, and alluvial deposits. Deposits of sand, swamp, and salt mud occur in the coastal areas

and floodplains. A recent investigation of the eastern end of Vieques indicated that the alluvial deposits there range from 5 to 50 ft thick (Baker, 1999). Soils on Vieques Island are primarily residual, due to both climatic and subsurface rock conditions. They typically are classified into five groups and range from rock land soils where bedrock is exposed to deep, well-drained soils within the alluvial deposits to shallow soils (U.S. Department of Agriculture [USDA], 1977).

1.4.4 Hydrology

The streambeds found on Vieques flow either northerly or southerly until they reach the Caribbean Sea or Atlantic Ocean. Vieques does not have any perennial surface drainage, and receives an average of 36 inches of rainfall per year, of which approximately 90 percent is lost to evaporation, based on statistics from the U.S. Virgin Islands. Of the remaining 10 percent, approximately 5 percent infiltrates into the groundwater system and 5 percent becomes surface runoff.

1.4.5 Surface Water

Surface water deposits in the VNTR occur primarily in coastal lagoons and intermittent streams, known locally as arroyos and quebradas that channel water downward from hills during rain events. Some of these arroyos and quebradas have standing water year-round, especially in areas abutting the coastline where terrain has leveled sufficiently to allow for standing water. Several mid- to large-sized lagoons are present near the Purple Beach area just east of Puerto Negro and to the south within the Ensanada Honda area, the Bahía de la Chiva area, and the South Coast Bays area. Surface water features are less prominent on the island's eastern side than they are on the western side, and exist primarily very close to the coast as lagoons. Some rainwater does pool for some time in low-lying areas following storm events, but these features dissipate within a few days.

1.4.6 Groundwater

1.4.6.1

The groundwater on Vieques is derived from rainfall. The water flows downhill as intermittent stream runoff or seeps into the soil and underlying deposits. Water in pore space, cracks, and fractures in bedrock eventually flows into alluvial deposits or to the ocean. Yearly variations in island-wide rainfall influence groundwater levels locally. Ground levels also exhibit fluctuations near the coastline because of tidal influences. Two types of aquifers are present on Vieques. The first is found in the upper portion of the bedrock and sedimentary rocks in the EMA. At the eastern end of Vieques, a groundwater divide occurs near the center of the island. From this location, the groundwater flow is toward the northeast and the southwest (Baker, 1999). The second type of aquifer is within the alluvial deposits found below the hills in the low flat valleys along the coast. The Camp Garcia aquifer is an alluvial aquifer within Esperanza Valley, the largest alluvial valley in Vieques.

1.4.6.2

The Valle de Esperanza aquifer is located beneath the island's southern portion near Camp Garcia. As discussed above, approximately 5 percent of the annual precipitation infiltrates through the ground and supplies the aquifer. The aquifer was previously used as a source of drinking water by the Navy. The Puerto Rico Aqueduct and Sewer Authority (PRASA) managed a series of 16 wells which pumped approximately 450,000 gallons of water per day, although these wells are no longer active because of the installation of a water line from the island of Puerto Rico to Vieques in 1978.

1.4.6.3

The USGS performed a groundwater study on Vieques, including tests on the wells near Esperanza. The results indicated that the groundwater contained high concentrations of sodium bicarbonate. Because of its high sodium content, the groundwater on Vieques is not suitable for extended use for irrigation or other potable water use. The high levels of sodium result from sea spray infiltrating into the ground and saltwater entering the groundwater supply through excessive groundwater withdrawal (Vargas, 1995).

1.5 Climate and Weather

The climate of Vieques is tropical-marine. Temperatures are nearly constant, with an annual average of approximately 79 degrees Fahrenheit (°F). August is the warmest month (82°F) and February is the coolest (76°F). Vieques lies directly in the path of the prevailing easterly trade winds that regulate the climate of Puerto Rico and result in a rainfall pattern characterized by a dry season from December through July and a rainy season from August through November. Heavy precipitation may be induced by tropical storms from June to November. The eastern half of Vieques and annual rainfall averages 25 inches per year.

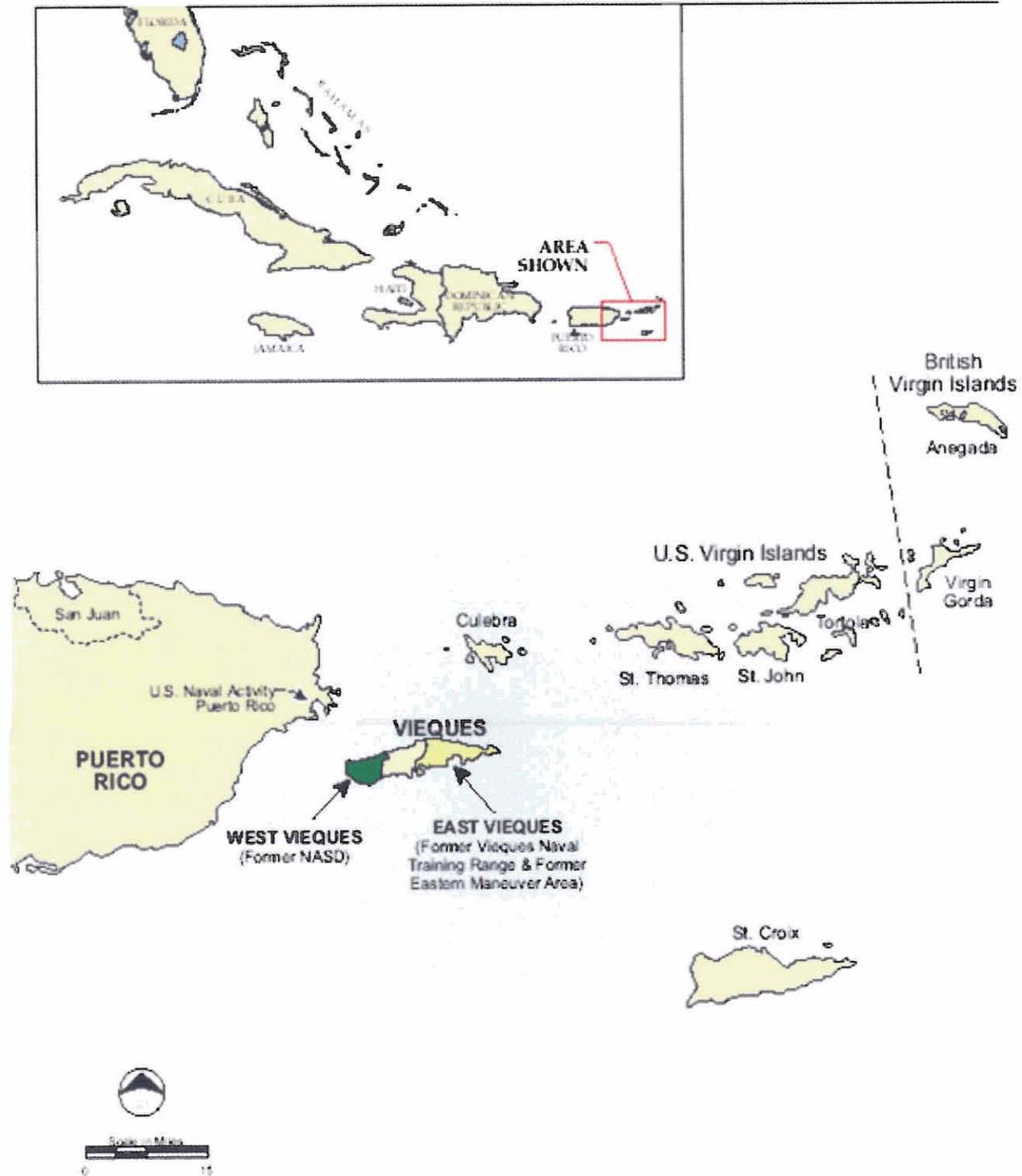
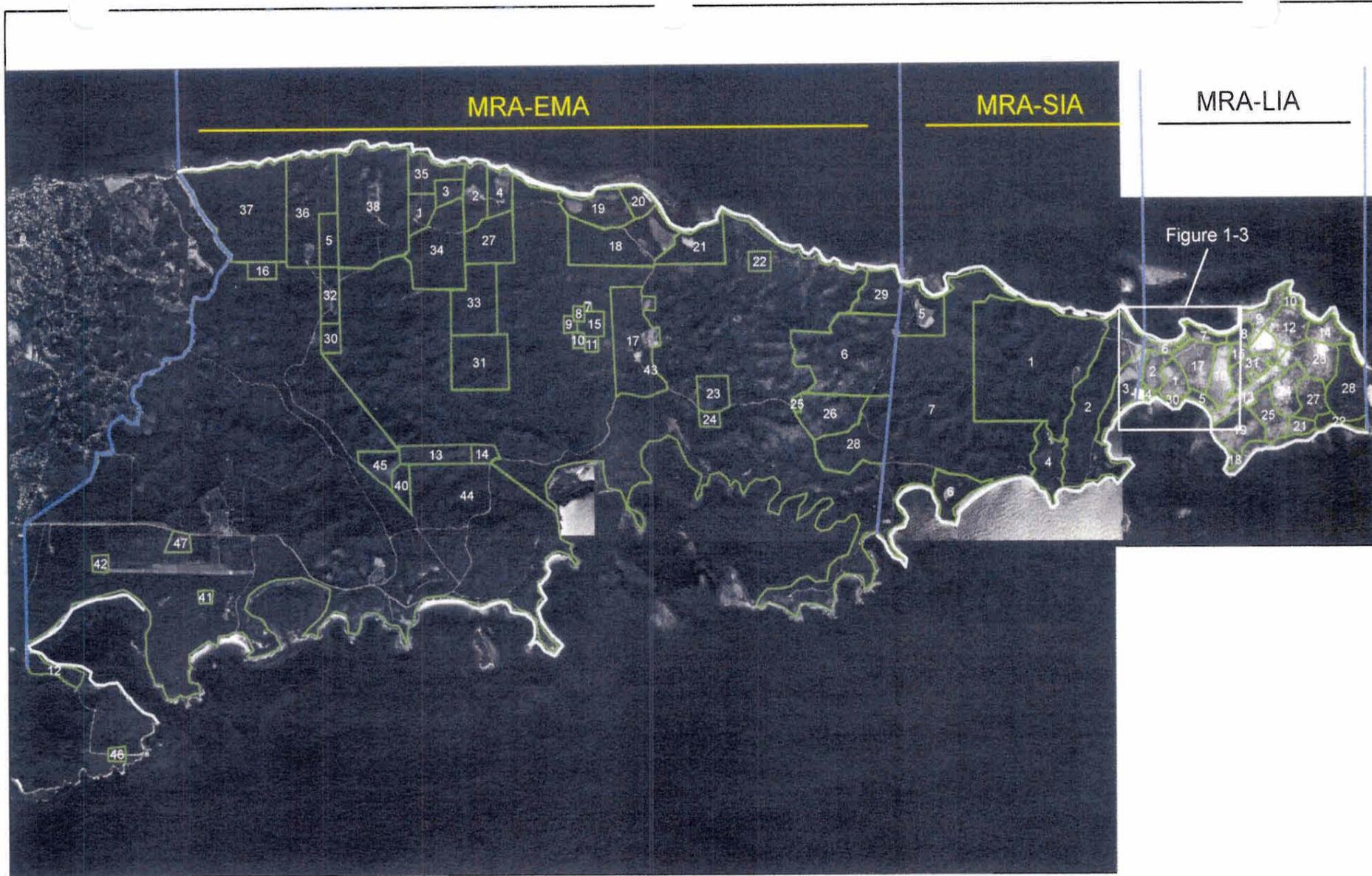


Figure 1-1
 Regional Location Map
 Vieques Island, Puerto Rico



MRA-LIA

MRA-EMA

MRA-SIA

Figure 1-3

Legend

- MRA Boundaries
- MRS Boundaries
- Beach MRS

Notes:

- MRS Numbers Do Not Signify Priority
- EMA-MRS 43 and MRA-MRS 7 include all terrestrial area within the range fan(s) not designated as other MRSs
- EMA-MRS 44 includes all terrestrial area outside of range fan(s) not designated by other MRSs

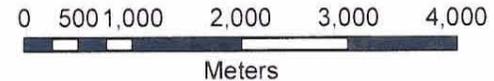
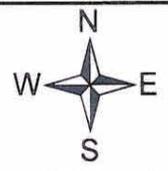
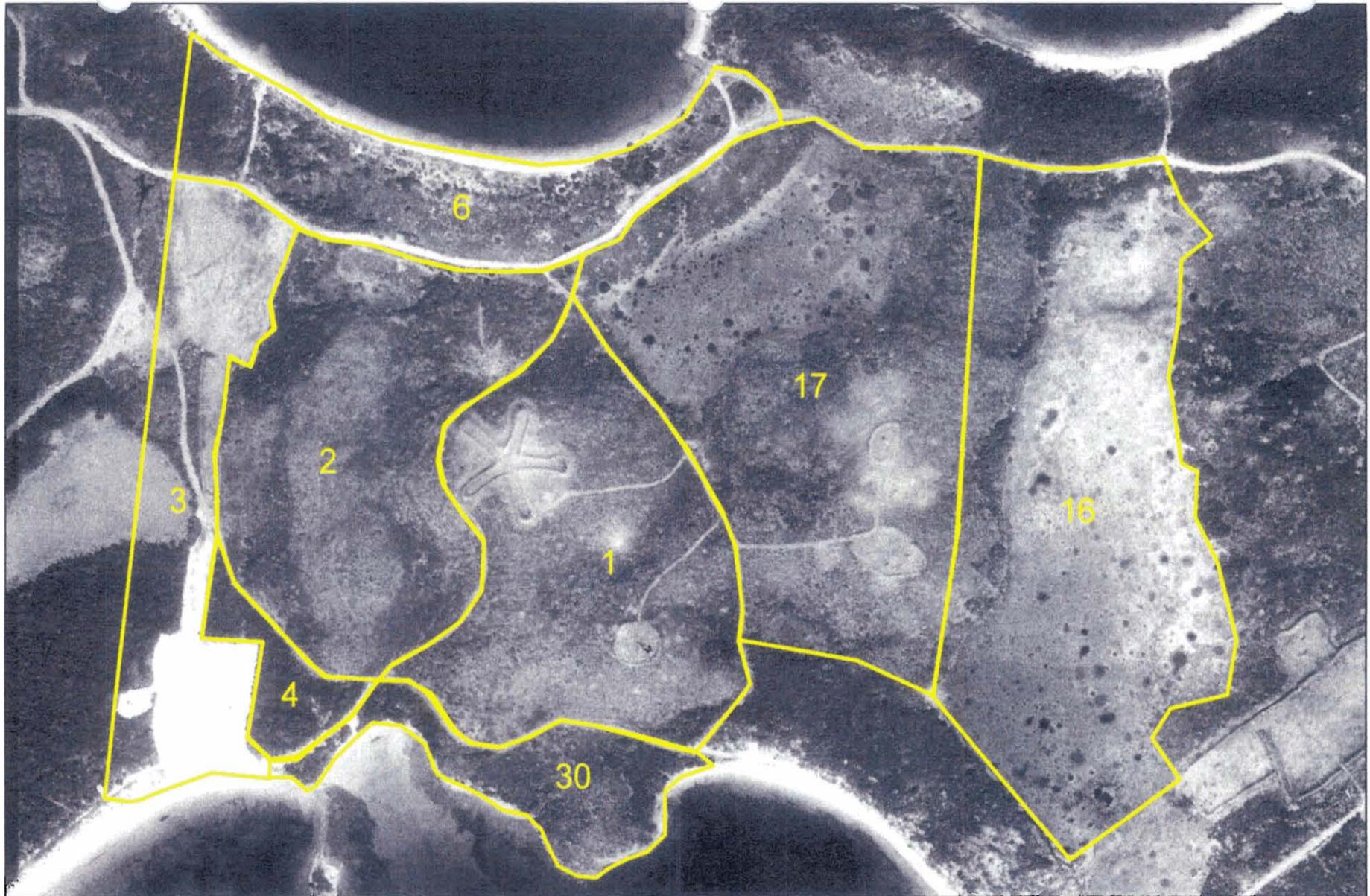


Figure 1-2
MRA, Parcel, and MRS Boundaries
Former VNTR
Vieques Island, Puerto Rico





Legend

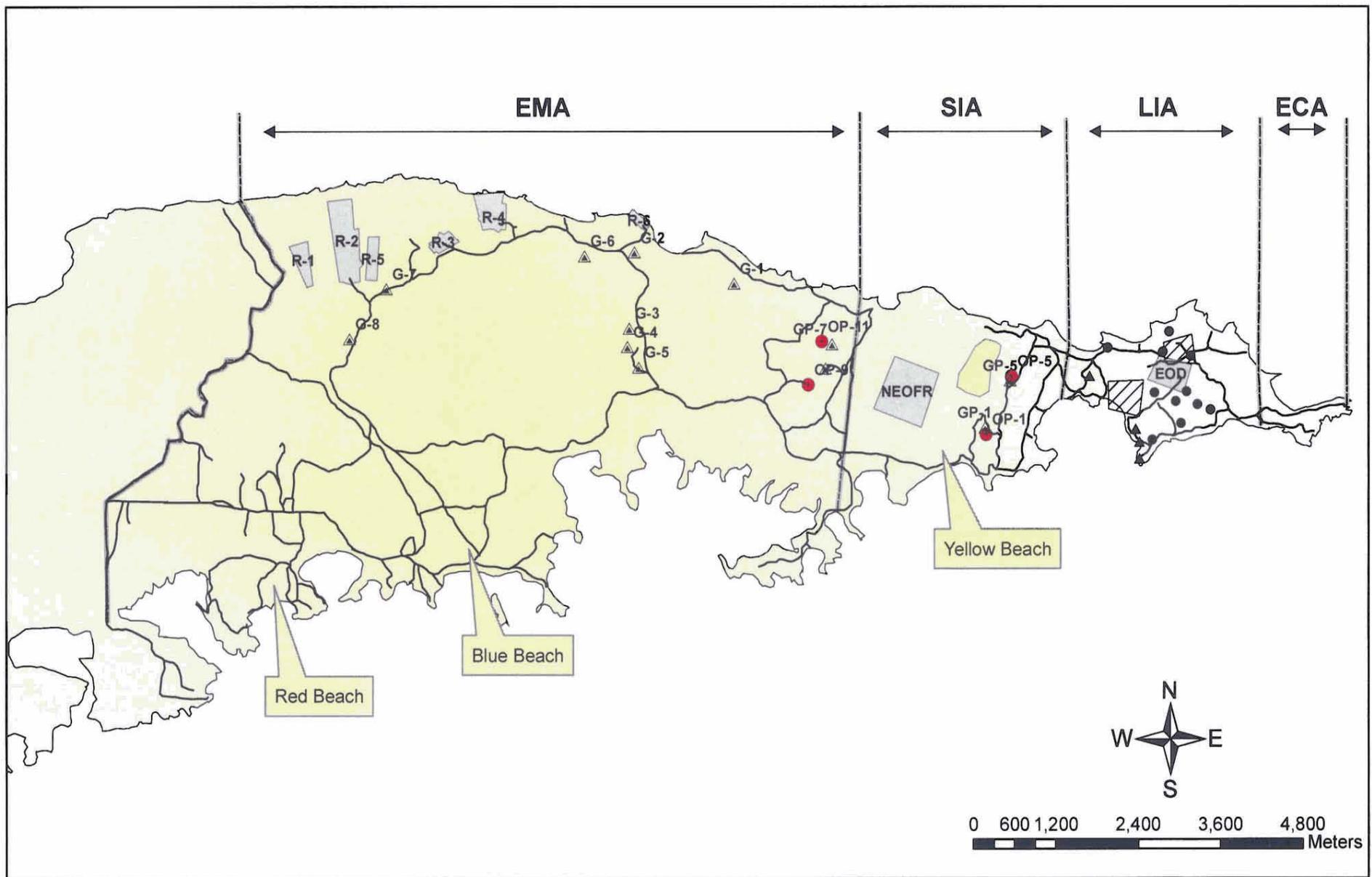
 MRS Boundaries



0 70 140 280 420 560
Meters

Figure 1-3
TCRA Areas
Former VNTR
Vieques Island, Puerto Rico



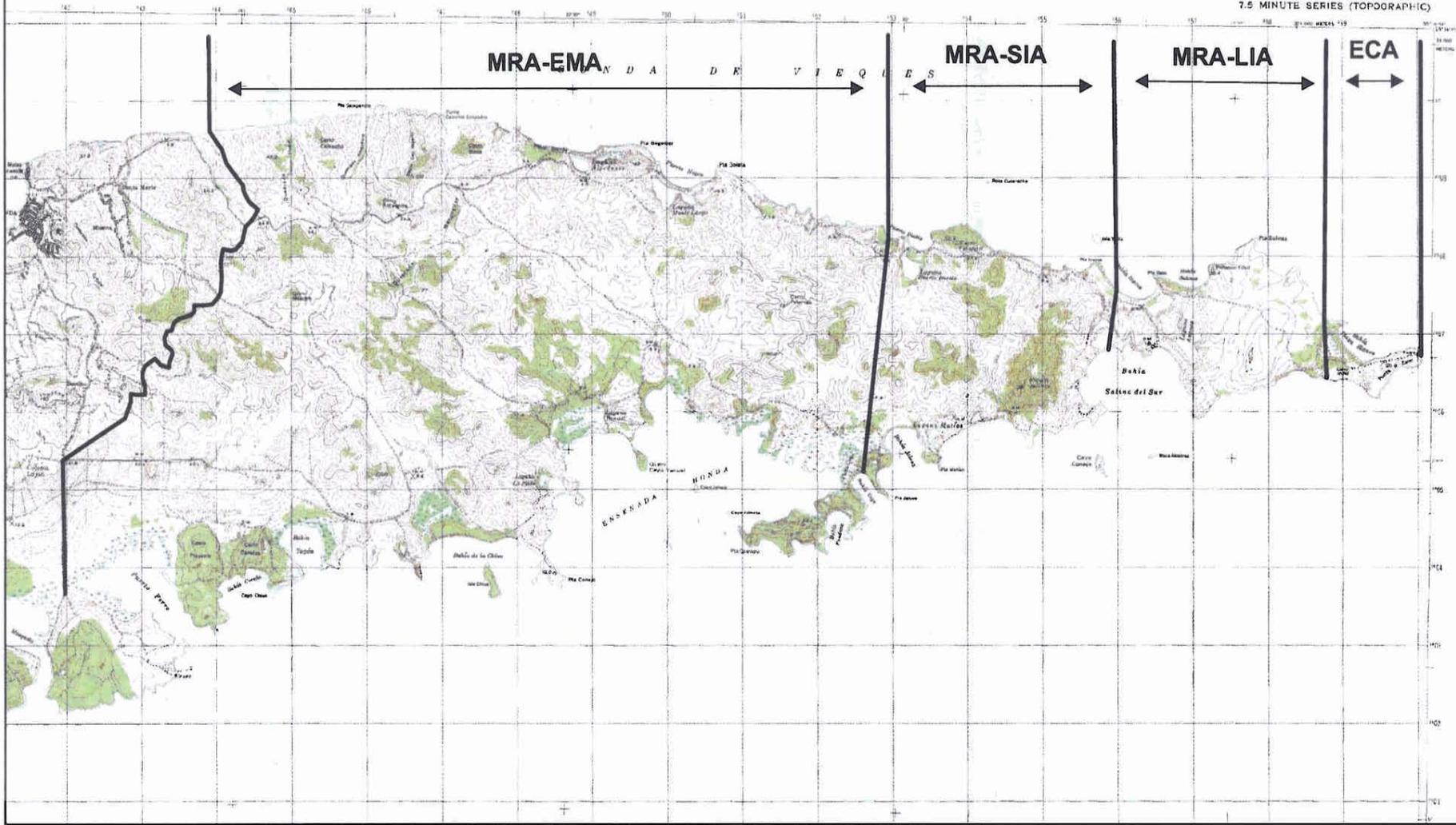


Legend

- Air to Ground Targets
- ▲ Naval Gunfire Support Targets
- ▲ Gun Position
- Observation Point
- ▨ Naval Gunfire Support Target Area
- Artillery Target Area
- Ranges
- EMA - Eastern Maneuver Area
- LIA - Live Impact Area
- SIA - Surface Impact Area
- ECA - Eastern Conservation Area

Figure 1-4
 Map of Range Related Site Features
 Expanded Range Assessment/Site Inspection
 Former VNTR, Vieques Island, Puerto Rico





MRAs - Munitions Response Areas
EMA - Eastern Maneuver Area
LIA - Live Impact Area
SIA - Surface Impact Area
ECA - Eastern Conservation Area



Figure 1-5
Topographic Map
Former VNTR
Vieques Island, Puerto Rico



CHAPTER 2 - TECHNICAL MANAGEMENT PLAN

2.1 General

This plan outlines and identifies the approaches, methods and procedures that ADVENT will employ during this TCRA within the Former VNTR LIA to include: mobilization, site preparation, MEC intrusive/surface removal actions and MEC demilitarization. This plan is based on information obtained from the *Preliminary Range Assessment Report (NFEC and CH2MHILL April 2003)* and the *Draft MEC Master Work Plan, prepared for NAVFAC (September 2004)*. ADVENT will perform operations at the VNTR in a systematic manner using proven operational techniques, methods and procedures.

2.2 Guidance, Regulations and Policies

The following MEC guidance, regulations, and policy are applicable or potentially applicable during MEC assessment, recovery, and removal operations on the VNTR.

- **NAVSEA OP 5 Volume 1, Ammunition and Explosives Ashore: Safety Regulations for Handling, Storing, Production, Renovation, and Shipping.** These regulations prescribe information regarding conventional ammunition, ammunition components, explosives, and other hazardous materials, as well as the conditions for safe production, handling, storage, shipment, maintenance, and disposal of these materials at all Navy and Marine Corps activities. They are applicable to protecting the environment during all hazardous, toxic, and radioactive waste (HTRW) and MEC actions.
- **DoD 6055.9-STD, Ammunition and Explosives Safety Standards.** This is the primary DoD regulation that establishes uniform safety standards applicable to ammunition and explosives, to associated personnel and property, and to unrelated personnel and property exposed to the potential damaging effects of an accident involving ammunition and explosives. It is applicable for determining safety distances, explosives storage requirements, facility construction and siting (e.g., open burn/open detonation, magazines), and quantity-distance requirements.
- **DoD 4160.21-M, Defense Materiel Disposition Manual, and DoD 4160.21-M-1, Defense Demilitarization and Trade Security Control Manual.** DoD 4160.21-M implements the Federal Property Management Regulation and other laws and regulations applying to the disposition of excess, surplus, and foreign excess personal property. DoD 4160.21-M-1 contains specific guidance for property identified as Munitions List Items (MLI) and Commerce Control List Items (CCLI). The guidance is applicable for the demilitarization and disposal of MEC-related scrap material.
- **OPNAVINST 5530.13, Department of the Navy Physical Security Instruction for Sensitive Conventional Arms, Ammunition, and Explosives.** This instruction prescribes standards and criteria for the physical security of sensitive

conventional arms, ammunition, and explosives in the custody of any Navy Component, or contractor and subcontractor. It is applicable for determining appropriate requirements for security of explosives when maintained onsite.

- **OPNAVINST 5090.1, Environmental and Natural Resources Protection Manual.** This manual prescribes Navy policies, responsibilities, and procedures to protect and preserve TIME CRITICAL REMOVAL ACTION/INTERIM MEASURES WORK PLAN the quality of the environment. It is applicable to protecting the environment during all HTRW and MEC actions.
- **OPNAVINST 8020.14, Department of the Navy Explosives Safety Policy.** This policy prescribes Department of the Navy safety policy for contractors handling ammunition and explosives at Department of the Navy facilities. It is applicable for MEC-related projects.
- **USACE ER 385-1-92, Safety and Health Requirements for HTRW and MEC Waste Activities.** These requirements identify the safety and occupational health documents and procedures required to be developed and implemented by U.S. Army Corps of Engineers (USACE) elements and their contractors responsible for executing HTRW and MEC activities. They are applicable during all HTRW and MEC activities.
- **USACE ER 1110-1-263, Chemical Data Quality Management for Hazardous Waste Remedial Activities.** This regulation prescribes responsibilities and procedures for planning and executing chemical data acquisition including sampling and analysis. It is applicable to all phases of all projects, including MEC projects where environmental samples are collected for chemical analysis.
- **USACE EP 1110-1-18, Ordnance and Explosives Response.** This guidance provides the procedures and process to be used to manage and execute all aspects of MEC response actions. It is applicable to all phases of all MEC projects.
- **USACE EP 75-1-2, Unexploded Ordnance Support for HTRW and Construction Support Activities.** This policy provides personnel with procedural guidance, technical specifications, personnel and training requirements, and health and safety criteria for MEC support during HTRW and construction support activities. It is applicable to all projects for which anomaly avoidance or construction support is necessary because of the potential presence of UXO onsite.
- **CEHNC Engineering Pamphlet (EP) 385-1-95a, Basic Safety Concepts and Considerations for MEC Operations.** This document establishes the safe operating procedures for dealing with MEC and UXO items on formerly used defense sites (FUDS), base realignment and closure (BRAC), and installation restoration (IR) projects. Applicable for all MEC-related projects.

- **Bureau of Alcohol, Tobacco and Firearms (ATF) ATF P 5400.7, Explosives Law and Regulations.** Prescribes regulations for transportation and storage of explosive materials. Applicable for determining appropriate requirements for transportation and storage of explosives when maintained onsite.
- **Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980 (42 U.S.C. Section 9601) as Amended by Superfund Ammendments and Reauthorization Act (SARA) of 1986 (42 U.S.C. Section 11001).** Which established prohibitions and requirements concerning closed and abandoned hazardous waste sites; provides liability of persons responsible for the release of hazardous waste at these sites; and establishes a trust fund to provide for clean-up when no responsible party could be identified. The law authorizes two kinds of response actions: short-term removals, where actions may be taken to address releases or threatened releases requiring prompt response and long-term remedial response action, that permanently and significantly reduce the danger associated with releases or threats of releases of hazardous substances that are serious, but not immediately life threatening.
- **Resource Conservation and Recovery Act 42 U.S.C Section 6901** Which gives the EPA the authority to control hazardous waste from the “cradle-to-grave”. This includes the generation, transportation, treatment, storage, and disposal of hazardous waste. RCRA also set forth a framework for the management of non-hazardous wastes.

2.3 Recovered Chemical Warfare Material (CWM)

2.3.1

Recovered Chemical Warfare Materiel (RCWM) is not expected to be encountered at the VNTR based on range usage archival searches and previous investigations. If suspected RCWM is encountered, procedures will be implemented in accordance with paragraph 9.c of EP 385-1-95a, Basic Safety Concepts & Considerations for Ordnance and Explosive Operations (USACE 27 August 2004).

- The SUXOS will be notified, all work will immediately cease and project personnel will withdraw along cleared paths upwind from the discovery. The initial exclusion zone (EZ) for RCWM is 450 ft upwind per Field Manual (FM)-9-15 (U.S. Army, 1996).
- A head count will take place at the specified rally point
- The SUXOS will note the location of the suspected RCWM to help the relocation

- The SUXOS will notify all other contractor representatives working on the Former VNTR, ADVENT SM, ADVENT PM and the onsite NAVFAC Representative immediately.
- The ADVENT PM will notify The NAVFAC RPM and U.S. Fish and Wildlife (USFWS) representatives to request military assistance.
Note: Assistance for RCWM will be requested through the US Army's 52nd Ordnance Group at Fort Gillem, GA. (404)-469-3333
- On site UXO qualified personnel will secure the site with a minimum of two personnel (Technician II or higher) in an upwind direction to guard the suspect RCWM until direction is received from NAVFAC RPM, the military EOD or Technical Escort Unit (TEU) arrives and takes control of the site. ADVENT Personnel will stand ready to support the military and NAVFAC as required.

2.3.2

Before work resumes, site plans will be reviewed for adequacy in consideration of this newly discovered hazard.

2.3.3

There is documented use of 25mm depleted uranium (DU) projectiles during a one time event, where approximately 250 to 300 rounds were fired in the vicinity of the "convoy target" located east of the "mock runway", of the rounds fired approximately on half were recovered. The area fired upon is outside of the TCRA area; however, daily safety briefs will include addressing identification of DU and safety precautions to be used in the case DU rounds are identified. The primary procedure for addressing discovered DU rounds will be to evacuate the area by moving upwind greater than 100 meters, notify the SUXOS and UXOSO immediately, and contact the EOD Technical Support Center (TSC) at NAVEODTECHDIV for support.

2.3.4

The following equipment and personal protective equipment (as per U.S. Army, Industrial Operations Command, Pamphlet 700-48) will be available on-site in the case that UXO personnel are directed to remove and secure the DU to maintain the work schedule: coveralls, leather gloves, nitrile gloves, protective goggles, eye wash, hand cleanser, plastic bags (4 mil), metal container (30 gal, 55 gal, or ammunition box, swabs, tape to seal bags, marking pens, labels, and Radiac meter AN VDR2 6665-01-222-1425 (or similar). Direct surface or swab measurements with the Radiac meter can be performed if directed by support center.

2.4 Procedures for MEC that cannot be destroyed on Site and Unidentified MEC

2.4.1

It is anticipated that MEC items encountered at the surface will be destroyed onsite. This will be accomplished through blow-in-place (BIP) or in-grid/onsite consolidation shots. Considering the remote location of the work site it is highly unlikely a MEC item will be encountered that cannot be safely destroyed onsite. If a MEC item is located that cannot be safely destroyed onsite, but can be safely moved, a suitable location will be established within an adjacent MRS. The substantive requirements of current RCRA permits will be met for conducting consolidated demolition shots. The geographic coordinates for all consolidated shot locations will be recorded.

2.4.2

All MEC items will be inspected and identified by two UXO Technicians. If the item cannot be positively identified, it will be marked and reported. Unidentified MEC items will not be moved for purposes of identification. Digital photographs will be taken and item dimensions gathered (if possible) to aid in identification of the item from ordnance publications. Digital photographs will be emailed to US Army Engineering and Support Center, Huntsville, AL Center of Expertise (USAESCH CX) and the US Navy Explosive Ordnance Disposal Technology Center (NAVEODTECHDIV) for identification.

2.5 Technical Scope

2.5.1 Project Site layout

2.5.1.1

ADVENT has been contracted to remove visible MEC from the surface within MRS 1, 2, 3, 4, 6, 16, 17, and 30 of the VNTR. The total area of the removal is 207 acres. The NAVFAC Title II contractor will locate and mark the site boundaries with stakes and establish ground controls in accordance with the location survey and mapping plan.

2.5.1.2

The project site will be divided into grids measuring 30 meters x 30 meters. The location of all stakes will be checked for the presence of MEC using an appropriate geophysical instrument (Schonstedt GA-52cx, or all metal detectors) prior to driving a stake.

2.5.1.3

The final product of this operation is the generation of a spatially-referenced site drawing that accurately depicts the location operating area boundaries and grid boundaries. Throughout operations, this map will be updated to reflect project performance and MEC

encountered. Upon project completion, the data contained on this map will be an integral part of the final report.

2.5.2 Vegetation Removal

2.5.2.1

It is estimated that vegetation removal will be required over 95 percent of the 207 acres identified for removal of surface MEC. Vegetation removal will be conducted by mechanical means using mechanical brush clearing equipment and/or the manual vegetation clearance. USFWS biologists will be notified in advance of the areas where vegetation clearance will be conducted and if necessary will conduct a site reconnaissance of the proposed work area prior to vegetation removal activities to identify and flag any biota that may be protected. The cutting trees larger than 3 inches in diameter will be prohibited unless absolutely necessary. Trees will be felled into an area that has already been surface swept for MEC.

2.5.2.2

As the first step, the UXO Technicians will inspect all areas of the grid ahead of the vegetation removal crews with the aid of handheld magnetometers. The UXO Technicians will mark any MEC or other hazards by encircling the hazard with flagging tape.

2.5.2.3

The vegetation removal will be supervised by UXO Technicians. The laborers will use hand tools that are appropriate for the vegetation being cut, such as chain saws, power string trimmers, and machetes to cut the vegetation.

2.5.2.4

When mechanized vegetation removal methods are selected an initial cut may be made prior to the surface sweep for MEC. Vegetation will be cut to height no lower than 24-inches above ground level. UXO Technicians will then perform a surface sweep with the aid of handheld magnetometers. If no MEC or metallic debris is found, the vegetation can be cut to within 6 inches above ground level.

2.5.2.5

All cut vegetation will either be accumulated on-site and mulched or mulched in place. A typical method of vegetation disposal is chipping the vegetation into mulch, which is then spread over the cleared area. Brush clearance will be accomplished with gas-powered string trimmers with saw blade attachments, or where appropriate, an excavator equipped with a bush removal device.

2.5.2.6

Trees will be trimmed or removed on a case-by-case basis and only as required to accomplish the project tasks. If removal is required, the tree will be cut using chain saws.

The tree will be sectioned, if necessary, to remove it from the immediate area, so it does not interfere with MEC detection or survey activities.

2.5.3 MEC Removal Techniques

2.5.3.1

A visual survey will be performed to locate all surface MEC for 100 percent of the project area (207 acres). When practical metallic items present at ground surface or partially exposed at the surface will be removed.

2.5.3.2

Magnetometer sweeps will be employed (mag and flag) for identification and clearance of metallic items at the surface. UXO technicians will work individual search lanes approximately 3 to 5 feet wide and will search each lane using a hand held magnetometer (e.g., Schonstedt Model GA-52Cx or all-metal-detector). UXO technicians will start at one end of each lane and move forward toward the opposing base line. During the forward movement the technician will move the magnetometer back and forth from one side of the lane to the other. Both forward movement and the swing of the magnetometer will be performed at a pace, which ensures the entire lane is searched and that the instrument is able to appropriately respond to anomalies. Whenever a metallic surface object is encountered the technician will halt and investigate the anomaly real-time. Throughout this operation the UXO Technician III will closely monitor individual performance to ensure these procedures are being performed with due diligence and attention to detail.

2.5.3.3

This will achieve the objective of minimizing explosive hazards due to surface MEC. UXO teams conducting the surface clearance may use handheld magnetometers to identify smaller items. MEC items will be removed by hand or using small scale mechanized equipment to move larger items. The use of small scale mechanized equipment will be monitored by a UXOSO. MEC items which are safe to move may be consolidated for disposal/demilitarization within a grid, or several adjacent grids. MEC items that cannot be safely removed due to an explosive hazard will be clearly marked, geographic coordinates gathered and the item will be demilitarized during a scheduled demolition event. Additionally, the accessibility, hazard, and location of the item will be evaluated to determine if additional safety measures should be put in place.

2.5.3.4

Non-MEC metallic items will be removed from the grid. These metallic items will be thoroughly screened for MEC. Large items, such as target vehicles, will require

additional screening for environmental pollutants (petroleum products, coolants, batteries, etc.). These items may also require onsite disassembly to facilitate removal.

2.6 Procedures for Changed Site Conditions

In the event that the site conditions change, ADVENT will notify the RPM and conduct a reconnaissance of the work area. Work will begin only after the determination has been made that the work can be performed in accordance with this plan.

2.7 Project Organization and Personnel

The VNTR TCRA Project Team is charted in Figure 2-1. All personnel will meet the requirement specified in Data Item Description (DID) OE-025.02 for their assigned positions.

2.7.1 NAVFAC Atlantic

NAVFAC is the life cycle PM and Funding Agency for this project. The Facilities responsibilities include review of project plans and documents, working with news, media and the public, and coordinating with federal, state, and local regulatory agencies.

2.7.2 Navy Technical Representative

The Navy Technical Representative (NTR) is the RPM for this project. The NTR responsibilities include but are not limited to: procurement of MEC services, direction of the contractor, review and coordination of project plans and documents, and working with the news, media and the public. As the technical PM, the NTR is responsible for directing the contractor and controlling the budget and schedule.

2.7.3 ADVENT Program Manager

The Program Manager provides a single point of contact for the Contracting Officer, provides support for the Remedial PM and other government representatives, and has complete management authority and responsibility for all work under this contract. The Program Manager has the responsibility for managing the entire MEC removal project, estimating cost, managing budgets, and maintaining control of all program activities.

2.7.4 ADVENT Project Manager (PM)

The Project Manager is responsible for ensuring that all tasks performed at the Former VNTR are conducted in accordance with this work plan. The PM is responsible for communicating with the NTR on all aspects of the tasks involved in this contract including overseeing the performance of all project personnel, coordinating all contract and sub contract work.

2.7.5 ADVENT Site Manager (SM)

The Site Manager is responsible for all fieldwork performed at the VNTR and will coordinate with the SUXOS to ensure there are no conflicts in operations (except for operations where a SUXOS is in charge of MEC activities). The SM is responsible for

overseeing scheduling and ensuring that field related activities are performed in accordance to the specified plans.

2.7.6 UXO Safety Officer (UXOSO)

The UXOSO will implement the SSHP, inclusive of the MEC and HTRW components, and will verify compliance with applicable safety and health requirements. On the VNTR MEC sites, the UXOSO reports independently of project management to the Corporate Health and Safety Officer. The UXOSO implements the approved explosives and MEC safety program in compliance with all DoD, federal, state, and local statutes and codes; analyzes MEC and explosives operational risks, hazards, and safety requirements; establishes and ensures compliance with all site-specific safety requirements for MEC and explosives operations; enforces personnel limits and safety EZ's for MEC clearance operations, MEC and explosives transportation, storage, and destruction; conducts safety inspections to ensure compliance with MEC and explosives safety codes; and operates and maintains air monitoring equipment required at site for airborne contaminants. The UXOSO is authorized to temporarily stop work to correct an unsafe condition or procedure. The UXOSO will meet or exceed the USACE requirements given in DID OE 025.02.

2.7.7 UXO Quality Control Specialist (UXOQCS)

UXOQCS implements the MEC-specific sections of the QC Program for all MEC-related activities, conducts QC inspections of all MEC and explosives operations for compliance with established procedures, and directs and approves all corrective actions to ensure all MEC-related work complies with contractual requirements. The UXOQCS has the authority to temporarily stop work to correct an unsafe condition or procedure. On VNTR MEC sites, the UXOQCS reports independently of project management to the Program QC Manager. The UXOQCS will meet or exceed the USACE requirements given in DID OE 025.02.

2.7.8 Senior UXO Supervisor (SUXOS)

The SUXOS is the senior UXO Technician onsite. He controls operations of all field teams performing MEC activities and will spend most of the day in the field monitoring their performance and helping them achieve maximum operational safety and efficiency. He reports directly to the Project Manager and receives guidance from the Title II Services Contractor MEC Manager concerning technical UXO and operational issues. He will implement the approved plans in the field and must review and approve any changes. He supervises all UXO teams on a project, not to exceed a total of 10. The SUXOS is authorized to temporarily stop work to correct an unsafe condition or procedure. The SUXOS will meet or exceed the USACE requirements given in DID OE 025.02.

2.7.9 UXO Technician III

UXO Technician III also referred to as field team leaders, are responsible for the safety and efficiency of the performance of their assigned field team, and report directly to the SUXOS. The UXO Technician III can temporarily stop work in order to bring an unsafe

condition or procedure to the attention of the SUXOS. The UXO Technician III will meet or exceed the USACE requirements given in DID OE 025.02.

2.7.10 UXO Technician II

UXO Technician II personnel report directly to their assigned UXO Technician III and are responsible for the safe and efficient performance of specific field tasks as assigned by the UXO Technician III. They are also responsible for complete familiarity with the approved plans and for adherence to the procedures described in the plans. A UXO Technician II has the authority to temporarily stop work in order to bring an unsafe condition or procedure to the attention of their assigned UXO Technician III. The UXO Technician II will meet or exceed the USACE requirements given in DID OE 025.02.

2.7.11 UXO Technician I

UXO Technician I personnel report directly to their assigned UXO Technician II or III and are responsible for the safe and efficient performance of specific field tasks as assigned. They are also responsible for complete familiarity with the approved plans and for adherence to the procedures described in the plans. A UXO Technician I has the authority to temporarily stop work in order to bring an unsafe condition or procedure to the attention of their assigned UXO Technician II or III. The UXO Technician I will meet or exceed the USACE requirements given in DID OE 025.02.

2.7.12 UXO Sweep Personnel

UXO Sweep personnel (UXOSP) assist UXO Technicians in the performance of MEC related operations. UXOSP do not have to be UXO Technicians, however they shall be provided site specific training. Training at a minimum will include: explosive safety, proper use of PPE and MEC recognition. UXOSP will not be involved with explosive operations and shall not have intentional physical contact with MEC. Under the direction of UXO qualified personnel the UXOSP may assist in visual or detector-aided MEC search activities. The UXOSP can remove non-hazardous munitions debris and range debris, only after such items have been inspected by the qualified UXO Technician and determined to be safe for handling. During explosive operations the UXOSP may provide site/area security functions.

2.7.13 Composition and Management of Removal Teams

Each MEC Team will consist of one UXO Technician III and six or less team members. Teams will have a minimum of two UXO-qualified personnel, one of which will be the UXO Technician III. Teams performing actual physical removal of MEC (as opposed to brush cutting teams, etc.) shall be composed entirely of UXO-qualified personnel. The Teams will follow these guidelines:

- A UXO Technician III will supervise all MEC operations and all teams operating within the exclusion zone (EZ). These may include brush clearing teams, UXO Sweep Personnel teams, and laborer teams.

- The SUXOS will supervise no more than 10 UXO Technician III. There will be no more than one SUXOS on an MR project without prior approval of the Contracting Officer.
- The UXOSO and UXOQCS duties may be performed by the same person.
- The UXOSO and UXOQCS will not be directly involved in any MEC removal or investigation tasks.
- A UXOQCS may not be required full-time onsite. However, QC functions will be performed for all field activities. The UXOQCS will ensure a quality product in the field without compromising safety.
- The UXO Technician I will not determine whether or not MEC is safe to move.
- UXO Sweep Personnel will not excavate anomalies or handle MEC. If these personnel are performing required work, they may remain in the EZ during anomaly investigation.

2.8 Mobilization

ADVENT will mobilize the work staff in two phases. First we will mobilize the management staff and 2 UXO Technicians to Vieques to begin site preparation. The second mobilization will be the remainder of the MEC sweep team when site preparations have been completed and the removal operation is ready to begin.

2.8.1 Preliminary Activities

Prior to mobilization, the following actions require advance planning in preparation for mobilization:

- Finalize procurement actions for items and services needed during the mobilization.
- Coordinate with the Federal Aviation Administration (FAA) for release of "Notice to Airmen" (NOTAM) if regular detonations are expected.
- Coordinate with the US Coast Guard for the release of a "Notice to Mariners" if regular detonations are expected.
- Notify local response agencies (police & fire departments) of upcoming project activities.
- Coordinate with USFWS and EQB representatives on Vieques Island.
- ADVENT will coordinate notification for the organizations listed above with the Title II contractor who will be the primary point of contact with these agencies.

A mobilization period is necessary to organize and train project staff; inventory and test equipment. Mobilization activities will include:

- Transport and assembly of the work force.
- Conduct site-specific training on the work plan, SSHP, and MEC procedures and hazards.
- Ship and inventory project equipment including hand tools and supplies, portable toilets, backhoes, vegetation clearance equipment, etc.
- Coordinate with local agencies including police, hospital, and fire department as appropriate.
- Organize support facilities and test communication equipment.
- Test and inspect equipment.

2.8.2 Field Office Setup

A field office will be established within the Camp Garcia section on Vieques or on other accessible areas. The field office is the central command location for MEC activities. Personnel will report to this location at the beginning of each work day for the daily health and safety briefing. The field office is the central point of communications for the project. The office will be equipped with one or more phones, facsimile machine, and radio base station for radio communication with the field crew(s). Health and safety records will also be maintained in the field office.

2.9 Procedures for Site Preparation

All site preparation activities will be monitored by the appropriate UXO personnel described in this section.

2.9.1

A survey team will perform initial reconnaissance of the site upon mobilization. During the initial reconnaissance, the survey team will examine the site to determine the amount of vegetative material that must be removed to accomplish the scope of work and determine the amount of MEC and range/munitions debris on the surface of the site. The survey team will document the site reconnaissance. Photographs will be taken of the overall site vegetation, MEC, debris found on the surface, and any other notable features.

2.9.2

The survey team's observation, documentation, and analysis of the density of the vegetation and the presence of surface MEC will be used to determine the amount and method of vegetation removal. Possible appropriate vegetation removal scenarios include; none, (if the area is free of vegetation that interferes with subsequent required work); mechanical (in areas that are heavily vegetated but have little or no signs of shock-sensitive MEC on the surface); or removal by hand cutting or burning, (in areas with heavy vegetation with evidence of shock-sensitive MEC on the surface).

2.9.3

ADVENT will install engineering controls in the form of plastic construction fences on the beaches north and south of the LIA to warn trespassers before they enter the project work area. These fences, requested by the Navy, will supplement the existing signs warning trespassers.

2.10 Statistical Sampling

No statistical sampling will be performed during these activities.

2.11 Procedures for Reports and Disposition of MEC

2.11.1 MEC data Records

MEC data will be collected using handheld computers and the computer will be provided to the SUXOS. An Investigation Data Form (Form 2-1) will be maintained by the SUXOS for all MEC not documented in the handheld PC. If more than one UXO Team is operating on the project site, then each UXO Supervisor shall provide or be provided a PC and Data Forms and information will be compiled and given to the SUXOS at the close of each work day, or when possible for remote operations. Project Team QC personnel will perform QC evaluations as described in the QC section of this work plan (Section 10) and will provide forms to data management personnel for entry into the project database. All records, forms, and logs resulting from the field investigation will become part of the permanent project files upon completion of field activities.

2.11.2 Record Keeping and Accountability

The SUXOS has overall responsibility for the accountability of all recovered MEC material and government or commercially procured explosive demolition materials. The SUXOS will maintain an MEC Acquisition and Accountability Log (Form 2-3) that records the type, quantity, and condition of MEC from discovery to disposal on items not logged into the database using handheld computers.

2.11.3 MEC Safety

Safety is a primary concern on any MEC project. The most obvious safety requirements are to protect personnel, the general public, and the environment. Personnel will conform to the following general precautions:

- Operation activities will be conducted during daylight hours only,
- In general, a projectile containing a Base Detonating (BD) fuse is to be considered armed if the projectile has been fired. Arming wires and pop-out pins on unarmed fuses should be secured by taping in place prior to movement.

- Do not rely on the color-coding of MEC for positive identification.
- Avoid the area in front of MEC items until it can be determined the item does not contain a shaped charge. The explosive jet can be fatal at great distances forward of the longitudinal axis of the item. Assume any shaped charge munitions to contain a piezoelectric (PZ) fuse until the fusing is positively identified. A PZ fuse is extremely sensitive, can function at the slightest physical change, and may remain hazardous for an indefinite period of time.
- Examine all projectile rotating bands for fired/unfired condition. Also examine projectiles for the presence/absence of an unfired tracer.
- Assume practice/training MEC contains a live charge until it can be determined otherwise.
- Expended pyrotechnic/practice devices may contain red/white phosphorus (WP) residue. Due to incomplete combustion, phosphorus may be present and re-ignite spontaneously if the crust is broken and the contents exposed to air.
- Do not approach smoking WP MEC. Burning WP may detonate the burster or dispersal explosive charge at any time.

2.11.4 MEC Identification

The UXO Technician will carefully remove enough soil, without disturbing the MEC, to facilitate positive identification or to obtain its identification features. UXO Technicians will make every effort to identify MEC through visual examination of the item for markings and other identifying features such as shape, size, and external fittings. The use of archival information and ordnance publication will assist in the identification process.

2.11.5 MEC Transportation

Transportation of MEC may be a consideration if safe to do and there is a compelling reason. Guidelines to determine whether to transport and procedures for transport are discussed below.

