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Site Management Plan
Fiscal Year 2011

Former Naval Facilities
Vieques, Puerto Rico

Prepared for

Department of the Navy

NAVFAC ATLANTIC

Contract No.
N62470-08-D-1000
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January 2011

Prepared by

CH2MHILL®

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Executive Summary

This Site Management Plan (SMP) provides a summary of Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) response actions and associated documentation to be undertaken at the former Naval Facility on Vieques, Puerto Rico. In addition, the SMP provides milestones which reflect the schedule of completing CERCLA response actions that have been agreed to by the Navy and the regulatory agencies. Milestones are provided for both the Environmental Restoration Program (ERP) and the Munitions Response Program (MRP), both of which are part of the Installation Restoration (IR) Program for the Vieques Facility.

The SMP meets the requirements of the Federal Facilities Agreement (FFA) under CERCLA Section 120 (Docket Number FFA-CERCLA 02-2007-2001) (Navy et al., 2007). The former Naval Facility on Vieques comprises the former Naval Ammunition Support Detachment (NASD), located on western Vieques, and the former Vieques Naval Training Range (VNTR), located on eastern Vieques. This SMP presents a description of the CERCLA sites and the projected schedules of CERCLA response actions as agreed to in the FFA. The Parties identified in the FFA include the Naval Facilities Engineering Command (NAVFAC) Atlantic Division, United States Environmental Protection Agency (USEPA) Region II, Puerto Rico Environmental Quality Board (PREQB), and the United States Department of Interior (DOI).

In accordance with the FFA, this SMP includes the following:

- A description of actions necessary to mitigate any immediate threat to human health and the environment
- A description of all currently identified Site Screening Areas (SSA), Operable Units (OUs), interim remedial actions (IRAs), Supplemental Remedial Actions (RAs), Time-critical Removal Actions (TCRAs) and Non-time-critical Removal Actions (NTCRAs) planned or being performed pursuant to the FFA.
- Activities and schedules for response actions including at a minimum:
  - Identification of any Primary actions
  - Deadlines
  - Near-term milestones
  - Out-year milestones
  - Target dates
  - Schedule for initiation of Remedial Designs (RDs), RAs, including IRAs and Supplemental RAs, Emergency actions, TCRAs, and NTCRAs and any initiation of other planned response actions covered by the FFA and Projected End Dates

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Facility Description

Vieques Island has a land area of approximately 33,000 acres, and is located in the Caribbean Sea approximately 7 miles southeast of the eastern coast of the main island of Puerto Rico (**Figure 1-1**). The former Naval facilities are located on the eastern one-third (i.e., former VNTR) and western one-third (i.e., former NASD) of the island, with the communities of Isabel Segunda and Esperanza located in the center of the island. On September 7, 2005, Vieques was placed on the National Priorities List (NPL) by USEPA.

East Vieques (former VNTR)

The former VNTR, which comprises approximately 14,573 acres, provided ground warfare and amphibious training for Marines, naval gunfire support training, and air to ground training. In the Resource Conservation and Recovery Act (RCRA) Consent Order, the former VNTR was also referred to as the former Atlantic Fleet Weapons Training Facility (AFWTF) and the Eastern Maneuver Area (EMA). The former VNTR was also described as four separate operational areas, which comprised from west to east: the EMA, the Surface Impact Area (SIA), the Live Impact Area (LIA), and the Eastern Conservation Area (ECA) at the easternmost tip of the island.

On April 30, 2003, 14,573 acres of east Vieques (former VNTR) were transferred to the DOI to be operated and managed by the United States Fish and Wildlife Service (USFWS) as a National Wildlife Refuge and Wilderness Area pursuant to Section 1049 of the National Defense Authorization Act for Fiscal Year 2002 (Public Law 107–107).

Approximately 900 acres of the former VNTR, consisting of the Live Impact Area (LIA) will be managed as a wilderness area and the public must be excluded from this area in accordance with Public Law 106–398 and Public Law 107–107.

DOI developed a Comprehensive Conservation Plan (CCP) for the Vieques National Wildlife Refuge that outlines its concept for managing the refuge. The environmental restoration of the former VNTR will be based upon potential risks to human health and the environment, with consideration given to the future land use identified in the CCP.

West Vieques (former NASD)

On April 30, 2001, 8,114 acres of the former NASD on the west side of Vieques were apportioned and transferred to the DOI, the Municipality of Vieques (MOV), and the Puerto Rico Conservation Trust (PRCT) in accordance with Public Law 106–398. The sites owned by these agencies are listed in the appendices. The property owned by DOI (approximately 3,158 acres) is managed by USFWS as part of the Vieques National Wildlife Refuge. The restoration of the former NASD will be based upon potential risks to human health and the environment, with consideration given to the planned future land use.

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Resumen Ejecutivo

Este Plan de Manejo del Sitio (SMP en inglés) presenta un resumen de las acciones de repuesta y los documentos relacionados bajo la Ley de Repuesta, Compensación, y Responsabilidad Ambiental (CERCLA en inglés) del 1988 que van a llevarse a cabo en la Antigua Instalación Naval en Vieques, Puerto Rico. Además, el SMP presenta los logros alcanzados que se reflejan en el calendario de actividades para la ejecución final de las acciones de repuesta de CERCLA que han sido acordadas por la Marina y las agencias reguladoras. Se presentan los logros alcanzados tanto para el Programa de Restauración Ambiental (ERP en inglés) como para el Programa de Respuesta a Municiones (MRP en inglés), las cuales son las dos parte del Programa de Restauración de la Instalación (IR en inglés) para la de Instalación de Vieques.

El SMP satisface los requisitos del Acuerdo de Facilidades Federales (FFA en inglés) bajo la ley CERCLA Sección 120 (Número de Archivo FFA-CERCLA 02-2007-2001). La Antigua Instalación Naval de Vieques comprende el Destacamento de Apoyo de Municiones Navales (NASD en inglés), que se encuentra en el oeste Vieques, y el Antiguo Campo de Adiestramiento Naval de Vieques (VNTR en inglés), ubicado en el este de Vieques. Este SMP presenta una descripción de los sitios investigados bajo CERCLA y el calendario de actividades que se proyecta para las acciones de repuesta, tal y como fue establecido en el FFA. Las agencias que se identifican en el FFA incluyen: el Comando de Ingeniería de Instalaciones Navales del Atlántico (NAVFAC en inglés), la Agencia de Protección Ambiental de los EEUU (USEPA en inglés) Región II; la Junta de Calidad Ambiental de Puerto Rico (PREQB en inglés); y el Departamento del Interior de los EEUU (DOI en inglés).

De acuerdo con el FFA, este SMP incluye lo siguiente:

- Una descripción de las acciones que se necesitan para mitigar cualquier amenaza inmediata para la salud humana y el ambiente
- Una descripción de todas las Áreas Pre Evaluadas (SSA en inglés) ya identificadas, las Unidades Operativas (OUs en inglés), acciones de remediación provisionales (IRAs en inglés), las Acciones de Remediación Suplementarias (RAs en inglés), las Acciones de Remoción de Tiempo Crítico (TCRA en inglés) y las de Tiempo No Crítico (NTCRA en inglés) que están planificadas o llevando a cabo de acuerdo al FFA.
- Las actividades y el calendario de actividades para las acciones de respuesta que incluyen como mínimo:
  - Identificación de las Acciones Primarias
  - Plazos de cumplimiento
  - Logros a alcanzarse en un tiempo corto
  - Logros a alcanzarse en el año

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- Fechas meta
- El calendario de actividades para el inicio del desarrollo de los Diseños para la Remediación (RD), RAs, incluyendo IRAs y RAs Suplementarias, Acciones de Emergencia, de Tiempo Crítico, y las Acciones de Remoción de Tiempo No Crítico, además, cualquier inicio de otras acciones de respuesta planificadas que cubiertas por el FFA y todas fechas planificadas para terminar el proyecto.

Descripción de la Instalación

Vieques tiene una superficie de aproximadamente 33,000 acres y está localizada en el mar Caribe aproximadamente 7 millas al sureste de la costa este de la isla principal de Puerto Rico (**Figure 1-1**). La Antigua Instalación Naval ocupa al este la tercera parte de la isla (el antiguo VNTR) y la tercera parte al oeste (el antiguo NASD); las comunidades de Isabel Segunda y Esperanza están en el centro de la isla. El 7 de septiembre del 2007, Vieques fue añadida a la Lista de Prioridades Nacionales (NPL en inglés) de USEPA.

Este Vieques (antiguo VNTR)

El antiguo VNTR se compone de aproximadamente 14,573 acres, y proporcionó adiestramiento de guerra sobre tierra y adiestramiento de técnicas anfibias para los infantes de marina, adiestramiento de apoyo de armas navales, y adiestramiento de combate de aire-tierra. En la Orden de Consentimiento de la ley de Conservación y Recuperación de Recursos (RCRA en inglés), también se le conocía como al antiguo VNTR como Instalación de Adiestramiento de la Flota de Guerra del Atlántico (AFWTF en inglés) y también Área de Maniobras del Este (EMA en inglés). El antiguo VNTR también ha sido descrito como cuatro zonas de operaciones separadas, de oeste a este: la EMA, el Área de Impacto de Superficie (SIA en inglés), el Área de Impacto con Bala Viva (LIA en inglés), y el Área de Conservación del Este (ECA en inglés) que se encuentra en el punto más al este de la isla.

El 30 de abril del 2003, 14.573 acres del este Vieques (antiguo VNTR) fueron transferidos a DOI para que sean operados y manejados por el Servicio de Pesca y Vida Silvestre (USFWS en inglés) como un refugio nacional de vida silvestre y un área silvestre siguiendo la Sección 1049 de la Ley de Autorización de Defensa Nacional para Año Fiscal 2002 (Ley Pública 107–107).

Aproximadamente 900 acres del antiguo VNTR , que incluyen el Área de Impacto con Bala Viva será manejado como un área silvestre sin acceso al público siguiendo la Ley Pública 106–398 y la ley Pública 107–107.

DOI desarrolló un Plan Abarcador de Conservación (CCP en inglés) para el Refugio Nacional de Vida Silvestre que delinea las normas para el manejo del refugio. La restauración ambiental del antiguo VNTR se basará en los riesgos potenciales a la salud humana y al ambiente, considerando el uso futuro de los terrenos.

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Oeste Vieques (antiguo NASD)

El 30 de abril 30 del 2001, 8,114 acres del antiguo NASD ubicado en el lado oeste de Vieques fue repartido y transferido a DOI, al Municipio de Vieques (MOV), y al Fideicomiso de Conservación de Puerto Rico (PRCT) de acuerdo con la Ley Pública 106–398. Los sitios que son propiedad de estas agencias se describen en los anexos. La propiedad de DOI (aproximadamente 3,158 acres) está administrada por USFWS como parte del Refugio Nacional de Vida Silvestre de Vieques. La restauración del antiguo NASD se basará en los riesgos potenciales a la salud humana y al ambiente considerando el uso futuro planificado para los terrenos.

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Acronyms and Abbreviations

AFWTA	Atlantic Fleet Weapons Training Area
AFWTF	Atlantic Fleet Weapons Training Facility
AMS	Aerial Magnetometer Survey
AOC	area of concern
AR	Administrative Record
AST	aboveground storage tank
ATG	air-to-ground
AVGAS	aviation gas
CCP	Comprehensive Conservation Plan
CCP/EIS	Comprehensive Conservation Plan/Environmental Impact Statement
CCR	Construction Completion Report
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
DoD	Department of Defense
DOI	United States Department of Interior
DRO	diesel range organics
EBS	Environmental Baseline Survey
ECA	Eastern Conservation Area
EE/CA	Engineering Evaluation/Cost Estimate
EISB	enhanced *in situ* bioremediation
EMA	Eastern Maneuver Area
ERA	Expanded Range Assessment
ER,N	Environmental Restoration, Navy
ERP	Environmental Restoration Program
ESI	Expanded Site Investigation
FFA	Federal Facilities Agreement
FFS	Focused Feasibility Study
FS	Feasibility Study
FY	fiscal year
HHRA	Human Health Risk Assessment
IAS	Initial Assessment Study
IR	Installation Restoration
IRA	Interim Remedial Action
ISCO	*in situ* chemical oxidation
JP	jet propellant
LIA	Live Impact Area
LUC	land use control

MC	munitions constituents
MCL	maximum contaminant limit
MEC	munitions and explosives of concern
mg/kg	milligrams per kilogram
mm	millimeter
MOA	Memorandum of Agreement
MOV	Municipality of Vieques
MPE	multi-phase vacuum extraction
MRA	Munitions Response Area
MRP	Munitions Response Program
MRS	Munitions Response Site
NACIP	Navy Assessment and Control of Installation Pollutants
NASD	Naval Ammunition Support Detachment
NAVFAC	Naval Facilities Engineering Command
NCTRA	Non-time-critical Removal Action
NFA	no further action
NPL	National Priorities List
NSRR	Naval Station Roosevelt Roads
OB/OD	open burn/open detonation
OE	ordnance and explosives
OP-1	Observation Post 1
OU	operable unit
PA/SI	Preliminary Assessment/Site Inspection
PAH	polycyclic aromatic hydrocarbon
PAOC	potential area of concern
PCB	polychlorinated biphenyl
PI	photo-identified
PID	photoionization detector
PRCT	Puerto Rican Conservation Trust
PREQB	Puerto Rico Environmental Quality Board
RA	Remedial Action
RAB	Restoration Advisory Board
RCRA	Resource Conservation and Recovery Act
RD	Remedial Design
RFA	RCRA Facility Assessment
RFI	RCRA Facility Investigation
RI	Remedial Investigation
ROD	Record of Decision
SAP	Sampling and Analysis Plan
SI	Site Inspection
SIA	Surface Impact Area
SMP	Site Management Plan
SSA	site screening area
SSP	Site screening process

SVOC	semivolatile organic compound
SWMU	solid waste management unit
TAG	Technical Assistance Grant
TAPP	Technical Assistance for Public Participation Program
TCE	trichloroethene
TCRA	Time-critical Removal Action
TPH	total petroleum hydrocarbon
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
UST	underground storage tank
UXO	unexploded ordnance
VNTR	Vieques Naval Training Range
VOC	volatile organic compound
VSI	Visual Site Inspection

SECTION 1

Introduction

1.1 Overview of the Site Management Plan

1.1.1 Overview of this Document

This Site Management Plan (SMP) provides a summary of Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) response actions and associated documentation to be undertaken at the former Naval Facility on Vieques, Puerto Rico. In addition, the SMP provides milestones which reflect the schedule of completing CERCLA response actions that have been agreed to by the Navy and the regulatory agencies. Milestones are provided for both the Environmental Restoration Program (ERP) and the Munitions Response Program (MRP), both of which are part of the Installation Restoration (IR) Program for the Vieques Facility.

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The references section of this document is intended to be comprehensive and contains references for documents not cited within this text, but relevant to the IR Program. Those documents are preceded by an asterisk in the references section.

1.1.2 Objectives of the Site Management Plan

In accordance with the FFA, this SMP includes the following:

- A description of actions necessary to mitigate any immediate threat to human health and the environment
- A description of all currently identified site screening areas (SSAs), operable units (OUs), Interim Remedial Actions (IRAs), Supplemental Remedial Actions (RAs), Time-critical Removal Actions (TCRAs), and Non-time-critical Removal Actions (NTCRAs) planned or being performed pursuant to the FFA
- Activities and schedules for response actions, including at a minimum:
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- Schedule for initiation of Remedial Designs (RDs), RAs, including IRAs and Supplemental RAs, Emergency, TCRAs, NTCRAs, and any initiation of other planned response actions covered by the FFA and Projected End Dates

1.1.3 Site Management Plan Updates

The Navy will prepare a Draft Amendment of the SMP by June 15 of each year and will include updates of milestones that have been previously agreed to by the Parties and will provide any new milestones that are proposed by the Navy.

Comments on Draft Amendments will be due to the Navy 30 days after receipt by USEPA, DOI, and PREQB of a Draft Amendment. A revised Draft Amendment to the SMP (hereinafter referred to as the "Draft Final Amendment") will be due from Navy no later than 30 days after the end of the USEPA/DOI/PREQB comment period. The resolution of comments and production of the Draft Final will be conducted within 30 days following the receipt of comments on the Draft. The Draft Final SMP shall not become an approved SMP until 21 days after Navy receives official notification of Congress' authorization and appropriation of funds if funding is sufficient to complete the Work to be performed during the year covered by that authorization or appropriation. However, upon approval of the Draft Final or conclusion of the dispute resolution process, the Parties shall implement the SMP while awaiting official notification of Congress' authorization and appropriation.

1.1.4 Facility Description

Vieques Island has a land area of approximately 33,000 acres, and is located in the Caribbean Sea approximately 7 miles southeast of the eastern coast of the main island of Puerto Rico (**Figure 1-1**). The former Naval facilities are located on the eastern one-third (i.e., former VNTR) and western one-third (i.e., former NASD) of the island, with the communities of Isabel Segunda and Esperanza located in the center of the island.

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1.1.5 National Priorities List Listing

In 2003, the Governor of Puerto Rico requested USEPA to list the VNTR and NASD on the National Priorities List (NPL). On May 26, 2004, the President of PREQB sent a letter to the Regional Administrator of USEPA acknowledging that USEPA, PREQB, and DOI concurred with the designation of the former naval facilities of eastern and western Vieques as an NPL site. In addition, a clarification of the Atlantic Fleet Weapons Training Activity (AFWTA) was provided and stated that initial areas of Preliminary Assessment/Site Inspection (PA/SI) under CERCLA will focus on "Agreed Areas" in and around Vieques and Culebra where the Navy conducted operations, including "those waters in and around Vieques where contamination has come to be located." Regarding submerged land areas specifically, Navy intends to assess those sites and take appropriate action in accordance with the risk-based site prioritization methodology set out in the FFA. Work at submerged land areas will be scheduled as part of the normal update process for this SMP. On February 7, 2005, Vieques was placed on the NPL. The areas to be assessed as part of the NPL are shown on **Figure 1-2**.

As a result of the NPL listing, an FFA was signed by the Navy, USEPA, PREQB and DOI on September 7, 2007. The FFA establishes the procedural framework and schedule for implementing the CERCLA Response Actions on Vieques.

1.2 Information Repositories

Vieques lacks an operational public library; the Navy has made every effort to locate the Vieques Administrative Record (AR) on several locations on Vieques. Currently, the Navy's computer containing the AR is located in Casa Juventud as a temporary location. The Navy will continue working with the Municipality to identify a permanent location for the AR. The Navy maintains a public website where technical documents and other information

related to the investigation can be found in:
http://public.lantops-ir.org/sites/public/vieques.

Technical assistance in the review of these documents is available by the Navy to the community through the Technical Assistance for Public Participation (TAPP) program. A solicitation for a TAPP consultant was posted in 2008 and responses to the solicitation were received. The responses have been reviewed by the Restoration Advisory Board (RAB) who concluded that neither of the companies fulfills the RAB's expectations. To date no TAPP consultant has been contracted. The Vieques RAB decided to benefit from the Navy's offer to use PREQB's and USEPA's consultants to provide the RAB with technical support.

In addition, technical assistance is also available to the community from the USEPA through a Technical Assistance Grant (TAG). A TAG allows community groups(s) to procure independent technical advisors to help interpret and comment on site-related information and decisions. Examples of how a technical advisor can help community group(s) include, but are not limited to:

- Reviewing preliminary site assessment/site investigation data.
- Participating in public meetings to help interpret information about site conditions, proposed remedies, and the implementation of a remedy.
- Visiting the site vicinity periodically during cleanup, if possible, to observe progress and provide technical updates to the group.

The Vieques Administrative Record is located in:
Municipio de Vieques
Asuntos de la Juventud
Calle Carlos Lebrum #449
Vieques PR 00765
Tel. 787-741-5000

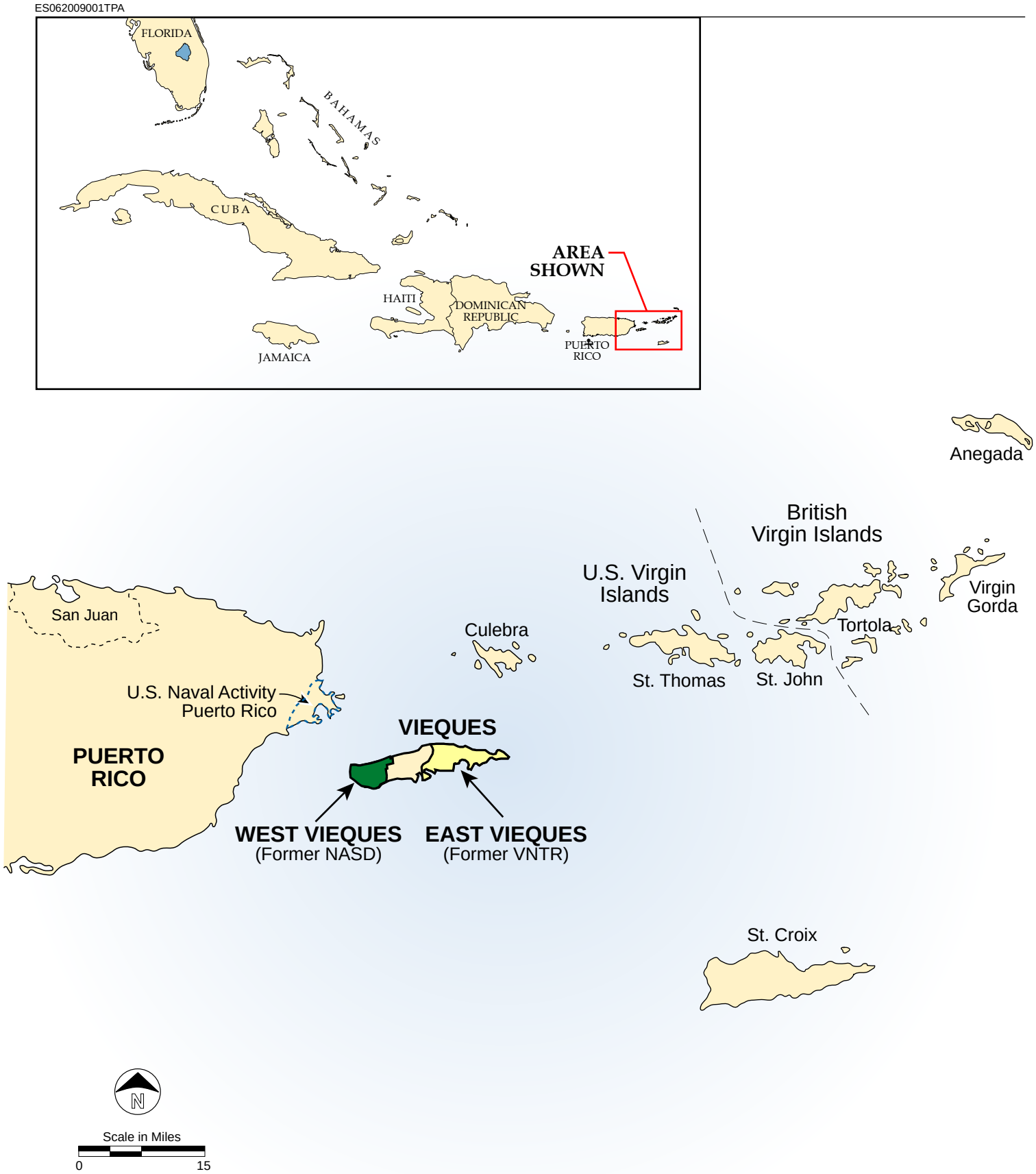
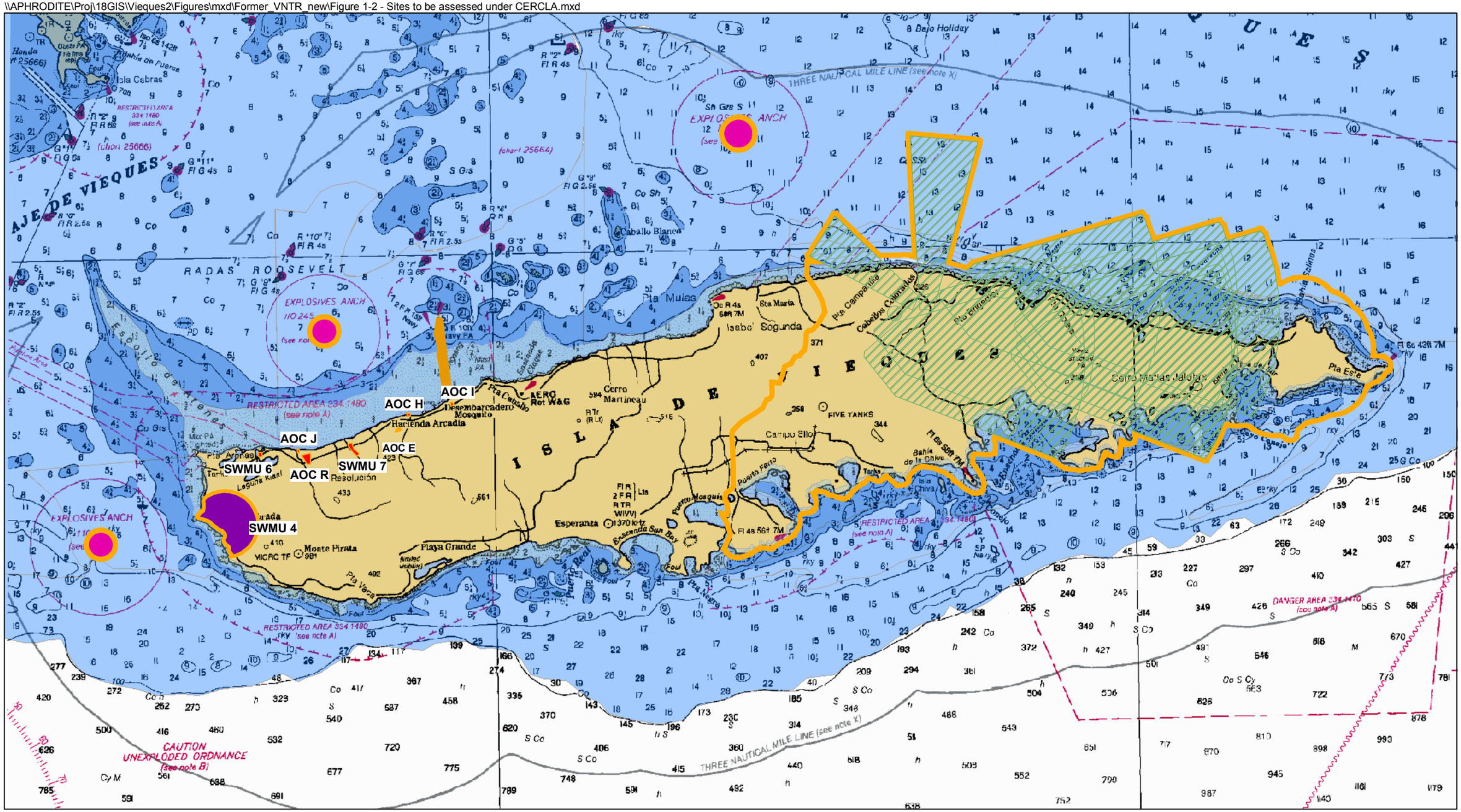


FIGURE 1-1
Regional Location Map
Site Management Plan
Vieques, Puerto Rico

\\APHRODITE\Proj\18GIS\Vieques2\Figures\mxd\Former_VNTR_new\Figure 1-2 - Sites to be assessed under CERCLA.mxd



Legend

- Agreed Areas of Proposed NPL Site
- Anchorage Location Boundary
- Western Vieques Environmental Sites
- SWMU 4 (Former OB/OD Site)
- Artillery Safety Fan

Water Depth

- 0-10 Feet
- 10 - 150 Feet
- Greater Than 150 Feet

N

0 1 2 4 Miles

Figure 1-2
Vieques Sites to be Assessed Under CERCLA
Site Management Plan
Vieques, Puerto Rico

SECTION 2

Site Descriptions

This section presents a description of the sites and the current status for the CERCLA response actions that have been completed at the Vieques Facility. The sites are categorized in the appendices to this SMP and the FFA as follows:

- **Appendix A**, Remedial Investigation/Feasibility Study (RI/FS) Sites
  - **Appendix A-1**, Environmental Sites
  - **Appendix A-2,** Munitions Response Sites
- **Appendix B,** Site Screening Areas
  - **Appendix B-1,** Environmental Sites
  - **Appendix B-2,** Munitions Response Sites
- **Appendix C,** Primary Documents Previously Provided to USEPA, DOI, and Commonwealth
- **Appendix D**, DoD Site Prioritization Protocol Scoring

Figures showing the locations of the sites on East Vieques and West Vieques are provided as **Figures 2-1 and 2-2**, respectively.

