Final

Time Critical Removal Action Work Plan for Munitions Response Site UXO 17, Potential Area of Concern (PAOC) EE

Atlantic Fleet Weapons Training Area - Vieques
Former Vieques Naval Training Range
Vieques, Puerto Rico

Contract Task Order 11

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Prepared for

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Naval Facilities Engineering Command
Atlantic

Under the

NAVFAC CLEAN Program
Contract N62470-11-D-8012

Prepared by

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Virginia Beach, Virginia

Executive Summary

This Work Plan presents the approach for performing a Time Critical Removal Action (TCRA) for surface and subsurface munitions and explosives of concern (MEC) and material potentially presenting an explosive hazard (MPPEH) at the Potential Area of Concern (PAOC) EE in the vicinity of Playa La Chiva (Blue Beach) at the former Vieques Naval Training Range, Vieques, Puerto Rico (**Figure ES-1**). Historical information indicates the TCRA area shown in **Figure ES-1** was used historically for military training activities. Recent characterization studies in the area identified several munitions items and munitions-related debris. Based on these findings, a TCRA is warranted to reduce the potential explosive hazard associated with public use of the area. Specifically, the objectives of the TCRA are to:

- Reduce the potential explosive hazard due to the potential presence of MEC/MPPEH within the TCRA area
- Refine the PAOC EE area based on the TCRA findings in order to help plan future investigations and/or actions

The TCRA approach described in this work plan was jointly developed by the Naval Facilities Engineering Command (NAVFAC) Atlantic Division, U.S. Environmental Protection Agency (USEPA) Region 2, the Commonwealth of Puerto Rico Environmental Quality Board (PREQB), and the United States Fish and Wildlife Service (USFWS). The Navy, USEPA, PREQB, and USFWS work jointly as the Vieques Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Environmental Restoration Program (ERP) Technical Subcommittee.

The TCRA activities will include performing a visual and metal detector-aided survey to locate and remove surface and subsurface MEC/MPPEH, if present, within the TCRA area shown in **Figure ES-1**. Prior to performing the TCRA a Biological Assessment will be conducted to ensure the protection of Threatened and Endangered (T&E) species and well as critical habitats, including sea turtle nesting areas.

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NOTA: ESTE RESUMEN SE PRESENTA EN INGLÉS Y EN ESPAÑOL PARA LA CONVENIENCIA DEL LECTOR. SE HAN HECHO TODOS LOS ESFUERZOS PARA QUE LA TRADUCCIÓN SEA PRECISA EN LO MÁS RAZONABLEMENTE POSIBLE. SIN EMBARGO, LOS LECTORES DEBEN ESTAR AL TANTO QUE EL TEXTO EN INGLÉS ES LA VERSIÓN OFICIAL.

Resumen Ejecutivo

Este Plan de Trabajo presenta el enfoque para llevar a cabo una Acción de Remoción de Tiempo Crítico (TCRA por sus siglas en inglés) para atender las municiones y explosivos de preocupación (MEC por sus siglas en inglés) y el material que potencialmente presenta una amenaza relacionada a explosivos (MPPEH por sus siglas en inglés) que se encuentren sobre y debajo de la superficie en el Área de Preocupación Potencial (PAOC por sus siglas en inglés) EE en la cercanía de Playa La Chiva (Blue Beach) dentro del antiguo Campo de Adiestramiento Naval de Vieques (**Figura ES-1**). La información histórica indica que el área del TCRA que se muestra en la **Figura ES-1** fue usada anteriormente para realizar actividades de adiestramiento militar. Estudios de caracterización recientes en el área identificaron varios artículos de municiones y escombros relacionados a municiones. Basado en esta información amerita que se lleve a cabo un TCRA para reducir el potencial de amenaza relacionada a explosivos para el uso público del área. Específicamente, los objetivos del TCRA son:

- Reducir el potencial de amenaza relacionada a explosivos debido a la presencia de MEC/MPPEH dentro del área TCRA.
- Delimitar con más detalle el área PAOC EE basado en la información del TCRA para ayudar la planificación de investigaciones y/o acciones futuras.

El alcance del TCRA que se describe en este plan de trabajo fue desarrollado conjuntamente por el Comando Ingeniería de Instalaciones Navales del Atlántico (NAVFAC por sus siglas en inglés) División del Atlántico, la Agencia de Protección Ambiental de los EE.UU. (USEPA por sus siglas en inglés) Región 2, la Junta de Calidad Ambiental de Puerto Rico (PREQB por sus siglas en inglés), y el Servicio de Pesca y Vida Silvestre de los EE.UU. (USFWS por sus siglas en inglés). La Marina, USEPA, PREQB y USFWS trabajan conjuntamente como el Subcomité Técnico bajo la Ley de Respuesta, Compensación y Responsabilidad Ambiental (CERCLA por sus siglas en inglés) del Programa de Restauración Ambiental de Vieques (ERP por sus siglas en inglés).

Las actividades TCRA incluirán un monitoreo visual y con la ayuda de un detector de metales para localizar y remover los MEC/MPPEH de la superficie y debajo de la superficie, de estar presentes, dentro del área que se muestra en la **Figura ES-1**. Antes de iniciar el TCRA se llevará a cabo una Evaluación Biológica para asegurar la protección de especies Amenazadas y en Peligro de Extinción (T&E por sus siglas en inglés), así como los hábitats críticos, incluyendo las áreas de anidación de tortugas.

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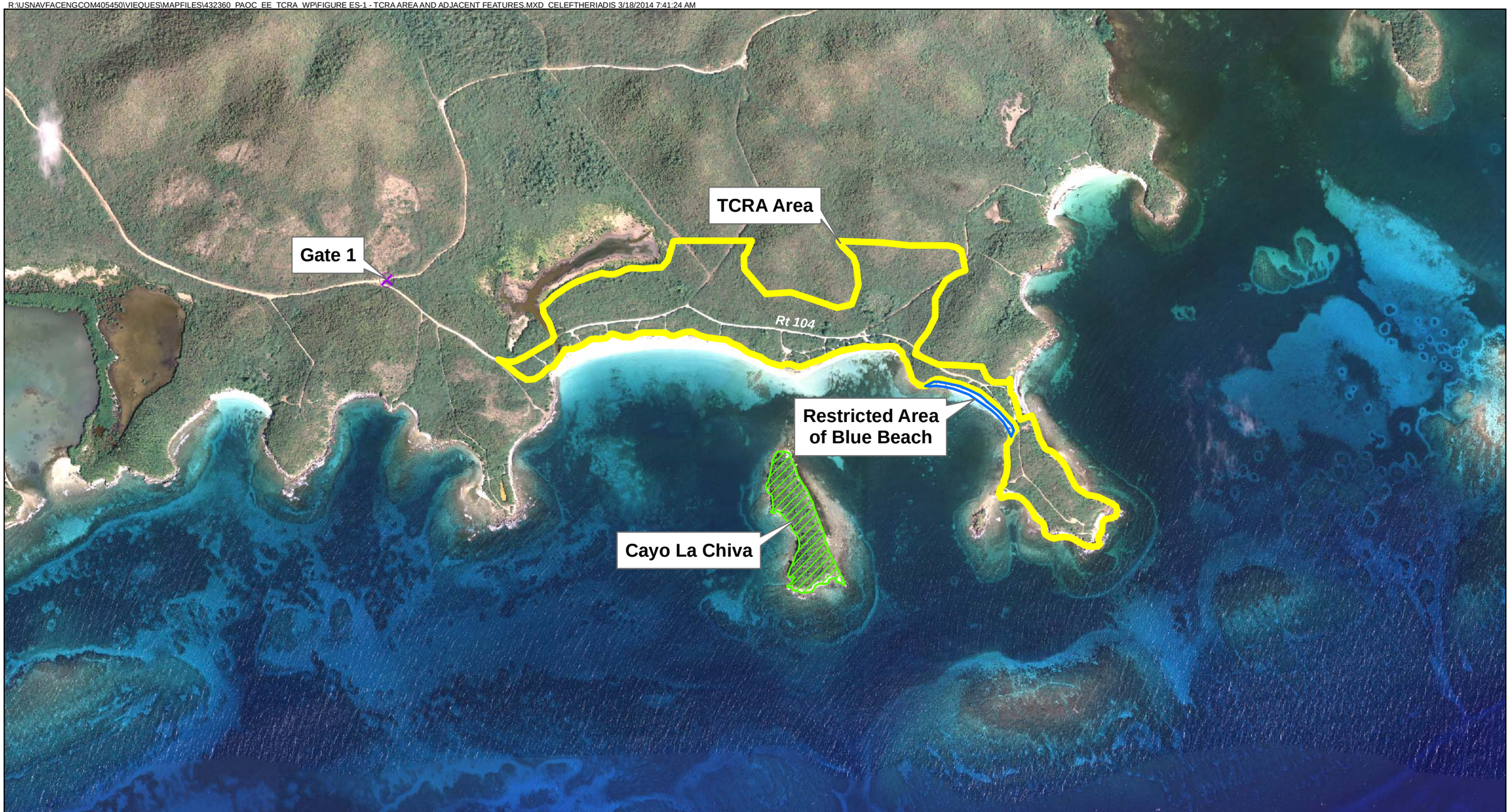

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- Cayo de la Chiva
- Restricted Area of Blue Beach
- PAOC EE TCRA Action Area

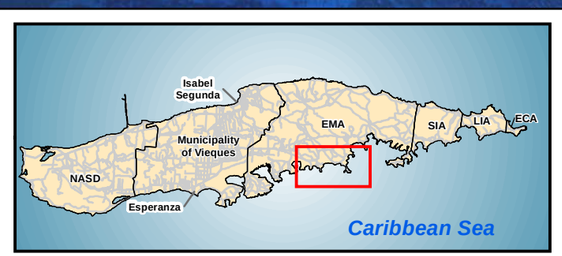

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Figure ES-1
TCRA Area and Adjacent Features
PAOC EE TCRA Work Plan
Atlantic Fleet Weapons Training Area - Vieques
Former Vieques Naval Training Range
Vieques, Puerto Rico

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Acronyms and Abbreviations

BA	Biological Assessment
BIP	blow-in-place
BMP	Best management practices
CAR	Corrective Action Request
CAP	Corrective Action Plan
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CLEAN	Comprehensive Long-term Environmental Action—Navy
DFOW	definable feature of work
DGM	digital geophysical mapping
DMM	discarded military munitions
DQO	data quality objectives
ERP	Environmental Restoration Program
ESA	Endangered Species Act
GPS	Global Positioning System
ISOs	Industry Standard Objects
m	meter
MD	munitions debris
MEC	munitions and explosives of concern
MIL-HDBK	Military Handbook
MIL-STD	Military Standard
mm	millimeter
MPPEH	material potentially presenting an explosive hazard
MR	munitions response
NASD	Former Naval Ammunition Support Detachment
NAVFAC	Naval Facilities Engineering Command
PAOC	Potential Area of Concern
PA/SI	Preliminary Assessment/Site Inspection
PM	Project Manager
PREQB	Puerto Rico Environmental Quality Board
QA	quality assurance
QC	quality control
QCP	Quality Control Plan
RPM	Remedial Program Manager
RRD	range-related debris
SI	Site Inspection
SOP	standard operating procedure
SWMU	solid waste management unit
T&E	Threatened and Endangered
TCRA	Time Critical Removal Action
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
UXO	unexploded ordnance

UXOQCS	Unexploded Ordnance Quality Control Specialist
VL	verification level
VNTR	Vieques Naval Training Range
WAD	Work Area Determination
WP	Work Plan

SECTION 1

Introduction

This Work Plan (WP) presents the approach for a Time Critical Removal Action (TCRA) for surface and subsurface munitions and explosives of concern (MEC)/material potentially presenting an explosive hazard (MPPEH) at the terrestrial area in the vicinity of Playa La Chiva (Blue Beach) where historical military training activities occurred, based on findings during recent MEC characterization activities in the area. In addition to reducing the explosive hazard associated with the potential presence of MEC/MPPEH immediately adjacent to a public area of the Vieques National Wildlife Refuge, the findings of the TCRA will be used to revise the boundary of Potential Area of Concern (PAOC) EE to include the area where surface and/or subsurface MEC/MPPEH are found.