2.11.6 Determination to Transport MEC

Recovered military munitions or MEC will not be moved by personnel unless it is safe to do so. Movement of MEC by hand is authorized only after positive identification and a determination by the UXO Technician III and either the SUXOS or UXOSO that the

MEC is safe to move. A conservative approach to MEC transportation will be taken and only considered when the item is positively identified as safe to move.

2.11.7 Procedures for Transportation of MEC

2.11.7.1

If onsite movement of MEC for disposal or venting is approved, move the MEC in the position found. Movement over short distances for onsite consolidation will be done by hand-carrying the MEC in the position found.

2.11.7.2

Movement of greater distances (e.g., to another grid for disposal or venting) may be done in a specially-equipped pickup truck. The truck must have the appropriate placards and a non-sparking bed liner and tie-down points. The MEC will be stabilized with sandbags or placed in a wooden box filled with sand and securely tied down. The driver of the transport vehicle will be followed by another similar vehicle and driver to assist him in loading and unloading the MEC, and in the event of mechanical trouble.

2.11.8 MEC Safe Holding Areas

Depending on condition and quantity of MEC encountered, one of the two courses of action will be taken:

- MEC will be left in place pending disposal.
- MEC will be transported to on-site consolidation point pending disposal:

MEC items left in place pending disposal will have geographic coordinates and item information gathered. The specific location of the item will be evaluated to determine any security or access concerns. Finally, the next planned demolition event for the site will be considered to determine if additional measures will be necessary to maintain control/security of the item. Additionally, activities that may result in increased trespassing or attempts to access the work areas will be evaluated to determine if additional measures should be taken to discourage access, prevent access, or minimize potential encounters with MEC. USFWS, USEPA, and PREQB will be notified if the site personnel are made aware of the possibility of increased trespassing, so they can provide notification to the appropriate enforcement agencies for both waterway access and land access. A designated area will be established on-site for collection of Material Potentially Presenting an Explosive Hazard.

2.11.9 MEC operation in Populated/Sensitive Areas

Due to the remote location of the work site, no operations will be conducted near populated areas.

2.11.10 Demolition Procedures

Procedures for demolition are located in the ADVENT SOP attached to the end of this Chapter

2.11.11 Post Demolition Operations

After successful initiation of the explosive charge, the UXO Team will conduct an inspection of the disposal site and surrounding area to ensure complete destruction of the MEC. After verifying no more detonations will be required, an “all clear” notification will be issued. The UXO Team will collect for disposal all large MEC fragments and other debris, and generally clean and restore the area.

2.11.12 Engineering Controls

Currently site access is controlled by concrete barricades that limit vehicle traffic to the site and signs posted on the north and south beach warning of the explosive hazards associated with the site. Prior to MEC removal plastic fencing will be installed on the beaches to augment the existing signs.

2.12 Management of Material that Presents a Potential Explosive Hazard (MPPEH)

During removal operations, UXO Technicians will encounter the following types of metallic contamination: MEC items; MPPEH/munitions debris (MD) that is contaminated with explosives or other hazardous materials; non-hazardous ordnance-related scrap metal; and general metallic debris. Because the metal scrap recovered will ultimately be disposed of offsite, it is imperative that procedures be established to preclude live ordnance or hazardous materials from becoming intermingled with non-hazardous metal scrap.

2.12.1 Collection Points

2.12.1.1

A systematic approach for collecting and inspecting metal scrap will be used. The approach is designed to ensure that the materials undergo a continual evaluation and inspection process from the time acquired until finally removed from the site.

2.12.1.2

At the operating site, two scrap metal holding areas will be established. One area will be marked “Non-MEC Scrap Metal” and will be used to collect general metal debris. The other area will be marked “MD-Related Scrap Metal” and will be used to collect non-hazardous ordnance-related scrap metal (i.e., metal components that do not contain any explosives or other hazardous materials). Collection procedures begin at the time the metal item is discovered by the UXO Technician. At this point the UXO Technician makes a preliminary determination as to the classification of the item. If the item is

identified as non-ordnance-related scrap, it is placed in a temporary non-MEC/MPPEH scrap accumulation point located within the current operating grid. If the item is identified as MPPEH/MD, it is placed in a temporary MPPEH/MD accumulation point. Again, this point is located within the current operating grid. Upon completion of operations within a grid, the UXO Supervisor for the team that cleared the grid will inspect each of the scrap piles and direct movement of the scrap into the appropriate site collection container. To preclude migration of the material from one pile to the other during movement to the scrap containers, each pile will be moved as a distinct and separate vehicle load.

2.12.2 Removal of Scrap Metal/Range Residue

The UXO Disposal Team will collect the scrap piles deposited at the grid corner markers by the UXO Clearance Team and will perform an inspection to confirm that segregation of the MPPEH/MD has been done correctly and that no live MEC has been placed in the MPPEH/MD pile. The MPPEH/MD will be inspected and divided into two groups:

- 1) MPPEH requiring further demilitarization; and
- 2) MD that does not require further demilitarization. Figure 2-2 is a Logic Diagram for the Collection and Disposition of MPPEH/MD Scrap.

2.12.3 Segregation of Scrap Metal/Range Residue

For purposes of disposal, MPPEH/MD shall be segregated and defined as either, Group 1a, Group 1b, or Group 2.

- **Group 1, Scrap Metal/Range Residue** Group 1 includes property that previously contained explosives or that does not contain items of a dangerous nature and can be certified inert and/or free of explosives or other dangerous materials. Group 1 includes targets, certain expended ordnance, etc.
- **Group 1a, Scrap Metal/Range Residue** Group 1a includes firing-range-expended small arms cartridges and inert metals gleaned from range cleanup. Metals gleaned include material for which the only use is for its basic material content (clean shrapnel, target metal, etc.) and does not include material with any residual utility or capability or that is considered to be munitions list items (MLI) or CCLI. Such material is eligible under the Resource Recovery and Recycling Program for disposition by a Qualified Recycling Program (QRP) in accordance with DoD 7514.1, Pollution Prevention. DoD Components may exercise direct sale authority for firing-range expended small arms cartridge cases provided that they are crushed, shredded, or otherwise destroyed prior to release from DoD control.
- **Group 1b, Scrap Metal/Range Residue** Group 1b includes any certifiable material or item not meeting the criteria in 1a above. A determination shall be made as to whether the material or item requires demilitarization. Damage

sustained does not necessarily constitute demilitarization. Destruction shall, at a minimum, satisfy the provisions of DoD 4160.21-M-1. This material is not eligible for a QRP.

- **Group 2, Scrap Metal/Range Residue** Group 2 includes inherently dangerous items that may potentially contain munitions residue and cannot be certified as inert, such as practice bombs (duds, MEC, BDU-33, MK-106, etc.)

2.12.4 Disposition of Munitions List Items (MLI)

Demilitarization should be accomplished by the most cost-effective method consistent with adequate security and surveillance, as economically as practical in accordance with existing environmental standards and safety and operational regulations, to the point of assuring freedom from explosives, toxic or incendiary materials, smoke content, or design hazards by one of the following methods:

- By a sales contractor as a condition of sale. Unless otherwise authorized, property to be demilitarized in accordance with DoD 4160.21-M-1 must be demilitarized prior to transfer of title to a purchaser.
- By the DRMO, generating activity, designated Military Service/Defense Agency, or contractor personnel (qualified UXO personnel).
- Under a service/performance contract.

2.12.5 Assignment of Demilitarization Codes

The proper procedure requires that MPPEH/MD scrap be assigned a demilitarization code; that code determines the type of processing required. For almost all MPPEH/MD scrap, the assigned code should be "A." Assignment of this code is the responsibility of the generating activity (for range maintenance contracts it is the National Training Command; for BRAC removal actions, it is the BRAC office; and for FUDS, it is the USACE). The contractor and MEC expert will assist in determining the demilitarization code to be assigned and the method and degree of demilitarization required.

2.12.6 Definition of Demilitarization Code G:

"G" MLI -- Demilitarization required - AEDA, Demilitarization, and if required, declassification and/or removal of sensitive markings or information will be accomplished prior to physical transfer to a DRMO. This code will be used for all ADEA items, including those which also require declassification and/or removal of sensitive marking or information. [When in doubt, assign Demilitarization Code "G" for all recovered ORS.]

2.12.7 Demilitarization Requirements

2.12.7.1

Demilitarization and decontamination of MPPEH/MD scrap are based on a system that assigns decontamination levels commensurate with the post-treatment use. For metal that is being released to the public as recyclable, 5X is the acceptable degree of decontamination. Past practices for recovery and certification of MPPEH/MD scrap from range maintenance contracts, BRAC, and FUDS removal actions have improperly certified MPPEH/MD scrap as safe for turn-in to DRMO for recycling based on inspection and certification by UXO Technicians. In most cases this achieves a 3X level of decontamination de facto. This is not sufficient for resale to the public. Three X's indicate that the equipment or facilities (in this case, MPPEH/MD scrap) have been examined and decontaminated by approved procedures; that no contamination can be detected by appropriate instrumentation, test solutions, or visual inspections on easily accessible surfaces or in concealed housings, etc.; and that the equipment or facilities are considered safe for the intended use. Items decontaminated to this degree cannot be furnished to qualified DoD or industry users or subjected directly to open-flame cutting, welding, high-temperature heating devices, or operations that generate extreme heat (such as drilling and machining).

2.12.7.2

Newly implemented certification procedures require two signatures for certification, of which only one signature may be from a government contractor. The only acceptable way to get to 5X decontamination is by partial or complete removal, neutralization, or destruction of explosives/explosive residue by flashing, steaming, neutralization, or other approved desensitizing method such as shredding. This is often expensive and nullifies the value of the scrap

2.12.7.3

Technical instructions issued by the Defense agency or military service having procurement responsibility for the item involved and/or instructions provided through the DoD Demilitarization Bulletin Board System will determine and identify the method of demilitarization and the degree to which additional demilitarization is necessary to meet the requirements in their respective areas. For additional information, contact the following:

- For ammunition procured by the Department of the Army, technical instructions relating to ballistic missiles and large rockets will be furnished by the Commander, U.S. Army Aviation and Missile Command (AMCOM), Attn: AMSAM-DSA-WO, Redstone Arsenal, AL 35898-5239.
- For conventional, chemical, and all other types of ammunition procured for the Army except lethal chemical agents and waste munitions, technical instructions will be provided by the U.S. Army Industrial Operations Command, Attn: AMSIO-SMK, Rock Island, IL 61299-6000.

- For lethal chemical agents, including vesicants and nerve agents and their carriers, technical instructions will be furnished by the U.S. Army Armament Material Readiness Command Program Manager for the Demilitarization of Chemical Material, Edgewood Arsenal, Aberdeen Proving Ground, Maryland 21010.
- For ammunition procured by the Department of the Navy, technical instructions will be issued by the Commander, Naval Sea Systems Command, or by the Commander Naval Air Systems Command, Department of the Navy, Washington, D.C.
- For ammunition procured by the Department of the Air Force, technical instructions will be issued by the Engineering and Reliability Branch (MMWR), Ogden Air Logistics Center, Ogden, UT 84056-5609.

2.12.8 Venting of MPPEH Scrap

Prior and current practices have taken this to mean that if the MPPEH item is intact and resembles a piece of military ordnance, such as a 105mm HEAT (Practice) projectile, it should have a hole punched through the side to expose the filler as non-explosive. This is typically accomplished through the use of a shaped-charge attack, or vented using remotely operated water-jet cutting technology. The explosively created hole exposes the filler and disfigures the projectile so that it cannot be used again. MPPEH known or suspected to be inert (filled with an inert substance to simulate the weight of an explosive filler) will be explosively vented with conical-shaped charges or vented using a remotely operated water-jet cutter. For the purpose of determining the fragmentation hazard area for venting, it will be assumed that the MPPEH has an explosive filler and that a high-order detonation will occur. Venting will be considered successful when the inert filler is exposed. The vented inert ordnance item can be treated and disposed of as scrap after the venting and demilitarization process is complete.

2.12.9 Certification/Disposal of Scrap Metal

Certification and disposal of scrap are not included in this scope of work. MEC scarp and non MEC scrap will be segregated in the fenced areas in the LIA.

2.13 Community Relations

ADVENT will provide as required by NAVFAC any services related to community service or Public Meetings.

2.14 Project Data

Project data will be provided to the NAVFAC Title II contractor in an on going basis to maintain the master project database.

2.15 Reports

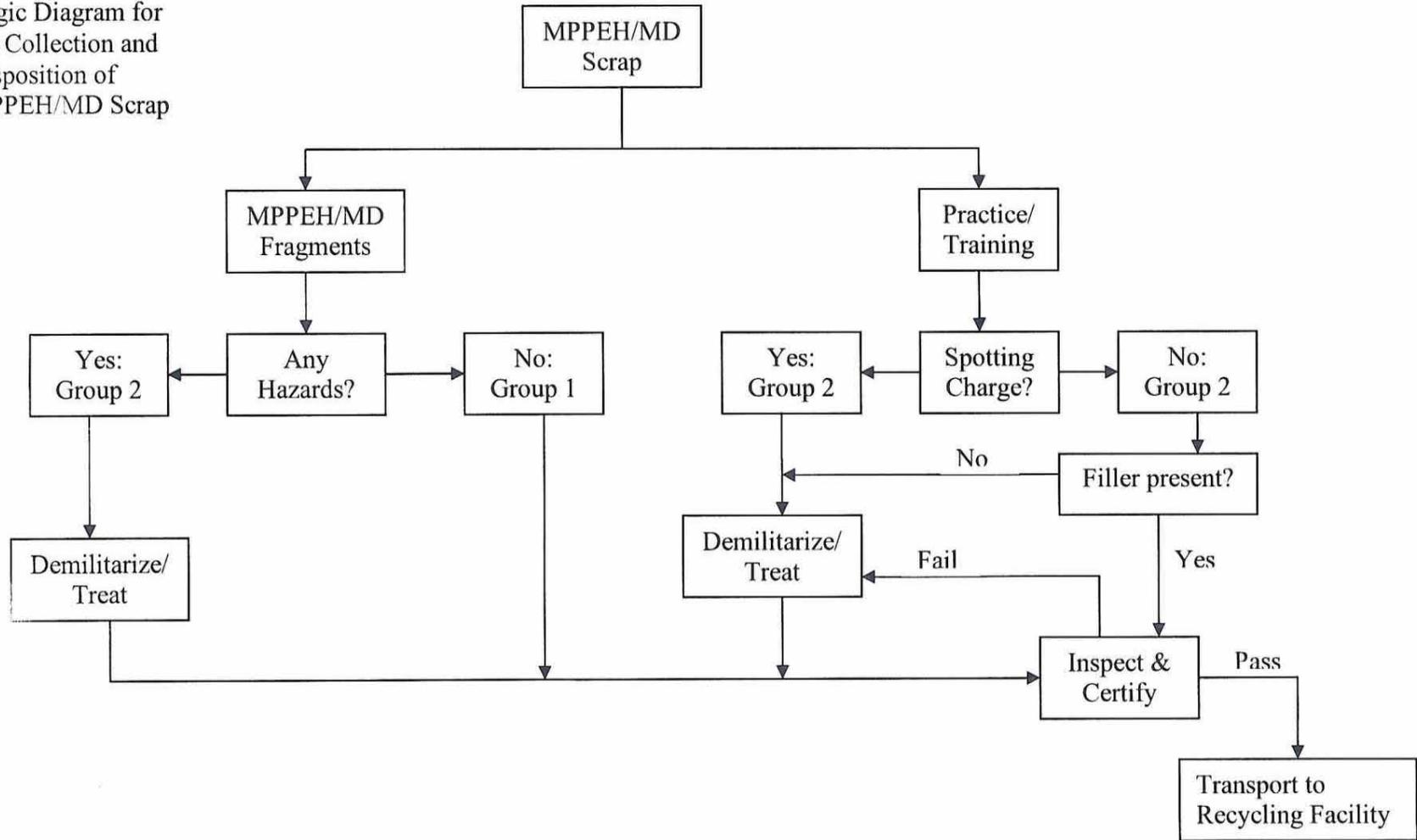
Operations summaries will be maintained throughout the project so that the PM will be able to provide the following reports:

- Weekly progress reports
- Monthly progress reports
- Final removal reports

2.16 Lessons Learned

ADVENT will maintain a daily site journal documenting all site activities. This journal will allow ADVENT to review practices and make the appropriate changes to the lessons learned during the removal action. These lessons will be passed on in a written format as identified to NAVFAC and the NAVFAC Title II contractor representative on site in an effort to improve upon procedures and safety. A compilation of all lessons learned will be documented in the final removal report.

Figure 2-2
 Logic Diagram for
 the Collection and
 Disposition of
 MPPEH/MD Scrap



FORM 2-1

MEC INFORMATION FORM

DATE/TIME: _____ IDENTIFICATION# (ID): _____

LOCATION: _____

1. ITEM REMOVED FROM SITE (YES/NO)

2. WHO REMOVED THE ITEM?

Name: _____ Organization: _____

3. IF ITEM WAS REMOVED, WHERE WAS IT TAKEN? _____

4. ITEM DESTROYED ONSITE (YES/NO)

5. WHO DESTROYED ITEM?

Name: _____ Organization: _____

Time of Detonation: _____ MEC Down Time: _____

6. MEC ITEM ENCOUNTERED:

Type	Reference Information Location*	Condition Disposition	Condition Disposition
------	---------------------------------	-----------------------	-----------------------

*Identify location where records regarding information on this item are located (e.g., field book # and date, electronic file name and location, paper form ID and location) or record parameters listed below in comments section.

- The site vegetation, topography and soil/bedrock type
- Transect locations (for Inland MRS)
- Geographic location
- MEC size
- Qualitative magnitude of geophysical sensor response for subsurface anomaly
- Orientation of item
- The condition of the MEC (whether or not expended)
- Disposal method if item is removed
- Disposal date if applicable
- Whether or not the MEC is fuzed and contains explosive filler

7. US NAVY NOTIFIED AT (TIME): _____ REP: _____

8. CH2MHILL PERSONNEL NOTIFIED AT (TIME): _____ REP: _____

9. COMMENTS (Significant events or findings): _____

UXO Technician _____ (Print) _____ (Sign)

Demolition SOPs

**Surface Munitions of Explosives Concern at Munitions
Response Area-Live Impact Area, Munitions Response Sites
1 through 4, 6, 16, 17, and 30**

**Former Vieques Naval Training Range (VNTR)
Vieques, Puerto Rico**

Prepared for:

**Department of the Navy
Atlantic Division
Naval Facilities Engineering Command**

**Contract Task Order 002
Contract Number**

N624670-02-D-9992

Prepared by:



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April 2005
ADVENT Job Number 04-529

EXPLOSIVE DEMOLITION PROCEDURES

INTRODUCTION

Explosive demolition operations will be conducted by electrical means to assure maximum control of the site, except in situations where static electricity or EMR hazards may be present. This document, however, includes both electrical and non-electrical procedures. Non-electrical procedures are included to provide procedural guidance should circumstances arise where non-electrical firing procedures are the most prudent means of initiating a demolition shot. The Demolition Supervisor will recommend to the SUXOS times when using non-electric demolition procedures will be the most prudent means of disposal. The SUXOS will decide the disposal procedures to be used.

All disposal operations are under the direct control of the Demolition Supervisor, who is appointed by the SUXOS. Prior to conducting a disposal operation, the Demolition Supervisor will conduct a safety briefing to the members of the demolition team. This safety briefing will include, at a minimum: phases of the operation, review of explosive handling and ERM precautions, location of safe area, emergency notification procedures, site specific characteristics, type of OE / UXO being destroyed, placement and quantity of counter charge, misfire procedures, post-detonation clean up of range, care and handling of explosive materials, personal hygiene, two person rule, potential trip / fall hazards, wind direction (toxic fumes), and the location of first aid kit and fire extinguisher.

The Demolition Team Leader will maintain custody of the blasting machine or fuze igniters until just prior to initiating the demolition shot. The Demolition Team Leader shall ensure notification of the appropriate organizations prior to daily on-site demolitions; the work plan will mention the specific agencies.

Demolition Team members will be assigned tasks by the Demolition Team Leader. As each task is completed the team members report the completion of the tasks to the Demolition Team Leader. The types of tasks that may be required are:

- Secure all access roads to the demolition area.
- Visually check demolition site for any unauthorized personnel.
- Check firing wire for continuity and shunt (if using an electrical firing system).
- Prepare designated shots.
- Check continuity of detonators (if using and electrical firing system).
- Secure the detonators in a safe location.
- Place charge in desired location.

The Demolition Team Leader will ensure that telephone or radio communication is established with emergency response personnel. No radio or cellular telephone transmissions will take place in the vicinity during the positioning or connecting of electrical initiating devices. Additional overall safety precautions for demolition operations include:

- Operations will be conducted in accordance with Army Technical Manual 60A 1-1-31 (Explosive Ordnance Procedures).
- During demolition operations, a designated emergency vehicle (in addition to the range vehicle) will remain in the area. The emergency stand-by vehicle will be kept a safe distance from the demolition operation and will be manned by at least one safety observer.
- Keep blasting caps in approved containers, located at least 7.62 meters (25.0 feet) from other explosives, until they are needed for priming.

- Always point the explosives end of blasting caps, detonators, and explosive devices away from the body and other personnel during handling. This will minimize injury should the item explode.
- Blasting caps will not be buried.
- If explosive charges are to be covered or tamped with earth, charges will be fitted with detonating cord leads that protrude 1.8 meters (6 feet) from the earth.
- Blasting caps less than the equivalent of a commercial No. 8 cap will not be used unless used with commercial explosives and approved by the explosives manufacturer.
- Only those explosives or initiators needed to meet the requirement of the operation will be transported to the disposal site.
- Blasting machine or activating device will not be surrendered to the individual designated to fire the shot until the Demolition Team Leader is assured that the area is clear.
- An area approximately 15 feet in diameter around the demolition site shall be cleared of dry grass, leaves, and other extraneous combustible materials if needed.
- There will be a minimum wait time of 30 seconds (for electric operations) or 5 seconds (for non-electrical operations) between detonations.

ELECTRICAL DEMOLITION PROCEDURES

ELECTRICAL DEMOLITION SAFETY PRECAUTIONS

- Personnel working with electric blasting caps or other electro-explosive devices will not wear static producing clothes such as nylon, silk, or synthetic fiber.
- The blasting device will be tested in accordance with manufacturer's specifications daily when conducting demolition operations. The manufacturer's operation manuals for blasting equipment used on the site will be attachments to this document.
- Prior to making connection with the electric blasting cap, the firing circuit will be continually tested.
- Electric blasting caps will be connected to the firing circuit before connection to the main initiation charge.
- Electric blasting caps of different manufacturers or types will not be used in the same system.
- The shunt will not be removed from the wires until the individual performing the operation has been grounded.
- Test electric blasting caps for continuity with a galvanometer at least 50 feet from any explosives prior to connecting them to the firing circuit. Upon completion of testing, the lead wires will be shunted by twisting the bare ends of the wires together. The wires will remain shunted until ready to connect to the firing circuit.
- Do not pull on electrical lead wires of electrical blasting caps, detonators or other electro-explosive devices; a detonation may occur.
- Unroll the leg wires so that the cap is as far as possible from the operator and pointing away from him.
- Place the blasting cap in a hole 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 authorized and serviceable testing equipment.
- 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 charge.
- Do not hold the blasting cap directly in the hand when uncoiling leads. Hold the wires approximately 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 should ground himself prior to this operation to prevent accumulated static electricity from firing the blasting cap.
- Keep both ends of the firing wires shunted or twisted together except for testing or firing. Do not connect the blasting caps to the firing circuit unless the power end of the firing circuit leads are shunted.
- 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.

2.2 *ELECTRIC DEMOLITION PREPARATION AND PRIMING*

An electric firing system is one in which electricity is used to fire the primary initiating element. An electric impulse supplied from a power source, usually an electric blasting machine/device, travels through the firing wire and cap lead wires to fire an electric blasting cap. The chief components of the system are the electric blasting cap / electric squibs, firing wire, and the blasting machine/device. The preparation of the explosive charge for detonation by electrical means is called electric priming. Static electricity is an increased hazard when operating in an extremely cold climate or area of low humidity. Care must be taken to reduce the possibility of premature detonation of electric blasting caps and other electro-explosive devices.

Procedures:

- Ensure you have positive control of the block that prevents inadvertent functioning of the electrical firing device (key, handle).
- Prepare and place all explosive charges.
- After locating a firing position a safe distance away from the charges, lay out the firing wire. (Do not drag firing wire over sand, which may generate a static charge.)
- Test the firing wire by using a blasting galvanometer or test set, after you have ensured the testing equipment is functional, and after the firing wire has been unreeled. Ensure ends are twisted together when not testing.
- Separate firing wire conductors at both ends, and touch those at one end of the galvanometer / test set posts. Needle should not move or lamp glow; if either occurs; the firing wire has a short circuit. Repair or replace firing wire and retest. Repeat until a good test is made.
- Twist wires together at one end and touch those at other end to 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 that may be caused by a dirty wire, loose wire connections, or wires with several strands broken off at connections. Repair and replace firing wire and retest. Repeat until a good test is made.

- Ground yourself. Test the blasting caps by placing the caps under a sand bag and extending the leg wires to their full length. Turn your back to the caps and remove the short circuit shunt. Touch one end of the cap lead wire to one post and other cap wire to other post. If galvanometer's needle deflects slightly less than it did when the instrument was tested, the blasting cap is satisfactory; if not, the cap is defective and should not be used. On a galvanometer the deflection should read at least half scale. On a test set the lamp should glow. Ensure cap lead wires are twisted together when not testing.
- Attach the legs wire of the caps into a parallel circuit and then connect them to the firing wire. Insulate the connections using electrical tape.
- Request permission to prime from demo supervisor. Do not proceed until permission is granted.
- Attach the blasting caps to the main charge.
- Depart to firing point.
- Take cover.
- Obtain a head count and visually inspect for unauthorized personnel.
- Ground yourself. Test entire circuit after inserting caps into the charges and connecting charges with the firing wires and moving to firing position. Touch free ends of firing wire to test instrument posts. This should cause a wide deflection of needle or lamp glow. If the firing circuit is defective, shunt wire. Then go down-range and recheck circuits. If the splice is found defective, replace wires. If the cap is found defective, replace it. Retest the entire circuit again to make sure that all breaks have been located before attempting to fire.
- Exercise the blasting machine before attaching the firing wire. Untwist ends of the firing wire and fasten them to the posts of the blasting machine.
- Yell, "Fire In The Hole" three times and initiate charge.
- Remain in designated safe area until Demolition Supervisor announces "All Clear".

When using a remote firing device the above procedures will be modified using the following procedures in accordance the manufacturer's operation manuals beginning with the following step.

- Request permission to prime from demo supervisor. Do not proceed until permission is granted.
- Ensure that the power is off to the transmitter and the Safe-Arm key is removed. (Power LED is off)
- Ensure the power is off to the receiver and then rotate the antenna to the vertical position
- Connect the firing wire from the detonators to the receiver.
- Press and hold the "POWER" button until the LED light is on. Wait till the device completes its diagnostics check.
- Press the "channel select" button until the channel ID LED indicates the desired channel ID.
- Press and hold the "ARM" button until the LED begins to flash. The time will be recorded. The device has a 5 minute safe separation period to allow personnel to exit the area.

- As soon as the ARM sequence is started the detonators will then be connected to the explosive charge. Demo personnel will then return to the safe area.

WARNING: Do not touch the receiver after the caps have been attached to the explosive charge.

- At the firing point ensure all personnel are accounted for.
- After the 5 minute safe separation time has expired Rotate the transmitter antenna into the vertical position. Press and hold the "POWER" button until the power LED indicates the unit is "ON". Allow the unit to complete the self diagnostics test.
- Press the "CHANNEL SELECT" button until the LED adjacent to the desired channel is on.
- Insert the Safe-Arm key into the slot at the base of the transmitter, the "FIRE" LED will light.
- When given permission to fire, give three loud "Fire In The Hole" and press the FIRE button. The FIRE LED will flash indicating the transmission of the fire command.
- Remove the Safe-Arm key and power down the unit.
- Remain in the safe area until the Demolition Supervisor gives the "All Clear"

ELECTRIC MISFIRES

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; and the number of blasting caps in any circuit does not exceed the rated capacity of the power source on hand. Common causes of electric misfires include: inoperative or weak blasting machine 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 of different design; and the use of more blasting caps than the power source rating permits.

Clearing Electric Misfires.

- Make several successful attempts to fire.
- Check firing wire connections to blasting machine terminals to be sure that contacts are good.
- Make two or three more attempts to fire charge.
- Disconnect blasting machine and short firing wire.
- Allow a minimum of 30 minutes to elapse before starting to investigate.
- Test firing circuit testing for breaks and short circuits, and correct any defects discovered.
- Remove and disconnect old blasting caps and short wires.

- Connect wires of new blasting cap (s) to firing circuit and re-prime the charge.
- Reconnect firing wire ends to blasting machine and fire charge (s).

Clearing Remote Misfires.

- On the transmitter, remove the Safe-Arm key card. The ARM LED will go off. Press and hold the transmitter POWER button until the power LED goes out.
- Observe a minimum 30 minute wait time in the safe area.
- Return to the demolition shot and carefully remove the caps from the explosive charge.
- Remove and shunt the firing wire from the receiver.
- Power down the receiver by pressing the power button. Note the power, arm and battery low LED's
- Remove and disconnect the old blasting caps and shunt the wires.
- Determine the cause of the misfire and correct the problem. If the cause cannot be determined use a different receiver. Repeat the remote firing procedures.

NON-ELECTRICAL DEMOLITION PROCEDURES

NON-ELECTRIC SAFETY PRECAUTIONS

- Handle non-electric blasting caps only by their open ends except during attachment to safety fuse and / or detonating cord.
- Handle primed safety fuse with care to avoid contact between blasting caps or between the caps and other hard objects.
- Do not prime more than required number of charges.
- Do not insert anything but safety fuse or detonating cord into the open end of a blasting cap.
- Do not crimp blasting caps by any means except a cap crimper designed for that purpose and insure that the fuse cutting section of the crimper is not accidentally used in crimping.
- Do not allow the safety fuse to coil up and contact itself after being ignited. If the fuse wrapping comes into contact with itself at a point near the blasting cap, premature detonation could occur.
- Handle any percussion detonator with the same care as a blasting cap, taking care to protect its primer end from blow or shock.
- Do not confuse detonating cord with safety fuse.

NON-ELECTRIC PREPARATION AND PRIMING

A non-electric system is one in which an explosive charge is prepared for detonation by means of a non-electric blasting cap. The basic priming materials consist of a non-electric blasting cap, which provides the shock adequate to detonate the explosive, and the safety fuse, which transmit the flame that fires the blasting cap and the fuse igniter. If more than one charge must be detonated simultaneously, the non-electric system must be connected with detonating cord to ensure the simultaneous firing.

Procedures:

- Cut and discard approximately a 6-inch length from free end of safety fuse to prevent a misfire caused by exposed powder absorbing moisture from the air. Then cut off 36-inches of safety fuse to check burning rate. The fuse may be ignited by a

match, but a fuse igniter is recommended for greater accuracy. Conduct this test at least 50-feet downwind from any explosives.

- Ignite fuse and not time required for fuse to burn. Then, compute burning rate per foot by dividing time in seconds by length in feet. All fuses in the same roll should burn at the same rate. The burning rate will vary depending upon the type of fuse, i.e., older military types of fuse coils should burn approximately 30-45 seconds per foot, while new m700 safety fuse should burn uniformly at 40 seconds per foot.
- Cut fuse long enough to permit person detonating the charge to reach a safe distance by walking a normal pace before the explosion. A minimum of 6-feet of safety fuse will be used. Insure that the safety fuse is cut smoothly and squarely before inserting it into a blasting cap. A jagged or rough cut can cause a misfire.
- Attached fuse igniter inserting free end of safety fuse until it rests against primer.
- Take a blasting cap from cap box and inspect it by looking into open end. If any foreign matter or dirt is present, hold it with open end down, and shake it gently or light bump hand holding it against other hand. If foreign matter does not come out, select another cap and destroy the first.
- Slide safety fuse into blasting cap until it is seated (contacts the primer mixture at the end of the cap). After blasting cap has been seated, hold cap firmly against fuse.
- Slide second finger down outer edge of blasting cap to guide crimpers, and thus obtain accurate crimping.
- Crimp blasting cap at a point approximately 0.125 to 0.25-inch from the open end. If operations are conducted during inclement weather, a second crimp in close proximity to the first may be used to further waterproof / seal blasting cap.
- Insert cap into explosive (donor charge).
- Lay out safety fuse in a straight line and secure it at each end in such a way as to prevent the safety fuse from recoiling itself after ignition.
- Upon obtaining a head count, the Demolition Supervisor will direct a; other team members to the designated safe area.
- Upon providing adequate time for the team members to reach the designated safe area, the Demolition Supervisor or designated team member will yell, "**Fire In The Hole**" three times, pull the igniters, and depart to designated safe area.
- If a fuse igniter is not available, light safety fuse with a match by splitting the fuse at end, placing head of an unlighted match in powder train, and then lighting the inserted match head with a flaming match.
- Remain in designated safe area until Demolition Supervisor announces "**All Clear**".

NON-ELECTRIC MISFIRES

A misfire should be extremely rare if the following procedures are followed carefully.

- Prepare all primers properly.
- Load chargers carefully.
- Place primer properly.
- Perform any tamping operation with care to avoid damage to an otherwise carefully prepared charge.
- Fire charge according to proper technique.

- Use dual firing systems. If both systems are properly assembled, the possibility of a misfire is reduced to a minimum.
- Do not use blasting caps underground; use detonating cord.
- Clearing non-electrical misfires:
 - Allow a minimum of 60 minutes to lapse, after maximum delay predicted for any part of disposal shot has passed, before starting to investigate.
 - When practical, insert a new fused blasting cap into charge if this can be done without disturbing the old blasting cap, or prime and place a new charge close enough to the original charge to ensure detonation of both. When necessary, a misfired blasting cap may be removed and a new fused blasting cap inserted.

SHOCK TUBE PROCEDURES

The following procedures for the use of shock tubes are included as an alternative means only. Inclusion of these procedures at this time facilitates any subsequent work plan revision.

SHOCK TUBE SAFETY PRECAUTIONS

- The detonators in the NON-EL system are non-electric, and should be handled only as much as necessary.
- Handle detonators with the same care as a blasting cap, taking care to protect it from blows or shocks.
- Handle primed shock tube with care to avoid contact between detonators and other hard objects.
- When cutting shock tube, the following applies:
 - After cutting a piece of shock tube, immediately tie a tight overhand knot in one or both cut ends or splice one exposed end and tie off the other.
 - Always use a sharp knife or razor blade to cut shock tube so as to prevent the tube from being pinched or otherwise obstructed.
 - Always cut shock tube squarely across and make sure the cut is clean.
 - Use only splicing tubes provided by the manufacturer to make splices.
 - Every splice in the shock tube reduces the reliability of the priming system; therefore keep the number of splices to a minimum.
 - Always dispose of all short cut off pieces IAW local laws as they relate to flammable material.

NOTE: Although the detonation along the shock tube is normally contained within the plastic tubing, burns may occur if the shock tube is held.

SHOCK TUBE PREPARATION AND PRIMING

The Shock tube system is a thin plastic tube of extruded polymer with a thin layer of PETN coating on its interior surface. The PETN propagates a shock wave, which is normally contained within the plastic tubing. The shock tube offers the controlled instantaneous action of electric initiation without the risk of premature initiation by radio transmissions, high tension power lines or by static electricity discharge.

The shock tube systems usually use detonators in bunch blocks and in the detonator assembly, which are to be handled as similar non-electric detonators.

The high reliability of the shock tube initiating system is due to the fact that all of the components are sealed and unlike standard non-electric priming components, cannot be easily degraded by moisture. Cutting the shock tube makes the open end vulnerable to moisture and foreign contamination, therefore care must be taken to prevent moisture and foreign matter from getting in the shock tubes exposed ends.

Procedures:

Shock tube assembly:

- Spool out the desired length of shock tube from firing point to demolition site and cut it off with a sharp knife or razor blade. Weight down the loose end of the trunk line.
- Immediately seal off the shock tube remaining on the spool by tying a tight overhand knot in the cut off end.
- Using a sharp knife or razor cut the sealed end off of the detonator assembly.
- Loosely tie the two shock tube ends to be sliced together in a 3" to 6" loose overhand knot.
- Push one of the shock tube ends to be spliced firmly into one of the pre-cut splicing tubes provided by the manufacturer at least ¼ inch. Push the other shock tube end firmly into the other end of the splicing tube at least ¼ inch. Secure splice with tape if needed.
- Weight down both sides of the knot area to prevent separation of splice from shock wave generated during the firing process.
- Firing assembly set-up:
 - If there are two multiple items to be destroyed either lay out individual lines for each item or use bunch block (s) supplied by the manufacturer. For bunch block (s) lay out a lead line at demo site to the shot (s) and secure the bunch block with a sandbag, or some other item that will keep it from moving.
 - NOTE: Normally no more than six leads may be used from any one bunch block.
 - Splice the detonator assembly to the shock tube lead lines as explained in the splicing instructions above.
 - If this is a non-tampered shot place the detonator assembly into the demolition material. If the shot is to be tampered then prepare the demolition material with a detonating cord lead long enough to extend out of the tamping at least one foot.
 - Tape the detonator assembly to the detonating cord lead.
 - Return to firing position and conduct a head count. Once all personnel are accounted for and are in the safe area, proceed with the next step.
 - If the end of the shock tube is sealed, cut off the sealed end and proceed to the next step. If using a previously cut piece of shock tube, cut approximately 18 inches from the previously cut end and discard appropriately.
 - Insert a primer into the firing device and connect the shock tube lead line to the firing device ensuring that the shock tube is properly seated in the firing device.
- Take cover.
- Verify all personnel are in a safe area.
- Yell, "**Fire In The Hole**" three times and initiate charge.

- Observe a 5-minute wait time after the detonation. This wait time may be waived by the Demolition Supervisor based on observation of the detonation.
- Remain in designated safe area until Demolition Supervisor announces **"All Clear"**.

Shock Tube Misfire Procedures

The most common cause of misfires is known as "black tube failure". The shock tube propagates up to the detonator but the detonator fails to function. The following steps will be taken in the event of a misfire:

- If the shock tube fails to propagate remove the shock tube from the firing device, cut off six inches of the shock tube, insert a new primer, re-insert the shock tube ensuring that it is properly seated and re-fire. If, when you activate the firing device, the shock tube gets blown out of the firing device without activating, cut off six inches of the shock tube, replace the primer and re-insert the shock tube into the firing device and re-fire.
- If the primer functioned properly and the shock tube was heard / seen to fire, observe the standard one-hour waiting period prior to going down range.
- After the one-hour waiting period has passed, proceed down range and check the first component in the priming train (i.e. splice, bunch block or detonator assembly). Repeat this process till you reach the detonator assembly. As you conduct this inspection and discover and discover the problem, replace the firing train that functioned with a new one and ensure that all the connections are correct and secure.
- After the system has been checked and defective component repaired or replace, return to the firing point and repeat the firing process.
- If no defective component can be identified, replace the entire firing train and attempt to initiate the charge.

POST DEMOLITION/DISPOSAL PROCEDURES

- Do not approach a smoking hole or allow personnel out of the designated safe area until cleared to do so.
- After the "All Clear" signal, check pit for 'low orders' or 'kick outs'; intact ordnance items that failed to detonate will be counter-charged and blown in place. Explosive residue will be collected and detonated.
- Surface sweep pit and remove any fragmentation; metal fragments will be examined to ensure complete detonation of the explosive material.
- Check hole with magnetometer to ensure hole is clear of anomalies (that UXO did not conceal another anomaly).
- Back fill hole, as necessary.
- Police up all equipment.
- Notify support agencies (such as police and fire) that the operation is complete.

CHAPTER 3 - EXPLOSIVE MANAGEMENT PLAN

3.1 GENERAL

This section of the work plan addresses specific field-level explosive management procedures required for ADVENT to perform the TCRA within the western section of the LIA on the Former VNTR, Vieques Island, Puerto Rico. An ESS was submitted by CH2M Hill to NOSSA and DDESB and approved (December 29, 2004) as an independent document for investigation and removal of surface MEC (*Draft Final Explosives Safety Submission, Expanded Range Assessment/Site Inspection, Former VNTR, Vieques, Puerto Rico, August 2004; Draft Final Explosives Safety Submission, Expanded Range Assessment/Site Inspection, Former VNTR, Amendment 1, Vieques, Puerto Rico, March 2005*). The procedures listed herein have been developed in accordance with the following documents:

- NAVSEA OP 5 VOL I, Ammunition and Explosives Ashore: Safety Regulations for Handling, Storing, Production, Renovation and Shipping.
- OPNAVINST 8020.14, Department of Navy Explosive Safety Policy.
- OPNAVINST 5530.13, Department of the Navy Physical Security Instruction for Sensitive Conventional Arms, Ammunition and Explosives.
- DoD 6055.9-STD, Ammunition and Explosives Safety Standards.
- DoD 4165.26-M, Contractors Safety Manual for ammunition and Explosives.
- ATF P 5400.7, Explosives Laws and Regulations
- Applicable sections of DOT, 49CFR
- Local and State laws and regulations.

3.2 LICENSES AND PERMITS

ADVENT has applied for a BATFE User of High Explosive License that should be issued prior to beginning field activities. Should it be necessary to purchase explosives prior to receiving this license, ADVENT will use OER, a subcontractor licensed by BATFE. ADVENT will maintain a valid BATFE User of High Explosives license on site which will allow them to purchase, use, and store commercial explosives. Explosive vendors cannot supply explosives without the required BATFE License. A copy of license will be available on the project site, and upon request, will be made available to local, state and federal authorities.

3.3 Explosive Procedures

3.3.1 Acquisition

Based on the usage, demand and storage capacity, the types and quantities of explosives may vary during the project; however the estimated explosives for the duration of the project will be as follows:

- 2500 lbs of commercial high explosive cast boosters (main charge) in varying sizes from 0.2 lb to 1 lb. These boosters will be used to countercharge MEC.
- 3500 each jet perforators/quarry charges which are prepackaged shape charges varying in size from 19.5 gram to 36 gram used to vent MEC.
- 20,000 feet of 80 grain commercial detonating cord/Primacord will be used in the construction of the firing train to transmit the explosive shockwave from the initiating explosive to the main charge.
- 1000 each electric blasting caps which will be used as the initiating explosive.

All explosives are expected to be acquired from a commercial explosive supplier located on the main island of Puerto Rico, with no government furnished explosives anticipated.

3.3.2 Initial Receipt

3.3.2.1 Procedures for Receipt

3.3.2.1.1

Shipments of explosives will originate for the commercial supplier located on the main island of Puerto Rico. Two delivery vehicles are available to transport explosives from the island of Puerto Rico to the island of Vieques; the first is a chartered aircraft and the second is a chartered watercraft. Depending upon timing, availability and weather conditions either option may be used.

3.3.2.1.2

When the shipments are scheduled and the delivery vehicle selected the explosive supplier will deliver the shipment to the selected delivery vehicle. The Puerto Rican Police will verify the shipment before it leaves the supplier and again before it is loaded on the delivery vehicle. The delivery vehicle will then deliver the shipments to Vieques. The shipments will be met upon arrival in Vieques by the project personnel designated and authorized to receive and transport explosives, the ADVENT UXOSO and the Vieques Police or appropriate law enforcement.

3.3.2.1.3

At the time the explosives are offloaded from the delivery vehicle the project person authorized to receive explosives and the UXOSO will begin an inventory or count of the explosives to verify the shipping documents match the explosives received. A comparison of the shipping documents, explosives and the requested amounts and types of explosives with signatures, times and dates will be conducted. This will be conducted before the operator of the delivery vehicle is allowed to leave. Once the paperwork is verified and all explosives are accounted for the project personnel will then take all explosives directly to the explosive storage magazines (buildings 4710A and 4710B) located near Operation Post 1 (OP1) in the VNTR. A copy of the shipping documents will be maintained onsite at the project office.

3.3.2.2 Procedures for Reconciling Discrepancies

Any discrepancies between the shipping documentation and the amounts and type of explosives received will be noted on the shipping document and signed by both the delivery vehicle operator and the person authorized to receive explosives. Discrepancies will immediately be reported to the SUXOS, ADVENT SM and PM. The ADVENT PM will call the explosives distributor and reconcile any differences. In addition he will contact the NAVFAC Atlantic NTR.

3.3.3 Storage

ADVENT will store explosives in established explosive magazines (buildings 4710A and 4710B) to comply with explosive compatibility requirements (i.e. bulk explosives, initiating explosives). The magazines are in place and comply with all applicable storage and distance requirements defined in Chapter 4 of the plan.

3.3.3.1 Establishment of Explosive Storage Facilities

3.3.3.1.1

Explosive storage magazines have been established in the VNTR and explosives will be stored within these magazines with its Hazard Division (HD) and the storage compatibility group criteria in accordance with DoD 6055.9-STD and NAVSEA OP 5 Volume 1.

3.3.3.1.2

If temporary explosives magazines are required they will be Type 2 magazines as described in Section 55.206 of BATF P 5400.7, Alcohol, Tobacco, Firearms and Explosives Laws and Regulations will be used. The maximum NEW to be stored in each temporary magazine is 50 pounds. This explosive storage area will meet the requirements of:

- BATF P 5400.7- Alcohol, Tobacco, and Firearms Explosives Laws and Regulations;
- DoD 6055.9-STD- DoD Ammunition and Explosives Safety Standards, and
- NAVSEA OP 5 Volume 1, Ammunition and Explosives Ashore: Safety Regulations for Handling, Storing, Production Renovation and Shipping.

3.3.3.1.3

For building 4710B, storage of 3000 pounds NEW of HD 1.1 explosives, the IBD is 1,250 feet; the PTR distance is 60 percent of the IBD or 750 feet. For building 4710A, storage of 100 pounds NEW of HD 1.4 explosives the IBD is 75 ft and the PTR is 75 feet

3.3.3.2 Physical Security

3.3.3.2.1

No individual will have lone access to the explosives stored in buildings 4710A and 4710B. The explosive storage magazines are surrounded by a chain link security fence with a lockable gate. Each gate will be secured with two, separately keyed, high security locks. The magazine doors are fitted with a tamper resistant hardware which will accept a single high security lock. The keys for the gates will be divided between the SUXOS and the UXOSO so that no one person can access the explosives without the other.

3.3.3.2.2

If temporary magazines are required, locks will meet the standards for BATFE Type 2 magazines, as specified in section 55.208(a) (4), BATF P 5400.7. Each magazine will have two locks. The SUXOS will hold a key to one of the locks, and the UXOSO will hold the key to the other lock. Access to the explosives will require both individuals.

3.3.3.2.3

A Security guard will be posted at OP 1 when explosives are stored in buildings 4710A and 4710B. The guard will verify the security of both facilities every two hours. The guard will have reliable communications to notify Fish and Wildlife Services and local law enforcement in the event of suspicious activities, tampering, or an emergency.

3.3.3.3 Placards

Explosive storage magazines will be clearly marked with appropriate DoD fire symbols required by OP 5 with hazard division and class. The NFPA 704 hazard identification for firefighting personnel will also be displayed at the magazine area. Signs stating "DANGER EXPLOSIVES KEEP OUT", "NO SMOKING WITHIN 50 FEET" and emergency contact information (names and phone numbers) will be posted on the fence surrounding the magazines.

3.3.3.4 Lightning Protection System

Building 4710A and 4710B will be inspected for an installed lightning protection system (LPS). If there is an LPS the system will be inspected, repaired as required and re-certified.

3.3.3.5 Fire Protection

Fire extinguishers of 10 pounds and type BC will be located in the magazine area. Smoking, matches, open flames, spark producing devices and firearms will not be permitted within 50 ft of the magazines. The area surrounding the magazines will be kept clear of all combustible materials for a distance of 50 ft.

3.3.3.6 Stocking Procedures

3.3.3.6.1

When explosives are stored onsite to meet project requirements the containers of explosive materials are to be stored so that marking are visible. Stocks of explosive material are to be stored so that they can easily be counted and checked upon inspection.

3.3.3.6.2

Except for fiberboard and other non-metal packages, containers of explosive materials are not to be unpacked or repacked inside the magazine or within 50feet of the magazines, and must not be packed or unpacked close to other explosive materials. Containers of explosive materials must be closed while in storage.

3.3.4 Transportation

This section presents the on-site transportation procedures and vehicle requirements for transporting explosives from the storage facility to the disposal locations.

3.3.4 1 On-site transportation procedures

Procedures for transporting the explosives from the storage facility to the disposal site include the following:

- The driver of any explosive-laden vehicle will ensure the load is properly braced and that the initiators are carried separately form the main charge explosives.
- The UXO Technician in charge of explosive movement will ensure the driver and any passengers are not carrying any smoking products or flame producing devices. Smoking is strictly forbidden by all personnel involved in the transportation of explosives.
- Drivers transporting explosives on roads that are not controlled by the US Government must possess a valid commercial driver's license with a hazardous materials endorsement.
- The amount of explosives issued and transported will be limited to the amount needed to perform the day's disposal operations and any quantity limitations imposed by transportation regulations.
- White Phosphorous (WP) munitions will not be transported unless immersed in water, mud or wet sand.
- If loose pyrotechnics, tracer, flare, and similar mixtures are transported, they shall be placed in #10 Mineral oil or equivalent to minimize fire and explosion hazards.
- If an unfired rocket motor must be transported, it shall be positioned in such a manner as to offer the maximum protection to the personnel in the event of an accident.

- If base ejection type projectiles must be transported to a disposal area or collection point, the base will be oriented to the rear of the vehicle and the projectile secured in the event the ejection charge functions in route.
- If MEC with exposed hazardous filler (HE, etc) has to be moved to a disposal area, the item shall be placed in an appropriate container with packing material to prevent migration of the hazardous filler. Padding should also be added to protect the exposed filler from heat, shock and friction.
- Transportation of donor explosive material and MEC will not be permitted in the same explosive transportation vehicle

3.3.4.2 Vehicle Requirements

Vehicles transporting explosives on the site will comply with the following requirements:

- Vehicles transporting explosives or MEC will be inspected daily, and the inspection will be documented on the Explosive Vehicle Inspection Form (Form 3-1) or a Motor Vehicle Inspection Form DD Form 626 (Form 3-2);
- Vehicles transporting explosives will be placarded in accordance with 49 CFR, 172, Subpart F;
- The vehicle engine will not be running during the loading and unloading of explosives;
- The vehicle will be chocked to prevent movement during loading and unloading;
- The vehicle used to transport the explosives will have a non-sparking bed liner, and all explosives loads will be blocked, braced and prior to departure.
- All vehicles transporting explosives will be equipped with a first aid kit, two 10 BC-rated (or higher) fire extinguishers, emergency reflective triangles, and reliable communication with the UXOSO.

3.3.5 Receipt Procedures

This section describes the procedures the MEC Team will use to maintain records of explosives inventories. The SUXOS will strictly control access to all explosives. All receipts, issues, turn-ins, and inventories of explosives will be properly documented and verified, through physical count by the SUXOS and the UXOSQCS.

3.3.5.1 Inventory Control and Records Management

3.3.5.1.1

All original explosive records will be forwarded to ADVENT corporate for archive in accordance with BATFE regulations and requirements. Copies of all records will be maintained on site by the project office and will be available for inspection by authorized

agencies. An accurate running inventory of all explosives shall be maintained on the Magazine Data Card. The original Magazine Data Card will be kept with the specific lot of explosives, and one copy, which mirrors the original, will be kept in the field office.

3.3.5.1.2

At the time of explosives delivery, and at the time of explosives issue, the SUXOS will ensure all additions and subtractions from the inventory of a magazine are recorded on the Magazine Data Card. If issued explosives are not used, they will be added back in to the inventory and recorded on the Magazine Data Card.

3.3.5.1.3

Explosives will be tracked by lot number on the Magazine Data Card. All explosives inventory records generated will be archived by ADVENT for a period of at least 5 years in accordance with BATFE regulations.