2.1 Eastern Vieques Sites

2.1.1 Environmental Sites

This subsection provides a description of the 12 environmental sites (Solid Waste Management Units (SWMUs) and Areas of Concern (AOCs) that were identified in a RCRA Consent Order and have undergone or are currently undergoing investigations through the CERCLA process. The subsection also provides a brief description of the Photo-identified (PI) and Potential Area of Concern (PAOC) sites that have been identified, and in some cases, investigated and closed out of the CERCLA process.

Prior to Vieques' listing on the NPL, environmental investigations on the former VNTR were conducted under RCRA. Therefore, a Phase I RCRA Facility Investigation (RFI) (similar to a PA/SI conducted under CERCLA) was conducted for the 12 Consent Order SWMUs and AOCs and the Draft Phase I RFI Report was prepared (CH2M HILL, 2004a). Because several of the potential inorganic constituents (also referred to as metals) detected in site-specific soil samples are also commonly occurring in nature or otherwise ubiquitous, a background investigation of soil inorganics was conducted and a Final Background Soil Inorganics Report was submitted in October 2007 (CH2M HILL, 2007f). These background soil results are used to assess if the inorganic constituent levels detected in site-specific soils are consistent with background conditions or indicative of releases from historical waste management activities. Once the Background Soil Inorganics Report was finalized, the Draft Phase I RFI Report was revised with this information and re-submitted as the Draft PA/SI Report (to be consistent with the CERCLA terminology since Vieques had by then been listed on the NPL) for regulatory review, and subsequently the Final PA/SI Report (CH2M HILL, 2008e).

The locations of the sites investigated during the Phase I RFI are shown in **Figure 2-1**. Descriptions of the 12 Consent Order sites are provided below. Descriptions of sites that were identified as potential sites (i.e., PIs and PAOCs), based on evaluation of facility records and aerial photograph analysis during the Phase I RFI Work Plan development and the Environmental Baseline Survey (EBS) (NAVFAC, 2003a), are provided in **Appendix B-1**. Eight of these PI/PAOC sites were investigated as part of a PA/SI conducted in 2006. The findings and evaluation of the PA/SI for these eight PI/PAOC sites were included with those for the 12 Consent Order sites in the PA/SI Report (CH2M HILL, 2008e).

Based on the findings of investigations documented in the PA/SI Report, four of the 12 Consent Order sites were identified as requiring no action to be protective of unrestricted human use and ecological exposure. These sites were subsequently closed out of the CERCLA process via a No Action Decision Document (CH2M HILL, 2009a). The remaining eight sites were included in additional investigation, the results of which are presented in the Draft Site Inspection/ Expanded Site Inspection (SI/ESI) Report (CH2M HILL, 2009d). Based on the findings presented in the Draft SI/ESI Report, seven of the eight remaining Consent Order sites were identified as requiring no action or no further action (NFA) to be protective of unrestricted human use and ecological exposure. These sites are included in a Draft No Action/NFA Decision Document (CH2M HILL, 2010e). The one remaining site (SWMU 1) was recommended for presumptive remedy following preparation of a Streamlined RI/FS Report, as discussed below.

SWMU 1—Camp Garcia Landfill

According to the Navy Assessment and Control of Installation Pollutants (NACIP) Initial Assessment Study (IAS) Report, this SWMU was in operation from approximately 1954 to 1978 (Greenleaf/Telesca, 1984). While this SWMU was operational, it was an unlined landfill that was used to dispose of paper, corrugated containers, cans and food packaging material, rags, scrap metal, and yard waste. Municipal waste from both Camp Garcia and other areas of the VNTR was handled here. The SWMU 1 area, the Camp Garcia area, and the former VNTR are shown in **Figure 2-1**. Approximately 1,800 to 3,120 tons of wastes were reportedly disposed of in the landfill, as noted in the IAS (Greenleaf/Telesca, 1984).

During operation of the landfill, the trench method of disposal was employed and land clearing was kept to a minimum to avoid erosion at the site. A bulldozer was used to dig a trench into which materials were disposed. The trench was then covered with about 6 inches of soil to control blowing of litter. The landfill was closed in 1978 and a 2-foot thick soil cover was placed over the landfill.

The landfill managed waste from a maximum of approximately 150 individuals, depending on military exercises. An aerial photograph analysis of the landfill indicated that the fill area extended over an area of approximately 50 acres (Lockheed Martin, 1999). Subsequent geophysical evaluation and test pitting performed during the Phase I RFI and the ESI suggest the areal extent of the landfill is approximately 41 acres. The landfill is currently vegetated with dense grasses and trees. A gravel road was constructed down the center of the landfill in the mid-1980s, but the road has become vegetated. During the Visual Site Inspection (VSI), no signs of erosion or stresses on vegetation were observed (PREQB-Vargas, 1995). No documentation was found regarding releases of hazardous constituents from the landfill. Several areas of debris (fill material) were observed in 2004 during the clearing of transects for

the Phase I RFI. Debris observed included galley (kitchen) waste (cans, bottles, forks, and knives), metal pipes, and a small metal tank. Observations made while test pitting during the ESI suggest some munitions debris (MD) was also disposed of in the landfill.

Evaluation of historical data collected at SWMU 1 is presented in the Final PA/SI Report (CH2M HILL, 2008e) and the Draft SI/ESI Report (CH2M HILL, 2009d). Although the data collected during the Phase I RFI suggest there had not been a release from the landfill that posed a potentially unacceptable risk, only surface soil and groundwater data were collected (i.e., no soil samples within and beneath debris nor ephemeral stream samples were collected). Based on this information, SWMU 1 was part of an ESI for which the field work, described in a Sampling and Analysis Plan (SAP) (CH2M HILL, 2009c) was completed in May 2009. During the ESI, geophysical surveying, test pitting, waste characterization, soil sampling, ephemeral stream sampling, monitoring well installation, and groundwater sampling were performed. The Draft SI/ESI Report, which included SWMU 1, was submitted in October 2009 (CH2M HILL, 2009d). Based on the findings documented in the Draft SI/ESI Report and consistent with USEPA guidance, a Streamlined RI/FS for presumptive remedy is underway for SWMU 1. At a minimum, the FS will consider containment options for the landfill.

SWMU 2—Fuels Off-Loading Site

SWMU 2 is located in the Camp Garcia area, and is the former location of aboveground fuel storage tanks. The tanks included two 20,000-gallon tanks, and two 30,000-gallon tanks. These tanks became operational in 1953 and were removed between 1978 and 1979. The refueling process took place about every 3 months, and consisted of pumping fuel through an 8-inch submarine line to each of these tanks from a barge. Prior to initiating this refueling process, seawater had to be flushed from the submarine line. The following fuel types were stored at this site during the operational period: diesel fuel, unleaded gasoline, aviation gas (AVGAS), and jet propellant (JP)-5 fuel. The sludge that developed in these tanks was removed by a private contractor to be disposed of on the main island.

The site is overgrown with grass and small shrubs, with only minimal signs of previous activity. During the VSI, there were no signs of previous releases to either the soil or the water, but no release controls were identified (PREQB-Vargas, 1995). During the site visit conducted on February 2, 2000, no signs of the tanks or piping were present. Only the steel supports for the pipeline in the offloading area were present. Geophysics conducted during the ESI in 2009 confirmed the pipeline had been removed.

Evaluation of historical data collected at SWMU 2 is presented in the Final PA/SI Report (CH2M HILL, 2008e) and Draft SI/ESI Report (CH2M HILL, 2009c). Although the data collected during the Phase I RFI suggested there had not been a release that posed a potentially unacceptable risk, the spatial distribution of soil samples was not adequate to sufficiently characterize the potential source areas at the site. Based on the findings of the Phase I RFI, SWMU 2 was included as part of an ESI for which the field work, described in the SAP (CH2M HILL, 2009c), was completed in June 2009. During the ESI, soil sampling and geophysical surveying were performed. The Draft SI/ESI Report, which included SWMU 2, was submitted in October 2009 (CH2M HILL, 2009d). Based on the results of the ESI, the SI/ESI Report concluded that a localized release occurred at one former SWMU 2 AST, but that contaminant concentrations (primarily lead) across the site do not pose an unacceptable

human health or ecological risk or leaching concern for groundwater. The Report further found that the mean lead concentration in SWMU 2 soil is less than the PREQB Land Pollution Control Corrective Action Level. Based on the findings presented in the Draft SI/ESI Report, SWMU 2 was identified as requiring no action to be protective of unrestricted human use and ecological exposure and was therefore included in a Draft No Action/NFA Decision Document (CH2M HILL, 2010e).

SWMU 4—Waste Areas of Building 303

Building 303 was established as a storage area at Camp Garcia for batteries when it was erected in the 1960s. The SWMU 4 waste areas located in Building 303 comprised a spent battery accumulation area, a catch basin for hydraulic oil, a cleaning/decreasing basin, and a rags, absorbent, and grease storage area, which were designated as AOCs C, D, and E, respectively, per the classifications in the 1988 RCRA Facility Assessment (RFA) (A. T. Kearney, 1988) and the 1995 Revised RFA (PREQB-Vargas, 1995) reports. The 1988 RFA Report and the PREQB revised RFA Report both recommended NFA for all four sites included as SWMU 4.

The 1988 RFA Report referred to the spent battery accumulation areas as being inside Building 303, where batteries and battery acid were stored prior to disposal offsite on Naval Station Roosevelt Roads (NSRR). The acid from spent batteries was stored in a plastic container prior to offsite shipment. Facility personnel stated that this was also the approximate area where spent batteries were stored. During the VSI, there were no batteries/acid at this location (PREQB-Vargas, 1995). This area contained no visible signs of leakage on the concrete floor from previous storage of these materials.

The catch basin for hydraulic oil, approximately 5 feet long and 6 inches wide, was an area inside Building 303 designed to catch any hydraulic oil that may have dripped from the tanks above. During the VSI, there were no signs of leakage on the cement floor under the basin (PREQB-Vargas, 1995).

The cleaning basin was a square metal container, approximately 24 inches long, 18 inches wide, and 12 inches deep, used to hold solvents for the cleaning and degreasing of parts. The unit was formerly located inside Building 303.

The conclusion drawn from examinations of the Spent Battery Accumulation Area was that the potential for migration of waste or accumulated liquids to the soil, groundwater or surface water was very low, as stated in the PREQB 1995 revised RFA Report. During the 1995 revised RFA, no batteries or acid were present at this location, nor were there visible signs of acid leakage on the concrete floor from previous storage of these materials.

The exposure potential from this SWMU is considered minimal, as stated in the PREQB 1995 revised RFA Report. Another site visit was conducted in February 2000 during which no staining or signs of contamination were observed on the concrete floor.

An additional building adjacent to Building 303 was identified in 2000. This building was used as a battery accumulation area and was designated as “Corrosive Materials Storage.” In the past it contained spent batteries and battery acid. Another small building was identified adjacent to Building 303, and was designated as “Flammable Storage.” It had been used for the storage of rags, adsorbent material, and grease contained in barrels.

Evaluation of historical data collected at SWMU 4 is presented in the Final PA/SI Report (CH2M HILL, 2008e) and Draft SI/ESI Report (CH2M HILL, 2009c). The PA/SI Report recommended NFA for SWMU 4, pending confirmation that regional groundwater quality had not been adversely impacted by potential releases at SWMU 4. Installation and sampling of the regional groundwater monitoring wells, as described in the SAP (CH2M HILL, 2009c), was completed in May 2009. The Draft SI/ESI Report, which includes the regional groundwater evaluation, was submitted in October 2009 (CH2M HILL, 2009c). The results of the ESI indicated there had not been a CERCLA-related release from SWMU 4 that had adversely impacted groundwater quality. Therefore, based on the findings presented in the PA/SI Report and the Draft SI/ESI Report, SWMU 4 was identified as requiring no action to be protective of unrestricted human use and ecological exposure and was therefore included in a Draft No Action/NFA Decision Document (CH2M HILL, 2010e).

SWMU 5—Spent Battery Accumulation Area

This SWMU is located in the Inner Range portion of Observation Post 1 (OP-1) and is similar to SWMU 4. However, the batteries and battery acid were stored outside on a gravel driveway. According to the PREQB 1995 revised RFA Report, the acid from these batteries was typically emptied into plastic containers and shipped to NSRR. During the VSI, there were nine batteries stored at this site on the gravel driveway. There were no signs of any spills or leaks from these batteries, but no release controls were identified at this SWMU (PREQB-Vargas, 1995).

Based on the site visit conducted on February 2, 2000, release controls (plastic storage trays) for battery storage were in place, but no batteries were present. Although the startup date for SWMU 5 is unknown, the SWMU remained active through May 2003. During the January 2004 site visit, no signs of activity were evident at SWMU 5. No batteries were observed at the site. The plastic trays observed in 2000 had been removed as part of the closure of the former VNTR.

Evaluation of historical data collected at SWMU 5 is presented in the Final PA/SI Report (CH2M HILL, 2008e). Based on the findings in the PA/SI Report, no action is necessary for SWMU 5 to be protective of unrestricted human use and ecological exposure. A Final No Action Decision Document (CH2M HILL, 2009a) was issued in January 2009 to document the no action determination for a number of sites, including SWMU 5.

SWMU 6/7—Waste Oil and Paint Accumulation Area

The PREQB 1995 revised RFA Report indicates that this area was used by the Seabees as a storage area for waste oil and paint. The site consists of a concrete slab and a small chain-link cage area. The waste oil at this location was containerized in 55-gallon drums, and the paint was stored in small containers. Tires and two drums of lubricating oil were present at this site. The waste oil and tires were temporarily stored on a grassy area awaiting shipping offsite to NSRR. The PREQB 1995 revised RFA Report states that this area became active in 1978, and was still active in 1988. During the VSI, there were visible signs of oil leakage onto the ground from the drums, and there were no release controls present (PREQB-Vargas, 1995). Based on the site visit conducted on February 2, 2000, this area was no longer active, and no waste was observed.

Evaluation of historical data collected at SWMUs 6/7 is presented in the Final PA/SI Report (CH2M HILL, 2008e) and Draft SI/ESI Report (CH2M HILL, 2009d). The PA/SI evaluation suggested a release likely occurred at the site. However, the spatial distribution of samples was not adequate to sufficiently characterize the potential source area (i.e., no subsurface soil samples were collected). Based on the findings of the Phase I RFI, SWMU 6/7 was part of an ESI for which field work, as described in the SAP (CH2M HILL, 2009c), was completed in May 2009. During the ESI, additional surface and subsurface soil sampling was performed. The Draft SI/ESI Report, which includes SWMU 6/7, was submitted in October 2009 (CH2M HILL, 2009d). Based on the results of the ESI, the SI/ESI Report concluded there has not been a CERCLA-related release at SWMU 6/7 that has resulted in soil or groundwater contamination at concentrations that would pose a potentially unacceptable risk to human or ecological receptors or leaching concern for groundwater. Based on the findings presented in the Draft SI/ESI Report, SWMU 6/7 was identified as requiring no action to be protective of unrestricted human use and ecological exposure and was therefore included in a Draft No Action/NFA Decision Document (CH2M HILL, 2010e).

SWMU 8—Waste Oil Accumulation Area

This former accumulation area is located outside the generator building at OP-1 on Cerro Matias. According to the 1988 RFA Report, this area contained drums that stored both waste lubricants and oils. These drums were stored on bare soil prior to being shipped offsite to NSRR. The accumulation area began operation in approximately 1978, and was still active at the time of the 1988 RFA. During the VSI, minimal spills of lubricating oil were present in the area of the drums, but there were no release controls visible (PREQB-Vargas, 1995). Based on the site visit conducted on February 2, 2000, release controls were in place, and no leaks or spills were observed. Waste oil was stored in plastic containers and then transported to NSRR.

Evaluation of historical data collected at SWMU 8 is presented in the Final PA/SI Report (CH2M HILL, 2008e). Based on the findings in the PA/SI Report, no action is necessary for SWMU 8 to be protective of unrestricted human use and ecological exposure. A Final No Action Decision Document (CH2M HILL, 2009a) was issued in January 2009 to document the no action determination for a number of sites, including SWMU 8.

SWMU 10—Sewage Treatment Lagoons

According to the 1988 RFA and the PREQB 1995 revised RFA reports, the sewage treatment lagoons for Camp Garcia began service when the adjacent pump station was installed in the early 1950s. These lagoons were divided into two stages for the treatment of domestic waste. Four unlined lagoons were utilized in this process, including two that received the waste, and two that were considered polishing lagoons. Following waste treatment in the polishing lagoons, the remaining liquid was applied to land. Due to the small number of Seabees and civilians (45 people) using the sanitary facilities on a daily basis, the amount of domestic waste generated was small. There were no signs of release at this SWMU, although environmental sampling had not occurred at the time of the 1995 revised RFA (PREQB-Vargas, 1995). During the site visit conducted on February 2, 2000, the four lagoons were overgrown with vegetation and no longer active.

Evaluation of historical data collected at SWMU 10 is presented in the Final PA/SI Report (CH2M HILL, 2008e) and Draft SI/ESI Report (CH2M HILL, 2009d). Although the data

collected during the Phase I RFI suggested there has not been a release that posed a potentially unacceptable risk, there was uncertainty in the thallium data due to the tendency of the analytical method used to provide falsely elevated results. Based on the findings in the PA/SI Report, SWMU 10 was part of an ESI for which field work, as described in a SAP (CH2M HILL, 2009c), was completed in May 2009. During the ESI, soil and groundwater were re-sampled for thallium analysis. The Draft SI/ESI Report, which includes SWMU 10, was submitted in October 2009 (CH2M HILL, 2009d). Based on the results of the ESI, the SI/ESI Report concluded there has not been a CERCLA-related release at SWMU 10 or, if a release occurred, it has not resulted in soil or groundwater contamination at concentrations that would pose a potentially unacceptable risk to human or ecological receptors or leaching concern for groundwater. Based on the findings presented in the Draft SI/ESI Report, SWMU 10 was identified as requiring no action to be protective of unrestricted human use and ecological exposure and was therefore included in a Draft No Action/NFA Decision Document (CH2M HILL, 2010e).

SWMU 12—Solid Waste Collection Unit Area (formerly AOC B)

This area was formerly referred to as AOC B. However, according to the Consent Order, it was decided that this area should be a SWMU, and was consequently identified as SWMU 12. The collection area contained storage devices used to containerize garbage prior to its disposal at the Vieques Island landfill. The containers used to store this garbage comprised: wooden boxes, wooden trailers, and both metal dumpsters and cans. During the VSI, only a wooden trailer was visible at this site (PREQB-Vargas, 1995). During the site visit conducted on February 2, 2000, two wooden trailers were sighted; the trailers contained garbage and were parked on a bend in the road below OP-1.

Evaluation of historical data collected at SWMU 12 is presented in the Final PA/SI Report (CH2M HILL, 2008e). Based on the findings in the PA/SI Report, no action is necessary for SWMU 12 to be protective of unrestricted human use and ecological exposure. A Final No Action Decision Document (CH2M HILL, 2009a) was issued in January 2009 to document the no action determination for a number of sites, including SWMU 12.

AOC A—Diesel Fuel Fill Pipe Area

According to the 1988 RFA and the 1995 PREQB revised RFA reports, this area contained a pipe used to fill the underground storage tank (UST) located at OP-1 on Cerro Matias. The UST, as well as the fill pipe, were first put into service in approximately 1978. This site contained a 6-foot by 6-foot area of soil around the fill pipe. During the VSI, this area of soil appeared to be stained with fuel from spills during previous refueling procedures. Because the tank was located 25 feet southwest and downgradient of the fill pipe, this staining did not appear to be coming from the tank. There were no release controls found at this site (PREQB-Vargas, 1995).

The UST was replaced with a new UST in 1997. The closure report indicated that four samples were collected after the lines and tank were removed. The 1997 UST replacement at the site did not indicate the presence of any petroleum-related constituents. Prior to the land transfer in April 2003, the new UST was removed and six subsurface soil samples were collected around its former location. In addition, four subsurface soil samples were collected along the bottom of the fuel line that connected the UST to a generator.

Evaluation of historical data collected at AOC A is presented in the Final PA/SI Report (CH2M HILL, 2008e) and Draft SI/ESI Report (CH2M HILL, 2009d). Although the confirmatory soil samples collected following the UST (and some associated soil) removal suggested there was sufficient contaminated soil removed beneath the UST, it was unclear as to whether sufficient soil was removed beneath a portion of the fuel fill pipe (i.e., some confirmatory soil sample total petroleum hydrocarbons-diesel range organics [TPH-DRO] concentrations exceeded the PREQB Land Pollution Control criterion). Based on the findings in the PA/SI Report, AOC A was part of an ESI for which field work, as described in the SAP (CH2M HILL, 2009c), was completed in May 2009. During the ESI, soil was removed and additional confirmatory samples collected along the former piping. The resulting data indicated no additional soil removal was necessary and that the excavated soil was appropriate for use as backfill for the excavation, which was completed. The Draft SI/ESI Report, which includes AOC A, was submitted in October 2009 (CH2M HILL, 2009d). Based on the results of the ESI, the SI/ESI Report concluded current TPH concentrations at AOC A are acceptable relative to the PREQB Land Pollution Control Corrective Action Level. Based on the findings presented in the Draft SI/ESI Report, AOC A was identified as requiring NFA to be protective of unrestricted human use and ecological exposure and was therefore included in a Draft No Action/NFA Decision Document (CH2M HILL, 2010e).

AOC F—Rock Quarry

According to the 1988 RFA and the 1995 PREQB revised RFA reports, this site is located southwest of the former Camp Garcia landfill, where the gravel that the Navy used for roads and other construction purposes was quarried. However, during the VSI, used tires and some paper waste were visible at this location (PREQB-Vargas, 1995). During the site visit conducted on February 2, 2000, no signs of tires or paper waste were observed. The quarry did not appear to be active.

Evaluation of historical data collected at AOC F is presented in the Final PA/SI Report (CH2M HILL, 2008e). Based on the findings in the PA/SI Report, no action is necessary for AOC F to be protective of unrestricted human use and ecological exposure. A Final No Action Decision Document (CH2M HILL, 2009a) was issued in January 2009 to document the no action determination for a number of sites, including AOC F.

AOC G—Pump Station and Chlorination Building at Sewage Lagoons

This site, which is located at Camp Garcia, became active in the 1950s. After approximately 30 years of service, this building was shut down due to the decrease in activity at the base. The main purpose of this building was to pump and chlorinate domestic waste from the sewage treatment lagoons (SWMU 10). The building was constructed with concrete, and built partially below grade. During the VSI, stains were visible on the concrete due to previous overflowing of the unit. However, there were no signs of damage to the grassy area in the general vicinity (PREQB-Vargas, 1995). During the site visit conducted on February 2, 2000, no staining was observed on the chlorination building. The site is inactive and overgrown with vegetation.

Evaluation of historical data collected at AOC G is presented in the Final PA/SI Report (CH2M HILL, 2008e) and Draft SI/ESI Report (CH2M HILL, 2009d). Although the data collected during the Phase I RFI suggested there had not been a release at AOC G that posed a

potentially unacceptable risk, there was some uncertainty associated with potential discharge of pump maintenance fluids. Therefore, AOC G was part of an ESI for which field work, as described in the SAP (CH2M HILL, 2009c), was completed in May 2009. During the ESI, additional soil sampling was performed. The Draft SI/ESI Report, which includes the AOC G site, was submitted in October 2009 (CH2M HILL, 2009d). Based on the results of the ESI, the SI/ESI Report concluded there has not been a CERCLA-related release at AOC G that has resulted in soil contamination at concentrations that would pose a potentially unacceptable risk to human or ecological receptors or leaching concern for groundwater. Based on the findings presented in the Draft SI/ESI Report, AOC G was identified as requiring no action to be protective of unrestricted human use and ecological exposure and was therefore included in a Draft No Action/NFA Decision Document (CH2M HILL, 2010e).

2.1.2 Photo-identified (PI) and Potential Area of Concern (PAOC) Sites

During the development of the Description of Current Conditions Report (CH2M HILL, 2001b) and the EBS (NAVFAC, 2003a), several additional potential environmental sites were identified based on the review of historical aerial photographs and facility records. The locations of the PI sites and PAOCs are shown on **Figure 2-1**.

There were 23 PI and 24 PAOC sites identified in the EBS. PI/PAOC sites are described in **Appendix B-1**. A Draft Phase I RFI Report (CH2M HILL, 2004a) was developed that further described the 47 PI/PAOC sites; however, none of the sites was investigated during the Phase I RFI. The Draft Phase I RFI Report proposed eight of the PI/PAOC sites (PIs 4 and 7, and PAOCs J, K, L, N, S, and U) for a Phase I RFI, which was implemented as a PA/SI under CERCLA due to the subsequent listing of Vieques on the NPL. The PA/SI field work for the eight PI/PAOC sites was completed in April 2006 in accordance with the PA/SI Work Plan (CH2M HILL, 2006a). The Final PA/SI Report discusses the findings and recommendations for each of the eight PI/PAOC sites (CH2M HILL, 2008e). One site (PAOC U) was recommended for NFA, which was documented in a No Action Decision Document (CH2M HILL, 2009a). Five of the remaining seven PI/PAOC sites were recommended for further investigation as part of an ESI (PIs 4 and 7, and PAOCs L, N, and S). Determinations for the two remaining sites (PAOC J and K) were postponed pending completion of a regional groundwater evaluation. The five aforementioned sites and regional groundwater were included in an ESI, for which the field work, described in a SAP (CH2M HILL, 2009c), was completed in May 2009. The Draft SI/ESI Report, which includes these five sites, was submittal in October 2009 (CH2M HILL, 2009d). Based on the findings presented in the Draft SI/ESI Report, five of the seven aforementioned PI/PAOC sites (PAOCs J, K, L, N and S) were identified as requiring no action or NFA to be protective of unrestricted human use and ecological exposure. These sites are included in a Draft No Action/NFA Decision Document (CH2M HILL, 2010e). The remaining two sites (PI 4 and PI 7) were recommended for additional sampling in accordance with the existing SAP (CH2M HILL, 2009c).

