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FINAL SITE MANAGEMENT PLAN FISCAL YEAR 2017 ATLANTIC FLEET WEAPONS TRAINING AREA VIEQUES ISLAND PUERTO RICO

10/01/2016

CH2M HILL

Final

Site Management Plan
Fiscal Year 2017

Atlantic Fleet Weapons Training Area – Vieques
Vieques, Puerto Rico

Contract Task Order 0004

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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 Atlantic Fleet Weapons Training Area (AFWTA) – Vieques, Vieques, Puerto Rico. In addition, the SMP provides milestones which reflect the anticipated schedule of completing CERCLA response actions that have been agreed to by the Department of the Navy (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 Program (IRP) 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) (EPA, 2007). Under CERCLA, Vieques is referred to as AFWTA – Vieques, consistent with the designation in the Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS). The Site 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 in general accordance with timelines presented in the FFA. The Parties identified in the FFA include the Naval Facilities Engineering Command (NAVFAC) Atlantic, Environmental Protection Agency (EPA) Region 2, Puerto Rico Environmental Quality Board (PREQB), and the Department of the Interior (DOI). While not a party to the FFA, the Puerto Rico Department of Natural and Environmental Resources (PRDNER) participates with the aforementioned Parties in planning and executing the CERCLA response actions.

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

- A description of any 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), 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 , Emergency Actions, TCRAs, and NTCRAs and any initiation of other planned response actions covered by the FFA and projected end dates

Facility Description

Vieques Island has a land area of approximately 33,000 acres, and is located in the Caribbean Sea approximately seven miles southeast of the eastern coast of the main island of Puerto Rico (**Figure ES-1**). The former VNTR is located on the eastern half and the former NASD is located on the western one-third, with the communities of Isabel Segunda and Esperanza located in between. On February 11, 2005, Vieques was placed on the National Priorities List (NPL) by the EPA.

NOTE: THIS SUMMARY IS PRESENTED IN ENGLISH AND SPANISH FOR THE CONVENIENCE OF THE READER. EVERY EFFORT HAS BEEN MADE FOR THE TRANSLATIONS TO BE AS ACCURATE AS REASONABLY POSSIBLE. HOWEVER, READERS SHOULD BE AWARE THAT THE ENGLISH VERSION OF THE TEXT IS THE OFFICIAL VERSION.

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. The former VNTR was divided into four separate operational areas, comprising from west to east: the Eastern Maneuver Area (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, the former VNTR was transferred to the DOI to be operated and managed by the United States Fish and Wildlife Service (USFWS) as a National Wildlife Refuge 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 LIA, is managed as a wilderness area where public access is prohibited in accordance with Public Law 106–398 and Public Law 107–107.

DOI developed a Comprehensive Conservation Plan (CCP) in 2007 for the Vieques National Wildlife Refuge that outlines its concept for managing the refuge (DOI, 2007). Environmental restoration of the former VNTR is based on potential risks to human health and the environment identified via the CERCLA process, together with applicable or relevant and appropriate requirements (ARARs), with consideration given to the future land use identified in the CCP.

West Vieques (Former NASD)

On April 30, 2001, the 8,114-acre former NASD on the west side of Vieques was 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. Like the former VNTR, environmental restoration of the former NASD is based on potential risks to human health and the environment identified via the CERCLA process, together with ARARs, with consideration given to the planned future land use.

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) que van a llevarse a cabo en la Antigua Instalación de Adiestramiento con Armas de la Flota del Atlántico (AFWTA, por sus siglas en inglés) de Vieques, Vieques Puerto Rico. Además, el SMP presenta los logros alcanzados que se reflejan en el calendario de actividades que se anticipa para la ejecución 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, por sus siglas en inglés) como para el Programa de Respuesta a Municiones (MRP, por sus siglas en inglés), los que forman parte del Programa de Restauración de la Instalación (IRP por sus siglas en inglés) para la de Instalación de Vieques.

El SMP satisface los requisitos del Acuerdo de Facilidades Federales (FFA, por sus siglas en inglés) bajo la ley CERCLA Sección 120 (Número de Archivo FFA-CERCLA 02-2007-2001) (EPA, 2007). Las áreas de limpieza bajo CERCLA se referirán en adelante como AFWTA - Vieques, siguiendo con la designación en el Sistema de Información de Respuesta, Compensación y Responsabilidad Ambiental (CERCLIS, por sus siglas en inglés). El sitio comprende el Destacamento de Apoyo de Municiones Navales (NASD por sus siglas en inglés), que se encuentra en el oeste Vieques, y el Antiguo Campo de Adiestramiento Naval de Vieques (VNTR, por sus siglas 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 llevar a cabo acciones de repuesta, de forma general 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, por sus siglas en inglés), la Agencia de Protección Ambiental de los EEUU (EPA por sus siglas en inglés) Región 2; la Junta de Calidad Ambiental de Puerto Rico (PREQB, por sus siglas en inglés); y el Departamento del Interior de los EEUU (DOI, por sus siglas en inglés). Aunque el Departamento de Recursos Ambientales y Naturales de Puerto Rico (PRDNER por sus siglas en inglés) no es parte del FFA, participa con las agencias arriba mencionadas en la planificación y ejecución de las acciones de respuesta CERCLA.

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 identificadas como Áreas de Evaluación del Sitio (SSA, por sus siglas en inglés), Unidades Operativas (OUs, por sus siglas en inglés), Acciones de Remediación Provisionales (IRAs, por sus siglas en inglés), Acciones de Remediación (RAs, por sus siglas en inglés), Acciones de Remoción de Tiempo Crítico (TCRAs, por sus siglas en inglés) y las Acciones de Remoción de Tiempo No Crítico (NTCRAs, por sus siglas en inglés) que están planificadas o que se están ejecutando de acuerdo al FFA
- Las actividades y el calendario de actividades para las acciones de respuesta incluyen como mínimo:
  - Identificación de cualquier acción primaria
  - Plazos de cumplimiento
  - Logros a alcanzarse en un tiempo corto
  - Logros a alcanzarse en el año
  - Fechas meta

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

- El calendario para iniciar los Diseños para la Remediación (RD, por sus siglas en inglés), RAs, incluyendo IRAs, Acciones de Emergencia, TCRAs y, NTCRAs, además, cualquier inicio de otras acciones de respuesta planificadas que están cubiertas dentro del FFA y todas las fechas de terminación planificadas

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 (**Figura E-1**). El antiguo VNTR está localizado en la mitad de la parte este, y el antiguo NASD está localizado en la tercera parte del oeste; las comunidades de Isabel Segunda y Esperanza están en el medio. El 11 de febrero del 2005, Vieques fue añadida a la Lista de Prioridades Nacionales (NPL, por sus siglas en inglés) de EPA.

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. El antiguo VNTR fue divido en cuatro áreas operativas separadas: el Área de Maniobras del Este (EMA, por sus siglas en inglés), el Área de Impacto de Superficie (SIA por sus siglas en inglés), el Área de Impacto con Bala Viva (LIA, pos sus siglas en inglés), y el Área de Conservación del Este (ECA, por sus siglas en inglés) que se encuentra en el punto más al este de la isla.

El 30 de abril del 2003, el antiguo VNTR fue transferidos a DOI para que sea operados y administrados por el Servicio de Pesca y Vida Silvestre (USFWS, por sus siglas en inglés) como un Refugio Nacional de Vida 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 LIA son administrados 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, por sus siglas en inglés) en 2007 para el Refugio Nacional de Vida Silvestre de Vieques que delinea las normas para el manejo del refugio. La restauración ambiental del antiguo VNTR se basa en los riesgos potenciales a la salud humana y al ambiente identificados a través del proceso CERCLA, junto con los requisitos aplicables, relevantes y apropiados (ARARs, por sus siglas en inglés), considerando el uso futuro de los terrenos identificado en el CCP.

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, por sus siglas en inglés), y al Fideicomiso de Conservación de Puerto Rico (PRCT, por sus siglas en inglés) 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. Igual que en el antiguo VNTR, la restauración del antiguo NASD se basa en los riesgos potenciales a la salud humana y al ambiente identificados a través del proceso CERCLA, en conjunto con los ARARs, y considerando el uso futuro planificado para los terrenos.

FIGURE ES-1
Regional Location Map
Site Management Plan, FY 2017
Vieques, Puerto Rico

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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
ARAR	applicable or relevant and appropriate requirement
ARF	Administrative Record File
AST	aboveground storage tank
ATG	air-to-ground
ATSDR	Agency for Toxic Substances & Business Registry
CCP	Comprehensive Conservation Plan
CCR	Construction Completion Report
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CERCLIS	Comprehensive Environmental Response, Compensation, and Liability Information System
CHE	Chemical Warfare Material Hazard Evaluation
COC	contaminant of concern
DGM	digital geophysical mapping
DMM	discarded military munitions
DoD	Department of Defense
DOI	Department of the Interior
EADA	elevated anomaly density area
EBS	Environmental Baseline Survey
ECA	Eastern Conservation Area
EE/CA	Engineering Evaluation/Cost Analysis
EHE	Explosive Hazard Evaluation
EISB	enhanced *in situ* bioremediation
EMA	Eastern Maneuver Area
EPA	Environmental Protection Agency
ER,N	Environmental Restoration, Navy
ERA	Expanded Range Assessment
ERM	Environmental Resource Management
ERP	Environmental Restoration Program
ESD	Explanation of Significant Differences
ESI	Expanded Site Investigation
FFA	Federal Facilities Agreement
FFS	Focused Feasibility Study
FS	Feasibility Study
FY	fiscal year
HE	high explosive
HHE	Health Hazard Evaluation
HHRA	Human Health Risk Assessment
IAS	Initial Assessment Study
IRA	Interim Remedial Action
IRFNA	inhibited red fuming nitric acid
IRP	Installation Restoration Program

ISCO	in situ chemical oxidation
LIA	Live Impact Area
LTM	long-term monitoring
LUC	land use control
MAF	mixed amine fuel
MC	munitions constituent
MCL	maximum contaminant limit
MD	munitions debris
MEC	munitions and explosives of concern
mg/kg	milligrams per kilogram
mm	millimeter(s)
MOA	Memorandum of Agreement
MOV	Municipality of Vieques
MPE	multi-phase vacuum extraction
MPPEH	munitions potentially presenting an explosive hazard
MRP	Munitions Response Program
MRS	Munitions Response Site
MRSPP	Munitions Response Site Prioritization Protocol
MW	monitoring well
NACIP	Navy Assessment and Control of Installation Pollutants
NASD	Naval Ammunition Support Detachment
NAVFAC	Naval Facilities Engineering Command
Navy	Department of the Navy
NFA	no further action
NGF	naval gunfire
NOAA	National Oceanic and Atmospheric Administration
NPL	National Priorities List
NSRR	Naval Station Roosevelt Roads
NTCRA	Non-Time-Critical Removal Action
O&M	operations and maintenance
OB/OD	open burn/open detonation
OE	ordnance and explosives
OP	Observation Post
OU	Operable Unit
PA	Preliminary Assessment
PAH	polycyclic aromatic hydrocarbon
PAOC	Potential Area of Concern
PCB	polychlorinated biphenyls
PI	Photo-Identified
PRAP	Proposed Remedial Action Plan
PRCT	Puerto Rico Conservation Trust
PRDNER	Puerto Rico Department of Natural and Environmental Resources
PREQB	Puerto Rico Environmental Quality Board
QAPP	Quality Assurance Project Plan
RA	Remedial Action
RAB	Restoration Advisory Board
RAO	Remedial Action Objective

RCRA	Resource Conservation and Recovery Act
RD	Remedial Design
RFA	RCRA Facility Assessment
RFI	RCRA Facility Investigation
RI	Remedial Investigation
ROD	Record of Decision
RRD	range-related debris
RSL	Regional Screening Level
SAP	Sampling and Analysis Plan
SI	Site Inspection
SIA	Surface Impact Area
SMP	Site Management Plan
SSA	Site Screening Area
SSL	soil screening level
SSP	Site Screening Process
SVOC	semivolatile organic compound
SWMU	Solid Waste Management Unit
TCE	trichloroethene
TCRA	Time-Critical Removal Action
TEMTADS	Time-domain Electro-magnetic Multi-sensor Towed Array Detection System
TPH	total petroleum hydrocarbon
UIC	underground injection control
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
WAA	Wide Area Assessment
WWTP	waste water treatment plant

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 Atlantic Fleet Weapons Training Area (AFWTA) – Vieques, Vieques, Puerto Rico. In addition, the SMP provides milestones which reflect the anticipated schedule of completing CERCLA response actions that have been agreed to by the Department of the Navy (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 Program (IRP) for the Vieques Facility. It also identifies where and when formal solicitation of public or Restoration Advisory Board (RAB) input and comment on the IRP is planned. **Table 1-1** identifies the documents that are anticipated to be issued for public or RAB comment during fiscal year (FY) 2017.

The SMP meets the requirements of the Federal Facilities Agreement (FFA) under CERCLA Section 120 (Docket Number FFA-CERCLA 02-2007-2001). Under CERCLA Vieques is referred to as AFWTA – Vieques, consistent with the designation in the Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS). The Site comprises the former Naval Ammunition Support Detachment (NASD), located on western Vieques, and the former Vieques Naval Training Range (VNTR), located on eastern Vieques (**Figure 1-1**). This SMP presents a description of the CERCLA sites and the projected schedules of CERCLA response actions in general accordance with timelines presented in the FFA. The Parties identified in the FFA include the Naval Facilities Engineering Command (NAVFAC) Atlantic, Environmental Protection Agency (EPA) Region 2, Puerto Rico Environmental Quality Board (PREQB), and the Department of the Interior (DOI), commonly represented by the United States Fish and Wildlife Service (USFWS). While not a party to the FFA, the Puerto Rico Department of Natural and Environmental Resources (PRDNER) participates with the aforementioned Parties in planning and executing the CERCLA response actions.

1.1.2 Objectives of the Site Management Plan

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

- A description of any 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), 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, Emergency Actions, 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 fiscal year 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 planned.

Comments on draft fiscal year amendments will be due to the Navy 30 days after receipt by EPA, DOI, and PREQB of a draft fiscal year amendment. A revised draft fiscal year amendment to the SMP (hereinafter referred to as the "draft final fiscal year amendment") will be due from Navy no later than 30 days after the end of the EPA/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 fiscal year amendment 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 seven 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 half (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 between.

1.1.4.1 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. The former VNTR was divided into four separate operational areas, comprising from west to east: the Eastern Maneuver Area (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, the former VNTR was transferred to the DOI to be operated and managed by the USFWS as a National Wildlife Refuge 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 LIA is managed as a wilderness area where public access is prohibited in accordance with Public Law 106–398 and Public Law 107–107.

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1.1.4.2 West Vieques (Former NASD)

On April 30, 2001, the 8,114-acre former NASD on the west side of Vieques was 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 the DOI (approximately 3,158 acres) is managed by USFWS as part of the Vieques National Wildlife Refuge. Like the former VNTR, environmental restoration of the former NASD is based on potential risks to human health and the

environment identified via the CERCLA process, together with ARARs, with consideration given to the planned future land use.

1.1.5 National Priorities List Listing

In 2003, the Governor of Puerto Rico requested EPA to list the VNTR and NASD on the NPL. On May 26, 2004, the President of PREQB sent a letter to the Regional Administrator of EPA acknowledging that EPA, 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 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." On February 11, 2005, Vieques was placed on the NPL. The areas being and 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, EPA, 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

The Navy maintains an information repository, including the official Administrative Record, at the Vieques public website at http://www.navfac.navy.mil/vieques**.** The public website is accessible from any computer with access to the Internet, including locally at the Vieques Public Library (Oficina de Asuntos de la Juventud) at Isabel Segunda and the Luz de Esperanza Public Library in La Esperanza. EPA maintains a repository of certain documents at its Vieques field office and can also be contacted for information.

The information repository on the website contains two types of documents:

- The Administrative Record File (ARF). The ARF is the site-specific collection of documents pertinent to selecting response actions at CERCLA sites
- Documents that the Department of the Navy makes available for public review and comments

The ARF serves two purposes:

- It contains documents which form the basis for selection of a response action and focuses judicial review of any issue concerning the adequacy of a response action to ARF documents
- It serves as a vehicle for public participation in the selection of a response action

TABLE 1-1

Anticipated Documents for RAB/Public Comment in Fiscal Year 2017

Site Management Plan, Fiscal Year 2017

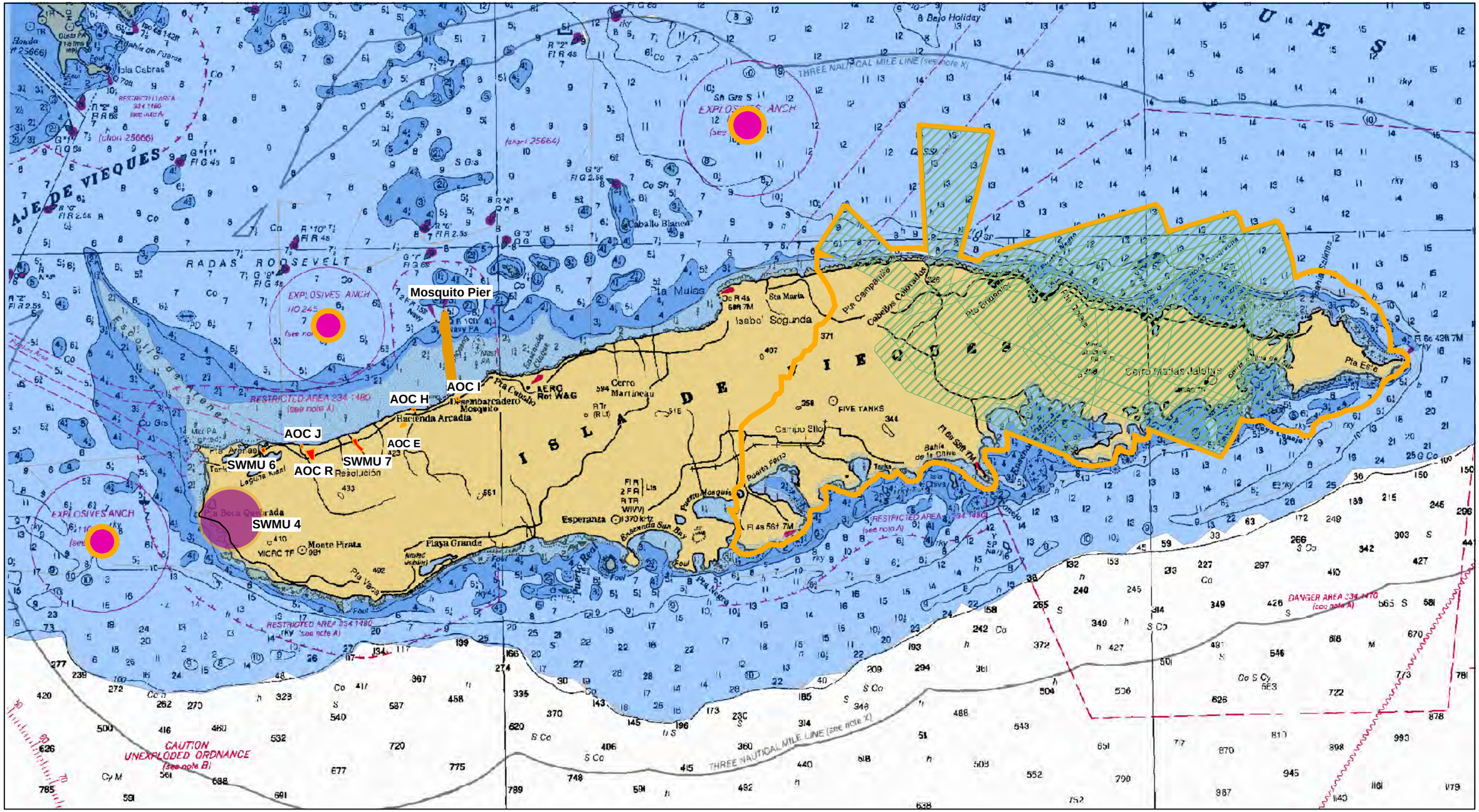
Vieques, Puerto Rico

Site	Document	Comments Solicited From
Former UST Site 2016 (AOC E)	Remedial Action Annual Status Report	RAB
Inactive OB/Waste Explosive Detonation Range (SWMU	NTCRA After Action Report	RAB
Inactive OB/Waste Explosive Detonation Range (SWMU 4)	Feasibility Study Addendum	RAB
Former Mangrove Disposal Site (SWMU 6)	Proposed Plan	Public
Camp Garcia Landfill (SWMU 1)	2016 Annual Status Report, Groundwater Long-Term Monitoring	RAB
Camp Garcia Landfill (SWMU 1)	Revised O&M, LUC, LTM Work Plan	RAB
Camp Garcia Landfill (SWMU 1)	Interim Remedial Action Completion Report	RAB
Former Helicopter Maintenance Area (SWMU 20)	Feasibility Study Report	RAB
Eastern Conservation Area (UXO 1)	Redial Action, LUC, LTM Work Plan	RAB
EMA Interior (UXO 12), and EMA South (UXO 14)	Remedial Investigation/Feasibility Study Report	RAB
Puerto Ferro Peninsula (UXO 15)	Non-Time Critical Interim Removal Action Work Plan UXO 15 PI 9 East and Adjacent UXO 16 Encrusted Munitions	RAB
Underwater Area Adjacent to PI 9 East (UXO 16)	Non-Time Critical Interim Removal Action Work Plan UXO 15 PI 9 East and Adjacent UXO 16 Encrusted Munitions	RAB
Underwater Areas (UXO 16)	Near-shore Munitions NTCRA Engineering Evaluation/Cost Analysis	Public
Punta Conejo and Area Adjacent to Playa La Chiva (PAOC EE) (UXO 17)	Remedial Investigation SAP Addendum	RAB
Cayo La Chiva (UXO 18)	Proposed Plan	Public
Red Beach	MEC Verification Evaluation Work Plan	RAB
	TEMTADS QAPP	RAB
	Revised Master SOPs, Protocols, and Plans	RAB
	Site Management Plan, Fiscal Year 2018	Public

Notes:

As of the issuance date of the Fiscal Year 2017 SMP, the documents included in this table are those anticipated to be issued for Restoration Advisory Board (RAB) or public comment during Fiscal Year 2017. However, the actual documents issued and the schedule of their issue are subject to change.