3.3.5.2 Authorized Individuals

The SUXOS will be responsible for the proper receipt of explosives from the explosives vendor. He will also be responsible for ensuring that the inventory, receipt, storage and handling of the explosives are performed in accordance with the requirements of this plan. The SUXOS may designate in writing a UXO technician III who is authorized to receive, transport and use explosives.

3.3.5.3 End User Certification

The SUXOS and UXO Technician III, Demolition Team Leader who performed the demolition will sign and date the Explosive Usage Form (Form 3-3) certifying that the explosives were used for their intended purpose.

3.3.5.4 Reconciling Discrepancies

In the event there is a discrepancy between the explosives on hand and the explosives inventory recorded on the Magazine Data Card, the SUXO, UXOSO and UXOQCS together will review the documents to determine whether the discrepancy is a paperwork error or whether explosives have been lost or stolen. If it is concluded that explosives have been lost or stolen, the procedures specified below will be followed.

3.3.6 Inventory

The SUXOS and UXOQCS will be responsible for performing a weekly inventory of the explosives within the magazines. They will assure that the quantities of explosives on hand match the quantities listed on the Magazine Data Cards. During the inventory the number of each item stored in the magazine will be determined by inspection and counting. If there is a discrepancy between the Magazine Data Cards and the volume of explosives within the magazines, they will then review the Magazine Data Cards and

Explosive Usage Reports to see if the inventory records are current. If the records review does not reconcile the discrepancy then the ADVENT PM will be notified and the following procedures will be followed.

3.3.7 Procedures for Lost, Stolen or Unauthorized Use of Explosives

Upon discovery of lost, stolen or unauthorized use of explosives the SUXOS will immediately be notified, who in turn will notify the ADVENT PM. The SUXOS will secure and seal the magazine area and notify the local authorities. The ADVENT PM will immediately contact the NAVFAC Atlantic Contracting Officer and the NTR by phone and in writing within 24 hours. The PM will then contact the BATFE by phone and in writing within 24 hours, and immediately begin an investigation. ATF Form 5400.5 will be completed by the SUXOS and copies provided to NTR and ADVENT corporate.

3.3.8 Return of Unused Explosives

Explosives that were issued for use, but were not expended will be returned daily to the explosive storage magazine, at the completion of disposal operations. The explosives being returned will be recorded on the Magazine Data Cards and the Explosive Usage Report.

3.3.9 Disposal of Explosives

If explosives remain at the end of the project an economic analysis with different alternatives and detailed accounting of the remaining explosives will be submitted to the Contracting Officer. Consideration will be given to transferring the custody and accountability to an incoming contractor or a Government agency. If economically advantageous transfer opportunities cannot be identified, the explosives will be detonated consistent with procedures set forth in the plan.

UNITED STATES DEPARTMENT OF TRANSPORTATION
 HAZARDOUS MATERIALS
 GOVERNMENT BILL OF LADING TRANSPORTATION CONTROL NUMBER

IN THIS SECTION TO BE CHECKED BY DRIVER OR INSPECTOR
 PRESENT IN ACCORDANCE WITH TITLE 49, CFR.

ORIGIN DESTINATION

SECTION I - DOCUMENTATION

1. CARRIER/GOVERNMENT ORGANIZATION

2. DATE/TIME OF INSPECTION

3. LOCATION OF INSPECTION

4. OPERATOR(S) NAME(S)

5. OPERATOR(S) LICENSE NUMBER(S)

6. MEDICAL EXAMINER'S CERTIFICATE*

7. *Is it satisfactory at origin?*

8. MILITARY HAZMAT ENDORSEMENT YES NO

9. ERG OF EQUIVALENT COMMERCIAL: YES NO

10. VALID LEASE*

11. DRIVER'S VEHICLE INSPECTION REPORT*

12. TRUCK/TRACTOR

13. ROUTE PLAN

14. COPY OF 49 CFR PART 397

15. CVSA DECAL DISPLAYED ON COMMERCIAL EQUIPMENT* YES NO

SECTION II - MECHANICAL INSPECTION
All items shall be checked on empty equipment prior to loading. Items with an asterisk shall be checked on all incoming loaded equipment.

10. TYPE OF VEHICLE(S)

11. VEHICLE NUMBER(S)

12. PART INSPECTED <i>(X as applicable)</i>	ORIGIN (1)		DESTINATION (2)		COMMENTS (3)
	SAT	UNSAT	SAT	UNSAT	
a. SPARE ELECTRICAL FUSES					
b. HORN OPERATIVE					
c. STEERING SYSTEM					
d. WINDSHIELD/WIPERS					
e. MIRRORS					
f. WARNING EQUIPMENT					
g. FIRE EXTINGUISHER*					
h. ELECTRICAL WIRING					
i. LIGHTS AND REFLECTORS					
j. FUEL SYSTEM*					
k. EXHAUST SYSTEM					
l. BRAKE SYSTEM*					
m. SUSPENSION					
n. COUPLING DEVICES					
o. CARGO SPACE					
p. LANDING GEAR*					
q. TIRES, WHEELS, RIMS					
r. TAILGATE/DOORS*					
s. TARPULIN*					
t. OTHER <i>(Specify)</i>					

13. INSPECTION RESULTS *(X one)* ACCEPTED REJECTED
If rejected give reason under "Remarks". Equipment will be approved if deficiencies are corrected prior to loading.

14. SATELLITE MOTOR SURVEILLANCE SYSTEM: *(X one)* ACCEPTED REJECTED

15. REMARKS

16. INSPECTOR SIGNATURE *(Origin)*

17. INSPECTOR SIGNATURE *(Destination)*

SECTION III - POST LOADING INSPECTION
This section applies to Commercial and Government/Military vehicles. All items will be checked prior to release of loaded equipment and shall be checked on all incoming loaded equipment.

18. LOADED IAW APPLICABLE SEGREGATION/COMPATIBILITY TABLE OF 49 CFR	ORIGIN (1)		DESTINATION (2)		COMMENTS (3)
	SAT	UNSAT	SAT	UNSAT	
19. LOAD PROPERLY SECURED TO PREVENT MOVEMENT					
20. SEALS APPLIED TO CLOSED VEHICLE; TARPULIN APPLIED ON OPEN EQUIPMENT					
21. PROPER PLACARDS APPLIED					
22. SHIPPING PAPERS/DD FORM 836 FOR GOVERNMENT VEHICLE SHIPMENTS					
23. COPY OF DD FORM 626 FOR DRIVER					
24. SHIPPED UNDER DOT EXEMPTION 868					
25. INSPECTOR SIGNATURE <i>(Origin)</i>					
26. DRIVER(S) SIGNATURE <i>(Origin)</i>					
27. INSPECTOR SIGNATURE <i>(Destination)</i>					
28. DRIVER(S) SIGNATURE <i>(Destination)</i>					

DEPARTMENT OF THE TREASURY
BUREAU OF ALCOHOL, TOBACCO AND FIREARMS
REPORT OF THEFT OR LOSS-EXPLOSIVE MATERIALS

DATE _____

Upon discovery of any theft or loss of any of your explosive materials:

-First, contact ATF toll free at 1-800-461-8841 between 8:00 a.m. - 5:00 p.m. EST (or after-hours and weekends contact ATF collect at 1-888-283-2662) to report the theft or loss;

-Second, contact your local law enforcement office to report the theft or loss to obtain a police report; and

-Third, complete this form and attach any additional reports, sheets or invoices necessary to provide the required information, and fax then mail the form with additional material(s) to the nearest ATF office listed on the reverse. We suggest you retain a copy of the completed form. Please complete each item, as applicable, to the best of your ability.

NOTE: Section 842(k), 18 U.S.C., Chapter 40, states, "It shall be unlawful for any person who has knowledge of the theft or loss of any explosive materials from his stock to fail to report such theft or loss within twenty-four hours of discovery thereof to the Secretary and to appropriate local authorities." Codified at 27 C.F.R., Section 55.30.

<p>1. NAME, ADDRESS AND TELEPHONE NUMBER OF PERSON MAKING REPORT (Include corporate or business name, if applicable)</p>	<p>2. LOCATION OF THEFT OR LOSS (If different from item 1)</p>															
<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:60%;">3. THEFT OR LOSS</th> <th style="width:20%;">DATE</th> <th style="width:20%;">TIME</th> </tr> </thead> <tbody> <tr> <td>a. DISCOVERED</td> <td></td> <td></td> </tr> <tr> <td>b. OCCURRED (Show approximate if exact not known)</td> <td></td> <td></td> </tr> <tr> <td>c. REPORTED TO ATF BY TELEPHONE</td> <td></td> <td></td> </tr> <tr> <td>d. REPORTED TO LOCAL AUTHORITIES</td> <td></td> <td></td> </tr> </tbody> </table>	3. THEFT OR LOSS	DATE	TIME	a. DISCOVERED			b. OCCURRED (Show approximate if exact not known)			c. REPORTED TO ATF BY TELEPHONE			d. REPORTED TO LOCAL AUTHORITIES			<p>4. NAME AND ADDRESS OF LOCAL AUTHORITY TO WHOM REPORTED</p> <p>POLICE REPORT NUMBER: _____</p>
3. THEFT OR LOSS	DATE	TIME														
a. DISCOVERED																
b. OCCURRED (Show approximate if exact not known)																
c. REPORTED TO ATF BY TELEPHONE																
d. REPORTED TO LOCAL AUTHORITIES																

5. EXPLOSIVE MATERIALS LOST OR STOLEN (Attach invoices or additional sheets, if necessary)		
a. MANUFACTURER OR BRAND NAME (Include date and shift code)	b. QUANTITY (Pounds of Explosives, Number of Caps)	c. TYPE AND DESCRIPTION (Dynamite, Blasting Agents, Detonators, etc. Include for each type, size, MS delay or length of legwire, as applicable)

6. THEFT OR LOSS OCCURRED FROM (Check applicable box)

PERMANENT MAGAZINE
 PORTABLE MAGAZINE
 TRUCK
 WORK SITE
 OTHER (Explain) _____

<p>7. ENTRY TO MAGAZINE MADE THROUGH (Complete if applicable)</p> <p> <input type="checkbox"/> DOOR <input type="checkbox"/> ROOF <input type="checkbox"/> FLOOR <input type="checkbox"/> FOUNDATION <input type="checkbox"/> WALL <input type="checkbox"/> CEILING <input type="checkbox"/> VENTS <input type="checkbox"/> OTHER (Explain) _____ </p>	<p>8. NUMBER AND TYPE OF LOCKS FORCED (Complete if applicable)</p>
---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	--------------------------------------------------------------------

9. OTHER INFORMATION PERTINENT OF THE THEFT OR LOSS

10. SIGNATURE AND TITLE OF PERSON MAKING REPORT	11. FEDERAL EXPLOSIVES LICENSE OR PERMIT, IF ANY
-------------------------------------------------	--------------------------------------------------

FOR ATF USE ONLY

DATE RECEIVED	TIME RECEIVED	UNIQUE IDENTIFIER
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REPORTING INSTRUCTIONS

Forward or Fax this completed form to the ATF address listed below:

Bureau of Alcohol, Tobacco and Firearms
Arson and Explosives National Repository Branch (AENRB)
P.O. Box #50980
Washington, DC 20077-8001
Toll Free Fax: 1-866-927-4570

Questions regarding the completion of this form should be referred to the AENRB toll free at 1-800-481-8841.

PRIVACY ACT INFORMATION

The following information is provided pursuant to section 3 of the Privacy Act of 1974 (5 U.S.C. § 522a(e)(3)).

1. **Authority.** Solicitation of this information is made pursuant to Title XI of the Organized Crime Control Act of 1970 (18 U.S.C. Chapter 40). Disclosure of a theft or loss of explosive materials is mandatory pursuant to 18 U.S.C. § 842(k) for any person who has knowledge of such theft or loss from his stock.
2. **Purpose.** The purpose for the collection of this information is to give ATF notice of the theft or loss of explosive materials, and to furnish ATF with the pertinent facts surrounding such theft or loss. In addition, the information is used to confirm and verify prior notification of this theft or loss of explosive materials.
3. **Routine Uses.** The information will be used by ATF to aid in the administration of laws within its jurisdiction concerning the regulation of explosive materials and other related areas. In addition, the information may be disclosed to other Federal, State, foreign, and local law enforcement of laws within their jurisdiction.
4. **Effects of not supplying information requested.** 18 U.S.C. § 842(k) makes it unlawful for any person, who has knowledge of the theft or loss of explosive materials from his stock, to fail to report such theft or loss within twenty-four hours of discovery thereof, to the Secretary and to appropriate local authorities. The penalty for violation of this section is a fine of not more than \$1,000 or imprisonment for not more than one year, or both. 18 U.S.C. § 844(b).

PAPERWORK REDUCTION ACT NOTICE

This request in accordance with the Paperwork Reduction Act of 1995. The purpose of this information collection is to report the theft or loss of explosive materials. The information is used for investigative purposes by ATF officials. This information is mandatory by statute. (18 U.S.C. § 842)

The estimated average burden associated with this collection of information is 1 hour and 48 minutes per respondent or recordkeeper, depending on individual circumstances. Comments concerning the accuracy of this burden estimate and suggestions for reducing this burden should be addressed to Reports Management Officer, Document Services Branch, Bureau of Alcohol, Tobacco and Firearms, Washington, D. C. 20226.

An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number.

CHAPTER 4 – EXPLOSIVE SITING PLAN

A Draft Final Explosives Operations Site Approval was submitted to NOSSA and DDESB and received approval December 29, 2004 (Draft Final Explosives Operations Site Approval, Former Vieques Naval Training Range [VNTR], Vieques, Puerto Rico, Naval Facilities Engineering Command Atlantic, October 2004). The Explosives Operations Site Approval will be maintained on the Project Site along with the approved TCRA Work Plan

CHAPTER 5 – Geophysical Prove-out Plan

No subsurface digital geophysical mapping (DGM) will be performed as part of this Time Critical Removal Action.

CHAPTER 6 – GEOPHYSICAL INVESTIGATION PLAN

No subsurface digital geophysical mapping (DGM) will be performed as part of this Time Critical Removal Action

CHAPTER 7 – LOCATION SURVEYS AND MAPPING PLAN

Surveying and mapping tasks are key components of the MEC investigations for identifying the location of each MEC component in the field, reporting the locations of these components on maps and in spatial queries conducted in the GIS, and assisting with disposition of MEC components. This Location Survey and Mapping Plan describes the methods, equipment, and accuracy requirements for location surveys and mapping for the removal action, MEC survey, and anomaly reacquisition described in this work plan.

7.1 Surveying

As stated in our proposal, it is assumed that the Title II Contractor CH2M HILL will provide survey control points and boundaries as part of their Expanded Range Assessment and Phase I Site Inspection activities. If necessary, surveying for this scope of work will be conducted by a professional land surveyor or ADVENT using GPS, RTS, or other suitable navigation systems. The use of GPS to locate MEC components may result in less accurate vertical position data. Should additional vertical data be required it can be collected under another task order.

7.2 Mapping

All control points and their corresponding locations, identification, coordinates, and elevations will be stored digitally and will be reproducible for accurate plotting on maps. Each map will include a north arrow (grid, true, and magnetic) with the differences between them posted in minutes and seconds. Grid lines or tic marks posted at systematic intervals with their corresponding grid values will be shown on the edges of the maps. The legend will include standard symbols and a map index showing the relationship of the map to the overall project or site boundary. The state plane coordinates will be established for the corners of each grid area investigated. GPS technology may be used to locate MEC components if this technology is readily available on the project and protocols are in place for recording, documenting, and integrating the location and MEC attributes with the MEC data management system.

7.2.1 Digital Data

7.2.1.1

The survey information collected will be sufficient to accurately relocate the position of the target component in the field and accurately plot the position of each component on a CAD map, in the GIS, or for use in statistical applications and tabular reports. An overall planimetric design file will be created and digitized into a Microstation.DGN file at an elevation of zero.

7.2.1.2

Each map sheet will be a standard metric A-1 size drawing (33.1 x 23.4 inches). Each sheet will include a standard border, revision block, title block, complete index sheet layout, bar scale, legend, grid minutes and seconds, and shall be plotted at the horizontal scale required. The cell library, digital data, and all other supporting files or information will be provided. Production work files will be documented, tabulated, and described in the data manual. The manual will include the necessary information for a third party to recreate the products. The manual will be included as a "readme.txt" file with all distributed digital data. Digital data will comply and be compatible with U.S. Navy requirements.

7.2.2 Digital Format

Data will conform to the Tri-Spatial Data Standards (TSDS) or CADD/GIS Technology Center Spatial Data Standards (SDS). Any and all deviations from these standards will be done only at the request of the U.S. Navy. All location survey data and digital maps are transportable and can be copied to portable media for archiving or transfer to other team members. Available formats include CD (the preferred method), digital tape, or 3.5-inch floppy diskettes. The media used is dictated in part by the size of the files. All survey coordinates will be stored as part of the site-wide relational database.

7.3 Deliverables

The following deliverable items and data will be maintained as part of this scope of work:

- After Action Report.
- Field Survey – Original copies of field books, layout sheets, computation sheets, and computer printouts. These items will be suitably bound, marked, and packaged for delivery.
- Location Survey Points – Tabulated list of all surveyed control points showing the adjusted coordinates and elevations that were established for the specific MEC project.
- MEC Inventory – Tabular list of all MEC components with associated location and descriptions.
- All survey coordinates and MEC-related digital information will be stored as part of the site-wide relational database. These digital data will be backed up on the same schedule as the site-wide database.
- All unique items created or used to generate the deliverables, as requested in each task order.
- Drawings and Data – All maps and associated data will be provided.

CHAPTER 8 – WORK DATA AND COST MANAGEMENT PLAN

8.1 INTRODUCTION

This Work, Data and Cost Management Plan outlines how the project work will be managed and accomplished. Where applicable, this plan was developed in accordance with DID OE-005-08.01. Items pertaining to cost control are in general terms as this project has been awarded by NAVFAC Atlantic as a Firm Fixed Price (FFP) Task Order. Upon completion of MRS's 1, 2, 3, 4 and 6 any unforeseen conditions for the Phase I will be taken into consideration to determine a Cost Index Factor (CIF) for removal of MEC on MRS's 16, 17 and 30. Data will be managed by ADVENT and updated on a daily basis. Data will be maintained in a prescribed manner that is compatible with NAVFAC and can be integrated into a VNTR project database.

8.2 PROJECT TASKS

This project will be executed through a series of tasks, which are outlined in the SOW and Technical Approach for the Task Order awarded to ADVENT for the completion of this TCRA.

Task 1. Technical Project Planning (TPP)

This task requires ADVENT to begin working with local, state and government regulatory officials, and all stakeholders to ensure everyone is informed and concurs with all activities at the site. This task will include Progress meetings, Technical Committee meetings and public meetings. A minimum of one ADVENT employee thoroughly familiar with the project will be in attendance at all of these meetings. ADVENT will also support these meetings by creating graphic displays requested by NAVFAC.

Task 2. Time Critical Removal Action Work Plan

This task requires ADVENT to evaluate the finding in the NAVFAC Title II contractor reports and plans to prepare and submit a Type II Work Plan for conducting MEC Removal Actions at the former VNTR. This work plan has been created following the guidelines set forth in DID OE-005-01.01. This plan documents and describes the policies, organizations, objectives, functional activities and safety/quality control activities required to achieve this project's objectives.

Task 3. Aerial Photography This task requires Wide Area Assessment Specialized Aerial Photography to delineate surface impact areas for footprint reduction of MEC areas within the Munitions Response Areas (MRA – LIA, SIA, and EMA)

Task 4. Installation of Physical Boundary Protection

This task requires ADVENT to install two parallel rows of construction fencing along the beach areas both north and south of the work area.

Task 5. Roadway Clearance

This task requires ADVENT to clear 1000 linear feet of road within the LIA that has been identified as needing clearance of MEC from the road surface to a depth of two feet to provide safe access to areas where MEC removal actions will be performed. Qualified MEC personnel will perform the intrusive activities using the “mag and dig” technique described in Chapter 2 of the plan.

Task 6. Brush Cutting

This task requires ADVENT to perform brush clearing as necessary to perform MEC removal activities. ADVENT will subcontract and provide oversight of this task to a qualified contractor to assure that the minimum amount of brush is removed to facilitate the MEC removal action. Awareness training will be conducted on MEC and to ensure that no protected vegetation will be cut.

Task 7. Location Survey and Mapping

Although not specified within the SOW, location, survey and mapping is an integral part of an MEC removal action. According to the scope of work ADVENT will be provided boundary points of the work areas by the NAVFAC Title II contractor. During MEC removal actions ADVENT will use GPS to lay in grid corners to maintain control of the removal, to provide reference point of all MEC located and to evaluate progress on a daily basis. This information will be included in the GIS database.

Task 8. Establish and Management of GIS

This task includes the establishment of GIS and the entry into the GIS all appropriate data used to develop this WP, the AAR(s), support field operations and maintain the database. The GIS will be compatible with NAVFAC Atlantic operating systems and software and will allow for the database parameters to be viewed spatially and queried using database input parameters. The GIS will be compatible with Arcview 8.3.

Task 9. Explosive Safety Submission

This task has been completed by the NAVFAC Title II Contractor.

Task 10. Target Removal

This task Requires ADVENT to screen and remove targets located within the areas of the removal action. ADVENT will subcontract and provide oversight of this task to a qualified contractor to assure this task is completed in accordance with the SOW. Awareness training will be provided on MEC recognition and hazards. The contractor while on site will be escorted by qualified MEC personnel.

Task 11. Removal Action

MEC removals actions will be conducted at multiple munitions response sites (MRS) for a total of 207 acres. MEC is a safety hazard and may constitute an imminent and substantial danger to site management personnel and others. This action will require qualified MEC Technicians to remove all MEC and scrap metal either at the surface or

partially exposed. All MEC will be identified, and disposed of as specified in this plan. MPPEH/MD that is determined to be free of explosive hazards will be stockpiled within a secure area inside the VNTR.

Task 12. Final Report

Advent will prepare two MEC Site Specific Final Reports IAW the SOW and DID OE-030.01. The first will be after the completion of Phase I removal which includes MRS 1, 2, 3, 4 and 6. The second will be for MSR 16, 17, 30.

8.3 SCHEDULE

The current schedule for this project is provided at the conclusion of this chapter in Figure 8-1.

8.4 COMMUNICATIONS

Communications for this project will generally be conducted as:

8.4.1 Field Investigation Tasks

ADVENT's PM will communicate field investigation/removal action information to the Title II Services Contractor Site Manager or UXOQCS. The Title II Services Contractor Site Manager or UXOQCS will communicate information to the Title II Services Contractor PM. The NAVFAC NTR will be informed of all field related activities by the Title II Services Contractor or other Program Management staff.

8.4.2 Removal Action Contractor Task Order Management

ADVENT's PM or other staff will address all task order management information (e.g., budgetary issues, change orders) directly to the NAVFAC Atlantic Coordinator. If necessary the NAVFAC NTR will communicate information to the Title II Services Contractor.

8.5 RECORDS MANAGEMENT

Hard copies of primary records for the site will be retained by ADVENT and the Title II Services Contractor. Upon completion of phases of work prescribed under each task order, all files pertinent to the project will be compiled by Title II Services Contractor and will be maintained by the Title II Services Contractor Vieques Program Manager at the Virginia Beach Office of CH2M HILL, Virginia Beach, Virginia. The records will include, but are not limited to:

- Task order and modification files
- Correspondence
- Draft document submittals
- Responses to comments

- Final document submittals

During field investigations, records will be maintained in the respective contractor field offices and originals and/or copies of all files will be maintained by Title II Services Contractor. Following completion of definable phases of work all files will be transferred to the Title II Services Contractor Program Management office. These files will include, but are not limited to:

- Daily summary sheets
- Field logs/notes
- Daily logs
- Health and safety records

8.6 SUBMITTALS

Advent will prepare and submit a Submittal Register delineating all of the submittals required per plans defined above and per requirements for MEC type work to NAVFAC Atlantic. All investigation reports will follow the formats and will contain the information given the scope of work for the task order under which the report is funded.

ADVENT Environmental Inc
 Project Schedule
 MEC Removal Action at the Former VNTR

ID	Task Name	Duration	Start	Finish	January	February	March	April	May	June	July	August	September	October	November	December								
					1/16	1/30	2/13	2/27	3/13	3/27	4/10	4/24	5/8	5/22	6/5	6/19	7/3	7/17	7/31	8/14	8/28	9/11	9/25	10/9
1	MEC Operation at Former VNTR	218 days	Mon 2/14/05	Wed 12/14/05	[External Task Bar]																			
2	Field Operations	158 days	Mon 2/14/05	Wed 9/21/05	[External Task Bar]																			
3	Technical Project Planning	158 days	Mon 2/14/05	Wed 9/21/05	[Task Bar]																			
4	Time Critical Removal Action Work Plan	35 days	Mon 2/14/05	Fri 4/1/05	[Task Bar]																			
5	Installation of Physical Boundary Protection	16 days	Mon 4/4/05	Mon 4/25/05	[Task Bar]																			
6	Roadway Clearance	4 days	Tue 4/26/05	Fri 4/29/05	[Task Bar]																			
7	Brush Cutting	84 days	Mon 5/2/05	Thu 8/25/05	[Task Bar]																			
8	Removal Action	83 days	Mon 5/30/05	Wed 9/21/05	[Task Bar]																			
9	Target Removal	10 days	Mon 6/27/05	Fri 7/8/05	[Task Bar]																			
10	Aerial Photography	30 days	Mon 7/11/05	Fri 8/19/05	[Task Bar]																			
11	Location Survey and Mapping	107 days	Tue 4/26/05	Wed 9/21/05	[Task Bar]																			
12	Establish and Manage GIS	107 days	Tue 4/26/05	Wed 9/21/05	[Task Bar]																			
13	Final Report	60 days	Thu 9/22/05	Wed 12/14/05	[Task Bar]																			

ADVENT Project: 04-529
 Date: Mon 2/28/05

Task: [Blue Box] Milestone: [Diamond] External Tasks: [Grey Box]
 Split: [Dotted Line] Summary: [Thick Arrow] External Milestone: [Diamond with Arrow]
 Progress: [Black Bar] Project Summary: [Grey Arrow] Deadline: [Down Arrow]

CHAPTER 9 - PROPERTY MANAGEMENT PLAN

9.1 OVERVIEW

This Property Management Plan (PMP) was developed in accordance with DIDs OE-005-01.1 and OE-005-09.1. This project was awarded as a Firm Fixed Priced (FFP) project and some requirements stated in the DIDs are not applicable. Where appropriate, the *DID requirements* have been followed. Detailed information on the types, quantities, and sources of equipment and materials that will be required to perform field and office operations. The sources of equipment will include ADVENT and selected vendors. General estimates on the types, quantities, and sources of equipment proposed for the project are summarized in Table 9.1.

9.2 GEOPHYSICAL SURVEY AND OE/UXO CLEARANCE EQUIPMENT

The Schonstedt GA-52Cx magnetometer and/or an All-Metal-Detector will be used to assist the MEC removal teams during their surface removal activities.

9.3 TRANSPORTATION AND CONSTRUCTION EQUIPMENT

9.3.1

Various types of transportation and construction equipment may be required during field operations. Vehicles required for transportation during the project will likely include standard automobiles, four-wheel drive vehicles, pickup trucks, and gators. Vehicles required for off-road transportation will likely include four-wheel drive vehicles, pick-up and John Deer Gators. Construction equipment required at the site will include backhoes, trackhoes, and dump trailers.

9.3.2

Transportation of OE/UXO onsite will be in accordance with Chapter 3 Explosive Management Plan

9.4 ANALYTICAL AND MONITORING EQUIPMENT

Monitoring instruments may be needed for evaluating physical hazards such as noise, heat stress, or cold stress. Monitoring equipment planned for this site is discussed in the Site Specific Health and Safety Plan and Appendix C.

9.5 SAFETY GEAR

The presence of Chemical Warfare material (CWM) is not anticipated but white phosphorus maybe encountered. Therefore, personal protective equipment (PPE) to safely handle white phosphorous will be on-site. Standard PPE will include standard work clothes with long pants, safety boots (as needed), eye protection (as appropriate), and hard hats (when overhead hazard is present).

9.6 EQUIPMENT FOR HANDLING AND DISPOSAL OF OE/UXO AND SCRAP

To enable proper handling of OE/UXO items and scrap encountered or recovered during the fieldwork, special handling and disposal of equipment/materials are required. For this project, the equipment will include a demolition kit and donor explosives, as outlined in Chapters 3 and 4. Drums, containers, and fenced areas may be used for temporary storage of scrap.

9.7 COMMUNICATIONS EQUIPMENT

Communications equipment to be used will include hand held two-way radios, cellular phones, answering machines, and facsimile machines. The equipment will be used at both the home and field offices.

9.8 OTHER OFFICE/FIELD EQUIPMENT

Most of the equipment (for example, CADD/GIS workstation, computers, printers, plotters, etc) is owned by ADVENT. However, some of these items will be rented for the fieldwork. Office supplies (i.e. pencils, ink pens, printing and plotting papers, clips, staples, adhesive tapes, etc) will be used at both the home and field offices. Office supplies will typically be purchased on an as needed basis.

Table 9.1
List of Equipment

Office/Field Operation	Equipment Type (or equivalent)	Number of Units	Duration	Anticipated Source	Status
Communication During Fieldwork	Motorola VHF Radios	6	Variable	ADVENT	Own
Communication During Fieldwork	Cellular Phone	5	Variable	Vendor	Own
Processing, interpretation, and storage on field data	Field Computer/Printer	3	Variable	ADVENT	Own
Processing, interpretation, and storage on field data	Tablet PCs/ PDAs	2	Variable	ADVENT	Own
Documentation of Field Activities	Digital Camera	1	Variable	ADVENT	Own
Documentation of Field Activities	Video Camera	1	Variable	ADVENT	Own
Transportation of personnel and field equipment	Ford 150	1	Variable	Vendor	Rental
Transportation of personnel and field equipment	Jeep	4	Variable	Vendor	Rental
Transportation of personnel and field equipment	John Deer Gator	3	Variable	Vendor	Rental
Excavation and Transportation of Material	Backhoe	1	Variable	Vendor	Rental
Disposal of OE	Electric Explosives Initiation Kit	1	Variable	ADVENT	Own
Disposal of OE	Explosives	1	Variable	Vendor	Purchase
Geophysical Instrument	Schonstedt	5	Variable	ADVENT	Own
Geophysical Instrument	Forester Minex	5	Variable	ADVENT	Own
Survey Instrument	GPS/RTK	2	Variable	ADVENT/ Vendor	Own
Survey Instrument	RTS	1	Variable	ADVENT/ Vendor	Own
Equipment/ Demilled OE Storage	Fencing	4	Variable	Vendor	Purchase
Field Supplies	Consumables	1	Variable	Vendor	Purchase
Field Supplies	Team Tools	1	Variable	ADVENT/ Vendor	Purchase
Survey	PVC Pin Flags	1	Variable	Vendor	Purchase
Survey	Spray Paint	1	Variable	Vendor	Purchase
First Aid	First Aid Kits (Trauma)	10	Variable	ADVENT/ Vendor	Purchase
Personel Protective Equipment	Brush Cutting Hand Equipment	4	Variable	ADVENT	Purchase
Personel Protective Equipment	White Phosphorus PPE	2	Variable	ADVENT/ Vendor	Purchase
Sanitation	Porto-lets	4	Variable	Vendor	Rental
On-site Power	Generator	1	Variable	Vendor	Rental

CHAPTER 10 - QUALITY CONTROL PLAN

This QCP details the approach, methods, and operational procedures to be employed by ADVENT to perform quality control during MEC removal actions at the Former VNTR. This plan was developed in accordance with NOSSAINST 8020.15, NAVSEA OP 5 VOL I (Revision 7), DDESB TP 18, ANSI/ASQC Q10011-1994, ANSI 14010-1996, and OE MCX DID OE-005-11.01, and where applicable, USACE ER 1180-1-6: Construction Quality Management (1995); USACE ER 1110-1-12: Engineering and Design Quality Management (1993); and USACE ER 415-1-10: Contractor Submittal Procedures (1997). Additionally, local and state laws and regulations, ATF P 5400.7, DoD 6055.9-STD, DOT regulations, and OPNAVINST 5530.13: Dept. of Navy Physical Security Instructions for Sensitive Conventional Arms, Ammunition and Explosives.

10.1 Introduction

The objectives of this QCP are to anticipate the specific operating requirements of the project, and to establish procedures to ensure that achieved quality meets technical design specifications and conforms to the requirements of the Task Order. Specifically, this plan:

- Identifies the project QC organization and defines each individual's respective authority, responsibilities, and qualifications.
- Defines project communication, documentation, and record keeping procedures.
- Establishes QC procedures, including the necessary supervision and tests, to ensure that work meets applicable specifications and drawings.

10.2 Project Background

A detailed discussion of the project background was presented in Section 1 of this Work Plan.

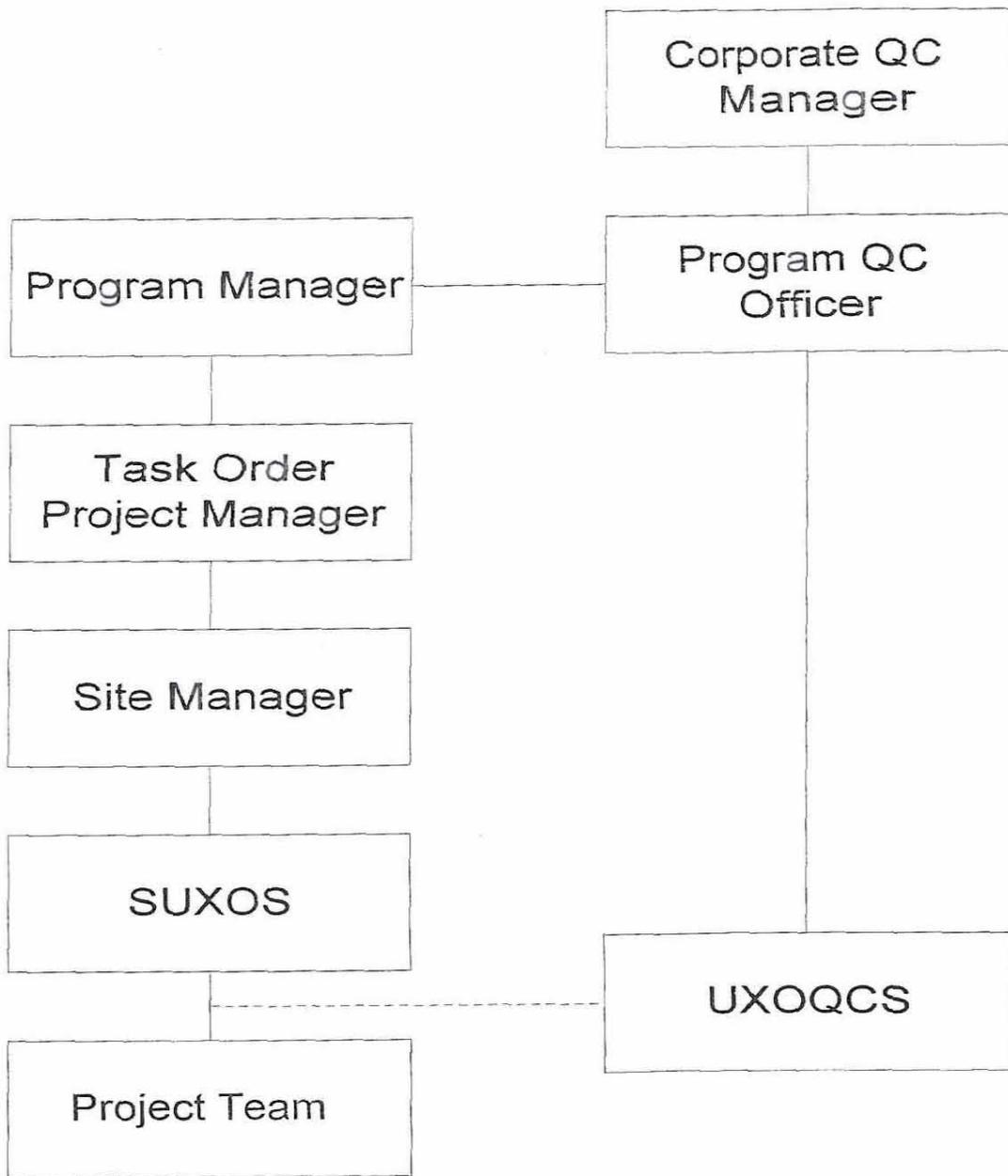
10.3 Project Scope of Work

The project scope of work and detailed approach for completion was presented in Sections 1 and 2 of this work plan.

10.4 QC Personnel Organization and Responsibilities

10.4.1

The overall project organization and reporting structure is presented in this QCP and illustrated in the figure below. Quality Control personnel, organization, qualifications, and responsibilities are addressed in more detail in this section.



10.4.2

Project staff members will be qualified to perform their assigned jobs in accordance with terms outlined by the scope of work. Site personnel handling hazardous materials must have the training as outlined in Site Specific Health and Safety Plan, which includes the OSHA 40 hour hazardous waste operators training and annual 8 hour refresher (29 CFR 1910.120).

10.5 Documentation of Qualification and Training

The review and verification of personnel qualifications are to be documented on Form 10-1, provided at the end of this section. The UXOQCS will maintain records documenting the

required qualifications and training for each site worker. The UXOQCS will monitor expiration dates to provide advance warning to the Project Manager of when employees will require refresher training or other requirements. The UXOQCS will maintain records of site specific and routine training for personnel and visitors, as required by this Work Plan. These records will be maintained onsite for audit purposes.

10.6 Project Manager

The primary responsibility of the PM is the overall direction of the project and accountability for work activities undertaken as part of this project. As such, the PM will provide the managerial administrative skills to ensure that resource allocation, planning, execution, and reporting meet Contract and TO requirements. The global quality-related responsibilities of the PM may include, but are not limited to, the following:

- Organizing project staff and assigning responsibilities.
- Understanding the Contract and scope of work for the specific project.
- Ensuring that submittals are completed and submitted as required in the TO PWS.
- Communicating to the project staff regarding client requirements and QC practices.
- Identifying, providing documentation, and notifying the client and project team of changes in the scope of work, project documentation, and activities.
- Supervising the preparation and approval of project-specific procedures, work plans, and QC project plans.
- Approving project documents.
- Approving project execution methodologies.
- Disseminating project-related information from the client.
- Serving as liaison for communications with the client and subcontractors.
- Serving as liaison between the project staff and other internal groups.
- Deciding whether project documents require independent review.
- Investigating nonconformance and implementation of corrective actions.
- Evaluating the effect of nonconformance on the project and the appropriateness of reporting such items to the client.
- Providing appropriate documentation of nonconformance when reporting to the client.
- Serving as final reviewer prior to release of project information.
- Approving and signing outgoing correspondence.
- The PM may assign a portion of these responsibilities to the Site Manager and SUXOS, who will remain on site throughout the project field activities.

10.7 Site Manager

The Site Manager is responsible for efficiently applying the resources of the project team to execute the field phase of this TO. In addition, the Site Manager is responsible for local client interface regarding details of the project and the project team while assigned to the site. The Site Manager will assist the PM in maintaining sufficient resource allocations to meet the project schedule and budget and will provide daily feedback to the PM on project progress, issues requiring resolution, and other project-specific issues, as required. The quality-related responsibilities of the Site Manager include, but are not limited to, the following:

- Notifying the PM if problems arise with the schedule.
- Providing scheduling and integration of subcontractor services in support of the SUXOS.
- Serving as liaison for communications with project staff and subcontractors, as well as with the onsite client and regulatory agency representatives.
- Providing logistical support for field operations.
- Continuously monitoring work progress and adherence to authorized work scopes, budgets, and schedules.
- Aiding in the preparation of submittals.
- Leading weekly onsite status meetings.
- Reviewing the project work plans regularly.
- Interfacing daily with the subcontractors.

10.8 UXO Quality Control Specialist

The designated UXOQCS will be specified in the Removal Contractor's Site Specific Work Plan. The UXOQCS has authority to enforce the procedures defined in this QCP. In alignment with this authority, the UXOQCS has the authority to stop work in order to ensure that project activities comply with specifications of this QCP, the contract, and the Task Order. This authority applies equally to all project activities, whether performed by the Contractor or its subcontractors and suppliers.

The UXOQCS is responsible for planning and executing QC oversight of project operations, and ensuring compliance with specified QC requirements. Specifically, the UXOQCS is responsible for:

- Developing, assessing the effectiveness of, and maintaining this QCP and related procedures.
- Reviewing and approving the qualifications of technical staff and subcontractors.
- Planning and ensuring the performance of preparatory, initial, follow-up, and completion inspections for each definable feature of work.

- Identifying quality problems and verifying that appropriate corrective actions are implemented.
- Ensuring that the requisite QC records including submittals are generated and retained as prescribed in this QCP.
- *Notifying the Title II Services Contractor 48 hours prior to beginning any required action of the preparatory and initial phases. At a minimum, the UXOQCS will use weekly QC Reports for the purposes of this notification.*

The UXOQCS is to be physically onsite whenever project-related fieldwork is in progress. If the UXOQCS is to be absent from the site, with client approval, an alternative UXOQCS will be designated and will be given equivalent responsibilities and authority.

10.9 Program QC Manager

The Program QC Manager is responsible for developing, maintaining, and ensuring implementation of the quality program. This responsibility includes overseeing activities under the guidance of this QC plan, performing periodic reviews of the processes being implemented, evaluating any recommendations made by the project team over the course of the program regarding use of these processes, and implementing continuous improvement evaluations of the quality program. The Program QC Manager reports directly to the Corporate Quality/HS&E Manager. Specific responsibilities of the Program QC Manager include:

- Developing program-level QC program consistent with corporate guidance and requirements for MR projects.
- Approving project-level QC plans.
- Performing reviews to ensure that sound professional engineering and other technical and regulatory capabilities are applied during planning and execution of MEC operations.
- Monitoring results of site audits.
- Conducting project audits.
- Ensuring that corrective actions are implemented promptly and fully.
- Developing lessons-learned for team distribution.
- Conducting quality training for UXOQCS.
- Evaluating the qualifications of the quality team.

10.10 Definable Features of Work (DFOWs) and the Three-Phase Control Process

Quality control on the VNTR project will be monitored through all of the Definable Features of Work (DFOWs) using a three-phase control process. The DFOWs and the three-phase control process are discussed in the following subsections.

10.10.1 Definable Features of Work

The definable features of work (DFOW) for this task order are divided into activities related to planning, field operations and final project reports and close-out:

Planning

- Pre-Mobilization Activities: System set-up for GIS, document management and control, data management and subcontracting
- Technical Project Planning: Technical and operational approach
- Removal Contractor Site Specific Work Plan and SOP's: Preparation and obtaining approval.

Field Operations

- Site Preparation: Mobilization, survey, vegetation removal, surface clearance
- MEC investigation and removal
- MPPEH/MD management (inspection/ demilitarization/ certification/ verification/ disposition)
- Demilitarization of MEC
- and Demobilization

Final Project Reports and Close-Out

- Site-Specific Final Report: Preparation and obtaining approval
- Proposed Plan and Decision Documents: Preparation and obtaining approval
- Obtain MEC Response Complete Acceptance
- Data Archiving and Project Closeout

10.10.2 Mobilization

This definable feature of work includes all required activities associated with mobilizing at the start of the project.

10.10.3 Location Surveying and Mapping

This definable feature of work includes all activities relating to grid layout activities.

10.10.4 Vegetation Removal

This definable feature of work includes all activities relating to the removal of vegetation. This feature may need to be subdivided as needed, especially if a more involved phased approach is used such as prescribed burning followed by manual/mechanical clearance.

10.10.5 MEC Surface Removal

This definable feature of work includes all activities relating to UXO sweeps to ensure that no surface MEC is present.

10.10.6 MEC Demilling

This definable feature of work includes all required activities associated with disposing of MEC or explosively venting items.

10.10.7 Demobilization

This definable feature of work includes all required activities associated with demobilizing at the completion of the project.

10.10.8 Three Phases of Control

The UXOQCS is to ensure that the three-phase control process, including the Preparatory Phase, Initial Phase and Follow-Up Phase, is implemented for each DFOW listed in this QCP. Each control phase is important for obtaining a quality product and meeting the TO objectives, however the preparatory and initial audits are particularly valuable in preventing problems. Production work is not to be performed on a DFOW until a successful preparatory and initial phase has been completed.

10.10.8.1 Preparatory Phase

The preparatory phase culminates with the planning and design process leading up to actual field activities. Successful completion of the Preparatory Phase verifies that the TO delivery, QC, and safety plans have been completed and are ready to be implemented. The following actions will be performed as applicable for each DFOW:

1. Confirm that the appropriate technical procedures are incorporated into the project work plan and review procedures.
2. Confirm that adequate testing is called for to assure quality delivery.
3. Confirm definition of preliminary work required at the work site and examine the work area to confirm required preliminary work has been properly completed.
4. Confirm availability of required materials and equipment. Examine materials and equipment to confirm compliance with approved submittals and procedures. Ensure equipment testing procedures are in place, with control limits and frequency.

5. Confirm qualifications of personnel and that roles/responsibilities are well-defined and communicated.
6. Confirm with the UXOSO that the site health and safety plan and activity hazard analyses (AHA) adequately address the work operations and that applicable safety requirements have been incorporated into the plan.
7. Discuss methods to be employed during the field activities.
8. Confirm any required permits and other regulatory requirements are met.
9. Verify that lessons learned during previous similar work have been incorporated as appropriate into the project procedures to prevent recurrence of past problems.

Project staff must correct or resolve discrepancies between existing conditions and the approved plans/procedures identified by the UXOQCS and the team during the Preparatory Phase. The UXOQCS or designee must then verify that unsatisfactory and nonconforming conditions have been corrected prior to granting approval to begin work.

Results of the activity are to be documented in the Preparatory Inspection Checklist (Form 10-2) specific for the DFOW and summarized in the Weekly QC Report.

10.10.8.2 Initial Phase

The initial phase occurs at the startup of field activities that are associated with a specific DFOW. The initial phase confirms that the Project QCP, other applicable work plan sections, and procedures are being effectively implemented and the desired results are being achieved. During the initial phase, the initial segment of the DFOW is observed and inspected to ensure that the work complies with contract and work plan requirements. The initial phase should be repeated when acceptable levels of specified quality are not being met.

The following shall be performed for each DFOW:

1. Establish the quality of work required to properly deliver the TO in accordance with contract requirements. The UXOQCS ensures that supervision has made the work crews aware of expectations associated with the field methods established under the preparatory phase.
2. Resolve conflicts. Should conflicts arise in establishing the baseline quality for the DFOW, the responsibility to resolve the conflict falls to the Project Manager. Should the conflict not be resolved in a manner that satisfies the project requirements, the UXOQCS must elevate the conflict to the program level (Program QC Manager) and issue a non-conformance report. The UXOQCS may direct a cessation of work activity, with the concurrence of the Program QC Manager, should the issue jeopardize the results of the DFOW, or put the TO at risk of non-compliant performance.
3. Verify with the UXOSO that the site health and safety plan and activity hazard analyses were developed to ensure that the identified hazards adequately addressed field conditions. Confirm that applicable safety requirements are being implemented during field activities.

Upon completion of the initial phase activities, results are to be documented in the Initial Phase Inspection Checklist (Form 10-3), the QC logbook and summarized in the Weekly QC Report. Should results be unsatisfactory, the initial phase will be rescheduled and performed again.

10.10.8.3 Follow-up Phase

Completion of the initial phase of QC activity then leads directly into the follow-up phase, which addresses the routine day-to-day activities on the field site. Inspection/audit activities associated with each DFOW are addressed in Section 10.4. Specific concerns associated with the follow-up include:

1. Inspection of the work activity to ensure work is in compliance with the contract and work plans.
2. Evaluation and confirmation that the quality of work is being maintained at a level no less than that established during the initial phase.
3. Evaluation and confirmation that required testing is being performed in accordance with procedures established during the preparatory phase and confirmed during the initial phase.
4. Confirmation that non-conforming work is being corrected promptly and in accordance with the direction provided by the UXOQCS.

To conduct and document these inspections, the UXOQCS is to generate the Follow-up Phase Inspection Checklist (Form 10-4). The follow-up phase inspections will be performed daily, or as otherwise identified in this QCP until the completion of each DFOW.

The UXOQCS is responsible for onsite monitoring of the practices and operations taking place and verifying continued compliance with the specifications and requirements of the contract, TO, and approved project plans and procedures. He is also responsible for verifying that a daily Health and Safety Inspection is performed and documented as prescribed in the project SSHP. Discrepancies between site practices and approved plans/procedures are to be resolved and corrective actions for unsatisfactory and nonconforming conditions or practices are to be verified by the UXOQCS or a designee prior to granting approval to continue work. Follow-up inspection results are to be documented in the QC logbook and summarized in the Weekly QC Report.

10.10.8.4 Additional Audits

Additional audits performed on the same definable feature of work may be required at the discretion of the Program QC Officer or the UXOQCS. Additional preparatory and initial audits are generally warranted under any of the following conditions: unsatisfactory work, changes in key personnel, resumption of work after a substantial period of inactivity (e.g., 2 weeks or more), or changes to the project scope of work/specifications.

10.10.8.5 Final Acceptance Audit

The Final Acceptance Inspection is performed, upon conclusion of the DFOW and prior to closeout, to verify that project requirements relevant to the work are satisfied. Outstanding and nonconforming items are to be identified and documented on the Final Inspection Checklist (Form 10-5). As each item is resolved, it is to be noted on the checklist.

10.11 Inspection/Audit Procedures

The UXOQCS is responsible for verifying compliance with this QCP through audits and surveillance. The UXOQCS or a designee is to inspect/audit the quality of work being performed for the definable feature of work. The UXOQCS or a designee is to verify that procedures used conform to applicable specifications stated in this Work Plan or other applicable guidance. Identified deficiencies are to be communicated to the responsible individual and documented in the QC log and Weekly QC Report. Corrective actions are to be verified by the UXOQCS and recorded in the Weekly QC Report.

The specific QC audit procedures for the DFOWs, including the phase during which it is performed, the frequency of performance, the pass/fail criteria and actions to take if failure occurs, are presented in Table 10-1.

The Inspection Schedule and Tracking Form (Form 10-6) is to be used by the UXOQCS for planning, scheduling and tracking the progress of audits for this project. The information on the form is to be kept up to date and reviewed by the UXOQCS for planning purposes. Audit records are to be maintained as part of the project QC file.

10.12 QC Testing

QC testing will be performed to ensure that MEC removal is being performed according to the project Definable Quality Objective and prior to submitting to the Navy Technical Representative and Title II Services Contractor for QA testing.

10.12.1 Testing Procedures

The UXOQCS will inspect each grid to determine whether or not the grid has been cleared IAW performance requirements presented in the QC Section of the Removal Action Contractor's Work Plan. The UXOQCS will re-sweep this portion of the grid using the same geophysical instrument. The results of the QC inspections, both passing and failing, will be recorded in the QC log. For any grid that fails a QC inspection, the grid will be completely reworked and re-QC'd before submitting the grid for QA inspection. The QA inspection will occur as soon as possible before wind and/or water action can change site conditions.

10.12.2 Pass/Fail Criteria

Grid failure will result if:

- more than 2 munitions items which have a shape, size, or mass greater than or equal to a 20mm and less than a 30mm projectile is not removed from a grid,
- more than 1 munitions item which has a shape, size, or mass greater than or equal to a 30mm and less than a 40mm projectile is not removed from the grid, or

- any munitions items, which have a shape, size, or mass equal to or greater than a 40mm projectile is not removed from the grid.

If grid failure occurs the entire grid will be reworked.