The path forward for the remaining 39 PI/PAOC sites has been discussed by the Environmental Technical Subcommittee, which comprises representatives from the Navy, USEPA, PREQB, and USFWS, and their contractors. Any of the PI/PAOC sites located in munition site areas will be investigated under the ERP after the appropriate munitions actions have been completed under the MRP. Based on this protocol, there are 23 PI/PAOC sites

currently in the MRP. The remaining 16 PI/PAOC sites (in addition to the eight discussed in the preceding paragraph) are in the ERP (PIs 5, 6, 8, 10, 11, and 20, PAOCs I, M, O, P, Q, R, T, V, W, and X). A site visit by the Environmental Technical Subcommittee to the 16 sites on October 17, 2007, determined that five of the 16 sites required no action to be protective of unrestricted human use and ecological exposure (PI 11 and 20, and PAOCs T, V, and W). A Final No Action Decision Document (CH2M HILL, 2009a) was issued in January 2009 to document the no action determination for a number of sites, including these five sites. The remaining 11 PI/PAOC sites were included in the SI/ESI, for which the field work, as described in the SAP (CH2M HILL, 2009c), was completed in May 2009. The Draft SI/ESI Report, which includes these 11 sites, was submitted in October 2009 (CH2M HILL, 2009d). Based on the findings presented in the Draft SI/ESI Report, nine of the 11 aforementioned PI/PAOC sites (PIs 5, 6, 8, and 10, and PAOCs I, M, O, P, X) were identified as requiring no action or NFA to be protective of unrestricted human use and ecological exposure. These sites are included in a Draft No Action/NFA Decision Document (CH2M HILL, 2010e). The remaining two sites (PAOCs Q and R) were recommended for additional sampling in accordance with the existing SAP (CH2M HILL, 2009c).

Each of the 16 PI/PAOC sites included in the SI/ESI, and PAOCs J and K, are described briefly below.

PI 4 (Former Helicopter Maintenance Area, Trenched Area, Disturbed Area, and Bermed Areas used for Fuel Bladder Storage)

Historical information suggests the site comprised a former helicopter maintenance area, trenched area, disturbed areas, and bermed area for storage of fuel bladders. There are no structures remaining at the site other than concrete pads (potential relics of building foundations) and concrete vaults believed to have been associated with a sanitary septic system for barracks and mess potentially located at the site (CH2M HILL, 2008e).

During the 2001 SI of PI sites and the 2002 EBS SI, no physical evidence of a release was noted. However, as a conservative measure, five potential sources of a release were identified for PA/SI sampling:

- Former trenches
- Area of disturbed ground south of the helicopter maintenance area
- Bermed fuel bladder storage area
- Former helicopter maintenance area
- Disturbed area in the southeast part of the trenched area

Evaluation of historical data collected at PI 4 is presented in the Final PA/SI Report (CH2M HILL, 2008e) and Draft SI/ESI Report (CH2M HILL, 2009d). Although the data collected during the PA/SI suggested there had been a release of volatile organic compounds (VOCs) to groundwater, the spatial coverage of monitoring wells was not adequate to sufficiently characterize the potential source area. Therefore, PI 4 was part of an ESI, for which the field work, as described in the SAP (CH2M HILL, 2009c), was completed in May 2009. During the ESI, additional monitoring well installation and groundwater sampling were performed. The Draft SI/ESI Report, which includes PI 4, was submitted in October 2009 (CH2M HILL, 2009d). The SI/ESI Report identified low levels of VOCs in groundwater at PI 4; specifically, low-level exceedances of the trichloroethene (TCE) maximum contaminant

limit (MCL) were observed in one well over two rounds of sampling. Collection of another round of groundwater samples from all site wells for VOC analysis is recommended in the Draft SI/ESI Report to confirm low levels or evaluate presence of any trends. Groundwater sampling at this site is anticipated to occur in mid-2010.

PI 5 (Former Airfield and Associated Ditches)

Historical information suggests PI 5 was an airfield and associated drainage ditches. It was also the historical location of the fire department and temporary tents. The relatively limited historical information that exists about PI 5 comes from the following four sources:

- Aerial photographic analysis
- Site visits during the RFI, EBS, and SI scoping
- Personnel interviews and historical records review during the EBS
- Sampling of beach matting observed during the EBS

PI 5 is shown in a series of aerial photographs taken in 1959, 1962, 1964, and 2005, including identification of features observed in aerial photographs or during site visits. Analysis of the historical aerial photographs was conducted by ERI in 2000 (ERI, 2000). The general observation made by ERI for PI 5 was that the site comprised ditches from the airfield that led to cleared areas near and into Puerto Ferro.

To determine whether a CERCLA-related release has occurred at PI 5, an SI was deemed warranted. In October 2007 and January 2009, the Environmental Technical Subcommittee performed site visits to PI 5 to observe site conditions and select locations for soil sampling to be conducted during the SI. The SI field work, as described in the SAP (CH2M HILL, 2009c), was completed in May 2009. The Draft SI/ESI Report, which includes PI 5, was submitted in October 2009 (CH2M HILL, 2009d). Based on the results of the SI, the SI/ESI Report concluded there has not been a CERCLA-related release at PI 5 or, if a release occurred, it has not resulted in soil contamination at concentrations that would pose a potentially unacceptable risk to human or ecological receptors or leaching concern for groundwater. Based on the findings presented in the Draft SI/ESI Report, PI 5 was identified as requiring no action to be protective of unrestricted human use and ecological exposure and was therefore included in a Draft No Action/NFA Decision Document (CH2M HILL, 2010e).

PI 6 (Former PCB Storage Pad and Vehicle Wash Pad)

Historical information suggests PI 6 was a probable water treatment plant with a large impoundment, vehicle wash pad, UST, and concrete pad potentially used to store PCBs. The relatively limited historical information that exists about PI 6 comes from the following four sources:

- Aerial photographic analysis
- Site visits during the RFI, EBS, and SI scoping
- Personnel interviews and historical records review during the EBS
- Collection of surface soil and wipe samples during the EBS

Analysis of the historical aerial photographs was conducted by ERI in 2000 (ERI, 2000). The general observation made by ERI for PI 6 was that the site comprised vertical tanks, a large surface impoundment, and a pump house at a probable water treatment plant. To determine

whether a CERCLA-related release has occurred at PI 6, an SI was deemed warranted. In October 2007, the Environmental Technical Subcommittee performed a site visit to PI 6 to observe site conditions and select locations for soil sampling during the SI. The SI field work, as described in the SAP (CH2M HILL, 2009c), was completed in May 2009. The Draft SI/ESI Report, which includes PI 6, was submitted in October 2009 (CH2M HILL, 2009d). Based on the results of the SI, the SI/ESI Report concluded a CERCLA-related release of PCBs has not occurred at the PI 6 PCB storage pad. The SI/ESI Report further concluded there has not been a CERCLA-related release associated with the PI 6 UST and vehicle wash pad or, if a release occurred, it has not resulted in contamination of soil at concentrations that would pose a potentially unacceptable risk to human or ecological receptors or leaching concern for groundwater. Based on the findings presented in the Draft SI/ESI Report, PI 6 was identified as requiring no action to be protective of unrestricted human use and ecological exposure and was therefore included in a Draft No Action/NFA Decision Document (CH2M HILL, 2010e).

PI 7 (Former Quarry, Tar Drum Disposal Area, and Radar Communication Area)

Historical information suggests the site was a former radar communication area, former quarry, and former tar drum disposal area. A site reconnaissance of the area encompassing the former quarry and drum disposal area was conducted to confirm the areas where drums are located. Two empty 55-gallon drums were found at one location within the boundaries of the former quarry. Several areas of empty, tar-stained 55-gallon drums were identified in the former drum disposal area. Other than the presence of the 55-gallon drums, there was no historical information, observations, or analytical data prior to the ESI that suggested a CERCLA-related release likely occurred at PI 7 (CH2M HILL, 2008e). However, PI 7 was part of an ESI, for which the field work, as described in the SAP (CH2M HILL, 2009c), was completed in May 2009. During the ESI, the drums were removed to prevent potential future releases. Upon removal of the drums from the drum disposal area, some soil staining and visible tar was observed on the ground surface. Therefore, the areas of soil staining and visible tar were removed along with the drums; soil samples were collected to confirm sufficient soil had been removed and that residual soil concentrations were acceptable. The Draft SI/ESI Report, which includes PI 7, was submitted in October 2009 (CH2M HILL, 2009d). The SI/ESI Report for the PI 7 site indicated drum and contaminated soil removal have eliminated past and potential future sources of contamination and potentially unacceptable levels of contamination present in the drum disposal area. The Report further concludes that soil concentrations in both the drum disposal area and former radar communication facility do not pose an unacceptable risk to human or ecological receptors or leaching concern for groundwater. However, the Report did identify a single surface soil sample within the former quarry with polycyclic aromatic hydrocarbon (PAH) concentrations above risk-based screening criteria. The sample was collected more than 7 years ago, so the SI/ESI Report recommended collecting a co-located surface and subsurface soil sample from the same location to determine current concentrations of PAHs. If current PAH concentrations, when considered with nearby soil data, do not pose a potentially unacceptable risk to human or ecological receptors or leaching concern for groundwater, NFA will be necessary for that area. If the evaluation instead suggests there is a potentially unacceptable risk or leaching concern, soil will be removed in a localized area, similar to what was done in the tar drum disposal area, and another co-located surface and subsurface soil sample will be collected to confirm remaining concentrations are acceptable. Soil sampling at this site is anticipated to occur in mid-2010.

PI 8 (Former Motor Pool Maintenance Area)

Historical information suggests PI 8 was a motor pool maintenance area, car wash, oil drum storage and disposal area, drum storage area for asphalt emulsions, area of metallic, multi-colored material, a potential storage area for hazardous materials and petroleum products, and had light-toned material observed in the southeast area. The relatively limited historical information that exists about PI 8 comes from the following four sources:

- Aerial photographic analysis
- Site visit during the EBS
- Personnel interviews and historical records review during the EBS
- Collection of surface soil samples during the EBS

Analysis of the historical aerial photographs was conducted by ERI in 2000 (ERI, 2000). The general observation made by ERI for PI 8 was that the site was used for vehicle and equipment maintenance and open storage. To determine whether a CERCLA-related release had occurred at PI 8, an SI was deemed warranted. In October 2007 and January 2009, the Environmental Technical Subcommittee performed site visits to PI 8 to observe site conditions and select locations for soil sampling to be conducted during the SI. The SI field work, as described in the SAP (CH2M HILL, 2009c), was completed in May 2009. The Draft SI/ESI Report, which includes PI 8, was submitted in October 2009 (CH2M HILL, 2009d). Based on the results of the SI, the SI/ESI Report concluded there has not been a CERCLA-related release at PI 8 that has resulted in soil contamination at concentrations that would pose a potentially unacceptable risk to human or ecological receptors or leaching concern for groundwater. Based on the findings presented in the Draft SI/ESI Report, PI 8 was identified as requiring no action to be protective of unrestricted human use and ecological exposure and was therefore included in a Draft No Action/NFA Decision Document (CH2M HILL, 2010e).

PI 10 (Former Wastewater Leach Field)

Historical information suggests PI 10 was a possible leach field for a wastewater treatment plant. The relatively limited historical information that exists about PI 10 comes from the following four sources:

- Aerial photographic analysis
- Site visit during the EBS
- Personnel interviews and historical records review during the EBS
- Collection of surface soil samples during the EBS

Analysis of the historical aerial photographs was conducted by ERI in 2000 (ERI, 2000). The general observation made by ERI for PI 10 was that the site was a series of four impoundments with liquid. This is assumed to be a misprint because six impoundments are visible in the 1962 aerial photograph. To determine whether a CERCLA-related release had occurred at PI 10, an SI was deemed warranted. In October 2007 and January 2009, the Environmental Technical Subcommittee performed site visits to PI 10 to observe site conditions and select locations for soil sampling to be conducted during the SI. The SI field work, as described in the SAP (CH2M HILL, 2009c), was completed in May 2009. The Draft SI/ESI Report, which includes PI 10, was submitted in October 2009 (CH2M HILL, 2009d). Based on the results of the SI, the SI/ESI Report concluded there has not been a CERCLA-related release at PI 10 or, if a release occurred, it has not resulted in soil contamination at

concentrations that would pose a potentially unacceptable risk to human or ecological receptors or leaching concern for groundwater. Based on the findings presented in the Draft SI/ESI Report, PI 10 was identified as requiring no action to be protective of unrestricted human use and ecological exposure and was therefore included in a Draft No Action/NFA Decision Document (CH2M HILL, 2010e).

PAOC I (Former Power Plant and Mechanics Shop)

Historical information indicates PAOC I was a former power plant and mechanics shop. The relatively limited historical information that exists about PAOC I comes from the following two sources:

- Site visits during the RFI, EBS, and SI scoping
- Personnel interviews and historical records review during the EBS

The following observations were made during the site visits conducted at PAOC I:

- RFI and EBS (2001 and 2002, respectively)
  - The building still exists; no evidence of hazardous material, hazardous waste, petroleum, or munitions storage or disposal.
- SI Scoping Sessions (2007 and 2009)
  - The building still exists, but no interior structures remain.
  - Two doors (south and west sides of building) and three pipe penetrations (two on south side of building and one east side of building). Past use of pipes is unknown.

The following information was compiled from personnel interviews and historical records review:

- Site comprises Building 401, a former power plant and mechanics shop at Camp Garcia.

Based on the above information, the potential sources of a CERCLA-related release are the historic boiler- and mechanics-related activities that took place within Building 401. Conceptually, releases from these activities would have taken place via discharge through pipe penetrations and/or building egress points. To determine whether a CERCLA-related release had occurred at PAOC I, an SI was deemed warranted. In October 2007 and January 2009, the Environmental Technical Subcommittee performed site visits to PAOC I to observe site conditions and select locations for soil sampling to be conducted during the SI. The SI field work, as described in the SAP (CH2M HILL, 2009c), was concluded in May 2009. The Draft SI/ESI Report, which includes PAOC I, was submitted in October 2009 (CH2M HILL, 2009d). Based on the results of the SI, the SI/ESI Report concluded there has not been a CERCLA-related release at PAOC I or, if a release occurred, it has not resulted in soil contamination at concentrations that would pose a potentially unacceptable risk to human or ecological receptors or leaching concern for groundwater. Based on the findings presented in the Draft SI/ESI Report, PAOC I was identified as requiring no action to be protective of unrestricted human use and ecological exposure and was therefore included in a Draft No Action/NFA Decision Document (CH2M HILL, 2010e).

PAOC J (Former Vehicle Maintenance Area)

An interview conducted in June 2000 with an employee from NASD (CH2M HILL, 2001) indicated that a former vehicle maintenance area at Camp García existed immediately north of the main road at the location shown on **Figures 2-1**. A review of the historical aerial photos indicates that all structures were demolished prior to 1980. The interviewee was not aware of any hazardous material or hazardous waste releases at the site. During the EBS VSI conducted in October 2002, there was no evidence of hazardous material, hazardous waste, petroleum, or munitions storage or disposal (NAVFACENGCOM, 2003). However, due to the past use of this site, implementation of a PA/SI was performed. Evaluation of historical data collected at PAOC J is presented in the Final PA/SI Report (CH2M HILL, 2008e) and Draft SI/ESI Report (CH2M HILL, 2009c). The PA/SI Report recommended NFA for PAOC J, pending confirmation that regional groundwater quality had not been adversely impacted by potential releases at PAOC J. Installation and sampling of the regional groundwater monitoring wells, as described in the SAP (CH2M HILL, 2009c), was completed in May 2009. The Draft SI/ESI Report, which includes the regional groundwater evaluation, was submitted in October 2009 (CH2M HILL, 2009c). The results of the ESI indicated there had not been a CERCLA-related release from PAOC J that had adversely impacted groundwater quality. Therefore, based on the findings presented in the PA/SI Report and the Draft SI/ESI Report, PAOC J was identified as requiring no action to be protective of unrestricted human use and ecological exposure and was therefore included in a Draft No Action/NFA Decision Document (CH2M HILL, 2010e).

PAOC K (Former Wash Rack)

The site is located in an area north of the main road of Camp García, adjacent to PAOCs J and L, as shown on **Figure 2-1**. Interviewees identified PAOC K as being a potential source of petroleum contamination from washing vehicles on the vehicle wash rack. The structure was demolished prior to 1980. During a site visit in October 2002, no evidence of hazardous materials, hazardous waste, petroleum, or munitions storage or disposal was observed at the site (NAVFACENGCOM, 2003). While there was no observable evidence of a release, a PA/SI was performed due to past vehicle washing activities at the site. However, due to the past use of this site, implementation of a PA/SI was performed. Evaluation of historical data collected at PAOC K is presented in the Final PA/SI Report (CH2M HILL, 2008e) and Draft SI/ESI Report (CH2M HILL, 2009c). The PA/SI Report recommended NFA for PAOC K, pending confirmation that regional groundwater quality had not been adversely impacted by potential releases at PAOC K. Installation and sampling of the regional groundwater monitoring wells, as described in the SAP (CH2M HILL, 2009c), was completed in May 2009. The Draft SI/ESI Report, which includes the regional groundwater evaluation, was submitted in October 2009 (CH2M HILL, 2009c). The results of the ESI indicated there had not been a CERCLA-related release from PAOC K that had adversely impacted groundwater quality. Therefore, based on the findings presented in the PA/SI Report and the Draft SI/ESI Report, PAOC K was identified as requiring no action to be protective of unrestricted human use and ecological exposure and was therefore included in a Draft No Action/NFA Decision Document (CH2M HILL, 2010e).

PAOC L (Former Paint and Transformer Storage Area)

Historical information suggests the site was used to store paint and transformers. While the building is no longer in use, the structure still exists; it is a small (approximately 15 feet by 15 feet), single room, concrete block building. Based on aerial photographs, the structure was built sometime after 1985. No evidence of storage or releases was observed during site visits performed in 2000, 2002, and 2006 (CH2M HILL, 2008e). Evaluation of historical data collected at PAOC L is presented in the Final PA/SI Report (CH2M HILL, 2008e) and Draft SI/ESI Report (CH2M HILL, 2009d). The PA/SI Report concluded there was a release of pesticides to soil, but the spatial coverage of surface soil samples was not adequate to sufficiently characterize the potential source area. Therefore, PAOC L was part of an ESI, for which field work, as described in the SAP (CH2M HILL, 2009c), was completed in May 2009. During the ESI, soil with elevated pesticide concentrations was removed and confirmatory soil sampling was performed. The Draft SI/ESI Report, which includes PAOC L, was submitted in October 2009 (CH2M HILL, 2009d). Based on the results of the ESI, the SI/ESI Report concluded sufficient soil contaminated with pesticides was removed at PAOC L and that residual pesticide concentrations are consistent with concentrations attributable to normal pesticide use, not a CERCLA-related release. Based on the findings presented in the Draft SI/ESI Report, PAOC L was identified as requiring NFA to be protective of unrestricted human use and ecological exposure and was therefore included in a Draft No Action/NFA Decision Document (CH2M HILL, 2010e).

PAOC M (Former Fuel Facility)

Historical information indicates the site was a former dispatch office, sleeping quarters, and fuel facility. The relatively limited historical information that exists about PAOC M comes from the following two sources:

- Site visits during the EBS and SI scoping
- Personnel interviews and historical records review during the EBS

The following observations were made during the site visits conducted at PAOC M:

- EBS (2002)
  - No evidence of hazardous material, hazardous waste, petroleum, or munitions storage or disposal.
- SI Scoping Sessions (2007 and 2009)
  - The structure is no longer present. The area has been reworked for restroom construction and is used as a parking area.

The following information was compiled from personnel interviews and historical records review:

- Site comprises former Building 4503, a former dispatch office, fuel facility, and sleeping quarters at Camp Garcia.
- Facility was constructed in 1986 and demolished in 1991.

Based on the above information, the potential source of a CERCLA-related release is the historic fuel facility, if it housed fuel-related materials. To determine whether a CERCLA-related release had occurred at PAOC M, an SI was deemed warranted. In October 2007 and January 2009, the Environmental Technical Subcommittee performed site visits to PAOC M to observe site conditions and select locations for soil sampling. The SI field work, as described in the SAP (CH2M HILL, 2009c), was completed in May 2009. The Draft SI/ESI Report, which includes PAOC M, was submitted in October 2009 (CH2M HILL, 2009d). Based on the results of the SI, the SI/ESI Report indicated that visual, odor, and photoionization detector (PID) evidence suggest a CERCLA-related release did not occur at PAOC M. Based on the findings presented in the Draft SI/ESI Report, PAOC M was identified as requiring no action to be protective of unrestricted human use and ecological exposure and was therefore included in a Draft No Action/NFA Decision Document (CH2M HILL, 2010e).

PAOC N (Former Fuel Farm and Filling Station) and PAOC S (Former Pipeline and Former Power Plant)

Historical information suggests PAOC N was an aboveground storage tank (AST) fuel farm and filling station within Camp Garcia. The location of the former power plant portion of PAOC S is approximately 50 feet from the fuel farm part of PAOC N. The fuel farm was built in 1985 and demolished in 1992. The area later became the Camp Garcia Refueling Station where a two-compartment diesel/gasoline AST was constructed. Evaluation of historical data collected at PAOCs N and S is presented in the Final PA/SI Report (CH2M HILL, 2008e) and Draft SI/ESI Report (CH2M HILL, 2009d). Although the data evaluation presented in the PA/SI Report suggested there had not been a release that poses a potential risk at either site, and although historical records indicate a diesel UST was used at the former power plant, due to the proximity of the former filling station and the former power plant, a geophysical survey of the area between the two sites was deemed warranted via an ESI, as described in the SAP (CH2M HILL, 2009c). The geophysical survey did not identify the presence of underground fuel lines between the two sites nor a UST at the former power plant. This information was presented in the Draft SI/ESI Report submitted in October 2009 (CH2M HILL, 2009d). Additionally, the PAOC S former pipeline was investigated in the SI. This pipeline originated at SWMU 2 on a peninsula between Bahia Tapon and Bahia de la Chiva, the pipeline ran past the northern edge of Bahia Tapon, north of a black mangrove wetland/salt flat and up to the eastern edge of the former Camp Garcia runway.

Based on the results of the SI/ESI, the SI/ESI Report concluded no underground fuel pipeline was present and that there has not been a CERCLA-related release that has resulted in soil or groundwater contamination at concentrations that would pose a potentially unacceptable risk to human or ecological receptors or leaching concern for groundwater. Based on the findings presented in the Draft SI/ESI Report, PAOC N and PAOC S were identified as requiring no action to be protective of unrestricted human use and ecological exposure and was therefore included in a Draft No Action/NFA Decision Document (CH2M HILL, 2010e).

PAOC O (Former Boiler Room in Heat Plant Building 238)

Historical information indicates the site was a former boiler room in a heat plant building. The relatively limited historical information that exists about PAOC O comes from the following two sources:

- Site visits during the EBS and SI scoping
- Personnel interviews and historical records review during the EBS

The following observations were made during the site visits conducted at PAOC O:

- EBS (2002)
  - No evidence of hazardous material, hazardous waste, petroleum, or munitions storage or disposal.
- SI Scoping Sessions (2007 and 2009)
  - The structure is no longer present.

The following information was compiled from personnel interviews and historical records review:

- Site comprises former Building 238, a former boiler room in a heat plant building at Camp Garcia.
- Facility was constructed in 1953 and demolished in 1989.

Based on the above information, the potential sources of a CERCLA-related release are the former boiler and boiler-related activities. To determine whether a CERCLA-related release had occurred at PAOC O, an SI was deemed warranted. In October 2007 and January 2009, the Environmental Technical Subcommittee performed site visits to PAOC O to observe site conditions and select locations for soil sampling. The SI field work, as described in the SAP (CH2M HILL, 2009c), was completed in May 2009. The Draft SI/ESI Report, which includes PAOC O, was submittal in October 2009 (CH2M HILL, 2009d). Based on the results of the SI, the SI/ESI Report concluded there has not been a CERCLA-related release at PAOC O that has resulted in soil contamination at concentrations that would pose a potentially unacceptable risk to human or ecological receptors or leaching concern for groundwater. Based on the findings presented in the Draft SI/ESI Report, PAOC O was identified as requiring no action to be protective of unrestricted human use and ecological exposure and was therefore included in a Draft No Action/NFA Decision Document (CH2M HILL, 2010e).

PAOC P (Former Water Treatment Pumphouse)

Historical information indicates the site was a former water treatment pumphouse. The relatively limited historical information that exists about PAOC P comes from the following two sources:

- Site visits during the EBS and SI scoping
- Personnel interviews and historical records review during the EBS

The following observations were made during the site visits conducted at PAOC P:

- EBS (2002)
  - No evidence of hazardous material, hazardous waste, petroleum, or munitions storage or disposal.
- SI Scoping Sessions (2007 and 2009)

  - The structure is no longer present. A mobile generator was present at the site.

The following information was compiled from personnel interviews and historical records review:

- Site comprises former Building 500, a former water treatment facility pumphouse at Camp Garcia.
- Facility was constructed in 1953 and demolished in 1989.

Based on the above information, the potential source of a CERCLA-related release was the mobile generator. To determine whether a CERCLA-related release had occurred at PAOC P, an SI was deemed warranted. In October 2007 and January 2009, the Environmental Technical Subcommittee performed site visits to PAOC P to observe site conditions and select locations for soil sampling during an SI. The SI field work, as described in the SAP (CH2M HILL, 2009c), was completed in May 2009. During the SI, the mobile generator, as well as other debris found during vegetation clearance, was removed and soil samples were collected. The Draft SI/ESI Report, which includes PAOC P, was submitted in October 2009 (CH2M HILL, 2009d). Based on the results of the SI, the SI/ESI Report concluded that the removal of a mobile generator has eliminated past and potential future source of contamination and that there has not been a CERCLA-related release that has resulted in soil contamination at concentrations that would pose a potentially unacceptable risk to human or ecological receptors or leaching concern for groundwater. Based on the findings presented in the Draft SI/ESI Report, PAOC P was identified as requiring NFA to be protective of unrestricted human use and ecological exposure and was therefore included in a Draft No Action/NFA Decision Document (CH2M HILL, 2010e).