FIGURE 1-1
Regional Location Map
Site Management Plan, FY 2017
Vieques, Puerto Rico



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, FY 2017
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 are underway or have been completed at the Vieques Site. The individual 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**, Department of Defense (DoD) Site Prioritization Protocol Scoring

Figures showing the locations of the sites on East Vieques and West Vieques are provided as **Figures 2-1, 2-2, and 2-3**. A figure that shows the status of each site as it relates to the CERCLA process is included as **Figure 2-4**.

2.1 Eastern Vieques Sites (Former VNTR)

2.1.1 Consent Order Sites

This subsection summarizes the status of the 12 environmental sites (Solid Waste Management Units [SWMUs] and Areas of Concern [AOCs]) that were identified in a Resource Conservation and Recovery Act (RCRA) Consent Order and have undergone investigations through the CERCLA process. Additional detail for the one site, SWMU 1, for which a remedial action is ongoing is provided herein. Site-specific detail for the remainder of the sites, which were determined to require No Action or No Further Action under CERCLA, is provided in **Appendix A-1** and past SMPs. A cross reference table, **Table 2-1**, has been included to facilitate comparison of DoD "sites" with EPA "Operable Units." The locations of the eastern Vieques sites are shown in **Figures 2-1 and 2-2.** The anticipated schedule for deliverable submittal for the following sites, as applicable, is provided in **Figure 3-1**.

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 RCRA Facility Investigation Report was prepared (CH2M, 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 the East Vieques Background Soil Inorganics Investigation Report was submitted in October 2007 (CH2M, 2007g). 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, 2008c).

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 included in a No Action Decision Document (CH2M, 2009a). The remaining eight sites were included in additional investigation, the results of which are presented in the Site Inspection/Expanded Site

Inspection (SI/ESI) Report (CH2M, 2010b). Based on the findings presented in the 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 No Action/NFA Decision Document (CH2M, 2010d). The one remaining site (SWMU 1) was recommended for presumptive remedy following preparation of a streamlined RI/FS Report. Subsequently, a presumptive remedy Record of Decision (ROD) was signed in 2011, the remedial action for which is discussed below.

2.1.1.1 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, 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 environmental restoration sites in the former VNTR are shown in **Figure 2-1**. Approximately 1,800 to 3,120 tons of wastes were reportedly disposed of in the SWMU 1 landfill, as noted in the IAS (Greenleaf, 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 six inches of soil to control blowing of litter. The landfill was closed in 1978 and a two-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). Although geophysical evaluation and test pitting performed during the Phase I RFI and the ESI suggested the landfill covered an area of approximately 41 acres, additional geophysical evaluation conducted during implementation of the remedial action confirmed the landfill area to be approximately 51 acres. Prior to implementation of the remedial action, the landfill was vegetated with dense grasses and trees. A gravel road was constructed down the center of the landfill in the mid-1980s, but the road became vegetated. During the Visual Site Inspection (VSI), no signs of erosion or stresses on vegetation were observed (PREQB, 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 PA/SI Report (CH2M, 2008c) and the SI/ESI Report (CH2M, 2010b). 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 at that time (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 fieldwork, described in a Sampling and Analysis Plan (SAP) (CH2M, 2009b) 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 SI/ESI Report, which included SWMU 1, was submitted in August 2010 (CH2M, 2010b). Based on the findings documented in the SI/ESI Report and consistent with EPA guidance, a streamlined RI/FS for presumptive remedy was produced for SWMU 1. The Streamlined RI/FS was completed in April 2011 (CH2M, 2011e). Based on the remedial alternatives evaluation in the RI/FS, a Proposed Plan was issued for public comment in July 2011 (NAVFAC, 2011b) and the associated ROD was issued in September 2011 (NAVFAC, 2011c). The work plan to guide implementation of the remedial action, operation and maintenance (O&M), land use controls (LUC), and long-term monitoring (LTM) was submitted in July 2012 (CH2M, 2012e).

During an initial attempt to implement the remedy in September 2012, more surface debris was encountered than had been previously assumed present on the landfill surface (i.e., 0.5 acre). Based on this finding, the Navy

and regulatory agencies concurred on removing the vegetation across the landfill in order to ensure all debris at the landfill surface could be removed, noting this would also facilitate a sitewide geophysical surveying to refine the boundary of the landfill and increase the level of confidence that all areas within the landfill boundary will be appropriately addressed by the remedial action. To accomplish this, a technical memorandum work plan for these pre-design activities was submitted in September 2013 (CH2M, 2013h), with fieldwork commencing thereafter. During the surface clearance, approximately 11,631 pounds of debris were removed from the landfill surface. A geophysical investigation was completed in April 2014, which identified the boundaries of buried debris contained within the landfill, and the human health risk assessment for soil beneath the landfill included in the RI/FS Report was revised to include subsurface soil, which demonstrated human health risks from exposure to landfill soil are acceptable under current and anticipated future land use. A technical memorandum (CH2M, 2015j) was prepared to document the remedial action activities to date and the proposed path forward for the site, which included completing the surface debris removal and landfill boundary delineation in areas adjacent to ephemeral streams at the site. This additional work was completed in November 2015.

A ROD Explanation of Significant Differences (ESD) was issued in October 2016 (NAVFAC, 2016c). As jointly determined by the Navy and regulatory agencies, removal of surface debris across the landfill was preferable to covering the debris. This action, and a revised risk assessment considering both surface and subsurface soil, demonstrated that there are no unacceptable risks remaining, thereby obviating the need for additional soil cover in order to meet the objectives set forth in the remedy selected for the 2011 ROD. None of the other aspects of the 2011 ROD are changed by this ESD; the long-term groundwater monitoring, the institutional controls, and O&M requirements remain unchanged. Because of the change outlined in the ROD ESD, a Revised O&M, LUC, and LTM Work Plan was submitted in March 2016 and is currently in regulatory review (CH2M, 2016c).

The remaining remedial action items (i.e., those identified in the 2011 ROD) were addressed in early 2016, including a survey of the LUC boundary by a professional surveyor, installing markers at LUC boundary corners, and installing a fence with warning signs along the main east-west road through the southern portion of the landfill. The results of the remedial action implementation are documented in an Interim Remedial Action Completion Report submitted in June 2016 (CH2M, 2016p).

In accordance with the Revised O&M, LUC, LTM Work Plan, post-ROD LTM sampling was completed in January 2016 that included sampling of six monitoring wells and analyzed for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), pesticides, polychlorinated biphenyls (PCBs), and metals (total and dissolved). An annual LTM status report has been submitted and is currently in regulatory review (CH2M, 2016n).

2.1.2 Photo-Identified and Potential Area of Concern Sites

During the development of the Description of Current Conditions Report (CH2M, 2001b) and the Environmental Baseline Survey (EBS) (NAVFAC, 2003a), several potential environmental sites were identified based on the review of historical aerial photographs and facility records. This subsection summarizes the status of the 23 photo-identified (PI) and 24 Potential Area of Concern (PAOC) sites that were identified, and in most cases, investigated, and in most cases determined to require No Action or No Further Action under CERCLA. Additional detail for the one site (SWMU 20 [formerly PI-4]) that is currently under investigation is provided herein. Site-specific detail for the remainder of the sites, which were determined to require No Action or No Further Action under CERCLA, is provided in **Appendix B-1** and past SMPs. The locations of the PI sites and PAOCs are shown on **Figure 2-1**.

A Draft Phase I RFI Report (CH2M, 2004a) was developed that described the 47 PI/PAOC sites; however, none of the sites were 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 fieldwork for the eight PI/PAOC sites was

completed in April 2006 in accordance with the PA/SI Work Plan (CH2M, 2006a). The PA/SI Report discusses the findings and recommendations for each of the eight PI/PAOC sites (CH2M, 2008c). One site (PAOC U) was recommended for NFA, which was documented in a No Action Decision Document (CH2M, 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 for the Camp Garcia area. The five aforementioned sites and regional groundwater were included in an ESI, for which the fieldwork, described in a SAP (CH2M, 2009b), was completed in May 2009. The SI/ESI Report, which includes these five sites, was submitted in August 2010 (CH2M, 2010b). Based on the findings presented in the 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 No Action/NFA Decision Document (CH2M, 2010d). The remaining two sites (PI-4 and PI-7) were recommended for additional sampling in accordance with the existing SAP (CH2M, 2009b). The recommendation at the PI-7 site was to collect a co-located surface and subsurface soil sample from the same location sampled seven years prior to determine current concentrations of polycyclic aromatic hydrocarbons (PAHs). The additional samples were collected and the associated data, together with the data from other historical samples collected at the site, were used to determine existing conditions do not pose an unacceptable risk to human health or ecological receptors or leaching concern for groundwater. This was documented in the SI/ESI Report Addendum (CH2M, 2011h). Based on this, a No Action/NFA Decision Document that included PI-7 was issued in September 2011 (CH2M, 2011j). PI-4 (subsequently renamed SWMU 20) is still under investigation; therefore, more detail regarding this site is provided in Section 2.1.2.1.

The path forward for the remaining 39 PI/PAOC sites was discussed by the Environmental Technical Subcommittee, which at that time comprised representatives from the Navy, EPA, PREQB, and USFWS, and their contractors. Any of the PI/PAOC sites located in munitions sites are being or will be investigated as part of the broader munitions sites (see Section 2.1.3). Based on this protocol, there are 22 PI/PAOC sites located in munitions sites. The remaining 17 PI/PAOC sites (in addition to the eight discussed in the preceding paragraph) are in the ERP (PIs 5, 6, 8, 10, 11, 20, and 21, PAOCs I, M, O, P, Q, R, T, V, W, and X). A site visit by the Environmental Technical Subcommittee to 16 of the sites (all except PI-21) 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 No Action Decision Document (CH2M, 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 (not including PI-21) were included in the SI/ESI, for which the fieldwork, as described in the SAP (CH2M, 2009b), was completed in May 2009. The SI/ESI Report, which includes these 11 sites, was submitted in August 2010 (CH2M, 2010b). Based on the findings presented in the SI/ESI Report, nine of the 11 aforementioned PI/PAOC sites (PIs 5, 6, 8, and 10, and PAOCs I, M, O, P, and 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 Final No Action/NFA Decision Document (CH2M, 2010d). The remaining two sites (PAOCs Q and R) were recommended for additional sampling in accordance with the aforementioned SAP (CH2M, 2009b). That sampling occurred in August 2010 and documented in the SI/ESI Addendum Report (CH2M, 2011h); the sites were subsequently included in a No Action/NFA Decision Document (CH2M, 2011j).

Representatives of the Environmental Technical Subcommittee conducted a site visit at PI-21 in March 2012. Based on historical information and the site visit, an SI SAP was submitted in February 2013 (CH2M, 2013d). Sampling was accomplished in April 2013 and a No Action Decision Document was issued in June 2014 (CH2M, 2014d).

Additionally, a new SSA (referred to as Laguna La Chiva) was added based on the results of sediment samples collected there by the National Oceanic and Atmospheric Administration (NOAA). An SI/RI SAP was submitted in April 2013 (CH2M, 2013g) and sampling took place in May 2013. Based on the findings, a No Action Decision Document was issued in September 2014 (CH2M, 2014f).

2.1.2.1 SWMU 20, Formerly Known as 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, 2008c).

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 SWMU 20 (designated PI-4 during past investigations) is presented in the PA/SI Report (CH2M, 2008c) and SI/ESI Report (CH2M, 2010b). Although the data collected during the PA/SI suggested there had been a release of 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 fieldwork, as described in the SAP (CH2M, 2009b), was completed in May 2009. During the ESI, additional monitoring well installation and groundwater sampling were performed. The SI/ESI Report, which includes PI-4, was submitted in August 2010 (CH2M, 2010b). 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 was recommended in the SI/ESI Report to confirm low levels or evaluate presence of any trends.

A Supplemental ESI and Pilot Study SAP was submitted in September 2011 which described additional soil and groundwater sampling and a potential pilot study (CH2M, 2011i). During the Supplemental ESI, five new wells were installed around the well that had the low-level TCE concentrations in an attempt to confirm the localized presence of TCE. However, the area of TCE contamination was determined to be larger than previously thought, so two additional wells were installed in the downgradient direction. These two wells also contained relatively low levels of TCE, but demonstrated the area of contamination had not yet been delineated. Therefore, the Supplemental ESI was halted and an RI SAP was developed for the site to determine the extent of the TCE-related contamination in groundwater. Because the site is the subject of an RI, its designation was changed from PI-4 to SWMU 20. An RI SAP was submitted in April 2013 (CH2M, 2013f) and fieldwork was conducted from May through October 2013, during which 16 shallow monitoring wells (MWs) (MW 15 through MW 30) and two deep bedrock wells (MW 13D and MW 17D) were installed. Groundwater samples were collected from 14 existing and the 18 new monitoring wells to help delineate the nature and extent of groundwater contamination. Four soil samples were collected from borings for monitoring wells MW 13D and MW 17D to supplement the 35 previously collected soil samples on site. The results of this field effort identified no soil contamination, but did identify TCE-related groundwater contamination extending approximately 1,500 feet in a south-southeastern direction from the assumed source location. Additional monitoring wells (MW 31, 32, 33, 24D, 25D, and 28D) were installed in 2014, which sufficiently delineated the nature and extent of contamination in both the shallow and deep bedrock groundwater to complete the RI and proceed to the feasibility study. Ultimately, the TCE-related contamination in groundwater was found to be approximately 1,500 feet in the southeastern direction. Following completion of the groundwater investigation, soil samples from five locations were collected in the anticipated source area to determine if soil contamination at that location was present. No contamination was found. This information, coupled with the historical soil data, suggests there is no source area remaining in soil.

The Final RI Report (CH2M, 2016k) was submitted in August 2016. Currently a Draft FS Report is being developed which will evaluate remedial action alternatives for the site. This Draft FS Report is expected to be submitted for regulatory review in January 2017.

2.1.3 Munitions Response Sites

The following updates the munitions response sites' status. For the purpose of this SMP, the number of munitions and explosives of concern (MEC) listed includes unexploded ordnance (UXO) and discarded military munitions (DMM) and material potentially presenting an explosive hazard (MPPEH) and does not include MD.

2.1.3.1 UXO 1 – Eastern Conservation Area

The ECA, designated as Munitions Response Site (MRS) UXO 1 in the Expanded Range Assessment/Site Inspection (ERA/SI) Report, was not an operational area for munitions use. However, its close proximity to the LIA, where extensive naval gunfire and air-to-ground (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. MEC was removed from the surface within 125 acres of UXO 1 including the lagoon, leaving only several acres (approximately six percent of the site) of steep slopes and cliff edges not cleared, primarily because of inaccessibility and instability. Surface removal activities were completed in February 2009.

In February 2008 an Engineering Evaluation/Cost Analysis (EE/CA) for the Subsurface Removal of MEC from the Roads and Beaches was finalized (CH2M, 2008j). An NTCRA Work Plan for actions identified in the EE/CA was submitted to the regulatory agencies in October 2008 (CH2M, 2009c). The NTCRA was completed and removed subsurface munitions from the main road and Playa Blanco Beach of the ECA.

During the TCRA and NTCRA, approximately 1,400 MEC items were removed from UXO 1. Based on the results of the TCRA and NTCRA, an RI was 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. The RI field investigation was completed in February 2011 and the RI Report was submitted in July 2012 (CH2M, 2012f). A Feasibility Study, which evaluated remedial alternatives for the site, was submitted in October 2012 (CH2M, 2012h). Following USFWS' issuance of the ECA restoration plan in March 2014, the Proposed Remedial Action Plan (PRAP) was finalized in June 2014 (NAVFAC, 2014a); the preferred alternative in the PRAP is Focused Additional MEC Removal and LUCs. Following the public comment period on the PRAP, a ROD for UXO 1 was signed on November 4, 2015 (NAVFAC, 2015b). The Draft Remedial Action Work Plan (CH2M, 2016d) was then submitted in March 2016 and the Navy is currently responding to regulator comments. Remedial action fieldwork is anticipated to begin in 2017.

2.1.3.2 UXO 2 – LIA Beaches

UXO 2 encompasses approximately 71 acres of beaches along the perimeter of the LIA (**Figure 2-2**). UXO 2 is further defined as the sandy beach areas extending from the waterline to the inland extent of turtle nesting habitats, as described in the Biological Assessment for the Former Live Impact Area (Geo-Marine, 2006).

The TCRA (interim action) at UXO 2 for the surface removal of munitions was initiated in 2005. In June 2009, the field activities for an NTCRA (interim action) for subsurface removal of munitions were initiated for UXO 2 (CH2M, 2009c). As of May 2016, over 1,100 surface and subsurface MEC have been removed from three of the beaches at UXO 2. An RI will be conducted to characterize the nature and extent of environmental contamination and MEC at UXO 2 and beaches at other UXO sites and to assess the potential risks, as described in the Master SAP for the East Vieques Terrestrial UXO Sites (CH2M, 2013b). In addition, a Beach Dynamics Investigation Quality Assurance Project Plan (QAPP) was issued in February 2014 and fieldwork was initiated in spring of 2015 and is ongoing. The beach dynamics investigation is being conducted at ten beaches within the former VNTR and one beach within the former NASD to understand the dynamic nature of the beach environment and its impact on the mobility of MEC. RI fieldwork is anticipated to begin following the conclusion of the beach dynamics study.

2.1.3.3 UXO 3 – LIA Roads

UXO 3 encompasses approximately 39 acres throughout the LIA and consists of selected roadways and 25-foot buffers on each side of the selected roads (**Figure 2-2**). UXO 3 runs through UXO 4 and adjacent to portions of UXO 2.

As part of the NTCRA for the Roads and Beaches, a digital geophysical mapping (DGM) survey was conducted for 13 acres of the roadways and buffer area that make up UXO 3. Over 11,300 subsurface anomalies were detected during the DGM survey. Through May 2016, nearly 2,300 MEC have been removed from the surface and subsurface. Based on findings from the NTCRA and geophysical surveys, an RI will be conducted to characterize the nature and extent of environmental contamination and MEC and assess the potential risks, as described in the Master SAP for the East Vieques Terrestrial UXO Sites (CH2M, 2013b). An RI SAP for UXOs 3, 5, 6, and 11 was finalized in January 2016 (CH2M, 2016a). As part of the RI, advanced geophysical classification will be performed in various areas to help identify subsurface anomalies potentially representative of MEC to assist in the nature and extent determination as well as select locations for subsurface soil sampling. This technology is described in the Draft TEMTADS QAPP (CH2M, 2016e), which was submitted for regulatory review in March 2016. The RI for UXOs 3, 5, 6, and 11 is anticipated to begin in 2017.

2.1.3.4 UXO 4 – LIA Interior

UXO 4 encompasses approximately 855 acres consisting of a majority of the former LIA, excluding the roads and beaches (**Figure 2-2**).

In 1965, training activity began in the LIA where several mock-ups, such as old tanks and vehicles, were used as targets for aerial bombing. From the mid-1970s, naval gunfire (NGF) was practiced, where several point and area targets for ships were constructed (Tippets, 1979). Marine artillery fired from the west likely impacted this area also.

The TCRA (interim action) at UXO 4 was initiated in 2005. The MEC removed from the ground surface consisted of multiple types of munitions items (e.g., bombs, projectiles, rockets, flares, submunitions). Over 52,000 MEC were removed during the TCRA. The submunitions area of the site remains to be surface cleared. Due to the high density of very dangerous and sensitive submunitions present within the 75-acre submunitions area, a TCRA work plan specific to this area was issued in April 2016 (NAVFAC, 2016d). MEC clearance within the submunitions area is anticipated to begin in 2016.

Based on the results of the ERA/SI and TCRA, an RI is being conducted to characterize the nature and extent of environmental contamination and MEC and assess the potential risks, as described in the Master SAP for the East Vieques Terrestrial UXO Sites (CH2M, 2013b). The RI fieldwork described in the Master SAP for the East Vieques Terrestrial UXO Sites (CH2M, 2013b) started in January 2013 with the collection of soil, surface water, sediment, and groundwater samples, and is ongoing. The RI fieldwork will be performed within the submunitions area once the area has been surface cleared. An RI Status Report for UXOs 4, 9, 10, 12, and 14 was finalized in May 2016 which presents the RI results to date and proposed path forward for this site (CH2M, 2016g). As indicated above, future RI work within the Submunitions Area of UXO 4 is not yet scheduled because it is dependent upon completing the TCRA.

2.1.3.5 UXO 5 – SIA Restricted Roads

UXO 5 encompasses approximately 38 acres throughout the SIA and is composed of selected roadways and 25-foot buffers on each side of the selected roads (**Figure 2-2**).

In June 2009 the field activities for an NTCRA (interim action) were initiated (CH2M, 2009c). Through May 2016, approximately 315 MEC have been removed at UXO 5 during the NTCRAs. Based on findings from the NTCRA and geophysical surveys, an RI will be conducted to characterize the nature and extent of environmental contamination and MEC and assess the potential risks, as described in the Master SAP for the East Vieques Terrestrial UXO Sites (CH2M, 2013b). An RI SAP for UXOs 3, 5, 6, and 11 was finalized in January 2016 (CH2M, 2016a). As part of the RI, advanced geophysical classification will be performed in various areas to help identify

subsurface anomalies potentially representative of MEC to assist in the nature and extent determination as well as select locations for subsurface soil sampling. This technology is described in the Draft TEMTADS QAPP (CH2M 2016e), which was submitted for regulatory review in March 2016. The RI for UXOs 3, 5, 6, and 11 is anticipated to begin in 2017.

2.1.3.6 UXO 6 – EMA/SIA Public Roads

UXO 6 encompasses approximately 62 acres of roads including the road surface and 25-foot buffers on each side of the roads (**Figure 2-2**). The western portion of UXO 6 lies in the former EMA and the eastern portion lies in the former SIA.