1.1 Site Background and TCRA Rationale

Historical information regarding the former Vieques Naval Training Range (VNTR) can be found in the Fiscal Year 2014 Site Management Plan (CH2M HILL, 2013a). The historical information pertinent to and providing the rationale for the TCRA covered by this WP is provided below. **Table 1-1** identifies, by investigation, the munitions items and the depths at which they were found.

1.1.1 First Munitions Investigation of Playa La Chiva (Blue Beach)

An initial munitions investigation of Blue Beach was conducted in association with the transfer of the property from the Navy to U.S. Fish and Wildlife Service (USFWS) in 2003. The inspection consisted of conducting a digital geophysical mapping (DGM) survey across the beach (**Figure 1-1**) and excavating selected DGM anomalies to assess if MEC/MPPEH was present. The DGM survey identified approximately 330 anomalies; 244 of the anomalies (74%) were excavated. None of the anomalies excavated was MEC/MPPEH. Additionally, no surface MEC/MPPEH were identified. Three munitions debris (MD) items were identified, comprising two 5.56-mm expended cartridges and one 7.62-mm expended cartridge, all of which were found in the top 1 foot.

1.1.2 Preliminary Assessment/Site Inspection of Punta Conejo (PAOC EE)

In 2011, a Preliminary Assessment/Site Inspection (PA/SI) was conducted within the current boundary of PAOC EE (**Figure 1-1**) to determine the potential presence of MEC/MPPEH. The inspection consisted of conducting a DGM survey across all 18 acres and excavating selected DGM anomalies to assess if MEC/MPPEH was present. The DGM survey identified 2,542 anomalies; 458 of the anomalies (18%) were excavated. As shown in **Table 1-1**, two of the excavated anomalies were classified as discarded military munitions (DMM), consisting of a 40-mm flare (found within the top 1 foot) and a canister containing propellant (found in the 2-foot to 4-foot interval). The remaining excavated anomalies consisted of small arms, range-related debris (RRD), and cultural debris.

1.1.3 Site Inspection of Cayo La Chiva (UXO 18)

In 2011, an SI was conducted at munitions response site UXO 18 to determine if MEC/MPPEH were present. The inspection consisted of walking transects across UXO 18 using a hand held magnetometer. Five unexploded ordnance (UXO) items (5-inch rockets), likely resulting from air to ground training, were identified on the ground surface (**Figure 1-1**).

1.1.4 Second Munitions Investigation of Playa La Chiva (Blue Beach)

In June 2013, a follow-up munitions investigation of the Blue Beach area was conducted due to the recent findings at UXO 18 and PAOC EE. It differed from the 2003 investigation in that in addition to the sandy portion of the beach, it included the public parking areas and pathways, transects within the terrestrial area north of Route 104, and excavation of 100 percent of the anomalies. Although no surface MEC/MPPEH was

found, the investigation identified 864 subsurface anomalies. Excavation of these anomalies produced one DMM (MEC component [rocket fuze]) at the far eastern end of Blue Beach, adjacent to Punta Conejo (**Figure 1-1**), resulting in the closure of that stretch of the beach. One MPPEH (signal, ground, illumination) commonly called a slap flare was found within the public parking area for Blue Beach, and seven MPPEH (bulk explosives, flares, cartridges, BDU 33, and a practice mine) and two DMM (rifle grenade flare and trip flare) were found in the area north of Route 104. Approximately 1,000 small arms were also found in the area north of Route 104. All of the aforementioned munitions items were found within the top 1 foot. Approximately 450 MD items were found north of Blue Beach, 93% of which were found in the top 1 foot.

Considered collectively, the information gathered during each of the recent investigations at and around Blue Beach indicates there may be explosive hazards present in areas adjacent to Blue Beach that are accessible or potentially accessible to USFWS and the public. Although the information gathered to date suggests the potential explosive hazards are in the shallow subsurface, only the sandy portion of Blue Beach has been 100% investigated (i.e., 100 percent surface and subsurface clearance). If there are remaining surface and/or shallow subsurface munitions items in the areas around Blue Beach posing an explosive hazard, they could be exposed during routine wildlife refuge management activities or during storm events. Because these areas are relatively accessible by the public, a TCRA is warranted to reduce the potential explosive hazard.

1.2 TCRA Objectives, Scope, and Organization

1.2.1 Objectives

The primary objective of this TCRA is to reduce the potential explosive hazard due to the potential presence of surface and/or shallow subsurface MEC/MPPEH within the “TCRA Area” shown in **Figure 1-2**. The TCRA area includes the original area of PAOC EE (Punta Conejo) based on previous findings there (see Section 1.1.2), as well as where historical records indicate the military performed amphibious landing exercises. For the purposes of this TCRA, “shallow” is defined as the top 1 foot because 98% of the total items found during the four investigations in and around Blue Beach were in the top 1 foot. In fact, only 1 DMM item was found deeper than 1 foot. In addition, the site history indicates the area was used for military maneuvers and there are no records of buried munitions or munitions being fired at the site.

The second objective is to redefine the area of PAOC EE as the area in which MEC/MPPEH and related items are found. The revised area will then be used to plan future investigations and/or actions.

1.2.2 Scope and Tasks

In order to mitigate the potential explosive hazard associated with surface and shallow subsurface MEC in the vicinity of Playa la Chiva, the scope of this TCRA is to:

- Locate and visually inspect surface items and intrusively investigate shallow subsurface metallic anomalies, to the extent practicable, with a Whites all-metals detector (or comparable), in the TCRA Area shown on **Figure 1-2**.

In order to accomplish this scope, the following tasks, described in detail in Section 2, will be completed:

- Vegetation cutting and removal to allow access to the work area (Section 2.1.1)
- Surface clearance to address any MEC/MPPEH on the ground surface and to minimize clutter that could negatively influence the subsurface anomaly identification (Sections 2.1.2 – 2.1.3)
- Subsurface anomaly identification and excavation (Section 2.1.3)
- Handling and disposal of recovered items (Section 2.1.4)
- Demobilization (Section 2.1.5)
- Reporting (Section 2.1.6)

Table 1-1

Munitions Items Found and Associated Depths

PAOC EE TCRA Work Plan

Atlantic Fleet Weapons Training Area - Vieques

Former Vieques Naval Training Range

Vieques, Puerto Rico

Investigation	Munitions Group	Munitions Classification	Number of Items		
			0-12"	12-24"	24-48"
First Munitions Investigation of Playa La Chiva (Blue Beach)	MD	Small Arms	3		
Preliminary Assessment/Site Inspection of Punta Canejo (PAOC EE)	DMM	40 mm flare	1		
	DMM	propellant canister			1
Site Inspection of Cayo La Chiva (UXO 18)	UXO	5" rockets	5		
Second Munitions Investigation of Playa La Chiva (Blue Beach)	DMM	MEC Component	1		
	DMM	Flares	2		
	MPPEH	BDU 33	1		
	MPPEH	Signal, Ground, Illumination (commonly called a slap flare)	4		
	MPPEH	Practice Landmine	1		
	MPPEH	Bulk Explosive	1		
	MPPEH	Cartridge	1		
	Small Arms	Small Arms	1000		
	MD	MD Scrap	418	34	
Totals			**1438**	**34**	**1**

R:\USNAVFACENGCOM405450\VIEQUES\MAPFILES\UXO_17_TCRA_ACTION_MEMO\FIGURE 1-1 - PREVIOUS INVESTIGATION RESULTS IN THE VICINITY OF BLUE BEACH.MXD CELEFTHERIADIS 1/28/2014 7:46:28 AM

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Surface Munitions Related Items

- MEC

Subsurface Munitions Related Items

- MPPEH
- DMM
- RRD
- MD from Second Munitions Investigation
- MD from First Munitions Investigation

- First Munitions Investigation Area at Playa La Chiva
- PAOC EE/Punta Conejo
- Cayo de la Chiva
- Blue Beach Investigation Area

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Figure 1-1
Previous Investigation Results in the Vicinity of Blue Beach
PAOC EE TCRA Work Plan
Atlantic Fleet Weapons Training Area - Vieques
Former Vieques Naval Training Range
Vieques, Puerto Rico