PAOC Q/R (Former Boiler Room in Heat Plant Building 607)

Historical information indicates the site was a former boiler house in a heat plant building. The relatively limited historical information that exists about PAOC Q comes from the following two sources:

- Site visits during the EBS and SI scoping
- Personnel interviews and historical records review during the EBS

The following observations were made during the site visits conducted at PAOC Q:

- EBS (2002)
  - No evidence of hazardous material, hazardous waste, petroleum, or munitions storage or disposal.
- SI Scoping Session (2007)
  - The structure is no longer present.

The following information was compiled from personnel interviews and historical records review:

- Site comprises former Building 607, a former boiler house in a heat plant building at Camp Garcia.

- Facility was constructed in 1963 and demolished in 1984.
- In the 1983 aerial photograph that shows the former PAOC Q boiler house location (Building 607), there is another former building to the north that looks very similar to Building 607. It is possible that this other building is PAOC R (former boiler house Building 617), although historical maps do not label this building as Building 617. Based on this information, the Environmental Technical Subcommittee concurred on including this other area with PAOC Q for the purposes of investigation and renamed the combined sites "PAOC Q/R."

Based on the above information, the potential sources of a CERCLA-related release are the former boiler(s) and boiler-related activities. To determine whether a CERCLA-related release had occurred at PAOC Q/R, an SI was deemed warranted. In October 2007, the Environmental Technical Subcommittee performed a site visit to PAOC Q/R to observe site conditions and select locations for soil sampling to be conducted during the SI. The SI field work, as described in the SAP (CH2M HILL, 2009c), was completed in May 2009. The Draft SI/ESI Report, which includes PAOC Q/R, was submitted in October 2009 (CH2M HILL, 2009d). The results of the SI indicated that the surface soil samples were likely collected in soil cover material from road expansion activities placed over the former ground surface of the site and no subsurface soil sample was collected at the PAOC R part of the site due to refusal. Therefore, the SI/ESI Report recommended scraping away the emplaced soil cover and collecting the samples that were originally planned for the site. Soil sampling at this site is anticipated to occur in June 2010.

PAOC X (Debris Area in Ephemeral Stream)

Historical information suggests the site is an ephemeral stream containing some construction-related debris and an automobile. The relatively limited historical information that exists about PAOC X comes from the following two sources:

- Site visit during the EBS
- Collection of surface soil samples during the EBS

The following observations were made during the site visits conducted at PAOC X:

- EBS (2002)
  - Automobile body, tires, scrap metal, and construction debris in [ephemeral stream] north of the main road west of Camp Garcia; adjacent to former vehicle maintenance area.

Based on the above information, the potential source of a CERCLA-related release was the debris adjacent to and in the ephemeral stream. To determine whether a CERCLA-related release had occurred at PAOC X, an SI was deemed warranted. The SI field work, as described in the SAP (CH2M HILL, 2009c), was completed in May 2009. During the SI, the debris was removed and confirmatory soil samples were collected. The Draft SI/ESI Report, which includes PAOC X, was submitted in October 2009 (CH2M HILL, 2009d). Based on the results of the SI, the SI/ESI Report concluded that the debris removal has eliminated past and potential future source of contamination at PAOC X and that the confirmatory data suggest there has not been a CERCLA-related release that has resulted in soil contamination at

concentrations that would pose a potentially unacceptable risk to human or ecological receptors or leaching concern for groundwater. Based on the findings presented in the Draft SI/ESI Report, PAOC X was identified as requiring no action to be protective of unrestricted human use and ecological exposure and was therefore included in a Draft No Action/NFA Decision Document (CH2M HILL, 2010e).

2.1.3 Munitions Response Sites

The former VNTR consists of approximately 14,600 acres and is divided into four operational areas that from west to east comprise:

- The EMA, approximately 10,673 acres
- The SIA, approximately 2,500 acres
- The 900-acre LIA
- The 200-acre ECA on the easternmost tip of Vieques

The Preliminary Range Assessment (NAVFAC, 2003b) identified 62 potential munitions sites within these areas. The Draft Expanded Range Assessment (ERA)/SI Report (CH2M HILL, 2009e) subdivided the former VNTR into 17 parcels designated as Munitions Response Sites (MRSs). The locations of the 62 potential munitions sites and the MRS parcels are shown on **Figures 2-1 and 2-2**, respectively. A brief description of the MRSs and the CERCLA status of each MRS are summarized in **Appendices A-2 and B-2**. The four operational areas are further described below. The MRSs have been included as part of the overall program munitions response prioritization.

Live Impact Area (LIA)

In 1965, air-to-ground (ATG) training activity began in the LIA where several mock-ups, such as old tanks and vehicles, were used as targets for aerial bombing. Beginning in the mid-1970s, naval gunfire was practiced at the LIA, where several point and area targets for ships were constructed. Based on the naval gunfire and ATG gunfire that occurred from the 1970s through 2003, the entire 953 acres of the LIA potentially contains munitions and explosives of concern (MEC).

The LIA has been subdivided into three MRSs:

- Unexploded Ordnance (UXO) 2, LIA Beaches
- UXO 3, LIA Roads
- UXO 4, LIA Interior

The locations of each MRSs are shown on **Figure 2-2** and a brief description of each MRS are summarized in **Appendix A-2**.

The LIA is currently undergoing a TCRA to remove munitions from the surface (CH2M HILL, 2005b). As part of the TCRA, a Work Plan has been prepared to address the processing of the MD and range related debris from the munitions removal program. Through October 2010 818 acres have been surface cleared of munitions. To further reduce the immediate explosive safety risk in this area, the Navy has implemented several mitigative measures including:

- Installation of gates and signage around the perimeter of the munitions impacted area

- Installation of warning buoys
- Distribution of flyers warning the community to stay away from the area
- Participation in public meetings and workshops to advise the community of the munitions hazards.

In February 2008 an Engineering Evaluation and Cost Analysis (EE/CA) for the Subsurface Removal of MEC from the Roads and Beaches was finalized (CH2M HILL, 2008b). A final NTCRA Work Plan for actions identified in the EE/CA was submitted October 2008 (CH2M HILL, 2008j). The subsurface removal action was initiated in May 2009.

Surface Impact Area (SIA)

The SIA was established in the 1950s, when several Marine targets were constructed. Marine artillery ranging from 76-millimeter (mm) to 175-mm rounds were directed toward these targets from artillery gun positions within the SIA and EMA. During 1969, the construction of bulls-eye targets 1 and 2, used for inert bombing, established the east and west boundaries of the SIA. The aerial photography analysis identified numerous craters within the eastern two-thirds of the SIA, which were caused by mortar and artillery fire, naval gunfire, and aerial bombing. The craters were most visible on the 1962 aerial photographs. In addition, the aerial photography analysis identified several artillery gun positions and OPs within the SIA that may have been used for artillery fire. The locations of artillery gun positions and the artillery targets are shown in **Figure 2-1**.

A Phase II SI of MRSs in the SIA was completed May 2009. The Phase II SI included geophysical surveys of the roads and beaches for future subsurface removal of MEC and transect evaluations to identify the types and densities of munitions on the surface. The results of the initial portions of the Phase II SI were evaluated and resulted in an amendment of the Phase II SI Work Plan (CH2M HILL, 2008h). The amendment includes conducting additional transect evaluations of the MRSs within the SIA to meet the same objectives as given in the Work Plan for the Final ERA/Phase II SI (CH2M HILL, 2006c) and conducting an Aerial Magnetometer Survey (AMS) for the VNTR.

The results of the Phase II SI are presented in the Draft ERA/SI Report CH2M HILL, 2009). This report subdivided the SIA into six individual or partial MRSs:

- UXO 5, SIA Restricted Roads
- UXO 6, EMA/SIA Public Roads
- UXO 7, EMA/ SIA North Beaches
- UXO 8, SIA South Beaches
- UXO 9, SIA Exterior
- UXO 10, SIA Interior

The locations of each of MRSs are shown on **Figure 2-2** and a brief description of each MRS is included in **Appendix A-2**.

In February 2008 an EE/CA for the Subsurface Removal of MEC from the Roads and Beaches was finalized (CH2M HILL, 2008b). The final NTCRA Work Plan to conduct the chosen alternative in the final EE/CA was submitted October 2008 (CH2M HILL, 2008j).

In October 2008 the final EE/CA (CH2M HILL, 2008k) to address surface clearance of MEC in the SIA was submitted based on the findings from the initial Phase II SI efforts. In January 2009, the Final NTCRA Work Plan for Surface MEC in the SIA (CH2M HILL, 2009b) was submitted. The surface clearance was initiated in January 2009 and through October of 2010 more than 610 acres of the SIA have been surface cleared of MEC and more than 7,400 MEC items have been removed.

Eastern Maneuver Area (EMA)

The EMA was established in 1947 and provided maneuvering areas and ranges for the training of Marine amphibious units and battalion landing teams in exercises that included amphibious landings, small arms fire, artillery and tank fire, shore fire control, and combat engineering tasks. The heaviest training events occurred from the mid-1950s until the early 1960s.

In 1966, six ranges were established along the northern coast of the EMA. The Preliminary Range Assessment Report (NAVFAC, 2003b) describes each of these ranges in detail. The descriptions comprise the current field conditions of the ranges, as well as a summary of the archive data and aerial photo analysis for each range. The aerial photography analysis also identified three additional ranges, the locations of which are shown in **Figure 2-1**.

The aerial photography analysis identified eight artillery gun positions within the EMA from which Marine artillery gunfire was directed toward the SIA and LIA. The locations of these gun positions and the potential impact areas from these positions are shown on **Figure 2-1**. The artillery fired from the gun positions ranged from 60 mm to 175 mm rounds. The aerial photography analysis identified 19 additional gun positions that were used for either mortar or artillery gunfire and are shown on **Figure 2-1**.

A Phase II SI of MRSs in the SIA was completed May 2009. The Phase II SI included geophysical surveys of the roads and beaches for future subsurface removal of MEC and transect evaluations to identify the types and densities of munitions on the surface. The results of the initial portions of the Phase II SI were evaluated and resulted in an amendment of the Phase II SI Work Plan (CH2M HILL, 2008h). The amendment included conducting additional transect evaluations of the MRSs within the EMA to meet the same objectives as given in the Work Plan for the Final ERA/Phase II SI (CH2M HILL, 2006c) and conducting an AMS for the VNTR.

In February 2008 an EE/CA for the Subsurface Removal of MEC from the Roads and Beaches was finalized. A Final NTCRA Work Plan for actions identified in the EE/CA was submitted to the regulatory agencies in October 2008 (CH2M HILL, 2008k).

The results of the Phase II SI are presented in the Draft ERA/SI Report (CH2M HILL, 2009e). This report subdivided the EMA into six individual or partial MRSs:

- UXO 6, EMA/SIA Public Roads
- UXO 7, EMA/ SIA North Beaches
- UXO 11, EMA Public Roads
- UXO 12, EMA Interior
- UXO 13, EMA West
- UXO 14, EMA South

- UXO 15, Puerto Ferro
- UXO 17, Other Sites

The locations of each of the MRSs are shown on **Figure 2-2** and brief descriptions of each MRS are included in **Appendices A-2 and B-2**.

Eastern Conservation Area (ECA)

The ECA, designated as MRS UXO 1 in the ERA/SI Report, was not an operational area for munitions use. However, its close proximity to the LIA, where extensive naval gunfire and ATG bombing took place, resulted in the ECA being a potential area for MEC. In addition, the open burn/open detonation (OB/OD) area within the LIA generated an explosive safety arc that extended into the ECA. The ECA was part of the TCRA to remove munitions from the surface. The surface removal activities for the ECA were completed in February 2009.

In February 2008 an EE/CA for the Subsurface Removal of MEC from the Roads and Beaches was finalized. A Final NTCRA Work Plan for actions identified in the EE/CA was submitted to the regulatory agencies in October 2008 (CH2M HILL, 2008b). The NTCRA is currently underway to remove subsurface munitions from roads and beaches of the ECA.

The MEC at the ECA had the potential to release chemical contaminants to the environmental media, from historical detonations and from the deterioration of MEC and related munitions scrap. As a result, an RI is being conducted at the ECA to assess the nature and extent of contamination and potential environmental and human health risks associated with exposure to any contamination identified. A Draft RI SAP (CH2M HILL, 2010d) for the ECA has been submitted for regulatory review.

Underwater Areas

The underwater areas adjacent to the range and operational areas on East Vieques have portions that are known or suspected to have been impacted by MEC. Limited investigation data has been collected as part of various non-Navy "pilot tests" and investigations at the underwater areas; however, based on the historical data and the limited investigation data a RI (MEC and munitions constituents [MC]) will be conducted for the underwater areas of East Vieques. The underwater areas to be addressed were designated as UXO-16 in the ERA/SI Report and include all of those underwater areas identified within the NPL boundary (**Figure 1-2**).

Other MEC Sites

The ERA/SI Report identified three aerial photo locations: PI-14, PAOC-EE, and PAOC-FF; which were collectively designated as UXO 17; were suspected to be used as munitions response sites. However, the SI did not identify MEC at any of the locations. Descriptions of the aerial photo-identified locations are provided in the ERA/SI Report and summarized in **Appendix B-2**

2.2 Western Vieques Sites

2.2.1 Environmental Sites

This subsection provides a description of the ERP and MRP sites on western Vieques. Descriptions and status of all sites for which RIs have/are being conducted, are provided in **Appendix A-1**, and their locations are shown in **Figure 2-3.** The anticipated schedule for deliverable submittal for the following sites, as applicable, is provided in **Figure 3-1**.

SWMU 6—Former Mangrove Disposal Site

The Mangrove Disposal Site is located in the ocean-side mangrove swamp in Laguna Arenas along Highway 200 on the former NASD. There is no known history of permits pertaining to this site. The disposal site was in use during the 1960s and 1970s as a disposal area for general facility wastes. Waste discarded at the site comprised broken glass, rubble, and empty containers of lubricants, oil, solvents, and paints. A CH2M HILL inspection team in conjunction with an MEC avoidance team also identified ordnance items and solid waste from the base galley, such as pieces of broken glass and china. The site is adjacent to an access road for public beaches farther west in this part of the island. While the waste was in place, a fence separated the site from Highway 200, thereby limiting access.

Although the data included in the RI suggested the waste did not pose an unacceptable risk to human health or ecological receptors (CH2M HILL, 2007b), the Navy and regulatory agencies concurred that there was uncertainty associated with this conclusion because soil samples were collected adjacent to the waste rather than directly through the waste due to safety concerns. The agencies also concurred that the waste at SWMU 6 posed an unacceptable uncertainty regarding a potential future source of contamination. An EE/CA was prepared for public comment (CH2M HILL, 2005h). No public comments were submitted. A Final Removal Action Work Plan was submitted in February 2008 (Field Support Services, Inc., 2008). Human health and ecological risk assessments conducted during pre-removal soil profiling suggested some areas of soil may have posed potentially unacceptable risks for unrestricted use (CH2M HILL 2008k, 2008l). The extent of debris removal was based on visual observation; the extent of soil removal was defined by the pre-removal waste characterization human health and ecological risk assessments, which were summarized in the technical memorandum entitled *Determination of the Disposition of Excavated Soils at SWMU 6* (CH2M HILL, 2008n).

The removal action to remove the waste and areas of soil with contaminant concentrations unsuitable for unrestricted use began in February 2009 and was completed in June 2009. The details of the removal action and site restoration activities (i.e., mangrove planting) are described in the Final Construction Completion Report (CCR) (Field Support Services, Inc., 2010). Due to the removal action, the environmental setting was altered from a predominantly terrestrial habitat to a shallow, open water marine habitat that is hydraulically connected to and tidally influenced with the adjacent Laguna Kiani complex. The site now supports a relatively diverse community of marine fish and invertebrates, along with foraging wildlife such as wading birds. Because the site conditions changed as a result of the removal action, it was determined that the newly formed sediment and surface water area were not properly characterized by the post-removal confirmatory sampling conducted immediately following the removal action. Therefore, a SAP was developed to

appropriately characterize the post-removal conditions. The Draft SAP was submitted in May 2010.

SWMU 7—Former Quebrada Disposal Site

SWMU 7 is located within the north central portion of the former NASD, immediately south of Highway 200, and includes a steep embankment and bottom of an ephemeral stream. The site was reportedly used for waste disposal between the early 1960s and late 1970s. The Navy ceased facility wide operations on the former NASD on April 30, 2001. The land transfer was completed on May 1, 2001, and the Navy has had no presence at the main operational area since that date. The main operational area of the former NASD sat largely undisturbed from May 2001 until early 2003 when the MOV began utilizing a small number of existing buildings for public works vehicle storage and maintenance activities. No activity at SWMU 7 has been reported since the late 1970s.

The ephemeral stream varies from 20 to 30 feet wide and 10 to 20 feet deep. More than 1,500 cubic yards of material are estimated to have been present at the site prior to the removal action (Greenleaf, 1984). Material disposed at the site included tires, sheet metal, drums, cans, bottles, batteries, and construction rubble. No known hazardous waste disposal occurred at this site.

The concentrations of inorganics in soil samples collected downgradient of the site were either less than or comparable to background concentrations, suggesting that surface runoff is not transporting inorganic contamination from the source area.

A visual site survey was conducted by a UXO avoidance team, and a magnetometer survey was conducted within the proposed sampling area as part of the UXO avoidance survey that was conducted as a safety measure prior to intrusive sampling during the expanded PA/SI (CH2M HILL, 2000a). No live ordnance and explosives (OE) were identified at SWMU 7.

Information regarding the nature and extent of potential contamination at SWMU 7 can be found in the Final RI Report (CH2M HILL, 2008c). Although the data included in the RI suggested the waste did not pose an unacceptable risk to human health or ecological receptors, the Navy and regulatory agencies concurred that there was uncertainty associated with this conclusion because soil samples were collected adjacent to the waste rather than directly through the waste due to safety concerns. The agencies also concurred that the waste at SWMU 7 posed an unacceptable uncertainty regarding a potential future source of contamination. An EE/CA was prepared for public comment (CH2M HILL, 2005h). No public comments were submitted. A Final Removal Action Work Plan was submitted in February 2008 (Field Support Services, Inc., 2008). Human health and ecological risk assessments conducted during pre-removal soil profiling suggested some areas of soil may have posed potentially unacceptable risks for unrestricted use. The removal action to remove the waste and areas of soil with contaminant concentrations unsuitable for unrestricted use was conducted in the first half of 2009. The Final CCR was submitted in March 2010 (Field Support Services, Inc., 2010). Residual human health and ecological risk assessments using the confirmatory sample data are underway and scheduled for submittal in mid-2010.

AOC E—Former UST Site 2016

AOC E is located within the public works area of the former NASD at the former location of a UST near the northwest corner of Building 2016. The former UST was a 550-gallon, single-wall, steel waste oil tank. The piping system associated with the UST consisted of single-wall steel pipes. The UST was installed in 1970 to store waste oil generated from vehicle maintenance activities that take place in Building 2016. As part of UST removal activities, the former UST and associated piping were removed in November 1996. In addition, soil samples were collected and submitted for laboratory analysis; the soil samples contained TPH concentrations ranging from 568 to 1,790 milligrams per kilogram (mg/kg).

The site was transferred from the PREQB UST program to the CERCLA program in 2000 as part of the closure of the NASD. Information regarding the nature and extent of contamination and potential risks posed by the contamination can be found in the Final RI Report for AOC E (CH2M HILL, 2008g). The risk assessment concluded that the site soils and groundwater do not pose an unacceptable risk for industrial use. The site groundwater, if extracted for consumptive use, would pose an unacceptable risk. However, the groundwater aquifer is unsuitable for use as a source of drinking water without desalinization due to high concentrations of sodium and chloride ions (USGS, 1989).

A Multi-phase Vacuum Extraction (MPE) Pilot Study was performed at AOC E in June, July, and August 2002 to evaluate the effectiveness of this technology in mitigating the free phase hydrocarbon product accumulation. The Pilot Study showed the technology to be partly successful, but a small amount of free phase product (i.e., a sheen) remained.

Based on supplemental soil and groundwater sampling conducted in 2008, a Pilot Study began in January 2010 that includes *in situ* chemical oxidation (ISCO) injection followed by enhanced *in situ* bioremediation (EISB) for groundwater contaminants and nitrate injection for soil contaminants that may pose a continuing leaching concern. The Pilot Study is being performed in general accordance with the Final SAP that was submitted in February 2010 (CH2M HILL, 2010a). The Pilot Study is expected to take approximately 2 to 3 years to complete.

AOC H—Abandoned Former Power Plant

AOC H is located on the north side of Route 200 just east of the public works area. It consists of an abandoned power plant that operated from 1941 to 1943. The power plant building was reportedly used for fire-fighter training from the 1960s through the 1980s. Fire-fighting activities reportedly consisted of placing diesel fuel on tires and igniting the tires inside the building. The diesel fuel was stored in a 2,000- to 3,000-gallon AST located on the western side of the power plant building.

Information regarding the site conditions at AOC H and the risk assessment conclusions can be found in the Final RI Report for AOC H (CH2M HILL, 2007e). The human health and ecological risk assessments concluded that the site does not pose an unacceptable risk to human health and the environment from site-related constituents. A Proposed Plan for NFA was presented for public review in January 2008 (CH2M HILL, 2008a) and a public meeting was held on February 7, 2008. Other than comments made during the public meeting, no public comments were submitted during the public comment period. The Final Record of Decision (ROD) was issued in September 2008 (CH2M HILL, 2008i).

AOC I—Asphalt Plant

AOC I is located on the south side of Route 200 just west of the north gate and consists of two former asphalt truck parking/loading containment areas and the location of two former diesel ASTs. Operations at the plant were conducted from the 1960s until 1998.

The EBS, the Expanded PA/SI Phase II, and the August/September 2004 RI produced 47 surface soil samples, 33 subsurface soil samples, and 7 groundwater samples. Based on the information provided in the Interim RI Report, two additional monitoring wells were proposed in the Supplemental RI Work Plan (CH2M HILL, 2005f). The supplemental field work was completed in December 2005. Based on a newly-defined Human Health Risk Assessment (HHRA) protocol (CH2M HILL, 2007c), the Draft RI Report was prepared and submitted in November 2007. The Final RI Report (CH2M HILL, 2008f) was submitted in June 2008 and contains information regarding the nature and extent of contamination at AOC I. Based on supplemental soil and groundwater sampling conducted in 2008, a Pilot Study began in January 2010 that includes ISCO injection followed by EISB for groundwater contaminants. The Pilot Study is being performed in accordance with the Final SAP that was submitted in February 2010. The Pilot Study is expected to take approximately 2 years to complete.

AOC J—Former Operations/Staging Area Disposal Site

AOC J encompasses an area of approximately 1.2 acres. The area was used as a solid waste disposal site associated with construction staging activities. The depth of disposal appears to be 2 to 4 feet deep (ERM, 2000). It was used between the mid-1960s and 1973, after which the waste was removed from the site and placed in a municipal landfill off base. During a site visit conducted by CH2M HILL on September 14, 2000, 106-mm shell casings and 20-mm ammunition boxes were observed. Site visits during the EBS indicated there was visible debris consisting of scrap metal from construction equipment, shell casings, glass fragments, and wood waste (ERM, 2000).

Information on the nature and extent of potential contamination and the risk assessment conclusions for AOC J can be found in the Final RI Report (CH2M HILL, 2007d). Although the data included in the RI suggested the waste did not pose an unacceptable risk to human health or ecological receptors, the Navy and regulatory agencies concurred that there was uncertainty associated with this conclusion because soil samples were collected adjacent to the waste rather than directly through the waste due to safety concerns. The agencies also concurred that the waste at AOC J posed an unacceptable uncertainty regarding a potential future source of contamination. An EE/CA was prepared for public comment (CH2M HILL, 2005h). No public comments were submitted. A Final Removal Action Work Plan was submitted in February 2008 (Field Support Services, Inc., 2008). Human health and ecological risk assessments conducted during pre-removal soil profiling suggested some areas of soil may have posed potentially unacceptable risks for unrestricted use. The removal action to remove the waste and areas of soil with contaminant concentrations unsuitable for unrestricted use was conducted in the first half of 2009. The Final CCR was submitted in March 2010 (Field Support Services, Inc., 2010). Residual human health and ecological risk assessments using the confirmatory sample data are under way and expected to be submitted in mid-2010.

AOC R—Former Operations/Staging Area

AOC R is located in the public works area of the former NASD and consists of an area used as a construction staging area and public works operational area used from about 1965 to 1971. The large concrete pad at the site was present before the Navy owned the area and can be seen in 1937 aerial photographs. In the late 1960s, a carpentry shop and enlisted club were located at the pad. Light vehicle maintenance activities such as oil changes were conducted near the pad to the northwest. Additionally, a large AST was once located south of the pad.

The Expanded PA/SI at AOC R included the collection of 34 surface soil samples (CH2M HILL, 2002d). Because elevated levels of several constituents (relative to regulatory screening criteria) were identified during the Expanded PA/SI, the site was recommended for an RI. The Draft Work Plan for the RI was submitted for regulatory review in April 2004. After the discovery of several munitions items at the onset of the RI activities, the Work Plan was revised to add UXO avoidance procedures and resubmitted to the agencies in February 2005. Regulatory comments were submitted to the Navy in June 2005. The supplemental field work at AOC R was completed in January 2006 in accordance with the Final RI Work Plan (CH2M HILL, 2005g). Preliminary evaluation of the RI data indicated additional data are needed to adequately assess the nature and extent of contamination and potential human health and ecological risks. The additional sampling was accomplished at the site under a Supplemental RI field investigation that began in June 2009 and was completed in the fall of 2009.

In addition to the above, the Navy and regulatory agencies concurred that debris identified at the site should be removed as a potential source of contamination. An EE/CA was prepared for public comment (CH2M HILL, 2005h). No public comments were submitted. A Final Removal Action Work Plan was submitted in February 2008 (Field Support Services, Inc., 2008). Human health and ecological risk assessments conducted during pre-removal soil profiling suggested some areas of soil associated with the debris may have posed potentially unacceptable risks for unrestricted use. The removal action to remove the waste and areas of soil with contaminant concentrations unsuitable for unrestricted use was conducted in the first half of 2009. The Final CCR was submitted in March 2010 (Field Support Services, Inc., 2010).

The Supplemental RI data, relevant historical data, and the removal action confirmatory data will be used to perform human health and ecological risk assessments. These risk assessments will be included in a Draft RI Report, which is scheduled to be submitted in mid-2010.

Environmental Sites Recommended For NFA

Based on the results of Expanded PA/SIs for the Former NASD, nine sites were recommended for NFA in the NFA Report for Nine Sites (CH2M HILL, 2006b). The NFA recommendation was based on several data sources including: site-specific sampling for VOCs, semivolatile organic compounds (SVOCs), polychlorinated biphenyls (PCBs), and pesticides, review of historical aerial photographs, interviews with former employees, review of archived records, and SIs. Further, a quantitative HHRA and a qualitative ecological survey were completed for each site. The risk assessments concluded the sites did not pose unacceptable risks to human health or the environment. PREQB concurred with the NFA determination for the nine sites in its Resolution and Notification issued in February 2007 (PREQB, 2007).