Through May 2016, approximately 267 MEC were removed at UXO 6 during the NTCRA for surface and subsurface clearance. Based on findings from the NTCRA and geophysical surveys, an RI will be conducted to characterize the nature and extent of environmental contamination and MEC and assess the potential risks, as described in the Master SAP for the East Vieques Terrestrial UXO Sites (CH2M, 2013b). An RI SAP for UXOs 3, 5, 6, and 11 was finalized in January 2016 (CH2M, 2016a). As part of the RI, advanced geophysical classification will be performed in various areas to help identify subsurface anomalies potentially representative of MEC to assist in the nature and extent determination as well as select locations for subsurface soil sampling. This technology is described in the Draft TEMTADS QAPP (CH2M 2016e), which was submitted for regulatory review in March 2016. The RI for UXOs 3, 5, 6, and 11 is anticipated to begin in 2017.

2.1.3.7 UXO 7 – EMA/SIA North Beaches

UXO 7 encompasses approximately 54 acres and comprises the sandy beach areas located along the north shore of the former VNTR. Beaches located in UXO 7 include Puerto Diablo, Puerto Negro, and Playa Capana. There are ten additional beaches that have no known historical names included in UXO 7.

The removal of surface and subsurface MEC at the beaches is currently being completed under the NTCRA and through May 2016 nearly 600 MEC have been removed. An RI will be conducted to characterize the nature and extent of environmental contamination and MEC at UXO 2 and beaches at other UXO sites and to assess the potential risks, as described in the Master SAP for the East Vieques Terrestrial UXO Sites (CH2M, 2013b). In addition, a Beach Dynamics Investigation QAPP was issued in February 2014 and fieldwork was initiated in spring of 2015 and is ongoing. The beach dynamics investigation is being conducted at ten beaches within the former VNTR and one beach within the former NASD to understand the dynamic nature of the beach environment and its impact on the mobility of MEC. RI fieldwork is anticipated to begin following the conclusion of the beach dynamics study.

2.1.3.8 UXO 8 – SIA South Beaches

UXO 8 encompasses approximately 45 acres and comprises the sandy beaches located along the southern shore of the area formerly referred to as the SIA (**Figure 2-2**). Beaches located in UXO 8 include Playa Matias, Playa Jalova, Playa Jalovita, Paya Yoye, Cayo Conejo, and Playa Fanduca. There are additional beaches that have no known historical names included in UXO 8.

Approximately 240 MEC were removed at UXO 8 under the NTCRA through May 2016. An RI will be conducted to characterize the nature and extent of environmental contamination and MEC at UXO 8 and beaches at other UXO sites and to assess the potential risks, as described in the Master SAP for the East Vieques Terrestrial UXO Sites (CH2M, 2013b). In addition, a Beach Dynamics Investigation QAPP was issued in February 2014 and fieldwork was initiated in spring of 2015 and is ongoing. The beach dynamics investigation is being conducted at ten beaches within the former VNTR and one beach within the former NASD to understand the dynamic nature of the beach environment and its impact on the mobility of MEC. RI fieldwork is anticipated to begin following the conclusion of the beach dynamics study.

2.1.3.9 UXO 9 – SIA Exterior

UXO 9 encompasses approximately 1,655 acres and comprises gentle slope areas adjacent to the roads of the former SIA (**Figure 2-2**). The area of UXO 9 was increased as the result of adding a portion of areas formerly in UXOs 12 and 14 that have munitions densities and distribution similar to those in UXO 9. Since the initial boundaries of the UXO sites were established based on the information known at that time, it is reasonable to adjust those boundaries, if warranted, as additional information is gathered over time. In the case of UXO 9, information regarding MEC densities and distribution identified during the NTCRA activities associated with target areas near the western boundary of UXO 9 indicated its boundary should be extended further west to ensure MEC associated with those target areas were appropriately addressed as part of the ongoing NTCRA.

In February 2009, the field activities for an NTCRA were initiated to remove surface munitions from the site. The NTCRA and transects conducted in UXO 9 confirmed that the SIA was used as a target area for marine artillery and air-ground bombing of practice munitions. Through May 2016, over 20,600 MEC have been removed from the site as part of the ongoing NTCRA (interim action). Based on findings from the ERA/SI and the NTCRA, an RI is being conducted to characterize the nature and extent of environmental contamination and MEC and assess the potential risks, as described in the Master SAP for the East Vieques Terrestrial UXO Sites (CH2M, 2013b). The RI fieldwork described in the Master SAP for the East Vieques Terrestrial UXO Sites (CH2M, 2013b) started in January 2013 and finished in March 2014. These data are being evaluated to determine the appropriate path forward for the site (whether additional RI sampling is needed or a Feasibility Study of potential remedial alternatives should be prepared). An RI Status Report for UXOs 4, 9, 10, 12, and 14 was finalized in May 2016 that presents the RI results to date and proposed path forward for this site, as well as the other sites listed previously (CH2M, 2016g).

2.1.3.10 UXO 10 – SIA Interior

UXO 10 encompasses approximately 900 acres and comprises the interior section of the area formerly known as the SIA (**Figure 2-2**). In February 2009 the field activities for an NTCRA were initiated at the SIA (CH2M, 2009c) to remove surface munitions from the site.

Through May 2016, over 6,400 surface MEC have been removed from this site as part of the NTCRA (interim action). Please see the discussion under UXO 9 for the status and planned path forward for this site.

2.1.3.11 UXO 11 – EMA Public Roads

UXO 11 encompasses approximately 86 acres and comprises roadways anticipated to be used by the public within the former EMA, the total footprint of this site includes the road surface and 25-foot buffers on each side of the roads (**Figure 2-2**).

In June 2009 the field activities for an NTCRA (interim action) were initiated (CH2M, 2009c) to remove subsurface munitions from several UXO Sites including UXO 11. Through May 2016, the NTCRA removed approximately 1,600 MEC from the site. Based on findings from the NTCRA and geophysical surveys, an RI will be conducted to characterize the nature and extent of environmental contamination and MEC and assess the potential risks, as described in the Master SAP for the East Vieques Terrestrial UXO Sites (CH2M, 2013b). An RI SAP for UXOs 3, 5, 6, and 11 was finalized in January 2016 (CH2M, 2016a). As part of the RI, advanced geophysical classification will be performed in various areas to help identify subsurface anomalies potentially representative of MEC to assist in the nature and extent determination as well as select locations for subsurface soil sampling. This technology is described in the Draft TEMTADS QAPP (CH2M, 2016e), which was submitted for regulatory review in March 2016. The RI for UXOs 3, 5, 6, and 11 is anticipated to begin in 2017.

2.1.3.12 UXO 12 – EMA Interior

UXO 12 encompasses approximately 4,026 acres and comprises interior portions of the former EMA (**Figure 2-2**). Please see the discussion under UXO 9 regarding the change in the eastern boundary (and therefore size) of UXO 12. The former EMA was established in 1947 to provide 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.

In February 2009, the field activities for an NTCRA were initiated to remove surface munitions from the eastern portion of UXO 12. During February, 2011 a brush fire occurred across 215 acres of UXO 12, which allowed easy access to inspect and surface clear any munitions within the area. The inspection identified 17 MEC, including naval gunfire projectiles, five-inch rockets and a 500-pound bomb. This information indicates that the site may have been used as a target area for naval gunfire and ATG bombing, in addition to the previously documented marine artillery exercises. During March 2013 another brush fire occurred across approximately 300 acres of UXO 12. An emergency action was initiated to surface clear MEC that were identified at the surface. Over 100 MEC, the majority of which were projectiles/mortars, were demolished and removed during this surface clearance.

Through May 2016, over 500 MEC, were removed from the site. An RI was conducted to characterize the nature and extent of environmental contamination and MEC and assess the potential risks, as described in the Master SAP for the East Vieques Terrestrial UXO Sites (CH2M, 2013b). RI fieldwork described in the Master SAP for the East Vieques Terrestrial UXO Sites (CH2M, 2013b) started in January 2013 and finished in March 2014. A Technical Memorandum entitled *Site Acceleration Strategy, Establishment of Operable Units at UXOs 12 and 14* was submitted in January 2015 to facilitate the acceleration of the intended land use at UXO 12. The Navy and regulatory agencies agreed on the strategy (as described previously under UXO 9) and to include this information in the RI Status Report for UXOs 4, 9, 10, 12, and 14, which was finalized in May 2016 (CH2M, 2016g). Currently an RI/FS Report is being prepared.

2.1.3.13 UXO 13 – EMA West

UXO 13 encompasses approximately 2,434 acres and is located in the northwest of the former EMA (**Figure 2-2**). During 1966, six ranges were established in the area along the north coast in the area identified as UXO 13. These ranges remained operational through February 1999 when they were deactivated.

Over 80 MEC were identified in the ERA/SI. Based on the high explosive safety hazards of the MEC used at the site, as well as the high frequency of trespassing that occurs at UXO 13, an NTCRA is being conducted at the easternmost 620 acres of UXO 13 where MEC have been identified. Through May 2016 over 570 MEC were removed. Based on this information, an RI will be conducted to characterize the nature and extent of environmental contamination and MEC and assess the potential risks, as described in the Master SAP for the East Vieques Terrestrial UXO Sites (CH2M, 2013b). An Addendum to the Master SAP entitled Addendum 3, Master Sampling and Analysis Plan, UXO 13 Remedial Investigation was finalized in October 2015 (CH2M, 2015d). Remedial Investigation fieldwork began in March 2016 and is ongoing.

2.1.3.14 UXO 14 – EMA South

UXO 14 encompasses 850 acres and is located in the southern portion of the former EMA; the site is south of UXO 12 and adjacent to Ensenada Honda (**Figure 2-2**). Please see the discussion under UXO 9 regarding the change in the eastern boundary (and therefore size) of UXO 14. Over the years a Range 10 was established as a range with all firing from a single point. This range was located adjacent to Ensenada Honda adjacent to a mangrove area. A total of 61 MEC items were identified at the site. Based on this information, an RI was conducted to characterize the nature and extent of environmental contamination and MEC and assess the potential risks, as described in the Master SAP for the East Vieques Terrestrial UXO Sites (CH2M, 2013b). RI fieldwork as described in the Master SAP for the East Vieques Terrestrial UXO Sites (CH2M, 2013b) started in January 2013 and finished in March 2014. A Technical Memorandum entitled *Site Acceleration Strategy, Establishment of Operable Units at UXOs 12 and 14* was submitted in January 2015 to facilitate the acceleration of the intended land use at UXO 14. The Navy and regulatory agencies agreed on the strategy (as described previously under UXO 9) and to include this information in the RI Status Report for UXOs 4, 9, 10, 12, and 14, which was finalized in May 2016 (CH2M, 2016g). Currently an RI/FS Report is being prepared.

2.1.3.15 UXO 15 – Puerto Ferro

UXO 15 encompasses approximately 535 acres and is located to the southeast of the area formerly referred to as the EMA. UXO 15 includes PI-9 and PI-13 as areas warranting investigation. PI-9 was used for ammunition storage and PI-13 may have been the firing point from which rocket-related ordnance was launched to the LIA/SIA (NAVFAC, 2003a). Interviews conducted during the EBS (NAVFAC, 2003a) also suggest that PI-9 was used for ammunition disposal and small OB/OD; however, the information on the OB/OD was likely interpreted incorrectly from Spanish translation; OB/OD operations did not likely take place at the site.

The ERA/SI (CH2M, 2010c) identified isolated occurrences of MD and MPPEH within the UXO 15 site. Additionally, two elevated anomaly density areas (EADAs) were identified. Small caliber casings and surface debris were located during the visual evaluation of the debris piles. The ERA/SI recommended further investigation of the debris piles and near shore MD and evaluation of the potential ecological and human health risks. The ESI SAP was finalized in May 2011 (CH2M, 2011f). However, based on additional information gathered since that time, modifications to the original approach were developed and documented in a SAP Addendum to guide an RI at the site (CH2M, 2012d). Fieldwork conducted through May 2013 was documented in an initial RI findings technical memorandum (CH2M, 2014b). Based on the initial findings, additional RI field activities were described in the SAP Addendum 2 for the RI at UXO 15, which was finalized in July 2015 (CH2M, 2015c). RI fieldwork was started in October 2015 and consisted of soil sampling in debris pile areas and former detonation pits, and DGM and/or transects by a remotely operated excavator were performed to determine if debris is buried in the berms. Additional evaluation of the berms is planned for 2016, followed by preparation of an RI/FS Report.

A munitions clearance NTCRA for the beach adjacent to the lighthouse, the trail between the two, and the southern beach at UXO 15 was completed in the summer of 2014; the After Action Report was finalized in February 2015 (CH2M, 2015h). A munitions clearance NTCRA for the southwestern beach was completed in January 2015 and the After Action Report was finalized in November 2015 (CH2M, 2015m). Public access to the area around the historic lighthouse and adjacent beach was opened in March 2015.

An NTCRA in accordance with the Engineering Evaluation/Cost Analysis for a Non-Time Critical Removal Action, UXO 15 PI 9 East and Adjacent UXO 16 Encrusted Munitions (CH2M, 2015i) is anticipated to be initiated in 2017 to reduce the explosive hazard associated with encrusted potential MEC. As part of this process, a draft NTCRA work plan was submitted for regulatory review in May 2016 (USAE, 2016).

2.1.3.16 UXO 16 – Underwater Areas

The underwater areas adjacent to the range and operational areas on East and West Vieques have a size of approximately 11,500 acres and consist of portions that are known or suspected to have been impacted by MEC. UXO 16 includes former ship anchoring points where munitions may have been loaded, offloaded or transferred (including three anchorage areas and Mosquito Pier), areas where munitions may have been inadvertently fired into the water from naval gunfire training or ATG bombing (former VNTR), and areas where the explosive safety arc from artillery ranges and adjacent onshore OB/OD activities may have extended into the water (former NASD and VNTR). UXO 16 is shown in **Figures 2-2 and 2-3**.

In 2013, available bathymetry data within UXO 16 were compiled in order to develop a plan for conducting a side-scan sonar survey. The side-scan sonar survey helped plan the Wide Area Assessment (WAA) of underwater munitions, including avoiding underwater obstacles during the assessment. The side-scan sonar survey began in November 2013 and was completed in January 2014. A WAA to provide a preliminary evaluation of EADAs, in accordance with a WAA Work Plan (CH2M, 2015f), began in March 2016 and is ongoing. A historical records evaluation of the water portion of the Inner Range (an area that includes the former VNTR and extends four nautical miles off the coast) will be conducted concurrently with the WAA. Details on the specific underwater areas that are being investigated are included in the sections that follow.

Explosives Safety Arcs and Artillery Safety Fans adjacent to the Former VNTR

A series of explosives safety arcs and artillery safety fans associated with the historical ranges, gun emplacements, and OB/OD area were developed for the former VNTR as part of the Vieques Land Use Plan (Navy, 1999) and the Preliminary Range Assessment (NAVFAC, 2003b). The safety fans provide an estimate of the lateral extent of the potential munitions impact area extending from the ranges and artillery gun positions. The areas where the explosives safety arcs and artillery safety fans extend offshore of the former VNTR are shown in **Figures 1-2 and 2-2**.

Anchorage Areas

Navy ships containing munitions used during the training activities at the former AFWTA would temporarily anchor at three anchoring locations in the Vieques Passage and Vieques Sound while waiting to be unloaded (**Figure 1-2**). When the anchorage areas were operational, explosives in quantities no greater than 1,625 short tons were handled in any area at one time.

The boundary of each anchorage area was defined by the area in which the ammunition supply ship would rotate around a single anchorage point. Each anchorage area radius was established using the depth of water, the ship horizontal offset from its anchor line, the length of the largest ammunition supply ship, and a distance buffer from the designated anchorage point (NOSSA, 2004). The two westernmost anchorage areas were defined with a maximum radius of 440 yards and the other anchorage area with a maximum radius of 500 yards.

Mosquito Pier

Mosquito Pier was used for loading and unloading ordnance from Navy ships. The boundary of this area is defined as a 100 foot radius around the perimeter of the pier to account for any munitions that may have been dropped during loading and unloading (**Figure 1-2**). Because of the large amount of general debris located around Mosquito Pier, the area will be investigated separately from the WAA. Mosquito Pier will be included in the nearshore NTCRA (see “Other Offshore Areas”). The results of the NTCRA around Mosquito Pier (i.e., whether munitions are found) will be used to determine if further investigation of action is warranted in this area.

Offshore of SWMU 4

The explosives safety arc of the OB/OD operations at SWMU 4 extends approximately 2,000 feet offshore to the west of the former OB/OD area; the offshore area is part of UXO 16 (**Figure 2-3**). Because portions of SWMU 4 are planned for recreational use, the Navy accelerated evaluation of the adjacent underwater area. To that end, an ESI QAPP for UXO 16 adjacent to SWMU 4 was finalized in April 2014 (CH2M, 2014a). ESI field activities began in March 2015 and were completed in May 2015, which determined relatively little MEC is present in the offshore area adjacent to SWMU 4. Based on the findings of the ESI, an RI SAP (CH2M, 2016j) was prepared to characterize the nature and extent of potential contamination in marine sediment and assess the associated human health and ecological risks. The RI fieldwork was completed in 2016 and an RI Report is currently being prepared.

Offshore of Cayo la Chiva

Cayo la Chiva (UXO 18) is a 12-acre island located south of the EMA (**Figure 2-2**). A simulated machine gun nest was located on Cayo la Chiva during Operation Portrex conducted in 1950 (Sibert, 1993). No additional training activities are documented to have occurred in the UXO 18 area; however, fired 5-inch rockets were identified both on and offshore of Cayo la Chiva, which indicates the area may have been used for additional training, albeit potentially in a single event. In 2010, the Navy conducted a visual underwater survey within approximately 100 feet offshore of Cayo la Chiva and covered the remainder of Bahía de la Chiva using 200-foot spacing transects. Nine potential munitions were identified just west and south of the island (CH2M, 2014g). An EE/CA for an NTCRA of underwater munitions adjacent to Cayo la Chiva (UXO 18) was finalized and provided for public comment in November 2014 (CH2M, 2014p). Based on the EE/CA, an NTCRA work plan was completed in October 2016 (CH2M, 2016q). Fieldwork is anticipated to occur in 2017

Other Offshore Areas

As noted in Section 2.1.3.15, an NTCRA is planned for UXO 15 PI-9 East and Adjacent UXO 16 Encrusted Munitions (CH2M, 2015i). The underwater area contains several encrusted munitions and/or MD, whose removal is described in the Draft NTCRA Work Plan, which was submitted for regulatory review in May 2016 (USAE, 2016). In addition to this area, an EE/CA is being prepared for nearshore (i.e., within approximately 100 meters of the shoreline) munitions around the perimeter of the former VNTR and Mosquito Pier. It is anticipated the Draft EE/CA will be submitted for regulatory review in 2016.

2.1.3.17 UXO 17 – Other Sites

UXO 17 is located to the south of the area formerly referred to as the EMA (**Figure 2-2**). Two sites within UXO 17 (PI-14 and PAOC FF) were investigated during the EBS and the ERA/SI. These sites were determined to require no further action and were included in a No Further Action Report (CH2M, 2010e). An additional site, PI-21, was investigated during an SI in 2013, determined to require no action, and included in a No Action Decision Document (CH2M, 2014d). There is one PAOC site (PAOC EE) within UXO 17 that is still under investigation, as described in the next section.

2.1.3.18 PAOC EE

PAOC EE includes earthen berms that may have been used for storage of munitions (CH2M, 2004a). A DGM survey of the interior portion of the Punta Conejo during 2011 (CH2M, 2012k) and subsequent data analysis identified approximately 2,190 discrete anomalies and 352 polygons (areas of concentrated anomalies) in the subsurface at PAOC EE. A total of 458 anomalies were excavated. During the excavations, two DMM were recovered: a 40-millimeter (mm) flare and a canister containing propellant.

In June 2013, a follow-up evaluation of the Blue Beach area identified 864 subsurface anomalies. Excavation of these anomalies produced one DMM (rocket fuze) at the far eastern end of Blue Beach, adjacent to Punta Conejo, resulting in the temporary closure of that stretch of the beach. In addition, seven MPPEH and two DMM were found in the area immediately to the north of Blue Beach. The investigations at and around Blue Beach indicated there may be explosive hazards present in areas adjacent to Blue Beach that are potentially accessible to USFWS and the public. As a result, a TCRA was initiated in May 2014 within the vegetated area north of Blue Beach, extending to and including Punta Conejo. The TCRA fieldwork identified 311 anomalies. Excavation of these anomalies found four locations with UXO (grenades, flares-pyrotechnics), three locations with other MEC (grenades), and four locations with DMM (60-mm mortar, blasting caps, flares/pyrotechnics). The TCRA fieldwork was completed in October 2014, and the boundary of PAOC EE was adjusted to include the area where surface/subsurface munitions and other debris were identified. An After Action Report was submitted in November 2015 (CH2M, 2015l). Based on the aforementioned findings, an RI will be conducted at the site, as described in the Master SAP for the East Vieques Terrestrial UXO Sites (CH2M, 2013b) and the Draft Master SAP Addendum 5 for PAOC EE (CH2M, 2016h), which was submitted for regulatory review in May 2016. RI Fieldwork is expected to take place in 2017.

2.1.3.19 UXO 18 – Cayo la Chiva

A 2011 inspection of the island, Cayo la Chiva, adjacent to Blue Beach, a public beach, identified five 5-inch rockets. Based on this information, an RI was conducted to characterize the nature and extent of contamination and MEC and assess the potential risks, as described in the Master SAP for the East Vieques Terrestrial UXO Sites (CH2M, 2013b). RI fieldwork started in June 2013 and was completed in November 2013. An RI/FS Report was issued in May 2015 (CH2M, 2015b). This was followed up by a FS Addendum that was finalized in April 2016 to provide additional detail on the cost assumptions included in the FS (CH2M, 2016f). A PRAP (NAVFAC, 2016a) was prepared and approved by the regulatory agencies and a public meeting was held in 2016. A ROD is anticipated in 2017.

2.2 Western Vieques Sites (Former NASD)

2.2.1 Environmental Sites

This subsection summarizes the status of the 16 environmental sites (SWMUs and AOCs) on western Vieques. Detail for the two sites (SWMU 6 and AOC E) for which final closeout has not yet been completed is provided herein. Site-specific detail for the remainder of the sites, which were determined to require No Action or No Further Action under CERCLA, is provided in **Appendix A-1** and past SMPs. The locations of the western Vieques sites are shown in **Figure 2-3.** The anticipated schedule for deliverable submittal for the following sites, as applicable, is provided in **Figure 3-1**.