10.13 Level of QC Inspection

The Mil-Std-1916 (and accompanying Mil-Hdbk-1916 will be implemented for performing QC as part of this TCRA for inspection of cleared grids. The Mil-Std-1916 will be used to determine the level of QC using the following:

- Initial Verification Level (VL) will be VII for attributes sampling plan,
- The switching method will be used as given in the Mil-Kdbk-1916 to determine decreases or increases in QC level, and
- A lot will be comprised of 80 lanes, which are defined as 1.5m wide by 30m long. This is the equivalent number of lanes for 4-30m x 30m grids and approximates 0.9 acre in area.

TABLE 10-1
Definable Features of Work Auditing Procedures

Activity	Definable Feature of Work with Auditable Function	Audit Procedure	QC Phase	Frequency of Audit	Pass/Fail Criteria	Action if Failure Occurs
Planning	GIS Setup (Pre-Mobilization Activities)	Verify GIS system has been set up and is ready for site data	PP	Once	GIS system has been set up and is ready for site data	Do not proceed with field activities until criterion is passed
Planning	Document management and control (Pre-Mobilization Activities)	Verify appropriate measures are in place to manage and control project documents	PP	Once	Appropriate measures are in place to manage and control project documents	Do not proceed with field activities until criterion is passed
Planning	Data Management (Pre-Mobilization Activities)	Verify appropriate measures are in place to manage and control project data	PP	Once	Appropriate measures are in place to manage and control project data	Do not proceed with field activities until criterion is passed
Planning	Subcontracting (Pre-Mobilization Activities)	Verify Subcontractor qualifications, training, licenses	PP/IP	Once	Subcontractors' qualifications, training, and licenses are up to date and acceptable	Ensure subcontractor provides the qualifications, training, and licenses or change subcontractor
Planning	Technical approach (Technical Project Planning)	Verify that technical approach has been agreed on by project team	PP/IP	Once	Technical approach has been agreed on by project team	Do not proceed with field activities until criterion is passed
Planning	Operational approach (Technical Project Planning)	Verify that operational approach has been agreed on by project team	PP/IP	Once	Operational approach has been agreed on by project team	Do not proceed with field activities until criterion is passed
Planning	Work Plan preparation and approval (Technical Project Planning)	Verify that Work Plan has been prepared and approved	PP/IP	Once	Work Plan has been prepared and approved	Do not proceed with field activities until criterion is passed
Field Operations	Site preparation (including mobilization)	Verify all project plans are approved	PP/IP	Once	All project plans are approved	Do not proceed with field activities until criterion is passed
Field Operations	Site preparation (including mobilization)	Verify local agencies are coordinated	PP/IP	Once	Local agencies are coordinated	Do not proceed with field activities until criterion is passed
Field Operations	Site preparation (including mobilization)	Verify equipment and services are procured	PP/IP	Once	Equipment and services are procured	Proceed only with activities for which equipment has been procured Procure remaining equipment
Field Operations	Site preparation (including mobilization)	Verify communications and other logistical support are coordinated	PP/IP	Once	Communications and other logistical support are coordinated	Do not proceed with field activities until criterion is passed
Field Operations	Site preparation (including mobilization)	Verify Emergency Services are coordinated	PP/IP	Once	Emergency Services are coordinated	Do not proceed with field activities until criterion is passed

TABLE 10-1
Definable Features of Work Auditing Procedures

Activity	Definable Feature of Work with Auditable Function	Audit Procedure	QC Phase	Frequency of Audit	Pass/Fail Criteria	Action if Failure Occurs
Field Operations	Site preparation (including mobilization)	Verify operating schedules are finalized	PP/IP	Once	Operating schedules are finalized	Proceed only with those operations with finalized operating schedules
Field Operations	Site preparation (including mobilization)	Verify explosive storage and MEC debris/scrap storage areas are established	PP/IP	Once	Explosive storage and MEC debris/scrap storage areas are established	Do not proceed with field activities until criterion is passed
Field Operations	Site preparation (including mobilization)	Verify site-specific training is performed and acknowledged	PP/IP	Once	Site-specific training is performed and acknowledged	Do not proceed with field activities until criterion is passed
Field Operations	Site preparation (including mobilization)	Verify project plans are reviewed and acknowledged	PP/IP	Once	Project plans are reviewed and acknowledged	Do not proceed with field activities until criterion is passed
Field Operations	Site survey	Verify Surveyor Qualifications	PP/IP	Once	Surveyor's qualifications are up to date and acceptable	Ensure surveyor provides the qualifications change surveyor
Field Operations	Site survey	Verify Surveyor Licenses	PP/IP	Once	Surveyor's licenses are up to date and acceptable	Ensure surveyor provides the licenses or change surveyor
Field Operations	Site survey	Verify benchmarks for survey are established and documented	PP/IP	Once	Benchmarks for survey are established and documented	Ensure benchmarks for survey are established and documented prior to performing survey
Field Operations	Site survey	Verify site boundaries have been established	PP/IP	Once	Site boundaries have been established	Do not proceed with dependent field activities until criterion is passed
Field Operations	Site survey	Verify proper marker type, material and placement method	PP/IP	Once	Proper marker type, material and placement method were used	Replace markers as necessary to comply with requirement
Field Operations	Site survey	Verify Surveyor notes are legible, accurate and complete	IP	Once	Surveyor notes are legible, accurate and complete	Ensure surveyor replaces deficient notes with legible, accurate and complete notes
Field Operations	Site survey	Verify Stake Alignment and spacing intervals	IP	Once	Stake Alignment and spacing intervals are as specified in Work Plan	Replace stakes not aligned as specified
Field Operations	Vegetation removal	Verify personnel qualifications and training	PP/IP	Once	Personnel qualifications and training are appropriate	Ensure subcontractor provides appropriately trained and qualified personnel or replace subcontractor

TABLE 10-1
 Definable Features of Work Auditing Procedures

Activity	Definable Feature of Work with Auditable Function	Audit Procedure	QC Phase	Frequency of Audit	Pass/Fail Criteria	Action if Failure Occurs
Field Operations	Vegetation removal	Verify environmental controls are correct and functional	IP/FP	Once	Environmental controls are correct and functional	Ensure that appropriate environmental controls are in place prior to proceeding with vegetation removal
Field Operations	Vegetation removal	Verify vegetation removal conducted IAW WP Technical Management Plan	FP	Daily	Vegetation removal conducted IAW WP Technical Management Plan	Stop vegetation removal activities until full compliance can be assured and any activities not performed within compliance are re-evaluated and re-performed if necessary
Field Operations	Surface Clearance	Verify equipment testing	IP/FP	Once/Daily	Equipment passes daily function test in equipment check area	Repair or replace instrument
Field Operations	Surface Clearance	Verify area/boundary	PP/IP	Once	Area/boundary is correct	Stop activities until area/boundary can be verified
Field Operations	Surface Clearance	Verify work methods	IP/FP	Daily	Work methods are being performed IAW the WP and SOPs	Stop activities until WP and SOPs are being followed and any activities not performed within compliance are re-evaluated and re-performed if necessary
Field Operations	Surface Clearance	Verify Team separation distance	IP/FP	Daily	Team separation distance is appropriate for work being performed	Stop activities until appropriate separation distance is being followed
Field Operations	Surface Clearance	Verify clearance conducted IAW WP Technical Management Plan	IP/FP	Daily	Clearance conducted IAW WP Technical Management Plan	Stop activities until full compliance can be assured and any activities not performed within compliance are re-evaluated and re-performed if necessary
Field Operations	Surface Clearance	Check a portion of each grid/lot to insure Acceptance Criteria are met as defined in the RAC Work Plan.	FP	Each Occurrence	See Section 10.8	See Section 10.8
Field Operations	Inspection (MPPEH Management)	Verify personnel qualifications	IP/FP	Once	Personnel are qualified	Replace unqualified personnel with qualified personnel

TABLE 10-1
Definable Features of Work Auditing Procedures

Activity	Definable Feature of Work with Auditable Function	Audit Procedure	QC Phase	Frequency of Audit	Pass/Fail Criteria	Action if Failure Occurs
Field Operations	Certification (MPPEH Management)	Verify Inspection conducted IAW MPPEH Management Plan	IP/FP	Daily/Each Occurrence	Inspection being conducted IAW WP MPPEH Management Plan	Stop activity until full compliance can be assured and any activities not performed within compliance are re-evaluated and re-performed if necessary
Field Operations	Certification (MPPEH Management)	Verify personnel qualifications	IP/FP	Once	Personnel are qualified	Replace unqualified personnel with qualified personnel
Field Operations	Certification (MPPEH Management)	Verify Certification is conducted IAW WP MPPEH Management Plan	IP/FP	Daily/Each Occurrence	Certification is conducted IAW WP MPPEH Management Plan	Stop activity until full compliance can be assured and any activities not performed within compliance are re-evaluated and re-performed if necessary
Field Operations	Disposal (MPPEH Management)	Verify Disposal is conducted IAW WP MPPEH Management Plan	IP/FP	Daily/Each Occurrence	Disposal is conducted IAW WP MPPEH Management Plan	Stop activity until full compliance can be assured and any activities not performed within compliance are re-evaluated and re-performed if necessary
Field Operations	Demilitarization of UXO	Verify personnel qualifications	IP/FP	Once	Personnel are qualified	Replace unqualified personnel with qualified personnel
Field Operations	Demilitarization of UXO	Verify operations conducted IAW contractor SOP	IP/FP	Each Occurrence	Operations conducted IAW Subcontractor SOP	Stop activity until full compliance can be assured and any activities not performed within compliance are re-evaluated and re-performed if necessary
Field Operations	Demobilization	Verify that all equipment is inspected, packaged, and shipped to appropriate location.	FP	Once	All equipment is inspected, packaged, and shipped to appropriate location.	Ensure equipment is inspected, packaged, and shipped to appropriate location
Field Operations	Demobilization	Verify facilities-support infrastructures are dismantled and shipped to appropriate location.	FP	Once	Facilities-support infrastructures are dismantled and shipped to appropriate location.	Ensure facilities-support infrastructures are dismantled and shipped to appropriate location
Final Project Reports and Close-out	Site Specific Final Report preparation and approval	Verify field site is returned to original condition	FP	Once	Field site is returned to original condition	Ensure field site is returned to original condition

TABLE 10-1
Definable Features of Work Auditing Procedures

Activity	Definable Feature of Work with Auditable Function	Audit Procedure	QC Phase	Frequency of Audit	Pass/Fail Criteria	Action if Failure Occurs
Final Project Reports and Close-out	Site Specific Final Report preparation and approval	Verify tabulation of all MEC, MD, and other material recovered during the removal actions are accurate and complete	IP	Once	Tabulation of all MEC, MD, and other material recovered during the removal actions are accurate and complete	Ensure tabulation of all MEC, MD, and other material recovered during the removal actions are accurate and complete
Final Project Reports and Close-out	Decision Document preparation and approval	Verify reviews performed by project, senior technical and program teams	FP	Once	Reviews performed by project, senior technical and program teams	Ensure reviews performed by project, senior technical and program teams
Final Project Reports and Close-out	MEC Response Completion Acceptance	Verify Final Report, Proposed Plan and Decision Document has been approved	IP	Once	Final Report, Proposed Plan and Decision Document has been approved	Take appropriate actions to ensure document get approved
Final Project Reports and Close-out	Archiving	Verify data back-up systems are in place	IP	Once	Data back-up systems are in place	Ensure data back-up systems are in place
Final Project Reports and Close-out	Project Closeout	Verify purchase orders have been closed out	IP	Once	Purchase orders have been closed out	Ensure purchase orders are closed out
Final Project Reports and Close-out	Project Closeout	Verify invoices completed and approved	IP	Once	Invoices completed and approved	Ensure invoices are completed and approved

10.14 Documentation of Testing

Test results are to be documented by the individual performing the test. Calibration and maintenance records associated with the measuring and testing equipment (M&TE) are to be generated by the individual performing the activity. Documentation for calibration and maintenance of M&TE is to be made available to the COR upon request.

The UXOQCS is responsible for ensuring that the tests are performed and that the results are summarized in and provided with the Weekly QC Report. Any failing test will be noted on the deficiency log so it can be tracked until such time as rework and re-testing can be performed and corrective action is verified.

10.15 Calibration and Maintenance

Calibration and maintenance of geophysical instruments, radios, cell phones, vehicles, machinery, air monitoring equipment (if present), etc., will be performed per manufacturer's specifications. Geophysical detection equipment will be tested daily. Records of these activities are to be generated by the individual performing the activity with copies provided to the UXOQCS for retention in the project QC file.

10.16 Government QA Activities

Although the government QA procedures will be subject to change depending on revisions to Navy procedures, the following QA procedures can be expected as a minimum.

10.17 MEC Surface Removal or Investigations

Utilizing the same geophysical detection equipment as ADVENT, The Navy Technical Representative and/or the Title II Services Contractor will perform a QA inspection on a portion, as determined by the Navy's QA Plan, of a grid that has passed the Removal Contractor's QC process. If a grid fails as defined by the Navy's QA Plan, then the Navy Technical Representative and/or the Title II Services Contractor will implement corrective actions, which may include more stringent QA standards.

10.17.1 QA Pass/Fail Criteria

A grid will be considered a QA failure if:

- more than 2 munitions items which have a shape, size, or mass greater than or equal to a 20mm and less than a 30mm projectile is not removed from a grid,
- more than 1 munitions item which has a shape, size, or mass greater than or equal to a 30mm and less than a 40mm projectile is not removed from the grid, or
- any munitions items, which have a shape, size, or mass equal to or greater than a 40mm projectile is not removed from the grid.

10.17.2 Deficiency Management

This section includes provisions for preventing quality problems and facilitating process improvements as well as for identifying, documenting, and tracking deficiencies until corrective action has been verified. Deficiency notices and corrective action requests will be provided to USEPA, PREQB, NOSSA, and USFWS during project status meetings or in project status documentation.

10.18 Continual Improvement

Project staff at all levels are to be encouraged to provide recommendations for improvements in established work processes and techniques. The intent is to identify activities that are compliant but can be performed in a more efficient or cost-effective manner. Typical quality improvement recommendations include identifying an existing practice that should be improved (e.g., a bottleneck in production) and/or recommending an alternative practice that provides a benefit without compromising prescribed standards of quality. Project staff are to bring their recommendations to the attention of project management or the QC staff through verbal or written means. However, deviations from established protocols are not to be implemented without prior written approval by the Project Manager and concurrence of the UXOQCS. Where a staff-initiated recommendation results in a tangible benefit to the project, public acknowledgment is to be given by the Project Manager.

10.19 Deficiency Identification and Resolution

While deficiency identification and resolution occurs primarily at the operational level, QC inspections provide a backup mechanism to address problems that either are not identified or cannot be resolved at the operational level. Through implementation of the inspection program, the QC staff is responsible for verifying that deficiencies are identified, documented, and corrected in a timely manner. If the UXOQCS determines that a specific action can be taken to prevent the cause or similar cause for failure, the action will be implemented. An attempt to identify additional potential causes of failure will also be made (e.g., weather event, site condition change, other activities that would result in items being introduced to a worked grid).

10.20 Corrective Action Request

A Corrective Action Request (CAR) (Form 10-7) can be issued by any member of the project staff, including the Contractor and subcontractor employees. If the individual issuing the CAR is also responsible for correcting the problem, then he or she should do so and document the results on Part B of the CAR. Otherwise, the CAR should be forwarded to the Project Manager, who is then responsible for evaluating the validity of the request, formulating a resolution and prevention strategy, assigning personnel and resources, and specifying and enforcing a schedule for corrective actions. Once a corrective action has been completed, the CAR and supporting information are to be forwarded to the UXOQCS for closure.

In addition to observing actual work operations, CARs are to be reviewed during follow-up QC inspections. The purposes of this review are: to ensure that established protocols are implemented properly; to verify that corrective action commitments are met; to ensure that corrective actions are effective in resolving problems; to identify trends within and among similar work units; and to facilitate system root cause analysis of larger problems. Particular attention is to be given by the QC staff to work units that generate either an unusually large or unusually small number of CARs.

The UXOQCS will determine whether a written Corrective Action Plan (CAP) (Form 10-8) is necessary, based on whether or not any of the following are met: the CAR priority is high; deficiency requires a rigorous corrective action planning process to identify similar work product or activities affected by the deficiency; or deficiency requires extensive resources and planning to correct the deficiency and to prevent recurrence. The CAP is developed by a Project Manager designee and approved and signed by the Project Manager. The CAP is to indicate whether it is submitted for informational purposes or for review and approval. In either event, operational staff are to be encouraged to discuss the corrective action strategy with the QC staff throughout the process.

10.21 Deficiency and Corrective Action Tracking

Each CAR is to be given a unique identification number and tracked by the appropriate line manager until corrective actions have been taken and documented in Part B of the form, and the CAR is submitted to the UXOQCS or a designee for verification and closure.

10.22 Documentation

The lessons learned through the deficiency management process are documented on CARs and CAPs. To share the lessons learned with the Title II Services Contractor and the Government, these documents are submitted to the Title II Services Contractor through the Weekly QC Report (Form 10-9).

CARs should be cited in the Weekly QC Report. Minor deficiencies that are identified during a QC inspection but can be readily corrected and verified in the field are to be documented in the QC log and Weekly QC Report without initiating a CAR. Deficiencies identified in a QC inspection but that cannot be readily corrected are to be documented by the QC staff on a CAR and in the Weekly QC Report. Copies of CARs are to be referenced in and attached to the Weekly QC Report. CAPs will also be attached to Weekly QC Reports to document the final outcome of the deficiency. Similar or related deficiencies may be addressed on a single CAP. All CARs and CAPs will be maintained on site with the project files and will be subject to audit.

10.22.1 Reports

The UXOQCS is responsible for the preparation and submittal of the Weekly QC Report to the NTR, the Project Superintendent for the project file, and providing concurrent courtesy copies to the Project Manager. The original and one copy of the Weekly QC

Report with attachments are to be submitted to the Title II Services Contractor on the first work day following the date covered by the report. All calendar days, including weekends and holidays, are to be accounted for throughout this project. As a minimum, one report is to be prepared and submitted for every continuous 7 days of no work.

The Weekly QC Report is to provide an overview of QC activities performed each day, including those performed for subcontractor and supplier activities. The QC reports are to present an accurate and complete picture of QC activities. They are to report both conforming and deficient conditions, and should be precise, factual, legible, and objective. Copies of supporting documentation, such as checklists and surveillance reports, are to be attached.

A field QC log is to be maintained by the UXOQCS and assigned to each member of the QC staff for use in documenting details of field activities during QC monitoring activities. At the end of each day, copies of the log entries are to be attached to the Weekly QC Report. The information in the QC log provides backup information and is intended to serve as a phone log and memory aid in the preparation of the Weekly QC Report and in addressing follow-up questions that may arise.

QC and Health and Safety staff input for the Weekly QC Report is to be provided in writing to the UXOQCS at a previously agreed upon time and place, generally no later than about 1 hour before normal close of business. For the sake of simplicity and completeness, the format for QC staff input should follow the same as for the Weekly QC Report with only the relevant sections completed.

Each Weekly QC Report is to be assigned and tracked by a unique number comprised of the Delivery Order number followed by the date expressed as DDMMYY. In the case of "no work day" reports, the report number is to comprise the Delivery Order, the last date covered, the number of days covered, and the initials "NW." For example, DO #XXXX-041104 is the report for site work performed on 11 April 2004, and DO #XXXX-052904-3NW is the report for the three no work days from 27 May 2004 through 29 May 2004. Copies of Weekly QC Reports with attachments and QC logs no longer in use are to be maintained in the project QC file. Upon project closeout, all QC logs are to be included in the project QC file.

10.22.2 Submittal Management

The UXOQCS is responsible for ensuring, through detailed review, that submittals as well as the materials and the work they represent, are in full compliance with applicable contract specifications. The UXOQCS is also responsible for ensuring that a project file is established and maintained, and that accountable project documents are retained and controlled appropriately.

10.23 Project Records

The Removal Contractor Project Manager is to establish and maintain an onsite project file in accordance with contract requirements and NAVFAC Atlantic policies for document control. The Project Manager is responsible for controlling access to the

project file to ensure that records are not lost or misplaced. The purpose of this file is to maintain a complete set of all documents, reports, certifications, and other records that provide information on project plans, contract agreements, and project activities. The initial file will be structured to include a record copy of the following documents:

- Schedule and progress reports
- Technical specifications, including addenda and modifications thereof
- Change orders and other contract modifications
- Engineer Field Orders
- Manufacturer's certificates
- Survey Records
- Daily work activity summary reports, which may include:
 - Weekly QC Report
 - Daily Health and Safety Report
 - Reports on any emergency response actions
 - Test records
 - Records of site work
 - Chain-of-custody records
 - Reports on any spill incidents
 - Truck load tickets and shipping papers
- Other items as required by the Contracting Officer Representative:
 - Conversation logs
 - Meeting minutes and agenda
 - Inspection logs and schedules
 - Photo documentation
 - Site maps
 - As built drawings

As the project activities progress, the Removal Contractor Project Manager will monitor usefulness of the project filing system for information retrieval. If he or she finds that additional file sections are needed, he or she will expand this initial filing structure to include additional sections.

10.24 Transmittal to the Title II Services Contractor

Submittals to the Title II Services Contractor are to be accompanied by a completed submittal form. This form is to be used for submittals requiring the Title II Services Contractor response and for information-only submittals in accordance with the instructions on the reverse side of the form. This form is to be properly completed by filling out the heading blank spaces and identifying each item submitted. Care is to be exercised to ensure proper listing of the Task Order, specification paragraph, and/or sheet number of the plans pertinent to the data submitted for each item.

10.25 Documentation

In addition to the documentation requirements specified above, the following requirements apply to this project. The QC file is to be maintained by the UXOQCS and is to be controlled as an integral component of the project files. Shop drawings, work orders, and change orders issued are to be provided to the UXOQCS. It is the responsibility of the UXOQCS to maintain this technical information and keep it current and recorded as it is revised. Technical information is not to be replaced or revised without receipt of a properly authorized change order or revision. Copies of purchase orders or subcontracts requiring inspection are to be provided to the UXOQCS for receiving and recording purposes. Copies of required certifications received are to be maintained in the QC file and are to be submitted to the Title II Services Contractor in accordance with agreements made at the coordination meeting. Changes in submittal progress and QC activities related to submittals are to be summarized in the Weekly QC Report.

CHAPTER 11 – ENVIRONMENTAL PROTECTION PLAN

ADVENT will follow applicable regulations and obtain necessary permits concerning environmental protection, pollution control, and abatement necessary for the proposed project work. Applicable regulations and requirements (ARARs) for environmental protection:

- 16 USC 1531 et seq., per 50 CFR 402 Endangered Species Act
- 16 USC 703, et seq. Migratory Bird Treaty Act
- 16 USC 469, et seq., and 36 CFR 65 National Archaeological and Historic Preservation Act

11.1 Endangered/Threatened Species within the Project Site

11.1.1

A final ecological study and habitat characterization of the Former VNTR is pending. No threatened or endangered plant or animal species are expected to be impacted by the proposed MEC work in this scope of work. The results of the ecological study will be carefully reviewed to ensure MEC work does not adversely affect any endangered/threatened species.

Tables 11-1 and 11-2 list the federally protected plant and animal species that are known to occur or that have the potential to occur on Vieques.

TABLE 11-1
Rare and Endangered Terrestrial Plant Species at VNTR
Vieques, Puerto Rico

Name	Growth Form	Habitat
Amaranthaceae <i>Celosia virgata</i>	Herb	Upland Forest
Bignoniaceae <i>Enallagma latifolia</i>	Tree	Lowland Forest
Bromeliaceae <i>Tillandsia lineatispica</i>	Epiphyte	Lowland Forest
<i>Witmackia lingulata</i>	Epiphyte	Lowland Forest
Caesalpinaceae <i>Caesalpinia bundu</i>	Tree	Beach Scrub
<i>Stahlia monosperma</i> *	Tree	Lowland Forest
Capparidaceae <i>Morisonia Americana</i>	Tree	Upland Forest
Celastraceae <i>Maytenus cymosa</i>	Shrub	Lowland Forest
Compositae <i>Baccharis dioica</i>	Sledge	Evergreen Scrub
Cyperaceae <i>Bulbostylis pauciflora</i>	Sedge	Pastures
<i>Cyperus urbani</i>	Tree	Pastures
Flacourtiaceae <i>Prockia cruiz</i>	Tree	Upland Forest
Malpighiaceae <i>Malpighia fucata</i> *	Tree	Beach Scrub
<i>M. infectissima</i>	Tree	Beach Scrub
<i>M. linearis</i> *	Tree	Beach Scrub
<i>M. shaferi</i>	Tree	Lowland Forest
<i>Tetrapteris inaequalis</i>	Woody Vine	Beach Scrub
Myrtaceae <i>Calypttranthes</i>	Tree	Upland Forest
Olcaceae <i>Schoepfia schreberi</i>	Tree	Upland Forest
Orchidaceae <i>Epidendrum bifidum</i>	Epiphyte	Evergreen Scrub
Papilionaceae <i>Seymouria tomentosa</i>	Scrub	Beach Scrub
Piperaceae <i>Peperomia myrsinites</i>	Herb	Upland Forest
Polypodiaceae <i>Adiantum villosum</i>	Fern	Gallery Forest
Solanaceae <i>Brauseola americana</i>	Tree	Upland Forest

<i>Urticaceae Pouzolzia occidentalis</i>	Shrub	Upland Forest
<i>Zygophyllaceae Guaiacum officinale</i>	Tree	Beach Scrub

*Observed during Environmental Impact Study (Tamsand Ecology and Environment, Inc., 1980)
 Source: Wodbury, Roy, et al., 1975, Rare and Endangered Plants of Puerto Rico, a Committee Report, U.S. Department of Agriculture, Soil Conservation Service.

TABLE 11-2
 Rare and Endangered Terrestrial and Amphibious Wildlife at VNTR
 Vieques, Puerto Rico

Species	Common Name	Status
<i>Sphaerodactylus roosevelti</i> *O	Littoral Lizard	Rare
<i>Anolis cuvieri</i> *O	Puerto Rican Giant Anole	Rare or Extinct
<i>Mabuya sloanii</i> * O	Slippery Black Skink	Rare or Extinct
<i>Typhlops</i> O	Worm Snake	Rare
<i>Alsophis antillensis</i> O	Ground Snake	Rare or Extinct
<i>Pseudemys rejnegeri</i> * O	Antillean Painted Turtle	Rare
<i>Chelonia mydas</i> □□ O	Green Sea Turtle	Endangered
<i>Dermochelys coriacea</i> □□ O	Leatherback (Sea Turtle)	Endangered
<i>Caretta caretta</i> □□ O	Loggerhead (Sea Turtle)	Endangered
<i>Eretmochelys imbricata</i> □□ O	Hawkbill (Sea Turtle)	Endangered
<i>Trimeresurus</i>	Fer-De-Lance	Rare or Extinct

* = Endangered in Puerto Rico
 □□ = Federally classified endangered species
 O = Not observed during study
 Source: Ecology and Environment, Inc., 1978

11.1.2

All of the federally protected sea turtle species listed in Table 11-2 have the potential to utilize the marine environment near the beach area and also the shoreline during nesting. Sea turtle nesting may occur from March through November. No sea turtle nesting areas are within the areas described in this scope of work for removal action. However, all project personnel will be instructed to avoid sea turtles or sea turtle nests that are encountered. All sea turtle nests that are located will be marked by flagging during the duration of the project to prevent potential impacts. All sea turtle tracks sighted within the project area will be reported to the Title II Contractor and ADVENT SUXO and Site Manager and the USFWS Refuge Manager.

11.1.3

All of the federally protected bird species listed in Table 11-2 have the potential to utilize the project area for foraging, particularly the brown pelican and roseate tern. None of these bird species are expected to use the project area for nesting; therefore, their potential presence would be transitory. Because of the nature of the proposed work, no impacts to these bird species are expected.

11.1.4

All of the federally protected marine mammal species listed in Table 11-2 have the potential to occur in the marine environment near Former VNTR. Because the proposed work does not extend seaward of the shoreline, none of the work activities will impact these or other marine species.

11.2 Wetlands within the Project Site

No onsite wetlands are expected to be impacted by the project. In the event that wetlands are to be impacted, the USFWS Refuge Manager will be contacted. In such a case, mitigation measures will be taken to reduce the impact on the wetland ecosystem.

11.3 Cultural and Archaeological Resources within the Project Site

Based on available data, the probability that significant cultural or archaeological resources are located within the project area appears low. Because of the nature of the proposed work, any cultural or archeological resources that may exist within the project area are not expected to be impacted. If any cultural or archaeological materials or resources are discovered within the project area, a qualified archaeologist will be notified and will provide guidance on performing further work in the area. A review/training of potential archeological items that may be present will be conducted for all personnel to assist with identifying items if encountered.

11.4 Coastal Zones within the Project Site

The entire northern, southern, and eastern sides of the project area are coastal zones (Caribbean Sea). No work is proposed seaward of the mean high tide boundary along the coastline. Because of the nature of the proposed work, the marine environment seaward of the shoreline and the areas landward of the shoreline are not expected to be impacted.

11.5 Trees and Shrubs to be Removed within the Project Site

The proposed work will involve removal of shrubs, undergrowth, and small trees within the project area. The vegetation will be removed only on an as-needed basis. No large trees greater than 4 inches diameter at breast height (DBH) will be removed as part of the study and removal.

11.6 Existing Waste Disposal Sites within the Project Site

The entire work area was used as a bombing range and UXO/MEC is still present. No know waste site existing 207 acre site.

11.7 Mitigation Procedures

Prior to initiation of the proposed work, a general survey of the project area will be conducted by a qualified ecologist to identify any obvious environmental concerns. The ecologist, in conjunction with the project manager, will provide instructions to field personnel regarding the protection of onsite environmental resources. Such protective measures will include, but are not limited to, the following:

- The amount of brush cutting in each grid will be kept to the minimum amount necessary to conduct the required OE response action. Areas that receive brush clearing treatment will be allowed to revegetate naturally after field survey

activities are completed. Ordnance excavation activities will not disturb local drainage.

- During ordnance removal activities, soil may be displaced by intrusive excavation of small areas (typically 2-ft by 2-ft or less). All excavations will be restored by backfilling with the displaced soil. Backfilling will be accomplished manually with shovels and rakes.
- Excavations in the intrusive phase will typically be less than 2 ft by 2 ft areas and the brush clearing activities are not expected to produce any increase in the percentage of bare areas of soil. Therefore, dust control will not be required for this project
- Any solid waste material (drinking water bottles, food containers, or other material) generated during the geophysical surveys and/or intrusive phases will be stored in plastic bags and disposed off-site.
- A spill kit will be maintained on the project site. Releases exceeding the reportable quantities will be reported to the Title II Contractor and the Navy. The Navy and/or Title II Contractor will contact the appropriate agencies.
- No burning activities will take place during this project
- The number of access routes into and out of the site will be minimized. To the extent possible, existing dirt roads will be used to enter and leave the work area.
- Materials used for the MEC Removal will be stored either in a locked vehicles or OP-1 and associated buildings.
- Contact with any specimen of the Cobana negra tree or any other federally protected plant that is found within the project area will be avoided. Specimens within the project area will be flagged for easy identification.
- Sea turtles or sea turtle nests that are encountered will be avoided. All sea turtle nests that are located will be marked by flagging during the duration of the project to prevent potential impacts. All sea turtle tracks sighted within the project area will be reported to the Title II Contractor and ADVENT SUXO and Site Manager.
- Any MEC found within or near a wetland will be identified and removed, if deemed safe to do so, without impacts to wetland soil, vegetation, or hydrology.
- If any cultural or archaeological material/resource is discovered within the project area, a qualified archaeologist will be notified to provide guidance on performing further work in the area.

- Any MEC found in the immediate vicinity of a water body will be identified and removed, if deemed safe to do so, without impacts to the water resource.
- Any MEC found near the coastal zone will be identified and removed, if deemed safe to do so, without impacts to the coastal environment.

The Project Team will seek the guidance of the qualified ecologist to determine appropriate mitigation measures in the event that the performed work activities result in impacts to environmental resource.

CHAPTER 12 - INVESTIGATION DERIVED WASTE PLAN

An investigation Derived Waste Plan describes procedures for handling investigation derived waste on projects with CWM. It is assumed that this site is not a CWM site; therefore, an IDWP is not required. If, in the future, CWM is detected or suspected at the site, an IDWP will be prepared in accordance with DID OE-005-13.01 under a separate Delivery Order.

MEC found during these activities will be demilitarized in accordance with DOD guidelines. Scrap resulting from the demilitarizing activities will be staged in a fenced area in the LIA. Non-MEC scrap will be staged in a separate fenced area in the LIA.

CHAPTER 13 –GEOGRAPHICAL INFORMATION SYSTEM PLAN

13.1 General Information

13.1.1

This GIS Plan describes the incorporation of GIS, developed by the Title II Contractor, into the data management phases of MEC anomaly validation actions at the Former VNTR. This plan was developed in accordance with MMRP MCX data item description (DID) OE-005-14.01. The comprehensive MEC-GIS and associated database were established to track and manage the data generated during the course of MEC investigations and the disposition of MPPEH/MD and detonated MEC. The hardware and software tools to be used have been specifically chosen to provide a flexible system that allows effective and timely data management, long-term storage and archival of data, and expansion of the database to include new information that can readily be integrated into the existing database as appropriate. The database and GIS are also designed to be transportable to existing project applications developed and maintained by other members of the Vieques project team. This will provide an efficient mechanism for retrieving MEC related information for technical evaluation, removal efforts, reporting, and ultimately to assist in the efficient transfer and reuse of parcels at the Former VNTR.

13.1.2

The data will be managed using the CADD/GIS Technology Center SDS as outlined in SDS/Facility Management Standards (FMS) release 1.95 where applicable. The intent of SDS is to provide data in an accessible and predictable format that can be used by standard, readily available GIS software applications.

13.2 Geographical Information System Incorporation

13.2.1

The purpose of this task is to leverage GIS technology to effectively manage and integrate MEC-related data collected as part of the ongoing investigations being conducted in Vieques. When properly set up, GIS applications can integrate spatial data (maps) with tabulated data stored in databases (such as MEC type, location, and status). Significant amounts of background and location data collected during the various investigations that have been conducted or are currently being conducted are already integrated into a GIS for the site. The intent of this GIS is to leverage existing systems that have already been developed for the Navy so that the GIS can be integrated to meet the needs of MEC investigations and ultimately assist with making decisions regarding future reuse of parcels.

13.2.2

A comprehensive database, Arc/INFO, ArcView MEC-GIS developed to manage, evaluate, and report site information. The MEC-GIS system is based on the current environmental system for Vieques and will incorporate additional data for MEC investigation, ordnance tracking, reporting, and decision support systems. Where applicable, additional data such as geology, hydrogeology, and infrastructure will be

incorporated to assist in the investigation. Attribute data are to be stored in a relational database that is inherently linked to the spatial data through the GIS interface. Spatial data identifying elements such as buildings are managed in Arc/INFO and archive. The Arc/INFO and ArcView GIS is integrated with the database and is used to perform spatial analyses of the various attribute and spatial data. All existing data is currently referenced to the 1983 NAD 83, UTM coordinate system.

13.2.3

Widely used, commercially available hardware and software will be utilized in the development and maintenance of the MEC database and GIS. No proprietary software will be used to prepare these applications. Tools developed for interim analysis will be documented and may be evaluated by the Navy. This ensures that data will be readily accessible by all members of the project team authorized to use these data. This also ensures that the data is portable should it be necessary to transfer the GIS and associated database to other servers and workstations.

13.2.4

A computer system will be available onsite (at Vieques) for GIS data entry, management, and reporting. ADVENT will provide GIS and database support on an as-needed basis to assist with GIS system functionality and use.

13.2.5

The existing Vieques GIS has been developed in the ArcView GIS environment. ArcView GIS will be the primary GIS software for all GIS data management and mapping. The Microsoft Office 97 (or later) suite of programs (including Microsoft Access, Microsoft Word, Microsoft Project, and Microsoft Excel) and AutoCAD (Release 14 or 2000) will also be used on this project, where applicable. Title II Services Contractor will establish a Micro Station 95 data file. All MEC-related files will be made available in a format that is compatible with Navy format. These may include (but are not limited to) ArcView shape files, Micro station DGN files, comma delimited ASCII data files, files, dBase (.dbf) format files, or Access databases, depending on the specific needs of the deliverable.

13.2.6

Microsoft Access 97 (or later) will be the primary database software used to manage MEC data. The database will include a database schema, electronic data entry functions, QA/QC reporting audits of the data, data management, and a link to the spatial data supporting the site-wide GIS. The site-wide relational database will be stored in Microsoft Access 97 (or later) at this time. These database tables and relationships will be compatible for transfer of the data to an Oracle platform in the future if requested by the Navy.

13.2.7

Field data collected as part of the removal actions will be managed in and integrated with the site-wide relational database. The data fields in field forms and field data collection equipment will be formatted to be consistent with the data fields used in the database.

Anomaly data will be collected using a real-time data collection process that will generate a raw data file consisting of values for easting, northing, and geophysical value. Naming conventions will be developed so that all field observations and measurements are consistent. Attributes specific to the MEC investigation will be stored and managed in tables separate from other database tables (such as environmental or endangered species related data). Several types of information that will be used to join tables include:

- Site name–Common name used to identify the study area.
- Munitions Response Site number assigned to each study area.
- Grid number–Unique number of sampling grid where MEC was observed.
- Identification number–Unique identification number assigned by the field team to each observation, MEC component, or explosion pit.

13.2.8

MEC spatial data will be entered into the database as point data identified by a unique northing and easting coordinate pair (a unique point designator will also be assigned). In the event that multiple MEC items encountered in the field are grouped and classified as a cluster, the cluster location will be entered into the GIS as a single point. A field in the MEC point attribute table will identify such clusters. A separate table with unique MEC item records will be developed (and linked to the point location layer) that will be used to track the item through the project life cycle. Attribute data will be related to the MEC point layer to provide a detailed description of the cluster as appropriate.

13.2.9

MEC item attribute data includes both qualitative and quantitative sample information such as ordnance type, quantity, and status. In addition, a munitions database can be linked to the MEC item table to provide physical, chemical, and explosive data regarding each MEC or MEC item found in the field. This anomaly validation study will not require the use of various models for evaluation of buried explosives, trajectory, and other assessments related to the unintentional detonation of munitions. If required (as a result of field conditions), this analysis will be scoped in a separate task.

13.2.10

The workflow for transferring the field data to the database is summarized below:

1. Field observations are recorded either on pre-defined field forms or electronically (laptop/palmtop system). Electronic data collection systems will have predefined data dictionaries with drop-down boxes to simplify and standardize recording of field data.
2. Data from the geophysical survey will be processed by the field team leader daily, and the processed files will be submitted to the project data manager for QA and incorporation into the standard data management structure. Each file will be stored in original format and converted to the standard GIS or database format to be included in the system.

3. At the end of the field day, data on field forms are verified for completeness and accuracy (i.e., number of observations made match the number of observations recorded). Copies of the field forms are made and hard copies of the electronic forms are printed for the field office.

4. Data from field forms are entered into MEC database loading tables (either onsite or transmitted to a local office for data entry). These tables are then loaded into the MEC GIS and database. Electronic forms are processed onsite and loaded directly into the MEC database.

5. QC checks of the data will be based on a set of reports that will be generated from the database and provided to the project manager and field team leader for review. For example, the ordnance type information cannot be entered unless an ordnance sampling location has been properly defined.

6. After data tables are loaded, the database is ready for use at the site for data analysis and reporting, uploading to the onsite GIS, generation of field maps, or transfer and uploading to the Vieques site-wide database.

13.2.11

When required for field data collection, data entry fields on the paper and electronic forms will match the field names in the MEC database. This will allow the project team to track the flow of MEC information from data collection through processing, analysis, storage, and archival.

13.2.12

The MEC database will also be used to store and track inventory information related to the anomaly investigation. If MEC is moved and detonated onsite, this information will also be included in the GIS/database system.

13.2.13

Additional data will be incorporated as necessary into the onsite GIS as layers. These layers consist of pre-existing data, or other non-MEC data collected during the MEC investigation. Sources for such data include existing CAD files, published data, and output from other software applications. Examples of these layers include existing anomaly data, and spatial and attribute data collected and mapped by previous investigators, if available.

The GIS will not be used to store all raw data generated during the MEC investigations. For example, data points collected by geophysical instruments, gridded data used by modeling programs to generate contour maps, and similar types of backup data will likely be archived as separate tables in the database or as independent databases. An attribute field will be added to the GIS coverage that identifies a file location or similar reference to document these data. The interpreted results of analysis (such as interpreted geophysical results), however, will be included in the GIS.

13.3 Computer Files

All data, text, and digital maps will be available in standard file formats. Text will be delivered in either Microsoft Word 97 or Adobe Acrobat Portable Document Format (PDF), as requested in the specific project task order. The shareware PDF viewer will be provided along with the PDF documents.

All GIS and associated database and digitized aerial photographs are transportable and can be copied to portable media for archiving or transfer to other team members. Available formats include CD-ROM (the preferred method), digital tape, or 3.5-inch floppy diskettes. The media used is dictated in part by the sizes of the files. All survey coordinates will be stored as part of the site-wide relational database.

Chapter 14 -References

Baker Environmental Group. *Results of Hydrogeologic Investigation, Vieques Island, Puerto Rico*. November 1999.

CH2M HILL, Inc. *Final Master Work Plan, Atlantic Fleet Weapons Training Facility, Vieques Island, Puerto Rico*. June 12, 2003.

CEHNC. *Basic Safety Concepts and Considerations for MEC Operations, Engineering Pamphlet (EP) 385-1-95a*. rev. June 16, 2003.

Ecology and Environment, Inc. *Environmental Assessment of the Continued Use of the Atlantic Fleet Weapons Training Facility*. January 1986.

Tippetts, Abbett, McCarthy, Stratton, and Ecology and Environment. *Department of the Navy Environmental Impact Statement, Continued Use of the AFWTF Inner Range (Vieques)*. 1979.

U.S. Army Manual, *Explosive Ordnance Disposal Service and Unit Operations*, May 8, 1996.

U.S. Department of Agriculture (USDA) Soil Conservation Services in conjunction with the University of Puerto Rico, *Soil Survey of Humacao Area, Eastern Puerto Rico*. January 1977.

U.S. Department of Defense. *Test Method Standard, MIL-STD-1916*. April 1, 1996.

U.S. Department of Defense. *Companion Document to MIL-STD-1916, MIL-HDBK-1916*. February 10, 1999.

Woodbury, Roy, et al. *Rare and Endangered Plants of Puerto Rico, a Committee Report, U.S. Department of Agriculture, Soil Conservation Service*. 1975.

[Vargas] U.S. Geological Survey. *Water Wells on Isla De Vieques, Puerto Rico*. 199

APPENDIX A

Task Order

ORDER FOR SUPPLIES OR SERVICES

PAGE 1 OF 18

1. CONTRACT/PURCH. ORDER/ AGREEMENT NO. 32470-03-D-9992	2. DELIVERY ORDER/ CALL NO. 0002	3. DATE OF ORDER/CALL (YYYYMMDD) 2005 Feb 11	4. REQ/ PURCH. REQUEST NO. PR00020002	5. PRIORITY
------------------------------------------------------------	-------------------------------------	----------------------------------------------------	------------------------------------------	-------------

6. ISSUED BY COMMANDER, ATLANTIC DIVISION, NAVFACENG 1510 GILBERT STREET BUILDING N26 NORFOLK VA 23511-2699	CODE N62470	7. ADMINISTERED BY (if other than 6) SEE ITEM 6	CODE	8. DELIVERY FOB <input checked="" type="checkbox"/> DESTINATION <input type="checkbox"/> OTHER (See Schedule if other)
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9. CONTRACTOR ADVENT ENVIRONMENTAL INCORPORATED 498 WANDO PARK BLVD SUITE 200 MOUNT PLEASANT SC 29464-7904	CODE 1DAQ4	FACILITY	10. DELIVER TO FOB POINT BY (Date) (YYYYMMDD) SEE SCHEDULE	11. MARK IF BUSINESS IS <input type="checkbox"/> SMALL <input checked="" type="checkbox"/> SMALL DISADVANTAGED <input type="checkbox"/> WOMEN-OWNED
			12. DISCOUNT TERMS	
13. MAIL INVOICES TO THE ADDRESS IN BLOCK See Item 15				

14. SHIP TO SEE SCHEDULE	CODE	15. PAYMENT WILL BE MADE BY DEFENSE FINANCE AND ACCOUNTING SERVICE - PO BOX 23870 OAKLAND CA 94623-3870	CODE N68894	MARK ALL PACKAGES AND PAPERS WITH IDENTIFICATION NUMBERS IN BLOCKS 1 AND 2.
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16. TYPE OF ORDER	DELIVERY/ CALL <input checked="" type="checkbox"/>	PURCHASE <input type="checkbox"/>	X	This delivery order/call is issued on another Government agency or in accordance with and subject to terms and conditions of above numbered contract. Reference your quote dated Furnish the following on terms specified herein. REF:
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ACCEPTANCE. THE CONTRACTOR HEREBY ACCEPTS THE OFFER REPRESENTED BY THE NUMBERED PURCHASE ORDER AS IT MAY PREVIOUSLY HAVE BEEN OR IS NOW MODIFIED, SUBJECT TO ALL OF THE TERMS AND CONDITIONS SET FORTH, AND AGREES TO PERFORM THE SAME.

NAME OF CONTRACTOR	SIGNATURE	TYPED NAME AND TITLE	DATE SIGNED (YYYYMMDD)
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If this box is marked, supplier must sign Acceptance and return the following number of copies:

17. ACCOUNTING AND APPROPRIATION DATA/ LOCAL USE See Schedule

18. ITEM NO.	19. SCHEDULE OF SUPPLIES/ SERVICES	20. QUANTITY ORDERED/ ACCEPTED*	21. UNIT	22. UNIT PRICE	23. AMOUNT
SEE SCHEDULE					

* If quantity accepted by the Government is same as quantity ordered, indicate by X. If different, enter actual quantity accepted below quantity ordered and encircle.	24. UNITED STATES OF AMERICA TEL: 757 322-4662 EMAIL: jean.l.mann@navy.mil BY: JEAN MANN	<i>Jean L. Mann</i> CONTRACTING / ORDERING OFFICER	25. TOTAL \$2,815,124.00	26. DIFFERENCES
------------------------------------------------------------------------------------------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------------------	-------------------------------------------------------	-----------------------------	-----------------

27a. QUANTITY IN COLUMN 20 HAS BEEN
 INSPECTED RECEIVED ACCEPTED, AND CONFORMS TO THE CONTRACT EXCEPT AS NOTED

b. SIGNATURE OF AUTHORIZED GOVERNMENT REPRESENTATIVE	c. DATE (YYYYMMDD)	d. PRINTED NAME AND TITLE OF AUTHORIZED GOVERNMENT REPRESENTATIVE
------------------------------------------------------	--------------------	-------------------------------------------------------------------

e. MAILING ADDRESS OF AUTHORIZED GOVERNMENT REPRESENTATIVE	28. SHIP NO.	29. DO VOUCHER NO.	30. INITIALS
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f. TELEPHONE NUMBER	g. E-MAIL ADDRESS	<input type="checkbox"/> PARTIAL <input type="checkbox"/> FINAL	32. PAID BY	33. AMOUNT VERIFIED CORRECT FOR
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36. I certify this account is correct and proper for payment.

a. DATE (YYYYMMDD)	b. SIGNATURE AND TITLE OF CERTIFYING OFFICER	31. PAYMENT <input type="checkbox"/> COMPLETE <input type="checkbox"/> PARTIAL <input type="checkbox"/> FINAL	34. CHECK NUMBER
			35. BILL OF LADING NO.

37. RECEIVED AT	38. RECEIVED BY	39. DATE RECEIVED (YYYYMMDD)	40. TOTAL CONTAINERS	41. S/R ACCOUNT NO.	42. S/R VOUCHER NO.
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Section B - Supplies or Services and Prices

ITEM NO	SUPPLIES/SERVICES	MAX QUANTITY	UNIT	UNIT PRICE	MAX AMOUNT
0002 EXERCISED OPTION	Option Year No 1 FFP	2,815,124	Each	\$1.00	\$2,815,124.00

Indefinite Quantity Contract to perform environmental remediation services to support Navy and Marine Corps Installations and other Government Agencies within LANTNAVFACENCOM and other areas of interest to the Government

This Contract Task Order is issued to provide all engineering services, travel and subsistence necessary for Munitions Removal Action at Response Sites located within the Munitions Response Areas (MRA): MRA-LIA (Live Impact Area) and MRA-SIA (Surface Impact Area) at the former Vieques Naval Training Range, Vieques Island, Puerto Rico.

Work shall be performed in accordance with the Scope of Services dated February 9, 2005 attached hereto and made a part hereof, all as directed by the Contracting Officer. The Contractor's revised proposal dated January 19, 2005 is hereby accepted.

Cost savings which the Contractor may achieve, including but not limited to, housing arrangements, equipment rates, supplies and/or subcontracted efforts shall be shared with the Government, including but not limited to, in the form of additional surface removal actions.

SUBMIT INVOICES FOR PAYMENT TO COMMANDER NAVFAC ATLANTIC (CODE AQ118), 6506 HAMPTON BLVD, NORFOLK, VA 23508-1278. PAYMENT WILL BE MADE BY DFAS, OPLOC OAKLAND, ATTN: CODE FPV, PO BOX 23870, OAKLAND, CA.

Copy to: EV23CP EV31JPR AQ119 AQ13D AQ11(FIS)

Contracting Officer's email address: Jean.L.Mann@navy.mil - Telephone No. 757-322-4662

FOB: Destination
PURCHASE REQUEST NUMBER: PR99920002

MAX
NET AMT

\$2,815,124.00

Section C - Descriptions and Specifications

February 9, 2005

Scope of Services

1. BA Contract No.: N62470-03-D-9992 (ADVENT)
Task Order: CTO #2
Fund Type: MRP

Project Title/Location: Time Critical Removal Actions and Interim Munitions Removal Actions at Various Locations in the Former Vieques Naval Training Range, Puerto Rico

Attachment:

- (a) Statement of Work dated February 9, 2005
- (b) Figure 1

2. LANTNAVFACENGCOM Navy Technical Representative (NTR)/Telephone:

Mr. Christopher T. Penny, P.E., REM Code EV23CP / (757) 322-4815

The NTR is the NAVFAC ATLANTIC point of contact on technical matters.

LANTNAVFACENGCOM Contracting Officer, Code/Telephone:

Ms. Jean Mann, Code AQ119 (757) 322-4662

The Contractor's responsibility is directly to the Contracting Officer via the Contract Specialist. Any requested change/deviation in scope must be brought to the attention and/or approved by the Contracting Officer. In no case will changes to the contract scope be made at the Activity level or by any person other than the Contracting Officer.

3. Project Milestones:

<u>DESCRIPTION</u>	<u>CONTRACTOR SUBMITTAL CUMULATIVE CALENDAR DAYS</u>	<u>Submittal Date</u>
Fee Proposal	14 days after award	
Draft MEC Remediation Work Plan	21 days after award	
Final MEC Remediation Work Plan	15 days after receipt of Gov't comments	TBD
Revised Cost to Complete	7 Days after First 100 Acres Surface Cleared	TBD
Preliminary Draft After Action Report	60 days after removal actions are complete	TBD
Draft After Action Report	15 days after receipt of comments	TBD
Final After Action Report	15 days after receipt of comments	TBD
Other Submittals will be delivered as required.		TBD

5. Scope Description: See Attachment (a)

6. Project Submittal Distribution:

All documents shall be submitted according to the following distribution list (one electronic copy of each document shall be provided to each hardcopy recipient)

	<u>NAVFAC</u>	<u>EPA</u>	<u>PREOB</u>
Draft MEC Remediation Work Plan	7	8	3
Final MEC Remediation Work Plan	7	8	3
Pre-Draft After Action Report	7	8	3
Draft After Action Report	7	8	3
Final After Action Report	7	8	3
Other Submittals	8		

MAILING ADDRESSES: DIRECT DISTRIBUTION TO EACH ADDRESSEE BY SA Contractor is REQUIRED

Atlantic Division, Naval Facilities Engineering Command

COMMANDER
NAVFAC ATLANTIC
ATTN CODE EV23CT MR. CHRISTOPHER PENNY, P.E.
CODE AQ119 MS. JEAN MANN (Copies of forwarding letters only)
6506 HAMPTON BLVD
NORFOLK VA 23508-1278

US Environmental Protection Agency:

US EPA Region II
Attn: Mr. Tim Gordon
290 Broadway – 22nd Floor
New York, New York, 11007-1866

US EPA Caribbean Office and Vieques Office
Attn: Mr. Daniel Rodriguez
Vieques Island

Puerto Rico EQB

Ms Yarissa Martinez or Successor
Puerto Rico Environmental Quality Board
431 Ponce DeLeon Avenue
Hato Rey, PR 00917

CH2MHill

Mr. John Tomik
Title II Construction Manager/Coordinator
Thurston Rd
Virginia Beach, VA

The contract number shall appear on all documents and correspondence related to this contract.