2.2.2 Munitions Response Site (SWMU 4—Inactive OB/Waste Explosive Detonation Range)

SWMU 4, designated as West Vieques UXO 1 in the ERA/SI Report, is an inactive OB/OD site identified at the western end of NASD during the EBS. The site was reportedly used for thermal destruction and burning of retrograde munitions from 1969 to 1979. Other explosive materials disposed at SWMU 4 included material from the rework of munitions (e.g., loose powder, primers), ordnance items from the torpedo shop at NSRR, and flares and cartridge-activated devices (Greenleaf/Telesca, 1984).

Based on the results of the EBS, a phased MEC RI, following the CERCLA process, was conducted to meet the following objectives:

- Identify the specific location of the former OB/OD pits that were not previously documented
- Characterize the nature and extent of the MEC items in the vicinity of the OB/OD pits to evaluate the extent of the "kick out" area
- Evaluate the explosives safety risk of the MEC items identified onsite
- Develop a MEC RI Report for the site

A digital geophysical survey was conducted over an 87-acre area that identified approximately 23,700 buried metallic anomalies (CH2M HILL, 2004d). The survey identified 16 potential OB/OD pits that were later confirmed by the MEC RI. Based on the findings of the MEC investigation, the potential aerial extent of the MEC at SWMU 4 is approximately 180 acres. A total of 11,211 metallic items were removed from the surface or subsurface and inspected during the MEC RI. Approximately 16 percent, or 1,792, of the items removed were found to contain high explosives.

The Expanded PA/SI identified constituents in soil above regulatory screening criteria (CH2M HILL, 2000a). The RI Work Plan was finalized in January 2007 (CH2M HILL, 2007a) and the RI field work was completed in March 2007. The data indicated that additional data collection was necessary to sufficiently characterize the nature and extent of contamination and assess potential human health and ecological risks, and the Final Addendum 1 was submitted outlining the additional data collection protocol (CH2M HILL, 2008d). The field work to collect the additional data was completed in April 2008; the data have been evaluated and there are sufficient data to proceed with the risk assessments. The Draft RI Report was submitted in August 2009.

The Draft MEC RI Report that assessed the impacts from MEC was originally submitted in 2004 (CH2M HILL, 2004d). The Draft RI Report was submitted in August 2009 and included the MEC RI, updated in accordance with comments received on the Draft MEC RI Report and information on the current site status and planned future use. Since the submittal of the Draft RI Report in August 2009 new regulatory screening levels have been published and a program wide Master Protocol document was finalized that defined standard risk assessment protocols to be used for environmental RIs on Vieques (CH2M HILL, 2010b). Therefore, the SWMU 4 human health and ecological risk assessments were revised and a summary was submitted for regulatory review. The path forward for SWMU 4 will be based on these revised risk

assessments, once revised (if necessary based on regulatory agency comments) and concurred upon by the Navy and regulatory agencies.

A Final EE/CA Report (CH2M HILL, 2008b), which evaluates the removal of subsurface MEC from the roads and beaches in the vicinity of SWMU 4 was submitted to the regulators. The interim action to clear the subsurface MEC from the roads and beaches at SWMU 4 was completed in June 2010 and removed 266 MEC items. The results of this interim action will be presented in a revised draft of the SWMU 4 RI Report.

Currently SWMU 4 is managed by the USFWS as part of the wildlife refuge. The area is restricted to unauthorized personnel. The area is signed to indicate the restrictions and hazard; however, signs are periodically vandalized or stolen. USFWS has finalized a Comprehensive Conservation Plan/Environmental Impact Statement (CCP/EIS) for the Vieques National Wildlife Refuge that provides long-term guidance for the management and public use of these lands. The future land use scenarios for western Vieques and the SWMU 4 area are addressed in the CCP (DOI, 2007).

Underwater Areas

The underwater area, designated as UXO 16, extends on east and west Vieques. Adjacent to the former operational areas on Vieques, including SWMU 4, may have been impacted by MEC. Limited investigation data has been collected as part of various non-Navy "pilot tests" and investigations at the underwater areas; however, based on the historical data and the limited investigation data a RI (MEC and MC) will be conducted for selected underwater areas of Vieques, including SWMU 4. The underwater areas to be addressed include all of those identified within the NPL boundary (**Figure 1-2**).

2.3 Munitions Response Site Prioritization

The MRS Prioritization Protocol (MRSPP) is an approach used by DoD as a tool for assigning a relative priority for initiating munitions response actions at munitions response sites (MRSs). The scope of the site prioritization for the MRSs at Vieques was based on the DoD MRS Prioritization Protocol published in the October 5, 2005 *Federal Register*. DoD generally considers those MRSs posing the greatest hazard as having the highest priority for munitions response actions. The protocol provides a uniform procedure for assessing explosives safety and environmental risk at MRSs; and is comprised of three hazard evaluation modules: Explosive Hazard Evaluation (EHE) module, the Chemical Warfare Material Hazard Evaluation (CHE) module, and the Health Hazard Evaluation (HHE) module. An MRS priority is established based on the ratings from the EHE, CHE, and HHE modules. Since there are no known or suspected chemical warfare materials at Vieques, the CHE module does not apply to the Vieques MRSs.

The MRS prioritization evaluation for the Vieques MRSs was completed using the best available information from the Expanded Range Assessment / Site Inspection Report (CH2M HILL, 2010) and the interim removal actions at SWMU 4 on west Vieques (CH2MHILL, 2008). The Explosive Hazard Evaluation (EHE) module was used at MRSs where there is a known or suspected presence of explosive hazard and is comprised of three factors: explosive hazard (based on munitions type and source of hazard), accessibility (based on location of munitions, ease of access and status of property) and receptors (based

on population density, population near hazard, types of activities/structures, and ecological or cultural resources).

The HHE module is used for evaluating the potential hazards posed by MC and other chemical constituents at MRSs. However, for the Vieques MRSs sufficient MC data has only been collected for the SWMU 4 site on west Vieques. As a result, there are no other MRSs on Vieques containing MC data to provide a relative priority to SWMU 4. Based on this information, and the potential for environmental risks at all the Vieques MRSs; a default rating of "medium" was used for each MRS on Vieques. The HHE module will be updated as additional MC data become available from future environmental investigations at the MRSs. The HHE module is comprised of three factors: contaminants present, environmental migration pathways, and receptors. The factors are applied to four media: soil, surface water, groundwater and sediments.

For Vieques, an MRS priority was established based on the ratings from the EHE module. Each MRS was assigned to one of eight MRS priorities based on the ratings of the module, where Priority 1 indicates the highest potential hazard and Priority 8 the lowest potential hazard. A summary of the MRSPP scores for the VNTR MRSs is summarized on Table 2-1. The detailed scoring for each MRS is provided in **Appendix D**. A total of 16 of the 18 MRSs on Vieques have been ranked a Priority 2 hazard. A Priority 2 hazard is the highest priority rating that can be scored for sites not containing chemical warfare materials. The MRSPP scores will be updated annually as additional MC and MEC data become available for each MRS.

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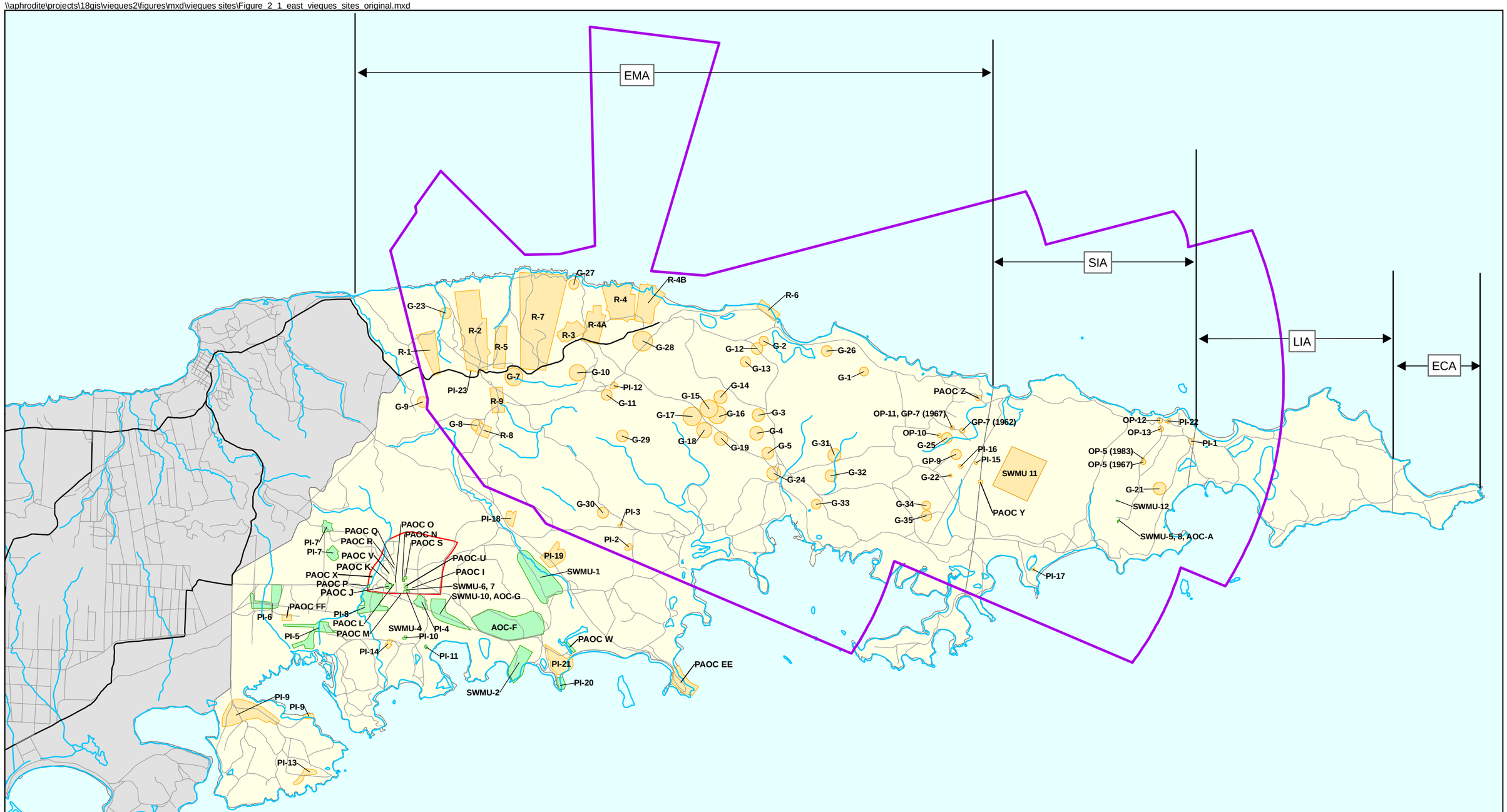

Legend

- Site Screening Areas - Environmental Sites
- Site Screening Areas - Munitions Response Sites
- Artillery Safety Fan
- Camp Garcia
- Major Roads
- Minor Roads

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0 4,500 9,000 13,500 18,000 22,500 Feet

Figure 2-1
East Vieques Sites to be Assessed Under CERCLA
Site Management Plan
Vieques, Puerto Rico

CH2MHILL

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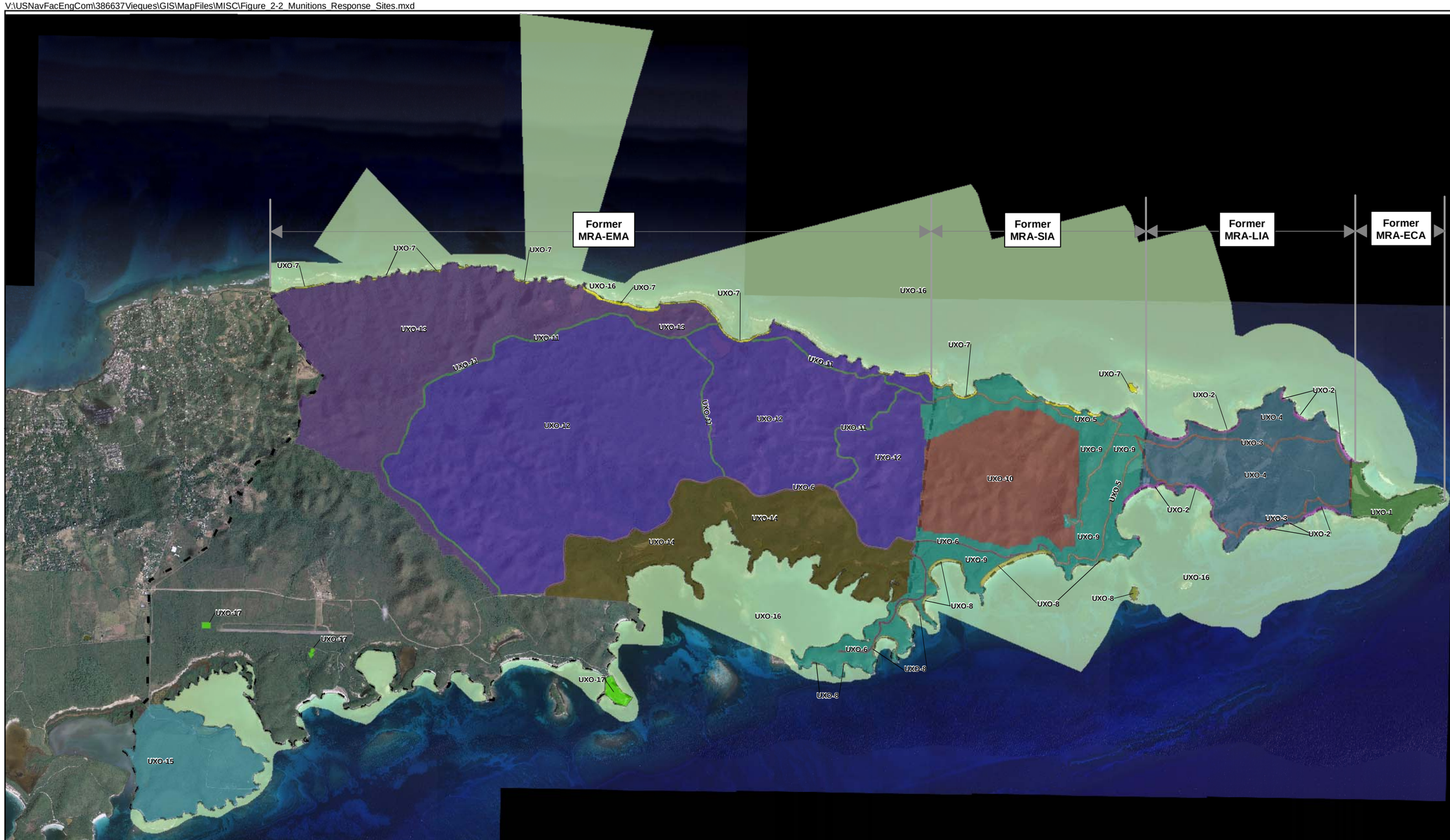

Legend

Munitions Response Sites

- UXO-1
- UXO-2
- UXO-3
- UXO-4
- UXO-5
- UXO-6
- UXO-7
- UXO-8
- UXO-9
- UXO-10
- UXO-11
- UXO-12
- UXO-13
- UXO-14
- UXO-15
- UXO-16
- UXO-17

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0 2,250 4,500 9,000 Feet

Figure 2-2
Munitions Response Sites
Site Management Plan
Vieques, Puerto Rico

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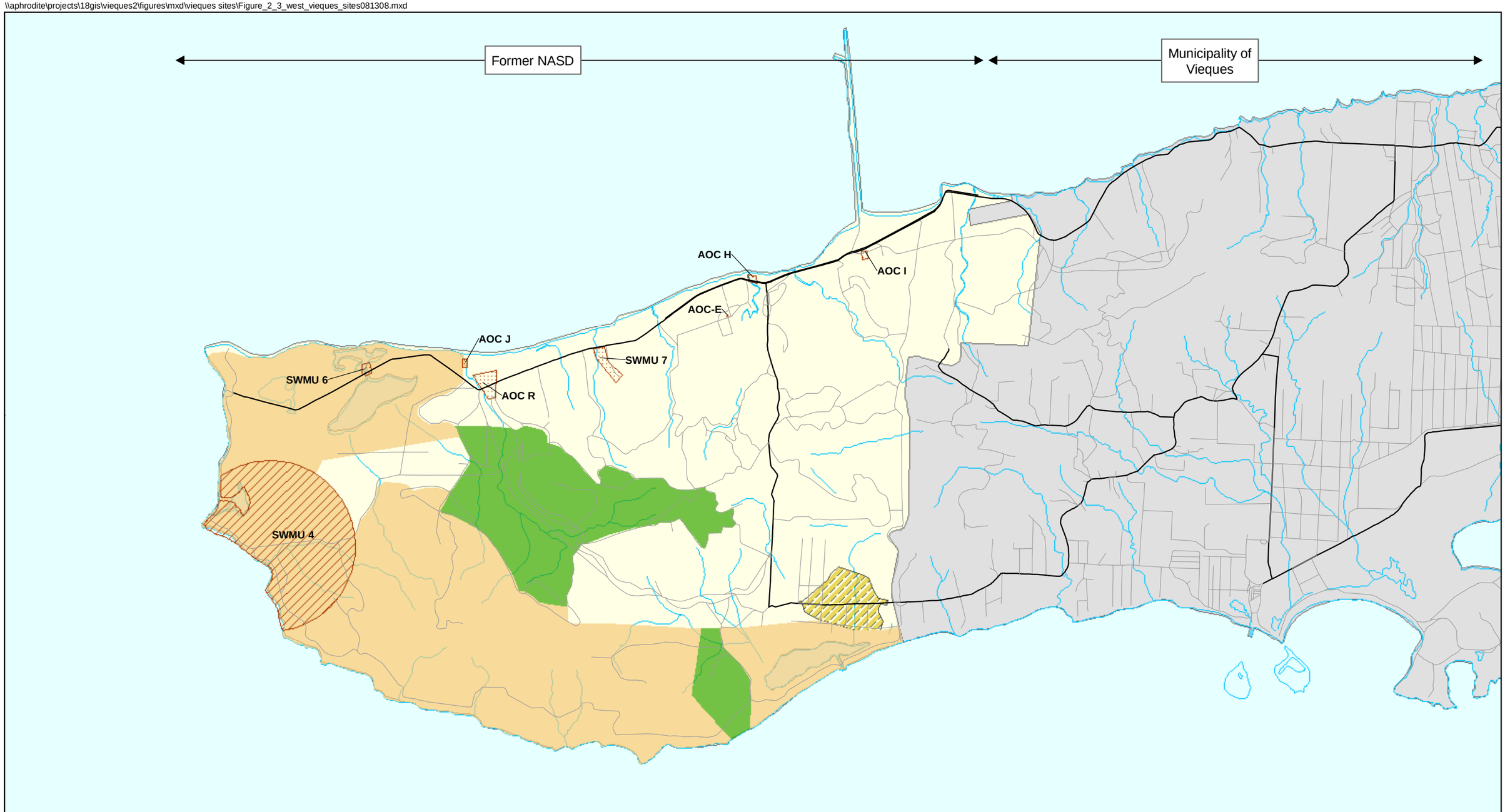

Legend

- Major Roads
- Minor Roads
- Environmental Remedial Investigation / Feasibility Study Sites
- Munitions Response Site
- PR Conservation Trust
- Navy Property - ROTHR Site
- Dept. of Interior

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Meters

Figure 2-3
West Vieques Sites to be Assessed Under CERCLA
Site Management Plan
Vieques, Puerto Rico

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SECTION 3

Schedules and Funding

This section presents the SMP schedule requirements outlined in the FFA. In addition the projected funding for the CERCLA Responsive Actions at the Vieques Site is provided. Milestones established in this SMP are subject to the requirements of the FFA, unless otherwise agreed to by the Parties, or unless directed to be changed pursuant to the agreed Dispute Resolution or Extensions process set out in the FFA. The updated Fiscal Year 2010 schedules for field activities and major project deliverables, including both Primary and Secondary documents, are presented in **Figure 3-1**. The tentative schedules for fiscal year (FY) 11 and beyond are summarized in **Table 3-1**. The schedules will be re-evaluated and updated for the SMP as mutually agreed to by the agencies. **Table 3-2** includes deviations from the schedule submitted in the SMP Fiscal Year 2010 to the current schedule displayed in Figure 3-1.

3.1 Document Review Schedule

In accordance with the FFA, this SMP presents the proposed schedules for the CERCLA response actions and associated documentation to be undertaken at the Site. The SMP incorporates existing Milestones contained in approved Work Plans. Milestones approved in future Work Plans will become enforceable to the extent allowed under the FFA and shall be included in the next annual amendment to the SMP. The SMP is to be updated annually and a draft of the SMP Amendment submitted to all parties by June 15. A public notice will be published in the local newspaper to provide a 30 day period for the general public to review the Draft Final SMP.

Milestones in the SMP reflect the priorities agreed to by the Parties through a process of "Risk Plus Other Factors" Priority Setting. Site activities have been prioritized by weighing and balancing a variety of factors including, but not limited to:

- The Department of Defense (DoD) relative risk rankings for the Site
- Current, planned, or potential uses of the Site
- Ecological impacts
- Impacts on human health
- Intrinsic and future value of affected resources
- Cost effectiveness of the proposed activities
- Environmental justice considerations
- Regulatory requirements
- Actual and anticipated funding levels

Unless the Parties agree to another time period, all draft documents shall be subject to a 60-day period for review and comment. In cases involving complex or unusually lengthy reports, USEPA, DOI, or the Commonwealth may extend the 60-day comment period for an additional 20 days by written notice to Navy prior to the end of the 60-day period. On or

before the close of any comment period, USEPA, DOI, and the Commonwealth shall transmit their written comments to the Navy.

Following the close of any comment period for a draft document, Navy shall give full consideration to all written comments on the draft document submitted during the comment period. Within 30 days of the close of the comment period on a Draft Secondary Document, Navy shall transmit to USEPA, DOI, and the Commonwealth its written response to comments received within the comment period. Within 60 days of the close of the comment period on a Draft Primary Document, Navy shall transmit to USEPA, DOI, and the Commonwealth a Draft Response to Comments which shall include Navy's response to all written comments received within the comment period.

As agreed to by all parties, the period for resolving comments on a Draft Document then issuing the Draft Final Primary Document is an additional 30 days. In appropriate circumstances, this time period may be further extended in accordance with the FFA.

The Draft Final Primary Document shall serve as the Final Primary Document if no Party invokes dispute resolution regarding the document or, if invoked, at the completion of the dispute resolution process should Navy's position be sustained.

If Navy's determination is not sustained in the dispute resolution process, Navy shall prepare, within not more than 35 days, a revision of the Draft Final Document that conforms to the results of dispute resolution.

3.2 Primary Documents

Primary Documents include those documents that are major, discrete portions of RI/FS or RD/RA activities. Primary Documents are initially issued by Navy in draft subject to review and comment by USEPA, DOI, and the Commonwealth. Following receipt of comments on a particular Draft Primary Document, Navy will respond to the comments received and issue a Draft Final Primary Document subject to dispute resolution. The Draft Final Primary Document will become the Final Primary Document 30 days after issuance if dispute resolution is not invoked or as modified by decision of the dispute resolution process. A list of Primary documents completed to date is provided as **Appendix C**. Examples of primary documents include the following:

- RI/FS Work Plans, including SAP and Quality Assurance Project Plan (QAPP)
- Risk Assessment Work Plans and Reports
- RI Reports
- Initial Screening of Alternatives
- FS Reports
- Focused Feasibility Study (FFS) Reports
- Proposed Plans
- RODs

- Final RDs (including a land use control [LUC] component where such controls are employed as part of the remedy)
- Remedial Action Work Plans (including a LUC component where such controls are employed as part of the remedy)
- SMP
- Remedial Action Completion Reports

3.3 Secondary Documents

All Secondary Documents shall be prepared in accordance with Target Dates established for the completion and transmission of Draft Secondary Documents. Although USEPA, DOI, and the Commonwealth may comment on the Draft Secondary Documents, such documents shall not be subject to dispute resolution and Milestone requirements of the FFA. Examples of Secondary Documents include the following:

- Health and Safety Plans
- Emergency Removal Action Work Plans, to the extent time permits
- TCRA Work Plans
- Site Screening Process (SSP) Work Plans and Reports
- NTCRA Work Plans
- Pilot/Treatability Study Work Plans
- Pilot/Treatability Study Reports
- EE/CA Report
- Well Closure Methods and Procedures
- Sampling and Data Results
- Preliminary/Conceptual Designs, or Equivalents
- Pre-Final RDs
- All Removal Action Memoranda/Closeout Reports
- Periodic Five-Year Review Assessment Report

For documents pertaining to NTCRAs, the Navy will coordinate and consult with DOI pursuant to the Memoranda of Agreement (MOAs), and USEPA.

3.4 Projected ERP/MRP Funding

While Milestones should not be driven by budget targets, such targets should be considered when setting Milestones. Furthermore, in setting and modifying Milestones, the Parties agree to make good faith efforts to accommodate federal fiscal constraints, which include budget targets established by Navy.

After authorization and appropriation of funds by Congress and within 21 days after Navy has received official notification of Navy's allocation based on the current year's Environmental Restoration, Navy ("ER,N") Account, Navy shall determine if the schedules in the SMP can be accomplished with the allocated funds. If Navy determines within the 21-day period specified above that the allocated funds are not sufficient to accomplish the

planned Work for the Site (an appropriations shortfall), Navy shall immediately notify the Parties and a re-scoping or rescheduling of activities may be required.

The projected ERN funding for Vieques from FY10 through FY13 and beyond is summarized in **Table 3-3**.