2.2.1.1 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 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. However, a fence separating the site from Highway 200 is present, 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, 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, 2005i). No public comments were submitted. A Removal Action Work Plan was submitted in February 2008 (FSS, 2008). 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, 2008l). 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, 2008g; 2008h).

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 Construction Completion Report (CCR) (FSS, 2010). Due to the removal action, the environmental setting was altered from a predominantly terrestrial habitat to a shallow, marine habitat that is hydraulically (at least partially) 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 SAP was submitted in December 2010 (CH2M, 2010f). Fieldwork was completed in February 2011 which included further surface water, sediment, and surface soil sampling. Additionally, background surface water and sediment samples were collected from adjacent lagoons. The sediment data indicated there may be unacceptable risk associated with human consumption of fish and crab exposed to sediment contaminants. Because these estimates were based on modeling contaminant uptake, an SAP was developed to collect and analyze fish and crab from the lagoon to get more accurate estimates of contaminant levels in the lagoon biota (CH2M, 2012a). The fish and crab samples were collected in January 2012. The 2011 surface water and sediment data, as well as the subsequent fish and crab data, were used to prepare human health and ecological risk

assessments that were included in the FS (CH2M, 2013a). A SAP to further delineate the extent of sediment containing contaminants of concern (COCs) above likely remediation goals was completed in June 2014 (CH2M, 2014c). Fieldwork for the collection of additional sediment samples took place in the summer of 2014. Evaluation of the data indicated no further remedial action is warranted. An RI Report Addendum was finalized in January 2016 which documents the additional data collection and evaluation that demonstrates no additional remedial action is warranted (CH2M, 2016b). Based on this, a No Further Action PRAP (NAVFAC, 2016b) was submitted and is currently under public review. A ROD is anticipated in 2017.

2.2.1.2 AOC E – Former Underground Storage Tank Site 2016

AOC E is located within the public works area of the former NASD at the former location of an underground storage tank (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 total petroleum hydrocarbon (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 RI Report for AOC E (CH2M, 2008f). The risk assessment concluded that the site soils and groundwater do not pose an unacceptable risk for industrial use, but that if site groundwater was extracted for consumptive use, it 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 was implemented between January 2010 and December 2011 that included 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 was performed in general accordance with the SAP that was submitted in February 2010 (CH2M, 2010h). The ISCO pilot test, covering the entire impacted area, showed ISCO to be effective in reducing the concentrations of site COCs in groundwater to acceptable levels. However, the presence of elevated residual persulfate concentrations hindered the ability to monitor for potential rebound of COCs. Therefore, the Navy, EPA, and PREQB concurred that the Pilot Study had generally satisfied its objectives and that the site should proceed to a Feasibility Study to address the residual persulfate and potential for contaminant rebound.

The Focused Feasibility Study Report was submitted in November 2012 (CH2M, 2012i) that evaluated alternatives to address the residual persulfate and the potential for COC rebound. The PRAP was submitted for public comment and a public meeting was held in November 2013 (NAVFAC, 2013b). The ROD documenting groundwater monitoring, LUCs, and contingency plans to address potential residual persulfate and potential contaminant rebound was finalized in January 2015 (NAVFAC, 2015a). The Remedial Action Work Plan was issued in January 2015 (CH2M, 2015a). The first and second rounds of annual groundwater sampling were completed in March/April 2015 and January 2016, respectively, and institutional controls were implemented at the site. These rounds of groundwater sampling were documented in an annual status report that was submitted for regulatory review in May 2016 (CH2M, 2016o). One additional round of annual groundwater sampling is planned, in accordance with the ROD, to evaluate the effectiveness of the remedial action selected in the ROD and help make a determination of whether implementing contingency or other alternative is warranted.

2.2.2 Munitions Response Site (SWMU 4 – Inactive Open Burn/Waste Explosive Detonation Range)

SWMU 4 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 Naval Station Roosevelt Roads (NSRR), and flares and cartridge-activated devices (Greenleaf, 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 an 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, 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.

During December 2011, an NTCRA at SWMU 4 was completed during which approximately 24 acres of roads and beaches were cleared of vegetation and surface/subsurface cleared of munitions. A total of 910 MEC and MD items and MPPEH were removed. These items required demolition to eliminate the potential explosive hazard associated with them.

An RI/FS was completed in May 2012 (CH2M, 2012c) to characterize the nature and extent of MEC/ environmental contamination, assess potential risks to human health and the environment, and evaluate remedial alternatives at SWMU 4. MEC was identified up to a maximum extent of approximately 2,600 feet from the OB/OD area during the NTCRA. MEC recovered from the vicinity of the OB/OD pits were predominately 20-mm high explosive (HE) projectiles; moreover, 20-mm projectiles were the predominant MEC type recovered throughout the entire study area (over 90 percent of the MEC recovered). Perchlorate was the most frequently observed and most widespread contaminant within surface and subsurface soil and groundwater in SWMU 4.

Perchlorate was detected above only the leaching-to-groundwater screening criterion (soil screening level [SSL]) in soil and was identified as a COC in groundwater based on hypothetical future potable use scenarios for residents and industrial workers. However, these scenarios are unlikely for SWMU 4, since legislation mandated the establishment of a wildlife refuge for the site. No unacceptable ecological risks were identified and no further evaluation or action is warranted for ecological receptors.

A feasibility study was conducted to evaluate remedial alternatives for SWMU 4 to address potential risks identified in the RI. Remedial Action Objectives (RAOs) include minimizing explosive safety risk associated with MEC to be compatible with current and future land use, minimizing the potential for unauthorized access to the site, preventing exposure to perchlorate in groundwater at concentrations that pose a potentially unacceptable human health risk, and ensuring potential human health risk and/or exposure to edible fish and aquatic crab containing contaminant concentrations attributable to past Navy activities are acceptable.

The PRAP was issued for public comment in July 2012. Based on public comment on the PRAP, additional alternatives to address the potential presence of MEC are being considered, which will be documented in an FS

Addendum. However, to expedite public access to portions of the site based on land use planned by USFWS, an EE/CA and Work Plan for an NTCRA were developed and finalized in March and June 2014, respectively (CH2M, 2014j; 2014n). The NTCRA field activities were completed in 2015 and there were over 6,500 MEC removed. In addition to expediting public access to certain areas of the site, the information gathered during the NTCRA will be used to refine the munitions alternatives in the FS Addendum, which is anticipated to be submitted for regulatory review in 2016. The NTCRA field activities are documented in an After Action Report that was submitted for regulatory review in April 2016 (CH2M, 2016m).

In addition to an NTCRA, a SAP to assess perchlorate in groundwater and biota in Laguna Boca Quebrada was finalized in June 2014 (CH2M, 2014e) and fieldwork was completed in September 2014. Information gathered during this evaluation was used to modify the remedial alternatives in the FS Addendum, which included a modified Human Health Risk Assessment (HHRA), and was submitted for regulatory review in August 2016.

2.2.2.1 Underwater Areas

Please see the discussion under UXO 16 in Section 2.1.3. The portion of UXO 16 located adjacent to the former NASD is shown in **Figure 2-3**.

2.3 Munitions Response Site Prioritization

The MRS Prioritization Protocol (MRSPP) is a tool used by DoD for assigning a relative priority for initiating munitions response actions at munitions response sites. The scope of the site prioritization for the MRSs at Vieques was based on the DoD MRSPP 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, 2010c) and the following interim removal actions and MEC investigations:

- LIA and ECA TCRA - UXOs 1 and 4 (CH2M, 2010i)
- NTCRA for Subsurface MEC in Roads and Beaches - SWMU 4 (CH2M, 2008j) and UXOs 2, 3, 5, 6, 7, 8, and 11 (CH2M, 2008k)
- NTCRA for Surface MEC in the SIA - UXOs 9, 10, and 12 (CH2M, 2009c)
- NTCRA for Surface MEC at UXO 13 (CH2M, 2012j)
- NTCRA for Road and Lighthouse Area at UXO 15 (CH2M, 2014k)
- TCRA for Subsurface MEC at PAOC EE/UXO 17 (CH2M, 2014l)
- UXO 15 RI (CH2M, 2014b)
- PAOC EE/UXO 17 Subsurface MEC Investigations (CH2M, 2014l; 2012k)
- UXO 18 RI (CH2M, 2015b)

The 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 munitions constituents (MC) and other chemical constituents at MRSs that considers the contaminants present, environmental migration pathways, and receptors for four media (soil, surface water, groundwater, and sediment). MC data are included in the MRSPP calculation when the RI is complete and the associated RI Report is finalized. Therefore, MC data are included in the MRSPP calculations for SWMU 4, UXO 1, and UXO 18. Based on this information, and the potential for environmental risks at all the Vieques MRSs; a default rating of "medium" was used for the remaining MRSs on Vieques. The HHE module will be updated as additional MC data become memorialized in final RI reports from ongoing and future environmental investigations at the MRSs.

For Vieques, the 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 2-2**. The detailed scoring for each MRS is provided in **Appendix C**. A total of 15 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.

TABLE 2-1

Operable Units Cross Reference Table

Site Management Plan, Fiscal Year 2017

Vieques, Puerto Rico

EPA CERCLIS OU Number and Description	Common Site Name
02 - WEST AOC E - UST AREA	AOC E - UST Site 2016
03 - WEST AOC H - POWER PLANT	AOC H - Power Plant
04 - WEST AOC I - ASPHALT PLANT	AOC I - Asphalt Plant
05 - WEST AOC J - SWD AREA	AOC J - Former Staging Area Disp.
06 - WEST AOC R - MAINT BLDG & SWD	AOC R - Former Staging/Ops Area
07 - WEST SWMU 4 - OB/OD AREA	SWMU 4 - OB/OD Site
08 - WEST SWMU 6 - SWD AREA	SWMU 6 - Mangrove Disposal Site
09 - WEST SWMU 7 - SWD AREA	SWMU 7 - Quebrada Disposal Site
10 - UX07 EMA/SIA North Beaches	UXO 7 EMA/SIA North Beaches
11 - EAST SWMU 1 - CAMP GARCIA LF	SWMU 1 - Former Camp Garcia Landfill
12 - UX02 LIVE IMPACT AREA -BEACHES	UXO 2, LIA Beaches
13 - UX03 LIVE IMPACT AREA -ROADS	UXO 3, LIA Roads
14 - UX04 LIVE IMPACT AREA-INTERIOR	UXO 4, LIA Interior
15 - UX05 SIA - RESTRICTED ROAD	UXO 5, SIA Restricted Roads
16 - UX08 SIA South Beaches	UXO 8, SIA South Beaches
17 - UX016 -UNDERWATER SITES	UXO 16, Underwater Areas
18 - UX01 EASTERN CONSERVATION AREA	UXO 1, Eastern Conservation Area
19 - UX06 EMA/SIA Public Roads	UXO 6, EMA/SIA Public Roads
20 - UX09 SIA Exterior	UXO 9, SIA Exterior; SWMU 5, Spent Battery Accumulation Area; SWMU 8, Waste Oil Accumulation Area; SWMU 12, Solid Waste Collection Unit Area; AOC A, Diesel Fuel Fill Pipe Area; PI 1, Water Production Well; PI 17, Amphibious assault exercises, possible small arms bunkers and/or air targets; PI 22, Civilian residences and target area.
21 - UX010 SIA Interior	UXO 10, SIA Interior
22 - UX011 EMA Public Roads	UXO 11, EMA Public Roads
23 - UX012 EMA Interior	UXO 12, EMA Interior; PI 2 Water Production Well, small arms range; PI 3, Water Production well, small arms range; PI 12, Wind Driven and Private Water Production Well; PI 15 Former Location of Civilian Home, possible observation pt or small arms range; PI 16, Former Location of Civilian Home, limited OB/OD may have occurred; PI 18, Small Arms Range; PI 19, Small Arms Range, Artillery Firing Point; PAOC Y, Observed large metal object on east side of roadway; PAOC Z, Observed on overturned tractor-trailer on north side of roadway.
24 - UX013 EMA West	UXO 13, EMA West; PI 23, Water Production Well, Possible Observation Point; PAOC AA, Small Arms Range No. 1; PAOC BB, Small Arms Range No. 2, PAOC CC, Small Arms Range No 3; PAOC DD, Small Arms Range No. 4
25 - UX014 EMA South	UXO 14, EMA South
26 - UX015 Puerto Ferro	UXO 15, Puerto Ferro; PI 9 Ammunition Storage in Earthen Berms and Disposal of Ammunition (OB/OD possibly); PI 13, Lighthouse and ordnance possible launched from site.
27 - UX017 Camp Garcia	UXO 17, Other Sites (PAOC EE, Former Storage of Munitions in Earthen Berms; PAOC FF, Former Artillery Firing Point; PI 14, Scrap Metal, Ammunition Boxes, Shell Casing Disposal; PI 21, Quarry, Potential Former Artillery Firing Position)
28 - UX018 Cayo La Chiva	UXO 18, Cayo La Chiva
29 - SWMU 20 Former Helicopter Maintenance Area	SWMU 20, Former Helicopter Maintenance Area, Trenched Area, Disturbed Area, and Bermed Areas used for Fuel Bladder Storage (formerly PI 4)

TABLE 2-1

Operable Units Cross Reference Table

Site Management Plan, Fiscal Year 2017

Vieques, Puerto Rico

EPA CERCLIS OU Number and Description	Common Site Name
No EPA OU	SWMU 2, Former Fuels Offloading Site
No EPA OU	SWMU 4 Waste Area Building 303 (east Vieques)
No EPA OU	SWMU 5, Former IRFNA/MAF-4 Disposal Site (west Vieques)
No EPA OU	SWMU 6, Waste Oil and Paint Accumulation Area (east Vieques)
No EPA OU	SWMU 7, Waste Oil Accumulation Area (east Vieques)
No EPA OU	SWMU 10, Former Waste Paint and Solvents Disposal Ground (west Vieques)
No EPA OU	SWMU 10, Sewage Treatment Lagoons (east Vieques)
No EPA OU	SWMU 14, Former Wash Rack (west Vieques)
No EPA OU	SWMU 15, Former Waste Transportation Vehicle Parking Area (west Vieques)
No EPA OU	AOC B, Former Wastewater Treatment Plant (west Vieques)
No EPA OU	AOC C, Drainage Ditch at Former Transportation Shop (west Vieques)
No EPA OU	AOC F, Former UIC Septic Tank (west Vieques)
No EPA OU	AOC F, Rock Quarry (east Vieques)
No EPA OU	AOC G, Pump Station and Chlorination Building at Sewage Lagoons (east Vieques)
No EPA OU	AOC K, Former Water Well (west Vieques)
No EPA OU	AOC L, Abandoned Septic Tank (west Vieques)
No EPA OU	PI 5, Former Airfield and Associated Ditches
No EPA OU	PI 6, Former PCB Storage Pad and Vehicle Wash Pad
No EPA OU	PI 8, Former Motor Pool Maintenance Area
No EPA OU	PI 10, Former Wastewater Leach Field
No EPA OU	PI 11, Pump Station, Sanitary Wastewater Outfall
No EPA OU	PI 20, Observation Point, Quarry
No EPA OU	PAOC I, Former Power Plant and Mechanics Shop
No EPA OU	PAOC J, Former Vehicle Maintenance Area
No EPA OU	PAOC K, Former Wash Rack
No EPA OU	PAOC L, Former Paint and Transformer Storage Area
No EPA OU	PAOC M, Former Fuel Facility
No EPA OU	PAOC N, Former Fuel Farm and Filling Station
No EPA OU	PAOC O, Former Boiler Room in Heat Plant Building 238
No EPA OU	PAOC P, Former Water Treatment Pumphouse
No EPA OU	PAOC Q, Former Boiler Room in Heat Plant Building 607
No EPA OU	PAOC R, Former Boiler Room in Heat Plant Building 617
No EPA OU	PAOC S, Former Pipeline and Former Power Plant
No EPA OU	PAOC T, Former public works grounds contractor storage shed, building 305
No EPA OU	PAOC U, Vehicle Maintenance Areas just north of Building 303 at Camp Garcia, Stored petroleum products
No EPA OU	PAOC V, Storage of leaking transformer
No EPA OU	PAOC W, Observed Area of Pooled, discolored water adjacent to main road from Camp Garcia to PI 21
No EPA OU	PAOC X, Debris Area in Ephemeral Stream
No EPA OU	La Chiva Lagoon

Note: EPA only assigns OU numbers to sites where a decision has been made that a Remedial Investigation will be conducted.

TABLE 2-2

Summary of Munitions Response Site Prioritization Protocol Results for Vieques Munitions Response Sites

Site Management Plan, Fiscal Year 2017

Vieques, Puerto Rico

Site ID	Former Reference	MRS Prioritization Protocol Score
UXO-1	Eastern Conservation Area	3
UXO-2	LIA Beaches	2
UXO-3	LIA Roads	2
UXO-4	LIA Interior	2
UXO-5	SIA Restricted Roads	2
UXO-6	EMA/SIA Public Roads	2
UXO-7	EMA/SIA North Beaches	2
UXO-8	SIA South Beaches	2
UXO-9	SIA Exterior	2
UXO-10	SIA Interior	2
UXO-11	EMA Public Roads	2
UXO-12	EMA Interior	2
UXO-13	EMA West	2
UXO-14	EMA South	2
UXO-15	Puerto Ferro	3
UXO-16	Underwater Areas	2
UXO-17	Camp Garcia	3
UXO 18	Cayo La Chiva	2
SWMU 4 (NASD UXO 4)	West Vieques OB/OD Site	2

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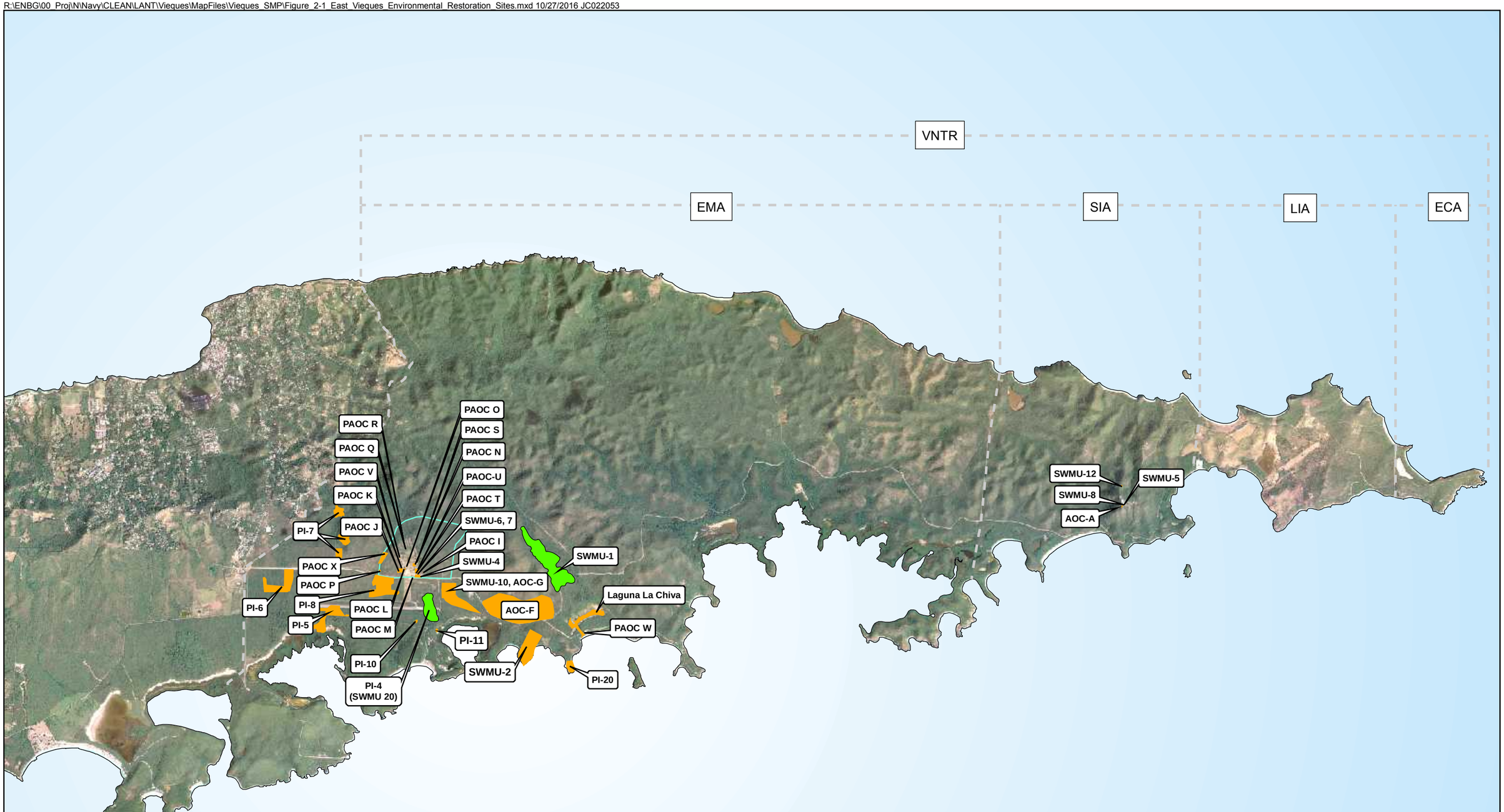

Legend
- Sites – Decision Document
- Sites – Under Investigation
- Camp Garcia

N
W E
S

0 2,250 4,500 9,000
Feet

Figure 2-1
East Vieques Environmental Restoration Sites
Site Management Plan, FY 2017
Vieques, Puerto Rico