All documents, reports, analyses, drawings, etc., generated during the execution of this work order shall become the property of the US Navy. The release of these documents to any other agency or individual without express written approval is prohibited.

7. Schedule of Payments: (To be completed based on negotiations)

February 9, 2005

Statement of Work

Munitions Removal Action at Munitions Response Sites Located within the Munitions Response Areas (MRA's):
MRA-LIA – (Live Impact Area) and MRA-SIA (Surface Impact Area)

Former Vieques Naval Training Range, Vieques Island, Puerto Rico

1.0 OBJECTIVES. The Contractor shall provide the personnel, equipment, materials, and management to respond to multiple Munitions Removal Actions as specified in this Task Order, various sites within the property boundaries of the Former Vieques Naval Training Range. Specific categories and objectives of work include, but are not limited to:

- 1.1 The contractor shall perform Munitions of Explosives Concern (MEC) surface removal actions as necessary to reduce worker, public, and law enforcement exposure to unexploded ordnance and other types of munitions found on the surface. The surface removal will be limited to only that MEC, either in whole or in part, visible at the surface.
- 1.2 MEC clearance of roadways to a depth of two feet to allow for safe access of vehicles used in conjunction with the MEC remediation of the site. Roadway and access ways will be determined upon site visit or analysis of site photographs with Contracting Officer and/or Navy Technical Representative.
- 1.3 MEC subsurface clearance to depths of four feet at specific locations specified in the final approved Land Use Plan or Comprehensive Conservation Plan (CCP) developed by Department of Interior Fish and Wildlife Service.
- 1.4 Targets and Target Debris located within Area of work require removal, 3X decontamination, and storage for subsequent disposal. Nuclear Radiation testing of targets will be required prior to removal and disassembly.
- 1.5 MEC is a safety hazard and may constitute an imminent and substantial danger to site management personnel and others. The contractor shall safely locate, identify, recover, evaluate, demilitarize, manage, and store MEC, and other ordnance related scrap, at the Former Vieques Naval Training Range (VNTR), Vieques, PR that is currently being managed as a wildlife and wilderness area by the U.S. Department of Interior's Fish and Wildlife Service (FWS).
- 1.6 MEC removal actions will be conducted at Munitions Response Sites (MRSs) and roadways located in the Former VNTR Live Impact Area (LIA) and Surface Impact Area (SIA), identified as Munitions Response Area (MRA) – LIA and MRA-SIA.
- ✓ 1.7 Technical plans for conducting work will be completed prior to implementing the removal activities and a report documenting the completed removal activities will be generated as a record of work completed at the Former VNTR.
- 1.8 Data will be maintained in an electronic database format compatible with NAVFAC Atlantic operating systems and software. It is expected that the data format will allow for NAVFAC Atlantic project personnel to easily view and search site data. The data will be compiled as part of the Administrative Record for Vieques.

Attachment (a)

1.9 Wide Area Assessment Specialized Aerial Photography delineating surface impact areas for footprint reduction of MEC areas within the three Munitions Response Areas (MRA's - LIA, SIA, and EMA).

1.10 Corrective Action Plan (CAP): Develop a CAP that incorporates cost-effective technologies and schedules for attainment of risk-based remediation end points. The final decision for implementation of the corrective action plan will be determined by the NTR. A report or letter, which meets the requirements in Part 2, shall be submitted to the NTR upon completion and within the time frames specified in the CTO. A Contractor may be required to develop a CAP for a site that was characterized by another Contractor.

2.0 PLANS. In addition to other plans described in this Statement of Work, the contractor shall provide the following submittals to the Contracting Officer or designated representative and/or Title II Construction Manager, as applicable (dates will be specified in the CTO):

- A. Health and Safety Plan
- B. Site Specific Quality Management Plan
- C. Waste Management Plan
- D. Laboratory Quality Control Plan (if applicable)
- E. MEC Sample Collection Plan
- F. Geophysical Prove Out Plan
- G. Data Management Plan
- H. GIS Management Plan
- I. Instrument/Equipment Testing, Inspection, Calibration, and Maintenance Plan
- J. Environmental Protection Plan
- K. MEC and Environmental Conditions Report
- L. MEC After Action Report
- M. Emergency and Hazardous Chemical Inventory Forms
- N. Toxic Chemical Release Report
- O. MEC Monthly Reports
- P. MEC Surface Removal and Subsurface Removal Plan
- Q. Site Security Plan
- R. Equipment, Personnel, and Supply Logistics Plan
- S. Site Specific Explosives Safety Submission (compliance with Master ESS provisions)
- T. Any additional MEC type plans required per ACOE and Navy safety and regulatory requirements.
- U. MEC Removal and Management Project Schedule

3.0 PERSONNEL AND TRAINING REQUIREMENTS.

3.1 Review of Resumes: The Government reserves the right to review the resumes of and interview Contractor employees performing under the contract solely for the purpose of ascertaining their qualifications relative to the personnel qualification terms of the contract. Accordingly, the Contractor shall furnish such resumes to the Contracting Officer upon request.

3.2 Contractor Work Force Responsibility: Organize, furnish, maintain, supervise, and direct a workforce which is thoroughly capable and qualified to effectively perform the work set forth in the contract. The Contractor is responsible for ensuring that staff planning fieldwork and collecting environmental data are properly trained in data collection procedures and are familiar with and use established sample collection procedures in order to ensure that the data collected meet the Data Quality Objectives for the phase of work at a particular site.

3.3 Program Management. The contractor shall designate a program manager, meeting the requirements of "project manager" in accordance with DID OE-025.02 and the requirements specified in the contract requirements for the overall contract who provides a single point of contact for the Contracting Officer, provides support to NAVFAC Atlantic Remedial Project Manager and other designated government representatives, and who can address overall management and contracting issues. Typical qualifications: BA/BS degree in engineering, geology, or other related science and 4-7 years of applicable MEC and environmental remediation management experience; has necessary health and safety training. Has responsibility for managing entire MEC remediation projects, estimating costs within the project and controlling project budgets. Identifies and develops approaches for site remediation. Serves as on-sight technical expert and project coordinator. Analyzes and interprets data, supervises geophysical work and may prepare limited or technical sections of reports. Supervises the work of lower level professional and technical staff. Field hours are normally limited to periodic site visits.

- » Project management
- » Report review
- » Report preparation
- » Develop and oversee project budget
- » Data review and analysis
- » Field work planning
- » Work plan preparation
- » On-site direction, coordination, and management
- » Coordinate with agency, client, and subcontractors
- » Equipment specification review, selection, and design
- » Periodic site inspection
- » Acquire site access and logistical arrangements and site communications

3.4. Mid-Level Professional. Mid-level Professional Project Manager. The contractor shall execute each task under the direction of a project manager (PM) in accordance with DID OE-025.02 who shall ensure that all work is accomplished with adequate internal controls and review procedures to eliminate conflicts, errors, and omissions and ensure accuracy of all output. The contractor PM shall coordinate all administrative and cost accounting details and coordination activities. This position is not considered the technical lead position. The contractor PM shall coordinate with the Government Remedial Project Manager and other government representatives and the Title II Construction Manager to gather appropriate project information and references, scheduling, points of contact, right-of-entry requirements, area wide clearances, resolution of technical difficulties, conferences, and project status. Typical qualifications: mid-level position; BA/BS degree in engineering, geology, or other related science and 2- 5 years of applicable experience; has necessary health and safety training. Implements fieldwork, gathers technical and MEC geophysical and surface MEC information. Prepares cost estimates for project sub-tasks, work plans, and reports (IA, SCR, CAP, etc.). Provides on-site technical support. Typically works under supervision when performing complex analyses and tasks related to remediation system design. May supervise lower level professionals and technical personnel during drilling or site remediation activities (over-excavation, tank removal, etc.). Substantial number of hours is typically for fieldwork.

- Report preparation
- Fieldwork preparation and planning
- Monitoring activities
- Site reconnaissance and mapping
- Supervise MEC surface and subsurface removal and other on-site remediation activities
- Waste characterization
- Acquire site access and logistical arrangements and site communications.
- Assists in geophysical acquisition and interpretation
- Assist in modeling and data analysis
- On-Site coordination between subcontractors, Title II Construction Manager, and government representatives

4.0 GENERAL.

4.1 MEC Removal Actions. This acquisition includes the following munitions response actions: time-critical removal of MEC from the ground surface and management of MEC. The contractor will perform this work in accordance with the Department of Defense regulations and guidance, Defense Environmental Restoration Program (DERP), Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), the National Contingency Plan (NCP), Resource Conservation and Recovery Act (RCRA), and compliance with other applicable laws and regulations. The contractor shall, according to this scope of work, conduct appropriate field surveys, site visits, prepare required health and safety plans, execute removal actions, and final on-site storage of MEC/MPPEH. The contractor will conduct such work with a primary emphasis on assisting NAVFAC Atlantic in compliance with MEC and environmental laws and regulations. The work may involve working with other contractors during site inspections, emergency response plans, public coordination, and other MEC and environmental studies.

Where appropriate the following guidance documents will apply to the activities described in this statement of work:

DoD 6055.9-STD, Ammunition and Explosives Safety Standards.
DoD 4165.26-M, DoD Contractors Safety Manual for Ammunition and Explosives.
DoD 4160.21-M, Defense Materiel Disposition Manual.
DoD 4160.21-M-1, Defense Demilitarization and Trade Security Control Manual.
NAVSEA OP 5 Volume 1, Ammunition and Explosives Ashore: Safety Regulations for Handling, Storing, Production, Renovation, and Shipping.
OPNAVINST 5530.13, Department of the Navy Physical Security Instruction for Sensitive Conventional Arms, Ammunition, and Explosives.
OPNAVINST 5090.1, Environmental and Natural Resources Protection Manual.
OPNAVINST 8020.14, Department of the Navy Explosives Safety Policy.
NOSSAINST 8020.15, Military Munitions Response Program Oversight.
USACE ER 1110-1-263, Chemical Data Quality Management for Hazardous Waste Remedial Activities.
USACE EP 1110-1-17, Establishing a Temporary Open Burn and Open Detonation Site for Conventional MEC Projects.
USACE EP 1110-1-18, Ordnance and Explosives Response.
USACE EP 75-1-3, Recovered Chemical Warfare Materiel (RCWM) Response.
USACE EP 385-1-95a, United States Army Engineering and Support Center – Huntsville (USAESCH) Mandatory Center of Expertise (MCX), Basic Safety Concepts and Considerations for OE Operations.
USAESCH OE MCX Data Item Descriptions.
USAESCH Interim Safety Alerts.
Bureau of Alcohol, Tobacco, and Firearms (BATF) ATF P 5400.7, Explosives Law and Regulations.

- 4.2 In the unlikely event that during the MEC removal, the contractor encounters Hazardous, Toxic, and Radiological Waste (HTRW) or Chemical Warfare Materiel (CWM) the following shall apply:
- 4.3 HTRW material may be encountered in containers, landfills, open burn/open detonation areas (OB/OD), ground spills, surface water, or groundwater. If suspected HTRW of unknown origin and nature is encountered the contractor shall immediately notify the NAVFAC Atlantic Contracting Officer and Project Manager. The contractor shall take necessary actions to protect the safety of his workforce, the public, and the environment.
- 4.4 During conventional MEC operations, if the contractor identifies or suspects CWM, the contractor shall immediately withdraw upwind from the work area and notify the appropriate personnel as identified in this task order. The contractor shall secure the area as soon as practicable.

- 4.5 All targets will be screened for depleted uranium and all fluids removed and containerized. Targets will be stockpiled at a designated area for decontamination and demilitarization. After which targets will be containerized as appropriate.
- 4.6 The contractor shall obtain the permits and licenses necessary to conduct his operations including, but not limited to, building permits, licenses to purchase explosives, blaster's licenses, and Department of Transportation (DOT) permits for transport of MEC and HTRW on public highways. All permit acquisition and requirements will be coordinated with the Government personnel, unless specifically necessary for the operations of the contractor.
- 4.7 All work under this contract shall be in accordance with the applicable publications specified in Section 2.1 of this statement of work (SOW). The contractor shall develop and provide the Navy a Health & Safety Plan in accordance with the guidelines specified in DID OE-005-06.01 and OE-025.02.
- 4.8 Quality Management. The contractor is responsible for the control of product quality and for offering to the Government for acceptance only those products/services that conform to contractual requirements. Site-specific quality control plans shall be prepared in accordance with DID OE-005-11.01.

5.0 OTHER REQUIREMENTS.

5.1 During the progress of work, the contractor may be called upon by the Government or Title II Construction Manager to produce preliminary study data and information that is deemed necessary to satisfy Government needs. The Contractor shall provide data from this project to the extent that such requests do not detract from the contractual objectives of the work.

5.2 The contractor is responsible for conducting a site visit to verify the assumed site conditions prior to submitting the fee proposal.

5.3 The contractor shall be responsible for accuracy and validity of data. In the event of controversy or court challenge of the report(s), the contractor may be required to testify on behalf of the Government in support of report(s) findings.

5.4 The contractor shall be expected to thoroughly review all sources of information pertinent to the objective analysis of the work tasks specified in this SOW. The report presenting results of the Munitions Response Action and execution of the response action shall be done in an objective and dispassionate manner delineating fact and opinion. Interpretation shall be presented as arguments clearly identifying assumptions, premises, biases, and logic. Hypotheses shall be identified as such. All technical terms used in the report shall be defined. Concise, but complete descriptions detailing the data, methods, conclusions, and recommendations shall be based on professional judgments of recognized experts in their field of research.

5.5 All personnel conducting work on a DERP site or hazardous/toxic waste site shall have the appropriate training, personal protection, and safety course as specified by CFR 1910.20 and any other applicable requirements.

5.6 The contractor, when appropriate, will coordinate with the Title II services contractor, Navy CLEAN contractor, and any other on-site contractors to determine if subcontractor services can be provided by currently mobilized subcontractors to maximize cost and efficiency.

6.0 SPECIFIC SERVICES.

6.1 Project Management Tasks. The following project management tasks will be conducted as part of this SOW.

6.1.2 Progress Meetings and Subcommittee Meetings. Two monthly progress/subcommittee meetings will be held during each month of project duration. One of the monthly progress meetings will be conducted via conference call. For the other monthly progress meeting, the contractor PM or other identified person familiar with the data and day-to-day operations being conducted will attend each of these meetings to be held in Norfolk, Virginia (or vicinity). NAVFAC Atlantic personnel and the Construction Manager will attend these meetings. The progress meetings will cover a variety of topics not limited to: the progress of work at the Former VNTR, cost issues, reporting, upcoming activities, strategic planning, technical issues, and technical management.

6.1.3 Quarterly CERCLA Technical Committee (CTC) Meetings. CTC (FWS, regulatory agencies, contractors, and Navy) meetings are held quarterly in San Juan, PR to discuss technical approaches and Munitions Response Program (MRP) issues related to the remediation of the Former VNTR. The meetings are 2 days in duration and should be attended by the contractor PM or other identified person familiar with the data and day-to-day operations being conducted.

6.1.4 Quarterly Public Meetings. Public meetings are held quarterly in Vieques, PR to discuss the Munitions Response Program (MRP) and ongoing/upcoming work toward the remediation of the Former VNTR. The meetings are 1 day in duration and should be attended by the contractor PM or other identified person familiar with the data and day-to-day operations being conducted.

6.1.5 Weekly Reports/Status Meetings. Weekly meetings to discuss the status of work being conducted by the contractor will be held via conference call and will be approximately 4 hours in duration. The meetings shall be attended by the contractor PM or other identified persons familiar with the data and day-to-day operations.

6.1.6 Pre-Construction Meeting. Prior to the initiation of field effort described in this SOW a pre-construction meeting will be held in Norfolk, Virginia (or vicinity). The meeting will be conducted to discuss the implementation of the work plan for the surface removal action. This meeting should be attended by the contractor PM and field supervisory staff. The meeting will be one day in duration.

6.1.7 Geophysical Prove-Out. The Navy CLEAN contractor will establish an appropriate geophysical prove-out (GPO) in the vicinity of the surface removal action area(s). This GPO will be utilized to determine the appropriate sensor/equipment for conducting all DGM activities. The contractor will establish as necessary functional check areas to evaluate daily DGM equipment and operators. The details of the functional check areas and processes will be provided to NAVFAC as well as the results from daily checks of equipment and operators. A maximum of 2 functional check areas should be established for the areas of investigation described in this SOW.

6.1.8 MEC Surface Removal and Roadway Clearance. The following tasks will be completed as part of the field investigation and removal of MEC from the ground surface at identified MRSs within the MRA-LIA. In addition, roadways within the MRA-LIA will be cleared of all UXO to a sufficient depth for safe passage of vehicles being used in conjunction with the remediation work at the Former VNTR. The Title II services or Navy CLEAN contractor will procure a licensed surveyor to establish control points as necessary to provide sufficient site location data to emplace grid corners for removal areas. Attached Figure 1 shows the MRS locations for the MRA-LIA.

6.1.9 All MEC removal activities will require at a minimum a three person team of UXO Technicians including: a Senior UXO Supervisor (SUXO), a UXO Safety Officer and a UXO Technician III. The qualifications of these individuals will meet the U.S. ACOE requirements (given in DID OE 025.02).

6.1.10 MEC removal actions will be conducted at multiple munitions response sites (MRSs) for a total area of 207 acres. Each MRS requiring removal action may consist of UXO Technician supported vegetation removal, removal of all MEC and scrap metal either at the surface or partially exposed, DGM for all areas where surface removal has been conducted, surveying of the locations of all identified MEC, description and cataloging of all identified MEC, demilitarization and demolition of all munitions items with an explosive hazard, carrying out blow-

in-place (BIP) operations where necessary to allow for safe removal of items with an explosives hazard, certification of all MPPEH/MD as free of explosive hazard, transport and recycling of all MPPEH/MD and non-MPPEH/MD metal to a designated location within the LIA, and site restoration activities.

6.1.11 A removal action will be completed at MRSs 1, 2, 3, 4, and 6, which comprise 103 acres. A map showing the parcel locations is attached. The contractor will provide monthly invoices for the first phase of work based on the percentage of the work completed and in accordance with the unit prices negotiated for the contract. Based on the assumptions that were presented in the fee proposal. Any unforeseen conditions for Phase I will be taken into consideration to determine a Cost Index Factor (CIF) for removal of MEC on a per acre basis during the Removal Action at MRSs 16, 17, and 30. The CIF will be negotiated with the Navy Contracting Officer following the completion of the MRSs 1, 2, 3, 4, and 6 and will be applied to future removal actions.

6.1.12 A removal action, comprised of removing MEC items visually observed at the surface, either in whole or in part, will be completed at MRSs 16, 17, and 30. These MRSs comprise a total area of 104 acres. This acreage of MEC removal action may be decreased or increased based on the CIF developed following the removal action at MRSs 1, 2, 3, 4, and 6.

6.1.13 Roadway Clearance. 1000 linear feet of road (approximately 7 feet in width) within the MRA-LIA have been identified as needing MEC clearance from the road surface to a depth of 2 feet to provide safe access to areas where MEC removal and site inspections will be performed. The 1000 linear feet of road comprises approximately 0.25 acres of total area. MEC clearance of the roadways may be conducted by removal of all MEC to a 2 foot depth or emplacing appropriate fill material to create a minimum 2 foot "buffer" between the road surface and subsurface MEC.

6.1.14 Anomaly Reacquisition and Subsurface Investigation. Based on the results of the DGM, 10 subsurface targets per surface cleared acre (will be chosen by the subcontractor, reacquired, and investigated to a depth no greater than 1 foot below ground surface. The information collected for each investigated target should include, but is not limited to: item description, depth, orientation, reacquired target offset, and photograph.

7.0 SITE SECURITY REQUIREMENTS.

7.1 United States Citizenship. No employee or representative of the Contractor will be admitted to the work site unless the employee or representative furnishes satisfactory proof of United States citizenship, or is specifically authorized admittance by the government.

7.2 Identification Badges and Vehicle Passes. Identification badges and vehicle passes shall be developed and issued in consultation and coordination with the Department of Interior Refuge Manager and Law Enforcement Agents stationed at the Refuge (Former Vieques Naval Training Center).

7.3 Site Security Requirements: At a minimum, maintain the site and other Contractor controlled areas in such a manner as to minimize the risk of injury or accident to site personnel or others who may be in the area. Carefully mark work on or near roadways with lights and barricades complying with State and local regulations; or where such regulations are not applicable, provide adequate lights and barricades to minimize the risk of an accident. Fence open excavations which pose a danger to site personnel or others to prevent accidental entry. Shore side slopes of excavations or leave at a safe angle of repose. Equipment, when not in operation, shall be left in a safe manner (e.g., wheels blocked, buckets on the ground, and in an area under the responsibility of the Contractor). Fence MEC Removal action areas and cleared areas. Fabricate and Post Signs on LIA north and south beach shoreline. Near residential areas where there may be children, special consideration shall be given to site security and safety needs.

7.4 Explosive Safety and Security Requirements: At a minimum, the safety and security of explosives and storage of UXO or MEC items will be in compliance with the Explosive Safety Submission and Master Work Plan (CH2MHill) and any other applicable regulations and laws.

8.0 CONTRACTOR AND SUBCONTRACTOR PERSONNEL LIST.

8.1 Provide to the Contracting Officer or designated representative, a list of Contractor and/or subcontractor personnel (including addresses and telephone numbers) for use in the event of an emergency. As changes occur and additional information becomes available, correct and change the information contained in previous lists. The Contractor shall post a list of the subcontractors at the project site.

9.0 DELIVERABLES AND SUBMITTALS.

9.1 **SUBMITTAL REGISTER.** The contractor shall prepare and submit a Submittal Register delineating all of the submittals required per plans defined above and per requirements for MEC type work for review and approval within 15 days after the NTP has been issued. Instructions for completion of the Government furnished Submittal Register are provided in the main contract in Section 7.8. The submittal register with columns (a), (b), (c), and (d) completed by the Contractor is designated the initial submittal register required as a part of the Project QC Plan. Additional details concerning the use of the submittal register will be explained at the preconstruction conference.

9.2 In addition to the work plan deliverables specified earlier and submittals required per submittal register, the contractor will be required to review and prepare document deliverables related to the site inspection and removal actions at the Former VNTR as described in the following paragraphs:

9.3 Site inspection work plans will be provided by NAVFAC Atlantic RPM and/or the Title II Construction Manager for the areas identified for surface MEC removal in this SOW. The contractor will review and provide comments on the site inspection work plans to NAVFAC Atlantic.

9.4 Two site inspection reports will be provided by NAVFAC Atlantic RPM and/or the Title II Construction Manager for the areas identified for surface MEC removal in this SOW. The contractor will review and provide comments on the site inspection reports to NAVFAC Atlantic.

9.5 Two Engineering Evaluation/Cost Assessments (EE/CAs) or Time Critical Removal Action Plans (TCRA) will be provided by NAVFAC Atlantic RPM or the Title II Construction Manager for the areas identified for surface MEC removal in this SOW. The first EE/CA or TCRA will apply to the Phase I removal action and the second EE/CA or TCRA will apply to the remaining acreage (approximately 700 acres) of the LIA. The contractor will review and provide comments on the EE/CAs and or TCRA to NAVFAC Atlantic RPM.

9.6 The contractor will prepare 2 work plans for the removal of the MEC, visually observed at the surface, from the areas identified in Sections 6.1.10, 6.1.11, and 6.1.12 of this SOW. Draft and final versions will be prepared for each work plan.

9.7 Post MEC surface removal and roadway clearance after action reports will be prepared by the contractor. A draft and final report will be prepared for the removal action at MRSs 1, 2, 3, 4, and 6 and draft and final versions will be prepared for the removal action at MRSs, 16, 17, and 30 and road clearance activities.

9.8 **Geographical Information System (GIS) and Database Management.** The contractor will develop and maintain an accurate and complete electronic database for all MEC located and removed. In addition, a GIS will be developed and maintained that allows for a spatial graphical representation of site layout, work progress, and site data. The GIS will be provided to the Navy such that the Title II Construction Manager can update the GIS with data that will be generated at other locations at the facility.

9.9 **Database Management.** An electronic database containing information (data) regarding MEC located and removed during site removal and DGM activities will be maintained by the contractor in a format compatible with NAVFAC Atlantic operating systems and software. The database will be updated in the field on a daily basis as

data is collected using a PDA equipped with software that is compatible with the GIS. The database will include but is not limited to: MEC geographical coordinates, item name, item depth, final disposition information, associated geophysical instrument amplitude readings, unique identification number for items, and if there is an explosive hazard associated with the item. The database will be compatible with Oracle database systems.

9.10 GIS. A GIS compatible with NAVFAC Atlantic operating systems and software will be developed and maintained that allows for the database parameters to be viewed spatially and queried using the database input parameters. The GIS will be compatible with Arcview version 8.3 and will be provided to the Navy such that it can be updated and maintained by the Navy and Title II Construction Manager.

9.11 Logs, Reports, and Record Keeping. During the field activities weekly progress reports will be prepared and weekly conference calls will be held with the Navy. The contractor shall maintain safety inspection reports, accident/incident reports, medical certifications, training logs, monitoring results, QC records, etc. The contractor shall maintain all exposure and medical monitoring records in accordance with OSHA Standard 29 CFR 1910 and 1926. Submit in accordance with DD Form 1423 and DD Form 1664 OE-005-06 and appropriate forms contained in the Master MEC Work Plan for the Former VNTR.

10.0 TASK ACTIVITIES.

10.1 Typical activities in this SOW includes, but are not limited to:

10.1.1 Anomaly Avoidance. Provide support to field operations as necessary to avoid buried anomalies and surface MEC.

10.1.2 Anomaly Discrimination. Analyze geophysical data to identify and locate target anomalies using innovative or traditional methodologies and applications. A Geophysical Prove Out (GPO) will be required to provide QA/QC of the geophysical data. At a minimum the GPO will meet the minimum requirement identified in the MEC Master Work Plan for the Former VNTR Vieques, Puerto Rico.

10.1.3 Anomaly Investigation. Excavate and evaluate target anomalies to determine identity, size, composition, depth, location and condition.

10.1.4 Blast-Effect Analysis. Perform an engineering analysis of the effects of the overpressure, heat, fragmentation, and related factors resulting from detonations of MEC and determine effective mitigation measures.

10.1.5 Construction Support. Provide on-site support to ensure safe identification, evaluation and removal of MEC.

10.1.6 Functional Check Area. Perform a test of geophysical equipment to demonstrate and document the DGM system and operator functionality and mechanical performance.

10.1.7 Geographic Information System (GIS). Develop GIS databases; create and manage computerized GIS. See sections 3.41 and 3.42.

10.1.8 Geophysical Mapping. Perform DGM surveys using instruments capable of detecting and locating anomalies, disturbed areas, and underground utilities.

10.1.9 Geophysical Prove-Out. Perform a test of geophysical equipment to demonstrate and document the site-specific capabilities of a DGM system to operate as an integrated system capable of meeting project data quality objectives. For this SOW a system is considered to include the survey platform, sensors, navigation equipment, data analysis and management, and associated equipment and personnel.

10.1.10 MEC Operations. The contractor shall provide the necessary personnel and equipment to locate, gain access, identify, recover, store, and if directed, apply final disposal/destruction/treatment procedures to all MEC, HTRW, and CWM. The procedures used during MEC removal actions shall comply with those contained in

Basic Safety Concepts and Considerations for Explosives Operations (EP 385-1-95a) and applicable work plans. Transportation of MEC shall be in accordance with all applicable Federal, State, and local laws and regulations. A Site Specific Removal Report shall be submitted in accordance with DD form 1423 and DD Form 1664 OE-030.01 and MEC and IDW shall be disposed of in accordance with the approved work plan. On-site explosives storage magazines are in place at the Former VNTR and have the appropriate DoD documentation and have been properly sited for the storage of explosives.

10.1.11 MEC Removal and Disposal. Utilize both innovative methods and traditional methods to achieve detection through final disposition of MEC. Disposal/treatment of MEC should be carried out using the SOP for Material that Presents a Potential Explosive Hazard (MPPEH)/Munitions Debris (MD) Collection and Inspection Procedures contained in the Master MEC Work Plan for the Former VNTR, Vieques, Puerto Rico.

11.0 ADDITIONAL PERSONNEL QUALIFICATIONS.

11.1 Personnel Qualifications. The qualifications of site personnel shall be in accordance with DD Form 1423 and DD Form 1664 OE-025 for those categories that are included in the CLIN structure. The contractor shall provide to the Government the qualifications and minimum experience of all labor categories used to accomplish the work effort but not covered in OE-025.02. Federal employees, military or civilian, shall not be employed by the contractor in performance of any work under the contract, i.e., during off duty hours, regular hours, or while on annual leave.

11.2 Key Personnel and Core Labor Categories. Minimum key personnel and core labor categories are identified in DD Form 1664 OE-025.02, paragraph 10.4 and 10.5 and shall be provided as applicable and shall meet the qualifications and requirements as stated in DD Form 1664 OE-025.02.

11.3 Prior to working under this contract all key personnel, and UXO personnel, shall be approved by the Contracting Officer or designated representative.

12.0 SITE MONITORING AND SURVEILLANCE.

12.1 The contractor shall provide site physical boundary protection (e.g., fencing, guard service) as required by site conditions. Two parallel rows of fencing constructed of visible plastic material will be installed along the beach area vegetation lines along both the northern and southern boundaries of the MRSs described in this SOW for surface removal. The linear feet of fence (total for both boundaries and both parallel rows) to be installed is 8,000 feet. Additionally, the contractor shall maintain work areas to minimize the risk of injury or accident.

12.2 Material that Presents a Potential Explosive Hazard/Munitions Debris/Scrap Metal. The contractor shall furnish all necessary personnel and equipment to stockpile material that presents a potential explosive hazard (MPPEH)/munitions debris (MD)/scrap metal at a predetermined location on-site. MPPEH/MD that have been in direct contact with energetic materials of the ordnance (e.g., expended rocket motors, shell casings, and warhead fragments) will be visually inspected by UXO personnel and will be certified free from energetic materials that would pose an explosive safety hazard with a 3-X classification. Range residue will be treated and handled in accordance with DoD 4160.21-M and DoD 4160.21-M-1.

13.0 FEE PROPOSAL AND PRICE BREAKDOWN.

13.1 The Contractor shall provide a price breakdown for all proposals, itemized, as directed by the Contracting Officer. Unless otherwise directed, the breakdown shall be in sufficient detail to permit an analysis of all materials, labor, equipment, subcontract, and overhead costs, as well as profit, and shall cover all work involved in the scope of work. Any amount claimed for subcontractors shall be supported by a similar breakdown.

13.2 The scope of services is to be performed on firm fixed price are as follows:
Mobilization costs for each phase of the removal action for the entire field team including: the transportation costs, per diem costs, transport of equipment to the site (Cost/event)

MEC Removal costs including: MEC inspection/identification, MEC removal to a treatment location, (Cost /Acre)

Project Management including all costs associated with the coordination of field staff Cost/Day

Per diem costs for lodging and meals (Cost/day/person)

Meeting costs including: travel and labor costs for PM to attend a meeting in Norfolk (Cost/Meeting)

Geophysical Cost including costs to identify, re-acquire, provide GPS coordinates and document GIS data for subsurface geophysical anomalies (Cost/Acre, assume 200 anomalies per acre)

The contractor is also to provide a list of assumptions that provided a basis for the Fee Proposal including:

The number of field staff and labor including costs and equipment costs.

The number and cost of geophysical anomalies to be investigated per acre

The number of MEC items to be removed per acre. (A range or frequency of MEC items per cost per acre).

Overhead and Profit.

14.0 CONTRACT TASK ORDER DURATION

14.1 The duration of field activities shall be completed within 6 months from the Notice to Proceed. The final after action and other required final reports shall be completed within 60 days of completion of field activities.

REFERENCES.

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980, Public Law (PL)96-510, 94 Stat 2767, 42 USC 9601.

NIOSH/OSHA/USCG/EPA Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities, Oct. 85.

HQSACE Letter, DACS-SF, Explosives Safety Policy for Real Property Containing Conventional Ordnance Explosives.

HQDA Policy Memorandum, Interim Guidance for Biological Warfare Material (BWM) and Non-stockpile Chemical Warfare Material (CWM) Response Activities, 5 Sep 97.

AR 75-15, Responsibilities and Procedures for Explosive Ordnance Disposal (EOD).

AR 190-11, Physical Security of Arms, Ammunition, and Explosives.

DA PAM 385-64, Ammunition and Explosives Safety Standards.

29 CFR 1910.120-1926, Occupational Safety and Health Standards.

DOD 6055.9-STD, DOD Ammunition and Explosives Safety Standards.

DOD 4160.21-M, Defense Utilization and Disposal Manual.

DOD 4160.21-M-1, Defense Demilitarization Manual.

EM-385-1-1, Safety and Health Requirements Manual.

ER 385-1-92, Engineering Regulations Safety and Occupational Health Document Requirement for HTRW and OE Activities.

ER 715-1-19, Service and Supply Contractor Performance Evaluations.

TM 60A-1-1-22, EOD Procedures: General EOD Safety Precautions.

TM 60A-1-1-31, EOD Procedures: General Information on EOD Disposal Procedures.

USAESCH Safety Concepts and Basic Considerations for UXO.

USAESCH UXO Personnel Data base.

29 Code of Federal Regulations (CFR).

ATFP 5400.7, Alcohol, Tobacco, and Firearms Explosive Laws and Regulations.

27 CFR Part 55, Commerce in Explosives.

40 CFR Parts 100-199, Transportation.

ETL 385-1-2, Generic Scope of Work for Ordnance Avoidance Activities.

TM 9-1300-200, Ammunition General.

TM 9-1300-214, Military Explosives.

ER 1110-1-8153, Ordnance and Explosive Response.

EP 1110-1-17, Establishing a Temporary Open Burn and Open Detonation Site for conventional Ordnance and Explosives Project, 16 Jul 99.

EP 1110-1-18, Ordnance and Explosives Response.

TB 700-2, Department of Defense Ammunitions & Explosives Hazardous Classification Procedures.

Section G - Contract Administration Data

ACCOUNTING AND APPROPRIATION DATA

AA: 17 05051804 KU2E 0252 62470 X 068732 2D 039992
COST CODE: AA00L0041016
AMOUNT: \$2,815,124.00
CIN 00000000000000000000000000000000: \$2,815,124.00

APPENDIX B

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APPENDIX C

Site Safety and Health Plan

Site Specific Health and Safety Plan

**Surface Munitions of Explosives Concern at Munitions
Response Area-Live Impact Area, Munitions Response Sites
1 through 4, 6, 16, 17, and 30**

**Former Vieques Naval Training Range (VNTR)
Vieques, Puerto Rico**

Prepared for:

**Department of the Navy
Atlantic Division
Naval Facilities Engineering Command**

**Contract Task Order 002
Contract Number**

N624670-02-D-9992

Prepared by:



ADVENT Environmental
498 Wando Park Blvd, Suite 500
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April 2005
ADVENT Job Number 04-529

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LIST OF ACRONYMS

AEDA	Ammunition Explosives and Dangerous Articles		
AFWTF	Atlantic Fleet Weapons Training	MEC	Munitions and Explosives of Concern
AHA	Activity Hazard Analyses	MHR	Maximum Heart Rate
AIDS	Acquired Immunodeficiency Disease	MPPEH	Materials that Present a Potential Explosive Hazard
ANSI	American National Standards Institute	MR	Munitions Response
		MRA	Munitions Response Area
ASTM	American Society for Testing and Materials	MRS	Munitions Response Sites
CFR	Code of Federal Regulation	MSDS	Material Safety Data Sheet
COC	Chemicals of concern	NAVFAC	Naval Facilities Engineering Command
CRZ	Contamination Reduction Zone	NIOSH	National Institute of Occupational Safety and Health
CSIR	Contractor's Significant Report	NRR	Noise Reduction Rating
CWM	Chemical Warfare Material	OB/OD	open burn and open detonation
dBA	A-Weighted Decibel	OE	Ordnance and Explosives
Demil	demilitarization	OSHA	Occupational Safety and Health Administration
DU	Depleted Uranium	PEL	Permissible Exposure Limit
EIS	Environmental Impact Statement	PID	Photoionization Detector
EMA	Emergency Management Agency	PM	Project Manager
EMM	Earth-Moving Machinery	ppm	Parts Per Million
EMS	Emergency Response Service	PPE	Personal Protection Equipment
EPA	Environmental Protection Agency	ROP	Roll-Over Protection
ERCPC	Emergency Response Contingency Plan	SOP	Standard Operating Procedures
eV	Electron Volt	SOW	Scope of Work
EZ	Exclusion Zone	SSHP	Site-specific Safety and Health Plan
F/B	Flash/Bang	SUXOS	Senior Unexploded Ordnance Supervisor
FMFLANT	Fleet Marine Force, Atlantic	TBD	To Be Determined
HHCOG	Human Health Constituents of Concern	TCRA	Time Critical Removal Action
HPP	Hurricane Preparedness Plan	TLV	Threshold Limit Value
HSM	Health and Safety Manager	TWA	Time-Weight Average
HTRW	Hazardous, Toxic, and Radioactive Waste	UEL	Upper Explosive Limit
IP	Ionization Potential	USACE	United States Corp of Engineers
LANTDIV	Atlantic Division	USCG	United States Coast Guard
LEL	Lower Explosive Limit	UXO	Unexploded Ordnance

UXOSO

Unexploded Ordnance
Safety Officer
Ultraviolet

UV

VNTR

Vieques Naval Training
Range

SITE SPECIFIC HEALTH AND SAFETY PLAN APPROVAL

I have read and approve this site-specific safety and health plan attachment for the MEC Time Critical Removal Action (TCRA) at the Former VNTR, Vieques, Puerto Rico with respect to project hazards, regulatory requirements, and ADVENT Environmental, Inc. procedures.

Approved by: _____

Date:

Health and Safety Manager

Approved by: _____

Date: _____

Program Manager

1.0 INTRODUCTION

1.1 Objective

The objective of this plan is to provide a mechanism for establishing safe working conditions at the site. The safety organization, procedures, and protective equipment have been established based upon an analysis of potential hazards. Specific hazard control methodologies have been evaluated and selected to minimize the potential of accident or injury.

1.2 Policy Statement

The policy of ADVENT Environmental (ADVENT) is to provide a safe and healthful work environment for all employees. ADVENT considers no phase of operations or administration to be of greater importance than injury and illness prevention. Safety takes precedence over expediency and shortcuts. At ADVENT, it is believed all accidents and injuries are preventable. ADVENT will take every reasonable step to reduce the possibility of injury, illness, or accident.

This Site-specific Safety and Health Plan (SSHP) provides guidance for making decisions during referenced site activities. Operational changes that could affect the health and safety of personnel, the community, or the environment will not be made without the prior approval of the Project Manager and the Health and Safety Manager.

The provisions of this plan are mandatory for all personnel and subcontractors assigned to the project. All visitors to the work site must abide by the requirements of the plan.

1.3 References

This SSHP complies with applicable Occupational Safety and Health Administration (OSHA), U.S. Environmental Protection Agency (EPA), and ADVENT Environmental Health & Safety policies and procedures. This plan follows the guidelines established in the following:

- ◆ Standard Operating Safety Guides, EPA (Publication 9285.1-03, June 1992).
- ◆ Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities, NIOSH, OSHA, USCG, EPA (86 116, October 1985).
- ◆ Title 29 of the Code of Federal Regulations (CFR), Part 1910.
- ◆ Title 29 of the Code of Federal Regulations (CFR), Part 1926.
- ◆ U.S. Army Corps of Engineers, Safety and Health Requirements Manual, EM 385-1-1
- ◆ U.S. Army Corps of Engineers, Safety and Occupational Health Requirements for Hazardous, Toxic, and Radioactive Waste (HTRW) Activities, ER-385-1-92
- ◆ Health & Safety Policies and Procedures, ADVENT Environmental.

1.4 Disclaimer

The following (SSHP) has been designed for the methods presently contemplated by ADVENT Environmental Inc. for execution of the proposed work. Therefore, the SSHP may not be appropriate if the work is not performed by or using the methods presently contemplated by ADVENT. In addition, as the work is performed, conditions different from those anticipated might be encountered and the SSHP may have to be modified. Therefore, ADVENT only makes representations or warranties as to the adequacy of the SSHP for currently anticipated activities and conditions.

2.0 KEY PERSONNEL AND MANAGEMENT

The Project Manager (PM), Unexploded Ordnance Safety Officer (UXOSO), and the Health and Safety Manager (HSM) are responsible for formulating and enforcing health and safety requirements, and for implementing this SSHP. The following summarizes the health and safety responsibilities of the site management.

2.1 Project Safety Responsibilities

The PM has the overall responsibility for the project and to assure that the requirements of the contract are attained in a manner consistent with the SSHP requirements. The PM will coordinate with the UXOSO to assure that the work is completed in a manner consistent with the SSHP. The PM is responsible for field implementation of the SSHP. The PM will be the main contact in any on-site emergency situation and will insure off-site emergency agencies have been contacted prior to the start of work. The PM and UXOSO are authorized to administer this SSHP. The PM and the UXOSO are authorized to stop work when an imminent health or safety risk exists. The UXOSO is responsible for reviewing the SSHP and ensuring that the SSHP is complete and accurate. Each employee is responsible for reading this plan, personal safety as well as the safety of others in the work area.

2.2 Key Staff Personnel

The following individuals share responsibility for health and safety at the site:

Project Management:	Mr. Larry Fowler 843.388.1851 (office)
Site Manager:	Mr. Brian Thompson 813.787.0302 (cell)
	Mr. Nathan Mullens 843.388.1851 (office)
UXO Safety Officer:	TBD (office)
Senior UXO Supervisor:	Mr. Dennis Lecher 843.388.1851 (office)
NAVFAC Project Manager:	Mr. Christopher Penny 757.322.4815

Health and Safety Manager: Hugh Sease
781.383.8339

2.3 Qualifications

2.3.1 Project Manager

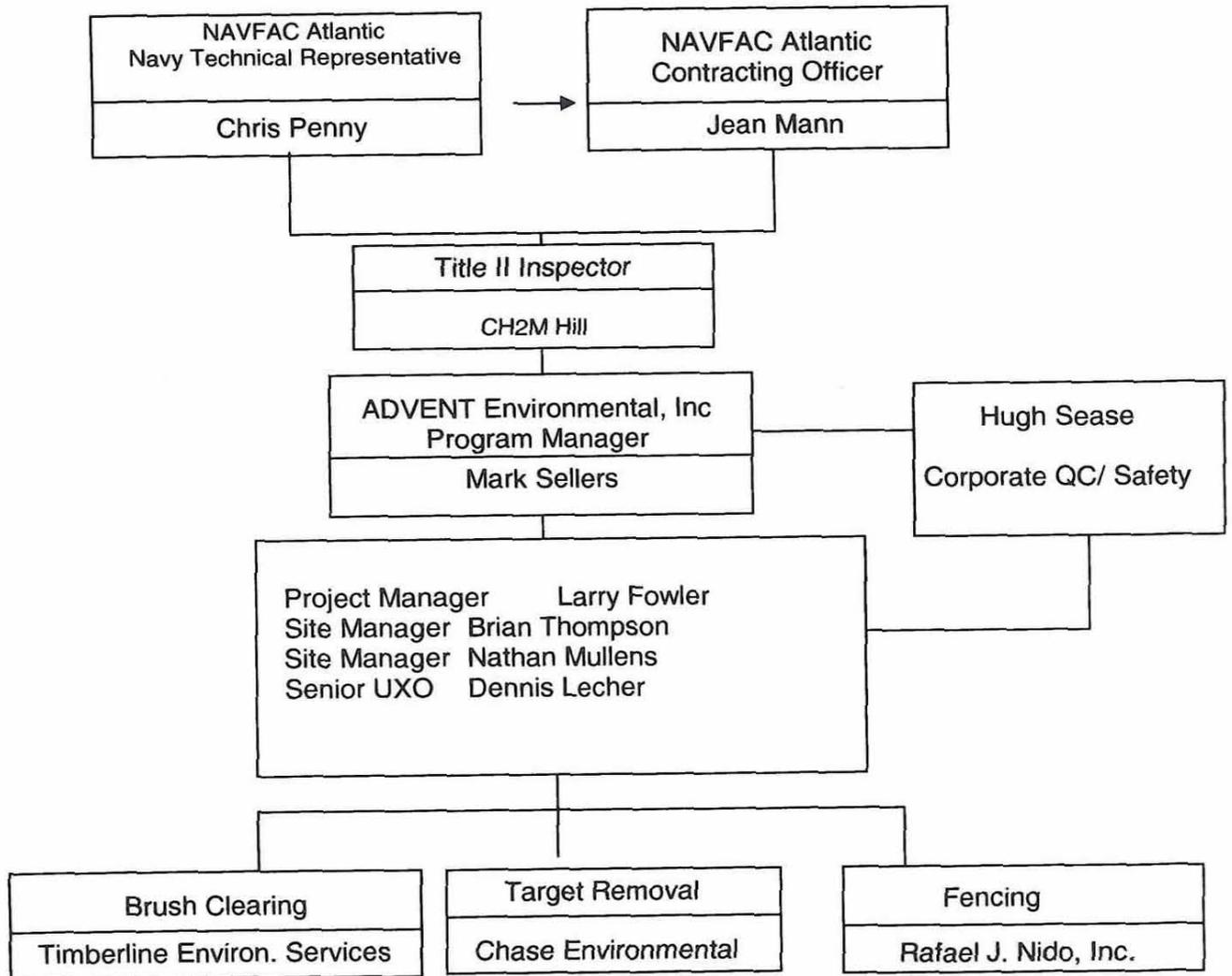
The Project Manager (PM) will have at least 3 years experience in UXO/OE project management. The PM will have completed 40 hours of initial training in hazardous waste operations (HAZWOPER) before participating in this project, as required by 29 CFR part 1910.120(e), and must be up to date on their annual 8-hour HAZWOPER refresher training.

2.3.2 Senior UXO Supervisor

The Senior UXO Supervisor (SUXOS) is ADVENT's most senior UXO-qualified on-site representative. The SUXOS will monitor all aspects of the field project, including subcontractor site activities, to ensure efficient performance of the approval WP and the SSHP. The SUXOS has the authority to temporarily stop to correct safety deficiencies. The SUXOS makes Daily Progress Reports to the PM. Internally, the SUXOS reports directly to the PM. The SUXOS meets the USACE requirements as a graduate of one of the following schools: the US Naval Explosive Ordnance Disposal School (Indian Head, MD) or US Army Bomb Disposal School (Aberdeen Proving Ground, MD). Additional requirements include 40-hour HAZWOPER and 8-hour HAZWOPER refresher courses; Supervisor courses in accordance with 29 CFR 1910.120; and has at least 15 years of UXO experience, and shall include 10 years of supervisory positions.

2.3.3 UXO Safety Officer

The UXO Safety Officer (UXOSO) reports to the PM. The UXOSO shall have specific training, knowledge, and experience necessary to implement the SSHP. The UXOSO will be a graduate of either the US Army Bomb Disposal School or US Naval Explosive Ordnance Disposal School. In addition, the UXOSO will have at least 10 years combined experience in active duty military EOD and UXO contractor work.



3.0 SITE HISTORY / SCOPE OF WORK

3.1 Site History/Background

Vieques is the largest offshore island of Puerto Rico, with a surface area of approximately 51 square miles. It is located approximately 7 miles east-southeast of the eastern end of the main island of Puerto Rico. The Navy owned portions of Vieques from 1941 until 2003. Although the Island of Culebra was the focal point for naval gunfire in the 1960's and early 1970's, Atlantic Fleet Weapons Training Facility (AFWTF) began developing facilities on the eastern end of Vieques in 1964 when it established gunnery range in the Live Impact Area (LIA). In 1965, the Navy established a LIA, also known as the air impact area, and began construction activities at Observation Post (OP) 1 on Cerro Matias.

By the 1970's, the LIA maintained several targets for aerial bombing, including old tanks and vehicles which were used as mock-ups, two bulls-eye targets and a strafing target. In addition, several point and area targets for ships to practice naval gunfire support were established in the LIA.

The Environmental Impact Statement (EIS) for vieques (Tippetts, et al. 1979) provides a detailed discussion on the development of training facilities in the Vieques Naval Training Range (VNTR) leading up to 1979. The AFWTF provided logistics support, scheduling assistance, and facilities for Naval Gun Fire Support (NGFS) and Air to Ground (ATG) ordnance delivery training for Atlantic Fleet ships, North Atlantic Treaty Organization (NATO) ships, air wings, and smaller air units from other allied nations and the Puerto Rican National Guard. The Fleet Marine Force, Atlantic (FMFLANT), conducted training for Marine amphibious units, battalion landing teams, and combat engineering units in the Eastern Maneuver Area (EMA). Occasionally, naval units of allied nations having a presence in the Caribbean and the Puerto Rican National Guard also utilized the EMA.

Portions of the training areas within the VNTR were in continuous use from World War II, when the Navy acquired title to the land, until 2003. The Atlantic Fleet's ships, aircraft and marine forces carried out training in all aspects of NGFS, ATG ordnance delivery, air-to-surface mine delivery, amphibious landings, small arms fire, artillery and tank fire, and combat engineering. As part of normal operations, unexploded ordnance was cleared periodically from the LIA and destroyed. The Navy also operated a waste munitions open burn and open detonation (OB/OD) facility under an Environmental Protection Agency (EPA) permit within the LIA.

3.2 Scope of Work

Refer to project documents (i.e., Work Plan) for detailed task information. An Activity Hazard Analysis (AHA) (Appendix C) has been performed for each task and is incorporated in this plan through task-specific hazard controls and requirements for

monitoring and protection. Tasks other than those listed below require an approved amendment or revision to this plan before tasks begin.

- ◆ Site Layout
- ◆ Subsurface MEC road clearance
- ◆ Install protective barrier
- ◆ Establishment of scrap holding areas
- ◆ Target Removal
- ◆ Vegetation Removal
- ◆ Surface MEC Removal

Under specific circumstances, the training and medical monitoring requirements of federal or state HAZWOPER regulations are not applicable. It must be demonstrated that the tasks can be performed without the possibility of exposure in order to use non-HAZWOPER trained personnel. Prior approval from the Health and Safety Manager (HSM) is required before these tasks are conducted on regulated hazardous waste sites.

4.0 JOB SAFETY ANALYSIS

This section provides safe work practices and control measures used to reduce or eliminate potential hazards. These practices and controls are to be implemented by the party in control of the site of the particular hazard. ADVENT employees and subcontractors must remain aware of the hazards affecting them regardless of who is responsible for controlling the hazards. ADVENT employees and subcontractors who do not understand any of these provisions should contact the UXOSO for clarification. The main physical or safety hazards posed to ADVENT personnel during project activities are described below.