Table 3-1
FY10 and Beyond Tentative Schedule
Former Naval Facilities, Vieques, Puerto Rico

Site	FY10	FY11	FY12	FY13	FY14	FY15	FY16	FY17	FY18	FY19	FY20	FY21
Installation Restoration Program												
West Vieques												
AOC E	Pilot Study	Pilot Study	Pilot Study	Proposed Plan	ROD or RA (if necessary)							
AOC I	Pilot Study	Pilot Study	Proposed Plan	ROD and RA (if necessary)								
AOC J	RA Report	Proposed Plan, ROD										
AOC R	RI Report	RI Report, Proposed Plan, ROD	RA (if necessary)									
SWMU 4		Revised RI/FS report	Revised RI/FS report, PRAP, ROD	RA Work Plan, field work	RA Completion Report							
SWMU 6	SAP	Field Work	RA Report	Proposed Plan	ROD or RA (if necessary)							
SWMU 7	RA Report	Proposed Plan, ROD										
East Vieques												
26 Consent Order/PI/PAOC sites	SI/Expanded SI Report											
21 of these sites	NA/NFA Decision Document											
PI 4		Pilot Study SAP	Field Work	NFA Decision Document	NFA Decision Document							
PI 7, PAOC Q/R	Supplemental Sampling	Supplemental ESI Report, NA Decision Document										
SWMU 1	Streamlined RI/FS Report	Streamlined RI/FS Report, PRAP	ROD and Remedial Design	RA Work Plan, field work	RA Completion Report							
Munitions Response Program												
West Vieques												
SWMU 4*			FS and RD	RA	RA	MEC Removal Action Report						
East Vieques												
EMA, SIA, LIA, ECA Subsurface Removal - Roads Beaches	IRA	IRA	IRA	IRA	Roads and Beaches MEC Removal Action Report							
EMA (select sites based on ERA/SI) -PI/PAOC/AOI sites	MEC SI Report		MEC/MC RI	RI/FS Report	PRAP/ROD	PRAP/ROD						
PI 14 and PAOC FF		NA Decision Document										
PAOC EE		Debris removal	NA Decision Document									
UXO 13		EECA and RI SAP	RI SAP									
LIA			MEC/MC RI	MEC/MC RI	RI/FS Report	PRAP/ROD						
SIA MEC Surface Clearance	IRA	IRA	SIA MEC Removal Action Report			RI	RI	RI/FS	PRAP/ROD			
Underwater Assessment	MEC SI		MEC/MC RI	MEC/MC RI	MEC/MC RI	MEC/MC RI	RI/FS	RI/FS	RI/FS	Ri/FS	RI/FS	PRAP/ROD

* Pending prioritization of MR sites

IRA - interim removal action

Table 3-2
Deviations from October 2009 SMP Schedule
Former Naval Facilities, Vieques, Puerto Rico

Deliverables	Original Due Date	Actual or Expected Date Delivered	Explanation for Change
WEST VIEQUES			
AOC E Pilot Study Sampling and Analysis Plan			
Draft Final	11/27/09	1/7/10	Additional time for EPA to consider preliminary responses to comments on Draft SAP
Final	01/15/10	2/19/10	Cascade effect attributable to schedule extension on draft final (see above)
AOC I Pilot Study Sampling and Analysis Plan			
Draft Final	11/27/09	1/7/10	Additional time for EPA to consider preliminary responses to comments on Draft SAP
Final	01/15/10	2/19/10	Cascade effect attributable to schedule extension on draft final (see above)
AOC R RI Report			
Draft	04/16/10	7/9/10	Additional time for EPA to review the HHRA pre-interim deliverable; revision of pre-interim deliverable based on new Master HHRA protocol
Draft Final	09/17/10	12/10/10	Cascade effect attributable to schedule extension on draft (see above)
SWMU 4 RI Report			
Draft	08/28/09	8/19/10	Draft submitted ahead of schedule
Draft Final	02/12/10	TBD	Based on regulatory comments, inter-agency discussions about path forward for site are ongoing; revision of risk assessments based on New Master HHRA and ERA protocols
Final	03/26/10	TBD	See above
SWMU 4 FS Report			
Draft	04/23/10	TBD	Cascade effect attributable to schedule extension of RI Report
Draft Final	09/24/10	TBD	See above
AOC J Post-Removal Risk Assessment Report			
Draft	01/22/10	7/9/10	Inter-agency concurrence to postpone preparation of risk assessments until new Master HHRA and ERA protocols were finalized
Draft Final	06/25/10	12/10/10	Cascade effect attributable to schedule extension of Draft report
Final	08/06/10	1/21/11	See above
SWMU 7 Post-Removal Risk Assessment Report			
Draft	01/29/10	7/9/10	Inter-agency concurrence to postpone preparation of risk assessments until new Master HHRA and ERA protocols were finalized
Draft Final	07/02/10	12/10/10	Cascade effect attributable to schedule extension of Draft report
Final	08/13/10	1/21/11	See above
AOC J and SWMU 7 No Further Action Proposed Plan and Record of Decision			
Draft	03/05/10	3/11/11	Cascade effect attributable to schedule extension of Draft report; shifting start date of Proposed Plan/Record of Decision to coincide with final Draft report
Draft Final	07/09/10	7/15/11	See above
Final	09/24/10	9/30/11	See above
SWMU 6 No Further Action Proposed Plan and Record of Decision			
Draft	04/30/10	TBD	Inter-agency concurrence to postpone preparation of risk assessments until new Master HHRA and ERA protocols were finalized; inter-agency concurrence to perform supplemental confirmatory sampling due to changed site conditions (i.e., newly created marine environment)
Draft Final	08/27/10	TBD	See above

Table 3-2
Deviations from October 2009 SMP Schedule
Former Naval Facilities, Vieques, Puerto Rico

Deliverables	Original Due Date	Actual or Expected Date Delivered	Explanation for Change
EAST VIEQUES			
Site Inspection/Expanded Site Inspection Report for 7 Consent Order Sites and 16 PI/PAOCs			
Draft Final	03/26/10	TBD	Additional time for EPA to consider preliminary responses to comments on Draft report
Final	05/07/10	TBD	Cascade effect attributable to schedule extension on draft final (see above)
No Action Decision Document			
Draft	05/28/10	6/4/10	Cascade effect attributable to schedule extension on final SI/ESI Report (see above)
Master SOP and HHRA/ERA Protocol Update			
Draft Final	12/11/09	2/10/10	Additional time for Navy and regulatory agencies to resolve comments and concur upon new Master HHRA and ERA protocols
Final	01/22/10	4/14/10	Cascade effect attributable to schedule extension on draft final (see above)
Prescribed Burn Plan/Air Monitoring Plan			
Final	09/11/09	TBD	Navy submitted Draft Final Plan on 7/9/10. Waiting for final approval from EQB and EPA
ERA/SI Comprehensive Report			
Draft	09/25/09	9/30/2009	Additional time to restructure and rename MRS sites
Draft Final	02/26/10	7/2/2010	Comments on draft report received from EPA on 12/9/09. Waiting for EPA approval on responses to comments
Final	04/23/10	8/2/2010	
TCRA Construction Completion Report			
Draft	11/20/09	4/2/2010	Agency concurrence to postone submittal of draft report due to the delay in the burn plan approval
Draft Final	02/26/10	8/17/2010	Cascade effect attributable to schedule extension of Draft report
Final	04/09/10	9/17/2010	See above

Table 3-3
Vieques Programmed Funding FY11 - FY12, In Millions ($)
Former Naval Facilities, Vieques, Puerto Rico

Fiscal Year	Environmental (52 Sites)	Munitions (18 Sites)	Totals
Costs Through FY10	$26.3	$118.8	**$145.1**
FY11	$1.0	$19.9	**$20.9**
FY12	$1.1	$19.5	**$20.6**
Cost to Complete FY11 and beyond	$23.6	$360.1	**$383.7**
Total Expenditure	**$49.9**	**$478.9**	**$528.8**

FIGURE 3-1
Vieques Munition Response and Enviromental Restoration Program Schedule
Site Management Plan FY 2011
Former Naval Facility Vieques, Puerto Rico

Month-Year:	November-10				December-10					January-11				February-11				March-11				April-11					May-11				June-11			
Week Ending:	11/05	11/12	11/19	11/26	12/03	12/10	12/17	12/24	12/31	01/07	01/14	01/21	01/28	02/04	02/11	02/18	02/25	03/04	03/11	03/18	03/25	04/01	04/08	04/15	04/22	04/29	05/06	05/13	05/20	05/27	06/03	06/10	06/17	06/24
DELIVERABLES																																		
West Vieques																																		
AOC E																																		
Pilot Study													Groundwater Sampling							Injection											Pilot Study Status Report (June 3, 2011)			
PP/ROD																																		
AOC I																																		
Pilot Study	Sampling/Install ORC socks																			Pilot Study Status Report (March 18, 2011)														
PP/ROD																																		
AOC R																																		
RI	RI Report																																	
NFA Proposed Plan											NFA Proposed Plan																							
NFA ROD																		NFA ROD																
SWMU 4																																		
RI/FS													RI (revised)/FS Report																					
PP/ROD																																		
Remedial Action																																		
AOC J																																		
Post-Removal Risk Assessment	Risk Assessment Report																																	
NFA Proposed Plan											NFA Proposed Plan																							
NFA ROD																		NFA ROD																
SWMU 7																																		
Removal Action																																		
Post-Removal Risk Assessment	Risk Assessment Report																																	
NFA Proposed Plan											NFA Proposed Plan																							
NFA ROD																		NFA ROD																
SWMU 6																																		
Post-Removal Supplemental Sampling	Post-removal SAP												Fieldwork	Sample analysis, validation, database upload												HHRA pre-interim de	/ERA interim del						HHRA Interim Delive	
PP/ROD																																		
AOC F (UIC)																																		
East Vieques																																		
7 Consent Order Sites and 16 PI/PAOCs																																		
No Action/No Further Action Decision Document (7 Consent Order Sites and 14 PI/PAOCs)																																		
SWMU 1																																		
Streamlined RI/FS	Streamlined RI/FS Report																																	
PP/ROD																								PP and ROD										
Remedial Design																																		
Remedial Action																																		
PAOC Q/R																																		
SI	SI/ESI Report Addendum																																	
NA Decision Document											No Action Decision Document																							
PI 4																																		
ESI											Supplemental ESI/Pilot Study SAP																							
NFA Decision Document																																		
PI 7																																		
ESI	SI/ESI Report Addendum																																	
NFA Decision Document											No Further Action Decision Document																							
ECA																																		
RI	RI SAP													Fieldwork			Sample analysis, validation, database upload														HHRA pre-interim de			
Prescribed Burn/Air Monitoring	Schedule contingent upon EPA and EQB approval of prescribed burn/air monitoring plan, based on ATSDR report.																																	
ERA/SI Comprehensive Report																																		
UXO-15 (PI 9 and PI 13)																																		
ESI	ESI SAP																																	Fieldwork
ESI Report or NFA Decision Document																																		
PI 14 and PAOC FF																																		
NA Decision Document																																		
PAOC EE																																		
PA/SI	Work Plan																					Fieldwork												
PA/SI Report or NFA Decision Document																										PA/SI Report or NFA Decision Document								
UXO-13																																		
NTCRA																																		
EE/CA							EE/CA																											
Work Plan							Work Plan																											
RI/FS											RI SAP																							
PP/ROD																																		
SIA NTCRA Field effort																																		
Roads and Beaches Subsurface Field Effort																																		
TCRA After Action Report																																		
Miscellaneous																																		
Site Management Plan Update																																		

LEGEND

- **Navy Preparation of Draft Document**
- Regulator Review
- Regulatory Extension
- Preliminary Responses to Comments
- Comment Resolution (telecon, if needed)
- **Draft Final Document Production**
- RAB Review
- Public Comment
- **Final Document**
- Navy Extension
- **Field Sampling, Analysis, Validation, Database Upload (dotted to indicate field sampling interval)**

Notes:
Draft Final submittals are prepared only after resolution of regulatory agency comments
Final submittals are prepared only after receipt of EPA approval of Draft Final submittals
[1] Pre-interim deliverable comprises ProUCL run (summarized in the associated RAGS Table 3, along with maximum detects where ProUCL is not used), detects/exceedance tables and figures

FIGURE 3-1
Vieques Munition Response and Enviromental Restoration Program Schedule
Site Management Plan FY 2011
Former Naval Facility Vieques, Puerto Rico

Month-Year:	**July-11**					**August-11**				**September-11**					**October-11**				**November-11**				**December-11**				
Week Ending:	**07/01**	**07/08**	**07/15**	**07/22**	**07/29**	**08/05**	**08/12**	**08/19**	**08/26**	**09/02**	**09/09**	**09/16**	**09/23**	**09/30**	**10/07**	**10/14**	**10/21**	**10/28**	**11/04**	**11/11**	**11/18**	**11/25**	**12/02**	**12/09**	**12/16**	**12/23**	**12/30**
DELIVERABLES																											
West Vieques																											
AOC E																											
Pilot Study																	Sampling/Install ORC socks										
PP/ROD																											
AOC I																											
Pilot Study				Remove ORC socks													Sampling										
PP/ROD																											
AOC R																											
RI																											
NFA Proposed Plan																											
NFA ROD									NFA ROD																		
SWMU 4																											
RI/FS																											
PP/ROD																		PP and ROD									
Remedial Action																											
AOC J																											
Post-Removal Risk Assessment																											
NFA Proposed Plan																											
NFA ROD									NFA ROD																		
SWMU 7																											
Removal Action																											
Post-Removal Risk Assessment																											
NFA Proposed Plan																											
NFA ROD									NFA ROD																		
SWMU 6																											
Post-Removal Supplemental Sampling	ible					Risk Assessment Report																					
PP/ROD																											
AOC F (UIC)																											
East Vieques																											
7 Consent Order Sites and 16 PI/PAOCs																											
No Action/No Further Action Decision Document (7 Consent Order Sites and 14 PI/PAOCs)																											
SWMU 1																											
Streamlined RI/FS																											
PP/ROD																						NFA ROD					
Remedial Design																	**Remedial Design**										
Remedial Action																											
PAOC Q/R																											
SI																											
NA Decision Document																											
PI 4																											
ESI																											
NFA Decision Document																											
PI 7																											
ESI																											
NFA Decision Document																											
ECA																											
RI			HHRA/ERA Interim Deliverable[1]							RI Report																	
Prescribed Burn/Air Monitoring																											
ERA/SI Comprehensive Report																											
UXO-15 (PI 9 and PI 13)																											
ESI			Sample analysis, validation, database upload																								
ESI Report or NFA Decision Document															ESI Report or NFA Decision Document												
PI 14 and PAOC FF																											
NA Decision Document																											
PAOC EE																											
PA/SI																											
PA/SI Report or NFA Decision Document																											
UXO-13																											
NTCRA																											
EE/CA																											
Work Plan																											
RI/FS																											
PP/ROD																											
SIA NTCRA Field effort																											
Roads and Beaches Subsurface Field Effort																											
TCRA After Action Report																											
Miscellaneous																											
Site Management Plan Update																											

LEGEND

- **Navy Preparation of Draft Document**
- Regulator Review
- Regulatory Extension
- Preliminary Responses to Comments
- Comment Resolution (telecon, if needed)
- **Draft Final Document Production**
- RAB Review
- Public Comment
- **Final Document**
- Navy Extension
- **Field Sampling, Analysis, Validation, Database Upload (dotted to indicate field sampling interval)**

Notes:
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Final submittals are prepared only after receipt of EPA approval of Draft Final submittals
[1] Pre-interim deliverable comprises ProUCL run (summarized in the associated RAGS Table 3, along with maximum detects where ProUCL is not used), detects/exceedance tables and figures

SECTION 4

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Documents denoted with an asterisk below are included to make the references list comprehensive, but are not referenced in the text of this document.

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Appendix A
Status of Remedial Investigation/ Feasibility Study Sites

Appendix A-1
Environmental Sites

APPENDIX A-1
Status of Remedial Investigation/Feasibility Sites in Vieques, Puerto Rico
Environmental Sites

Site Designation	Description of Site	Status
SWMU 4 Inactive OB/Waste Explosive Detonation Range (West Vieques-DOI)	An open burn/open detonation area where there was thermal destruction of unserviceable munitions from approximately 1965-1980.	Final RI Work Plan submitted (CH2M HILL, January 2007). RI field investigation implemented in 2nd fiscal quarter 2007. Final Addendum 1 to the 2007 Work Plan submitted (April 2008). Supplemental RI field investigation implemented in 3rd fiscal quarter 2008. Data were evaluated and determined to be sufficient for delineating nature and extent of contamination and assessing potential risks. A Draft RI Report combining munitions and environmental studies was submitted in August 2009. A recommendation to submit a revised RI/FS report is being proposed at the next Environmental Subcommittee meeting scheduled for December 14, 2010.
SWMU 6 Mangrove Disposal Site (West Vieques-DOI)	Disposal of trash (lubricants, oils, solvents, and paint) ~1965-1980	Final RI Report submitted in February 2007. Final Removal Action Work Plan submitted February 2008. Waste characterization sampling performed in February 2008. Waste characterization risk assessments completed. Removal Action was completed in June 2009. A Final Construction Completion Report was submitted in March 2010. Because the site conditions have changed due to the removal action (i.e. creation of lagoon from previous terrestrial setting) further sampling will be done. The SAP for this sampling was submitted for regulatory agency review in May 2010. Data are being compiled and risk assessments performed, which are anticipated to be submitted for regulatory agency review in mid-2011
SWMU 7 Quebrada Disposal Site (West Vieques-MOV)	Disposal of trash (lubricants, oils, solvents, and paint) ~1965-1980	Final RI Report submitted in March 2008. Final Removal Action Work Plan submitted February 2008. Waste characterization sampling performed in February 2008. Waste characterization risk assessments were completed and a removal action was conducted in the first calendar quarter of 2009. A Final Construction Completion Report was submitted in March 2010. Data has been compiled and risk assessments performed and included in a Draft Post-Removal-Action Risk Assessment Report submitted in July 2010.
AOC E Former Waste Oil UST at Bldg. 2016 (West Vieques-MOV)	Waste oil UST - contaminated soil found during removal of UST	Final RI Report submitted to RAB in July 2008. A Final Pilot Study SAP for treating soil and groundwater was submitted in February 2010. Pilot Study began in January 2010 and is expected to take approximately 2 to 3 years to complete.
AOC H Abandoned Power Plant (West Vieques-MOV property)	Operated 1941-1943; AST; used for Fire Fighter training ~1960s-1980s	Final RI Report submitted July 2007. Proposed Plan for NFA issued for public comment in January 2008. Final NFA ROD issued in September 2008.
AOC I Asphalt Plant (West Vieques-MOV)	Former AST storage area stained with asphalt emulsion.	Final RI Report submitted in June 2008. A Final Pilot Study SAP for treating groundwater was submitted in February 2010. Pilot study began in January 2010 and is expected to take approximately 2 years to complete.

Site Designation	Description of Site	Status
AOC J Former Operations/Staging Area Disposal Site (West Vieques-DOI)	Solid and potentially hazardous waste disposal site ~1965-1973	Final RI Report submitted in May 2007. Final Removal Action Work Plan submitted February 2008. Waste characterization sampling performed in February 2008. Waste characterization risk assessments were completed and a removal action was conducted in the 1st calendar quarter of 2009. A Final Construction Completion Report was submitted in March 2010. Data has been compiled and risk assessments performed and included in a Draft Post-Removal-Action Risk Assessment Report submitted in July 2010.
AOC R Former Staging and Operations Area (West Vieques-MOV)	Construction staging and Public Works operations; AST; vehicle maintenance ~1965-1971	Final Removal Action Work Plan submitted February 2008. Waste characterization sampling performed in February 2008. Waste characterization risk assessments were completed and a removal action was conducted in the 1st calendar quarter of 2009. Supplemental RI field work was completed in August 2009. A Final Construction Completion Report was submitted in March 2010. The draft RI Report was submitted in July 2010.

Appendix A-2
Munitions Response Sites

APPENDIX A-2
Status of Remedial Investigation/Feasibility Study Sites in Vieques, Puerto Rico
Munitions Response Sites

MRS/Site Designation	Operational Area	Sites Within MRS	Description of Site	Status
East Vieques Sites				
UXO-1 Easter Conservation Area	ECA		Adjacent to LIA bombing range. Bombing prohibited since the 1970s. the TCRA identified approximately 1300 MEC items that were surface cleared from UXO 1.	A TCRA was completed to remove surface munitions from the site. A NTCRA is underway to remove subsurface munitions from roads and beaches. A Draft Remedial Investigation Sampling and Analysis Plan has been submitted for regulatory review
UXO 2 LIA Beaches	LIA		The LIA was established in 1964; since 1974 over 150,000 rounds and 4,700 tons of Naval gunfire; over 40,000 rounds (10,000 tons) of ATG bombing. The TCRA identified 1,090 surface MEC items at UXO 2 that were removed ,	A TCRA was completed to remove surface munitions from the site. A NTCRA is underway to remove subsurface munitions from beaches.
UXO 3 LIA Roads	LIA		The LIA was established in 1964; since 1974 over 150,000 rounds and 4,700 tons of Naval gunfire; over 40,000 rounds (10,000 tons) of ATG bombing. The TCRA identified approximately 4,800 surface MEC items thatat UXO 3 that were removed.	A TCRA was completed to remove surface munitions from the site. A NTCRA is underway to remove subsurface munitions from UXO 3.
UXO 4 LIA Interior	LIA	OB/OD Site (SWMU 3)	The LIA was established in 1964; since 1974 over 150,000 rounds and 4,700 tons of Naval gunfire; over 40,000 rounds (10,000 tons) of ATG bombing. A TCRA identified 82,800 MEC items at UXO 4 that were removed,	A TCRA was initiated to remove surface munitions from the site. Approximately 68 acresof a densly vegetated area containing a high density of submunitions remains to be cleared.

MRS/Site Designation	Operational Area	Sites Within MRS	Description of Site	Status
UXO 5 SIA Restricted Roads	SIA		The SIA was established in the 1950s when Marine artillery targets were constructed for Marine artillery fire from the SIA and EMA During 1969, additional targets were established for inert bombing and straffing runs. As of May 2010 the NTCRA identified 15 MEC items within UXO5 that were removed	A NTCRA is underway to remove surface munitions from the SIA A second NTCRA is underway to remove subsurface munitions from UXO 5.
UXO 6 EMA/SIA Public Roads	EMA		The SIA was established in the 1950s when Marine artillery targets were constructed for Marine artillery fire from the SIA and EMA During 1969, additional targets were established for inert bombing and straffing runs.	A NTCRA is underway to remove surface munitions from the SIA A second NTCRA is underway to remove subsurface munitions from UXO 6.
UXO 7 EMA/SIA North Beaches	EMA/ SIA		The SIA was established in the 1950s when Marine artillery targets were constructed for Marine artillery fire from the SIA and EMA During 1969, additional targets were established for inert bombing and straffing runs.	A NTCRA is underway to remove surface munitions from the SIA A second NTCRA is underway to remove subsurface munitions from UXO 7.
UXO 8 SIA South Beaches	SIA		The SIA was established in the 1950s when Marine artillery targets were constructed for Marine artillery fire from the SIA and EMA During 1969, additional targets were established for inert bombing and straffing runs.	A NTCRA is underway to remove surface munitions from the SIA A second NTCRA is underway to remove subsurface munitions from UXO 8.

MRS/Site Designation	Operational Area	Sites Within MRS	Description of Site	Status
UXO 9 SIA Exterior	SIA	OP-5, OP-12, OP-13, PI-1, PI-22, G-21	The SIA was established in the 1950s when Marine artillery targets were constructed for Marine artillery fire from the SIA and EMA During 1969, additional targets were established for inert bombing and straffing runs. Through May 2010 approximately 7,400 MEC items have been surface cleared from the SIA as aprt of the NTCRA	A NTCRA is underway to remove surface munitions from UXO 9 .
UXO 10 SIA Interior	SIA	OP-1, PAOC Y, SWMU 11	The SIA was established in the 1950s when Marine artillery targets were constructed for Marine artillery fire from the SIA and EMA During 1969, additional targets were established for inert bombing and straffing runs. Through May 2010 approximately 7,400 MEC items have been surface cleared from the SIA as aprt of the NTCRA	A NTCRA is underway to remove surface munitions from UXO 10.
UXO 11 EMA Public Roads	EMA		Marine artillery gun positions were constructed in the EMA since the 1950s to direct artillery fire towards the targets in the SIA.. The ERA/SI identified 4 MD items and 4 MPPEH items ai UXO 11.	A NTCRA is underway to remove subsurface munitions, if any are identified, and metal debris from UXO 11. The ERA/SI recommended that an RI/FS be conducted at UXO 11.
UXO 12 EMA Interior	EMA	G-1 through G-5, G-10 through G-19, G-22, G-25, G-26, G-28 through G-32, G-34, G-35, GP-7, GP-9, PI-2, PI-3, PI-15, PI-16, PI-18, PI-19, OP-7, OP-10, OP-11, PAOC-Z, Range 8		Marine artillery gun positions were constructed in the EMA since the 1950s to direct artillery fire towards the targets in the SIA. The ERA/SI identified 244 MEC items within UXO 12, primarily along the western border of the site. The ERA/SI recommended that an RI/FS should be conducted at UXO 12.

MRS/Site Designation	Operational Area	Sites Within MRS	Description of Site	Status
UXO 13 EMA West	EMA	Ranges 1 through 6, Range 9, G-7 through G-9, G-23, G-27, PI-23		During 1966, six ranges were established in theMRS and used for the firing of small arms, grenades, rockets. These ranges were deactivated in 1999 The ERA/SI identified 116 MEC items within UXO 13, The ERA/SI recommended that an RI/FS should be conducted at UXO 13
UXO 14 EMA South	EMA	G-33		Range 10 was located within UXO 14 and was used for frontal assaults using M-1, M-14 rifles; M-2 carbines, Browning Automatic 13 rifles, service pistols, and 45 caliber machine guns. Demolition charges up to ¼ pound were detonated to simulate combat. The ERA/SI identified 4 MPPEH items and 18 MD items in UXO 14 The ERA/SI recommended that an investigation should be conducted at UXO 13 to assesshuman healtha and ecological risk.
UXO 16 Underwater Areas				Previous studies identified MEC and numerous metallic anomalies on the sea floor at Bahia Salina del Sur and Bahia Icacos areas, which are adjacent to the former LIA. The ESA/SI Report recommends additional investigations to further characterize the nature and extent of underwater MEC.

MRS/Site Designation	Operational Area	Sites Within MRS	Description of Site	Status
West Vieques Sites				
West Vieques UXO 1 SWMU 4 Inactive OB/Waste Explosive Detonation Range (West Vieques-DOI Property)	West Vieques	NA	NA	An open burn/open detonation area where there was thermal destruction of unserviceable munitions from approximately 1965-1980. The NTCRA to clear the subsurface MEC from the roads and beaches identified 266 MEC items. Final RI Work Plan submitted (CH2M HILL, January 2007). RI field investigation implemented in 2nd fiscal quarter 2007. Final Addendum 1 to the 2007 Work Plan submitted (April 2008). Supplemental RI field investigation implemented in 3rd fiscal quarter 2008. Data were evaluated and determined to be sufficient for delineating nature and extent of contamination and assessing potential risks. A Draft RI Report combining munitions and environmental studies was submitted in late August 2009. A revised ERA and HHRA are under review by the regulators. Final EE/CAA NTCRA for subsurface removal of roads and beaches (East and West Vieques) has been initiated.