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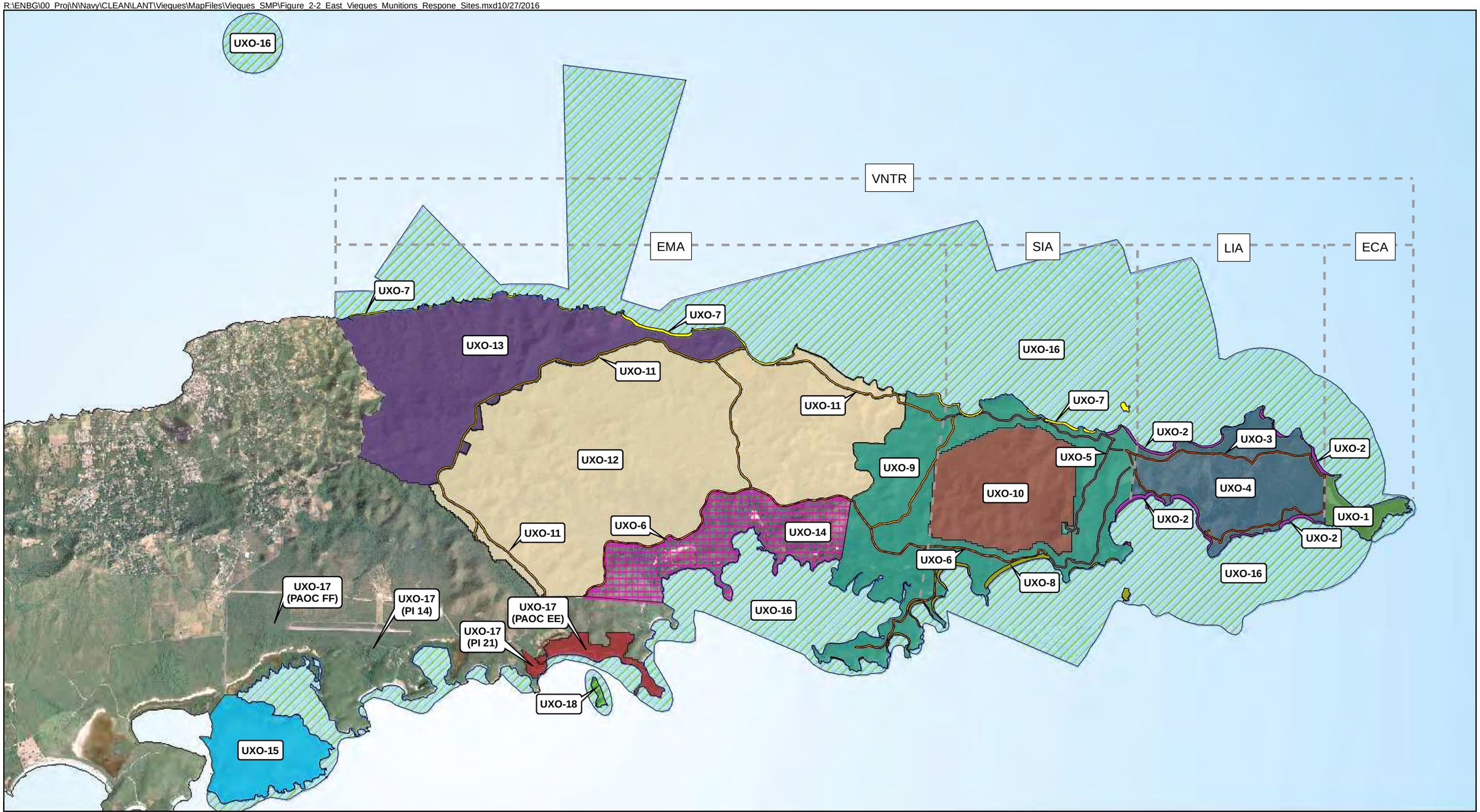

Legend

Munitions Response Sites

- UXO 1 - ECA
- UXO 2 - LIA Beaches
- UXO 3 - LIA Roads
- UXO 4 - LIA Interior
- 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
- UXO 11 - EMA Public Roads
- UXO 12 - EMA Interior
- UXO 13 - EMA West
- UXO 14 - EMA South
- UXO 15 - Puerto Ferro
- UXO 16 -Underwater Areas
- UXO 17 - Camp Garcia Area (PAOC EE, PAOC FF, PI 14 and PI 21)
- UXO 18 - Cayo de la Chiva

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0 2,250 4,500 9,000
Feet

Figure 2-2
East Vieques Munitions Response Sites
Site Management Plan, FY 2017
Vieques, Puerto Rico

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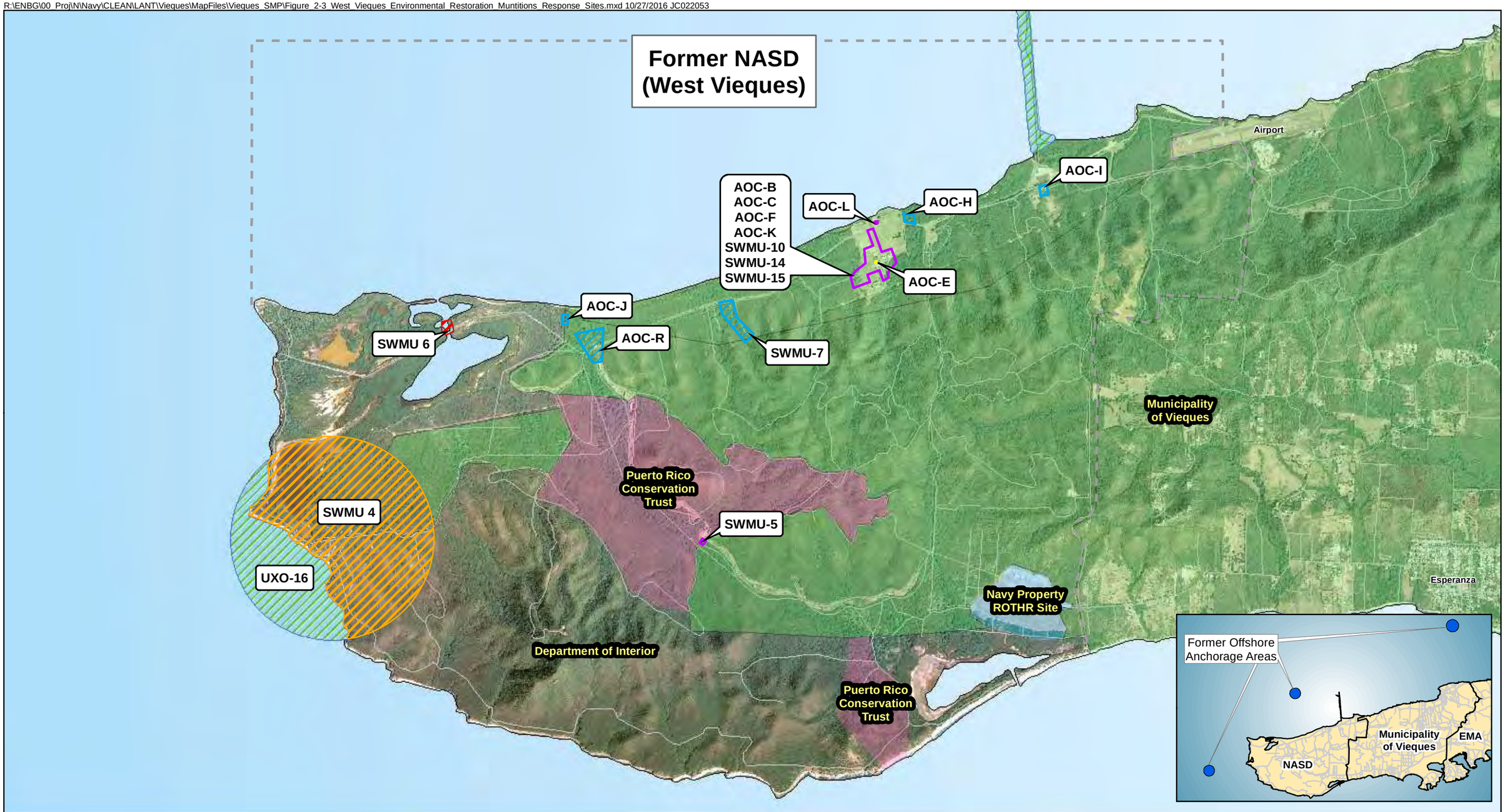


Legend

- Remedial Action
- No Further Action Record of Decision
- No Further Action Decision Document
- Feasibility Study Addendum
- Proposed Plan

Vieques Land Ownership

- Department of Interior
- Municipality of Vieques
- Navy Property - ROTHR Site
- PR Conservation Trust

Munitions Response Site

- UXO 16 -Underwater Areas

Vieques Features

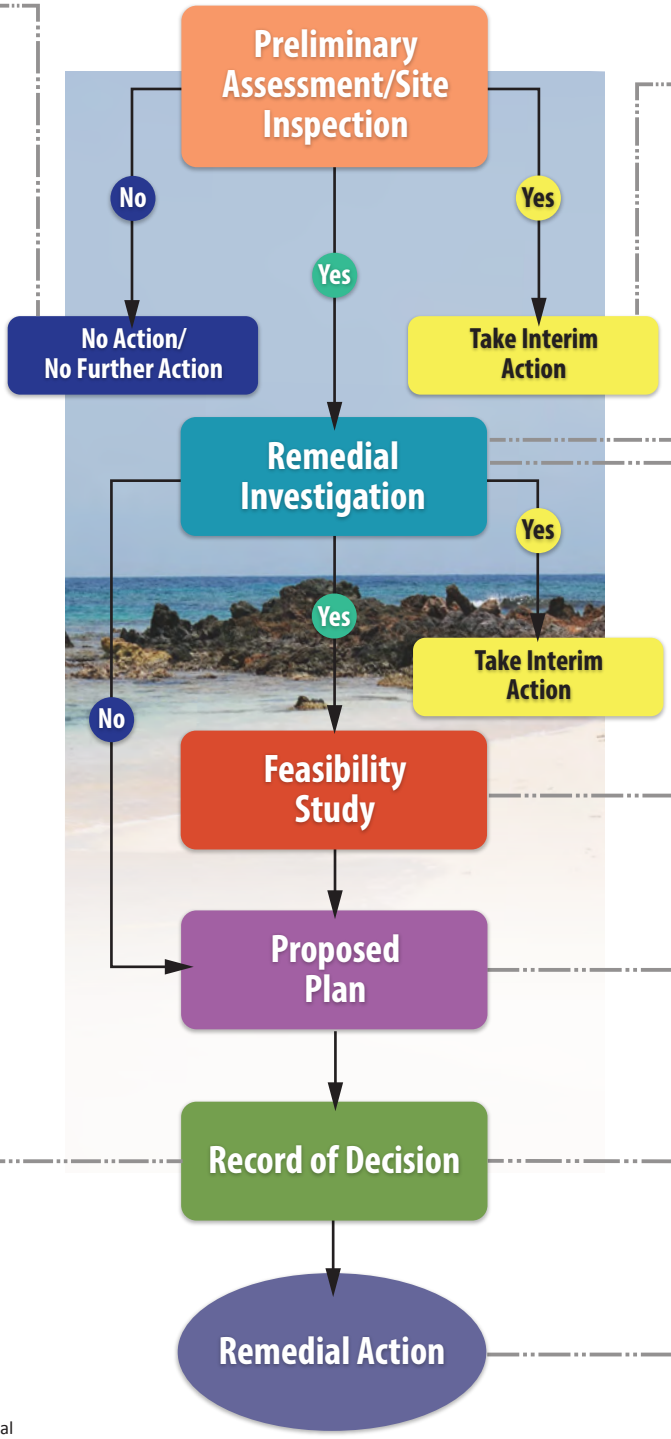
- Road

N
W E
S

0 1,250 2,500 5,000
Feet

Figure 2-3
West Vieques Environmental Restoration and Munitions Response Sites
Site Management Plan, FY 2017
Vieques, Puerto Rico

73 total sites — 50 sites (~70%) completed with no further action as of May 2016



No Action/No Further Action Decision Document

Location	Site Name
Former NASD	SWMU 5
Former NASD	SWMU 10
Former NASD	SWMU 14
Former NASD	SWMU 15
Former NASD	AOC B
Former NASD	AOC C
Former NASD	AOC F
Former NASD	AOC K
Former NASD	AOC L
Former VNTR	SWMU 2
Former VNTR	SWMU 4
Former VNTR	SWMU 5
Former VNTR	SWMU 6
Former VNTR	SWMU 7
Former VNTR	SWMU 8
Former VNTR	SWMU 10
Former VNTR	SWMU 12
Former VNTR	AOC A
Former VNTR	AOC F
Former VNTR	AOC G
Former VNTR	PI 5
Former VNTR	PI 6
Former VNTR	PI 7
Former VNTR	PI 8
Former VNTR	PI 10
Former VNTR	PI 11
Former VNTR	PI 14
Former VNTR	PI 20
Former VNTR	PAOC I
Former VNTR	PAOC J
Former VNTR	PAOC K
Former VNTR	PAOC L
Former VNTR	PAOC M
Former VNTR	PAOC N
Former VNTR	PAOC O
Former VNTR	PAOC P
Former VNTR	PAOC Q
Former VNTR	PAOC R
Former VNTR	PAOC S
Former VNTR	PAOC T
Former VNTR	PAOC U
Former VNTR	PAOC V
Former VNTR	PAOC W
Former VNTR	PAOC X
Former VNTR	PAOC FF

Remedial Investigation
Removal Action

Location	Site Name
Former VNTR	UXO 4
Former VNTR	UXO 9
Former VNTR	UXO 10
Former VNTR	UXO 13
Former VNTR	UXO 15
Former VNTR	UXO 16

Remedial Investigation

Location	Site Name
Former VNTR	SWMU 20
Former VNTR	UXO 2
Former VNTR	UXO 3
Former VNTR	UXO 5
Former VNTR	UXO 6
Former VNTR	UXO 7
Former VNTR	UXO 8
Former VNTR	UXO 11
Former VNTR	UXO 12
Former VNTR	UXO 14
Former VNTR	UXO 17*

**UXO 17 includes PI 21*

Feasibility Study (FS)

Location	Site Name
Former NASD	SWMU 4

Proposed Plan

Location	Site Name
Former NASD	SWMU 6
Former VNTR	UXO 18

No Action/No Further Action Record of Decision

Location	Site Name
Former NASD	SWMU 7
Former NASD	AOC H
Former NASD	AOC J
Former NASD	AOC R
Former NASD	AOC I

Record of Decision

Location	Site Name
Former NASD	AOC E
Former VNTR	SMWU 1
Former VNTR	UXO 1

Remedial Action

Location	Site Name
Former NASD	AOC E
Former VNTR	SMWU 1

Legend:

No — No contamination warranting additional study or action identified.

Yes — Contamination and/or risk warranting further investigation or action identified.

Yes — Significant contamination and imminent/substantial risk identified.

Note: Formal public input solicited during **Proposed Plan** and **Interim Action** steps of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) process.

Figure 2-4
Status of Vieques Cleanup Program Sites Under CERCLA
Site Management Plan, FY 2017
Vieques, Puerto Rico

EN0220151002GNV CERCLA-Process_FLOW-Chart_v8 bp 06.08.2016

SECTION 3

Schedules and Funding

This section presents the SMP schedule based on timelines 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 FY 2017 schedules for field activities and major project deliverables, including both primary and secondary documents, are presented in **Figure 3-1**. The tentative schedules for FY 2017 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.

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 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

3.2 Primary Documents

Primary documents include those documents that are major, discrete portions of RI/FS or Remedial Design/Remedial Action (RD/RA) activities. Examples of primary documents include the following:

- RI/FS Work Plans, including SAP and QAPP
- Risk Assessment Work Plans and Reports
- RI Reports
- Initial Screening of Alternatives
- Feasibility Study Reports

- Focused Feasibility Study (FFS) Reports
- PRAPs
- RODs
- Final RDs (including an LUC component where such controls are employed as part of the remedy)
- Remedial Action Work Plans (including an 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 EPA, 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 EPA.

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 the 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 the Navy

determines within the 21-day period specified previously 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 programmed ER,N funding for Vieques, including FY 2016 and FY 2017 and beyond, is summarized in **Table 3-2**.

3.5 Site Cleanup Acceleration

Table 3-3 lists the sites where opportunities for accelerated cleanup activities (investigations, interim actions, final actions) have been identified, the strategies (approaches) for acceleration, and an estimate of the acceleration that has or may be achieved. It is noted that the potential accelerations are estimated as they may be influenced by factors such as planning logistics, resource availability, and weather.

TABLE 3-1

FY17 and Beyond Tentative Schedule

Site Management Plan, Fiscal Year 2017

Vieques, Puerto Rico

Site	Site Name	FY17 (Oct 16 through Sept 17)	FY18 (Oct 17 through Sept 18)	FY19 (Oct 18 through Sept 19)
Environmental Restoration Program				
West Vieques				
AOC E	Former UST Site 2016	LTM, Annual Status Report	LTM, Annual Status Report	LTM, Annual Status Report
SWMU 6	Former Mangrove Disposal Site	Proposed Plan, ROD Site Closeout		
East Vieques				
SWMU 1	Former Camp Garcia landfill	LTM, Annual Status Report, Interim RA Completion Report	LTM, Annual Status Report	LTM, Annual Status Report
SWMU 20	Former Helicopter Maintenance Area, Trenched Area, Disturbed Area, and Bermed Areas used for Fuel Bladder Storage	FS Report	Proposed Plan, ROD	ROD
Munitions Response Program				
West Vieques				
SWMU 4	Inactive OB/Waste Explosive Detonation Range	FS Addendum, Proposed Plan	Proposed Plan, ROD	RA Work Plan
East Vieques				
UXO 1	Eastern Conservation Area	RA Field Work	RA Field Work	Interim RA Completion Report
UXOs 2, 7, 8	LIA Beaches, EMA/SIA North Beaches, SIA South Beaches	Beach Dynamics Field Work, Beach Dynamics Report	Beach Dynamics Report, RI SAP Addendum, RI Field Work	RI Field Work
UXOs 3, 5, 6, 11	LIA Roads, SIA Restricted Roads, EMA/SIA Public Roads, EMA Public Roads	RI Field Work	NTCRA Field Work (Punta Carranero), RI Field Work, RI Report	RI Report, FS Report
UXOs 4, 9, 10, 12, 14	LIA Interior, SIA Exterior, SIA Interior, EMA Interior, EMA South	TCRA Field Work (UXO 4 Submunitions Area), NTCRA Field Work (UXO 9 and UXO 10), RI/FS Report (UXO 12 and UXO 14), Proposed Plan (UXO 12 and UXO 14)	TCRA Field Work (UXO 4 Submunitions Area), NTCRA Field Work (UXO 9 and UXO 10), Proposed Plan (UXO 12 and UXO 14), ROD (UXO 12 and UXO 14)	RI SAP Addendum (UXO 4, 9, and 10), Supplemental RI Field Work (UXO 4, 9, and 10), ROD (UXO 12 and UXO 14)
UXO 13	EMA West	NTCRA Field Work, RI Field Work	NTCRA Field Work, RI Report	NTCRA After Action Report, FS Report
UXO 15	Puerto Ferro	NTCRA Work Plan PI 9 East, NTCRA Field Work PI 9 East, NTCRA After Action Report PI 9 East, RI Report	NTCRA After Action Report PI 9 East, RI Report, FS Report	FS Report, Proposed Plan
UXO 16	Underwater Areas	NTCRA Field Work adjacent to UXO 18, After Action Report adjacent to UXO 18, NTCRA Work Plan adjacent to PI 9 East, NTCRA Field Work adjacent to PI 9 East, NTCRA After Action Report PI 9 East, Wide Area Assessment Report, RI Report adjacent to SWMU 4, NTCRA EE/CA (near-shore MEC), NTCRA Work Plan (nearshore MEC), Beach Dynamics Field Work, Beach Dynamics Report	After Action Report adjacent to UXO 18, RI Report adjacent to SWMU 4, FS Report adjacent to SWMU 4, NTCRA After Action Report adjacent to PI 9 East, NTCRA Work Plan (nearshore MEC), Beach Dynamics Report	FS Report adjacent to SWMU 4, Proposed Plan adjacent to SWMU 4, NTCRA Field Work (nearshore MEC)
UXO 17	Other Sites (PAOC EE)	RI SAP Addendum, RI Field Work	RI Report, FS Report	FS Report, Proposed Plan
UXO 18	Cayo La Chiva	ROD, RA Work Plan	RA Work Plan, RA Field Work	RA Field Work, LTM

TABLE 3-2

Vieques Programmed Funding, In Millions ($)

Site Management Plan, Fiscal Year 2017

Vieques, Puerto Rico

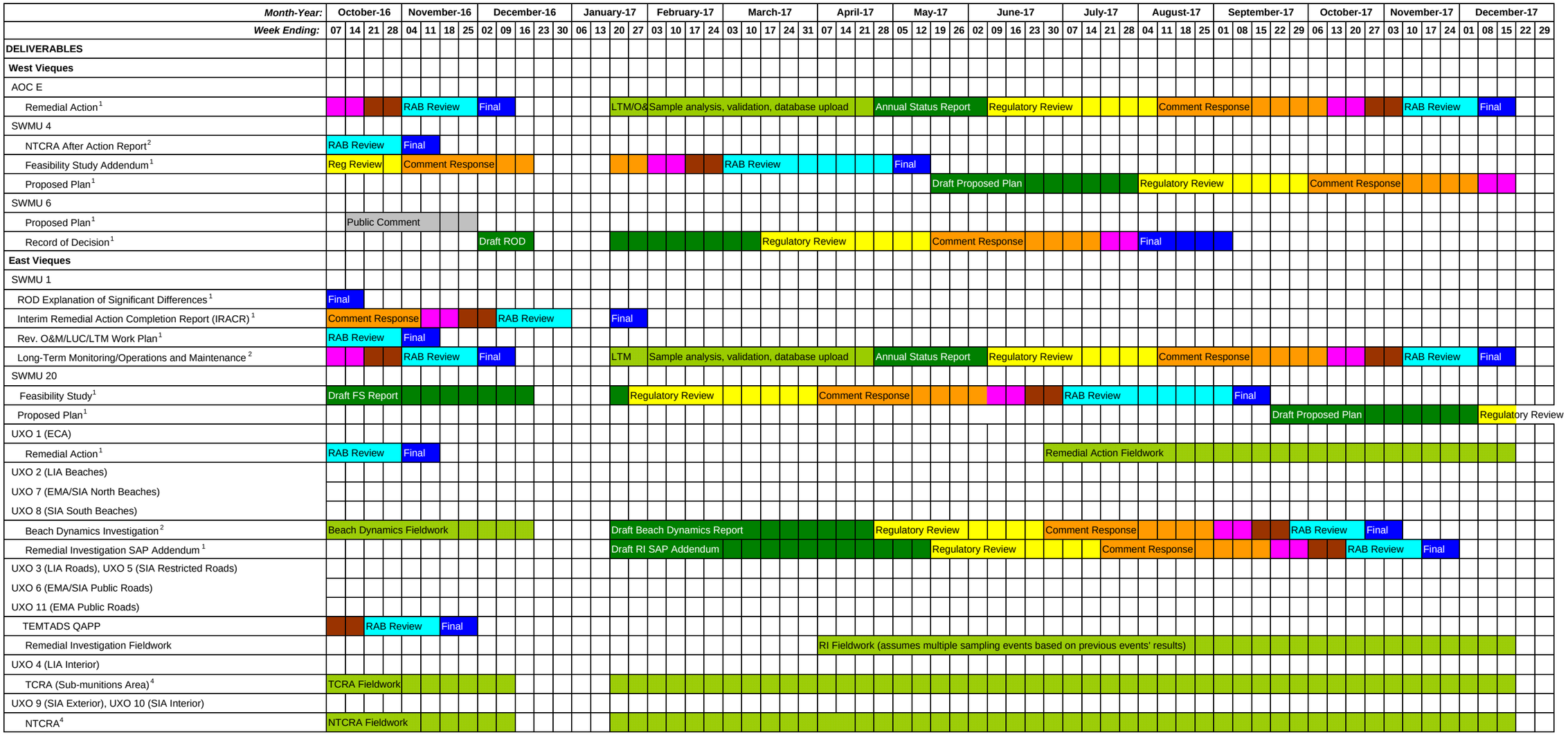
Fiscal Year	Environmental (52 Sites)	Munitions (18 Sites)	Totals
Through FY16	$29.5	$203.1	**$232.6**
FY17	$0.2	$17.7	**$17.9**
FY18 & Beyond	$20.4	$223.7	**$244.1**
Total Expenditure	**$50.1**	**$444.5**	**$494.6**