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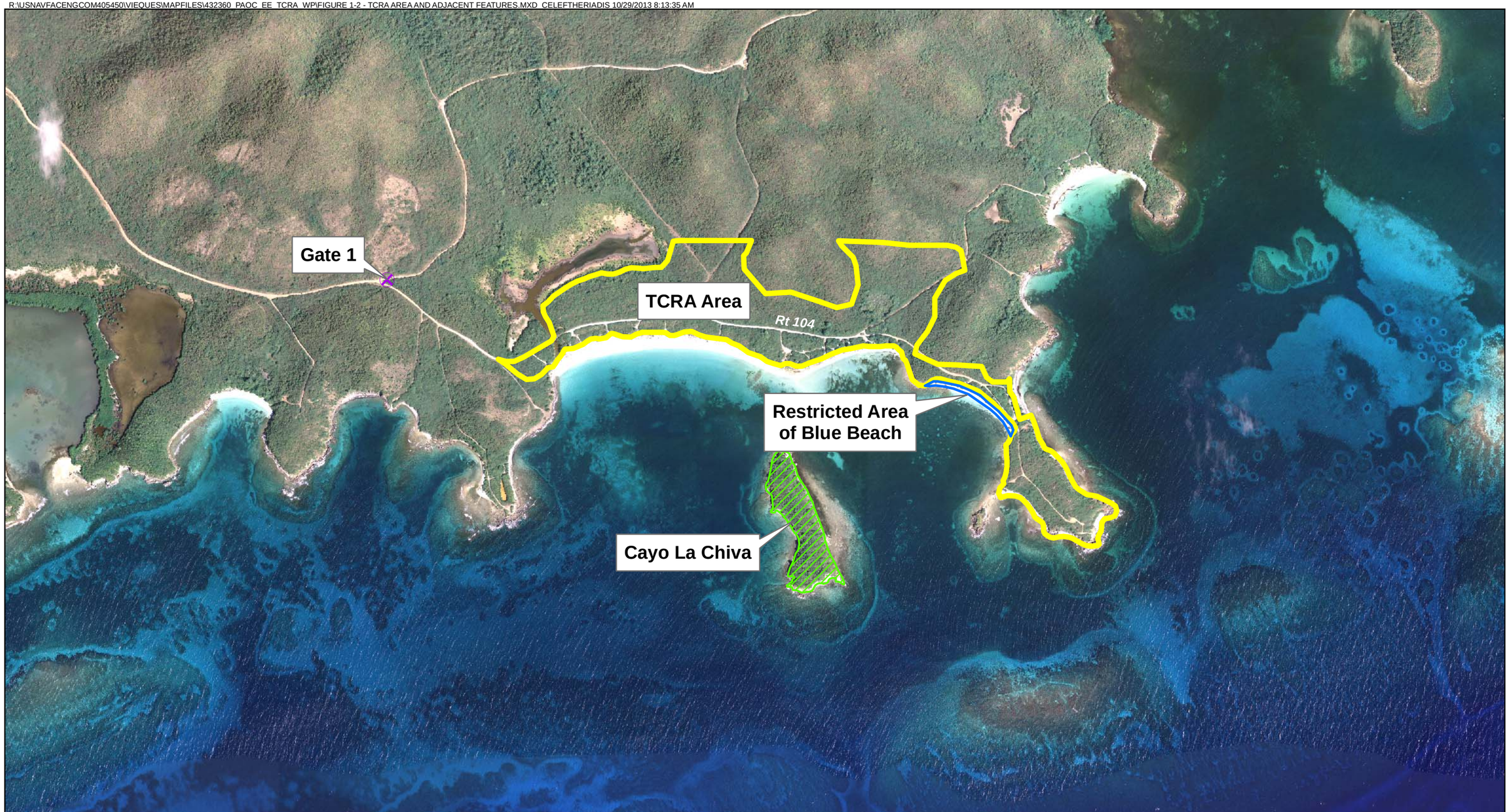

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- Gate
- Cayo de la Chiva
- Restricted Area of Blue Beach
- PAOC EE TCRA Area

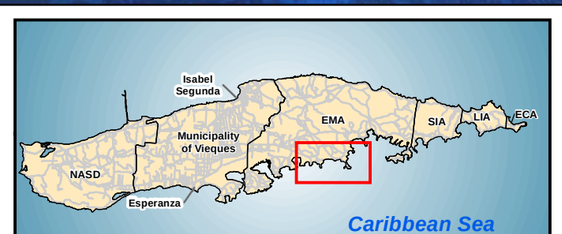

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Figure 1-2
TCRA Area and Adjacent Features
PAOC EE TCRA Work Plan
Atlantic Fleet Weapons Training Area - Vieques
Former Vieques Naval Training Range
Vieques, Puerto Rico

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SECTION 2

Technical Management Plan

This section identifies the approach, methods, and operational procedures to be employed during the TCRA.

2.1 Technical Approach

The technical approach to field operations includes the components identified herein. Specific requirements for the activities are also identified.

2.1.1 Vegetation Removal

Prior to the removal of vegetation, a Biological Assessment (BA) in accordance with Section 7 of the Endangered Species Act (ESA) will be prepared for the TCRA Area. In accordance with the ESA, the BA will detail impact to Threatened and Endangered (T&E) Species and Critical Habitats only, including the hawksbill turtle, which is the only species of turtle whose nesting habitat is potentially impacted by the TCRA. The procedures associated with the hawksbill turtle are the same as those detailed in the Biological Assessment of the former Live Impact Area (GMI, 2006). Because of the nature of the TCRA (i.e., reducing explosive safety risk in areas at and immediately adjacent to public areas), vegetation clearance will be primarily based on the findings of the BA; vegetation clearance in habitat potentially important to the refuge will done in accordance with the following paragraph. It is anticipated that the areas not covered by the BA will be minimal. The BA will be submitted to the USFWS with effect determinations for all T&E and Critical Habitats that may be impacted during implementation of the TCRA. The associated Biological Opinion will be issued by USFWS within 90 days of BA submittal in accordance with Section 7 of the ESA.

Vegetation will be removed in accordance with the Vegetation Removal Standard Operating Procedure (SOP MR-1) in the *Master Sampling and Analysis Plan East Vieques Terrestrial UXO Sites, Former Vieques Naval Training Range, Vieques, Puerto Rico* (CH2MHILL, 2013b), with the following modifications:

- The BA will obviate the need for the Work Area Determination (WAD) process.
- A Whites all-metals detector (or comparable) will be used for anomaly identification instead of digital geophysical mapping (DGM)

Observations made during recent vegetation clearance activities at Solid Waste Management Unit (SWMU) 1 indicate erosion does not readily occur in areas of cut vegetation and runoff from a particular area is confined primarily to drainage features, where it is readily controlled by cut vegetation, silt fencing, and/or hay bales. Therefore, cut vegetation, silt fencing, hay bales and/or other mechanisms will be employed, if and where necessary, to control potential erosion and runoff from the cleared areas during the TCRA.

Erosion and sediment control best management practices (BMPs) will be implemented during the vegetation clearance to minimize the erosion potential. These BMPs will be inspected on a routine basis, repaired or replaced as necessary to ensure their objective continues to be met, and the results documented in the field logs. Any observed deficiencies or issues that render these measures ineffective will be repaired immediately. BMPs shall remain in place until completion of the TCRA. Erosion control experience gained during the SWMU 1 surface clearance will be leveraged to this site, whereby the exact locations of erosion control measures will be based on visual observation during vegetation clearance in areas where runoff would be channeled. The BMPs will comprise hay bales and/or gravel and/or silt fence, based on what is deemed most appropriate for a given location. **Figure 2-1** shows the areas where, at a minimum, erosion control measures will be implemented. It should be noted that within these areas, erosion control measures will be implemented within drainage features observed in the field, not necessarily continuously along the entire demarcation shown in the figure. Further, if during vegetation clearance or interim removal action, other areas are observed warranting erosion control measures, they will be implemented.

2.1.2 Site Layout

- Individual grids (approximately 30 meter [m] × 30 m) throughout the TCRA area.
  - Grid corners will be established using wooden stakes unless not possible due to standing water, sensitive/protected vegetation, or other restrictive conditions.
  - Corners of grids will be coincident with the universal transverse Mercator Grid Plane Coordinates in Easting (meters) and Northing (meters).

2.1.3 Surface and Subsurface MEC Clearance

Following the establishment of boundary points, the ground surface and shallow subsurface will be cleared of MEC/MPPEH and other metallic debris using the process below:

- Subdivide individual grids into individual search lanes 5-feet wide, defined by ropes or some other visual cue.
- Search each lane using a Whites All-Metals detector or comparable to accomplish approximately 100 percent coverage (unless inaccessible).
- Conduct subsurface anomaly excavation in accordance with the Subsurface Anomaly Removal SOP in **Attachment A**.
- Once the item is identified/exposed for inspection, the search/excavation team will determine whether the item is MEC, MPPEH, or other debris.
- All MEC/MPPEH items will be identified and located using a Global Positioning System (GPS) device. Data for the item(s) recovered/identified from the surface and shallow subsurface will be recorded in the field following the procedures in the Vieques Electronic Data Entry SOP in **Attachment A**.
- If the item is MEC/MPPEH, a positive identification will be documented and confirmed by another UXO technician.
- All items recovered will be handled as described in Section 2.1.5 below. Following demolition or removal of the MEC, MPPEH, or other debris, the area will be rechecked with a Whites All-Metals detector (or comparable) to identify any remaining subsurface anomalies.
- If field teams determine an area is inaccessible or unsafe to work utilizing the work approaches prescribed, they will record the following data, which will be included in the TCRA report:
  - Reason(s) area was determined inaccessible or unsafe to work (e.g., water, steep slope)
  - If area is inaccessible or unsafe to work due to slope, the approximate percent slope
  - Boundary of the inaccessible/unsafe area using GPS units
  - Grid(s) location or MRS location
  - Date and time
  - Munitions Response (MR) contractor team leader name
  - Quality Assurance (QA) representative verification of conditions

2.1.4 MEC/MPPEH Handling

All items recovered during the surface clearance and during the subsurface anomaly removal will be handled in accordance with the ESS (CH2M HILL, 2011b), modified to incorporate the expanded boundaries of the site and the Whites All Metals detector (or comparable) process described herein, and the following procedures:

- If the MEC/MPPEH is safe to move (as confirmed by the SUXOS and Unexploded Ordnance Safety Officer [UXOSO]), it will be moved within the grid or several adjacent grids for controlled detonation and/or consolidation detonation in accordance with the MR contractor work plan.

- MEC/MPPEH that is not safe to move will be clearly marked. Additionally, the accessibility, explosive hazard, location, and other factors will be assessed to determine if additional safety measures should be put in place to protect the public and site workers until it can be demilitarized. The item will then be scheduled for demilitarization by blow-in-place (BIP) methods in accordance with the MR contractor work plan.
- Inert metallic items (i.e., MD, RRD, and CD) will be removed from the grid and consolidated onsite in a designated area. These metallic items will be screened for MEC/MPPEH. The metallic items will also be inspected to determine if they require special handling due to the potential for release of environmental pollutants (e.g., petroleum products, coolants, batteries). These items will be handled accordingly.

2.1.5 Demobilization

During and upon completion of the TCRA:

- Excavations will be backfilled following anomaly excavation and removal
- Areas not addressed by the BA where vegetation has been removed will be allowed to naturally re-vegetate

2.1.6 Reporting

Following the completion of TCRA activities, a TCRA Report will be developed. The report will provide the data collected throughout the interim removal action, including: anomaly investigation data, MEC/MPPEH identification information, and information regarding the disposition of all MEC/MPPEH and other items recovered.