Appendix B
Site Screening Areas

Appendix B-1
Environmental Sites

APPENDIX B-1
Site Screening Areas—Environmental Sites
East Vieques, Puerto Rico

Site Designation	Description of Site	Status
SWMU 1	Camp Garcia Landfill (EMA)	SMWU 1 is included in the Final PA/SI Report for 12 Consent Order Sites and 8 PI/PAOC Sites submitted in June 2008. The site was recommended for an ESI. The ESI field investigation was completed in May 2009. A Draft SI/ESI Report was submitted in October 2009. The Draft Final SI/ESI Report is expected to be submitted June 2010. The site was recommended for a Streamlined RI/FS which is in process and the draft report is expected to be submitted in late 2010.
SWMU 2	Fuels Off-Loading Site	SMWU 2 is included in the Final PA/SI Report for 12 Consent Order Sites and 8 PI/PAOC Sites submitted in June 2008. The site was recommended for an ESI. The ESI field investigation was completed in May 2009. A Draft SI/ESI Report was submittal in October 2009. The Draft Final SI/ESI report is expected to be submitted June 2010. The site was recommended for no action and has been included in the No Action/No Further Action Decision Document that was submitted in June 2010.
SWMU 4	Waste Areas of Building 303 (Camp Garcia), including: – Spent Battery Accumulation Area – Catch Basin for Hydraulic Oil – Cleaning/Degreasing Basin – Rags, absorbent and grease storage area	SMWU 4 is included in the Final PA/SI Report for 12 Consent Order Sites and 8 PI/PAOC Sites submitted in June 2008. The site was recommended for NFA, pending a regional groundwater evaluation at Camp Garcia. The regional monitoring wells were installed and groundwater samples collected during the ESI field investigation completed in May 2009. A Final SI/ESI Report was submitted in August 2010. The site was recommended for no action and was included in the No Action/No Further Action Decision Document that was submitted in September 2010.
SWMU 5	Spent Battery Accumulation Area located at Observation Post 1 (OP-1)	SMWU 5 is included in the Final PA/SI Report for 12 Consent Order Sites and 8 PI/PAOC Sites submitted in June 2008. The site was recommended for no action. The Final No Action Decision Document was submitted in January 2009.
SWMU 6	Waste Oil and Paint Accumulation Area (Seabees Area at Camp Garcia). To include any releases from the adjacent Lubricating Oil Storage Area	SMWU 6 is included in the Final PA/SI Report for 12 Consent Order Sites and 8 PI/PAOC Sites submitted in June 2008. The site was recommended for an ESI. The ESI field investigation was completed in May 2009. A Draft SI/ESI Report was submittal in October 2009. The Draft Final SI/ESI Report is expected to be submitted June 2010. The site was recommended for no action and was included in the No Action/No Further Action Decision Document that was submitted in June 2010.

Site Designation	Description of Site	Status
SWMU 7	Waste Oil Accumulation Area (outside Building 303 at Camp Garcia)	SMWU 7 is included in the Final PA/SI Report for 12 Consent Order Sites and 8 PI/PAOC Sites submitted in June 2008. The site was recommended for an ESI. The ESI field investigation was completed in May 2009. A Draft SI/ESI Report is scheduled for submittal in October 2009. The Draft Final SI/ESI Report is expected to be submitted June 2010. The site was recommended for no action and was included in the No Action/No Further Action Decision Document that was submitted in June 2010.
SWMU 8	Waste Oil Accumulation Area (Inner Range at OP-1)	SMWU 8 is included in the Final PA/SI Report for 12 Consent Order Sites and 8 PI/PAOC Sites submitted in June 2008. The site was recommended for NFA. The Final No Action Decision Document was submitted in January 2009.
SWMU 10	Sewage Treatment Lagoons (Camp Garcia)	SMWU 10 is included in the Final PA/SI Report for 12 Consent Order Sites and 8 PI/PAOC Sites submitted in June 2008. The site was recommended for an ESI. The ESI field investigation was completed in May 2009. A Draft SI/ESI Report was submittal in October 2009. The Draft Final SI/ESI Report is expected to be submitted June 2010. The site was recommended for no action and was included in the No Action/No Further Action Decision Document that was submitted in June 2010.
SWMU 12	Solid Waste Collection Unit Area (OP-1)	SMWU 12 is included in the Final PA/SI Report for 12 Consent Order Sites and 8 PI/PAOC Sites submitted in June 2008. The site was recommended for NFA. The Final No Action Decision Document was submitted in January 2009.
AOC A	Diesel Fuel Fill Pipe Area (OP-1)	AOC A is included in the Final PA/SI Report for 12 Consent Order Sites and 8 PI/PAOC Sites submitted in June 2008. The site was recommended for an ESI, including soil removal. The ESI field work was completed in May 2009. A Draft SI/ESI Report was submittal in October 2009. The Draft Final SI/ESI Report is expected to be submitted June 2010. The site was recommended for no further action and was included in the No Action/No Further Action Decision Document that was submitted in June 2010.
AOC F	Rock Quarry (Camp Garcia)	AOC F is included in the Final PA/SI Report for 12 Consent Order Sites and 8 PI/PAOC Sites submitted in June 2008. The site was recommended for NFA. The Final No Action Decision Document was submitted in January 2009.

Site Designation	Description of Site	Status
AOC G	Pump Station and Chlorination Building at Sewage Lagoons (Camp Garcia)	AOC G is included in the Final PA/SI Report for 12 Consent Order Sites and 8 PI/PAOC Sites submitted in June 2008. The site was recommended for an ESI. The ESI field investigation was completed in May 2009. A Draft SI/ESI Report was submittal in October 2009. The Draft Final SI/ESI Report is expected to be submitted June 2010. The site was recommended for no action and was included in the No Action/No Further Action Decision Document that was submitted in June 2010.
PAOC I	Building 401, interviews and records indicate former power plant and mechanics shop northeast of Bldg. 303 at Camp Garcia (structure still exists). No evidence of hazardous waste, hazardous material, petroleum, or munitions storage or disposal was observed (NAVFACENGCOM, 2003).	In October 2007, the Environmental Technical Subcommittee concurred the site would undergo an SI. The SI field investigation was completed in May 2009. A Draft SI/ESI Report was submittal in October 2009. The Draft Final SI/ESI Report is expected to be submitted June 2010. The site was recommended for no action and was included in the No Action/No Further Action Decision Document that was submitted in June 2010.
PAOC J	Interviews and records indicate former vehicle maintenance area at Camp Garcia immediately north of the main road (all structures were demolished prior to 1980). Interviewees not aware of any hazardous waste or hazardous material releases at site; no evidence of hazardous waste, hazardous material, petroleum, or munitions storage or disposal was observed during site inspection (NAVFACENGCOM, 2003).	PAOC J is included in the Final PA/SI Report for 12 Consent Order Sites and 8 PI/PAOC Sites submitted in June 2008. The site was recommended for NFA, pending a regional groundwater evaluation at Camp Garcia. The regional monitoring wells were installed and groundwater samples collected during the ESI field investigation completed in May 2009. A Draft SI/ESI Report was submittal in October 2009. The Draft Final SI/ESI Report is expected to be submitted June 2010. The site was recommended for no action and was included in the No Action/No Further Action Decision Document that was submitted in June 2010.
PAOC K	Interviews and records indicate former wash rack area north of main road (structure demolished prior to 1980). No evidence of hazardous waste, hazardous material, petroleum, or munitions storage or disposal was observed (NAVFACENGCOM, 2003).	PAOC K is included in the Final PA/SI Report for 12 Consent Order Sites and 8 PI/PAOC Sites submitted in June 2008. The site is recommended for NFA, pending a regional groundwater evaluation at Camp Garcia. The regional monitoring wells were installed and groundwater samples collected during the ESI field investigation completed in May 2009. A Draft SI/ESI Report was submittal in October 2009. The Draft Final SI/ESI Report is expected to be submitted June 2010. The site was recommended for no action and was included in the No Action/No Further Action Decision Document that was submitted in June 2010.
PAOC L	Interviews and records indicate former paint and transformer storage area (structure still exists). Interviewees not aware of any hazardous waste or hazardous material releases at site; no evidence of PCB, hazardous waste, hazardous material, petroleum, or munitions storage or disposal was observed during site inspection (NAVFACENGCOM, 2003).	PAOC L is included in the Final PA/SI Report for 12 Consent Order Sites and 8 PI/PAOC Sites submitted in June 2008. The site was recommended for an ESI. The ESI field investigation was completed in May 2009. A Draft SI/ESI Report was submittal in October 2009. The Draft Final SI/ESI Report is expected to be submitted June 2010. The site was recommended for no further action and was included in the No Action/No Further Action Decision Document that was submitted in June 2010.

Site Designation	Description of Site	Status
PAOC M	Interviews and records indicate former dispatch office, fuel facility, and sleeping quarters (Building 4503, demolished 1991). No evidence of hazardous waste, hazardous material, petroleum, or munitions storage or disposal was observed (NAVFACENGCOM, 2003).	In October 2007, the Environmental Technical Subcommittee concurred the site would undergo an SI. The SI field investigation was completed in May 2009. A Draft SI/ESI Report was submittal in October 2009. The Draft Final SI/ESI Report is expected to be submitted June 2010. The site was recommended for no action and was included in the No Action/No Further Action Decision Document that was submitted in June 2010.
PAOC N	Records indicate former fuel farm and filling station (demolished 1992). Interviews indicate that this area is the current location of the Camp Garcia refueling station. Interviews also indicate no releases occurred at this facility. No evidence of hazardous waste, hazardous material, petroleum, or munitions storage or disposal was observed during the site inspection (NAVFACENGCOM, 2003).	PAOC N is included in the Final PA/SI Report for 12 Consent Order Sites and 8 PI/PAOC Sites submitted in June 2008. The site was recommended for NFA, pending an ESI geophysical survey to confirm no underground fuel pipeline is present. The ESI field investigation was completed in May 2009. A Draft SI/ESI Report was submittal in October 2009. The Draft Final SI/ESI Report is expected to be submitted June 2010. The site was recommended for no action and was included in the No Action/No Further Action Decision Document that was submitted in June 2010.
PAOC O	Interviews and records indicate former boiler room in the heat plant building (Building 238 Camp Garcia (CG), demolished 1989). No evidence of hazardous waste, hazardous material, petroleum, or munitions storage or disposal was observed (NAVFACENGCOM, 2003).	In October 2007, the Environmental Technical Subcommittee concurred the site would undergo an SI. The SI field investigation was completed in May 2009. A Draft SI/ESI Report was submittal in October 2009. The Draft Final SI/ESI Report is expected to be submitted June 2010. The site was recommended for no action and was included in the No Action/No Further Action Decision Document that was submitted in June 2010.
PAOC P	Interviews and records indicate former water treatment facility pump house (Building 500CG, demolished 1989). No evidence of hazardous waste, hazardous material, petroleum, or munitions storage or disposal was observed (NAVFACENGCOM, 2003).	In October 2007, the Environmental Technical Subcommittee concurred the site would undergo an SI. The SI field investigation was completed in May 2009. A Draft SI/ESI Report was submittal in October 2009. The Draft Final SI/ESI Report is expected to be submitted June 2010. The site was recommended for no further action and was included in the No Action/No Further Action Decision Document that was submitted in June 2010.
PAOC Q/R	Interviews and records indicate PAOC Q is a former boiler house in heat plant building (Building 607, demolished 1984). No evidence of hazardous waste, hazardous material, petroleum, or munitions storage or disposal was observed (NAVFACENGCOM, 2003). Interviews and records indicate PAOC R is a former boiler house in heat plant building (Building 617, demolished 1984). The former location of this building is unknown, but is suspected to be near PAOC Q based on historical aerial photographs.	In October 2007, the Environmental Technical Subcommittee concurred the site would undergo an SI. The SI field investigation was completed in May 2009. A Draft SI/ESI Report was submittal in October 2009. The Draft Final SI/ESI Report is expected to be submitted June 2010. Additional soil sampling was recommended and will be accomplished at the site in mid-2010. Upon completion of sampling an SI/ESI Addendum Report will be submitted.

Site Designation	Description of Site	Status
PAOC S	Records indicate former above ground POL pipeline (demolished 1984). An additional area was added to this site, referred to as the power plant. Interviews also indicate no releases occurred at this facility. No evidence of hazardous waste, hazardous material, petroleum, or munitions storage or disposal was observed during the site inspection (NAVFACENGCOM, 2003).	PAOC S is included in the Final PA/SI Report for 12 Consent Order Sites and 8 PI/PAOC Sites submitted in June 2008. The POL pipeline portion of PAOC S requires NFA. The power plant portion of the site was recommended for NFA, pending an ESI geophysical survey to confirm no underground fuel pipeline is present. The ESI field investigation was completed in May 2009. A Draft SI/ESI Report was submittal in October 2009. The Draft Final SI/ESI Report is expected to be submitted June 2010. The site was recommended for no action and was included in the No Action/No Further Action Decision Document that was submitted in June 2010.
PAOC T	Interviews and records indicate former public works grounds contractor storage shed (Building 305, demolished 1991). No evidence of hazardous waste, hazardous material, petroleum, or munitions storage or disposal was observed (NAVFACENGCOM, 2003).	In October 2007, the Environmental Technical Subcommittee concurred the site warranted NFA. The Final No Action Decision Document was submitted in January 2009.
PAOC U	NEW PAOC – Vehicle Maintenance area just north of Building 303 at Camp Garcia. Current and historic storage of hazardous waste, hazardous material, and petroleum products. Some staining of soil outside of building near container storage pallets (NAVFACENGCOM, 2003).	In October 2007, the Environmental Technical Subcommittee concurred the site warranted NFA. The Final No Action Decision Document was submitted in January 2009.
PAOC V	NEW PAOC – Interviews indicate storage of leaking transformer, possible PCB contamination Two soil samples collected, one constituent detected which was below screening criteria (NAVFACENGCOM, 2003).	In October 2007, the Environmental Technical Subcommittee concurred the site warranted NFA. The Final No Action Decision Document was submitted in January 2009.
PAOC W	NEW PAOC – Observed area of pooled, discolored water adjacent to the main road from Camp Garcia to PI-21. No evidence of hazardous waste, hazardous material, petroleum, or munitions storage or disposal was observed. Site Interviewees had no knowledge of past activity (NAVFACENGCOM, 2003).	In October 2007, the Environmental Technical Subcommittee concurred the site warranted NFA. The Final No Action Decision Document was submitted in January 2009.
PAOC X	NEW PAOC – Quebrada (intermittent stream channel) located north from the main road and west from Camp Garcia, adjacent to the former vehicle maintenance area. Observed an automobile body, tires, scrap metal, and construction-related solid waste and debris (NAVFACENGCOM, 2003).	In October 2007, the Environmental Technical Subcommittee concurred the site would undergo an SI, including debris removal. The SI field investigation was completed in May 2009. A Draft SI/ESI Report was submittal in October 2009. The Draft Final SI/ESI Report is expected to be submitted June 2010. The site was recommended for no further action and was included in the No Action/No Further Action Decision Document that was submitted in June 2010.

Site Designation	Description of Site	Status
PI 4	Interviews and records indicate location of former helicopter maintenance area, barracks, and a mess hall. Observed several large segments of concrete culverts/pipes and concrete foundation slabs with a septic vault box to the south of the concrete slabs. Observed two large, rectangular, bermed areas formerly used for fuel bladder storage (from interviews). No evidence of munitions, hazardous waste, hazardous material, or petroleum disposal was observed (NAVFACENGCOM, 2003).	PI 4 is included in the Final PA/SI Report for 12 Consent Order Sites and 8 PI/PAOC Sites submitted in June 2008. The site was recommended for an ESI. The ESI field investigation was completed in May 2009. A Draft SI/ESI Report was submittal in October 2009. The Draft Final SI/ESI Report is expected to be submitted June 2010. Additional groundwater sampling was recommended and will be accomplished at the site in mid-2010. Upon completion of sampling an SI/ESI Addendum Report will be submitted.
PI 5	Surface water drainage from the runway area; interviews and records indicate historically the location of the fire department and temporary tents; beach matting was installed in the area in the past. No evidence of munitions, hazardous waste, hazardous material, or petroleum storage or disposal was observed (NAVFACENGCOM, 2003).	In October 2007, the Environmental Technical Subcommittee concurred the site would undergo an SI. The SI field investigation was completed in May 2009. A Draft SI/ESI Report was submittal in October 2009. The Draft Final SI/ESI Report is expected to be submitted June 2010. The site was recommended for no action and was included in the No Action/No Further Action Decision Document that was submitted in June 2010.
PI 6	Interviews and records indicate ASTs and facilities associated with the former location of the site drinking water system. Observed the following facilities: – several intact ASTs and one storage tank without ends – a concrete building containing electric pumps – a small vehicle washpad and water well pump house – a ground transformer near the washpad – a concrete pad that could potentially have contained PCB-containing transformers (NAVFACENGCOM, 2003).	In October 2007, the Environmental Technical Subcommittee concurred the site would undergo an SI. The SI field investigation was completed in May 2009. A Draft SI/ESI Report was submittal in October 2009. The Draft Final SI/ESI Report is expected to be submitted June 2010. The site was recommended for no action and was included in the No Action/No Further Action Decision Document that was submitted in June 2010.
PI 7	Interviews and records indicate southern portion was formerly a quarry and tar disposal area, northern portion was a communications facility. At the south end of the southern portion of the site, drums potentially containing asphalt were observed. Two drums were also observed in the former quarry. No items of concern identified in northern portion of site (NAVFACENGCOM, 2003).	PI 7 is included in the Final PA/SI Report for 12 Consent Order Sites and 8 PI/PAOC Sites submitted in June 2008. The site was recommended for an ESI, including drum removal. The ESI field investigation was completed in May 2009. A Draft SI/ESI Report was submittal in October 2009. The Draft Final SI/ESI Report is expected to be submitted June 2010. Additional soil sampling was recommended and will be accomplished at the site in mid-2010. Upon completion of sampling an SI/ESI Addendum Report will be submitted.

Site Designation	Description of Site	Status
PI 8	Interviews and records indicate former motor pool maintenance area located south of the main road. Past storage and potential storage of hazardous materials and petroleum products. Observed a large area with dark colored/stained soils (NAVFACENGCOM, 2003).	In October 2007, the Environmental Technical Subcommittee concurred the site would undergo an SI. The SI field investigation was completed in May 2009. A Draft SI/ESI Report was submittal in October 2009. The Draft Final SI/ESI Report is expected to be submitted June 2010. The site was recommended for no action and was included in the No Action/No Further Action Decision Document that was submitted in June 2010.
PI 10	Interviews and records indicate site of a possible former sewage-drying lagoon. Observed two rectangular openings in the forest partially surrounded by the remains of low earthen berms. Dark colored soils were observed on portions of the enclosed areas. Evidence of limited solid waste disposal in immediate vicinity (NAVFACENGCOM, 2003).	In October 2007, the Environmental Technical Subcommittee concurred the site would undergo an SI. The SI field investigation was completed in May 2009. A Draft SI/ESI Report was submittal in October 2009. The Draft Final SI/ESI Report is expected to be submitted June 2010. The site was recommended for no action and was included in the No Action/No Further Action Decision Document that was submitted in June 2010.
PI 11	Interviews and records indicate pump house used for the former wastewater treatment system and/or salt water supply system. Observed a diesel engine in a vegetated area adjacent to the station and a stained area immediately under the outfall of an open pipe projecting from the side of the pump house (NAVFACENGCOM, 2003).	In October 2007, the Environmental Technical Subcommittee concurred the site warranted NFA. The Final No Action Decision Document was submitted in January 2009.
PI 20	Interviews and records indicate area used as observation point during landing exercises conducted at PI-21, and potentially used as a quarry in the past. No evidence of prior disposal activities or other contamination observed (NAVFACENGCOM, 2003).	In October 2007, the Environmental Technical Subcommittee concurred the site warranted NFA. The Final No Action Decision Document was submitted in January 2009.

Appendix B-2
Munitions Response Sites

APPENDIX B-2
Site Screening Areas—Munitions Response Sites
East Vieques, Puerto Rico

MRS/ Site Designation	Operational Area	Sites Within MRS	Description of Site	Status
UXO 15 Puerto Ferro	EMA	PI-9 , PI-13	UXO 15 contains an area that was alleged to have been used as an area of ammunitions storage with earthen berms and small OB/OD Also the MRS is described to have ordnance possibly fired from the site toward the LIA/SIA. .	The ERA/SI Report recommends a further investigation/Assessment of the debris piles and near shore MD.
East Vieques UXO 17	EMA	PAOC EE, PAOC FF, PI-14	Three aerial photo locations: PI-14, PAOC-EE, and PAOC-FF were suspected to be used as munitions response sites. However, the ERA/SI did not identify any MEC at any of the locations.	The ERA/SI recommended removing the metal debris, one flare and small arms that were identified.

Appendix C
Primary Documents Previously Provided to USEPA, DOI, and Commonwealth (for Review and Comment)

APPENDIX C

Primary Documents Previously Provided to EPA, Interior, and the Commonwealth for Review and Comment

CH2M HILL, June 2010. *Draft No Action/No Further Action Decision Document, Former Naval Facilities, Vieques, Puerto Rico*.

CH2M HILL. April 2010. *Final Master Standard Operating Procedures, Protocols, and Plans, Environmental Restoration Program, Vieques, Puerto Rico.*

CH2M HILL. April 2010. *Final Master Standard Operating Procedures, Protocols, and Plans, Environmental Restoration Program, Vieques, Puerto Rico*.

CH2M HILL, October 2009. *Site Management Plan, Fiscal Year 2010, Former Navy Facilities, Vieques, Puerto Rico.*

CH2M HILL, February 2009. *Final Site Inspection/Expanded Site Inspection Sampling and Analysis Plan 7 Consent Order Sites and 16 PI/PAOC Sites, Former Vieques Naval Training Range, Vieques, Puerto Rico.*

CH2M HILL, January 2009. *Final Non-Time Critical Removal Action Work Plan, Surface Munitions and Explosives of Concern at Munitions Response Area-Surface Impact Area, Munitions Response Sites 1 through 7, Former VNTR, Vieques, Puerto Rico.*

CH2M HILL, January 2009. *Final No Action Decision Document for 4 Consent Order Sites and 6 PI/PAOC Sites, Former Vieques Naval Training Range, Vieques, Puerto Rico.*

CH2M HILL. May 2010. *Draft Remedial Investigation Sampling and Analysis Plan, Eastern Conservation Area, Former Naval Training Range, Vieques, Puerto Rico.*

CH2M HILL, October 2008. *Final Engineering Evaluation/Cost Analysis for Surface MEC Removal from the Munitions Response Area-Surface Impact Area, Former VNTR. Vieques, Puerto Rico.*

CH2M HILL, October 2008. *Final Work Plan for Munitions and Explosives of Concern Subsurface Interim Removal Action beaches and Select Roadways, Former Vieques Naval Training Range (VNTR) and Former Naval Ammunition Support Detachment (NASD), Solid Waste Management Unit 4, Vieques, Puerto Rico.*

CH2M HILL, September 2008. *Final Record of Decision, Area of Concern H, Former Naval Ammunition Support Detachment, Vieques, Puerto Rico*.EPA ID: PRN000204694.

CH2M HILL, August 2008. *Final Work Plan for Munitions and Explosives of Concern Subsurface Removal Action, Beaches and Select Roadways, Former Vieques Naval Training Range and Former NASD Solid Waste Management Unit 4, Vieques, Puerto Rico.*

CH2M HILL, July 2008. *Final Remedial Investigation Report Area of Concern (AOC) E, Former Naval Ammunition Support Detachment, Vieques, Puerto Rico.*

CH2M HILL, June 2008. *Final Preliminary Assessment/Site Inspection Report 12 Consent Order Sites and 8 PI/PAOC Sites, Former Vieques Naval Training Range, Vieques, Puerto Rico.*

CH2M HILL, June 2008. *Final Remedial Investigation Report Area of Concern (AOC) I, Former Naval Ammunition Support Detachment, Vieques, Puerto Rico.*

CH2M HILL, April 2008. *Final Addendum 1 to the Environmental Remedial Investigation Work Plan, Solid Waste Management Unit (SWMU) 4, Former Naval Ammunition Support Detachment, Vieques, Puerto Rico.*

CH2M HILL, March 2008. *Remedial Investigation Report Solid Waste Management Unit (SWMU) 7, Former Naval Ammunition Support Detachment, Vieques, Puerto Rico.*

CH2M HILL, February 2008. *Final Engineering Evaluation/Cost Analysis for MEC Removal from the Beaches and Roadways of SWMU 4, Former NASD and Munitions Response Areas: Eastern Maneuver Area, Surface Impact Area, Live Impact Area, and Eastern Conservation Area, Former VNTR. Vieques, Puerto Rico.*

CH2M HILL, January 2008. *Proposed Plan Area of Concern H, Former Naval Ammunition Support Detachment, Vieques, Puerto Rico.*

CH2M HILL, October 2007. *Final East Vieques Background Soil Inorganics Investigation Report, Former Vieques Naval Training Range (VNTR), Vieques Island, Puerto Rico.*

CH2M HILL, July 2007. *Final Remedial Investigation Report Area of Concern (AOC) H, Former Naval Ammunition Support Detachment, Vieques Island, Puerto Rico.*

CH2M HILL, May 2007. *Final Remedial Investigation Report Area of Concern (AOC) J, Former Naval Ammunition Support Detachment, Vieques Island, Puerto Rico.*

CH2M HILL, May 2007. *Final Master Quality Assurance Project Plan, Environmental Restoration Program, Vieques, Puerto Rico.*

CH2M HILL, February 2007. *Final Remedial Investigation Report Solid Waste Management Unit (SWMU) 6, Former Naval Ammunition Support Detachment, Vieques Island, Puerto Rico.*

CH2M HILL, January 2007. *Final Environmental Remedial Investigation Work Plan Solid Waste Management Unit (SWMU) 4, Former Naval Ammunition Support Detachment, Vieques Island, Puerto Rico.*

CH2M HILL, December 2006. *Final Munitions and Explosives of Concern Master Work Plan, Former Vieques Naval Training Range, Vieques, Puerto Rico.*

CH2M HILL, October 2006. *Final No Further Action Report for Nine Sites, Former U.S. Naval Ammunition Support Detachment, Vieques, Puerto Rico.*

CH2M HILL, May 2006. *Final Work Plan and Sampling and Analysis Plan Soil Inorganics Background Investigation, Former Vieques Naval Training Range, Vieques, Puerto Rico.*

CH2M HILL, January 2006. *Final Preliminary Assessment/Site Inspection Work Plan for Eight PI/PAOC Sites, Former Vieques Naval Training Range (VNTR), Vieques Island, Puerto Rico.*

CH2M HILL, November 2005. *Final Supplemental Remedial Investigation Work Plan for Area of Concern (AOC) E, The Former U.S. Naval Ammunition Support Detachment (NASD), Vieques Island, Puerto Rico.*

CH2M HILL, November 2005. *Final Supplemental Remedial Investigation Work Plan for Area of Concern (AOC) I, The Former U.S. Naval Ammunition Support Detachment (NASD), Vieques Island, Puerto Rico.*

CH2M HILL, November 2005. *Final Remedial Investigation Work Plan for Area of Concern (AOC) R at the Former U.S. Naval Ammunition Support Detachment (NASD), Vieques Island, Puerto Rico*

CH2M HILL, May 2005. *Draft Final Groundwater Baseline Investigation at U.S. Navy's Eastern Maneuver Area, Former Atlantic Fleet Weapons Training Facility, Vieques Island, Puerto Rico.*

CH2M HILL, May 2005. *Phase I RFI Data Summary Report for the 9 SWMUs and 3 AOCs Identified in the RCRA Consent Order, Former Vieques Naval Training Range, Vieques Island, Puerto Rico.*

CH2M HILL. January 2005. *Interim Remedial Investigation Report for Area of Concern (AOC) I at the Former U.S. Naval Ammunition Support Detachment, Vieques Island, Puerto Rico.*