TABLE 3-3
Site Acceleration
Site Management Plan, Fiscal Year 2017
Vieques, Puerto Rico

Site	Milestone (Requestor)	Acceleration Strategy	Estimated [1] Acceleration
Former NASD - AOC E	Use of site for vehicle maintenance (MOV)	Expedite Remedial Action implementation	6 months[2]
Former NASD - SWMU 4	Public access for recreational purposes (Public/PREQB/USFWS)	Implement NTCRA for areas targeted for public access prior to final remedy selection for site	4 years
Former VNTR - UXO 9 (Punta Carenero)	Public access for recreational purposes (USFWS)	Implement NTCRA for areas targeted for public access prior to final remedy selection for site	10 years
Former VNTR - UXO 12	Prioritize final remedy that will turn over significant quantity of land (Navy)	Shift eastern boundary of site such that area of high munitions density can be included with UXO 9 (where NTCRA is ongoing) and remainder of site can move directly to RI/FS with no additional NTCRA required. Combine RI and FS.	4 years
Former VNTR - UXO 14	Prioritize final remedy that will turn over significant quantity of land (Navy)	Shift eastern boundary of site such that area of high munitions density can be included with UXO 9 (where NTCRA is ongoing) and remainder of site can move directly to RI/FS with no additional NTCRA required. Combine RI and FS.	4 years
Former VNTR - UXO 15	Public access for recreational purposes around historic lighthouse (Public/PREQB/USFWS)	Implement NTCRA for areas targeted for public access prior to final remedy selection for site	7 years[3]
Former VNTR - UXO 15/16	Prioritize removal of encrusted munitions at PI 9 East and adjacent UXO 16	Implement NTCRA for visible munitions for visible munitions on shore and in the nearshore waters	5 - 10 years
Former VNTR - UXO 16 (adjacent to UXO 18)	Prioritize final remedy for Cayo La Chiva (PREQB/PRDNER)	Implement NTCRA for waters around Cayo La Chiva to reduce explosive hazard for potential recreational users of waters off Playa La Chiva	10 years
Former NASD - UXO 16 (adjacent to SWMU 4)	Public access for recreational purposes (Public/PREQB/USFWS)	Implement Expanded Site Inspection and Remedial Investigation adjacent to SWMU 4 beach prior to investigation of UXO 16 as a whole	10 years
Former VNTR - UXO 16	Prioritize removal of nearshore munitions	Implement NTCRA for nearshore munitions	5 - 10 years
Former VNTR - UXO 18 (Cayo La Chiva)	Prioritize final remedy for Cayo La Chiva (PREQB/PRDNER)	Combine RI and FS	1 year

Notes:
[1] Estimated acceleration based on information currently available and is subject to change based on factors that may influence timing and duration of acceleration strategy
[2] Remedial Action implemented in March 2015
[3] Area opened for public access in March 2015

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



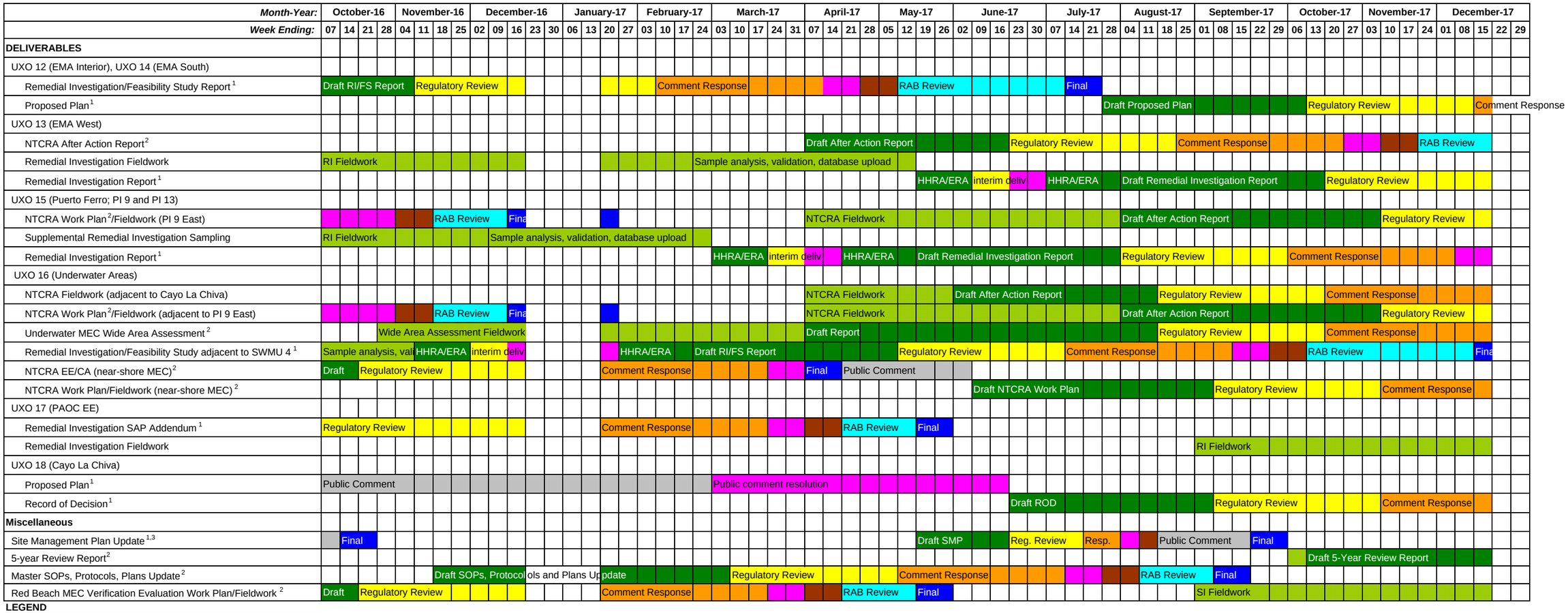
LEGEND

- Navy Preparation of Draft Document
- Regulator Review
- Regulatory Extension
- Preliminary Responses to Comments
- Comment Resolution (telecon, if needed)
- Community Draft Document Production
- RAB Review
- Public Comment
- Final Document
- Navy Extension
- Agency-specific Document

Field Sampling, Analysis, Validation, Database Upload (dotted to indicate field sampling interval); fieldwork start dates and durations are approximate and may be affected by factors such as weather, resources and services availability, and site conditions

Notes:
NTCRA = Non-Time-Critical Removal Action; SAP = Sampling and Analysis Plan; ROD = Record of Decision; EE/CA = Engineering Evaluation/Cost Analysis
HHRA = Human Health Ecological Risk Assessment; ERA = Ecological Risk Assessment
Community Draft 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] Is or includes Primary Document
[2] Is or includes Secondary Document
[3] Draft due June 15 of each year
[4] TCRA and NTCRA activities may not be continuous throughout the schedule shown.
Addenda to the Master SAP will be submitted on an as-needed basis prior to UXO site-specific investigations. Submittal dates and corresponding regulatory review times will be addendum-specific and determined at the time each addendum is submitted.

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



LEGEND

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SECTION 4

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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 Study Sites, Vieques, Puerto Rico
Environmental Sites

East Vieques Sites		
Site Designation	***Description of Site***	***Status***
SWMU 1 Camp Garcia Landfill	Camp Garcia Landfill (EMA)	SWMU 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 Final SI/ESI Report was submitted August 2010. The site was recommended for a Streamlined RI/FS which was completed and the Final RI/FS Report was issued in April 2011. The Proposed Plan, which recommended enhanced native soil cover and institutional controls as the remedial alternative, was provided for public comment in July 2011. The Record of Decision for this site was signed in September 2011. A Final Remedial Action Implementation, Operations and Maintenance, Land Use Control, and Long-Term Monitoring Work Plan was issued in July 2012. Remedial Action implementation was initiated in September 2012 but was halted when more debris was encountered on the surface than was anticipated and MPPEH was encountered. Based on this finding, the Navy and regulatory agencies concurred on removing the vegetation across the landfill in order to ensure all debris at the landfill surface could be removed. As a result, a work plan to clear the landfill surface of the debris and potential munitions-related items, as well as refine the boundary of the landfill using subsurface geophysics was finalized in September 2013 and field work took place between September 2013 through April 2014. The surface clearance was completed with approximately 10,960 lbs of range-related debris (RRD) and 671 lbs of MD being removed. Geophysics was completed which identified the boundaries of the landfill. A Final Technical Memorandum was submitted in August 2015 that documented the remedial action activities to date and the proposed path forward for the site, which included completing the surface debris removal and landfill boundary delineation in areas adjacent to ephemeral streams at the site. This additional work was completed in November 2015 and the geophysics confirmed the landfill to be approximately 51 acres in size. The remaining remedial action items (i.e., those identified in the 2011 ROD) were addressed in early 2016, including a survey of the LUC boundary by a professional surveyor, installing markers at LUC boundary corners, and installing a fence with warning signs along the main east-west road through the southern portion of the landfill. The results of the remedial action implementation are documented in an Interim Remedial Action Completion Report submitted in June 2016. An ESD for the SWMU 1 ROD was issued in June 2016. This ESD removes the need for additional soil cover to be added to the landfill. As jointly determined by the Navy and regulatory agencies, removal of surface debris across the landfill was preferable to covering the debris. This action, and a revised risk assessment considering both surface and subsurface soil, demonstrated that there are no unacceptable risks remaining, thereby obviating the need for additional soil cover in order to meet the objectives set forth in the remedy selected for the 2011 ROD. None of the other aspects of the 2011 ROD are changed by the ESD; the long-term groundwater monitoring, the institutional controls, and O&M requirements remain unchanged.

East Vieques Sites		
Site Designation	***Description of Site***	***Status***
		Because of the change outlined in the ROD ESD, a Revised O&M, LUC, and LTM Work Plan was submitted in March 2016 and is currently in regulatory review.
SWMU 20 (formerly 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. (NAVFAC, 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, which recommended the site for an ESI. The ESI field investigation was completed in May 2009. A Final SI/ESI Report was submitted in August 2010. A Final Supplemental ESI and Pilot Study Sampling and Analysis Plan was submitted in September 2011. The Supplemental ESI determined that the extent of TCE in groundwater had not been sufficiently delineated, so the Supplemental ESI was halted and an RI SAP was developed for the site to determine the extent of the TCE-related contamination in groundwater. Because the site is the subject of an RI, its designation was changed from PI-4 to SWMU 20. A Final Remedial Investigation SAP was submitted in April 2013. Fieldwork was conducted between May and October 2013 where 18 new monitoring wells were installed. Groundwater samples were collected from 32 monitoring wells and the results identified a TCE plume that extends at least 650 feet in a south-southeast direction. A Technical Memorandum was submitted in April 2014 with proposed additional monitoring wells. Fieldwork for the additional monitoring wells then occurred in the summer of 2014 which completed the nature and extent delineation of the TCE plume which extended approximately 1,500 feet in the southeastern direction. A Final RI Report was submitted in August 2016. Currently a Draft FS Report is being developed which will evaluate remedial action alternatives for the site. This Draft FS Report is expected to be submitted for regulatory review in January 2017.

West Vieques Sites		
Site Designation	***Description of Site***	***Status***
SWMU 6 Mangrove Disposal Site (West Vieques-DOI)	Disposal of trash (lubricants, oils, solvents, and paint) ~1965-1980	The Final RI Report was submitted in February 2007 and the Final Interim Removal Action Work Plan was submitted in February 2008. The interim removal action was completed in June 2009. A Final Construction Completion Report was submitted in March 2010. Because the site conditions were changed due to the removal action (i.e., creation of lagoon from previous periodically inundated wetland setting), supplemental post-removal confirmatory surface water and sediment sampling was conducted in February. Based on preliminary evaluation of the surface water and sediment data, biota sampling was done in February 2012 in the SWMU 6 lagoon and the data gathered combined with the surface water and sediment data to assess potential human health and ecological risks. A Final Feasibility Study with Post Removal ERA and HHRA risk assessments was submitted in January 2013. A SAP to further delineate the extent of sediment containing COCs above likely remediation goals in order to refine the alternatives included in the Feasibility Study was submitted as Final in June 2014. Fieldwork for the collection of additional sediment samples took place in the summer of 2014. Evaluation of the data indicate no further remedial action is warranted. An RI Report Addendum was finalized in January 2016 and which documents the additional data collection and evaluation that demonstrates no additional remedial action is warranted. Based on this, a No Further Action PRAP was submitted in April 2016 and is in public review.
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. Based on post-removal confirmatory human health and ecological risk assessments, the site was proposed for No Further Action in a Proposed Plan issued to the public in July 2011. A No Further Action Record of Decision for this site was signed in September 2011.
AOC E Former Waste Oil UST at Bldg. 2016 (West Vieques-MOV)	Waste oil UST - contaminated soil found during removal of UST	The Final RI Report was submitted in July 2008. A Final Pilot Study SAP for treating soil and groundwater was submitted in February 2010. The pilot study was implemented between January 2010 and December 2011. Based on the pilot study results, a Final Focused Feasibility Study was submitted in November 2012 that evaluated alternatives to address the residual persulfate and the potential for COC rebound. A PRAP was submitted for public comment and a public meeting was held in November 2013. A ROD was finalized in January 2015. Additionally, a Remedial Action Work Plan which includes Groundwater Monitoring and Institutional Controls with Contingency Plans was finalized in January 2015. The first round and second rounds of annual groundwater sampling were completed in March/April 2015 and January 2016, respectively, and institutional controls were implemented at the site. These rounds of groundwater sampling were documented in an annual status report that was submitted for regulatory review in May 2016. One additional round of annual groundwater sampling is planned, in accordance with the ROD, to evaluate the effectiveness of the remedial action selected in the ROD and help make a determination of whether implementing the contingency or other alternative is warranted.

West Vieques Sites		
Site Designation	***Description of Site***	***Status***
AOC H Abandoned Power Plant (West Vieques-MOV)	Operated 1941-1943; aboveground storage tank (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.	The Final RI Report was submitted in June 2008. A Final Pilot Study SAP for treating groundwater was submitted in February 2010. Pilot study began in January 2010 and the fieldwork was completed in November 2012. The data showed no COC rebound; therefore, a Final Pilot Study Report was submitted in October 2013 and a Draft No Further Action PRAP was submitted for regulatory review in May 2013. A PRAP was submitted for public comment and a public meeting was held in November 2013. A final ROD was signed in September 2014.
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 first calendar quarter of 2009. A Final Construction Completion Report was submitted in March 2010. Based on post-removal confirmatory human health and ecological risk assessments, the site was proposed for No Further Action in a Proposed Plan issued to the public in July 2011. A No Further Action Record of Decision for this site was signed in September 2011.
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 first calendar quarter of 2009. Supplemental RI fieldwork was completed in August 2009. A Final Construction Completion Report was submitted in March 2010. The Final RI Report was submitted in February 2011, which concluded the post-removal site conditions pose no unacceptable human health or ecological risks. Therefore, the site was proposed for No Further Action in a Proposed Plan issued to the public in July 2011. A No Further Action Record of Decision for this site was signed in September 2011.

Appendix A-2
Munitions Response Sites

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

East Vieques Sites

MRS/Site Designation	***Operational Area***	***Sites Within MRS***	***Description of Site***	***Status***
UXO-1 Eastern Conservation Area	ECA		Adjacent to LIA bombing range. Bombing prohibited since the 1970s.	A TCRA was completed to remove surface munitions from the site. A NTCRA was completed in February 2011 which removed subsurface munitions from roads and beaches. A Final Remedial Investigation Sampling and Analysis Plan was submitted in January 2011 and fieldwork was completed in February 2011. Results of the RI were presented in the Final RI Report dated July 2012. Based on the RI, the Final Feasibility Study was completed in October 2012. A Draft PRAP was submitted to the regulatory agencies for review in January 2013. USFWS completed the restoration plan for the ECA in March 2014. The PRAP was finalized in July 2014; the preferred alternative in the PRAP is Focused Additional MEC Removal and LUCs. Following the public comment period on the PRAP, a ROD for UXO 1 was signed in November 2015. A work plan was then submitted in March 2016 for regulatory review and the Navy is currently responding to regulatory comments.
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.	A TCRA was completed to remove surface munitions from the site. A NTCRA is underway to remove subsurface munitions from beaches. The Final Master SAP describing planned RI activities was submitted January 2013. In addition, a Final Beach Dynamics Investigation Quality Assurance Project Plan (QAPP) was submitted in February 2014 and fieldwork was initiated in spring of 2015 and is ongoing. The beach dynamics investigation is being conducted at ten beaches within the former VNTR and one beach within the former NASD to understand the dynamic nature of the beach environment and its impact on the mobility of MEC. RI fieldwork is anticipated to begin following the conclusion of the beach dynamics study.

East Vieques Sites				
MRS/Site Designation	***Operational Area***	***Sites Within MRS***	***Description of Site***	***Status***
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.	A TCRA was completed to remove surface munitions from the site. An NTCRA is underway to remove subsurface munitions from UXO 3. The Final Master SAP describing planned RI activities was submitted in January 2013. An RI SAP addendum was finalized in January 2016 for all the road sites. As part of the RI, advanced geophysical classification will be performed in various areas to help identify subsurface anomalies potentially representative of MEC to assist in the nature and extent determination as well as select locations for subsurface soil sampling. This technology is described in the Draft TEMTADS QAPP (CH2M, 2016k), which was submitted for regulatory review in March 2016. The RI for UXOs 3, 5, 6, and 11 is anticipated to begin in 2017.
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 was initiated in July 2005 to remove surface munitions from the site. Approximately 68 acres of a densely vegetated area containing a high density of submunitions remains to be cleared. Due to the high density of very dangerous and sensitive submunitions present within the 75-acre submunitions area, a TCRA work plan specific to this area was issued in April 2016. MEC clearance within the submunitions area is anticipated to begin in 2016. The Final Master SAP describing planned RI activities was submitted January 2013 with Addendum 1 finalized in February 2013 and Addendum 2 finalized in April 2013. RI field activities were initiated in January 2013 with the collection of soil, surface water, sediment, and groundwater samples, and is ongoing. The RI fieldwork will be performed within the submunitions area once the area has been surface cleared. A Final RI Status Report was submitted in May 2016 that presents the RI results to date and proposed path forward for this site. As indicated above, future RI work at this site is not yet scheduled because it is dependent upon completing the TCRA.

East Vieques Sites				
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 strafing runs.	An NTCRA has been completed which removed surface munitions from the SIA. A second NTCRA is underway to remove subsurface munitions from UXO 5. The Final Master SAP describing planned RI activities was submitted January 2013. An RI SAP addendum was finalized in January 2016 for all the road sites. As part of the RI, advanced geophysical classification will be performed in various areas to help identify subsurface anomalies potentially representative of MEC to assist in the nature and extent determination as well as select locations for subsurface soil sampling. This technology is described in the Draft TEMTADS QAPP (CH2M, 2016k), which was submitted for regulatory review in March 2016. The RI for UXOs 3, 5, 6, and 11 is anticipated to begin in 2017.
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. Marine artillery gun positions were constructed in the EMA in the 1950s and 1960s to direct artillery fire towards the targets in the SIA.	An NTCRA is underway to remove surface munitions from the SIA. A second NTCRA is underway to remove subsurface munitions from UXO 6. The Final Master SAP describing planned RI activities was submitted January 2013. An RI SAP addendum was finalized in January 2016 for all the road sites. As part of the RI, advanced geophysical classification will be performed in various areas to help identify subsurface anomalies potentially representative of MEC to assist in the nature and extent determination as well as select locations for subsurface soil sampling. This technology is described in the Draft TEMTADS QAPP (CH2M, 2016k), which was submitted for regulatory review in March 2016. The RI for UXOs 3, 5, 6, and 11 is anticipated to begin in 2017.
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 Marine artillery gun positions were constructed in the EMA in the 1950s and 1960s to direct artillery fire towards the targets in the SIA.	An NTCRA is underway to remove surface munitions from the SIA. A second NTCRA is underway to remove subsurface munitions from UXO 7. The Final Master SAP describing planned RI activities was submitted January 2013. In addition, a Final Beach Dynamics Investigation QAPP was submitted in February 2014 and fieldwork was initiated in spring of 2015 and is ongoing. The beach dynamics investigation is being conducted at ten beaches within the former VNTR and one beach within the former NASD to understand the dynamic nature of the beach environment and its impact on the mobility of MEC. RI fieldwork is anticipated to begin following the conclusion of the beach dynamics study.