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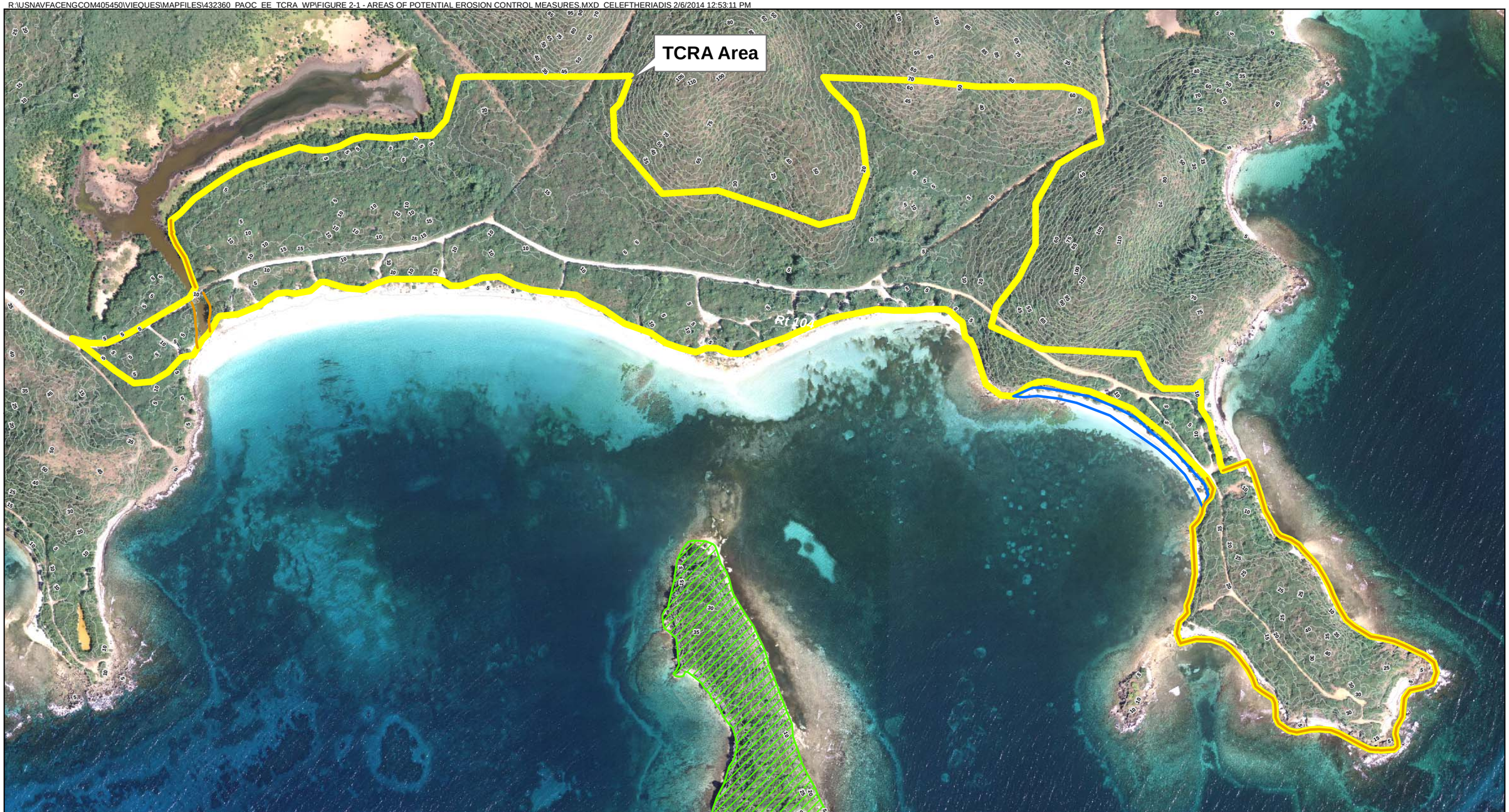
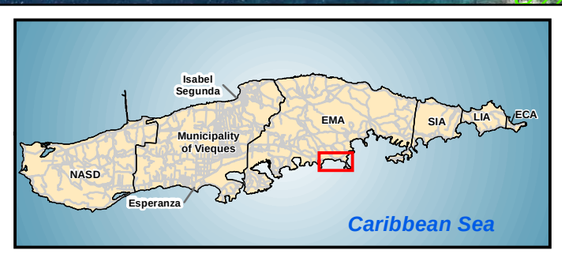


Legend

- Topographic Contour (5 feet)
- Potential Areas of Erosion Control Measures
- Cayo de la Chiva
- Restricted Area of Blue Beach
- PAOC EE TCRA Action Area



N
W E
S

0 500 1,000 Feet

Figure 2-1
Areas of Potential Erosion Control Measures
PAOC EE TCRA Work Plan
Atlantic Fleet Weapons Training Area - Vieques
Former Vieques Naval Training Range
Vieques, Puerto Rico

CH2MHILL

SECTION 3

Quality Control Plan

This section provides the quality control/quality assurance (QC/QA) process associated with the munitions response being conducted for the TCRA.

3.1 Quality Control Implementation

- Establishment of data quality objectives (DQOs) and acceptance criteria by the Navy (see **Table 3-1**) and associated monitoring by the contractor's Unexploded Ordnance Quality Control Specialist (UXOQCS)
- Any QC failure will result in immediate notification of the contractor project manager (PM), who will promptly notify the NAVFAC Remedial Program Manager (RPM), and documentation in the QC log book

3.1.1 Three-Phases of Control

- QC will be monitored using a three-phase control process.
  - Preparatory Phase, Initial Phase, and Follow-up Phase
  - Production work is not to be performed until successful Preparatory and Initial Phases have been completed
  - Forms in **Attachment B** and listed below, or similar forms developed by the Munitions Response contractor , will be used to document the Preparatory Phase, Initial Phase, and Follow-up Phase:
    - Form 1: Personnel qualifications
    - Form 2: Preparatory Inspection checklist
    - Form 3: Initial Phase Checklist
    - Form 4 Follow Up Checklist
    - Form 5: Final Inspection Checklist
    - Form 6: Inspection schedule and tracking form

3.1.2 Definable Features of Work

- Definable features of work (DFOW) are established within each QC phase of the control process (see **Table 3-1**)
- DFOWs include the audit procedure, the frequency of the audit, the pass fail criteria, and the required action if failure occurs

Key components of the DFOW are described below:

Equipment Testing and Maintenance

- Handheld all-metals detectors will be tested daily prior to field use
  - The equipment will be operated over a test strip seeded with buried, inert, known Industry Standard Objects (ISOs) or ordnance (or surrogates) of the type anticipated to be recovered during the TCRA
  - Testing results will be recorded in the Field Activity Daily Log
  - Instrumentation not performing adequately during the test will be taken out of service until it is repaired or re-calibrated and re-tested

- Any failed test will be noted on the deficiency log for tracking and future re-testing; resolution of the failed test when re-testing is performed and the associated corrective action will be recorded on the deficiency log
- The UXOQCS is responsible for ensuring the tests are performed and that the results are summarized and provided with the QC Report

3.1.3 MEC Removal Quality Control

- For QC inspection of cleared grids and anomaly locations, MIL-STD-1916 (and accompanying Military Handbook [MIL-HDBK]-1916) will be implemented as follows:
  - Initial Verification Level (VL) will be III for both the surface and subsurface MEC clearance
  - The initial QC will require 100% inspection of the surface and subsurface clearance grids
  - The switching method will be used as given in the MIL-HDBK-1916 to determine decreases or increases in QC level
  - The minimum area that will be QC inspected with these parameters is 10 percent of the grids
  - A QC failure will occur if an MEC item or a metallic item equal or greater in mass to a 20-millimeter (mm) projectile is found during the QC inspection of the grids and anomaly locations

3.2 Quality Assurance Implementation

- All interim removal action operations will be performed by the MR contractor contracted directly by NAVFAC Atlantic, independent of the Title II service contractor. Quality assurance will be performed by the Title II services contractor.
- QA will consist of conducting acceptance inspections of completed work and performing observations to ensure contractors are complying with the TCRA work plan, the ESS, and the DFOW (**Table 3-1**).
- Acceptance QC levels will be in accordance with MIL-STD-1916 and follow the same switching criteria as the QC process.

3.3 Corrective/Preventive Action Procedures

- In the event a QC failure is identified, a Corrective Action Request (CAR) will be issued by the UXO QCS or QA Assessors; Form 7 in **Attachment B,** or similar form developed by the munitions removal contractor**,** will be used when submitting CARs
  - The MR contractor PM and SUXOS are 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 will be forwarded to the UXOQCS to verify the effectiveness of the corrective action and closure of the CAR
- The UXOQCS will determine whether a written Corrective Action Plan (CAP) 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
  - Deficiency requires extensive resources and planning to correct the deficiency and to prevent recurrence

- The CAP is developed by a PM designee and approved and signed by the PM, using Form 8 in **Attachment B**
  - The CAP will indicate whether it is submitted for informational purposes or for review and approval
  - The PM and SUXOS will discuss the corrective action strategy with the UXOQCS throughout the process

3.4 Records Generated

- The UXOQCS is responsible for preparing and submitting the weekly QC report to the NAVFAC RPM and Title II Services contractor on the first workday following the dates covered by the report.
  - The weekly QC Report will provide an overview of QC activities performed each day and report both conforming and deficient conditions.
  - A field QC log will be maintained by the UXOQCS to document details of field activities during QC monitoring activities. Copies of the log entries are to be attached to the weekly QC Report.
  - QC and health and safety staff input for the weekly QC Report shall be provided to the UXOQCS on a daily basis.
  - Copies of weekly QC Reports with attachments and field QC logs no longer in use will be maintained in the project QC file. Upon project closeout, all QC logs will be included in the project QC file.