4.1 Ordnance Explosives (OE Standards of Practice, SOP HSE-91)

OE includes MEC, Recovered Chemical Warfare Materials (RCWM), MEC-Contaminated soils and groundwater, range maintenance, ordnance demilitarization (Demil) and demining. MEC may be encountered during field activities. Sites potentially contaminated with MEC will be screened by the UXO contractor with qualified UXO technicians prior to and during field activities.

ADVENT employees who are potentially exposed to hazards associated with MEC activities shall follow the requirements described in this section regardless of the company performing the Time Critical Removal Action. These requirements also pertain to MEC subcontractor personnel when ADVENT is providing oversight. Personnel knowledgeable of MEC safety precautions must observe these precautions at all times. They must also advise others in the vicinity of proper precautions for the protection of all personnel in an MEC danger area.

- ◆ Only qualified UXO Technicians will locate, identify, handle, remove, transport, store, or dispose of MEC items.
- ◆ The preferred and safest method for disposal of MEC is to destroy it in its original position by demolition (BIP) whenever circumstances permit. By this method, both the ordnance and the hazard it poses are eliminated in one operation.
- ◆ Munitions that have been determined to be “safe to move” by an authorized UXO Technician can be transported to an approved holding area or disposal site.
- ◆ One person acting alone should never conduct operations involving contact with MEC.
- ◆ MEC must not be moved or disturbed in any way unless it has been determined to be safe to do so by a qualified UXO Technician. Operations in the vicinity of MEC should only be conducted after a complete work plan, including emergency procedures, has been established.
- ◆ Electronic equipment capable of emitting electromagnetic radiation (such as radios or cellular phones) shall not be activated in the vicinity of known or suspected electrically initiated ordnance.

- ◆ Munitions having no color coding, incomplete color coding, or improper color coding are not uncommon, so color coding should not be relied upon as a positive identification of ordnance.
- ◆ Inhalation of, and skin contact with, smoke, fumes, and vapors of explosives and related hazardous materials shall be avoided.
- ◆ MEC that has been exposed to fire or detonation must be considered extremely hazardous. Chemical and physical changes may have occurred to the contents, which render it more sensitive than when in its original state.
- ◆ When encountered, attempts should be made to positively identify MEC items. The item shall be carefully examined for markings and other identifying features such as shape, size, and external fittings. The item should not be moved prior to inspection.
- ◆ Ordnance shall be approached from the side because munitions may contain an ejection hazard, shaped charge explosive jet hazard, rocket motor, or fusing sensitive to movement.
- ◆ Unnecessary personnel must not remain in the vicinity of MEC.
- ◆ Ordnance items must be considered armed and dangerous.
- ◆ Fired ammunition or ordnance should not be considered safe.
- ◆ Souvenirs shall not be collected.

4.2 Excavation

ADVENT is responsible for providing a competent person to oversee The Time Critical Removal Actions. A competent person may be a SUXOS, UXOSO, UXOQCS, or a UXO Technician III. Occupational Safety and Health Administration (OSHA) regulations describe a competent person as one who is capable of identifying existing and predictable hazards in the work surroundings as has the authorization to take prompt corrective measures to eliminate them.

The competent person must meet the following minimum qualification requirements:

- ◆ Be a graduate of either one of the following: U.S. Army Bomb Disposal School, Aberdeen Proving Ground, MD; U.S. Naval EOD School, Indian Head MD; U.S. Naval EOD School, Elgin Air Force Base, FL; or a U.S. DoD-certified equivalent course.
- ◆ Have at least 10 years of combined active duty military EOD and contractor UXO experience.
- ◆ Have experience in UXO clearance operations and supervising personnel.

The requirements of this section shall be followed by ADVENT employees who are potentially exposed to hazards associated with excavation activities, regardless of the company performing the excavation operation. The requirements below also pertain to excavation subcontractor personnel when ADVENT is providing oversight.

- ◆ Do not enter the excavations unless completely necessary, and only after the competent person has completed the daily inspection and authorized entry.

- ◆ Follow all excavation entry requirements established by the competent person.
- ◆ Do not enter excavations where protective systems are damaged or unstable.
- ◆ Do not enter excavations where objects or structures above the work location may become unstable and fall into the excavation.
- ◆ Do not enter excavations that potentially contain hazardous atmosphere until after the air has been tested and found to be safe.
- ◆ Do not enter excavations with accumulated water unless precautions have been taken to prevent cave-in.
- ◆ Conduct MEC avoidance during excavation on known or suspected MEC.
- ◆ Prior to excavation crews entering any of the sites, conduct a reconnaissance and MEC avoidance activities to provide clear access routes to each site, according to the following procedures:
 - Identify and clearly mark the boundaries of a clear approach path for the sampling crews, vehicles, and equipment to enter the site. This path will be, at a minimum, twice the width of the widest vehicle. No one will be allowed outside any marked boundary.
 - If MEC is encountered on the ground surface, clearly mark the area where it is found, report it to the proper authorities, and divert the approach path around it.
 - Conduct an access survey using the appropriate geophysical instrument over the approach path for avoidance of MEC that may be in the subsurface. If a magnetic anomaly is encountered, assume it is MEC and divert the approach path around the anomaly. Only UXO personnel will operate the appropriate geophysical instrument and identify MEC.
- ◆ After preparing the site, employ the following approaches to excavation:
 - Remember that hand excavation is the most reliable method for uncovering MEC.
 - Consider earth-moving machinery (EMM) to excavate overburden from suspect MEC. EMM will not be used to excavate within 12 inches of suspected MEC.
 - Use a step-down or offset access method for hand or EMM excavation methods.

4.3 Hazard Communication

The purpose of hazard communication (Employee Right-to-Know) is to ensure that the hazards of all chemicals located at this field project site are transmitted (communicated) according to 29 CFR 1926.59 to all ADVENT personnel and ADVENT subcontractors. Hazard communication will include:

4.3.1 Container Labeling

ADVENT personnel will ensure that all drums and containers are labeled according to contents. These drums and containers will include those from manufacturers and those produced on site by operations. All incoming and outgoing labels shall be checked for identity, hazard warning, and name and address of responsible party.

4.3.2 Material Safety Data Sheets (MSDSs)

There will be an MSDS located on site for each hazardous chemical known to be used on site. All hazardous chemical MSDSs will be located in Appendix A of the SSHP. The site safety plan can be found in the project office trailer.

4.3.3 Employee Information and Training

Training employees on chemical hazards is accomplished through an ongoing corporate training program. Additionally, chemical hazards are communicated to employees through daily safety meetings held at ADVENT field projects and by an initial site orientation program. At a minimum, ADVENT and related subcontractor employees will be instructed on the following:

- ◆ An in-depth review of the soil and surface contaminants of concern identified above
- ◆ OSHA regulated chemicals and their hazards in the work area
- ◆ How to prevent exposure to these hazardous chemicals
- ◆ What the company has done to prevent workers' exposure to these chemicals
- ◆ Procedures to follow if they are exposed to these chemicals.
- ◆ How to read and interpret labels and MSDSs for hazardous substances found on ADVENT sites
- ◆ Emergency spill procedures
- ◆ Proper storage and labeling

Before any new hazardous chemical is introduced on site, each ADVENT and related subcontractor employee will be given information in the same manner as during the safety class. The Project Manager will be responsible for seeing that the MSDS on the new chemical is available for review by on site personnel. The information pertinent to the chemical hazards will be communicated to project personnel.

Morning safety meetings will be held and the hazardous materials used on site will be discussed. Attendance is mandatory for all on site employees.

Physical Hazards

To minimize physical hazards, ADVENT has developed standard safety protocols that will be followed at all times. Failure to follow safety protocols will result in removal of an employee from the site and appropriate disciplinary actions. In general, the physical hazards on this project which people should be continually aware include:

- ◆ General hazards and housekeeping
- ◆ Sharp edges of metal
- ◆ Poisonous plant
- ◆ Noise
- ◆ Insects
- ◆ Chemical exposure.
- ◆ Heat Stress and severe weather.

- ◆ Movement of heavy equipment.

The PM and UXOSO will observe the general work practices of each crew member and equipment operator, and enforce safe procedures. The UXOSO will inspect the work areas. All hazards will be corrected in a timely manner. A variety of physical hazards may be encountered during work activities at this site. Activity Hazard Analyses have been developed for each principal activity and identify all major hazards to which employees may be exposed. Hard hats, safety glasses, and steel-toe safety boots are required in all areas of the site. Site-specific hazards and all necessary precautions will be discussed at the daily safety meetings.

4.4.1 General Hazards and Housekeeping

- ◆ Site work must be performed during daylight hours whenever possible.
- ◆ Hearing protection must be worn in areas where shouting is necessary to hear someone within 3 ft.
- ◆ Good housekeeping must be maintained at all times in all project areas.
- ◆ Common paths of travel must be established and kept free from the accumulation of materials.
- ◆ Aisles, exits, ladders, stairways, scaffolding, and emergency equipment must be kept free from obstructions.
- ◆ Slip-resistant surfaces, ropes and /or other devices must be provided.
- ◆ Stairs or ladders are generally required when there is a break in elevation of 19 inches or more.
- ◆ Specific areas shall be designated for the proper storage of materials.
- ◆ Tools, equipment, materials, and supplies shall be stored in an orderly manner.
- ◆ As work progresses, scrap and unessential materials must be neatly stored or removed from the work area.
- ◆ Containers shall be provided for collecting trash and other debris and shall be removed at regular intervals.
- ◆ All spills shall be quickly cleaned up. Oil and grease shall be cleaned from walking and working surfaces.

4.4.2 Noise

Hearing protection is required for workers operating or working near heavy equipment, where the noise level is greater than 85 dBA (Time Weighted Average) as well as personnel working around heavy equipment. The UXOSO will determine the need and appropriate testing procedures, (i.e., sound level meter and/or dosimeter) for noise measurement.

Noise monitoring should be conducted during the beginning of each activity, as well as, any time modifications lead to increased noise levels e.g., adding additional equipment. If needed a sound level meter will be used to measure noise levels at selected locations in the

work area and on the site perimeter when treatment equipment is operating normally. When used, noise monitoring equipment must be calibrated before and after each shift.

If continuous noise levels are found to exceed 85 dBA at any location within the work area, warning signs will be posted. Workers and visitors will be notified that hearing protection is required. Appropriate hearing protection (e.g., ear plugs) will be worn whenever personnel or visitors are working in that location. A supply of ear plugs will be maintained on site.

Action levels in the following table will trigger the use of appropriate hearing protection (plugs or muffs). Hearing protection must be able to attenuate noise below 90 dBA (8 hour TWA). Each hearing protection or device has a Noise Reduction Rating (NRR) assigned by the USEPA. The calculation for a hearing protection device's effectiveness is: Noise reading dBA - (NRR - 7dB) < 90 dBA. The minimum NRR rating for hearing protection at the Former VNTR sites is 24 dBA. When sound-pressure levels exceed 103 dBA steady-state, personal ear protection equivalent to the combination of ear plus and earmuffs shall be required. It should be noted that all equipment use will be intermittent and of short duration. At no time should the TWA of noise readings approach 103 dBA.

Table 4.1 Sound Level Guidance

Instrument	Measurement	Action
Type I or Type II Sound Level Meter or dosimeter	>80 dBA → 85 dBA	Hearing protection recommended. Limit work duration to 8-hour shifts.
	>85 dBA → 90 dBA	Hearing protection required. Limit work duration to 8-hour shifts.
	>90 dBA → 109 dBA	Hearing protection required. Investigate use of engineering controls. Limit work duration to 8 hour shifts.
	>109 dBA	Stop work. Consult Project CIH

4.4.3 Vehicle Safety

Motor vehicle incidents are the number one cause of occupational fatalities, accounting for one in three deaths. Fifty percent or more of vehicle safety incidents occur while backing up. ADVENT employees involved in the operation and use of ADVENT and/or leased or rented vehicles will comply with the ADVENT Motor Vehicle Operation Procedures. ADVENT requires employees to use seat belts at all times when traveling in ADVENT owned or leased/rented vehicles. The UXOSO will develop a parking area plan, including backing vehicles into parking spaces, using spotters for backing vehicles and policy mandated vehicle inspections.

ADVENT employees are expected to incorporate safe actions and preparations to avoid vehicle accidents and personal injury during work and off-hours. Breaks should be planned into lengthy job mobilizations and demobilization's, including rotation of drivers at regular intervals. If parking areas are busy or crowded and more than one worker is traveling in the same vehicle, one worker should remain outside the vehicle as it leaves the parking space to assist the driver with traffic observation. Vehicles traveling before dawn and at dusk in rural or wooded areas should be prepared to brake for wildlife, e.g., deer crossing roadways.

ADVENT employees arriving at work areas should park vehicles away from delivery, heavy equipment and vehicle loading/unloading locations to prevent parked vehicles from damage by various deliveries. Heavy equipment operators should inspect areas and request vehicles to be moved or spotters used if necessary, to maneuver equipment in tight areas. Employees who observe near misses or potential risks to parked or moving vehicles must report these to the UXOSO immediately.

ADVENT employees are expected to check/test the safety systems on the vehicle on a daily basis. Check the following: brakes, mirrors, seat belts, tires, leakage from the undercarriage, lights and turn signals. Vehicles with safety deficiencies must be reported immediately and not driven until properly repaired. Vehicles running errands from different project sites should have telephone numbers of the job site in the vehicle in case calls for assistance are required.

Personnel involved in motor vehicle incidents are subject to drug and alcohol testing.

Weather conditions can have a profound effect on driving. On slippery roads, drive more slowly. Stop and turn with care. Keep several car lengths from other vehicles. At speeds in excess of 35 mph, the chances of hydroplaning increase with speed. In general, keep back one car length for every 10 mph to prevent striking the car ahead.

Vehicles will be operated in accordance with the requirements listed below:

- ◆ Seatbelt use is mandatory for all passengers;
- ◆ Personnel may not ride in the back of cargo vehicles;
- ◆ The driver must make a 360 degree walk around the assigned vehicle prior to vehicle movement;
- ◆ A ground guide is used to back up any vehicle;
- ◆ Vehicle speed is limited to the posted speed limits for developed roadways, 25 mph maximum on dirt roads and 10 mph maximum off-road (based on conditions);
- ◆ Vehicle driven in four wheel low and low gear when on dirt roads or off road driving where steep grades dictate;
- ◆ All operators must possess a valid drivers license;
- ◆ Fuel or gasoline are not transported inside the passenger compartment;
- ◆ No vehicle is left running when unattended; and
- ◆ Parking brakes are used when vehicles are parked.

In the event of a vehicle incident, notify your Project Manager immediately and complete all required reports.

4.4.4 Heavy Equipment Safety

EMM, forklifts and other material handling equipment present various physical hazards on remediation sites. The following critical safety practices shall be followed to prevent safety incidents during heavy equipment operation.

- ◆ All equipment will be inspected prior to each use.
- ◆ All operators will have training or equivalent experience to be permitted to operate heavy equipment.
- ◆ Spotters will be used to back-up equipment and direct traffic in all “blind” areas.
- ◆ Standard hand signals will be used to communicate between operators and ground crew.
- ◆ All heavy equipment will have operable back-up alarms.
- ◆ Heavy equipment will be parked in areas where operators will not be exposed to strains or slip/trip/fall hazards during mounting and dismounting of equipment.
- ◆ All heavy equipment will be equipped with operable seat belts; belts will be used by all operators.
- ◆ All equipment needs to be equipped with roll-over protection (ROP).
 - ROP includes intact Roll cages and seat belts for off road vehicles on site. All bulldozers, tractors or similar equipment will be equipped with guards and/or canopies.

4.5 Environmental Hazards

Environmental factors such as weather, wild animals, insects, and irritant plants may pose a hazard when performing outdoor tasks. The UXOSO and PM will take necessary actions to alleviate these hazards should they arise.

4.5.1 Heat Stress

The combination of warm ambient temperature and protective clothing increases the potential for heat stress. Heat stress disorders include:

- ◆ Heat rash
- ◆ Heat cramps
- ◆ Heat exhaustion
- ◆ Heat stroke

This information will be reviewed during safety meetings. Workers are encouraged to increase consumption of water and electrolyte-containing beverages; e.g., Gatorade. Heat stress can be prevented by assuring an adequate work/rest schedule. Guidelines are presented below.

In addition, workers are encouraged to take rests and report symptoms whenever they feel any adverse effects that may be heat-related. The frequency of breaks may need to be

increased based on worker recommendation to the UXOSO. Heat stress can be prevented by assuring an adequate work/rest schedule and adequate fluid consumption. A guide for work/rest schedules for various protection levels are given below in Table 4.2. The number of hours before a work/rest period is based on experience with similar work. The time periods should be considered maximum. It must also be remembered that individual physical variability's and differences in physical work activities may require revisions to site plans. This table should be used as a guide. Professional judgment of the UXOSO is necessary to assure a fully protective plan to prevent heat stress disorders.

Table 4.2. Guidelines For Work-Rest Periods Protection Level Number Of Hours Before Rest Period

Temperature	Level D	Level C	Level B	Level A
90+ F*	2.0	1.5	1.0	0.5
87.5 F	2.5	2.0	1.5	1.0
82.5 F	3.0	2.5	2.0	1.5
77.5 F	3.5	3.0	2.5	1.5
72.5	4.0	3.5	2.5	1.5

*Work above 100° F will be reviewed with the Project Manager to determine specific requirements.

Alternately the work/rest schedule can be calculated based on heat stress monitoring results. Each individual will count his/her radial (wrist) pulse as early as possible during each rest period. If the heart rate exceeds 75 percent of their calculated maximum heart rate (MHR = 200 – age) at the beginning of the rest period, then the work cycle will be decreased by one-third. The rest period will remain the same. An individual is not permitted to return to work until his/her sustained heart rate is below 75 percent of their calculated maximum heart rate.

Body temperature, measured orally or through the ear canal, may also be monitored to assess heat stress. Workers should not be permitted to continue work when their body temperature exceeds 100.4°F (degrees Fahrenheit) (38° Celsius [°C]). Monitoring should be conducted at the beginning of each break period as noted above.

Monitoring for heat stress will begin when the ambient temperature reaches or exceeds 70°F when wearing chemical protective clothing (Level C, B, A), or 80°F for site activities performed with no chemical protective clothing (Level D). Monitoring will include pulse rate, weight loss, oral/ or ear canal temperature, signs and symptoms of heat stress and fluid intake.

4.5.2 Lightning

The procedures provided below will be used to protect site personnel from lightning related injuries.

4.5.2.1 Training

A tailgate safety meeting will be conducted to increase awareness to the hazards and prevention of lightning related incidents.

4.5.2.2 Detection of Lightning

The UXOSO will be proactive in monitoring conditions that may produce thunderstorms and lightning. A daily and weakly weather forecast will be tracked and communicated to site personnel. When signs of impending storms, i.e., increasing wind, darkening skies, or lightening appear, local weather monitoring will be increased. The National Weather Service (www.nws.noaa.gov/) should be consulted frequently. Personnel will be notified when thunderstorms may impact the site.

The "flash/bang" (f/b) technique of measuring the distance to lightning will be reviewed with all personnel. The f/b technique is defined as: for each five seconds from the time of observing the lightning flash to hearing the associated thunder, the lightning is one mile away.

4.5.2.3 Suspension/Resumption of Activities

All outside activities will be suspended when a lightning flash is immediately in the area or a f/b of 20 seconds (4 miles away) is noted. Personnel may continue indoor work activities. Outdoor activities will resume when 30 minutes has passed since the last observable f/b is 20 seconds or greater.

4.5.2.4 Lightning Protection

When notification is given, all outside work activities will stop and personnel will gather in the support zone for a head count and further instructions. Indoor work will continue, except for the use of electrical equipment, telephones and computers. When a safe location is not present and personnel are caught by a sudden lightning event, employees should seek the lowest possible area, away from large objects which might attract lightning or fall over, e.g., trees, utility poles. The employee should assume a crouching position with their head lowered and hands over their ears. AVOID: WATER, HIGH GROUNDS, HEAVY EQUIPMENT AND TALL, ISOLATED OBJECTS.

4.5.2.5 First Aid

An employee that is struck by lightning needs immediate assistance (call 911). The body will not carry an electrical charge, but receives a severe electrical shock and may be burned. Personnel certified in first aid/CPR should inspect for shock and burns around fingers, toes, buckles and jewelry. Stay with the injured employee until medical help arrives.

4.6 Biological Hazards

4.6.1 Poisonwood (*Metopium toxiferum*) and Manchineel Tree (*Hippomane mancinella*)

Poisonwood may be found at the site. It is highly recommended that all personnel entering into an area with poisonwood wear a minimum of a Tyvek® coverall, to avoid skin contact. The majority of skin reactions following contact with offending plants are allergic in nature and characterized by:

- ◆ Blisters
- ◆ Itching
- ◆ Redness
- ◆ Rash.

Some of the most common and most severe allergic reactions result from contact with the Manchineel Tree. These trees produce severe rash characterized by redness, blisters, swelling, and intense burning and itching. The victim may develop a high fever and feel very ill. Ordinarily, the rash begins within a few hours after exposure, but may be delayed 24 to 48 hours.

A barrier cream (e.g., Stokogard Outdoor Cream, Stockhausen, Inc., 1-800-334-0242) should be applied to the exposed skin before entering and working in areas with possible poisonous plants.

4.6.1.1 Distinguishing Features of the Poisonwood and Manchineel trees.

The Poisonwood tree has a distinctive bark that is a reddish hue and is often peeling and dappled with a black sap. The deep green leaves are compound and usually have from five to nine leaflets-always an odd number. There are almost always blotted with the telltale signs of the tree's toxicity- small black spots of the poisonous sap that blemish the leaves. The Manchineel trees have a grayish bark and shiny green leaves. They are covered in small, apple-shaped, yellow fruit.

4.6.1.2 First Aid

- ◆ Remove contaminated clothing; wash all exposed areas thoroughly with an oil dissolving substance, like WD40. 1 percent hydrocortisone cream (over-the-counter) will aid in healing and reducing itch.
- ◆ Apply calamine or other soothing lotion if rash is mild.
- ◆ Seek medical advice if a severe reaction occurs, or if there is a known history of previous sensitivity.

4.6.1.3 Contaminated Clothing

The irritating substances emitted by the Poisonwood and Manchineel trees will remain on clothing for prolonged periods of time, up to weeks or months, if not washed thoroughly. It

may be necessary to wash contaminated clothing separately and more than once before reusing.

4.6.2 Snakes

No poisonous snakes are indigenous to Puerto Rico.

Snakes typically are found in underbrush and tall grassy areas. If you encounter a snake, stay calm and look around; there may be other snakes. Turn around and walk away on the same path you used to approach the area. If bitten by a snake, wash and immobilize the injured area, keeping it lower than the heart if possible. Seek medical attention immediately. DO NOT apply ice, cut the wound, or apply a tourniquet. Try to identify the type of snake: note color, size, patterns and markings.

4.6.3 Ticks

No ticks are indigenous to Puerto Rico.

4.6.4 Lyme Disease

Lyme disease is not applicable to Puerto Rico.

4.6.5 West Nile Virus and West Nile Encephalitis

West Nile Virus/West Nile Encephalitis is rapidly becoming a health concern in the United States. West Nile Virus was first identified in the U.S. in the New York area in 1999 and is closely related to the St. Louis Encephalitis Virus, which is routinely found in the United States.

"Encephalitis" means an inflammation of the brain and it can be caused by viral and bacterial infections. West Nile Encephalitis can be a serious or even fatal illness although this is rare in humans. This illness develops in approximately one of every 150 infections and is generally confined to older and physically compromised individuals.

West Nile Encephalitis is a viral infection of the brain transmitted through the bite of a mosquito, which has previously fed on birds and/or horses that were infected with West Nile Virus. Dead birds in an area may mean that West Nile Virus is circulating between the birds and the mosquitoes in that area. West Nile Virus is not transmitted from one person to another. Human illness from West Nile Virus is rare, even in areas where the virus has been reported.

Symptoms of Exposure Most people who become infected with West Nile Virus will have either no symptoms or only mild ones. Symptoms of West Nile Encephalitis include high fever, headache, confusion, muscle aches and weakness, seizures, or paralysis. At its most serious, the infection can result in coma, permanent neurological damage, and death. Symptoms usually occur five to 15 days following the bite of an infected mosquito.

Because West Nile Encephalitis is a viral infection, antibiotics are not effective and there is no specific treatment available other than general support therapy.

4.6.5.1 Protective Measures at Projects

There is no vaccine to protect humans against West Nile Virus. Individuals at project sites can reduce their risk from being infected with West Nile Virus by taking the following actions to protect against mosquito bites:

- ◆ Review the hazards of West Nile Virus periodically in morning safety meetings.
- ◆ Increase protective measures when working at dawn, dusk, and in the early evening.
- ◆ Reduce the area of exposed skin when working outdoors. Long-sleeved shirts with sleeves rolled down are recommended. Understand that mosquitoes may bite through thin clothing, so personnel should evaluate the actual Level D clothing worn, e.g., heavy long sleeve work shirts and heavy jeans may be indicated. Also, the risk of mosquito bites is reduced for those activities that require the use of disposable coveralls.
- ◆ For activities where only Level D Personal Protective Equipment (PPE) is specified, consider using disposable coveralls when working in wooded, highly vegetated, or swampy areas.
- ◆ Use an insect repellent containing approximately 30% DEET (N, N-diethyl-metoluamide). DEET in concentrations greater than 35% provides no additional protection but repel insects longer. However, at some point there is no direct correlation between concentration and repellency. For example, 50% DEET provides about four hours of protection against mosquitoes, but increasing the concentration to 100% provides only one additional hour of protection. Use the repellent according to the manufacturer's directions provided on the container. Use just enough repellent to cover exposed skin and clothing. Do not treat unexposed skin. Frequent re-application is unnecessary for effectiveness. Avoid prolonged and excessive use of DEET.
- ◆ After returning from outdoor field activities, wash treated skin with soap and water.
- ◆ Personnel should report flu-like symptoms to the UXOSO.

DEET is safe for pregnant and lactating women and is generally safe for children. You should avoid applying it to open wounds and irritated skin as it may further irritate the skin or cause discomfort.

Sweating, perspiration and getting wet may wash away the repellent and may require that DEET containing repellent be re-applied.

To remove the breeding places on a project, the following precautions will be followed as practical:

- ◆ Cut tall grass and weeds
- ◆ Drain accumulated water in such items as drums, buckets, pools and plastic containers
- ◆ Repair holes in door and window screens
- ◆ Eliminate stagnate water puddles as practical

- ◆ Limit outdoor activities at dawn, dusk and early evening, when mosquitoes are most active, as practical

4.6.6 Radiological Hazards and Controls

The Navy acknowledged inadvertently firing 263 rounds of depleted uranium (DU) ammunition in 1999. An intensive range sweep was initiated at that time and many of the DU rounds were recovered. The 25mm PGU-20 projectiles contain a small DU core about the size of a .50 caliber bullet. DU oxidizes rapidly when exposed to air. Oxidized DU is a greenish-yellow, powdery substance.

If a suspected DU projectile is encountered during The Time Critical Removal Actions, work will stop. UXO personnel will scan the suspected item with a radiation detection instrument. If the item is benign, work will continue. If the item is radioactive, the UXO team will immediately report the event to the SUXOS, who will in turn notify the LANTDIV RPM.

4.6.7 Recovered Chemical Warfare Materials

RCWM is not expected at these work sites. If, at the time during the fieldwork, suspected RCWM is encountered, the UXO team must stop all work activities immediately. Field sampling teams must withdraw from site along the cleared approach paths, away from the area where the suspected RCWM was found. The UXO team will immediately report the chemical event to the SUXOS, who will in turn notify the LANTDIV RPM.

The LANTDIV RPM in coordination with the DoI will request assistance through the U.S. Army's 52d Ordnance Group at Fort Gillem, GA (404) 469-3333.

A team of at least two UXO-qualified personnel will secure the suspected RCWM site and standby in an upwind location until relieved by a government representative. The initial exclusion zone for chemical weapons is 450 meters in all directions per US Army FM 9-15, Explosive Ordnance Disposal Service and Unit Operations.

4.7 Contaminants of Concern

Previous investigations included the collection of soil and ground-water samples for VOC's, SVOCs, PCBs, and metal analysis. Parameters exceeding conservative long-term exposure risk based screening criteria in surface soils included aluminum, arsenic, iron, lead, thallium, vanadium, 2,4-dinitrotoluene, 2,4,6-trinitrotoluene, and hexahydro-1,3,5-trinitro-1,3,5,7-tetrazocine. In subsurface soils, the metals arsenic and barium exceeded screening criteria. Parameters exceeding screening criteria in ground-water included aluminum, barium, cadmium, chromium, iron, manganese, nickel, selenium, vanadium, and zinc. In addition, various small MEC and spent munitions were discovered at the site. The metals detected at the site were detected at concentrations indicative of background concentrations for the island. Table 4.3 shows the potential exposure routes.

Table 4.3: Potential Routes of Exposure

Dermal: Contact with contaminated media. This route of exposure is minimized through use of PPE, as specified in Section 6	Inhalation: Vapors and contaminated particulates. This route of exposure is minimized through proper respiratory protection and monitoring, as specified in Section 6 and 8 respectively.	Other: Inadvertent ingestion of contaminated media. This route should not present a concern if good hygiene practices are followed (e.g., wash hands and face before drinking and smoking).
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4.8 Activity Hazard Analyses

Appendix C contains the Activity Hazard Analyses (AHAs) for primary site tasks. They contain detailed information on physical and chemical hazards, and provide control measures for these hazards. The AHA's will be field checked by the PM and the UXOSO on an ongoing basis and revised as necessary. All revisions will be communicated to the work crew.

5.0 TRAINING REQUIREMENTS

As a requirement for work at this site, in any hazardous waste work area, all field personnel will be required to take a 40-hour training class. This training must cover the requirements in 29 CFR 1910.120: personal protective equipment, toxicological effects of various chemicals, hazard communication, blood borne pathogens, handling of unknown tanks and drums, confined-space entry procedures, electrical safety, etc. In addition, all personnel must receive annual 8-hour refresher training and three-day on-site training under a trained, experienced supervisor. Supervisory personnel shall have received additional 8-hour training in handling hazardous waste operations.

All personnel entering the exclusion zone will be trained in the provisions of this site safety plan and be required to sign the Site Safety Plan Acknowledgment in Appendix C.

Site-specific training for activities at the MRS's will include potential site contaminants, Hazard Communication as per 29 CFR 1910.1200, site physical and environmental hazards, emergency response and evacuation procedures, and emergency telephone numbers will be held by the PM before any site work activities begin.

Outlines of the orientation for ADVENT/ADVENT Subcontract personnel and visitors are presented below:

ADVENT/SUBCONTRACTORS	VISITOR ORIENTATION
<ul style="list-style-type: none"> • SSHP review and sign off • Sign in/out procedures • Site background • Review of site map • Chain of command • Rules and regulations • Hours of work • Absences • Equipment • Emergency Information • Emergency signal • Gathering point • Responsibilities/roles • Emergency phone numbers • Work Zones • Contaminants and Material Safety Data Sheets (MSDS) [Hazard Communication Program] • AHAs (Activity Hazard Analyses) • Prohibited on-site activities • Incident Reporting 	<ul style="list-style-type: none"> • Sign in/out procedures • Review of site map • Work zones in progress • Hazard Communication • Emergency plan/signals • Training/medical requirements • Zones/areas open to visitors

6.0 PROTECTIVE EQUIPMENT

This section specifies the levels of personal protective equipment (PPE) which are or may be required for each principal activity performed at this site. All site personnel must be trained in the use of all PPE utilized. The ADVENT PPE program will be applied to project activities.

6.1 Anticipated Protection Levels

The following protection levels have been established for the site work activities. Results of site air monitoring and visual inspection of the work activities may indicate the need for changes in PPE level(s).

Task	Initial PPE Level	Upgrade PPE Level	Skin Protection	Respiratory Protection	Other PPE
General site entry and surveying	Level D	None	Leather work gloves	None	Sturdy work boots, and hearing protection >85 dBA.
MEC surveys and removals	Level D	None	Leather work gloves	None	Sturdy work boots, safety glasses and hearing protection >85 dBA
Tasks requiring MEC anomaly reacquisition in contamination area	Modified Level D	Level C	Inner latex sample gloves, outer nitrile gloves, boot covers.	Upgrade: Full face air purifying respirator	Sturdy work boots, and safety glasses and hearing protection >85 dBA
Observation of material loading for offsite disposal. Oversight of remediation and construction	Level D	None	None	None	Sturdy boots, safety glasses, hearing protection >85 dBA

6.2 Protection Level Descriptions

This section lists the minimum requirements for each protection level. Modification to these requirements may have been noted above.

6.2.1 Level D

Level D consists of the following:

- ◆ Safety glasses with side shields
- ◆ Sturdy work boots
- ◆ Work clothing as prescribed by weather
- ◆ Leather work gloves
- ◆ Cut resistant gloves when handling sharp objects or broken glass
- ◆ Reflective vests for ground personnel working around heavy equipment or roadways
- ◆ Hearing protection in areas >85 dBA

6.2.2 Modified Level D

Modified Level D consists of the following:

- ◆ Safety glasses with side shields
- ◆ Sturdy work boots
- ◆ Boot covers
- ◆ Inner latex sample gloves
- ◆ Outer Nitrile gloves
- ◆ Cut resistant gloves over nitrile gloves when handling sharp objects such as tie-wire
- ◆ Reflective vests for ground personnel working around heavy equipment or roadways
- ◆ Hearing protection in areas >85 dBA

6.2.3 Level C

Level C consists of the following:

- ◆ Full face air purifying respirator with combination organic vapor/P-100 cartridges
- ◆ Tyvek[®] coveralls. Poly-coated Tyvek[®] if splash hazards are present
- ◆ Boot covers
- ◆ Inner latex sample gloves
- ◆ Nitrile outer gloves
- ◆ Hard hat
- ◆ Steel-toed work boots
- ◆ Work clothing as prescribed by weather.

6.3 Air Purifying Respirators

North full-face respirators with a multi-contaminant cartridges, organic vapor/(P-100) cartridges will be used for Level C work.

6.4 Cartridge Change-Out Schedule

The cartridge change-out schedule will be determined by the HSM, based on the air monitoring levels associated with the contaminants of concern.

6.5 Inspection and Cleaning

Respirators shall be checked periodically by a qualified individual and inspected before each use by the wearer. All respirators and associated equipment will be decontaminated and hygienically cleaned after each use.

6.6 Fit Testing

Annual respirator fit tests are required of all personnel wearing negative-pressure respirators. The test will use isoamyl acetate or irritant smoke. The fit test must be for the style and size of the respirator to be used. Quantitative fit-testing is required for use of respirators in chemical environments where the respirator effective use limit exceeds 10 (exposure of 1 ppm inside the respirator for 10 ppm outside the respirator). Therefore, quantitative fit-testing is dependent on the PEL/TLV of the chemical substance involved. Quantitative fit-testing is required for potential exposure to airborne particulate levels that exceed 10 times the established PEL/TLV.

6.7 Facial Hair

No personnel who have facial hair which interferes with the respirator's sealing surface will be permitted to wear a respirator and will not be permitted to work in areas requiring respirator use.

6.8 Corrective Lenses

Normal eyeglasses cannot be worn under full-face respirators because the temple bars interfere with the respirator's sealing surfaces. For workers requiring corrective lenses, special spectacles designed for use with respirators will be provided. Contact lenses are permitted to be used with full-face respirators based on a decision by the Occupational Safety and Health Administration (OSHA).

6.9 Medical Certification

Only workers who have been certified by a physician, as being physically capable of respirator usage will be issued a respirator. Personnel unable to pass a respiratory fit test or without medical clearance for respirator use will not be permitted to enter or work in areas on site that require respiratory protection. Employees will receive a written physicians opinion that they are fit for general hazardous waste operations as per 29 CFR 1910.120(f)(7).

7.0 MEDICAL SURVEILLANCE PROGRAM

All ADVENT personnel participate in a medical and health monitoring program. This program is initiated when the employee starts work with a complete physical and medical history and is continued on a regular basis. This program was developed in conjunction with a consultant toxicologist and ADVENT's occupational health physician. Other medical consultants are retained when additional expertise is required.

The medical surveillance program meets the requirements of the OSHA Standard 29 CFR 1910.120/1926.65(f).

No specific tests are expected for this project.

7.1 Medical Records

Medical records necessary for ADVENT employees will include documentation of vaccination status, medical exams, follow-up, and a medical professional's written evaluation.

The employee medical records will be maintained by ADVENT for inclusion in the employee's medical file. Confidentiality of all medical records shall be maintained.

ADVENT maintains employee medical records for the duration of the employee's employment plus 30 years thereafter. If, for whatever reason, ADVENT no longer does business and no successor exists, ADVENT will notify the director of NIOSH in writing three months prior to the disposal of records. If so directed, the records shall be transferred to the director of NIOSH.

7.2 Incident Recording

An incident that occurs as a result of rendering emergency medical care will be recorded on the OSHA 300 log as OSHA defines work-related injuries and illnesses. All injuries involving the release of blood or bodily fluids must be immediately reported to the HSM for proper reporting and follow-up.

8.0 ENVIRONMENTAL MONITORING

Environmental monitoring is not applicable during this project.

9.0 WORK AND SUPPORT AREAS

To prevent migration of contamination from personnel and equipment, work areas will be clearly specified as designated below prior to beginning operations. Each work area will be clearly identified using signs or physical barriers.

- ◆ Exclusion Zone
- ◆ Contamination Reduction Zone
- ◆ Support Zone

A log of all personnel visiting, entering or working on the site shall be maintained by the UXOSO. No visitor will be allowed in the EZ without showing proof of training and medical certification, per 29 CFR 1910.120(e), (f). Visitors will attend a site orientation given by the UXOSO and sign the SSHP.

The following are standard safe work practices that apply to all site personnel and will be discussed in the safety briefing prior to initiating work on the site:

- ◆ Eating, drinking, chewing gum or tobacco, smoking is prohibited in the EZ/CRZs unless designated by the UXOSO.
- ◆ Hands must be washed before eating, drinking, chewing gum or tobacco and smoking.
- ◆ A buddy system will be used. Hand signals will be established to maintain communication.
- ◆ During site operations, each worker will consider himself as a safety backup to his partner. Off site personnel provide emergency assistance.
- ◆ Visual contact will be maintained between buddies on site when performing hazardous duties.
- ◆ No personnel will be admitted to the site without the proper safety equipment, training, and medical surveillance certification.
- ◆ All personnel must comply with established safety procedures. Any staff member who does not comply with safety policy, as established by the PM, will be immediately dismissed from the site.
- ◆ Proper decontamination procedures must be followed before leaving the site.
- ◆ All employees and visitors must sign in and out of the site.

9.1 General Site Access Control

The purpose of site access control is to protect the public and workers from the site's hazards and prevent vandalism of the site operations. Site access control will be implemented by the UXOSO and will be accomplished through a program that limits movement and activities of people and equipment at the project site. Site control requires the establishment of site work zones, a communications network, an evacuation protocol,

and site security. Site access control will be based on site-specific characteristics including:

- ◆ Potential chemical, biological, physical, or explosive hazards;
- ◆ Terrain;
- ◆ Expected weather conditions;
- ◆ Planned site activities; and
- ◆ Site proximity to populated areas.

Site access will include the following:

- ◆ Worker/visitor registration;
- ◆ Escort of visitors;
- ◆ PPE requirements; and
- ◆ Posting of site/work area boundaries.

**Figure 9-1
Typical Zoning For MEC Actions**

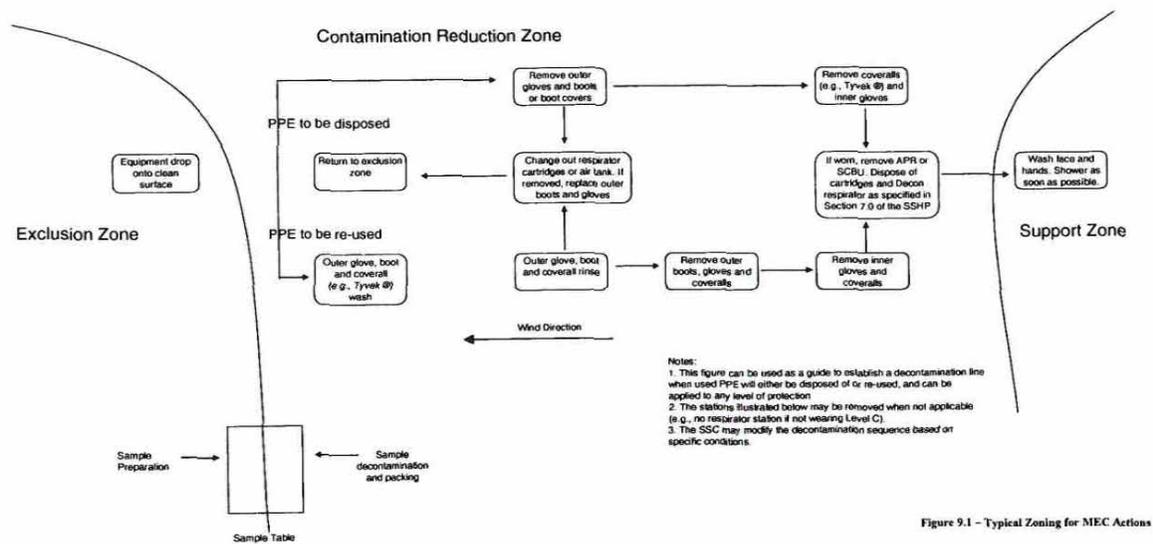


Figure 9.1 – Typical Zoning for MEC Actions

10.0 DECONTAMINATION PROCEDURE

Decontamination is not applicable during this project.

11.0 EMERGENCY RESPONSE

11.1 Pre-Emergency Planning

Prior to engaging in remediation activities at the site, ADVENT will plan for possible emergency situations and have available adequate supplies and manpower to respond. In addition site personnel will receive training during the site orientation concerning proper emergency response procedures. The following situations would warrant implementation of the Emergency Response and Contingency Plan (ERCP):

Fire/Explosion	<ul style="list-style-type: none"> ◆ The potential for human injury exists. ◆ Toxic fumes or vapors are released. ◆ The fire could spread on site or off site and possibly ignite other flammable materials or cause heat-induced explosions. ◆ The use of water and/or chemical fire suppressants could result in contaminated run-off. ◆ An imminent danger of explosion exists
Spill or Release of Hazardous Materials	<ul style="list-style-type: none"> ◆ The spill could result in the release of flammable liquids or vapors, thus causing a fire or gas explosion hazard. ◆ The spill could cause the release of toxic liquids or fumes in sufficient quantities or in a manner that is hazardous to or could endanger human health.
Spill or Release	<ul style="list-style-type: none"> ◆ The spill can be contained on site, but the potential exists for groundwater contamination. ◆ The spill cannot be contained on site, resulting in additional off-site soil contamination and/or ground water or surface water pollution. ◆ The spill quantity is greater than the reportable quantity limit for the material.
Natural Disaster	<ul style="list-style-type: none"> ◆ A rainstorm exceeds the flash flood level. ◆ The facility is in a projected tornado path or a tornado has damaged facility property. ◆ Severe wind gusts are forecasted or have occurred and have caused damage to the facility.

Medical Emergency	<ul style="list-style-type: none"> ◆ Overexposure to hazardous materials. ◆ Trauma injuries (broken bones, severe lacerations/bleeding, burns). ◆ Eye/skin contact with hazardous materials. ◆ Loss of consciousness. ◆ Heat stress (Heat stroke). ◆ Heart attack. ◆ Respiratory failure. ◆ Allergic reaction.
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The following measures will be taken to assure the availability of adequate equipment and manpower resources:

- ◆ Sufficient equipment and materials will be kept on site and dedicated for emergencies only. The inventory will be replenished after each use.
- ◆ On-site emergency responders will be current in regards to training and medical surveillance programs. Copies of all applicable certificates will be kept on file for on-site personnel required to respond.
- ◆ It will be the responsibility of the emergency coordinator to brief the on-site response team on anticipated hazards at the site. The emergency coordinator shall also be responsible for anticipating and requesting equipment that will be needed for response activities.
- ◆ Emergency response activities will be coordinated with the Local Emergency Management Agency (EMA) in compliance with SARA Title III requirements.

Communications will be established prior to commencement of any activities at the remediation site. Communication will be established so that all responders on site have availability to all pertinent information to allow them to conduct their activities in a safe and healthful manner. The primary communication device will be verbal communications, handheld radios, and air horns. Cellular telephone will be used to contact emergency personnel.

Primary communication with local responders in the event of an emergency will be accomplished using a cellular telephone if commercial telephone lines are not available.

11.2 Emergency Recognition and Prevention

Because unrecognized hazards may result in emergency incidents, it will be the responsibility of the Project Manager and the UXOSO, through daily site inspections and employee feedback (Daily safety meetings, and job safety analyses) to recognize and identify all hazards that are found at the site. These may include:

Chemical Hazards	<ul style="list-style-type: none"> • Materials at the site • Materials brought to the site
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Physical Hazards	<ul style="list-style-type: none"> • Fire/explosion • Slip/trip/fall • Electrocution • IDLH atmospheres • Excessive noise
Mechanical Hazards	<ul style="list-style-type: none"> • Heavy equipment • Stored energy system • Pinch points • Electrical equipment • Vehicle traffic
Environmental Hazards	<ul style="list-style-type: none"> • Electrical Storms • High winds • Heavy Rain/Snow • Temperature Extremes (Heat Stress) • Poisonous Plants/Animals

Once a hazard has been recognized, the PM and the UXOSO will take immediate action to prevent the hazard from becoming an emergency. This may be accomplished by the following:

- ◆ Daily safety meetings
- ◆ Task specific training prior to commencement of activity
- ◆ Personal Protective Equipment (PPE) selection/use
- ◆ Written and approved permits for hot work and confined space
- ◆ Trenching/shoring procedures
- ◆ Air monitoring
- ◆ Following all ADVENT standard operating procedures

Table 11.1. Emergency Telephone Numbers	
Medical Emergency <i>911 Operators on Vieques DO speak English</i>	911
Local Ambulance AERO MED	911 787.756.3480 or 3481
Hospital - Centro de Salud Familiar Susana Centeno Carr. 997 Kilometer 1 Ht.0 Bo. Destino Vieques, Puerto Rico <i>Directions:</i> See Appendix D for route map.	787.741.2151

Table 11.1. Emergency Telephone Numbers		
Fire / Spill Emergency		911
Local Fire Dept (Non-Emergency)		787.741.2020
Federal Agencies		404.639.3311
Center for Disease Control		800.424.9300 (24 hours)
Chemtrec		
ADVENT Personnel		
Project Management:	Mr. Larry Fowler	843.388.1851
	Mr. Brian Thompson	813.787.0302
Site Manager:	Mr. Nathan Mullens	
Senior UXO Supervisor:	Mr. Dennis Lecher	
Department of Interior		
Law Enforcement:	Mike Barandiaran	787.457.0088
Vieques Police		787.741.2020

11.3 Personnel Roles, Lines of Authority, Communications

This section of the ERCP describes the various roles, responsibilities, and communication procedures that will be followed by personnel involved in emergency responses. The primary emergency coordinator for this site is the Site Safety and Health Officer. In the event an emergency occurs and the emergency coordinator is not on site, the PM or the highest-ranking employee on site will serve as the emergency coordinator until he arrives. The emergency coordinator will determine the nature of the emergency and take appropriate action as defined by this ERCP.

The emergency coordinator will implement the ERCP immediately as required. The decision to implement the plan will depend upon whether the actual incident threatens human health or the environment. Immediately after being notified of an emergency incident, the emergency coordinator or his designee will evaluate the situation to determine the appropriate action.

11.3.1 Responsibilities and Duties

This section describes the responsibilities and duties assigned to the emergency coordinator.

It is recognized that the structure of the "Incident Command System" will change as additional response organizations are added. ADVENT will follow procedures as directed by the Fire Department, LEPC, State and Federal Agencies as required. ADVENT will defer to the local Fire Department Chief to assume the role of Incident Commander upon

arriving on site. Additional on-site personnel may be added to the Site Emergency Response Team as required to respond effectively.

11.3.2 On-Site Emergency Coordinator Duties

The on-site emergency coordinator is responsible for implementing and directing the emergency procedures. All emergency personnel and their communications will be coordinated through the emergency coordinator. Specific duties are as follows:

- ◆ Identify the source and character of the incident, type and quantity of any release. Assess possible hazards to human health or the environment that may result directly from the problem or its control.
- ◆ Discontinue operations in the vicinity of the incident if necessary to ensure that fires, explosions, or spills do not recur or spread to other parts of the site. While operations are dormant, monitor for leaks, pressure build-up, gas generation, or ruptures in valves, pipes, or other equipment, where appropriate.
- ◆ Notify local Emergency Response Teams if their help is necessary to control the incident. Table 9.1 provides telephone numbers for emergency assistance.
- ◆ Direct on-site personnel to control the incident, if necessary, until outside help arrives.
- ◆ Ensure that the building or area where the incident occurred and the surrounding area are evacuated and shut off possible ignition sources, if appropriate. The Emergency Response Team is responsible for directing site personnel such that they avoid the area of the incident and leave emergency control procedures unobstructed.
- ◆ If fire or explosion is involved, notify Local Fire Department.
- ◆ Notify ADVENT Project Manager
- ◆ Notify LANTDIV Project Manager
- ◆ Have protected personnel, in appropriate PPE, on standby for rescue, if appropriate.

If the incident may threaten human health or the environment outside of the site, the emergency coordinator should immediately determine whether evacuation of area outside of the site may be necessary and, if so, notify the Local Police Department and the Office of Emergency Management.

When required, notify the National Response Center. The following information should be provided to the National Response Center:

- ◆ Name and telephone number
- ◆ Name and address of facility
- ◆ Time and type of incident
- ◆ Name and quantity of materials involved, if known
- ◆ Extent of injuries
- ◆ Possible hazards to human health or the environment outside of the facility.

The emergency telephone number for the National Response Center is 800.424.8802.

If hazardous waste has been released or produced through control of the incident, ensure that:

- ◆ Waste is collected and contained.
- ◆ Containers of waste are removed or isolated from the immediate site of the emergency.
- ◆ Treatment or storage of the recovered waste, contaminated soil or surface water, or any other material that results from the incident or its control is provided.
- ◆ Ensure that no waste that is incompatible with released material is treated or stored in the facility until cleanup procedures are completed.
- ◆ Ensure that all emergency equipment used is decontaminated, recharged, and fit for its intended use before operations are resumed.

11.4 Safe Distances and Places of Refuge

No single recommendation can be made for evacuation or safe distances because of the wide variety of emergencies that could occur. Safe distances can only be determined at the time of an emergency based on a combination of site and incident specific criteria. However, the following measures are established to serve as general guidelines.

If an incident may threaten the health or safety of the surrounding community, the public will be informed and, if necessary, evacuated from the area. The emergency coordinator or his designee will inform the proper agencies in the event that this is necessary. Telephone numbers are listed in Table 9.1.

Places of refuge will be established prior to the commencement of activities. These areas must be identified for the following incidents:

- ◆ Chemical release
- ◆ Fire/explosion
- ◆ Power loss
- ◆ Medical emergency
- ◆ Hazardous weather

In general, evacuation will be made to the main site gate, unless the emergency coordinator determines otherwise. It is the responsibility of the emergency coordinator to determine when it is necessary to evacuate personnel to off-site locations.

In the event of an emergency evacuation, all the employees will gather at the main gate until a head count establishes that all are present and accounted for. No one is to leave the site without notifying the emergency coordinator.

11.5 Evacuation Routes and Procedures

All emergencies require prompt and deliberate action. In the event of an emergency, it will be necessary to follow an established set of procedures. Such established procedures will be followed as closely as possible. However, in specific emergency situations, the emergency coordinator may deviate from the procedures to provide a more effective plan for bringing the situation under control. The emergency coordinator is responsible for determining which situations require site evacuation.

11.5.1 Evacuation Signals and Routes

An air horn and verbal communication will be used to notify employees of the necessity to evacuate an area involved in a release/spill of a hazardous material. Only the emergency coordinator will initiate total site evacuation, however, in his absence, a decision to preserve the health and safety of employees will take precedence.