East Vieques Sites				
MRS/Site Designation	***Operational Area***	***Sites Within MRS***	***Description of Site***	***Status***
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.	An NTCRA is underway to remove surface munitions from the SIA. A second NTCRA is underway to remove subsurface munitions from UXO 8. The Final Master SAP describing planned RI activities was submitted January 2013. In addition, a Final Beach Dynamics Investigation QAPP was submitted in February 2014 and fieldwork was initiated in spring of 2015 and is ongoing. The beach dynamics investigation is being conducted at ten beaches within the former VNTR and one beach within the former NASD to understand the dynamic nature of the beach environment and its impact on the mobility of MEC. RI fieldwork is anticipated to begin following the conclusion of the beach dynamics study.
UXO 9 SIA Exterior	SIA	OP-5, OP-12, OP-13, PI-1, PI-17, 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.	An NTCRA is underway to remove surface munitions from UXO 9. The Final Master SAP describing planned RI activities was submitted January 2013 with Addendum 1 finalized in February 2013 and Addendum 2 finalized in April 2013. RI field activities were initiated in January 2013 and are ongoing. UXO 9 has increased in size from 943 acres to 1,655 acres. The increase in the size of UXO 9 is the result of adding a portion of areas formerly in UXO 12 and 14 that have munitions densities and distribution similar to those in UXO 9. Since the initial boundaries of the UXO sites were established based on the information known at that time, it is reasonable to adjust those boundaries, if warranted, as additional information is gathered over time. In the case of UXO 9, information regarding MEC densities and distribution identified during the NTCRA activities associated with target areas near the western boundary of UXO 9 indicated its boundary should be extended further west to ensure MEC associated with those target areas were appropriately addressed as part of the ongoing NTCRA. A Final RI Status Report was submitted in May 2016 that presents the RI results to date and proposed path forward for this site, as well as the other sites listed above.

East Vieques Sites				
MRS/Site Designation	***Operational Area***	***Sites Within MRS***	***Description of Site***	***Status***
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	An NTCRA is underway to remove surface munitions from UXO 10. The Final Master SAP describing planned RI activities was submitted January 2013 with Addendum 1 finalized in February 2013 and Addendum 2 finalized in April 2013. RI field activities were completed in March 2014. A Final RI Status was submitted in May 2016 that presents the RI results to date and proposed path forward for this site.
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.	An NTCRA is underway to remove both surface and 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. The Final Master SAP was submitted January 2013. An RI SAP addendum was finalized in January 2016 for all the road sites. As part of the RI, advanced geophysical classification will be performed in various areas to help identify subsurface anomalies potentially representative of MEC to assist in the nature and extent determination as well as select locations for subsurface soil sampling. This technology is described in the Draft TEMTADS QAPP (CH2M, 2016k), which was submitted for regulatory review in March 2016. The RI for UXOs 3, 5, 6, and 11 is anticipated to begin in 2017.
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-12, 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 Final Master SAP describing the planned RI activities was submitted January 2013 with Addendum 1 finalized in February 2013 and Addendum 2 finalized in April 2013. RI activities were completed in March 2014. A brush fire occurred in February 2011 across 215 acres which allowed easy access to inspect and surface clear munitions in the area. Another brush fire occurred in March 2013 across 300 acres; as a result, an Emergency Removal Action was completed to remove surface MEC from the exposed landscape. UXO 12 has decreased in size from 4,465 acres to 4,026 acres. Please see the discussion under UXO 9 regarding the change in the eastern boundary (and therefore size) of UXO 12. A Technical Memorandum was submitted in January 2015 to facilitate the acceleration of the intended land use at UXO 12. The Navy and regulatory agencies agreed on the strategy (as described under UXO 9) and this information was included in the RI Status Report for UXOs 4, 9, 10, 12, and 14 which was finalized in May 2016. An RI/FS Report is currently being prepared.

East Vieques Sites				
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 the MRS and used for the firing of small arms, grenades, rockets. These ranges were deactivated in 1999.	An NTCRA is underway to remove surface munitions from the SIA. The Final Master SAP describing the planned RI activities was submitted January 2013. An Addendum to the Master SAP was finalized in October 2015. RI activities began in March 2016 are ongoing.
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 recommended that an investigation should be conducted at UXO 14 to assess human health and ecological risk. The Final Master SAP describing the planned RI activities was submitted January 2013 with Addendum 1 finalized in February 2013 and Addendum 2 finalized in April 2013. RI field activities were completed in March 2014. UXO 14 has decreased in size from 1,050 acres to 850 acres. Please see the discussion under UXO 9 regarding the change in the eastern boundary (and therefore size) of UXO 14. A Technical Memorandum was submitted in January 2015 to facilitate the acceleration of the intended land use at UXO 14. The Navy and regulatory agencies agreed on the strategy (as described under UXO 9) and this information was included in the Final RI Status Report for UXOs 4, 9, 10, 12, and 14 submitted in May 2016. An RI/FS Report is currently being prepared.
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 recommended further investigation of the site. A Final ESI SAP was submitted in May 2011. However, based on additional information gathered since that time, modifications to the original approach were developed and documented in the Final ESI SAP Addendum. Fieldwork was completed in May 2013, and an initial RI findings technical memorandum was finalized in May 2014. Based on the initial findings, additional RI sampling activities were initiated in October 2015 in accordance with the Final RI SAP that was issued in in July 2015. In addition, an EE/CA and Work Plan for an NTCRA for the road leading to the historic lighthouse, trail, and two beaches was finalized in May and June 2014, respectively. A munitions clearance NTCRA for the beach adjacent to the lighthouse, the trail between the two, and the southern beach was completed in the summer of 2014; the After Action Report was finalized in February 2015. A munitions clearance NTCRA for the southwestern beach was completed in January 2015 and the Final After Action Report was submitted in November

East Vieques Sites				
MRS/Site Designation	***Operational Area***	***Sites Within MRS***	***Description of Site***	***Status***
				2015. Public access to the area around the historic lighthouse and adjacent beach was opened in March 2015. An NTCRA Work Plan has been submitted as Draft in May 2016 in accordance with the EE/CA and fieldwork is anticipated to be initiated in 2017 to reduce the explosive hazard associated with encrusted potential MEC.
UXO 16 Underwater Areas				Previous studies identified MEC and metallic anomalies on the sea floor at Bahia Salina del Sur and Bahia Icacos areas, which are adjacent to the former LIA. The ERA/SI Report recommended additional investigation to further characterize the nature and extent of underwater MEC. In 2013, available bathymetry data within UXO 16 were compiled in order to develop a plan for conducting a side-scan sonar survey. The side-scan sonar survey is intended to help plan the wide area assessment of underwater munitions, including avoiding underwater obstacles during the assessment. The side-scan sonar survey began in November 2013 and was completed in January 2014. A Final Wide Area Assessment Work Plan was submitted in December 2015 and provides a preliminary evaluation of the nature and extent of the underwater MEC. Further, a revised QAPP for an ESI of the underwater area adjacent to SWMU 4 was finalized in April 2014. Field activities were conducted in early 2015. Based on the findings of the ESI, an RI SAP was issued in 2016 to characterize the nature and extent of potential contamination in marine sediment and assess the associated human health and ecological risks. The RI fieldwork was completed in 2016 and an RI Report is currently being prepared. In addition, an EE/CA for an NTCRA of underwater munitions adjacent to Cayo La Chiva (UXO 18) was finalized in November 2014. Separately, the area adjacent to PI-9 East at the UXO 15 site will be investigated (area of encrusted munitions within the water). A Final EE/CA was submitted in July 2015 and an NTCRA Work Plan has been submitted as Draft in May 2016. Fieldwork is anticipated to be conducted in 2017 to reduce the explosive hazard associated with encrusted potential MEC.

East Vieques Sites				
MRS/Site Designation	***Operational Area***	***Sites Within MRS***	***Description of Site***	***Status***
East Vieques UXO 17	EMA	PAOC EE	PAOC-EE is a suspected location of former storage of munitions in earthen berms.	The ERA/SI recommended removing the metal debris, one flare, and small arms that were identified. An expanded SI was completed in December 2011 and identified two MEC. As a result, an RI will be completed for PAOC EE as described in the Final Master SAP for the East Vieques Terrestrial UXO Sites. A TCRA was completed in October 2014 and identified and removed munitions identified at and near the surface. A Final After Action Report was submitted in November 2015, after which an addendum to the RI Master SAP was submitted as Draft in May 2016 to for regulatory review.
UXO 18 Cayo La Chiva	EMA		A site inspection of the island adjacent to Blue Beach, a public beach, identified five 5-inch rocket munitions items. Historical records did not identify this site as a munitions operations site.	The Final Master SAP describing the planned RI activities was submitted January 2013 with Addendum 1 finalized in February 2013 and Addendum 2 finalized in April 2013. RI activities began in January 2013 and were completed in November 2013. A Final RI/FS Report was issued in May 2015 and a Final FS Addendum submitted in April 2016 to provide additional detail on cost assumptions included in the FS. A PRAP was prepared and approved by the regulatory agencies and a public meeting was held in 2016. A ROD is anticipated in 2017.

West Vieques Sites				
MRS/Site Designation	***Operational Area***	***Sites Within MRS***	***Description of Site***	***Status***
West Vieques SWMU 4 Inactive OB/Waste Explosive Detonation Range (West Vieques-DOI Property)	West Vieques	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 EE/CA NTCRA for subsurface removal of roads and beaches (East and West Vieques) has been initiated. See SWMU 4 in Section 2.2.2 for a summary of the RI/FS process and status. The PRAP was issued for public comment in July 2012. Based on public comment on the PRAP, additional alternatives to address the potential presence of MEC are being considered, which will be documented in a Feasibility Study Addendum. To expedite public access to portions of the site, an EE/CA and Work Plan for an NTCRA at proposed public areas was finalized in March and June 2014, respectively. The NTCRA field activities began in January 2015 and are anticipated to be completed in the summer of 2015. In addition, an SAP to assess perchlorate in groundwater and biota in Laguna Boca Quebrada was finalized in June 2014. Fieldwork including the biota sampling and groundwater sampling occurred in September 2014. Information gathered during this evaluation was used to modify the remedial alternatives in the Feasibility Study Addendum, which included a modified HHRA and was submitted for regulatory review in August 2016.

Appendix B
Site Screening Areas

Appendix B-1
Environmental Sites

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

East Vieques		
Site Designation	***Description of Site***	***Status***
SWMU 2	Former fuels off-loading site. Was the location of four ASTs including two 20,000-gallon tanks and two 30,000-gallon tanks, which were used to store diesel fuel, unleaded gasoline, aviation gas, and JP-5 jet fuel. These tanks became operational in 1953 and were removed in 1978 and 1979 (NAVFAC, 2003).	Based on historical data and data collected during the Phase I RFI, SWMU 2 was recommended for an ESI in the Final PA/SI Report for 12 Consent Order Sites and 8 PI/PAOC Sites issued in June 2008. The ESI field investigation was completed in May 2009, which included additional soil sampling. The Final SI/ESI Report was issued in August 2010. Based on the findings of the Phase I RFI/ESI, the site was included in the Final No Action/No Further Action Decision Document issued in September 2010.
SWMU 4	Former 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 (NAVFAC, 2003).	Based on historical data and data collected during the Phase I RFI, SWMU 4 was recommended for NFA, pending a groundwater evaluation at Camp Garcia, in the Final PA/SI Report for 12 Consent Order Sites and 8 PI/PAOC Sites issued in June 2008. The regional monitoring wells were installed and groundwater samples collected during the ESI field investigation completed in May 2009 and the Final SI/ESI Report was issued in August 2010. Based on the Phase I RFI and groundwater sampling findings, the site was included in the Final No Action/No Further Action Decision Document issued in September 2010.
SWMU 5	Former spent battery accumulation area located at Observation Post 1 (OP-1). The batteries and battery acid were stored outside on a gravel driveway (NAVFAC, 2003).	SWMU 5 is included in the Final PA/SI Report for 12 Consent Order Sites and 8 PI/PAOC Sites issued in June 2008. The site was recommended for no action based on evaluation of the sample data collected during the Phase I RFI. Therefore, the site was included in the Final No Action Decision Document issued in January 2009.
SWMU 6	Former waste oil and paint accumulation area (Seabees Area at Camp Garcia). According to the 1988 RFA, this area was used by the Seabees as a storage area for waste oil and paint which was containerized in 55-gallon drums, and the paint was housed in small containers (NAVFAC, 2003).	Based on historical data, SWMU 6 was recommended for an ESI in the Final PA/SI Report for 12 Consent Order Sites and 8 PI/PAOC Sites issued in June 2008. The ESI field investigation was completed in May 2009, which included additional soil sampling. The Final SI/ESI Report was issued in August 2010. Based on the findings of the ESI, the site was included in the Final No Action/No Further Action Decision Document issued in September 2010.

East Vieques		
Site Designation	***Description of Site***	***Status***
SWMU 7	Former waste oil accumulation area (outside Building 303 at Camp Garcia). Marines used the waste oil accumulation area to store waste oil from the maintenance of their vehicles (NAVFAC, 2003).	Based on historical data, SWMU 7 was recommended for an ESI in the Final PA/SI Report for 12 Consent Order Sites and 8 PI/PAOC Sites issued in June 2008. The ESI field investigation was completed in May 2009, which included additional soil sampling. The Final SI/ESI Report was issued in August 2010. Based on the findings of the ESI, the site was included in the Final No Action/No Further Action Decision Document issued in September 2010.
SWMU 8	Former waste oil accumulation area (Inner Range at OP-1). According to the 1988 RFA, the waste oil accumulation area contained drums of both waste lubricants and oils prior to them being shipped offsite to NSRR (NAVFAC, 2003).	SWMU 8 is included in the Final PA/SI Report for 12 Consent Order Sites and 8 PI/PAOC Sites issued in June 2008. The site was recommended for NFA based on evaluation of the sample data collected during the Phase I RFI. Therefore, the site was included in the Final No Action Decision Document issued in January 2009.
SWMU 10	Former sewage treatment lagoons (Camp Garcia). According to the 1988 RFA, the sewage treatment lagoons for Camp Garcia went into service in the early 1950s. There were four unlined lagoons: two of them to serve as equalization/treatment lagoons, and the other two to provide polishing treatment (NAVFAC, 2003).	Based on historical and data collected during the Phase I RFI, SWMU 10 was recommended for an ESI in the Final PA/SI Report for 12 Consent Order Sites and 8 PI/PAOC Sites issued in June 2008. The ESI field investigation was completed in May 2009, which included additional soil and groundwater sampling. The Final SI/ESI Report was issued in August 2010. Based on the findings of the Phase I RFI/ESI, the site was included in the Final No Action/No Further Action Decision Document issued in September 2010.
SWMU 12	Former solid waste collection unit area (OP-1). The solid waste collection area served as a solid waste storage and transfer area, prior to pickup of the solid waste for disposal at the off-site Vieques Municipal Landfill (NAVFAC, 2003).	SWMU 12 is included in the Final PA/SI Report for 12 Consent Order Sites and 8 PI/PAOC Sites issued in June 2008. The site was recommended for NFA based on evaluation of the sample data collected during the Phase I RFI. Therefore, the site was included in the Final No Action Decision Document issued in January 2009.
AOC A	Former diesel fuel fill pipe area (OP-1). According to the 1988 RFA, this area contained the fill pipe for a diesel UST formerly located at OP-1 (NAVFAC, 2003).	Based on removal of the former tank and fuel fill pipe and historical confirmatory soil data, AOC A was recommended for an ESI in the Final PA/SI Report for 12 Consent Order Sites and 8 PI/PAOC Sites issued in June 2008. The ESI fieldwork was completed in May 2009, which involved additional soil excavation and confirmatory soil sampling. The Final SI/ESI Report was issued in August 2010. Based on the findings of the ESI, the site was included in the Final No Action/No Further Action Decision Document issued in September 2010.
AOC F	Former rock quarry (Camp Garcia). This site was used to obtain gravel used by the Navy for construction of roads and other construction projects. During the 1995 RFA, used tires and some paper waste were visible at this location (NAVFAC, 2003).	AOC F is included in the Final PA/SI Report for 12 Consent Order Sites and 8 PI/PAOC Sites issued in June 2008. The site was recommended for NFA based on evaluation of historical sample data. Therefore, the site was included in the Final No Action Decision Document issued in January 2009.

East Vieques		
Site Designation	***Description of Site***	***Status***
AOC G	Former pump station and chlorination building at sewage lagoons (Camp Garcia). This site is located adjacent to the old sewage treatment lagoons (SWMU 10) at Camp Garcia. The site consists of a building that housed a pump station and chlorination equipment used in the past for the chlorination of the lagoon system effluent. These facilities were placed into operation in the 1950s and are no longer in service (NAVFAC, 2003).	Based on data collected during the Phase I RFI, AOC G was recommended for an ESI in the Final PA/SI Report for 12 Consent Order Sites and 8 PI/PAOC Sites issued in June 2008. The ESI field investigation was completed in May 2009, which involved additional soil sampling. The Final SI/ESI Report was issued in August 2010. Based on the findings of the Phase I RFI/ESI, the site was included in the Final No Action/No Further Action Decision Document issued in September 2010.
PAOC I	Former power plant and mechanics shop (Building 401) northeast of Building 303 at Camp Garcia. No evidence of hazardous waste, hazardous material, petroleum, or munitions storage or disposal was identified at the site (NAVFAC, 2003).	The SI field investigation was completed in May 2009, during which soil sampling was conducted at PAOC I. The Final SI/ESI Report was issued in August 2010. Based on the SI findings, the site was included in the Final No Action/No Further Action Decision Document issued in September 2010.
PAOC J	Former vehicle maintenance area at Camp Garcia immediately north of the main road (all structures were demolished prior to 1980). No evidence of hazardous waste, hazardous material, petroleum, or munitions storage, disposal, or releases was identified at the site (NAVFAC, 2003).	Based on data collected during the SI, PAOC J was recommended for NFA, pending a groundwater evaluation at Camp Garcia, in the Final PA/SI Report for 12 Consent Order Sites and 8 PI/PAOC Sites issued in June 2008. The regional monitoring wells were installed and groundwater samples collected during the ESI field investigation completed in May 2009 and the Final SI/ESI Report was issued in August 2010. Based on the SI and groundwater sampling findings, the site was included in the Final No Action/No Further Action Decision Document issued in September 2010.
PAOC K	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 identified at the site (NAVFAC, 2003).	Based on data collected during the SI, PAOC K was recommended for NFA, pending a groundwater evaluation at Camp Garcia, in the Final PA/SI Report for 12 Consent Order Sites and 8 PI/PAOC Sites issued in June 2008. The regional monitoring wells were installed and groundwater samples collected during the ESI field investigation completed in May 2009 and the Final SI/ESI Report was issued in August 2010. Based on the SI and groundwater sampling findings, the site was included in the Final No Action/No Further Action Decision Document issued in September 2010.

East Vieques		
Site Designation	***Description of Site***	***Status***
PAOC L	Former paint and transformer storage building.	Based on data collected during the SI, PAOC L was recommended for an ESI in the Final PA/SI Report for 12 Consent Order Sites and 8 PI/PAOC Sites issued in June 2008. The ESI field investigation was completed in May 2009, during which contaminated soil surrounding the building was removed and confirmatory soil and groundwater samples were collected. The Final SI/ESI Report was issued in August 2010. Based on the soil removal and confirmatory sample findings, the site was included in the Final No Action/No Further Action Decision Document issued in September 2010.
PAOC M	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 identified at the site (NAVFAC, 2003).	The SI field investigation was completed in May 2009, during which soil samples were collected and screened for potential contamination; no release was suspected based on the screening. The Final SI/ESI Report was issued August 2010. Based on the SI findings, the site was included in the Final No Action/No Further Action Decision Document issued in September 2010.
PAOC N	Former fuel farm and filling station (demolished 1992). No evidence of hazardous waste, hazardous material, petroleum, or munitions storage, disposal, or releases was identified at the site (NAVFAC, 2003).	Based on data collected during the SI, PAOC N was recommended for NFA, pending a geophysical survey to confirm no underground fuel pipeline, in the Final PA/SI Report for 12 Consent Order Sites and 8 PI/PAOC Sites issued in June 2008. The geophysical survey was conducted during ESI field investigation completed in May 2009, which indicated no underground fuel pipeline was present. The Final SI/ESI Report was issued August 2010. Based on the SI and geophysical survey findings, the site was included in the Final No Action/No Further Action Decision Document issued in September 2010.
PAOC O	Former boiler room in the heat plant building (Building 238, demolished 1989). No evidence of hazardous waste, hazardous material, petroleum, or munitions storage or disposal was identified at the site (NAVFAC, 2003).	The SI field investigation was completed in May 2009, during which soil sampling was conducted at PAOC O. The Final SI/ESI Report was issued in August 2010. Based on the SI findings, the site was included in the Final No Action/No Further Action Decision Document issued in September 2010.
PAOC P	Former water treatment facility pump house (Building 500, demolished 1989). No evidence of hazardous waste, hazardous material, petroleum, or munitions storage or disposal was identified at the site (NAVFAC, 2003).	The SI field investigation was completed in May 2009, during which soil sampling was conducted at PAOC P. The Final SI/ESI Report was issued in August 2010. Based on the SI findings, the site was included in the Final No Action/No Further Action Decision Document issued in September 2010.