TABLE 3-1
Definable Features of Work
PAOC EE TCRA Work Plan
Atlantic Fleet Weapons Training Area – Vieques
Former Vieques Naval Training Range
Vieques, Puerto Rico

Activity	DFOW with Auditable Function	Audit Procedure	QC Phase	Frequency of Audit	Pass/Fail Criteria	Action if Failure Occurs
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	Pre-Mobilization Activities	Verify MR contractor qualifications, training, licenses	PP/IP	Once	Subcontractors' qualifications, training, and licenses are up to date and acceptable	Do not proceed with work until the qualifications, training, and licenses are provided
Planning	Work Plan preparation and approval	Verify that Work Plan and ESS has been prepared and approved	PP/IP	Once	Work Plan and ESS has been prepared and approved	Do not proceed with field activities until criterion is passed
Field Operations	Site preparation	Verify all project SOPs are approved	PP/IP	Once	All SOPs are approved	Do not proceed with field activities until criterion is passed
Field Operations	Site preparation	Verify regulatory agencies are notified of field schedule	PP/IP	Once	Regulatory agencies are notified	Do not proceed with field activities until criterion is passed
Field Operations	Site preparation	Verify GPS and hand held geophysical equipment are procured	PP/IP	Once	Equipment is procured	Proceed only with activities for which equipment has been procured
Field Operations	Site preparation	Verify MR data management systems and other logistical support are coordinated	PP/IP	Once	Data management system and other logistical support are coordinated	Do not proceed with field activities until criterion is passed
Field Operations	Site preparation	Verify Emergency Services are coordinated	PP/IP	Once	Emergency Services are coordinated	Do not proceed with field activities until criterion is passed

TABLE 3-1
Definable Features of Work
PAOC EE TCRA Work Plan
Atlantic Fleet Weapons Training Area – Vieques
Former Vieques Naval Training Range
Vieques, Puerto Rico

Activity	DFOW with Auditable Function	Audit Procedure	QC Phase	Frequency of Audit	Pass/Fail Criteria	Action if Failure Occurs
Field Operations	Site preparation	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	Verify explosive storage and MEC debris/scrap storage areas are established	PP/IP	Once	Explosive storage and MEC debris/scrap storage areas are established in accordance with ESS	Do not proceed with field activities until criterion is passed
Field Operations	Site preparation	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	Verify project plans are reviewed and acknowledged by field staff	PP/IP	Once	Project plans are reviewed and acknowledged	Do not proceed with field activities until criterion is passed
Field Operations	Site layout	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 layout	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 layout	Verify grid 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 area to be cleared of vegetation has completed in accordance with Biological Assessment (BA) process	PP/IP	Once	BA has been documented as reviewed by FWS and comments addressed accordingly.	Do not conduct vegetation removal activities until BA has been reviewed and comments addressed accordingly
Field Operations	Vegetation removal	Verify personnel qualifications and training	PP/IP	Once	Personnel qualifications and training are appropriate	Ensure MR contractor provides appropriately trained and qualified personnel prior to initiating work

TABLE 3-1
Definable Features of Work
PAOC EE TCRA Work Plan
Atlantic Fleet Weapons Training Area – Vieques
Former Vieques Naval Training Range
Vieques, Puerto Rico

Activity	DFOW with Auditable Function	Audit Procedure	QC Phase	Frequency of Audit	Pass/Fail Criteria	Action if Failure Occurs
Field Operations	Surface MEC Clearance/Subsurface MEC Clearance	Verify testing of All Metals hand held equipment	IP/FP	Daily	Equipment passes daily function test in equipment check area	Repair or replace instrument
Field Operations	Surface MEC Clearance/Subsurface MEC Clearance	Verify area/boundary	PP/IP	Once	Area/boundary is correct	Stop activities until area/boundary can be verified
Field Operations	Surface MEC Clearance/Subsurface MEC Clearance	Verify work methods	IP/FP	Daily	Work methods are being performed IAW the Work Plan and SOPs	Stop activities until Work Plan and SOPs are being followed and any activities not performed within compliance are re-evaluated and re-performed if necessary
Field Operations	Surface MEC Clearance/Subsurface MEC Clearance	Verify Team separation distance in accordance with ESS	IP/FP	Daily	Team separation distance is appropriate for work being performed	Stop activities until appropriate separation distance is being followed
Field Operations	Surface MEC Clearance/Subsurface MEC Clearance	Verify clearance conducted in accordance with TCRA Anomaly Removal SOP	IP/FP	Daily	Clearance conducted IAW Work Plan and SOP	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 MEC Clearance/Subsurface MEC Clearance	Check a portion of each QC lot to insure Acceptance Criteria are met. (Attachment B, Forms 4-6)	FP	Each Occurrence	MIL-HDBK-1916 and Section 10 of the NTCRA Work Plan for SIA MRSs 1-7 (CH2MHILL,2009)	Corrective Action Request prepared (Attachment B, Form 7) Lot will be resurveyed and root cause analysis will be performed
Field Operations	Subsurface MEC Clearance	QA Inspection of a portion of each QC lot to insure Acceptance Criteria are met.	FP	Each Occurrence	MIL-HDBK-1916 and Work Plan (CH2MHILL, 2009)	Corrective Action Plan developed (Attachment B,, Form 8) Lot will be resurveyed and root cause analysis will be performed

TABLE 3-1
Definable Features of Work
PAOC EE TCRA Work Plan
Atlantic Fleet Weapons Training Area – Vieques
Former Vieques Naval Training Range
Vieques, Puerto Rico

Activity	DFOW with Auditable Function	Audit Procedure	QC Phase	Frequency of Audit	Pass/Fail Criteria	Action if Failure Occurs
Field Operations	Inspection (MPPEH Management)	Verify personnel qualifications Attachment B, Form 1)	IP/FP	Once	Personnel are qualified	Replace unqualified personnel with qualified personnel
Field Operations	Certification (MPPEH Management)	Verify Inspection conducted in accordance with ESS	IP/FP	Daily/Each Occurrence	Inspection being conducted in accordance with ESS	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 (Attachment B, Form 1)	IP/FP	Once	Personnel are qualified	Replace unqualified personnel with qualified personnel
Field Operations	Certification (MPPEH Management)	Verify certification is conducted in accordance with ESS	IP/FP	Daily/Each Occurrence	Certification is conducted in accordance with ESS	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 in accordance with ESS	IP/FP	Daily/Each Occurrence	Disposal is conducted in accordance with ESS	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 in accordance with MR contractor Work Plan	IP/FP	Each Occurrence	Operations conducted in accordance with MR Contractor Work Plan	Stop activity until full compliance can be assured and any activities not performed within compliance are re-evaluated and re-performed if necessary

TABLE 3-1
Definable Features of Work
PAOC EE TCRA Work Plan
Atlantic Fleet Weapons Training Area – Vieques
Former Vieques Naval Training Range
Vieques, Puerto Rico

Activity	DFOW with Auditable Function	Audit Procedure	QC Phase	Frequency of Audit	Pass/Fail Criteria	Action if Failure Occurs
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 Status Report preparation and approval	Verify tabulation of all MEC, MD, and other acres cleared during the removal actions are accurate and complete	IP	Once	Tabulation of all MEC, MD, and acres cleared 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	Status Report preparation and approval by NAVFAC	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	After Action Report Review and Approval	Verify Final After Action Report has been approved following completion of tasks in ESS	IP	Once	Final After Action Report has been approved	Take appropriate actions to ensure document gets 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 task orders have been closed out	IP	Once	Task orders have been closed out	Ensure task 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

SECTION 4

References

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CH2M HILL. 2006c. *Explosives Safety Submission/Site Approval Request, Former Vieques Naval Training Range, Rev. 3, Vieques, Puerto Rico.* December.

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CH2MHILL 2013b. *Master Sampling and Analysis Plan East Vieques Terrestrial UXO Sites Former Vieques Naval Training Range Vieques, Puerto Rico*. January.

GMI. 2006. *Biological Assessment of the Former LIA within the Former Vieques Naval Training Range*, *Vieques, Puerto Rico*. May.

United States Fish and Wildlife Service (USFWS). 2007. *Vieques National Wildlife Refuge Comprehensive Conservation Plan and Environmental Impact Statement.* August.

Attachment A
Standard Operating Procedures

STANDARD OPERATING PROCEDURE

TCRA Subsurface Anomaly Removal

1.1 Purpose and Scope

The purpose of this Standard Operating Procedure (SOP) is to identify the means and methods to be employed for conducting a subsurface removal of munitions and explosives of concern (MEC) and material potentially presenting an explosive hazard (MPPEH) at PAOC EE. The approach for this removal will include UXO Technicians searching their assigned area using a handheld Whites All Metals detector and investigate in real time any detected anomalies.

1.2 Equipment and Materials

- White's XLT all metals detector, or comparable
- Real-Time Kinematic (RTK) global positioning systems (GPS)
- Munitions Response data collection device
- Hand tools – shovel, pick ax, breaker bar, etc.

1.3 Procedures and Guidelines

1.3.1 Anomaly Excavation and Removal

- Prior to the UXO Team conducting the MEC removal, vegetation removal teams will have established and marked a grid system and removed vegetation. Vegetation removal activities will be performed in accordance with the Biological Assessment and Biological Opinion of the TCRA Area.
- The operating grid, which will consist of 30 meters X 30 meters, will be further subdivided into 5 feet wide search lanes. The UXO team will layout search lanes and search the lanes for the entire length of the grid using a White's XLT all metals detector (or comparable). When the all-metals detector provides an audio signal that an anomaly has been detected, the UXO technician(s) will investigate the anomaly before continuing the search. It is anticipated that a single UXO technician will search and excavate anomalies within a single search lane or two UXO technicians, one detecting and the other excavating, will be used to search individual lanes.
- The depth of excavation will be 1 foot unless at the 1 foot depth an item or portion of an item is visible and is a probable MEC/MPPEH. If a probable MEC/MPPEH is observed, excavation will continue until the item is positively identified as not being MEC/MPPEH or if it is MEC/MPPEH until it may be removed if safe to do so. If at the 1 foot level nothing is observed, the excavation will be abandoned. If it is not safe to move, it will be blown in place. If MEC/MPPEH is to be moved, the Senior Unexploded Ordnance Supervisor (SUXOS) and the Unexploded Ordnance Safety Officer (UXOSO) must agree and document the decision to move the item prior to any MEC/MPPEH being moved.
- The number and location of any unresolved anomalies below a depth of 1 foot will be recorded
- The source of each anomaly detected will be identified prior to continuing the search, if possible. If the source of an anomaly cannot be identified, the anomaly will be clearly marked and the GPS coordinates recorded. The anomaly will be resolved prior to the grid being closed out or offered for QC/QA. GPS coordinates will also be recorded for all the MEC/MPPEH locations identified.
- The following information will be collected and entered into the data collection device:
  - The munitions group, classification and depth and GPS location of any MEC/MPPEH Identified
  - The estimated number of anomalies identified in each grid
  - The number of "no finds" identified in each grid

  - The number and locations of unresolved anomalies deeper than 1 foot
  - Estimated weight of material recovered from each grid
  - Time operations start and finish for each grid

- Any factors that limit the investigation depth of an anomaly at a specific location will be recorded in the field data collection device, and then will be uploaded to the MR data management system.
- Due to site conditions that may limit excavation and the limits on the inspection depths, all anomalies may not be removed. The number of anomalies that are not removed from each grid will be recorded. This information will be evaluated to assess the need for additional MR action(s) at that location.
- All material removed from the site will go through an inspection process to identify MPPEH. The material will be also be demilitarized in accordance with the procedures identified in the ESS and MR contractor's work plan.

1.3.2 Quality Control

The Quality Control (QC) will include geophysical system verification (GSV) which includes an Instrument Verification Strip (ISV) The IVS will be initiated at the start of the project include the detection of the location of known buried Industry Standard Objects (ISOs) or inert MEC items (or surrogates if necessary) to measure the instrument responses to ensure proper system performance. Handheld all metals detectors will be tested each day the detector is used prior to field use throughout the project duration. Instrumentation not performing adequately during the test will be taken out of service until it is repaired or replaced. The instrument will then be retested prior to being placed back into service.