11.5.2 Evacuation Procedures

In the event evacuation is necessary, the following actions will be taken:

- ◆ The emergency signal will be activated.
- ◆ No further entry of visitors, contractors, or trucks will be permitted. Vehicle traffic within the site will cease in order to allow safe exit of personnel and movement of emergency equipment.
- ◆ Shut off all machinery if safe to do so.
- ◆ ALL on-site personnel, visitors, and contractors in the support zone will assemble at a meeting area for a head count and await further instruction from the emergency coordinator.
- ◆ ALL persons in the exclusion zone and contamination reduction zone will be accounted for by their immediate crew leaders (e.g., foreman). Leaders will determine the safest exits for employees and will also choose an alternate exit if the first choice is inaccessible.
- ◆ Upon completion of the head count, the crew leader will provide the information to the emergency coordinator.
- ◆ Contract personnel and visitors will also be accounted for.
- ◆ The names of emergency response team members involved will be reported to the emergency spill control coordinator.
- ◆ The emergency coordinator or designee will make a final tally of persons. No attempt to find persons not accounted for will involve endangering lives of ADVENT or other employees by re entry into emergency areas.

In all questions of accountability, immediate crew leaders will be held responsible for those persons reporting to them. Visitors will be the responsibility of those employees they are seeing. Contractors and truck drivers are the responsibility of the Project Manager. The UXOSO will aid in accounting for visitors, contractors, and truckers by reference to sign in sheets available from the Command Post.

- ◆ Personnel will be assigned by the emergency coordinator to be available at the main gate to direct and brief emergency responders.
- ◆ Re entry into the site will be made only after the emergency coordinator gives clearance. At his direction, a signal or other notification will be given for re-entry into the facility.
- ◆ Drills will be held periodically to practice all of these procedures and will be treated with the same seriousness as an actual emergency.

11.6 Emergency Spill Response Procedures and Equipment

In the event of an emergency involving a hazardous material spill or release, the following general procedures will be used for rapid and safe response and control of the situation. Emergency contacts found in Table 9.1 provide a quick reference guide to follow in the event of a major spill.

11.6.1 Notification Procedures

If an employee discovers a chemical spill or process upset resulting in a vapor or material release, he or she will immediately notify the on-site emergency coordinator. On-site Emergency Coordinator will obtain information pertaining to the following:

- ◆ The material spilled or released.
- ◆ Location of the release or spillage of hazardous material.
- ◆ An estimate of quantity released and the rate at which it is being released.
- ◆ The direction in which the spill, vapor or smoke release is heading.
- ◆ Any injuries involved.
- ◆ Fire and/or explosion or possibility of these events.
- ◆ The area and materials involved and the intensity of the fire or explosion.

This information will help the on-site emergency coordinator to assess the magnitude and potential seriousness of the spill or release.

11.7 Emergency Contingency Plan

This section of the ERCP details the contingency measures ADVENT will take to prepare for and respond to fires, explosions, spills and releases of hazardous materials, hazardous weather, and medical emergencies.

11.8 Medical Emergency Contingency Measures

The procedures listed below will be used to respond to medical emergencies. The UXOSO will contact the local hospital and inform them of the site hazards and potential emergency situations. A minimum of two First-Aid/CPR trained personnel will be maintained on site.

11.8.1 Response

The nearest workers will immediately assist a person who shows signs of medical distress or who is involved in an accident. The work crew supervisor will be summoned. The work crew supervisor will immediately contact the on-site emergency coordinator to alert him of a medical emergency situation. The supervisor will advise the following information:

- ◆ Location of the victim at the work site
- ◆ Nature of the emergency
- ◆ Whether the victim is conscious
- ◆ Specific conditions contributing to the emergency, if known

The Emergency Coordinator will notify the Project Manager. The following actions will then be taken depending on the severity of the incident:

11.8.1.1 Life-Threatening Incident

If an apparent life-threatening condition exists, the crew supervisor will inform the emergency coordinator and the local Emergency Medical Services (EMS) will be immediately called. An on-site person will be appointed who will meet the EMS and have him/her quickly taken to the victim. Any injury within the EZ will be evacuated by ADVENT personnel to a clean area for treatment by (EMS) personnel.

11.8.1.2 Non Life-Threatening Incident

If it is determined that no threat to life is present, the SUXOS or UXOSO will direct the injured person through decontamination procedures (see below) appropriate to the nature of the illness or accident. Appropriate first aid or medical attention will then be administered.

***NOTE:** The area surrounding an accident site must not be disturbed until the scene has been cleared by the UXOSO.

Any personnel requiring emergency medical attention will be evacuated from exclusion and contamination reduction zones if doing so would not endanger the life of the injured person or otherwise aggravate the injury. Personnel will not enter the area to attempt a rescue if their own lives would be threatened. The decision whether or not to decontaminate a victim prior to evacuation is based on the type and severity of the illness or injury and the nature of the contaminant. For some emergency victims, immediate decontamination may be an essential part of life-saving first aid. For others, decontamination may aggravate the injury or delay life-saving first aid. Decontamination will be performed if it does not interfere with essential treatment.

If decontamination can be performed, observe the following procedures:

- ◆ Wash external clothing and cut it away.
- ◆ If decontamination cannot be performed, observe the following procedures.
- ◆ Wrap the victim in blankets or plastic to reduce contamination of other personnel.
- ◆ Alert emergency and off-site medical personnel to potential contamination, instruct them about specific decontamination procedures.
- ◆ Send site personnel familiar with the incident and chemical safety information, e.g. MSDS, with the affected person.

All injuries, no matter how small, will be reported to the PM and UXOSO. An accident/injury/illness report will be completely and properly filled out and submitted to the Project Manager in accordance with ADVENT's reporting procedures.

A list of emergency telephone numbers is given in Table 9.1.

11.8.2 Notification

The following personnel/agencies will be notified in the event of a medical emergency:

- ◆ Fire Department or EMS
- ◆ On-site Emergency Coordinator
- ◆ Workers in the affected areas
- ◆ LANTDIV Project Manager

11.9 Fire Contingency Measures

ADVENT personnel and subcontractors are not trained professional firefighters. Therefore, if there is any doubt that a fire can be quickly contained and extinguished, personnel will notify the emergency coordinator and vacate the structure or area. The emergency coordinator will immediately notify the local Fire Department. The following procedures will be used to prevent the possibility of fires and resulting injuries:

- ◆ Sources of ignition will be kept away from where flammable materials are handled or stored.
- ◆ “No smoking” signs will be conspicuously posted in areas where flammable materials are present.
- ◆ Fire extinguishers will be placed in all areas where a fire hazard may exist.
- ◆ Before workers begin operations in an area the Team Leader will give instruction on egress procedures and assembly points. Egress routes will be posted in work areas and exit points clearly marked.

11.9.1 Response

The following procedures will be used in the event of a fire:

- ◆ Anyone who sees a fire will notify his or her supervisor who will then contact the Emergency Coordinator. The emergency coordinator will activate the emergency air horns and contact the local Fire Department.
- ◆ When the emergency siren sounds, workers will disconnect electrical equipment in use (if possible) and proceed to the nearest fire exit.
- ◆ Work crews will be comprised of pairs of workers (buddy system) who join each other immediately after hearing the fire alarm and remain together throughout the emergency. Workers will assemble at a predetermined rally point for a head count.
- ◆ When a worker has extinguished a small fire, the emergency coordinator will be notified.

11.10 Hazardous Weather Contingency Measures

Operations will not be started or continued when the following hazardous weather conditions are present:

- ◆ Lightning
- ◆ Heavy Rains
- ◆ High Winds

11.10.1 Response

- ◆ Excavation/soil stockpiles will be covered with plastic liner.
- ◆ All equipment will be shut down and secured to prevent damage.
- ◆ Personnel will be moved to safe refuge, initially crew trailers. The emergency coordinator will determine when it is necessary to evacuate personnel to off-site locations and will coordinate efforts with fire, police and other agencies.

11.10.2 Notification

The emergency coordinator will be responsible for assessing hazardous weather conditions and notifying personnel of specific contingency measures. Notifications will include:

- ◆ ADVENT employees and subcontractors
- ◆ LANTDIV Regional Project Manager
- ◆ Local Emergency Management Agency

11.11 Spill/Release Contingency Measures

In the event of release or spill of a hazardous material the following measures will be taken:

11.11.1 Response

Any person observing a spill or release will act to remove and/or protect injured/contaminated persons from any life-threatening situation. First aid and/or decontamination procedures will be implemented as appropriate.

First aid will be administered to injured/contaminated personnel. Unsuspecting persons/vehicles will be warned of the hazard. All personnel will act to prevent any unsuspecting persons from coming in contact with spilled materials by alerting other nearby persons. Attempt to stop the spill at the source, if possible. Without taking unnecessary risks, personnel will attempt to stop the spill at the source. This may involve activities such as uprighting a drum, closing a valve or temporarily sealing a hole with a plug.

The Emergency Coordinator will be notified of the spill/release, including information on material spilled, quantity, personnel injuries and immediate life threatening hazards. Air monitoring will be implemented by the emergency coordinator and UXOSO to determine the potential impact on the surrounding community. Notification procedures will be followed to inform on-site personnel and off-site agencies. The emergency coordinator will make a rapid assessment of the spill/release and direct confinement, containment and control measures. Depending upon the nature of the spill, measures may include:

- ◆ Construction of a temporary containment berm utilizing on-site clay absorbent earth
- ◆ Digging a sump, installing a polyethylene liner and
- ◆ Diverting the spill material into the sump placing drums under the leak to collect the spilling material before it flows over the ground

- ◆ Transferring the material from its original container to another container

The Emergency Coordinator will notify the LANTDIV PM of the spill and steps taken to institute clean up. Emergency response personnel will clean up all spills following the spill clean-up plan developed by the emergency coordinator. Supplies necessary to clean up a spill will be immediately available on-site. Such items may include, but are not limited to:

- ◆ Shovel, rake
- ◆ Polyethylene liner
- ◆ Personal safety equipment
- ◆ Steel drums
- ◆ Miscellaneous hand tools

The major supply of material and equipment will be located in the Support Zone. Smaller supplies will be kept at active work locations. The emergency coordinator will inspect the spill site to determine that the spill has been cleaned up to the satisfaction of the LANTDIV PM. If necessary, soil, water or air samples may be taken and analyzed to demonstrate the effectiveness of the spill clean-up effort. The emergency coordinator will determine the cause of the spill and determine remedial steps to ensure that recurrence is prevented. The emergency coordinator will review the cause with the LANTDIV PM and obtain his concurrence with the remedial action plan.

12.0 BLOOD-BORNE PATHOGEN EXPOSURE CONTROL PLAN

Blood-borne pathogens are microorganisms (i.e., bacteria, virus) sometimes present in blood and certain body fluids, which are capable of causing human disease or death. These pathogens can also be present on objects and surfaces that have had contact with infected blood or certain body fluids. Blood-borne pathogens are also capable of causing human disease or death to unprotected people who come into contact with infected blood or body fluids. Diseases caused by blood-borne pathogens include, but are not limited to, hepatitis A, hepatitis B, hepatitis C, malaria, acquired immunodeficiency syndrome (AIDS), and other sexually transmitted diseases. The most significant of these and of greatest concern are hepatitis B and AIDS.

Hepatitis B is a serious disease caused by hepatitis B virus (HBV), which attacks the liver. The virus can cause lifelong infection, cirrhosis (scarring) of the liver, liver cancer, liver failure, and death. Exposure symptoms include fever, fatigue, nausea, vomiting, muscle aches, loss of appetite, and jaundice (yellowing of the eyes or skin). Hepatitis diagnosis is difficult because some symptoms are similar to the flu and may remain mild for an extended period of time. The HBV can remain infectious for up to 10-days, even in dried blood. Hepatitis B vaccine is available for all age groups to prevent hepatitis B virus infection.

Human immunodeficiency virus (HIV) is the virus that causes AIDS. People with HIV have what is called HIV infection. Some of these people will develop AIDS as a result of their HIV infection. Humans may be infected with HIV for many years without experiencing any symptoms. Upon development of AIDS, symptoms may include weight loss, skin lesions, dry cough, fever, fatigue, diarrhea, swelling of the lymph glands, and death. Presently, no cure exists for HIV or AIDS, and no vaccination is currently available.

A hazard exists for blood and other bodily fluids to be infected with dangerous, infectious pathogens. Employees could become infected if they are exposed to these blood-borne pathogens.

The purpose of this Blood-borne Pathogen Exposure Control Plan is to provide the information, procedures, and requirements necessary to prevent employee exposure to blood-borne pathogens.

12.1 Regulatory, Requirement, and Policy Compliance

This Blood-borne Pathogen Exposure Control Plan has been prepared in compliance with:

- ◆ 29 CFR 1910.1030, Blood-borne Pathogens
- ◆ Safety & Health Requirements Manual, EM 385-1-1 (USACE, 3 November 2003), Section A.03.06

12.2 Universal Precautions

Universal precautions is a method of infection control, which operates on the assumption that all human blood and bodily fluids are to be treated as if they are known to be infectious for HIV, HBV, or other blood-borne pathogens. Universal precautions will be observed to prevent contact with blood or other potentially infectious materials. Universal precautions consist of the following practices:

- ◆ All workers will routinely use appropriate barrier precautions to prevent skin and mucous-membrane exposure when contact with blood or other body fluids is anticipated. Gloves should be worn for touching blood and body fluids, mucous membranes, or non-intact skin and for handling items or surfaces contaminated with blood or body fluids. Masks and protective eye wear or face shields will be worn during procedures that are likely to generate droplets of blood or other body fluids to prevent exposure of mucous membranes of the mouth, nose, and eyes. Protective suits will be worn during procedures that are likely to generate splashes of blood or other body fluids.
- ◆ Hands and other skin surfaces will be washed immediately and thoroughly if contaminated with blood or other body fluids. Hands will be washed immediately after gloves are removed, using a disinfectant soap.
- ◆ CPR barriers or other ventilation devices will be available for use in areas in which the need for resuscitation is foreseeable.
- ◆ Workers who have exudative lesions or weeping dermatitis will be excluded from handling potentially infectious materials until the condition resolves.
- ◆ Pregnant workers should be especially familiar with and strictly adhere to precautions to minimize the risk of transmission.

12.3 Medical Requirements

Employees receive medical evaluations in accordance with ADVENT Procedure HS100 *Medical Policies and Procedures*. The medical requirements of this exposure control plan include provisions for vaccinations to all exposed employees as well as for post-exposure procedures and evaluation.

12.4 Hazard Communication

There are regulatory requirements for labels, signs, and training. The provisions and exceptions for these are contained in the subsections below.

12.4.1 Warning Labels

Containers used for disposal of blood-contaminated supplies and waste will be labeled in accordance with the word "biohazard." The following symbol must be an integral part of the label:



12.4.2 Warning Signs

There are no designated areas for medical treatment on-site as first aid is provided on an emergency basis only; therefore, warning signs are not applicable. In cases of potential exposure, observers and nonessential personnel should be verbally warned to keep a safe distance from injured personnel.

12.4.3 Employee Training Program

All employees who are first aid/CPR trained and may provide assistance shall be trained in the requirements for voluntary providers as described in HS512, *Handling Blood and Other Potentially Infectious Materials* this SHERP and its addenda, and the general provisions of this procedure.

12.5 Record-Keeping

There are federal record-keeping requirements for training, medical, and incident reporting documentation. The provisions for keeping these records are contained in the subsections below.

12.5.1 Training Records

All employees covered under this exposure plan will be trained as required. A record of the training will be appropriately generated. The training record will contain the date of the training session(s), the contents or a summary of the training session(s), the names of persons conducting the training, and the names of all persons attending the training sessions.

The training records will be maintained by the ADVENT Training Department for at least five years from the training date.

12.5.2 Medical Records

Medical records necessary for ADVENT employees will include documentation of HBV vaccination status, medical follow-up, post-exposure testing, and a medical professional's written evaluation.

The employee medical records will be forwarded to and maintained by ADVENT for inclusion in the employee's medical file. Confidentiality of all medical records shall be maintained.

ADVENT maintains employee medical records for the duration of the employee's employment plus 30 years thereafter. If, for whatever reason, ADVENT no longer does business and no successor exists, ADVENT will notify the director of NIOSH in writing three months prior to the disposal of records. If so directed, the records shall be transferred to the director of NIOSH..

12.5.3 Incident Recording

An incident that occurs as a result of rendering emergency medical care will be recorded on the OSHA 300 log as OSHA defines work-related injuries and illnesses. All injuries involving the release of blood or bodily fluids must be immediately reported to the HSM for proper reporting and follow-up.

12.6 Plan Review and Update

This Blood-borne Pathogen Exposure Control Plan will be reviewed and updated on an annual basis.

APPENDIX A

**MATERIAL SAFETY DATA SHEETS
(To be inserted at project start up.)**

APPENDIX B

HEALTH & SAFETY PLAN ACKNOWLEDGEMENT

APPENDIX C

ACTIVITY HAZARD ANALYSES

Activity Hazard Analysis for Unexploded Ordnance Operations		
Principal Steps	Potential Hazards	Recommended Controls
Transportation of explosive materials	Accidental detonation of explosives	<p>Explosives will be transported in accordance with the 49, CFR, Parts 100-199.</p> <p>Explosives will be transported in closed vehicles whenever possible.</p> <p>When using an open vehicle, explosives will be covered with a flame resistant tarpaulin.</p>
Transportation of explosive materials	Unqualified Drivers	<p>Motor vehicles will be shut off when loading/unloading explosives.</p> <p>Beds of vehicles will have either a nonconductive bed liner, dunnage, or sand bags to protect the explosives from contact with the metal bed and fittings.</p> <p>Initiating explosives, such as blasting caps, will remain separated at all times from bulk explosives.</p> <p>Each vehicle used for the transport of MEC will be outfitted with a fire extinguisher and first aid kit.</p> <p>Do not fuel trucks when loaded with MEC.</p> <p>Drivers operating outside the boundaries of any federal installation will be licensed in accordance with federal, state, and local regulations.</p> <p>Drivers will observe all posted speed limits while operating a motor vehicle on a public roadway.</p> <p>Vehicles transporting explosives off-road will not exceed 15 miles per hour (mph).</p> <p>Chock wheels when loading or unloading</p>

Activity Hazard Analysis for Unexploded Ordnance Operations		
Principal Steps	Potential Hazards	Recommended Controls
Transportation of explosive materials	Vehicle Operations	MEC-related material.
Storage of explosive materials	Accidental detonation of explosives	Materials will be stored in accordance with federal, state, and local regulations. Refer to the SOP for the Storage of Explosive Materials.
Surveying and establishing boundaries and grids	Accidental detonation of explosives Wildlife, slips, trips, falls, insects, poisonous plants, use of hand tools	Personnel involved will attend a site-specific MEC recognition class prior to the commencement of any site activities. UXO personnel will escort non-UXO-qualified personnel at all times. Mark and avoid MEC. Only UXO personnel will handle MEC waste. Check location with magnetometer prior to driving stakes. Refer to the Activity Hazard Analysis for section of this SSHP.

Activity Hazard Analysis for Unexploded Ordnance Operations		
Principal Steps	Potential Hazards	Recommended Controls
Clearing and grubbing	Accidental detonation of explosives	<p>Personnel involved will attend a site-specific MEC recognition class prior to the commencement of any site activities.</p> <p>Be alert and mark all MEC located.</p> <p>Only clear and grub to within 4 inches of the ground surface.</p> <p>UXO trained personnel will escort non-UXO-qualified personnel at all times.</p> <p>Surface sweeps will be conducted with magnetometers or other suitable geophysical instrumentation to identify potential MEC.</p>
Transportation of MEC waste	<p>Accidental detonation of explosives</p> <p>Vehicle Operations</p>	<p>No personnel allowed in cargo compartment of vehicle transporting MEC.</p> <p>No MEC allowed in passenger compartment of vehicle.</p> <p>Block, brace, secure MEC.</p> <p>No smoking in vehicles used for transport of MEC waste.</p> <p>Placard vehicle in accordance with U.S. Department of Transportation (DOT) regulations.</p> <p>Vehicles transporting explosives off-road will not exceed 15 mph.</p>

Activity Hazard Analysis for Unexploded Ordnance Operations		
Principal Steps	Potential Hazards	Recommended Controls
		Drivers will observe all posted speed limits while operating a motor vehicle on a public roadway.
MEC disposal operations	Accidental detonation of explosives Exposure to Depleted Uranium (DU)	Observe procedures outlined in EODB 60A-1-1-31. Training to recognize the visual characteristics of weathered DU. Suspected DU will be screened using a Radiac.
MPPEH demilitarization	Accidental detonation of explosives Shredder Operations	Only UXO technicians will perform explosive demilitarization of MPPEH. Stay clear of moving mechanical parts. Ensure that only inspected scrap is fed into shredder.
Inspection/certification of ORS	Accidental detonation of explosives	Only UXO technicians will inspect MPPEH. Personnel in the immediate vicinity of MPPEH inspections will be kept to the minimum necessary for safe operations but no less than two UXO technicians. Observe requirements of DoD 4160.21-M-1.
Anomaly reacquisition	Accidental detonation	Only UXO technicians will excavate or handle MEC. Personnel in the immediate vicinity of MEC operations will be kept to the minimum necessary for safe operations, but no less than two UXO technicians. Do not subject MEC to heat, shock, or friction. Only hand excavation permitted when within 1 ft of MEC. Magnetometers will be used

Activity Hazard Analysis for Unexploded Ordnance Operations		
Principal Steps	Potential Hazards	Recommended Controls
	Non-UXO personnel	Frequently to pinpoint the location of MEC. Establish exclusion zone (EZ); post warning signs, maintain site control. Stop all MEC operations when non-UXO-qualified personnel are within the EZ.
Clearing and grubbing of vegetation	Cutting tools, chain saws, weed cutters	Eye, hand, foot, and hearing protection (Level D). Face shield and chaps will be worn by chain saw operations. Personnel using chain saws, cutting tools, and weed cutters must provide safe distance between workers and be cautious of tools.
Only the UXO subcontractor will transport MEC material and explosives		

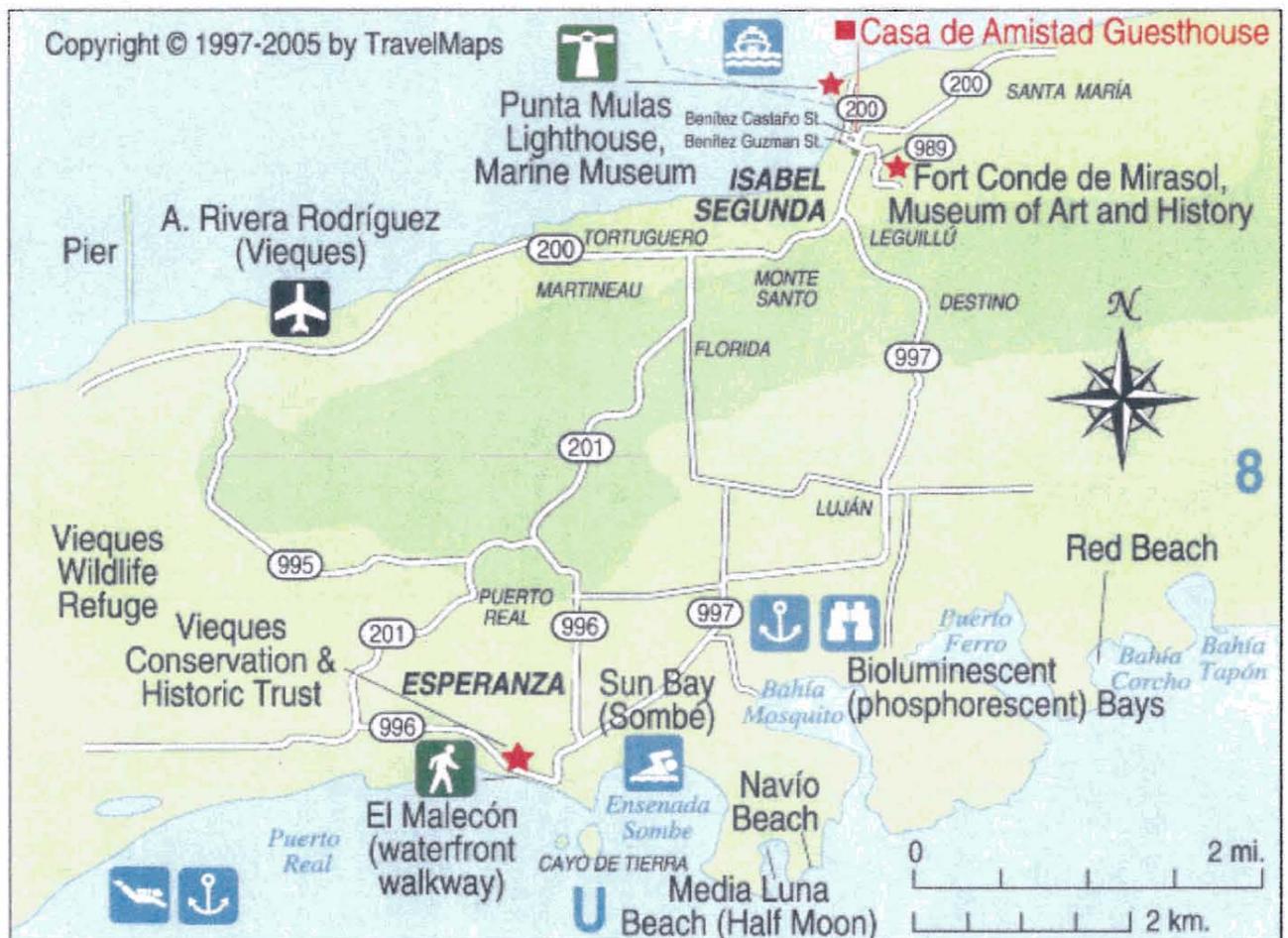
Equipment to be used	Inspection Requirements	Training Requirements
Vehicles Fire extinguishers First aid kits Demolition materials Explosives Blocking, bracing, and cushioning tools Manual hand tools Mechanized equipment EMM Geophysical instrumentation Global Positioning System instrumentation PPE Communication equipment	Daily preventive maintenance and operational checks First aid kits Calibration of geophysical instrumentation	40-hour qualification per 29CFR 1910.120 8-hour refresher UXO personnel EOD trained Tailgate safety meetings Site-specific orientation Lead awareness training Poison oak awareness training

APPENDIX D

ROUTE TO HOSPITAL

Route to Centro de Salud Familiar Susana Centeno
Carr. 997 Kilometer 1 Ht.0
Bo. Destino
Vieques, Puerto Rico
787.741.2151

VIEQUES ISLAND MAP



Exit the VNTR via the main road passing Camp Garcia on the right. At the intersection of Highway 997 turn right. Head north on Hwy 997 for approximately 2 miles. The hospital is on the right.

If you reach the intersection of Hwy 997 or Hwy 200 you have driven too far north.

APPENDIX E

PROGRAM SAFETY AND HEALTH PLAN AMENDMENT DOCUMENTATION FORM

**PHSP SPECIFIC SAFETY AND HEALTH PLAN
AMENDMENT DOCUMENTATION**
(Note: All Amendments must be reviewed and approved)

Project Name: _____ **Project No.:** _____

Amendment No.: _____ **Date:** _____

Amendment Revises: Page: _____ **Section:** _____

Task(s) Amendment Affects:* _____

Reason For Amendment:

Amendment: *(Attach separate sheet(s) as necessary)*

Completed by: _____ **Approved by:** _____

APPENDIX F

ACCIDENT PREVENTION PLAN

Accident Prevention Plan

**Surface Munitions of Explosives Concern at Munitions
Response Area-Live Impact Area, Munitions Response Sites
1 through 4, 6, 16, 17, and 30**

**Former Vieques Naval Training Range (VNTR)
Vieques, Puerto Rico**

Prepared for:

**Department of the Navy
Atlantic Division
Naval Facilities Engineering Command**

**Contract Task Order 002
Contract Number**

N624670-02-D-9992

Prepared by:



ADVENT Environmental
498 Wando Park Blvd, Suite 500
Mt. Pleasant, South Carolina 29464

April 2005
ADVENT Job Number 04-529

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LIST OF ACRONYMS

ADVENT	ADVENT Environmental, Inc.
AHA	Activity Hazard Analysis
ANSI	American National Standards Institute
APP	Accident Prevention Plan
ASTM	American Society for Testing and Materials
CD	Compact Disc
CFR	Code of Federal Regulations
CIH	Certified Industrial Hygienist
DoD	Department of Defense
EH&S	Environmental Health and Safety
EMR	Experience Modification Rate
EMS	Emergency Medical Services
EZ	Exclusion Zone
HPP	Hurricane Preparedness Plan
HS	Health and Safety
MSDS	Material Safety Data Sheet
NIOSH	National Institute for Safety and Health
OSHA	Occupational Safety and Health Administration
PPE	Personal Protective Equipment
SSHP	Site-specific Health and Safety Plan
SUXOS	Senior Unexploded Ordnance Supervisor
USACE	United States Army Corps of Engineers
UXOSO	Unexploded Ordnance Safety Officer

ACCIDENT PREVENTION PLAN SIGNATURE SHEET

Plan Preparer: _____

Date: _____

Approved by: _____

Date: _____

Concurred by: _____

Date: _____

1.0 INTRODUCTION

The primary site tasks include the following:

- ◆ Site Layout
- ◆ Surface Geophysical Surveys
 - Magnetic
 - Electromagnetic
- ◆ Vegetation Removal
- ◆ Anomaly Reacquisition

Activity Hazard Analyses (AHAs) have been prepared for the above activities and are included in Attachment C of the Site-specific Safety and Health Plan (SSHP)..

ADVENT Environmental, Inc. (ADVENT) Accident Experience

Year	Experience Modification Rate (EMR) (Interstate)	OSHA Recordable Incident Rate
2003	_____	10.4*
2002	.95	7.94
2001	.83	0

* - High rate due to a single incident (spider bite) when ADVENT had only 10 employees

2.0 STATEMENT OF SAFETY AND HEALTH POLICY

Corporate Safety Statement

ADVENT Environmental Inc. is committed to operating all of its projects in a safe, efficient manner and in compliance with all applicable safety, health and environmental regulations. Our goal is to provide an injury free work environment where people, equipment and the environment are not placed at unreasonable risk of injury or damage.

The most valuable resource we have is our people. While quality and productivity are critical to our operations, they will never take precedence over the safety of personnel or protection of the environment. Ensuring the safety of all employees requires diligent planning and a commitment from all levels of the organization. Safety must receive the same level of attention as quality and productivity.

The Site Health & Safety Plan has been developed to guide us in our daily activities. Teamwork and compliance with our safety standards, procedures and rules will help us achieve our goal of an injury free work environment. Cooperation and active participation in ADVENT Environmental Inc.'s safety process is expected and appreciated, anything less is unacceptable.

3.0 RESPONSIBILITIES AND LINES OF AUTHORITY

Safety responsibilities, accountability and lines of authority are discussed in Section 2.0 of the SSHP. The Project Manager (PM), UXO Safety Officer (UXOSO) and Health and Safety Manager (HSM) are responsible for formulating and enforcing health and safety requirements, and implementing the SSHP.

4.0 SUBCONTRACTORS AND SUPPLIERS

Each subcontractor working on the project site will be required to adhere to the SSHP and the requirements presented below.

4.1 Subcontractor/Supplier Coordination and Control

All subcontractors will be screened for safety performance and compliance with Federal Alcohol and Drug testing requirements prior to being issued any contract for site work. Subcontractors will comply with the requirements for site safety as outlined in ADVENT's Health and Safety (HS) Procedures. The UXOSO will be responsible for the conduct and control of ADVENT subcontractors.

4.2 Subcontractor/Supplier Safety Responsibilities

All subcontractor employees are subject to the same training and medical surveillance requirements as ADVENT personnel depending on job activity. All activities involving the potential for exposure to hazardous waste materials will require medical and training certification as mandated by 29 Code of Federal Regulations (CFR) 1910.120 and 29 CFR 1926.65. All subcontractor personnel will be required to sign in daily and be required to attend a daily meeting discussing operations and safety issues. Subcontractors will submit AHAs for their work activities to the UXOSO. The subcontractor reports directly to the Project Manager. All incidents involving subcontractor employees shall be reported to the UXOSO and a copy of the subcontractor's injury/illness report shall be submitted to the UXOSO within 24 hours.

Subcontractors are required to read and sign the SSHP and comply with all requirements of this Accident Prevention Plan (APP). Contractors not in compliance will be immediately dismissed from the site.

Suppliers delivering various materials to the project site or providing equipment/ equipment maintenance will comply with all Former VNTR site rules and regulations. Supplier personnel will not be permitted into contaminated areas unless training and medical surveillance is in accordance with 29 CFR 1910.120/1926.65. *Contractors will not ride on tractors, forklifts or similar vehicles unless specific seats are provided.* They will follow facility hot work rules if hot work is required for vehicle or equipment maintenance. Trucks will be loaded and unloaded in a safe and effective manner and materials will be stored safely in designated locations only. Associated packaging will be properly disposed of and litter will not be permitted to be scattered or blown from truck beds. Operators of mobile equipment on site must observe all traffic rules such as speed limits and right-of-ways of pedestrians.

5.0 TRAINING

Outlines of the site safety orientation and training for site personnel, subcontractors and visitors are provided in Section 10.0 of the SSHP.

5.1 Mandatory Training and Certifications

Mandatory training and certifications are discussed in Section 10.0 of the SSHP.

5.2 Emergency Response Training

All ADVENT personnel who have completed the 40-hour HAZWOPER training are qualified as emergency responders per 29 CFR 1910.120/1926.65 (e)(3)(iv). Site Specific Emergency Response Procedures will be reviewed with all site personnel as a part of site indoctrination.

5.3 Supervisory and Employee Safety Meetings

The ADVENT UXOSO will conduct daily safety meetings at the start of each work shift for on-site personnel and will require subcontractors to follow similar meeting procedures or participate in the ADVENT daily safety meetings.

6.0 HEALTH AND SAFETY INSPECTIONS

6.1 Inspections

The UXOSO is responsible for conducting and preparing reports of daily safety inspections of work processes, site conditions, and equipment conditions and submitting them to the Project manager. The UXOSO will discuss any necessary corrective actions with the PM and review new procedures. Copies of these reports are maintained on file at the project locations.

The ADVENT HSM representative will periodically conduct site visits and perform Site Safety Assessments. These reports are kept on file at the Mt. Pleasant SC, office and are tracked in a database for each ADVENT Project Manager, including the number of action items noted during the visit and written confirmation of the corrective actions for each item. These responses are compiled and provided to program management for review.

6.2 External Inspections/Certifications

ADVENT does not anticipate, but may consider the use of outside sources, to provide safety inspections on an as necessary basis.

As required, safety equipment will comply with appropriate regulations of OSHA (Occupational Safety and Health Administration), NIOSH (National Institute for Occupational Safety and Health), ANSI (American National Standards Institute), ASTM (American Society for Testing and Materials), United States Coast Guard (USCG), or other recognized certification organizations.

7.0 SAFETY AND HEALTH EXPECTATIONS, INCENTIVE PROGRAMS AND COMPLIANCE

ADVENT considers safety the highest priority during work at a site containing potentially hazardous materials and has established a goal of zero incidents for all projects. All projects will be conducted in a manner that minimizes the probability of near misses, equipment/property damage or injury. ADVENT will establish programs to recognize people and projects that demonstrate excellence in safety performance. ADVENT will use safety observation programs to identify and correct unsafe acts and conditions. Safety awareness programs will be used to provide continuous training and development of good safety practices. ADVENT site supervision will investigate all incidents to determine root causes and institute corrective actions to prevent recurrence. ADVENT will provide and enforce safety rules to protect employees, subcontractors, clients and the public.

7.1 ADVENT Safety Incentive Programs

A copy of the ADVENT Safety Incentive Award Program will be available at each project. The ADVENT Project Manager will develop a site-specific program within 10 days of project mobilization.

7.2 ADVENT Employee Safety Responsibility Requirements

Each employee is responsible for personal safety as well as the safety of others in the area and is expected to participate fully in the Safety Improvement Process. The employee will use all equipment provided in a safe and responsible manner as directed by the UXOSO. All ADVENT personnel will follow the policies set forth in the ADVENT Health and Safety Procedures. Site personnel concerned with any aspect of health and safety shall bring it to the attention of the SS/SSHO. If not satisfied, they should contact the HSM. All project personnel have the authority to stop work if in their judgment, serious injury could result from continued activity. The UXOSO shall be notified immediately if this becomes necessary. To protect the health and safety of all personnel, employees that knowingly disregard safety policies/procedures may be subject to disciplinary actions up to and including termination.

7.3 Managers and Supervisors Safety Accountability

It is the duty of the supervisor to motivate employees to adhere to ADVENT's safety policy in each work situation. A first line supervisor for these purposes is defined as that person designated to give immediate on-site supervision to personnel involved in a task.

All supervisors shall have complete knowledge of the safe procedure for all jobs and tasks under their supervision, or when in doubt, shall seek assistance prior to initiating a task. This is the only acceptable manner in which to perform the task. If the task cannot be accomplished safely, it will not be attempted.

Supervisors will:

- ◆ Explain the safety procedure involved with a task to each employee and check frequently to see that the employee understands and works as instructed.
- ◆ Allocate sufficient time for the training and coaching of all employees to insure that everyone knows the correct procedure for safely accomplishing required tasks.
- ◆ Prevent new employees from performing any tasks until required training is completed.
- ◆ Immediately correct unsafe conditions that involved site employees or contractors.

- ◆ Ensure that the employees are outfitted with and wear personal protective equipment (PPE) as specified by this APP, SSHP, other ADVENT procedures or as directed by the PM.
- ◆ Set a good safety example.
- ◆ Obtain the cooperation of employees and contractors.
- ◆ Provide a safe work environment for employees and contractors.
- ◆ Confirm contractor safety performance records have been verified prior to contract award and monitor contractor performance during operations.
- ◆ Report all accidents, near misses and property damage in accordance with the Incident Management and Reporting Procedure.
- ◆ Establish a safety culture, using the elements of the ADVENT Safety Improvement process, which promotes awareness, encourages participation and recognizes excellence.

8.0 ACCIDENT REPORTING

8.1 Exposure Data (Man Hours Worked)

The ADVENT's Project Manager tracks and maintains incident records as to Federal reporting requirement. Incident rates are reported monthly. Incident Rates and Workers Compensation losses are tracked for each business line. Additionally, man-hours will be submitted monthly on the COR representative.

8.2 Accident Investigations, Reports, and Logs

The UXOSO conducts accident/incident investigations. A report is completed by the UXOSO and it must be submitted to the ADVENT Safety Department and the COR representative within 24 hours.

8.3 Immediate Notification of Major Incidents

ADVENT will immediately notify the client of any major incident, including injury, fire, equipment/ property damage, and environmental incident. A full report, including the Contractor's Significant Report (CSIR), will be provided within 24 hours. The following procedure will be followed in response to any major personal injury.

8.4 Accident Response

The nearest workers will immediately assist a person who shows signs of medical distress or who is involved in an accident. The work crew supervisor will be summoned.

The work crew supervisor will immediately make radio contact with the SS to alert him of a medical emergency situation. The work crew supervisor will advise the following information:

- ◆ Location of the victim at the work site
- ◆ Nature of the emergency
- ◆ Whether the victim is conscious
- ◆ Specific conditions contributing to the injury, if known.

9.0 MEDICAL SUPPORT

On-site Medical Support/Off-site Medical Arrangements are outlined in Section 9.0 of the SSHP.

10.0 PERSONNEL PROTECTIVE EQUIPMENT

Protection levels provided in the SSHP are established for the site work activities based on the levels of site contaminants and the scope of work. Once on-site, results of air monitoring and visual inspection of the work activities may indicate the need for changes in these PPE level(s). Any significant change in the PPE level will be approved by the UXOSO in consultation with the HSM.

All personnel using respiratory protection will be cleared by a physician for use of a respirator and will be fit-tested to assure they can achieve an acceptable fit. Physician clearance and results of fit testing will be documented as required by OSHA

11.0 PLANS REQUIRED BY THE SAFETY MANUAL

11.1 Hazard Communication Program

The Site-Specific Hazard Communication Program is included Section 4.0 of the SSHP. ADVENT Hazard Communication Program complies with 29 CFR 1926.59/1910.1200.

11.2 Emergency Response Plans

The Emergency Response and Contingency Plan is included in Section 9.0 of the SSHP.

11.3 Layout Plans

Work zones are defined in Section 5.0 of the SSHP.

11.4 Respiratory Protection Plan

The primary objective of respiratory protection is to prevent employee exposure to atmospheric contamination. When engineering measures to control contamination are not feasible, or while they are being implemented, personal respiratory protective devices will be used.

The criteria for determining respirator need have been evaluated based on the site contaminants. Air monitoring will be conducted to confirm that respiratory protection levels are adequate. All respirator users will be OSHA trained in proper respirator use and maintenance. The UXOSO will observe workers during respirator use for signs of stress. The UXOSO and the PM will also evaluate the implementation of the SSHP, periodically, to determine its continued effectiveness with regard to respiratory protection. All persons assigned to use respirators will have medical clearance to do so.

11.5 Contingency Plan for Severe Weather

Contingency plans for severe weather are included in Section 9.0 of SSHP. A Hurricane Preparedness Plan (HPP) is located in Attachment G of the SSHP.

11.6 Alcohol and Drug Abuse Prevention Plan

It is ADVENT's desire to provide a drug-free, healthful, and workplace. To promote this goal, employees are required to report to work in appropriate mental and physical condition to perform their jobs in a satisfactory manner.

While on ADVENT premises and while conducting business-related activities off ADVENT premises, no employee may use, possess, distribute, sell, or be under the influence of alcohol or illegal drugs. The legal use of prescribed drugs is permitted on the job only if it does not impair an employee's ability to perform the essential functions of the job effectively and in a safe manner that does not endanger other individuals in the workplace.

Violations of this policy may lead to disciplinary action, up to and including immediate termination of employment, and/or required to participation in a substance abuse rehabilitation or treatment program.

ADVENT reserves the right to contact appropriate law enforcement agencies. Such Violations may also have legal consequences.

Under the Drug-Free Workplace Act, an employee who performs work for a government contract or grant must notify ADVENT of criminal conviction for drug-related activities occurring in the workplace. The report must be made within five days of the conviction.

Employees with questions on this policy or issues related to drug or alcohol use in the workplace should raise their concerns with their supervisor or the Branch Manager without fear of reprisal.

12.0 CONTRACTOR INFORMATION TO MEET THE REQUIREMENTS OF THE MAJOR SECTIONS OF EM 385-1-1

In addition to this APP, ADVENT has prepared a SSHP to meet the major requirements of United States Army Corps of Engineers (USACE) Manual 385-1-1. Additional procedures for major requirements are provided in the ADVENT Health and Safety Procedures Manual.

APPENDIX G

HURRICANE PREPAREDNESS PLAN

Hurricane Preparedness Plan

**Surface Munitions of Explosives Concern at Munitions
Response Area-Live Impact Area, Munitions Response Sites
1 through 4, 6, 16, 17, and 30**

**Former Vieques Naval Training Range (VNTR)
Vieques, Puerto Rico**

Prepared for:

**Department of the Navy
Atlantic Division
Naval Facilities Engineering Command**

**Contract Task Order 002
Contract Number**

N624670-02-D-9992

Prepared by:



ADVENT Environmental
498 Wando Park Blvd, Suite 500
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April 2005
ADVENT Job Number 04-529

Acronym List

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ATTACHMENTS

Attachment A	Hurricane Preparedness Responsibility Checklists
	Hurricane Preparedness Checklist
	Condition V – Hurricane Preparedness Checklist
	Condition IV (Landfill within 72 hours) – Hurricane Preparedness Checklist
	Condition III (Landfill within 48 hours) – Hurricane Preparedness Checklist
	Condition II – Hurricane Preparedness Checklist
	Condition I – Hurricane Preparedness Checklist
	Resume Site Operations –Hurricane Preparedness Checklist
Attachment B	Hurricane Tracking Map

Hurricane Preparedness Plan Signature Sheet

Approved by: _____

Date: _____

1.0 Introduction

1.1 Purpose

This procedure outlines the general responsibilities and actions to be taken in preparation for and response to a hurricane or hurricane warnings at the Former VNTR at Vieques, Puerto Rico site. All personnel should understand that predicting the occurrence and path of a hurricane is difficult, however the risk can be minimized and controlled by following the procedures in this plan.

1.2 Scope

This procedure is applicable to all contractor personnel, including ADVENT's subcontractors, temporary construction facilities, and remediation equipment present at the Former VNTR at Vieques, Puerto Rico site.

1.3 Discussion

This procedure provides information on how to protect personnel and property in the event of a hurricane. In the Vieques, Puerto Rico area, attention must be paid to all hurricanes, since there is no way to determine with 100 percent accuracy whether a hurricane will actually hit the area until a few hours before landfall.

The following table demonstrates that the accuracy of forecasting where a hurricane landfall will occur is very low more than 24 hours in advance of a storm.

Hours Before Landfall	Maximum Probability Values
72 Hours	10 Percent
48 Hours	13-18 Percent
36 Hours	20-25 Percent
24 Hours	35-45 Percent
12 Hours	60-70 Percent

2.0 Definitions

The following definitions apply to various terms used in this document.

2.1 Conditions of Readiness (CORS)

Term	Definition
Condition V	Destructive winds are possible at the Former VNTR at Vieques, Puerto Rico site within 96 hours. Normal daily jobsite cleanup and good housekeeping practices.
Condition IV	Destructive winds are possible at the Former VNTR at Vieques, Puerto Rico site within 72 hours. Normal daily jobsite cleanup and good housekeeping practices. Collect and store in piles or containers, scrap lumber, waste material, and rubbish for removal and disposal at the end of each work day. Maintain the construction site, including storage areas, free of accumulation of debris. Stack form lumber in neat piles less than 4 feet high. Remove all trash debris and other objects which could become missile hazards. Contact client representative for Condition requirements, updates, and completion of required actions.
Condition III	Destructive winds are possible at the Former VNTR at Vieques, Puerto Rico site within 48 hours. Maintain Condition IV requirements. Begin securing the jobsite for and taking those actions necessary for Condition I, which cannot be completed within 18 hours. Cease all routine activities which might interfere with securing operations. Begin collecting and stowing all gear and portable equipment. Make preparations for securing buildings. Review requirements pertaining to Condition II and continue action as necessary to attain Condition III readiness. Contact the weather station on base for weather and COR updates and completion of required actions.
Condition II	Destructive winds are possible at the Former VNTR at Vieques, Puerto Rico site within 24 hours or a Small Area Storm is anticipated within 6 hours. Curtail or cease routine activities until securing operations are complete. Reinforce or remove form work and scaffolding. Secure machinery, tools, equipment and materials, or remove from job site. Expend every effort to clear all missile hazards and loose equipment from the jobsite. Contact client representative for weather and COR updates and completion of required actions.
Condition I	Destructive winds are possible at the Former VNTR at Vieques, Puerto Rico site within 12 hours or a Small Area Storm is imminent within 1 hour. Perform and complete all remaining actions required for lower conditions of readiness. Secure the jobsite and leave the government premises.
Destructive Winds	Generally winds reaching or exceeding the force of a tropical storm (> 39 mph or 34 knots). Winds from any storm system (tropical or otherwise) that are determined to have the potential to cause property damage or personal injury which would warrant the Former VNTR at Vieques, Puerto Rico site to initiate a Condition IV alert.
Gale	Non-tropical windstorm with winds 33 to 55 knots.
Hurricane	A tropical cyclone in which the maximum sustained surface wind is 64 knots (74 MPH) or greater.
Hurricane Watch	An announcement for specific areas where a hurricane or an incipient hurricane poses a possible threat to a coastal area, generally within 36 hours.
Hurricane Warning	A warning that sustained winds of 74 MPH (64 knots) or higher, associated with a hurricane are expected in a specified coastal area in 24 hours or less.
Missile Hazard	Any object that may become airborne during high winds.
Severe Weather	Any storm of tropical or non-tropical origin that has the capacity to produce destructive winds
Small Area Storms	Thunderstorms or tornadoes.
Small Area Storms Condition II	Destructive winds, heavy rain, lightening and hail are expected within 6-hours.
Small Area Storms Condition I	Destructive winds, heavy rain, lightening and hail are imminent within 1-hour.
Storm	Non-tropical windstorm with winds 33 to 55 knots.

2.0 Definitions

Term	Definition
Storm Surge	An abnormal rise in sea level accompanying a hurricane or other intense storm, and whose height is the difference between the observed level of the sea surface and the level that would have occurred in the absence of the storm.
Storm Tide	The actual sea level resulting from the astronomical tide combined with the storm surge. This term is used interchangeably with "Hurricane Tide."
Tornado	Violent rotating columns of air with winds 100 to 250 knots.
Tropical Depression	A tropical low pressure system in which the maximum sustained surface wind is 33 knots (38 MPH) or less.
Tropical Storm	A tropical low pressure system in which the maximum surface wind ranges from 34 to 63 knots (39 to 73 MPH) inclusive. This is the strength at which the National Hurricane Center applies a name to the storm.
Tropical Storm Watch	Tropical storm conditions pose a threat to a coastal area generally within 36 hours.
Tropical Storm Warning	A warning for tropical storm conditions with sustained winds within the range of 39 to 73 MPH which are expected in a specified coastal area within 24 hours or less.

3.0 Responsibilities

Project Management-Mr. Larry Fowler and Mr. Brian Thompson

The Project Manager (PM) is responsible for ensuring that all adequate measures have been taken to prepare for hurricanes and to protect ADVENT site personnel and property in the event of a hurricane. The PM will ensure that ample resources are available to implement this plan and that all personnel are aware of this plan and their responsibilities.

UXO Safety Officer-

The UXO Safety Officer (UXOSO) will monitor weather information, including the National Weather Service probability values for landfall. The UXOS will maintain the necessary emergency supplies, and will periodically tour the site to ensure that proper steps are being taken to protect site personnel and property. The UXOSO will develop the emergency contact list and post the list in a prominent area in the office trailer. The UXOSO will communicate all hurricane information to site personnel, and keep the site personnel continually informed of the measures to be taken. The UXOSO is responsible for the coordination and direction of site equipment shut down and will oversee the preparation of site facilities for any imminent storm. The UXOSO will oversee the coordination of both pre- and post-storm operations and will ensure that the proper material, equipment, and supplies are utilized to implement this procedure. The UXOSO also responsible for the back up of critical computer files at the site and will oversee the securing of the site computers and project files prior to any storm.

Note: When personnel, identified in Section 3.0 leave the site, they are responsible for notifying the Project Manager of a designated back up person. The back up person will be instructed in their responsibilities in the event of a hurricane.

4.0 Emergency Operating Procedures

4.1 Condition V – Early Preparedness

The UXOSO will notify the PM when a tropical storm has been named and/or any severe weather that has the potential to produce destructive winds at the Former VNTR at Vieques, Puerto Rico site within 96 hours. This will initiate COR Condition V. This phase will continue until:

- ◆ The storm or condition is downgraded
- ◆ The storm track poses no threat to the site
- ◆ Condition IV begins

During Condition V, the progress of the storm will be monitored and tracked. The client will be contacted at least twice daily for Condition Requirements updates and to inform him of completion of required actions for Condition V. See Appendix A for the Hurricane Preparedness Responsibility Punch List – Condition V.

4.2 Condition IV – Destructive winds are possible within 72 Hours

This COR starts when ADVENT is notified by the client representative that severe weather is within 72 hours of posing a threat to the project location. The UXOSO will ensure that the following steps are taken:

- ◆ Monitor the storm and inform the PM of its progress
- ◆ Check PPE supplies and equipment to determine if any shipments are required or if pending shipments should be advanced or postponed

During Condition IV, the progress of the storm will be continuously monitored and tracked. The UXOSO will instruct site personnel to begin general cleanup of all loose materials which may pose a hazard during high winds or rain. This will include removal of all debris, trash, and other debris that may become missile hazards. All form lumber will be stacked in neat piles less than 4 feet high. The client representative will be contacted at least twice daily for Condition Requirements updates and to inform him of completion of required actions for Condition IV.