East Vieques		
Site Designation	***Description of Site***	***Status***
PAOC Q/R	PAOC Q is a former boiler house in heat plant Building 607 (demolished 1984). No evidence of hazardous waste, hazardous material, petroleum, or munitions storage or disposal was identified at the site (NAVFAC, 2003). PAOC R is a former boiler house in heat plant Building 617 (demolished 1984). The former location of this building is suspected to be near PAOC Q based on historical aerial photographs.	The SI field investigation was completed in May 2009, during which soil sampling was conducted at PAOC Q/R. The Final SI/ESI Report was issued in August 2010 and recommended additional soil sampling. The Final SI/ESI Addendum Report was issued in June 2011. Based on the SI and Supplemental SI findings, the site was included in the Final No Action/No Further Action document issued in September 2011.
PAOC S	Former aboveground petroleum pipeline (demolished 1984). An additional area was added to this site, referred to as the power plant. No evidence of hazardous waste, hazardous material, petroleum, or munitions storage, disposal, or releases was identified at the site (NAVFAC, 2003).	Based on data collected during the SI, PAOC S was recommended for NFA, pending a geophysical survey to confirm no underground fuel pipeline, in the Final PA/SI Report for 12 Consent Order Sites and 8 PI/PAOC Sites issued in June 2008. The geophysical survey was conducted during the ESI field investigation completed in May 2009, which indicated no underground fuel pipeline was present. The Final SI/ESI Report was issued in August 2010. Based on the SI and geophysical survey findings, the site was included in the Final No Action/No Further Action Decision Document issued in September 2010.
PAOC T	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 identified at the site (NAVFAC, 2003).	The SI field investigation was completed in 2006, during which soil sampling was conducted at PAOC T. The Final PA/SI Report was submitted in June 2008. Based on the SI findings, the site was included in the Final No Action Decision Document issued in January 2009.
PAOC U	Former vehicle maintenance area just north of former Building 303 at Camp Garcia. Historic storage of hazardous waste, hazardous material, and petroleum products. Some staining of soil outside of building near container storage pallets (NAVFAC, 2003).	The SI field investigation was completed in 2006, during which soil and groundwater sampling was conducted at PAOC U. The Final PA/SI Report was submitted in June 2008. Based on the SI findings, the site was included in the Final No Action Decision Document issued in January 2009.
PAOC V	Former storage area for a leaking transformer.	In 2002, soil samples were collected at the location of a former leaking transformer; one PCB was detected below risk-based screening criteria. Based on these findings, the site was included in the Final No Action Decision Document issued in January 2009.

East Vieques		
Site Designation	***Description of Site***	***Status***
PAOC W	Former area of pooled, discolored water adjacent to the main road from Camp Garcia. The area is part of Laguna La Chiva. No evidence of hazardous waste, hazardous material, petroleum, or munitions storage or disposal was identified. Site Interviewees had no knowledge of past activity (NAVFAC, 2003).	The Mangrove Forest Health and Status Report (2002) determined that the discolored water was likely due to increased organic matter caused by the road crossing the lagoon cutting off normal water circulation with the sea. Based on this information, the site was included in the Final No Action Decision Document issued in January 2009.
PAOC X	Quebrada (intermittent stream channel) located north from the main road and west from Camp Garcia, adjacent to the former vehicle maintenance area. Formerly contained an automobile body, tires, scrap metal, and construction-related solid waste and debris (NAVFAC, 2003).	The SI field investigation was completed in May 2009, during which the debris in the quebrada and along its banks was removed and confirmatory soil samples collected. The Final SI/ESI Report was issued in August 2010. Based on the debris removal and confirmatory soil sample findings, the site was included in the Final No Action/No Further Action Decision Document issued in September 2010.
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 identified at the site (NAVFAC, 2003).	The SI field investigation was completed in May 2009, during which soil samples were collected. The Final SI/ESI Report was issued in August 2010. Based on the SI findings, the site was included in the Final No Action/No Further Action Decision Document issued in September 2010.
PI-6	Former ASTs and facilities associated with the former location of the site drinking water system. The following facilities were observed: • 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 potentially used to store PCB-containing transformers (NAVFAC, 2003)	The SI field investigation was completed in May 2009, during which soil samples were collected. The Final SI/ESI Report was issued in August 2010. Based on the SI findings, the site was included in the Final No Action/No Further Action Decision Document issued in September 2010.

East Vieques		
Site Designation	***Description of Site***	***Status***
PI-7	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 containing asphalt were observed. Two drums were also observed in the former quarry. No items of concern identified in northern portion of site (NAVFAC, 2003).	Based on data collected and observations made during the SI, PI-7 was recommended for an ESI in the Final PA/SI Report for 12 Consent Order Sites and 8 PI/PAOC Sites issued in June 2008. The ESI field investigation was completed in 2009, during which the drums and associated contaminated soil were removed and soil and groundwater samples were collected, and the Supplemental ESI field investigation was completed in 2010 during which additional soil samples were collected. The Final SI/ESI Report was issued in August 2010 and the Final SI/ESI Addendum Report was issued in June 2011. Based on the drum/contaminated soil removal and soil and groundwater sample findings, site was included in the Final No Action/No Further Action document issued in September 2011.
PI-8	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 (NAVFAC, 2003).	The SI field investigation was completed in May 2009, during which soil sampling was conducted at PI-8. The Final SI/ESI Report was issued in August 2010. Based on the SI findings, the site was included in the Final No Action/No Further Action Decision Document issued in September 2010.
PI-10	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 (NAVFAC, 2003).	The SI field investigation was completed in May 2009, during which soil sampling was conducted at PI-10. The Final SI/ESI Report was issued in August 2010. Based on the SI findings, the site was included in the Final No Action/No Further Action Decision Document issued in September 2010.
PI-11	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 (NAVFAC, 2003).	Based on a site visit and evaluation of historical soil sample data collected at PI-11, the site was included in the Final No Action Decision Document issued in January 2009.
PI-20	Former observation point during landing exercises, and potentially used as a quarry in the past. No evidence of prior disposal activities or other contamination identified (NAVFAC, 2003).	Based on historical information and a site visit, the site was included in the Final No Action Decision Document issued in January 2009.

East Vieques		
Site Designation	***Description of Site***	***Status***
PI-21	Possible location of a former artillery firing position, but no corroborating evidence was identified or observed. The area was used as quarry. ERI 200 aerial photography identified a vertical tank, pits, disturbed ground, pits containing discolored liquid. Pits containing discolored liquid were subsequently determined to be just low-lying areas where surface water collected and algae formed.	Based on evaluation of historical information, including aerial photographs, and a site visit, an SI field investigation was completed in April 2013, which included soil sampling at the location of the former vertical tank. Based on evaluation of the data, a Final No Action Decision Document was issued in June 2014.
Laguna La Chiva	In October 2007, NOAA collected three sediment samples from Laguna La Chiva as part of an island-wide sediment evaluation (NOAA, 2010). Pesticide concentrations (primarily DDT, DDE, and DDD) were detected at concentrations higher than at other lagoons on Vieques sampled by NOAA and the Navy and above various ecological screening levels commonly used on Vieques. None exceeded EPA Regional Screening Levels (RSLs) for residential soil, but fish and crab concentrations were not modeled from the sediment concentrations to determine if they may pose an unacceptable risk based on human consumption.	Based on evaluation of historical information a Final SI/RI SAP was submitted in April 2013 (CH2M, 2013g). Sampling took place in May 2013 where 16 sediment samples (representing 12 locations) across Laguna La Chiva and 7 soil samples within the surrounding upland area were collected. The results of this sampling showed that the sediment and soil constituent concentrations do not pose a potentially unacceptable risk to human or ecological receptors. A Final No Action Decision Document was issued in September 2014.

West Vieques		
Site Designation	***Description of Site***	***Status***
SWMU 5	Interviews and records indicate that this site was an IRFNA/MAF-4 Disposal Site (drone fuel). One-time (1975) disposal of 7,000 pounds of drone fuel (inhibited red fuming nitric acid/mixed amine fuel #4 [IRFNA/MAF-4]) reportedly emptied into low spot on ground (Program Management Company, 2000).	The site was investigated during a PA/SI. Based on the findings of the PA/SI, this site was included in the No Further Action Report for Nine Sites issued in October 2006. In February 2007, PREQB concurred with the NFA findings.
SWMU 10	Interviews and records indicate that this site was a former waste paint and solvent disposal ground at Building 4001 within the Public Works Area. It was suspected that small quantities of paint, solvents, and thinners were disposed of on the ground outside Building 4001 (Program Management Company, 2000).	The site was investigated during a PA/SI. Based on the findings of the PA/SI, this site was included in the No Further Action Report for Nine Sites issued in October 2006. In February 2007, PREQB concurred with the NFA findings.
SWMU 14	Interviews and records indicate that this site was a former wash rack near Building 2016 within the Public Works Area. It was used for cleaning Navy vehicles. Degreasing solvents possibly used in this area (Program Management Company, 2000).	The site was investigated during a PA/SI. Based on the findings of the PA/SI, this site was included in the No Further Action Report for Nine Sites issued in October 2006. In February 2007, PREQB concurred with the NFA findings.
SWMU 15	Interviews and records indicate that this site was a former waste transportation vehicle parking area within the Public Works Area. The parking area was reported to have trucks parked there with drums that may have leaked (Program Management Company, 2000).	The site was investigated during a PA/SI. Based on the findings of the PA/SI, this site was included in the No Further Action Report for Nine Sites issued in October 2006. In February 2007, PREQB concurred with the NFA findings.
AOC B	Interviews and records indicate that this site was a former wastewater treatment plant (WWTP) and disposal ground located on southwest end of the Public Works Area. The WWTP effluent was discharged to disposal lagoons (Program Management Company, 2000).	The site was investigated during a PA/SI. Based on the findings of the PA/SI, this site was included in the No Further Action Report for Nine Sites issued in October 2006. In February 2007, PREQB concurred with the NFA findings.
AOC C	Interviews and records indicate these drainage ditches were near a former transportation shop within the Public Works Area. These ditches collect surface runoff from surrounding area. One of the ditches was observed as having an oily sheen (Program Management Company, 2000).	The site was investigated during a PA/SI. Based on the findings of the PA/SI, this site was included in the No Further Action Report for Nine Sites issued in October 2006. In February 2007, PREQB concurred with the NFA findings.

West Vieques		
Site Designation	***Description of Site***	***Status***
AOC F	Interviews and records indicate area used as a former underground injection control (UIC) septic tank that is near the former Enlisted Men's Club at the former Public Works Area (Program Management Company, 2000).	The site was investigated during a PA/SI. Based on the findings of the PA/SI, this site was included in the No Further Action Report for Nine Sites issued in October 2006. In February 2007, PREQB concurred with the NFA findings.
AOC K	Interviews and records indicate the site was a former water well just northeast of the Public Works Area. The well was used as a potable water well from 1941 to 1979. It was plugged and abandoned in 1979 but was rehabilitated in 1997 by the USGS (Program Management Company, 2000).	The site was investigated during a PA/SI. Based on the findings of the PA/SI, this site was included in the No Further Action Report for Nine Sites issued in October 2006. In February 2007, PREQB concurred with the NFA findings.
AOC L	Interviews and records indicate the site was an abandoned septic tank and drainage field located north of the Public Works Area about 200 feet from the beach. The actual historical use of the site is unknown (Program Management Company, 2000).	The site was investigated during a PA/SI. Based on the findings of the PA/SI, this site was included in the No Further Action Report for Nine Sites issued in October 2006. In February 2007, PREQB concurred with the NFA findings.

Appendix B-2
Munitions Response Sites

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

MRS/ Site Designation	***Operational Area***	***Sites Within MRS***	***Description of Site***	***Status***
East Vieques UXO 17	EMA	PAOC FF and PI-14	PI-14 was described as two pits with light toned material and possible debris. PAOC FF was identified as a potential former artillery firing point. However, the ERA/SI did not identify any MEC at any of the locations.	The ERA/SI recommended removing the metal debris, and two unused flares that were identified at the PI-14 site. No munitions-related items were found at the PAOC FF site. Based on this, PI-14 and PAOC FF were included in the Final No Action Decision Document issued in December 2010.

Appendix C
DoD Site Prioritization Protocol Scoring

APPENDIX C
DoD Site Prioritization Protocol Scoring

Site		**Alias**
UXO 1		Eastern Conservation Area
EHE Module	**Score**	**Comment**
Table 1 - EHE, Munitions Type Data Element	30	Submunitions 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	0	
Table 8 - EHE, Types of Activities/Structures Data Element	5	
Table 9 - EHE, Ecological and/or Cultural Resources Data Element	3	Sea turtle nesting area
Total Score	89	
Table 10 - EHE Rating	B	
CHE Module	**Score**	**Comment**
Total Score	N/A	No known or suspected chemical warfare material
Table 20 - CHE Rating	N/A	
HHE Module	**Score**	**Comment**
Table 21 - HHE, Groundwater Data Element	N/A	No known or suspected groundwater MC hazard
Table 22 - HHE, Surface Water – Human Endpoint Data Element	N/A	No known or suspected surface water (human endpoint) MC hazard
Table 23 - HHE, Sediment – Human Endpoint Data Element	N/A	No known or suspected sediment (human endpoint) MC hazard
Table 24 - HHE, Surface Water – Ecological Endpoint Data Element	N/A	No known or suspected sediment (ecological endpoint) MC hazard
Table 25 - HHE, Sediment – Ecological Endpoint Data Element	N/A	No known or suspected sediment (ecological endpoint) MC hazard
Table 26 - HHE, Surface Soil Data Element	N/A	No known or suspected surface soil MC hazard
Table 27 - HHE, Supplemental Contaminant Hazard Factor	---	
Table 28 - HHE, Hazard Rating	**N/A**	No known or suspected HHE hazard
Table 29 - MRS Priority	**Priority**	
EHE Module Rating	**3**	
CHE Module Rating	**N/A**	No known or suspected chemical warfare material hazard
HHE Module Rating	**N/A**	No known or suspected MC hazard

DoD Site Prioritization Protocol Scoring

Site		**Alias**
UXO 2		LIA Beaches
EHE Module	**Score**	**Comment**
Table 1 - EHE, Munitions Type Data Element	30	Submunitions identified during TCRA and NTCRA
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	Sea 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 material
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" has been used.
Table 29 - MRS Priority	**Priority**	
EHE Module Rating	**2**	
CHE Module Rating	**N/A**	No known or suspected chemical warfare material
HHE Module Rating	**5**	

DoD Site Prioritization Protocol Scoring

Site		**Alias**
UXO3		LIA Roads
EHE Module	**Score**	**Comment**
Table 1 - EHE, Munitions Type Data Element	30	Submunitions 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 material
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" has been used.
Table 29 - MRS Priority	**Priority**	
EHE Module Rating	**2**	
CHE Module Rating	**N/A**	No known or suspected chemical warfare material
HHE Module Rating	**5**	

DoD Site Prioritization Protocol Scoring

Site		**Alias**
UXO4		LIA Interior
EHE Module	**Score**	**Comment**
Table 1 - EHE, Munitions Type Data Element	30	Submunitions 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 material
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" has been used.
Table 29 - MRS Priority	**Priority**	
EHE Module Rating	**2**	
CHE Module Rating	**N/A**	No known or suspected chemical warfare material
HHE Module Rating	**5**	

DoD Site Prioritization Protocol Scoring

Site		**Alias**
UXO5		SIA Restricted Roads
EHE Module	**Score**	**Comment**
Table 1 - EHE, Munitions Type Data Element	30	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	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 material
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" has been used.
Table 29 - MRS Priority	**Priority**	
EHE Module Rating	**2**	
CHE Module Rating	**N/A**	No known or suspected chemical warfare material
HHE Module Rating	**5**	

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 NTCRA
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 material
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" has been used.
Table 29 - MRS Priority	**Priority**	
EHE Module Rating	**2**	
CHE Module Rating	**N/A**	No known or suspected chemical warfare material
HHE Module Rating	**5**	

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 NTCRA
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	Sea turtle nesting area
Total Score	96	
Table 10 - EHE Rating	A	
CHE Module	**Score**	**Comment**
Total Score	N/A	No known or suspected chemical warfare material
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" has been used.
Table 29 - MRS Priority	**Priority**	
EHE Module Rating	**2**	
CHE Module Rating	**N/A**	No known or suspected chemical warfare material
HHE Module Rating	**5**	

DoD Site Prioritization Protocol Scoring

Site		**Alias**
UXO8		SIA South Beaches
EHE Module	**Score**	**Comment**
Table 1 - EHE, Munitions Type Data Element	30	MEC projectiles were identified during the NTCRA
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	Sea 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 material
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" has been used.
Table 29 - MRS Priority	**Priority**	
EHE Module Rating	**2**	
CHE Module Rating	**N/A**	No known or suspected chemical warfare material
HHE Module Rating	**5**	

DoD Site Prioritization Protocol Scoring

Site		**Alias**
UXO9		SIA Exterior
EHE Module	**Score**	**Comment**
Table 1 - EHE, Munitions Type Data Element	30	Submunitions were identified in the NTCRA
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 material
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" has been used.
Table 29 - MRS Priority	**Priority**	
EHE Module Rating	**2**	
CHE Module Rating	**N/A**	No known or suspected chemical warfare material
HHE Module Rating	**5**	

DoD Site Prioritization Protocol Scoring

Site		**Alias**
UXO10		SIA Interior
EHE Module	**Score**	**Comment**
Table 1 - EHE, Munitions Type Data Element	30	Projectiles identified during NTCRA and a submunition was 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 material
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" has been used.
Table 29 - MRS Priority	**Priority**	
EHE Module Rating	**2**	
CHE Module Rating	**N/A**	No known or suspected chemical warfare material
HHE Module Rating	**5**	

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 NTCRA
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 material
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" has been used.
Table 29 - MRS Priority	**Priority**	
EHE Module Rating	**2**	
CHE Module Rating	**N/A**	No known or suspected chemical warfare material
HHE Module Rating	**5**	

DoD Site Prioritization Protocol Scoring

Site		**Alias**
UXO12		EMA Interior
EHE Module	**Score**	**Comment**
Table 1 - EHE, Munitions Type Data Element	30	MEC items identified after brush fire and during NTCRA
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 material
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" has been used.
Table 29 - MRS Priority	**Priority**	
EHE Module Rating	**2**	
CHE Module Rating	**N/A**	No known or suspected chemical warfare material
HHE Module Rating	**5**	

DoD Site Prioritization Protocol Scoring

Site		**Alias**
UXO13		EMA West
EHE Module	**Score**	**Comment**
Table 1 - EHE, Munitions Type Data Element	30	MEC identified during NTCRA
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 material
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" has been used.
Table 29 - MRS Priority	**Priority**	
EHE Module Rating	**2**	
CHE Module Rating	**N/A**	No known or suspected chemical warfare material
HHE Module Rating	**5**	

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 material
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" has been used.
Table 29 - MRS Priority	**Priority**	
EHE Module Rating	**2**	
CHE Module Rating	**N/A**	No known or suspected chemical warfare material
HHE Module Rating	**5**	

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 material
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" has been used.
Table 29 - MRS Priority	**Priority**	
EHE Module Rating	**3**	
CHE Module Rating	**N/A**	No known or suspected chemical warfare material
HHE Module Rating	**5**	

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 material
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" has been used.
Table 29 - MRS Priority	**Priority**	
EHE Module Rating	**2**	
CHE Module Rating	**N/A**	No known or suspected chemical warfare material
HHE Module Rating	**5**	

DoD Site Prioritization Protocol Scoring

Site		**Alias**
UXO 17		Camp Garcia
EHE Module	**Score**	**Comment**
Table 1 - EHE, Munitions Type Data Element	30	Flares, small arms, bulk primary explosives found during investigation
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	91	
Table 10 - EHE Rating	B	
CHE Module	**Score**	**Comment**
Total Score	N/A	No known or suspected chemical warfare material
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" has been used.
Table 29 - MRS Priority	**Priority**	
EHE Module Rating	**3**	
CHE Module Rating	**N/A**	No known or suspected chemical warfare material
HHE Module Rating	**5**	

DoD Site Prioritization Protocol Scoring

Site		**Alias**
UXO18 Cayo La Chiva		EMA Interior
EHE Module	**Score**	**Comment**
Table 1 - EHE, Munitions Type Data Element	30	MEC on ground surface identified during SI
Table 2 - EHE, Source of Hazard Data Element	10	No known use as a range however findings during SI indicate possible use for training.
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 material
Table 20 - CHE Rating	N/A	
HHE Module	**Score**	**Comment**
Table 21 - HHE, Groundwater Data Element	N/A	No known or suspected groundwater MC hazard
Table 22 - HHE, Surface Water – Human Endpoint Data Element	N/A	No known or suspected surface water (human endpoint) MC hazard
Table 23 - HHE, Sediment – Human Endpoint Data Element	N/A	No known or suspected sediment (human endpoint) MC hazard
Table 24 - HHE, Surface Water – Ecological Endpoint Data Element	N/A	No known or suspected sediment (ecological endpoint) MC hazard
Table 25 - HHE, Sediment – Ecological Endpoint Data Element	N/A	No known or suspected sediment (ecological endpoint) MC hazard
Table 26 - HHE, Surface Soil Data Element	N/A	No known or suspected surface soil MC hazard
Table 27 - HHE, Supplemental Contaminant Hazard Factor	---	
Table 28 - HHE, Hazard Rating	**N/A**	No known or suspected HHE hazard
Table 29 - MRS Priority	**Priority**	
EHE Module Rating	**2**	
CHE Module Rating	**N/A**	No known or suspected chemical warfare material hazard
HHE Module Rating	**N/A**	No known or suspected MC hazard

DoD Site Prioritization Protocol Scoring

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 material
Table 20 - CHE Rating	N/A	
HHE Module	**Score**	**Comment**
Table 21 - HHE, Groundwater Data Element	N/A	No known or suspected groundwater MC hazard
Table 22 - HHE, Surface Water – Human Endpoint Data Element	N/A	No known or suspected surface water (human endpoint) MC hazard
Table 23 - HHE, Sediment – Human Endpoint Data Element	N/A	No known or suspected sediment (human endpoint) MC hazard
Table 24 - HHE, Surface Water – Ecological Endpoint Data Element	N/A	No known or suspected sediment (ecological endpoint) MC hazard
Table 25 - HHE, Sediment – Ecological Endpoint Data Element	N/A	No known or suspected sediment (ecological endpoint) MC hazard
Table 26 - HHE, Surface Soil Data Element	N/A	No known or suspected surface soil MC hazard
Table 27 - HHE, Supplemental Contaminant Hazard Factor	---	
Table 28 - HHE, Hazard Rating	**N/A**	No known or suspected HHE hazard
Table 29 - MRS Priority	**Priority**	
EHE Module Rating	**2**	
CHE Module Rating	**N/A**	No known or suspected chemical warfare material hazard
HHE Module Rating	**N/A**	No known or suspected MC hazard