In addition, QC surveys will be performed by the UXOQCS by using the same hand held detector, to resurvey at a minimum of 10 percent of the lanes initially surveyed within each grid in accordance with the QC procedure in the ESS and the MR Contractor Work Plan. If any MEC, MEC-like targets, or metallic items exceeding 2 inches maximum dimension are found, then the grid will be failed and the entire grid will be resurveyed. Depending on the cause of the failure it is possible that additional resurvey of other grids will be required.

1.3.3 Quality Assurance Operations

Quality Assurance will be provided by the Navy QA personnel to assure that the Contractor's QC system is functioning as stated. Areas of QA include:

- Monitor MR Contractor field practices to ensure compliance with the work plans.
- Review and observe field ground control and GPS and GSV procedures.
- Independently examine data files in the database to ensure all MEC/MPPEH data was accurately recorded, all the grids were subsurface cleared of MEC, and all grids were QCd and QAd.
- Independently conduct an anomaly inspection and removal, using an all metals detector, over a minimum of 10 percent of the area previously surveyed in accordance with the QA procedure in the ESS.

STANDARD OPERATING PROCEDURE

Vieques Electronic Data Entry

1.1 Purpose

This SOP provides general guidelines for entering munitions response (MR) field data into the hand-held electronic data collection devices utilized on Vieques during the munitions response site investigation and remediation activities; the devices are Trimble GeoXTs or Juno 5 B GPS units, or equivalent, that are commonly referred to as personal digital assistants (PDAs). This is a general description of the data collection process using the CartoPac Enterprise system and the associated forms developed and loaded to the data collection devices. Log books are needed to properly document all field activities.

1.2 Equipment and Materials

- Trimble GeoXT or Juno 5 B GPS unit, or equivalent, with the Vieques CartoPac Enterprise project loaded
- Stylus, as necessary

1.3 Procedures and Guidelines

The procedures for using the PDAs will vary by user/team; these processes are outlined below:

1.3.1 All Teams

- If CartoPac is not already open on the PDA, go to Start – CartoPac Enterprise.
- After CartoPac loads (even if you see the map on the screen) go to File – Open. Under 'Projects,' make sure that the team type is selected. Then tap 'Open.'
- Enter a safety form:
  - Tap on the + button in the bottom toolbar and select "1a – Safety Meeting Form" from the dropdown list.
  - Tap on "Create." The form will open automatically – you do not need to tap on the screen to select a location.
- Enter the MEC Daily form:
  - Tap on the + button in the bottom toolbar and select "3a – MEC Daily Form" from the dropdown list.
  - Tap on "Create."' The form will open automatically – you do not need to tap on the screen to select a location.

1.3.2 Surface MEC and Vegetation Clearance

- Enter a MEC Operations form for each Grid:
  - Tap on the + button and "select 3b – MEC Operations Form."
  - Tap on "Create." The form will open automatically.
  - Using the current position of the GPS unit, the form loads a list of nearby grids. If you receive a message that the form requires your current GPS position, click OK to use your current location on the PDA's map, or tap Cancel and turn on your GPS. The grids available in the dropdown list are within 100 meters of your current position.
  - Select a grid and enter the operation type from the drop down list (such as "Surface MEC Clearance" or "Manual Vegetation Clearance") and enter the start time.

- Tap on the Items Found tab to enter Items:
  - Tap on the 'Add' button.
  - With the GPS on, a point will be inserted where you are standing. Otherwise, tap on the screen where you found the item or are performing the work.
  - Enter information about the item/work function in the appropriate field on the GPS unit. Hit "OK" in upper right to save item.
  - The Trimble Juno 5B GPS units have a built in camera that will be used to take pictures of items and representative before and after picture where vegetation is cleared. In order to better document the items removed, the conditions of the items, and the overall site conditions (such as vegetation, the ground surface, debris fields, etc.), pictures of the items recovered and the pre-and post-vegetation removal site conditions is required; see Section 1.4 of this SOP for picture-taking guidelines. These pictures will be used to better document the site, items, and actions taken at the site and will be used to support document, presentations, and other removal action related accounts. To take pictures:
    - On the last tab on the item form click on "new" or "add" button on the relationship control. This will open a new form.
    - Click on the camera button to open the device camera.
    - Tap the screen to bring up the capture control. Point the camera at the target and click on the camera button on the bottom of the screen. No matter how many pictures you take, only the last one will be saved. When you have the shot you want, tap the screen and click okay in the top right corner, or press the physical button on the bottom right of the device.
    - The form will ask you to enter a name for the picture. After the name is entered hit ok.
    - The picture will be saved after hitting "OK" and the Item Form will reappear.
    - Additional pictures can be added by continuing to click on the camera button and following the steps above.
  - Click "OK" to leave the item form when you are done with that item
  - Continue adding items in this grid by tapping "Add"
- When finished adding items, enter grid completion info under "End Info" tab on the MEC Ops form.

Attributes collected for surface items are entered in to the pre-loaded forms as described above. At the end of each day the data will be loaded into the Vieques MR database. The data attributes identified below are recorded through the forms and will appear in the database:

Surface MEC Data Attributes
Unique Identification Number
Item Group
Item Class
Item Category
Type/Filler
Description/Fuzing
Quantity

Surface MEC Data Attributes
Depth
Weight
Frag
Demo Required
Team Leader Comment for Item
Location
Date Found
Grid
Action Taken
Item Moved To
X Geographic Coordinate
Y Geographic Coordinate
Team
Item Found During QC/QA?
Demo Complete Date

1.3.3 Subsurface MEC Clearance

- Enter a MEC Operations form for each Grid:
  - Tap on the + button and select 3b – MEC Operations Form
  - Tap on “Create.” The form will open automatically.
  - The form uses your current position to load a list of nearby grids. If you receive a message that the form requires your current GPS position, click OK to use your current location on the PDA’s map, or tap Cancel and turn on your GPS. The grids available in the dropdown list are within 100 meters of your current position.
  - Select a grid, operation type and enter your start time.
  - Enter your end time and percent complete of available grid area, then close the form.
  - Enter dig results depending on the type of anomalies – For the all-metals detector data is recorded using the 3G form:
    - Data will only be recorded when MEC/MPPEH is encountered, the source of the anomaly has not been identified after investigating to the maximum investigation depth, or the source of the anomaly is below water.
    - Tap on the + button and select 3G – Form.
    - The form will auto-populate information about the anomaly location (i.e., coordinates, grid ID, etc.). The user will need enter the appropriate information about the item using the form.
  - The Trimble Juno 5B GPS units have a built in camera that will be used to take pictures of recovered MEC and MPPEH items These pictures will be used to better document the site, items

recovered/identified, and actions taken at the site and will be used to support document, presentations, and other removal action related accounts. To add pictures to the data entry:

- On the last tab on the item form click on “new” or “add” button on the relationship control. This will open a new form.
- Click on the camera button to open the device camera.
- Tap the screen to bring up the capture control. Point the camera at the target and click on the camera button on the bottom of the screen. No matter how many pictures you take, only the last one will be saved. When you have the shot you want, tap the screen and click okay in the top right corner, or press the physical button on the bottom right of the device.
- The form will ask you to enter a name for the picture. After the name is entered hit ok.
- The picture will be saved after hitting “OK” and the Item Form will reappear.
- Additional pictures can be added by continuing to click on the camera button and following the steps above.
- Click “OK” to leave the item form when you are done with that item

Attributes collected for the subsurface MEC/MPPEH items are entered in to the pre-loaded forms as described above. At the end of each day the data will be loaded into the Vieques MR database. The data attributes identified below are recorded through the forms and will appear in the database:

Subsurface MEC Data Attributes
Unique Identification Number
Item Group
Item Class
Item Category
Type/Filler
Description/Fuzing
Quantity
Depth
Weight
Frag
Demo Required
Team Leader Comment for Item
Location
Date Found
Grid
Action Taken
Item Moved To
X Geographic Coordinate
Y Geographic Coordinate
Team
Item Found During QC/QA?
Demo Complete Date

1.3.4 Scrap Processing

- Enter scrap processing data:
  - Tap on the + button and select one of the 5-series forms.
    - 5a – MD/RRD Inspection and Recovery
    - 5b – Steel and Aluminum Recovery
    - 5c – CPC Ops
    - 5d – MD Flashing
    - 5e – 5X Certification

The Trimble Juno 5B GPS units have a built in camera that will be used to take representative pictures of the scrap processing process. Each operation has a tab for taking pictures and associating them with that activity; see Section 1.4 of this SOP for picture-taking guidelines. To take pictures:

- On the last tab on the item form click on “new” or “add” button on the relationship control. This will open a new form.
- Click on the camera button to open the device camera.
- Tap the screen to bring up the capture control. Point the camera at the target and click on the camera button on the bottom of the screen. No matter how many pictures you take, only the last one will be saved. When you have the shot you want, tap the screen and click okay in the top right corner, or press the physical button on the bottom right of the device.
- The form will ask you to enter a name for the picture. After the name is entered hit ok.
- The picture will be saved after hitting “OK” and the Item Form will reappear.
- Additional pictures can be added by continuing to click on the camera button and following the steps above.

If performing other grid operations (such as surface clearance), enter a MEC Operations form for the Grid:

- Tap on the + button and select 3b – MEC Operations Form
- Tap on “Create.” The form will open automatically.
- The form uses your current position to load a list of nearby grids. If you receive a message that the form requires your current GPS position, click OK to use your current location on the PDA’s map, or tap Cancel and turn on your GPS. The grids available in the dropdown list are within 100 meters of your current position.
- Select a grid, operation type, and enter your start time.
  - Tap on the Items Found tab to enter Items:
  - Tap on the “Add” button.
  - If you have the GPS on, a point will be inserted where you are standing. Otherwise, tap on the screen where you found the item.
  - Enter information about the item. Hit “OK” in upper right to save item.
  - Continue adding items in this grid by tapping “Add”
- When finished adding items, enter grid completion info under “End Info” tab on the MEC Ops form.
- Enter your end time and percent complete of available grid area, then close the form.

1.3.5 Quality Control/Quality Assurance

- Enter a MEC Operations form for the Grid:
  - Tap on the + button and select 3b – MEC Operations Form
  - Tap on "Create." The form will open automatically.
  - The form uses your current position to load a list of nearby grids. If you receive a message that the form requires your current GPS position, click OK to use your current location on the PDA's map, or tap Cancel and turn on your GPS. The grids available in the dropdown list are within 100 meters of your current position.
  - Select a grid, operation type = "QC Surface Clearance" or "QA Surface Clearance" and enter your start time.
  - Enter your end time and percent complete of available grid area, then close the form.
- Enter a QC/QA Grid Form:
  - Tap on the + button and select 3d – QC/QA Grid Form.
  - Tap on "Create." The form will open automatically.
  - Enter QC/QA info and results for the grid, then tap OK to save the form.