CH2M HILL. January 2005. *Final Remedial Investigation/Feasibility Study Work Plan for AOC R at the Former U.S. Naval Ammunition Support Detachment (NASD), Vieques Island, Puerto Rico.*

CH2M HILL. September 2004. *Final SWMU 4 MEC Remedial Investigation Report, Former U.S. Naval Ammunition Support Detachment, Vieques, Puerto Rico.*

CH2M HILL. August 2004. *Final Remedial Investigation/Feasibility Study Work Plan for AOC I and AOC R at the Former U.S. Naval Ammunition Support Detachment (NASD), Vieques Island, Puerto Rico.*

CH2M HILL. July 2004. *Draft Final Closure Plan, Open Burn/Open Detonation Site, Former Atlantic Fleet Weapons Training Facility, Vieques, Puerto Rico.*

CH2M HILL, June 2004. *Draft Phase I RCRA Facility Investigation Report, Former Atlantic Fleet Weapons Training Facility, Vieques Island, Puerto Rico.*

CH2M HILL. August 2003. *Site Management Plan FY 2002-2003, Former U.S. Naval Ammunition Support Detachment, Vieques Island, Puerto Rico.*

CH2M HILL. July 2003. *Final Remedial Investigation/Feasibility Study Work Plan for Solid Waste Management Unit (SWMU) 6, SWMU 7, Area of Concern (AOC) H, and AOC J, Former U.S. Naval Ammunition Support Detachment, Vieques Island, Puerto Rico.*

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

CH2M HILL, June 12, 2003. *Final Site Specific Work Plan Phase I RCRA Facility Investigation, Atlantic Fleet Weapons Training Facility, Vieques Island, Puerto Rico.*

CH2M HILL, October 16, 2002. *Final Soil, Groundwater, Surface Water, and Sediment Background Investigation Report, U.S. Naval Ammunition Support Detachment, Vieques Island, Puerto Rico.*

CH2M HILL. May 2002. *Final Site Management Plan FY 2001-2002, Former NASD Facility, U.S. Naval Ammunition Support Detachment, Vieques Island, Puerto Rico.*

CH2M HILL. May 2002. *Final Remedial Investigation/Feasibility Study Work Plan for Area of Concern (AOC) E, Former U.S. Naval Ammunition Support Detachment, Vieques Island, Puerto Rico.*

CH2M HILL, September 6, 2001. *Final Work Plan Groundwater Baseline Investigation at U.S. Navy's Eastern Maneuver Area, Vieques Island, Puerto Rico.*

CH2M HILL. March 2001. *Closure of Fuel Underground Storage Tanks No. 1 and No. 2 Building 2015, U.S. Naval Ammunition Support Detachment, Vieques Island, Puerto Rico.*

Field Support Services, Inc. (Shaw Environmental & Infrastructure, Inc.) December 2007. *Final Work Plan Removal Actions SWMU 6, SWMU 7, AOC J, and AOC R, Former Naval Ammunitions Support Detachment, Vieques, Puerto Rico.*

Appendix D
DoD Site Prioritization Protocol Scoring

Expanded Range Assessment/Phase I Site Inspection
DoD Site Prioritization Protocol Scoring

Site		**Alias**
UXO1		Eastern Conservation Area
EHE Module	**Score**	**Comment**
Table 1 - EHE, Munitions Type Data Element	30	sub munitions identified during TCRA
Table 2 - EHE, Source of Hazard Data Element	10	
Table 3 - EHE, Location of Munitions Data Element	25	area surface cleared, but erosion likely
Table 4 - EHE, Ease of Access Data Element	10	no barrier exists; however, this is the most remote portion of east vieques
Table 5 - EHE, Status of Property Data Element	5	
Table 6 - EHE, Population Density Data Element	1	
Table 7 - EHE, Population Near Hazard Data Element	5	
Table 8 - EHE, Types of Activities/Structures Data Element	5	
Table 9 - EHE, Ecological and/or Cultural Resources Data Element	3	turtle nesting area
Total Score	94	
Table 10 - EHE Rating	A	
CHE Module	**Score**	**Comment**
Total Score	N/A	no known or suspected chemical warfare materiel
Table 20 - CHE Rating	N/A	
Table 28 - HHE, Hazard Rating	D	Risks are considered potential for all sites at this point due to lack of environmental data. A rating of "medium" will be used.
Table 29 - MRS Priority	**Priority**	
EHE Module Rating	**2**	
CHE Module Rating	**N/A**	no known or suspected chemical warfare materiel
HHE Module Rating	**5**	

Expanded Range Assessment/Phase I Site Inspection
DoD Site Prioritization Protocol Scoring

Site		**Alias**
UXO2		LIA Beaches
EHE Module	**Score**	**Comment**
Table 1 - EHE, Munitions Type Data Element	30	sub munitions identified during TCRA/ Non-TCRA
Table 2 - EHE, Source of Hazard Data Element	10	
Table 3 - EHE, Location of Munitions Data Element	25	area surface cleared, but erosion likely
Table 4 - EHE, Ease of Access Data Element	10	
Table 5 - EHE, Status of Property Data Element	5	
Table 6 - EHE, Population Density Data Element	1	
Table 7 - EHE, Population Near Hazard Data Element	5	
Table 8 - EHE, Types of Activities/Structures Data Element	5	
Table 9 - EHE, Ecological and/or Cultural Resources Data Element	3	turtle nesting area
Total Score	94	
Table 10 - EHE Rating	A	
CHE Module	**Score**	**Comment**
Total Score	N/A	no known or suspected chemical warfare materiel
Table 20 - CHE Rating	N/A	
Table 21 - HHE, Hazard Rating	D	Risks are considered potential for all sites at this point due to lack of environmental data. A rating of "medium" will be used.
Table 22 - MRS Priority	**Priority**	
EHE Module Rating	**2**	
CHE Module Rating	**N/A**	no known or suspected chemical warfare materiel
HHE Module Rating	**5**	

Expanded Range Assessment/Phase I Site Inspection
DoD Site Prioritization Protocol Scoring

Site		**Alias**
UXO3		LIA Roads
EHE Module	**Score**	**Comment**
Table 1 - EHE, Munitions Type Data Element	30	sub munitions identified during TCRA
Table 2 - EHE, Source of Hazard Data Element	10	
Table 3 - EHE, Location of Munitions Data Element	25	area surface cleared, but erosion likely
Table 4 - EHE, Ease of Access Data Element	10	
Table 5 - EHE, Status of Property Data Element	5	
Table 6 - EHE, Population Density Data Element	1	
Table 7 - EHE, Population Near Hazard Data Element	5	
Table 8 - EHE, Types of Activities/Structures Data Element	5	
Table 9 - EHE, Ecological and/or Cultural Resources Data Element	3	
Total Score	94	
Table 10 - EHE Rating	A	
CHE Module	**Score**	**Comment**
Total Score	N/A	no known or suspected chemical warfare materiel
Table 20 - CHE Rating	N/A	
Table 21 - HHE, Hazard Rating	D	Risks are considered potential for all sites at this point due to lack of environmental data. A rating of "medium" will be used.
Table 22 - MRS Priority	**Priority**	
EHE Module Rating	**2**	
CHE Module Rating	**N/A**	no known or suspected chemical warfare materiel
HHE Module Rating	**5**	

Expanded Range Assessment/Phase I Site Inspection
DoD Site Prioritization Protocol Scoring

Site		**Alias**
UXO4		LIA Interior
EHE Module	**Score**	**Comment**
Table 1 - EHE, Munitions Type Data Element	30	sub munitions identified during TCRA
Table 2 - EHE, Source of Hazard Data Element	10	
Table 3 - EHE, Location of Munitions Data Element	25	area surface cleared, but erosion likely
Table 4 - EHE, Ease of Access Data Element	10	
Table 5 - EHE, Status of Property Data Element	5	
Table 6 - EHE, Population Density Data Element	1	
Table 7 - EHE, Population Near Hazard Data Element	5	
Table 8 - EHE, Types of Activities/Structures Data Element	5	
Table 9 - EHE, Ecological and/or Cultural Resources Data Element	5	
Total Score	96	
Table 10 - EHE Rating	A	
CHE Module	**Score**	**Comment**
Total Score	N/A	no known or suspected chemical warfare materiel
Table 20 - CHE Rating	N/A	
Table 21 - HHE, Hazard Rating	D	Risks are considered potential for all sites at this point due to lack of environmental data. A rating of "medium" will be used.
Table 22 - MRS Priority	**Priority**	
EHE Module Rating	**2**	
CHE Module Rating	**N/A**	no known or suspected chemical warfare materiel
HHE Module Rating	**5**	

Expanded Range Assessment/Phase I Site Inspection
DoD Site Prioritization Protocol Scoring

Site		**Alias**
UXO5		SIA Restricted Roads
EHE Module	**Score**	**Comment**
Table 1 - EHE, Munitions Type Data Element	30	sub munitions identified during Non-TCRA
Table 2 - EHE, Source of Hazard Data Element	10	
Table 3 - EHE, Location of Munitions Data Element	25	
Table 4 - EHE, Ease of Access Data Element	10	
Table 5 - EHE, Status of Property Data Element	5	
Table 6 - EHE, Population Density Data Element	1	
Table 7 - EHE, Population Near Hazard Data Element	5	
Table 8 - EHE, Types of Activities/Structures Data Element	5	
Table 9 - EHE, Ecological and/or Cultural Resources Data Element	3	
Total Score	94	
Table 10 - EHE Rating	A	
CHE Module	**Score**	**Comment**
Total Score	N/A	no known or suspected chemical warfare materiel
Table 20 - CHE Rating	N/A	
Table 21 - HHE, Hazard Rating	D	Risks are considered potential for all sites at this point due to lack of environmental data. A rating of "medium" will be used.
Table 22 - MRS Priority	**Priority**	
EHE Module Rating	**2**	
CHE Module Rating	**N/A**	no known or suspected chemical warfare materiel
HHE Module Rating	**5**	

Expanded Range Assessment/Phase I Site Inspection
DoD Site Prioritization Protocol Scoring

Site		**Alias**
UXO6		EMA/SIA Public Roads
EHE Module	**Score**	**Comment**
Table 1 - EHE, Munitions Type Data Element	30	MEC projectiles/submunitions identified during Non-TCRA
Table 2 - EHE, Source of Hazard Data Element	10	
Table 3 - EHE, Location of Munitions Data Element	25	
Table 4 - EHE, Ease of Access Data Element	10	
Table 5 - EHE, Status of Property Data Element	5	
Table 6 - EHE, Population Density Data Element	3	
Table 7 - EHE, Population Near Hazard Data Element	5	
Table 8 - EHE, Types of Activities/Structures Data Element	5	
Table 9 - EHE, Ecological and/or Cultural Resources Data Element	3	
Total Score	96	
Table 10 - EHE Rating	A	
CHE Module	**Score**	**Comment**
Total Score	N/A	no known or suspected chemical warfare materiel
Table 20 - CHE Rating	N/A	
Table 21 - HHE, Hazard Rating	D	Risks are considered potential for all sites at this point due to lack of environmental data. A rating of "medium" will be used.
Table 22 - MRS Priority	**Priority**	
EHE Module Rating	**2**	
CHE Module Rating	**N/A**	no known or suspected chemical warfare materiel
HHE Module Rating	**5**	

Expanded Range Assessment/Phase I Site Inspection
DoD Site Prioritization Protocol Scoring

Site		**Alias**
UXO7		EMA/SIA North Beaches
EHE Module	**Score**	**Comment**
Table 1 - EHE, Munitions Type Data Element	30	MEC projectiles identified during Non-TCRA
Table 2 - EHE, Source of Hazard Data Element	10	
Table 3 - EHE, Location of Munitions Data Element	25	area surface cleared, but erosion likely
Table 4 - EHE, Ease of Access Data Element	10	
Table 5 - EHE, Status of Property Data Element	5	
Table 6 - EHE, Population Density Data Element	3	
Table 7 - EHE, Population Near Hazard Data Element	5	
Table 8 - EHE, Types of Activities/Structures Data Element	5	
Table 9 - EHE, Ecological and/or Cultural Resources Data Element	3	turtle nesting
Total Score	96	
Table 10 - EHE Rating	A	
CHE Module	**Score**	**Comment**
Total Score	N/A	no known or suspected chemical warfare materiel
Table 20 - CHE Rating	N/A	
Table 21 - HHE, Hazard Rating	D	Risks are considered potential for all sites at this point due to lack of environmental data. A rating of "medium" will be used.
Table 22 - MRS Priority	**Priority**	
EHE Module Rating	**2**	
CHE Module Rating	**N/A**	no known or suspected chemical warfare materiel
HHE Module Rating	**5**	

Expanded Range Assessment/Phase I Site Inspection
DoD Site Prioritization Protocol Scoring

Site		**Alias**
UXO8		SIA South Beaches
EHE Module	**Score**	**Comment**
Table 1 - EHE, Munitions Type Data Element	30	an MEC projectile was identified during the SI
Table 2 - EHE, Source of Hazard Data Element	10	
Table 3 - EHE, Location of Munitions Data Element	25	area surface cleared, but erosion likely
Table 4 - EHE, Ease of Access Data Element	10	
Table 5 - EHE, Status of Property Data Element	5	
Table 6 - EHE, Population Density Data Element	1	
Table 7 - EHE, Population Near Hazard Data Element	5	
Table 8 - EHE, Types of Activities/Structures Data Element	5	
Table 9 - EHE, Ecological and/or Cultural Resources Data Element	3	turtle nesting
Total Score	94	
Table 10 - EHE Rating	A	
CHE Module	**Score**	**Comment**
Total Score	N/A	no known or suspected chemical warfare materiel
Table 20 - CHE Rating	N/A	
Table 21 - HHE, Hazard Rating	D	Risks are considered potential for all sites at this point due to lack of environmental data. A rating of "medium" will be used.
Table 22 - MRS Priority	**Priority**	
EHE Module Rating	**2**	
CHE Module Rating	**N/A**	no known or suspected chemical warfare materiel
HHE Module Rating	**5**	

Expanded Range Assessment/Phase I Site Inspection
DoD Site Prioritization Protocol Scoring

Site		**Alias**
UXO9		SIA Exterior
EHE Module	**Score**	**Comment**
Table 1 - EHE, Munitions Type Data Element	30	sub munitions wre identified in the Non-TCRA
Table 2 - EHE, Source of Hazard Data Element	10	
Table 3 - EHE, Location of Munitions Data Element	25	
Table 4 - EHE, Ease of Access Data Element	10	
Table 5 - EHE, Status of Property Data Element	5	
Table 6 - EHE, Population Density Data Element	1	
Table 7 - EHE, Population Near Hazard Data Element	5	
Table 8 - EHE, Types of Activities/Structures Data Element	5	
Table 9 - EHE, Ecological and/or Cultural Resources Data Element	5	
Total Score	96	
Table 10 - EHE Rating	A	
CHE Module	**Score**	**Comment**
Total Score	N/A	no known or suspected chemical warfare materiel
Table 20 - CHE Rating	N/A	
Table 21 - HHE, Hazard Rating	D	Risks are considered potential for all sites at this point due to lack of environmental data. A rating of "medium" will be used.
Table 22 - MRS Priority	**Priority**	
EHE Module Rating	**2**	
CHE Module Rating	**N/A**	no known or suspected chemical warfare materiel
HHE Module Rating	**5**	

Expanded Range Assessment/Phase I Site Inspection
DoD Site Prioritization Protocol Scoring

Site		**Alias**
UXO10		SIA Interior
EHE Module	**Score**	**Comment**
Table 1 - EHE, Munitions Type Data Element	30	projectiles identified in Non-TCRA ans sub munitions identified in adjacent UXO-9
Table 2 - EHE, Source of Hazard Data Element	10	
Table 3 - EHE, Location of Munitions Data Element	25	
Table 4 - EHE, Ease of Access Data Element	10	
Table 5 - EHE, Status of Property Data Element	5	
Table 6 - EHE, Population Density Data Element	1	
Table 7 - EHE, Population Near Hazard Data Element	5	
Table 8 - EHE, Types of Activities/Structures Data Element	5	
Table 9 - EHE, Ecological and/or Cultural Resources Data Element	3	
Total Score	94	
Table 10 - EHE Rating	A	
CHE Module	**Score**	**Comment**
Total Score	N/A	no known or suspected chemical warfare materiel
Table 20 - CHE Rating	N/A	
Table 21 - HHE, Hazard Rating	D	Risks are considered potential for all sites at this point due to lack of environmental data. A rating of "medium" will be used.
Table 22 - MRS Priority	**Priority**	
EHE Module Rating	**2**	
CHE Module Rating	**N/A**	no known or suspected chemical warfare materiel
HHE Module Rating	**5**	

Expanded Range Assessment/Phase I Site Inspection
DoD Site Prioritization Protocol Scoring

Site		**Alias**
UXO11		EMA Public Roads
EHE Module	**Score**	**Comment**
Table 1 - EHE, Munitions Type Data Element	30	MEC projectiles were identified along east end during Non-TCRA
Table 2 - EHE, Source of Hazard Data Element	10	
Table 3 - EHE, Location of Munitions Data Element	25	
Table 4 - EHE, Ease of Access Data Element	10	
Table 5 - EHE, Status of Property Data Element	5	
Table 6 - EHE, Population Density Data Element	3	
Table 7 - EHE, Population Near Hazard Data Element	5	
Table 8 - EHE, Types of Activities/Structures Data Element	5	
Table 9 - EHE, Ecological and/or Cultural Resources Data Element	3	
Total Score	96	
Table 10 - EHE Rating	A	
CHE Module	**Score**	**Comment**
Total Score	N/A	no known or suspected chemical warfare materiel
Table 20 - CHE Rating	N/A	
Table 21 - HHE, Hazard Rating	D	Risks are considered potential for all sites at this point due to lack of environmental data. A rating of "medium" will be used.
Table 22 - MRS Priority	**Priority**	
EHE Module Rating	**2**	
CHE Module Rating	**N/A**	no known or suspected chemical warfare materiel
HHE Module Rating	**5**	

Expanded Range Assessment/Phase I Site Inspection
DoD Site Prioritization Protocol Scoring

Site		**Alias**
UXO12		EMA Interior
EHE Module	**Score**	**Comment**
Table 1 - EHE, Munitions Type Data Element	30	MEC projectiles were identified in Non-TCRA and SI
Table 2 - EHE, Source of Hazard Data Element	10	
Table 3 - EHE, Location of Munitions Data Element	25	
Table 4 - EHE, Ease of Access Data Element	10	
Table 5 - EHE, Status of Property Data Element	5	
Table 6 - EHE, Population Density Data Element	3	
Table 7 - EHE, Population Near Hazard Data Element	5	
Table 8 - EHE, Types of Activities/Structures Data Element	5	
Table 9 - EHE, Ecological and/or Cultural Resources Data Element	3	
Total Score	96	
Table 10 - EHE Rating	A	
CHE Module	**Score**	**Comment**
Total Score	N/A	no known or suspected chemical warfare materiel
Table 20 - CHE Rating	N/A	
Table 21 - HHE, Hazard Rating	D	Risks are considered potential for all sites at this point due to lack of environmental data. A rating of "medium" will be used.
Table 22 - MRS Priority	**Priority**	
EHE Module Rating	**2**	
CHE Module Rating	**N/A**	no known or suspected chemical warfare materiel
HHE Module Rating	**5**	

Expanded Range Assessment/Phase I Site Inspection
DoD Site Prioritization Protocol Scoring

Site		**Alias**
UXO13		EMA West
EHE Module	**Score**	**Comment**
Table 1 - EHE, Munitions Type Data Element	30	grenades were identified during the SI
Table 2 - EHE, Source of Hazard Data Element	10	
Table 3 - EHE, Location of Munitions Data Element	25	
Table 4 - EHE, Ease of Access Data Element	10	
Table 5 - EHE, Status of Property Data Element	5	
Table 6 - EHE, Population Density Data Element	3	
Table 7 - EHE, Population Near Hazard Data Element	5	
Table 8 - EHE, Types of Activities/Structures Data Element	5	
Table 9 - EHE, Ecological and/or Cultural Resources Data Element	3	
Total Score	96	
Table 10 - EHE Rating	A	
CHE Module	**Score**	**Comment**
Total Score	N/A	no known or suspected chemical warfare materiel
Table 20 - CHE Rating	N/A	
Table 21 - HHE, Hazard Rating	D	Risks are considered potential for all sites at this point due to lack of environmental data. A rating of "medium" will be used.
Table 22 - MRS Priority	**Priority**	
EHE Module Rating	**2**	
CHE Module Rating	**N/A**	no known or suspected chemical warfare materiel
HHE Module Rating	**5**	

Expanded Range Assessment/Phase I Site Inspection
DoD Site Prioritization Protocol Scoring

Site		**Alias**
UXO14		EMA South
EHE Module	**Score**	**Comment**
Table 1 - EHE, Munitions Type Data Element	30	grenades identified during SI
Table 2 - EHE, Source of Hazard Data Element	10	
Table 3 - EHE, Location of Munitions Data Element	25	
Table 4 - EHE, Ease of Access Data Element	10	
Table 5 - EHE, Status of Property Data Element	5	
Table 6 - EHE, Population Density Data Element	3	
Table 7 - EHE, Population Near Hazard Data Element	5	
Table 8 - EHE, Types of Activities/Structures Data Element	5	
Table 9 - EHE, Ecological and/or Cultural Resources Data Element	3	
Total Score	96	
Table 10 - EHE Rating	A	
CHE Module	**Score**	**Comment**
Total Score	N/A	no known or suspected chemical warfare materiel
Table 20 - CHE Rating	N/A	
Table 21 - HHE, Hazard Rating	D	Risks are considered potential for all sites at this point due to lack of environmental data. A rating of "medium" will be used.
Table 22 - MRS Priority	**Priority**	
EHE Module Rating	**2**	
CHE Module Rating	**N/A**	no known or suspected chemical warfare materiel
HHE Module Rating	**5**	

Expanded Range Assessment/Phase I Site Inspection
DoD Site Prioritization Protocol Scoring

Site		**Alias**
UXO15		Puerto Ferro
EHE Module	**Score**	**Comment**
Table 1 - EHE, Munitions Type Data Element	25	no sensitive
Table 2 - EHE, Source of Hazard Data Element	8	ob od and munitions transferred
Table 3 - EHE, Location of Munitions Data Element	25	
Table 4 - EHE, Ease of Access Data Element	10	
Table 5 - EHE, Status of Property Data Element	5	
Table 6 - EHE, Population Density Data Element	3	
Table 7 - EHE, Population Near Hazard Data Element	5	
Table 8 - EHE, Types of Activities/Structures Data Element	5	
Table 9 - EHE, Ecological and/or Cultural Resources Data Element	5	lighthouse
Total Score	91	
Table 10 - EHE Rating	B	
CHE Module	**Score**	**Comment**
Total Score	N/A	no known or suspected chemical warfare materiel
Table 20 - CHE Rating	N/A	
Table 21 - HHE, Hazard Rating	D	Risks are considered potential for all sites at this point due to lack of environmental data. A rating of "medium" will be used.
Table 22 - MRS Priority	**Priority**	
EHE Module Rating	**3**	
CHE Module Rating	**N/A**	no known or suspected chemical warfare materiel
HHE Module Rating	**5**	

Expanded Range Assessment/Phase I Site Inspection
DoD Site Prioritization Protocol Scoring

Site		**Alias**
UXO16		Underwater Areas
EHE Module	**Score**	**Comment**
Table 1 - EHE, Munitions Type Data Element	30	MEC projectiles identified during SI
Table 2 - EHE, Source of Hazard Data Element	10	
Table 3 - EHE, Location of Munitions Data Element	25	
Table 4 - EHE, Ease of Access Data Element	10	
Table 5 - EHE, Status of Property Data Element	5	
Table 6 - EHE, Population Density Data Element	3	
Table 7 - EHE, Population Near Hazard Data Element	5	
Table 8 - EHE, Types of Activities/Structures Data Element	5	
Table 9 - EHE, Ecological and/or Cultural Resources Data Element	3	
Total Score	96	
Table 10 - EHE Rating	A	
CHE Module	**Score**	**Comment**
Total Score	N/A	no known or suspected chemical warfare materiel
Table 20 - CHE Rating	N/A	
Table 21 - HHE, Hazard Rating	D	Risks are considered potential for all sites at this point due to lack of environmental data. A rating of "medium" will be used.
Table 22 - MRS Priority	**Priority**	
EHE Module Rating	**2**	
CHE Module Rating	**N/A**	no known or suspected chemical warfare materiel
HHE Module Rating	**5**	

Expanded Range Assessment/Phase I Site Inspection
DoD Site Prioritization Protocol Scoring

Site		**Alias**
UXO 17		Camp Garcia
EHE Module	**Score**	**Comment**
Table 1 - EHE, Munitions Type Data Element	10	flares and small arms
Table 2 - EHE, Source of Hazard Data Element	5	other disposal area
Table 3 - EHE, Location of Munitions Data Element	25	
Table 4 - EHE, Ease of Access Data Element	10	
Table 5 - EHE, Status of Property Data Element	5	
Table 6 - EHE, Population Density Data Element	3	
Table 7 - EHE, Population Near Hazard Data Element	5	
Table 8 - EHE, Types of Activities/Structures Data Element	5	
Table 9 - EHE, Ecological and/or Cultural Resources Data Element	3	
Total Score	71	
Table 10 - EHE Rating	C	
CHE Module	**Score**	**Comment**
Total Score	N/A	no known or suspected chemical warfare materiel
Table 20 - CHE Rating	N/A	
Table 21 - HHE, Hazard Rating	D	Risks are considered potential for all sites at this point due to lack of environmental data. A rating of "medium" will be used.
Table 22 - MRS Priority	**Priority**	
EHE Module Rating	**4**	
CHE Module Rating	**N/A**	no known or suspected chemical warfare materiel
HHE Module Rating	**5**	

Site		**Alias**
SWMU 4		West Vieques OB/OD Site
EHE Module	**Score**	**Comment**
Table 1 - EHE, Munitions Type Data Element	30	
Table 2 - EHE, Source of Hazard Data Element	8	
Table 3 - EHE, Location of Munitions Data Element	25	
Table 4 - EHE, Ease of Access Data Element	10	
Table 5 - EHE, Status of Property Data Element	5	
Table 6 - EHE, Population Density Data Element	1	
Table 7 - EHE, Population Near Hazard Data Element	5	
Table 8 - EHE, Types of Activities/Structures Data Element	5	
Table 9 - EHE, Ecological and/or Cultural Resources Data Element	5	
Total Score	94	
Table 10 - EHE Rating	A	
CHE Module	**Score**	**Comment**
Total Score	N/A	no known or suspected chemical warfare materiel
Table 20 - CHE Rating	N/A	
Table 21 - HHE, Hazard Rating	D	Risks are considered potential for all sites at this point due to lack of environmental data. A rating of "medium" will be used.
Table 22 - MRS Priority	**Priority**	
EHE Module Rating	**2**	
CHE Module Rating	**N/A**	no known or suspected chemical warfare materiel
HHE Module Rating	**5**	