The UXOSO will keep all site personnel advised of the status of the storm and site preparation activities. Due to the urgency and amount of work involved in preparing for a threatening storm, all construction operations which might interfere with securing operations, such as starting a major excavation, will cease.

The UXOSO will ensure that the following steps are taken:

- ◆ Fill fuel tanks in all equipment on site
- ◆ Secure stockpiled material on site.
- ◆ Make sure all portable generators and light plants are operational and make arrangements to secure additional ones if needed.
- ◆ Review requirements for Condition II with all crew members.
- ◆ Maintain condition IV requirements.

See Appendix A for the Hurricane Preparedness Responsibility Checklist – Condition IV.

4.3 Condition III – Tropical Storm Warning – Destructive winds are possible Within 48 Hours)

This COR starts when severe weather places the project site under a tropical storm warning. Condition III activities will also start if a threatening tropical storm is upgraded to a hurricane, or a severe storm approaching Former VNTR at Vieques, Puerto Rico site has generated destructive winds in other locations. The PM and UXOSO will determine when to cease all operations based upon current weather conditions and/or as directed by the client representative. If the storm or Condition is downgraded, the PM and UXOSO will meet with the client

4.0 Emergency Operating Procedures

to decide if a downgrade of the COR is appropriate. Actions for Condition III will be maintained and the following shall also be completed:

- ◆ Machinery, tools, equipment, and materials will be secured or removed from the site.
- ◆ Take actions to secure jobsite necessary for Condition I that cannot be completed within 18 hours.

See Appendix A for the Hurricane Preparedness Responsibility Checklist – Condition III.

4.4 Condition II – Destructive Winds are anticipated within 24 hours or a small area storm is anticipated within 6 hours.

Condition II begins when destructive winds are anticipated within 24 hours, a small area storm is anticipated in 6 hours, and/or as directed by the LANTDIV RPM. The PM and UXOSO will determine when to demobilize from the site based upon weather conditions. During this phase the UXOSO will:

- ◆ Secure machinery, tools, equipment and materials or remove them from the jobsite.
- ◆ Conduct a roll call of personnel on site and inform the PM
- ◆ Notify personnel, on leave, of schedule changes
- ◆ Personnel needing to leave the project to attend to personal matters will notify the PM immediately.
- ◆ Valuable records, files, and equipment will be boxed in preparation for movement to a safe location.
- ◆ Move large office equipment away from doors and windows
- ◆ Tape or board the windows in the office trailers, if applicable

The PM will ensure that the following step is taken:

- ◆ All visitors from the site are evacuated
- ◆ Make a final site walk through to determine that the site is secure and clear all missile hazards from the jobsite

See Appendix A for the Hurricane Preparedness Responsibility Checklist – Condition II.

4.5 Condition I – Destructive winds are anticipated within 12 hours or a Small Area Storm is imminent within 1 hour

- ◆ Complete all remaining actions required for lower conditions of readiness.
- ◆ Secure jobsite access and evacuate to safe refuge.

See Appendix A for the Hurricane Preparedness Responsibility Checklist – Condition I.

4.6 Resume Site Operations

The PM will contact the client representative to determine when site operations will resume. Although the hurricane/severe weather has passed, hazards may still exist because of water damage, other hazardous conditions, dangers from electric shock, poisonous snakes, etc.

The UXOSO will conduct a damage survey with the PM. Photographs of the storm damage at the site will be taken by the UXOSO. They will develop a prioritized recovery plan from the survey findings. Subsequently, all site personnel will be notified when it is safe to return to work. Required personnel and subcontractor expertise will be mobilized to the site to repair any damaged equipment.

See Appendix A for the Hurricane Preparedness Responsibility Checklist – Resume Site Operations.

5.0 Debriefing

Following the return to work of site personnel, the PM and/or UXOSO will conduct a debriefing with site personnel. The debriefing will accomplish the following objectives:

- ◆ Finalize a recovery plan
- ◆ Review the Hurricane Plan for effectiveness
- ◆ Suggest and agree on improvements to the plan
- ◆ Incorporate plan changes

When completed, the PM and/or UXOSO will meet with site personnel to discuss any corrective actions or changes in this plan.

6.0 References

The following references and sources of information may be consulted for additional guidance on hurricane preparedness and response.

- ◆ Disaster Planning Guide for Business and Industry, Federal Emergency Management Administration (FEMA).
- ◆ U.S. Department of Commerce; National Oceanic and Atmospheric Administration (NOAA)

ATTACHMENT A

HURRICANE PREPAREDNESS RESPONSIBILITY CHECKLISTS

Attachments

HURRICANE PREPAREDNESS CHECKLIST

Condition V

Date/Time Entered Condition V: _____

Severe Weather/Tropical Storm: _____

Action Items:

- Project Manager Notified
- Track of Storm Poses No Threat
- Storm or Condition is Downgraded
- Upgrade to Condition IV

Storm Location:

Date/Time: _____ **Date/Time:** _____

Location/Coordinates: _____ **Location/Coordinates:** _____

Date/Time: _____ **Date/Time:** _____

Location/Coordinates: _____ **Location/Coordinates:** _____

Condition V Action Items Complete: _____

Date: _____

Attachments

HURRICANE PREPAREDNESS CHECKLIST

Condition IV (Landfall within 72 hours)

Date/Time Entered Condition IV: _____

Action Items:

- Notify Project Manager
- Notify Site Personnel
- Assemble personnel to begin preparation
- Track storm on hurricane tracking map (Attachment C) (if applicable)

The Project Foremen will ensure the following steps are taken:

- Secure all heavy equipment located at the site in accordance with manufacturer's specifications.
- All equipment fuel tanks will be filled.
- All subcontractors with equipment or supplies on-site will be notified to begin removal procedures
- Ensure all generators and lights are operational and make arrangements to secure additional ones if needed.

Condition IV Action Items Complete: _____

Date: _____

HURRICANE PREPAREDNESS CHECKLIST

Condition III (Landfall within 48 hours)

Date/Time Entered Condition III: _____

Action Items:

- Provide the status of the storm to site personnel on an hourly basis
- Remove all valuable records, files, and small equipment from the trailers
- Take actions to secure job-site as necessary to complete actions for Condition I that cannot be accomplished in 18 hours
- Recheck all items on checklist IV to ensure they are complete (ie.: gas tanks are still filled)

See itemized equipment checklist (itemized list of equipment to be secured/removed and COR for action)

Condition III Action Items Complete: _____

Date: _____

HURRICANE PREPAREDNESS CHECKLIST

Condition II

Date/Time Entered Condition II: _____

Action Items:

- Evacuate all visitors from the site
- Conduct a role call of site personnel and inform the PM
- Move large office equipment away from doors and windows
- Check the status all incoming shipments of supplies and equipment
- Remove all unnecessary vehicles from the site
- Secure heavy equipment in accordance with manufacturer's specification
- Tape or board trailer windows
- Secure all valuable records and equipment
- Release personnel from the site
- Recheck all items on checklist IV and III to ensure they are complete (ie: gas tanks are still filled)

Condition II Action Items Complete: _____

Date: _____

HURRICANE PREPAREDNESS CHECKLIST

Condition I

Date/Time Entered Condition I: _____

Action Items:

- Complete all action items for lower conditions of readiness
- Secure job-site access and evacuate to safe refuge

Condition I Action Items Complete: _____

Date: _____

HURRICANE PREPAREDNESS CHECKLIST

Resume Site Operations

Date/Time Resume Site Operations: _____

Action Items:

- Conduct a damage survey
- Notify all site personnel when to return to work
- Develop a prioritized recovery plan
- Inspect electrical equipment before re-energizing to detect and repair damage
- Inspect trailers for structural damage. Repair as needed.
- Provide bottled water for drinking until normal drinking water is deemed safe to drink
- Remove storm debris from site
- Notify client representative of the resumption of site activities

Resume Site Operations Action Items Complete: _____

Date: _____

ATTACHMENT B

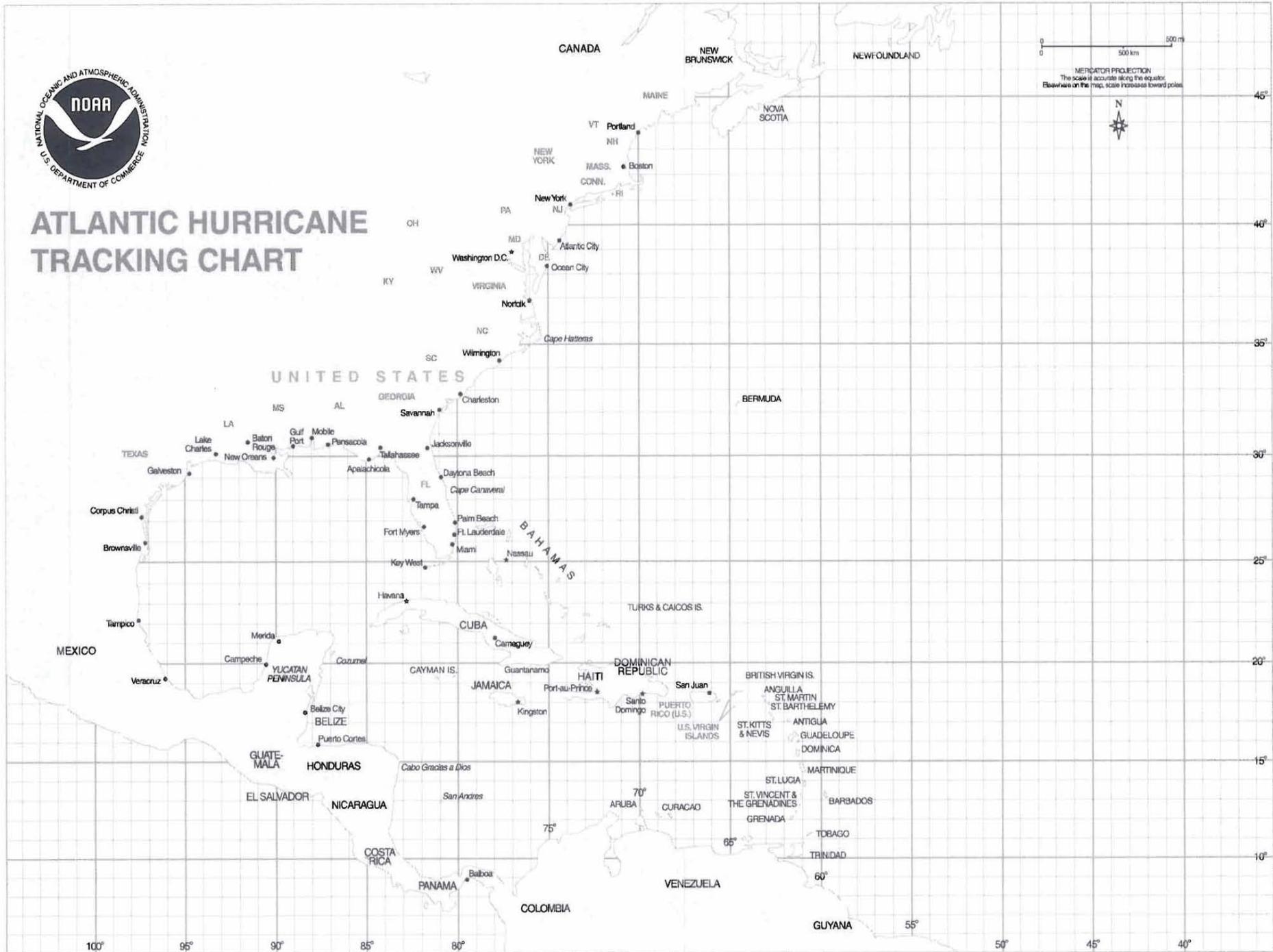
HURRICANE TRACKING MAP



ATLANTIC HURRICANE TRACKING CHART

0 500 mi
0 500 km

MERCATOR PROJECTION
The scale is accurate along the equator.
Elsewhere on the map, scale increases toward poles.



APPENDIX H

OSHA 300 LOG

OSHA's Form 300A
Summary of Work-Related Injuries and Illnesses

All establishments covered by Part 1904 must complete this Summary page, even if no work-related injuries or illnesses occurred during the year. Remember to review the Log to verify that the entries are complete and accurate before completing this summary.

Using the Log, count the individual entries you made for each category. Then write the totals below, making sure you've added the entries from every page of the Log. If you had no cases, write "0".

Employees, former employees, and their representatives have the right to review the OSHA Form 300 in its entirety. They also have limited access to the OSHA Form 301 or its equivalent. See 29 CFR Part 1904.35, in OSHA's recordkeeping rule, for further details on the access provisions for these forms.

Number of Cases			
Total number of deaths	Total number of cases with days away from work	Total number of cases with job transfer or restriction	Total number of other recordable cases
0	0	0	0
(G)	(H)	(I)	(J)

Number of Days	
Total number of days of job transfer or restriction	Total number of days away from work
0	0
(K)	(L)

Injury and Illness Types			
Total number of ... (M)			
(1) Injuries	0	(4) Respiratory Conditions	0
(2) Musculoskeletal disorders	0	(5) Poisonings	0
(3) Skin disorders	0	(6) Hearing Loss Cases	0
		(7) All Other Illnesses	0

Post this Summary page from February 1 to April 30 of the year following the year covered by the form.

Public reporting burden for this collection of information is estimated to average 30 minutes per response, including time to review the instruction, search and gather the data needed, and complete and review the collection of information. Persons are not required to respond to the collection of information unless it displays a currently valid OMB control number. If you have any comments about these estimates or any other aspects of this data collection, contact: US Department of Labor, OSHA Office of Statistics, Room N-3644, 200 Constitution Avenue, NW, Washington, DC 20210. Do not send the completed forms to this office.

Establishment Information	
Your establishment name	_____
Street	_____
City	_____ State _____ ZIP _____
Industry description (e.g., <i>Manufacture of motor truck trailers</i>)	

Standard Industrial Classification (SIC), if known (e.g., <i>SIC 3715</i>)	

Employment information (If you don't have these figures, see the Worksheet on the back of this page to estimate.)	
Annual average number of employees	_____
Total hours worked by all employees last year	_____
Sign here	
Knowing falsifying this document may result in a fine.	
I certify that I have examined this document and that to the best of my knowledge the entries are true, accurate, and complete.	
Company executive	Title
_____	_____
()	/ /
Phone	Date
_____	_____



498 Wando Park Blvd
 Suite 200-B
 Mt. Pleasant, SC 29464
 (843) 388-1851 - FAX: (843) 388-1891

Heat Stress Monitoring Record

Project / Location _____

Date _____

Employee Name	Initial Reading Time		First Work Period Time		Second Work Period Time	
	WBGT	Air Temp	WBGT	Air Temp	WBGT	Air Temp
	Initial Temp	Final Temp	Initial Temp	Final Temp	Initial Temp	Final Temp
	Initial H.R.	Final H.R.	Initial H.R.	Final H.R.	Initial H.R.	Final H.R.
	Initial Temp	Final Temp	Initial Temp	Final Temp	Initial Temp	Final Temp
	Initial H.R.	Final H.R.	Initial H.R.	Final H.R.	Initial H.R.	Final H.R.
	Initial Temp	Final Temp	Initial Temp	Final Temp	Initial Temp	Final Temp
	Initial H.R.	Final H.R.	Initial H.R.	Final H.R.	Initial H.R.	Final H.R.
	Initial Temp	Final Temp	Initial Temp	Final Temp	Initial Temp	Final Temp
	Initial H.R.	Final H.R.	Initial H.R.	Final H.R.	Initial H.R.	Final H.R.
	Initial Temp	Final Temp	Initial Temp	Final Temp	Initial Temp	Final Temp
	Initial H.R.	Final H.R.	Initial H.R.	Final H.R.	Initial H.R.	Final H.R.
	Initial Temp	Final Temp	Initial Temp	Final Temp	Initial Temp	Final Temp
	Initial H.R.	Final H.R.	Initial H.R.	Final H.R.	Initial H.R.	Final H.R.
	Initial Temp	Final Temp	Initial Temp	Final Temp	Initial Temp	Final Temp
	Initial H.R.	Final H.R.	Initial H.R.	Final H.R.	Initial H.R.	Final H.R.

APPENDIX I

HEAT STRESS LOG

APPENDIX J

TRAINING CERTIFICATIONS

(To be inserted at project start up)

APPENDIX D

Forms



Daily Report

Date: [Click here and type]		Contract Number: [Click here and type]	
Delivery Order Number: [Click here and type]		Location: [Click here and type]	
Weather Conditions: [Click here and type]			
I. Work Summary: [Click here and type]			
a. Work Planned: [Click here and type]			
b. Work Accomplished: [Click here and type]			
c. Explanation of Discrepancy: [Click here and type]			
d. Inspection Results: [Click here and type]			
II. Instructions Received from [Click here and type] Government Representative (s)			
III. Safety Comments: [Click here and type]			
IV. UXO Summary [Click here and type]			
a. UXO Destroyed:			
Type	Quantity	U/I	Disposition
[Click here and type]	[Click here]	[Click here]	[Click here and type]
[Click here and type]	[Click here]	[Click here]	[Click here and type]
[Click here and type]	[Click here]	[Click here]	[Click here and type]
[Click here and type]	[Click here]	[Click here]	[Click here and type]
[Click here and type]	[Click here]	[Click here]	[Click here and type]
[Click here and type]	[Click here]	[Click here]	[Click here and type]
[Click here and type]	[Click here]	[Click here]	[Click here and type]
[Click here and type]	[Click here]	[Click here]	[Click here and type]
[Click here and type]	[Click here]	[Click here]	[Click here and type]
[Click here and type]	[Click here]	[Click here]	[Click here and type]



ADVENT

b. Demolition Supplies Used:

Type	Quantity	U/I	Disposition
[Click here and type]	[Click here]	[Click here]	[Click here and type]
[Click here and type]	[Click here]	[Click here]	[Click here and type]
[Click here and type]	[Click here]	[Click here]	[Click here and type]
[Click here and type]	[Click here]	[Click here]	[Click here and type]
[Click here and type]	[Click here]	[Click here]	[Click here and type]
[Click here and type]	[Click here]	[Click here]	[Click here and type]
[Click here and type]	[Click here]	[Click here]	[Click here and type]
[Click here and type]	[Click here]	[Click here]	[Click here and type]
[Click here and type]	[Click here]	[Click here]	[Click here and type]
[Click here and type]	[Click here]	[Click here]	[Click here and type]

c. Scrap Generation/Disposition:

V. Personnel/Equipment Utilization:

a. Personnel On-site

Description	Number	Man-Hours
<i>Environmental Engineer</i>	[Click here and type]	[Click here and type]
First Aid Specialist	[Click here and type]	[Click here and type]
Heavy Equipment Operator	[Click here and type]	[Click here and type]
Helper	[Click here and type]	[Click here and type]
Magnetometer Operator	[Click here and type]	[Click here and type]
Project Manager	[Click here and type]	[Click here and type]
Quality Control Specialist	[Click here and type]	[Click here and type]
Senior UXO Supervisor	[Click here and type]	[Click here and type]
Site Safety Officer	[Click here and type]	[Click here and type]
Surveyor	[Click here and type]	[Click here and type]
UXO Assistant	[Click here and type]	[Click here and type]



ADVENT

UXO Specialist	[Click here and type]	[Click here and type]
UXO Supervisor	[Click here and type]	[Click here and type]
Unskilled Labor	[Click here and type]	[Click here and type]
Other Personnel (List)	[Click here and type]	[Click here and type]
[Click here and type]	[Click here and type]	[Click here and type]
[Click here and type]	[Click here and type]	[Click here and type]
[Click here and type]	[Click here and type]	[Click here and type]
[Click here and type]	[Click here and type]	[Click here and type]
Sub Contractor Personnel (List by Category)		
[Click here and type]	[Click here and type]	[Click here and type]
[Click here and type]	[Click here and type]	[Click here and type]
[Click here and type]	[Click here and type]	[Click here and type]
[Click here and type]	[Click here and type]	[Click here and type]
[Click here and type]	[Click here and type]	[Click here and type]
[Click here and type]	[Click here and type]	[Click here and type]
[Click here and type]	[Click here and type]	[Click here and type]
[Click here and type]	[Click here and type]	[Click here and type]
b. Equipment Utilization		
Description	Number	Hours
Backhoe, Wheeled	[Click here and type]	[Click here and type]
Backhoe, Tracked	[Click here and type]	[Click here and type]
Car (Sedan)	[Click here and type]	[Click here and type]
Pickup (1/2 ton)	[Click here and type]	[Click here and type]
Pickup (3/4 ton)	[Click here and type]	[Click here and type]
Radio, Handheld	[Click here and type]	[Click here and type]
Sport Utility Vehicle	[Click here and type]	[Click here and type]
EM-61	[Click here and type]	[Click here and type]



ADVENT

Schonstedt	[Click here and type]	[Click here and type]
Forrester	[Click here and type]	[Click here and type]
Other Equipment (List)		
[Click here and type]	[Click here and type]	[Click here and type]
[Click here and type]	[Click here and type]	[Click here and type]
[Click here and type]	[Click here and type]	[Click here and type]
[Click here and type]	[Click here and type]	[Click here and type]
[Click here and type]	[Click here and type]	[Click here and type]
[Click here and type]	[Click here and type]	[Click here and type]
[Click here and type]	[Click here and type]	[Click here and type]
VI. Comments/Concerns: [Click here and type]		
VII. Signature(s)/Date		
Project Manager	Senior UXO Supervisor	



ADVENT Environmental, Inc.

Safety Insepction Log

Date: _____ Time: _____ Contract Number: _____

Delivery Order Number: _____ Location: _____

Weather Conditions: _____

Type of Inspections: Daily _____ Weekly _____ Special _____ Reinspection _____

I. Location inspected: (List by grid number, coordinates, or description)

Activity Inspected:

II. Inspection Requirement:	Satisfactory	Unsatisfactory	N/A
Surface Sweep			
Subsurface Sweep			
Excavation Technique			
Personal Protection Equipment			
Work Practices			
Site Control			
First Aid Equipment			
Fire Fighting Equipment			
Explosives Transportation			
Explosive Storage			
Disposal Operations			

Overall Inspection Results: Satisfactory _____ Unsatisfactory _____

III. Comments: _____

Work stopped due to safety violation: Yes _____ No _____

Safety violations noted: _____

Personnel Involved: _____

Corrective Measures: _____

Reinspection required: Yes _____ No _____

IV. Signatures: _____

I acknowledge that I have been briefed on the results of this inspection and will take corrective actions (if necessary)

Site Safety Officer

Sr. UXO Supervisor/Project Manager



ADVENT

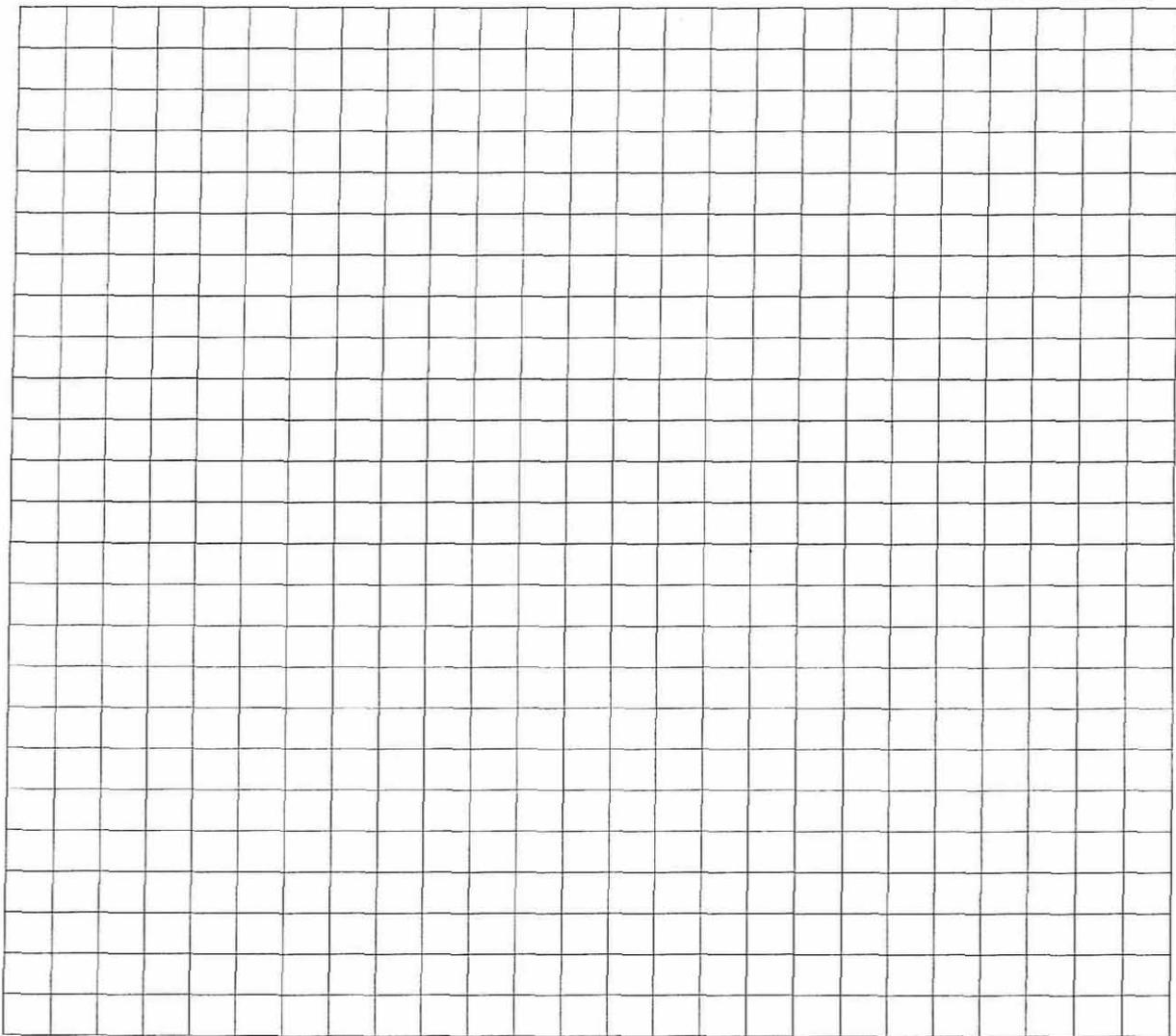
Sketch Sheet

Job Name _____ Project Leader _____ Date _____

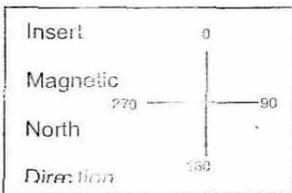
Team Leader _____

Comments _____

(Continue on back)



1 Square =
 5' 10'
 50' 160'
 (Circle One)



SYMBOLS

Bench Mark

Existing Well

New Well

Road

Brush

Fence

Trench

UXO Expended

UXO Live

Test Pit

Soil Boring



ADVENT

Name (Print)	Signature	Company
Site Safety Officer	Date	

APPENDIX E

Resumes

Larry N. Fowler, E.I.T. Project Manger

Why Selected as Key Personnel for VNTR

- More than 12 years of Environmental Consulting Experience conducting site assessments and remedial system designs at RCRA and CERCLA sites.
- Six years of UXO and Geophysical Experience on UXO/MEC remediation, avoidance, and construction support projects
- Extensive site assessment experience

Education

BS Geological Engineering, 1992

Registrations

E.I.T.

Background Summary

Mr. Fowler's current responsibilities include serving as a Project Engineer/Project Manager for various environmental projects for industrial, commercial, and government clients. Projects include large scale environmental site assessments, remedial system design and optimization, long-term O&M, UST assessments and closure, geophysical surveys, and UXO remediation, avoidance and construction support. Mr. Fowler's geographic experience includes work in the states of AL, AZ, CO, FL, GA, IL, IN, KY, MN, MO, NC, OH, PA, RI, SC, TN, and TX.

Relevant Experience

Assistant Project Manager, Ravenna Army Ammunition Plant, Ravenna, Ohio

Conducted a geophysical survey of former Open Burn / Open Detonation area. Served as Assistant Project Manager of UXO remediation project that included the excavation and sifting of material from a 4-acre area to a depth of 4-feet. Responsibilities included documenting the field activities, inspecting subcontractor performance, and hiring UXO personal.

Geophysical Technician, Former Lowry Bombing Range, CO – Conducted EM-61 and 858 surveys of former bombing range and disposal area.

Geophysical Technician, Portsmouth DOE Facility, Portsmouth, OH Participated in EM-61, 858, and GPR geophysical surveys to identify underground utility locations prior to installation of groundwater remediation system for low-level radioactive waste disposal area.

Geophysical Project Manager, Former Conway Bombing Range, Myrtle Beach, South Carolina

Currently serving as Project Manager for a geophysical survey and UXO remediation project at

the former Conway bombing range. Developed the geophysical work plan and assisted in the development of the UXO work plan.

Project Manger, Fort Ritchie, Cascade, MD

Provided personnel to conducted long-term UXO removal activities. Activities required reacquisition of target anomalies using GPS, geophysical maps, and handheld magnetometers. Items identified by the geophysical survey were excavated and identified. Detailed records documenting the excavation of the anomalies were maintained and added to a GIS database for future reference.

Project Manager, Charleston Naval Weapons Station, Charleston, South Carolina

Conducted a geophysical survey of Open Burn / Open Detonation area. Served of Project Manager for UXO avoidance and remediation of 3-acre site. Responsibilities included developing site work plan and documenting the remediation activities.

Project Manager, Charleston Naval Weapons Station, Charleston, SC

Completed an EM-61 and 858 geophysical surveys of suspected fuse burial areas in support of environmental assessment activities. The data was present using a GIS system which allowed the geophysical maps to be overlaid on recent aerial photographs. Three potential burial pits were identified

Project Manager, Blue Grass Army Ammunition Depot, Richmond, KY- Managed UXO escort, avoidance, and construction support project for environmental assessment of former OB/OD area.

Project Manger, Fort Campbell, Fort Campbell,

KY Conducted UXO avoidance and construction support activities in support of environmental remediation. Task orders included the rapid emergency response to an oil release that migrated to a UXO area. The project required coordination of the environmental clean-up crew and the active duty EOD personnel.

Dennis Lecher

SUXOS/Program Manager

Why Selected as Key Personnel

- 30+ years of EOD/UXO military/civilian experience in explosive ordnance disposal industry
- Qualified Senior UXO Supervisor, 15+ years of field supervisory experience

Certifications/Licenses

Master Explosive Ordnance Disposal, 1978
U.S. Naval EOD School, Indian Head, MD, 1971
USACE Construction Quality Management for Contractors, 1998
UXO Safety Officer Course, 1999
40-hr OSHA HazWOPER Training, 1991
8-hr OSHA HazWOPER Supervisor Training
1998 Asbestos Awareness Training
COE Huntsville UXO Database No. 0370

Professional Summary

Mr. Lecher has 33 years of EOD/UXO experience in all aspects of UXO operations – investigation, detection, excavation, transport, storage, and disposition. He has proven capabilities in managing on-site UXO and subcontractor personnel who are conducting simultaneous operations. He has successfully served in the positions of Special Project Manager, Senior UXO Supervisor, UXO Safety Officer, Quality Assurance Specialist, and Demolition Supervisor. Experienced in Reporting managing budgets and writing reports.

Professional Experience

Advent Environmental INC

UXO Site Manager/ UXO Program Manager for ongoing site in Myrtle Beach SC June 2004 Present

Supervise multiple companies conducting removal of Ordnance from WWII Air Force bombing range.

Ensures compliance with on site requirements.
Provide weekly management updates to

companies. Maintain UXO data base for company, conduct search and hiring for company.

Cape Environmental Management INC Health and Safety/Quality Control Officer 2002 -- 2004

Implements and ensures compliance with the on-site elements of the site-specific safety and health plan.
Recommends PPE level changes to the Certified Industrial Hygienist
Conducts random safety audits of operations and documents the findings and implements Corrective actions
Provides weekly safety updates to Project Manager Investigates and reports accidents/incidents
Conducts and documents daily morning safety meetings and visitor briefings
Served in this capacity at Shelby ANG, Razorback ANG and Cannon ANG ranges
Ensured all QC standards were meet or exceeded by site personnel

UXB International, Inc. 1997 – 2002 Special Project Manager

Advised Contracting Officer of progress and promptly implements customer-approved and authorized changes
Communicates and directs instructions for scoping, negotiating, and modifying the contract, delivery costs, or schedule
Coordinates and manages all aspects of a project
Ensured resource availability (personnel, facilities, and equipment)
Overseen task identification and resolutions
Achieved the contractual cost and schedule targets
Coordinated the preparation of detailed work order specifications and schedules
Implemented project quality procedures
Directed UXB and subcontractor personnel

Enforced implementation of the project's safety and health procedures

Successfully served in this position at Bonneville, WA Camp Howze TX (Time Critical) Castner Range, TX. Fairbanks AK. Sumter SC and Camden AR.

Senior UXO Supervisor

Planned, coordinated, and supervised all UXB on-site UXO activities

Assisted in the preparation of standard operating procedures for UXO operations

Ensured compliance with DoD, local, state, and federal statutes and codes

Certified ammunitions, explosives, and dangerous articles and/or range scrap ready for turn-in or disposal

Supervised multiple project teams that are performing UXO and UXO-related activities – vegetation clearance, land surveying, reconnaissance and classification of UXO, pyrotechnic items, and military explosives and military materials; locating surface and subsurface UXO; destroying UXO an OE by burning or detonation; and/or transporting and storing UXO and explosive materials.

Identified potential problem areas and institutes corrective measures

Assisted the Quality Control Specialist and UXO Safety Officer with quality and health and safety procedures

Documented site conditions, prepares project reports, and identifies efforts to accomplish the scope of work

Successfully served in this position at Buckley Bombing Range, CO; Camp Maxey, TX (2 projects); Camp Howze, TX (2 projects); Jefferson Proving Ground, IN; and Camp Bonneville, WA.

UXO Safety Officer

Implemented and ensured compliance with the on-site elements of the site-specific safety and health plan

Recommended PPE level changes to the Certified Industrial Hygienist

Conducted random safety audits of operations and documents the findings and implements corrective actions

Provided weekly safety updates to the Certified Industrial Hygienist

Investigated and reports accidents/incidents

Maintained a daily safety log

Conducted and documents daily morning safety meetings and visitor briefings

Served in this capacity at the Former Buckley Bombing Range, CO and Camp Maxey, TX.

Selected Achievements at UXB International, Inc.:

Developed standard operating procedures for use of the remotely operated excavator for use on Jefferson Proving Grounds IN.

Developed standard operating procedures for clearing improved Conventional munitions at Jefferson Proving Grounds IN.

Established procedures for working in a asbestos environment

Increased scope of work for Camp Bonneville WA

OHM CORPORATION 1995–1997, 1992--1993

Senior UXO Supervisor, UXO Supervisor, Demolition Supervisor, Health and Safety Officer

Trained on-site personnel in ordnance clearance

Trained on-site personnel in removal of sea ordnance

Escorted subcontractors on-site

Supervised demolition operations and disposal of ordnance

Identified live and inert ordnance

Certified scrap for release to local scrap yard

Managed on-site health and safety;

Trained personnel in OSHA and ordnance identification

Assignments were located in Craney Island Naval Fuel Station, VA; Navy Weapons Stations in Yorktown, VA; the Former Buckley Bombing Range, CO; Fort Meade, MD; and various EPA sites in VA, MA, OH, and WA.

Selected Achievements:

Developed and had approved by EPA disposal procedures for shock sensitive chemicals on HazMat site.

Developed procedures to use in the commercial disposal of shock sensitive explosives and chemicals.

CMS, INC. 1993 – 1996

Project Manager, Senior Site Supervisor, and Quality Assurance/Safety Officer

Managed all on-site operations and personnel

Supervised multiple teams in Air Force demolition range clearance and disposal

Supervised UXO clearance teams in ordnance recovery and clearance (depths of 1-foot to 16 feet)

Eaker AFB, AK; Fort Wingate, NM; Goose Bay Labrador; and Brawley, CA.

Selected Achievements:

Part of the team that assembled winning contract for West of Mississippi CONUS awarded by COE.

Devised methods of clearing OE material below 12 foot at Goose Bay Labrador.

EOD Technology 1991 - 1992

UXO Supervisor

Supervised two 5-man team(s)

Recovered and disposed of explosive components, shock sensitive, and explosive chemicals

Project site was located at the EPA hazardous waste site in Duncan, SC.

Selected Achievements:

Wrote work plans for recovery of small explosive components from impacted soil.

Setup procedures for remotely opening containers with shock sensitive chemicals

Military Experience

Aug 86-Nov 91, EOD Technician, Camp Lejeune, NC. Supervised a 78-man EOD Platoon performing range clearance and disposal operations. Platoon deployed to Desert Shield/Storm in mine-field clearance and disposal--disposed of several hundred thousand

pieces of ordnance in Kuwait. Temporarily assigned to the Naval Weapons Center, China Lake, CA to conduct explosive safety quantity distance test for pre-positioned ships.

Supervised 30 EOD personnel in the clean up of the test area, clearing over 2-square miles and disposing of over 400,000 pounds of ordnance subjected to explosions and fire. Assigned TAD to Marine Corps Base Quantico, VA.

Supervised EOD teams during a range sweep of a major impact area. Recovered and disposed of over 9,000 pieces of ground & air ordnance.

Aug 85-Aug 96, EOD Technician, 3rd EOD Platoon, Okinawa, Japan. Operations Chief.

Supervised 4 EOD teams during range clearance of Nightmare and Rodriguez ranges. Also provided EOD support and supervised teams during disposal operations at Fuji, Japan, Thailand, Korea, and the Philippines's disposing of 48 tons of air and ground ordnance.

Mar 84-Aug 85, EOD Technician, Camp Lejeune, NC. Supervised multi-service teams in the largest range clearance and refurbishment ever conducted at Camp Lejeune. Conducted one of the largest inerting operations during peacetime. Range and Explosives Safety Officer for the project.

Nov 80-Mar 84, EOD Technician, EOD Technology Center, Indian Head, MD. Was the Senior EOD Technician assigned to this unit, responsibilities were to perform Quality Assurance/Quality Control on all new research and development projects that pertained to Marine Corps EOD units. This included testing and evaluation of new EOD rendering safe and disposal procedures, as well as new equipment.

Aug 78-Aug 79, EOD Technician, 3rd EOD Platoon, Okinawa, Japan. Team Leader, deployed to Korea to perform range clearance operations of So Wong Range of both U.S. and Korean ordnance. Range and explosive safety officer for the clearance operations.

Jun 72-Mar 75, EOD Technician, Twenty Nine Palms, CA. Team member responsible for clearing ground and air ordnance from the many live fire ranges located adjacent to the base. Responsible for disposing of condition code "H" munitions.

Jun 71-Jun 72, EOD Technician, Iwakuni, Japan.

Team member supporting Marine and Navy aircraft, responsible for safing EGRESS systems, downloading hung ordnance and clearing hot guns. Performed disposal operations of condition code "H" munitions.

Feb 71-Jun 71, EOD Technician, Quantico, VA.

Team member, responsible for clearing ground and air ordnance from the live fire ranges.

Hugh Sease Corporate QC/Safety

Why Selected as Key Personnel for VNTR

- 20+ years of EOD/UXO military/civilian experience in explosive ordnance disposal industry
- Qualified Senior UXO Supervisor, 15+ years of field supervisory experience
- Planned and supervised 4 major range clearance operations on Vieques Island, Puerto Rico
- Planned and supervised underwater range clearance operation at Camp Lejeune, NC.

Education

MA, National Security & Strategic Studies, 1994

MA, Public Administration, 1993

BS, Geology, 1979

Training

Naval School of Explosive Ordnance Disposal, 1981

Navy Mixed Gas Diver, 1980

Navy Master EOD Technician, 1987

Registrations

COE Huntsville UXO Database No. 0491

Background Summary

Mr. Sease is a UXO Project Manager and Senior UXO Supervisor, with more than 20 years of EOD/UXO experience. He has managed large and small UXO clearance projects on active DOD sites, BRAC sites, and FUDS worldwide. He has served in various military EOD and civilian UXO assignments, worked with DOD, federal and state agencies, participated in public meetings with regulators and stakeholders, and is experienced in range clearance in accordance with the DoD Range Rule (32 CFR 178) and the EPA Munitions Rule (40 CFR 260).

Relevant Experience

UXO Project Manager, Devens, MA

Served as a consultant for MassDevelopment during their reuse of the former Fort Devens (BRAC). Planned and supervised the digital geophysical mapping (DGM), and UXO clearance of a 130 acre former firing range. Provided emergency response EOD services when a MassDevelopment contractor uncovered approximately 50 grenades while excavating a hotel construction site.

UXO Project Manager, Switzerland, FL

Planned and supervised the digital geophysical mapping (DGM), and UXO clearance of 1,200 acres of the original 1,782 acres of the former Switzerland Bomb Target Site for a private land owner. The project included land survey, land clearance, DGM, reacquisition, excavation of reacquired contacts, identification and documentation of recovered

ordnance items, destruction and demilitarization of those items, and disposal of scrap. Excavation of anomalies included excavating individual anomalies by hand, and mass excavation and mechanical sifting of the approximately 16-acre target center to a depth of 8 feet below ground surface.

UXO Project Manager, Conway, SC

Planned and supervised the UXO clearance portion of the digital geophysical mapping (DGM), and UXO clearance of approximately 750 acres of the former Conway Bombing and Gunnery Range for a private land owner.

UXO Project Manager, Ft. Knox, KY

Planned and supervised the time critical surface clearance of approximately 950 acres of the Wilcox Range on Ft. Knox for the Louisville district Corps of Engineers.

UXO Project Manager, Rialto, CA

Planned and supervised the digital geophysical mapping (DGM), and UXO clearance of a 20 acre portion of the former Rialto Ordnance Storage Depot for a private land owner.

UXO Project Manager, Loring, ME

Planned and supervised the geophysical investigation and UXO clearance of several training ranges on the former Loring AFB (BRAC) for the Huntsville Center, Corps of Engineers.

Navy EOD Officer, Sicily, IT

Provided EOD consulting services to the Italian Army during the 1992 eruption of Mt. Etna where explosives were used to divert lava flow which threatened the nearby town of Zafferana Etnea.

Navy EOD Officer, Vieques, PR

Planned and supervised the UXO clearance of the Active Impact Area and related ranges twice a year for 2 years. Conducted daily explosive disposal shots ranging from 1 pound to 10,000 pounds.

Navy EOD Officer, Grenada

Provided emergency response EOD services to recover a shot down USMC attack helicopter for Second Fleet, and booby trap clearance and disposal of unstable explosive ordnance for 82nd Airborne during the 1982 invasion of Grenada.

Navy EOD Officer, Camp Lejeune, NC

Planned and supervised the UXO clearance of the underwater portion of two tank ranges where they overlapped the Intracoastal Waterway. Conducted daily diving operations using two dive teams operating in a zero visibility, high current, rip-tide environment that was also an alligator habitat without injury or incident.

Mark A. Sellers, P.G.
Company Sponsor, Program Manager

Why Selected as Key Personnel for VNTR

- Twenty-four years of experience in chemical/hazardous waste/MEC assessment and remediation including as project director/principal in charge
- As the primary owner of ADVENT, has full authority to commit the resources of ADVENT and to ensure commitment of subcontractors
- Extensive experience with regulatory strategy development involving stakeholders and local, state, and federal regulatory personnel
- Responsible charge for more than 25 UXO/OES detection avoidance and remediation projects for both civil and federal/military clients over a 12 year period.

Education

BS, Geophysical Sciences, 1980

Certifications/Licenses

Professional Geologist: AL, FL, GA, IL, IN, KY, MO, NC, PA, SC, TN, VA,
Registered Environmental Consultant, Site Manager: NC
Certified Environmental Professional: Ohio

Background Summary

Mr. Sellers has more than 24 years experience with management and direction of projects in the areas of hazardous waste, MEC, industrial compliance and waste minimization, regulatory strategy development, industrial real estate transfers, hydrogeology, and geophysics investigations. The majority of these projects have been firm fixed price.

Executed large and small projects under RCRA, CERCLA, CWA, Voluntary Corrective Action, the DoD Range Rule (32 CFR 178) and the EPA Munitions Rule (40 CFR 260).

Mr. Sellers also has significant experience within the DoD (USACE, Air Force, Naval Facilities Engineering Commands), the Department of Homeland Security, and the Department of Justice. Among these projects are Small arms range design and rehabilitation, MEC avoidance and clearance, site assessment; corrective action plan peer review; and environmental baseline studies.

Relevant Experience

All of the following brief project summaries have included project management, work plan and report preparation and review, responsibility for project budget and schedule, data review and analysis, field work planning direction, coordination and management of field activities, stakeholder (client, public, regulatory agency, subcontractors) management, equipment specification, selection and design, site inspection, health and safety and logistics/site communication responsibility.

Project Principal, Comprehensive MEC Site Remediation for Residential Development, Confidential Client;Horry County, SC

Planned and provided oversight for a large commercial UXO project involving the detection and removal of 76,000 MEC items from one 1,200 acre range of a 5 range 1940s-era former bombing and gunnery range complex slated for real estate development as residential property. Responsible for client management, stakeholder communication and management, program management, the planning and execution of the detection, avoidance, and removal phases of the project that involved a team of five companies executing the \$10 million project over 3 three years to completion for the first range. First parcel of 252 acres transaction successfully closed in March, 2005.

Project Principal, Comprehensive MEC Site Remediation for Building Expansion, Naval Weapons Station, Charleston SC.

Planned and provided oversight for a small UXO project involving the detection and removal of MEC from a five acre building area with disposal pits. 3 month duration, completed 2003.

Project Principal, Comprehensive MEC Site Investigation and removal Action for SWM under CFR

Olin Winchester East Alton L.

Planned and provided project direction for detection and removal of 5 inch diameter 12 lb. explosives canisters in a wooded hillside. Managed stakeholder concerns and negotiated regulatory strategy for corporate environmental officers. Responsible for all aspects of program management, communication, budget and schedule. Project duration was 2 years completed in 1996.

Project Principal, Comprehensive MEC Site Monitoring, Investigation and Removal Action for former Chemical Waste Management Landfill in Dahlgren, VA.

Planned and provided project direction for monitoring, detection and removal of former MEC items from the US Navy in a public landfill during relocation of the affected landfill cells. Managed stakeholder concerns and project communication oversight of UXO Project manager. Responsible for all aspects of program management, communication, budget and schedule. Project duration was 3 years completed in 2001.

Program Director, Acquisition Team Ellis Everard & Co, Sites

Served as program director for the planning, execution scheduling, regulatory strategy development, and cost control for the acquisition of 16 companies by a chemical distribution company. Reported to Board of Directors. The program budget was \$48M. Sites completed and decision documents reached for the 35 remediation projects for \$37M, an overall savings approaching 25 percent for the program. Responsibilities included cost cap and PLL insurance product development.

Brian Thompson **Site Manager**

Why Selected as Key Personnel for VNTR

- 14+ years of EOD/UXO military/civilian experience in explosive ordnance disposal industry
- Qualified Senior UXO Supervisor, 10+ years of field supervisory experience
- Planned and supervised 4 MEC Investigation operations on Vieques Island, Puerto Rico, Sub-Contracted to CH2M Hill.
- Planned and supervised numerous MEC clearance operations under USACEH Contracts, Sub-contracts and for private customers.

Training

Naval School Explosive Ordnance Disposal, 1988, 90
Navy Diver, 1987, 89

Registrations

COE Huntsville UXO Database No. 0286

Background Summary

Mr. Thompson is a UXO Project Manager and Senior UXO Supervisor, with more than 14 years of EOD/UXO experience. He has managed large and small UXO clearance projects on FUDS and BRAC sites. He has served in various military EOD and civilian UXO assignments, worked with DOD, federal and state agencies, participated in public meetings with regulators and stakeholders, and is experienced in range clearance, MEC removal/investigation operation, Surveying, Digital Geophysical Mapping

Relevant Experience

MEC Project Manager, SWMU 4 Vieques, PR

Under sub-contract to CH2M Hill, Managed the MEC Investigation of SWMU-4. Assisted in the development of the Anomaly Tracker system to electronically collect data from geophysical anomalies investigated

MEC Assistant Operation Manager, Tampa, FL

Planned, supervised and provided logistic support for numerous MEC investigations and clearances over a 4 year period. Assisted in the establishment of the corporate

underwater MEC investigation program. The projects included land survey, land clearance, DGM, reacquisition, excavation of reacquired contacts, identification and documentation of recovered ordnance items, destruction and demilitarization of those items, and disposal of scrap. Excavation of anomalies included excavating individual anomalies by hand, and mass excavation and mechanical sifting.

MEC Project Manager, Conway, SC

Planned and supervised the MEC clearance of approximately 40 acres of the former Conway Bombing and Gunnery Range for a private land owner.

UXO Technician, Ft. Ord, CA

Worked as the Survey team leader and provided DGM testing on multiple Munition Response Sites.

UXO Safety Specialist Los Alamos, NM

Provided MEC site safety oversight during the removal of MEC and multiple MRS.

Navy EOD Technician, Mare Island, CA

Provided EOD support for the Pacific Northwest theater. Deployed twice in support of Operation Desert Storm to provide EOD and MCM response.

Navy EOD Assistant, Subic Bay, PI

Deployed to the Persian Gulf in support of Operation Earnest Will providing EOD and MCM support throughout the theater. Assisted in the development and implementation of the unit training program.

Nathan Mullens **Site Manager**

Why Selected as Key Personnel for VNTR

- 5+ years experience in the Environmental Field
- Experience working on three MEC Investigation Projects
- Project Manager on past MEC Investigation Project

Degree

BS, Geology, Virginia Polytechnic Institute and State University, 2000

Background Summary

Mr. Mullens is a Project Manager and has more than 5 years of Environmental experience. He has managed and completed work on a wide range of environmental projects including geophysical work on UXO clearance projects. He has experience in various UXO projects and utilizing cutting-edge geophysical and global positioning systems technology as they relate to UXO.

Relevant Experience

Geophysical Project Manager, Conway, SC.

Managed the geophysical efforts on an 80 acre UXO clearance project. Assured geophysical procedures were followed per regulation specifications, coordinated with geophysical subcontractor who handled data reduction and interpretation and ensured work was followed out as detailed in the Work Plan.

Project Manager, Charleston, SC.

Manage an ongoing Operation and Maintenance government contract on a military base. The project encompassed oil/water separators, sand traps, lift stations and grease traps. Duties with this project included scheduling multiple phases each quarter such as sampling, cleaning, coordination with base personnel and coordination with subcontractors.

Geographical Information Systems Analysis, Conway, SC.

Assisted in building a large GIS report based on geophysical data from a UXO Clearance project. Tasks included using progressive GIS software to analyze geophysical data and integrate it with global positioning data to give a clear depiction of work completed on the project site. Software used included: ArcMap, ArcCatalog and Microsoft Access.

Geophysical Technician, Conway SC.

Worked as a geophysical technician on a separate UXO Clearance project covering approximately 850 acres in Conway, SC. Tasks included daily programming/operation of Robotic Total Station, working with EM61 in towed array and man-portable configuration and keeping records of daily activities.

Geophysical Technician, Aurora, CO.

Worked as a geophysical technician on a UXO Clearance Project adjacent to Denver, Colorado. Tasks included setup and operation of Magnetic Base Station, working with EM61 in a fiducial geophysical configuration and working with magnetic detection system and all related software.

Site Manager, Sahaurita, AZ

Served as onsite manager for a UXO project in southern Arizona. The project included avoidance and construction support activities for construction of a utility line on a former bombing and gunnery range. Tasks included recruiting personnel and assuring that activities were conducted in accordance with the work plan.