1.3.6 To Edit Data That Has Been Entered

- Tap on View – Data Summary.
- Tap on the icon in the top right, and a new window will open.
- Make sure "Layers & Tables" is selected.
- Select the form you want to edit from the drop down list and hit "Select."
- Data you have entered will appear in the list. You can sort the data by tapping on any of the column headings. You can change the columns shown by tapping on the Columns tab.
- Tap once on a line item and then tap "Data" in the bottom right to open the form.
- Make any changes to the data and hit OK in the upper right.

1.4 Picture-taking Guidelines

As discussed previously, representative pictures must be taken of the project area, work activity, items being removed, etc., for the purposes of documenting the project site conditions and field activities. The preference is for the pictures to be taken as part of the data entry process using the project GPS units; however, if the GPS unit does not have a built-in camera, pictures should be taken with a digital camera and provided to the project management team with the relevant information about the picture (i.e., description, location, etc.). The minimum requirements for the pictures are provided below.

- The number of pictures take per location/activity will vary to properly document the conditions/work approaches. The number of pictures must be sufficient so that a person unfamiliar with the project site can get a good understanding of site conditions/work activities by looking at the pictures.
- At a minimum one picture must be taken to achieve the action-specific requirements described below; however, additional pictures are encouraged and may be necessary to fully document the site conditions/item
- Pictures must be taken at the appropriate zoom to allow for the intent of the pictures to be easily distinguishable. For instance, if a picture/series of pictures is intended to show the vegetation density of an area, the picture(s) should be zoomed out to allow the viewer to see the extent and height of the

vegetation. Similarly, if the picture is intended to show the size and type of vegetation, the picture(s) should be zoomed in to an extent that allows the viewer to recognize the scale of plant size and the plant species by the general location (i.e., near lagoon, on rock outcropping, etc.), leaf shape, and/or bark.

- Appropriate/common sized items should be inserted into the picture frame to allow the viewer to get a sense of scale for the subject of the picture.
- Potential archaeological sites, evidence of trespasser access and activities, protected plants and animal species, berms and drums, and a myriad of other items may be encountered that are not directly related to the munitions removal activities; however, these items may potentially have significant impact on the ability to work in a given area or the work approach for that area. Pictures of these atypical items must be taken as the items are encountered to allow the project management team to make decisions on the work activities near these items.
- Upon mobilization to a site to be cleared of vegetation, pictures that best represent site-wide pre-vegetation clearance conditions must be taken. These pictures must show the vegetation type, coverage, and density of the area to be cut.
- Following vegetation removal, pictures that best represent site-wide post-vegetation clearance conditions must be taken. These pictures must show the condition of the ground surface, vegetation remaining at the site, buffer zones at beaches and quebradas (as appropriate), and the general ground slope of the area (as possible).
- If a tree larger than 3 inches in diameter is cut, a picture of the tree must be taken before it is cut to document that the tree would be an impediment to or safety concern for the munitions removal activities.
- If sensitive or protected vegetation is identified in the work area, pictures allowing for the extent and identification of the species must be taken.
- All recovered MEC should be photographed. The photographs must show the condition and disposition of the item at the time of identification.

1.5 Quality Control

- Data entries will be reviewed on a daily basis by the MR contractor's data management personnel. The data will be reviewed to ensure completeness, consistency, and accuracy. Any discrepancies or incorrect data will be resolved during the review. Data subject to this QC review includes, but is not limited to, items found, grid status, and team operations.
- The Title 2 data management personnel will review data only after it has been QC'd by the MR contractor collecting the data. The data will be reviewed to ensure completeness, consistency, and accuracy. Data subject to this QA review includes, but is not limited to, items found, grid status, and team operations. Any discrepancies will be identified and reported to the MR contractor for clarification and or correction.

1.6 Attachments

- None

Attachment B
Quality Control Inspection Forms

FORM 1

PERSONNEL QUALIFICATION VERFICATION FORM

NAME: _____ **POSITION** _____

CONTRACT:

REVIEW ITEMS		QUALIFICATIONS	VERIFIED BY/DATE
EXPERIENCE	REQUIRED:		
	ACTUAL:		
EDUCATION	REQUIRED:		
	ACTUAL:		
CERTIFICATIONS & QUALIFICATIONS	REQUIRED:		
	ACTUAL:		
TRAINING	REQUIRED:		
	ACTUAL:		
OTHER	REQUIRED:		
	ACTUAL:		

FORM 2

PREPARATORY INSPECTION CHECKLIST
(PART I)

Contract:

Date: _____

Title and No. of Technical Section: _____

_____

_____

_____

A. Planned Attendees:

	Name	Position	Company
1)			
2)			
3)			
4)			
5)			
6)			
7)			
8)			
9)			
10)			
11)			

B. Submittals required to begin work:

	Item	Submittal No.	Action Code
1)			
2)			
3)			
4)			
5)			
6)			
7)			
8)			

FORM 2

PREPARATORY INSPECTION CHECKLIST
(PART I)

C. Equipment to be used in executing work:

1) _____
2) _____
3) _____
4) _____
5) _____

D. Work areas examined to ascertain that all preliminary work has been completed:

_____
_____

E. Methods and procedures for performing Quality Control, including specific testing requirements:

_____
_____

The above methods and procedures have been identified from the project plans and will be performed as specified for the Definable Feature of Work.

_____
Contractor Quality Control Systems Manager

FORM 2

PREPARATORY INSPECTION CHECKLIST
(PART II)

A. Persons in attendance: See Meeting Attendance Sheet (attached)

B. Because of mutual understanding developed during review of preparatory outline and Contract Requirements: (Contract items not specifically covered during the preparatory inspection conference are assumed to be in strict conformance with the contract requirements.)

The items noted above constitute a memorandum of mutual understanding and will be performed as planned and specified.

UXOQCS

Technical Representative

FORM 3

INITIAL PHASE CHECK LIST

Contract No.:

Date: _____

Title and No. of Technical Section: _____

_____

_____

Description and Location of Work Inspected: _____

A. Key Personnel Present:

	Name	Position	Company
1)			
2)			
3)			
4)			
5)			

B. Materials being used are in strict compliance with the contract plans and specifications: Yes ____ No ____

If not, explain: _____

_____

_____

_____

C. Procedures and/or work methods witnessed are in strict compliance with the contract specifications: Yes ____ No ____

If not, explain: _____

_____

_____

_____

D. Workmanship is acceptable: Yes ____ No ____

State where improvement is needed: _____

_____

_____

_____

E. Workmanship is free of safety violations: Yes ____ No ____

If no, corrective action taken: _____

_____

_____

_____

_____

UXOQCS

FORM 4

FOLLOW UP CHECKLIST

Date:
Contractor:
Contract No:

Y=YES; N=NO; SEE REMARKS BLANK=NOT APPLICABLE	
WORK COMPLIES WITH CONTRACT AS APPROVED IN INITIAL PHASE	

IDENTIFY DEFINABLE FEATURE OF WORK, LOCATION, AND LIST PERSONNEL PRESENT

TESTING PERFORMED & WHO PERFORMED TEST (Include number of samples and/or tests taken)

QA Representative **Date**

UXOQCS **Date**

FORM 5

FINAL INSPECTION CHECKLIST
(PART I)

Date: _____

Contract No.:

Project / Area of Inspection: _____

_____

_____

A. Definable Features of Work: Status of Inspection:

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

I hereby certify, that to the best of my knowledge and belief, that the work inspected is complete and all materials and equipment used and work performed were completed in accordance with plans submitted and approved.

_____

Contractor Quality Control Systems Manager

B. Final Acceptance is Approved, Subject to the Correction of the Punchlist Items Below:

_____

_____

_____

_____

_____

FORM 5

FINAL INSPECTION CHECKLIST
(PART I)
(CONTINUED)

A. Persons in Attendance: See Meeting Attendance Sheet (attached)

B. Resolution of Punchlist Items:

The items noted above constitute a memorandum of mutual understanding and work has been performed as planned and specified.

UXOQCS

Technical Representative

FORM 5

FINAL INSPECTION CHECKLIST
(PART II)

MEETING ATTENDANCE LIST

Meeting:		**Date:**
Name	**Organization**	**Phone Number**

FORM 6

INSPECTION SCHEDULE AND TRACKING FORM

Project:	**Project Manager:**	**UXOQCS:**

Reference Number	Definable Feature of Work	**Preparatory**		**Initial**		**Follow-Up**		**Completion**		
		Date Planned	Actual Date	Date Planned	Actual Date	Planned Begin/End	Actual Dates	Planned Begin/End	Actual Dates	Status

FORM 7

CORRECTIVE ACTION REQUEST

(2)CAR #:	(3)PRIORITY: ☐HIGH ☐NORMAL	(4)DATE PREPARED:

PART A: NOTICE OF DEFICIENCY

(5)PROJECT:	
(6)PROJECT MANAGER:	(7)UXOQCS:
(8)WORK UNIT:	(9)WORK UNIT MANAGER:
(10)ISSUED TO (INDIVIDUAL & ORGANIZATION):	
(11)REQUIREMENT & REFERENCE:	
(12)PROBLEM DESCRIPTION & LOCATION: (13)CAP REQUIRED? ☐YES ☐NO	(14)RESPONSE DUE:
(15)ISSUED BY (PRINTED NAME & TITLE): SIGNATURE: DATE:	(16)MANAGEMENT CONCURRENCE:

PART B: CORRECTIVE ACTION

(17)PROPOSED CORRECTIVE ACTION/ACTION TAKEN: NOTE: SUPPORTING DOCUMENTATION MUST BE LISTED ON THE BACK OF THIS FORM AND ATTACHED.	
(18)PART B COMPLETED BY (NAME & TITLE): SIGNATURE: DATE:	(19)QC CONCURRENCE:

PART C: CORRECTIVE ACTION VERIFICATION

(20)CAR VERIFICATION AND CLOSE-OUT: (CHECK ONLY ONE & EXPLAIN STIPULATIONS, IF ANY)

☐APPROVED FOR CLOSURE WITHOUT STIPULATIONS

☐APPROVED FOR CLOSURE WITH FOLLOWING STIPULATIONS

COMMENTS/STIPULATIONS:

(21)CLOSED BY (PRINTED NAME & TITLE):

SIGNATURE: DATE:

CORRECTIVE ACTION REQUEST (CAR) INSTRUCTION SHEET

(1) **UXOQCS**: Verify that the total number of pages includes all attachments.

(2) **UXOQCS**: Fill in CAR number from CAR log.

(3) **UXOQCS**: Fill in appropriate priority category. **High** priority indicates resolution of deficiency requires expediting the corrective action plan and correction of deficient conditions noted in the CAR and extraordinary resources may be required due to the deficiency's impact on continuing operations. **Normal** priority indicates that the deficiency resolution process may be accomplished without further impacting continuing operations.

(4) **CAR Requestor**: Fill in date CAR is initiated.

(5) **CAR Requestor**: Identify project name, number, CTO, and WAD.

(6) **CAR Requestor**: Identify Project Manager

(7) **CAR Requestor**: Identify CQC System Manager.

(8) **CAR Requestor**: Identify project organization, group, or discrete work environment where deficiency was first discovered.

(9) **CAR Requestor**: Identify line manager responsible for work unit where deficiency was discovered.

(10) **UXOQCS**: Identify responsible manager designated to resolve deficiency (this may not be work unit manager).

(11) **CAR Requestor**: Identify source of requirement violated in contract, work planning document, procedure, instruction, etc; use exact reference to page and, when applicable, paragraph.

(12) **CAR Requestor**: Identify problem as it relates to requirement previously stated. Identify location of work activities impacted by deficiency.

(13) **UXOQCS**: Identify if Corrective Action Plan (CAP) is required. CAP is typically required where one or more of the following conditions apply: 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 future recurrence.

(14) **UXOQCS**: Identify date by which proposed corrective action is due to QC for concurrence.

(15) **UXOQCS**: Sign and date CAR and forward to responsible manager identified in (10) above.

(16) **Responsible Manager**: Initial to acknowledge receipt of CAR.

(17) **Responsible Manager**: Complete corrective action plan and identify date of correction. Typical corrective action response will include statement regarding how the condition occurred, what the extent of the problem is (if not readily apparent by the problem description statement in [12]), methods to be used to correct the condition, and actions to be taken to prevent the condition from recurring. If a CAP is required, refer to CAP only in this section.

(18) **Responsible Manager**: Sign and date corrective action response.

(19) **UXOQCS**: Initial to identify concurrence with corrective action response from responsible manager.

(20) **UXOQCS**: Check appropriate block to identify if corrective action process is complete so that CAR may be closed. Add close-out comments relevant to block checked.

(21) **UXOQCS**: Indicate document closeout by signing and dating.

FORM 8

CORRECTIVE ACTION PLAN

Attach clarifications and additional information as needed. Identify attached material in appropriate section of this form.

PART A: TO BE COMPLETED BY PROJECT MANAGER OR DESIGNEE

(1)PROJECT:		
(2)PROJECT MANAGER:	(3)UXOQCS:	
(4)CAR NO(S) AND DATE(S) ISSUED:		
(5)DEFICIENCY DESCRIPTION AND LOCATION:		
(6)PLANNED ACTIONS	(7)ASSIGNED RESPONSIBILITY	(8) COMPLETION DUE DATE
(9)PROJECT MANAGER SIGNATURE:	DATE:	

PART B: TO BE COMPLETED BY UXOQCS OR DESIGNEE

(10)CAP REVIEWED BY:	DATE:
(11)REVIEWER COMMENTS:	
(12)CAP DISPOSITION: (CHECK ONLY ONE AND EXPLAIN STIPULATIONS, IF ANY) ☐ APPROVED WITHOUT STIPULATIONS ☐ APPROVED WITH STIPULATIONS ☐ APPROVAL DELAYED, FURTHER PLANNING REQUIRED COMMENTS:	
(13)UXOQCS SIGNATURE:	DATE:

Attachment C
Responses to Agency Comments

Responses to Agency Comments
on Red-line Versions of

Time Critical Removal Action Work Plan for Munitions Response Site UXO 17
Potential Area of Concern (PAOC) EE
Atlantic Fleet Weapons Training Area - Vieques
Former Vieques Naval Training Range
Vieques, Puerto Rico

USEPA

1. Please modify the year on the date that appears on the document. Document date February 2013.

   Navy Response:

   Document date has been revised to February 2014.

2. Please explain the configuration of the PAOC EE TCRA Area.

   Navy Response:

   The following has been added after the first sentence of Section 1.2.1: "The TCRA area includes the original area of PAOC EE (Punta Conejo) based on previous findings there (see Section 1.1.2), as well as where historical records indicate the military performed amphibious landing exercises."

3. Figure 2-1, Areas of Potential Erosion Control Measures: Please explain why the south and south east perimeter of the TRCA area with Laguna La Chiva is not identified as "potential areas of erosion control measures." Erosion from vegetation clearance potentially could impact the lagoon.

   Navy Response:

   Between the south and southeast area of the lagoon and the TCRA area, the land is very flat (as demonstrated by the topographic contours in Figure 2-1) and there will be a buffer zone of vegetation left between the TCRA area and the lagoon. In addition, as noted at the end of Section 2.1.1, "Further, if during vegetation clearance or interim removal action, other areas are observed warranting erosion control measures, they will be implemented."

PREQB

1. Please update the date on the Title page to February 2014.

   Navy Response:

   Document date has been revised to February 2014.

Responses to US Fish and Wildlife Service Comments on the

Draft Time Critical Removal Action Work Plan For Munitions Response Site UXO 17
Potential Area of Concern (PAOC) EE
Atlantic Fleet Weapons Training Area-Vieques
Former Vieques Naval Training Range
Vieques, Puerto Rico
February 24, 2014

USFWS Comment:

This is in response to our review of the Work Plan for the Time Critical Removal Action (TCRA) for Munitions Response Site UXO 17, Potential Area of Concern (PAOC) EE.

I have attached the response from the Caribbean Ecological Services Field Office to the Biological Assessment (BA) for the area that was received on January 24, 2014. This letter also discusses, as does the Biological Assessment, the area of La Chiva that was restored as part of the Fish and Wildlife Service's Coastal Program efforts. It specifies the acreage and funding that was spent on this project. We have included a map that depicts the restoration area. The attached letter recommends that the Navy flag trees planted during this project in order to avoid cutting them during the proposed activity. The VNWR can assist in this effort, however, in order to be efficient and effective we recommend that the entire area be flagged prior to sending our staff to review and verify.

Navy Response:

Based on a site visit to PAOC EE with USFWS, DNER, EPA, and the Navy (March 10, 2014), and subsequent discussions at the MOA meeting in Vieques (March 11, 2014) between USFWS and the Navy, it was determined that flagging of individual trees planted during the USFWS' restoration effort would not be practical and therefore will not be performed. Considering that many of the 1,200 planted trees are known to have died, and surviving trees would not likely be readily distinguishable from naturally occurring native species, it was agreed that cutting of any native species within the restoration area (as illustrated on the USFWS map) will be avoided to the maximum extent possible, which should achieve the objective desired by USFWS. However, to achieve the objective of the TCRA to reduce explosive hazards, it may be necessary to prune or remove native plants when removing subsurface geophysical anomalies. In these instances, removed native plants will be documented by an onsite biologist.

USFWS Comment:

The Work Plan makes reference to the BA with respect to the removal of vegetation. It states that vegetation clearance in areas potentially important to the refuge will be done in accordance with the Vegetation Removal Standard Operation Procedure (SOP MR-1). It also states that the BA will obviate the need for the previously used Work Area Determination (WAD) process. As we mentioned in our response of February 27, 2014, for SWMU-4 we believe that this SOP needs revision. It states that all cut vegetation will be accumulated and left onsite. Vegetation piles have been an ongoing issue because they are a source of fuel for fire and provide habitat for invasive species such the mongoose. We recommend that we discuss and review this SOP.

Navy Response:

Based on site visit and MOA meeting discussions referenced above, the handling of cut/removed vegetation will be conducted as follows for the various habitat zones within the TCRA area:

Hawksbill Turtle Nesting Zone – Hawksbill sea turtles depend on coastal vegetation of appropriate height and structure (shade) to successfully nest. Such habitat occurs along most of the shoreline of PAOC EE. The width of the hawksbill nesting zone will be defined in a Biological Opinion (BO) for this species that will be issued by USFWS prior to performing the TCRA. Vegetation clearance within this zone is expected to be minimal. All native vegetation will be left intact as much as possible. Where feasible, branches will be lifted high enough to allow UXO technicians to work; otherwise, light pruning within approximately 2 feet of the ground surface may be needed. Invasive species may be cut or removed unless greater than 3 inches diameter at breast height (dbh). Any vegetative cuttings from the hawksbill nesting zone will be dispersed near their origin on the ground surface, not amassed in piles.

Coastal Zone Restoration Area – This zone is described and illustrated in the USFWS review of the Final Biological Assessment for Potential Area of Concern –UXO 17, Vieques, Puerto Rico (CH2M HILL, January 24, 2014) (BA). Cutting of all native plants within this zone will be avoided to the maximum extent possible. Invasive species may be cut or removed unless greater than 3 inches dbh. Vegetative cuttings will be dispersed near their origin on the ground surface to avoid amassing in piles. In situations where there is an excessive volume of cuttings, such as with a large stand of invasive species, debris will be moved out of this zone into areas (such as north of the road) where standard vegetation removal/handling methods (SOP MR-1) apply.

Cobana negra Habitat - Habitat potentially supportive of the federally threatened plant Cobana negra generally includes areas within and adjacent to mangrove swamps. These habitats are highlighted in blue on Figure 2 of the BA. Conservation measures described in the BA will be followed and will generally include, where possible, avoidance of all naturalized and native vegetation and cutting/removal of invasive vegetation less than 3 inches dbh. Vegetative cuttings will be dispersed near their origin on the ground surface. In situations where there is an excessive volume of cuttings, such as with a large stand of invasive species, debris will be moved out of this habitat into nearby areas where the standard vegetation removal/handling methods (SOP MR-1) will apply.

Remaining TCRA Habitats – In all other areas of PAOC EE, standard vegetation removal/handling methods (SOP MR-1) will apply, which may include accumulation of debris in piles.

USFWS Comment:

The picture taking guidelines in Attachment A, SOP for Subsurface Anomaly Removal, Section 1.4, states that if a tree larger than 3 inches in diameter is cut a picture of the tree must be taken before it is cut. This should be included as part of the SOP for vegetation removal mentioned above. We recommend that, in addition to taking pictures, a log be maintained that records information such as species, location, and size of the tree.

Navy Response:

The section referred to above is not in the Subsurface Anomaly Removal SOP; rather, it is in the Vieques Electronic Data Entry SOP (which applies to the vegetation clearance activities), which follows the Subsurface Anomaly Removal SOP in Attachment A.

For PAOC EE, biologists will be onsite with each investigation team, and will document the removal of any native plants with photos and notes (species, location, and size [dbh]), as presented in the BA Conservation Measures. As a result, the vegetation removal standard operating procedure (SOP MR-1) does not require amendment.

USFWS Comment:

It should be clarified whether the work will be done in phases and whether portions of the beach will be open to the public during the TCRA.

Navy Response:

As discussed during the MOA meeting and site visit, the Navy will be deploying all of the on-island munitions response resources to the PAOC EE TCRA in order to complete the TCRA as quickly as possible and thereby minimize impact on public access to the beach. However, during the conduct of the TCRA, especially within areas south of the road, it may be necessary to periodically close the beach. Similar to the process that was used during the 2013 work done at and adjacent to Blue Beach, the Navy will coordinate with USFWS regarding beach closures during the TCRA.