



Atlantic  
Norfolk, Virginia

Draft Final

Site Management Plan  
Fiscal Year 2023 Amendment

Atlantic Fleet Weapons Training Area – Vieques  
Vieques, Puerto Rico

November 2022



Atlantic  
Norfolk, Virginia

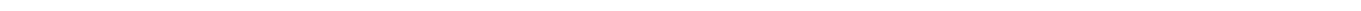
Draft Final

Site Management Plan  
Fiscal Year 2023 Amendment

Atlantic Fleet Weapons Training Area – Vieques  
Vieques, Puerto Rico

November 2022

Prepared for NAVFAC Atlantic  
by CH2M HILL, Inc.  
Virginia Beach, Virginia  
Contract N62470-16-D-9000  
CTO 0004



# Executive Summary

This Site Management Plan (SMP) provides a summary of Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) response actions and associated activities/documentation undertaken at the Atlantic Fleet Weapons Training Area (AFWTA) – Vieques, Vieques, Puerto Rico, comprising the Former Naval Ammunition Support Detachment (NASD) and the Former Vieques Naval Training Range (VNTR) (Figure ES-1). In addition, the SMP provides milestones which reflect the anticipated schedule of completing CERCLA response actions and related activities that have been agreed to by the Department of the Navy (Navy) and the regulatory agencies. Milestones are provided for the Installation Restoration Program (IRP) and the Munitions Response Program (MRP), both of which are part of the Environmental Restoration Program (ERP) for the AFWTA.

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 Superfund Enterprise Management System (SEMS). This SMP presents a description of the CERCLA sites and the projected schedules of CERCLA response actions and related activities in general accordance with timelines presented in the FFA. The Parties that entered into the 2007 FFA comprised the Navy (represented at that time by the Naval Facilities Engineering Command Atlantic [NAVFAC]), Environmental Protection Agency Region 2 (EPA), Commonwealth of Puerto Rico (represented at that time by the Puerto Rico Environmental Quality Board [PREQB]), and the Department of the Interior (DOI). On August 2, 2018, Law #171 was promulgated and approved by the Governor of Puerto Rico to execute the reorganization of several agencies. As a result, the faculties, functions, services, and structures of PREQB (as well as the Solid Waste Authority and National Parks Program) were transferred to the Puerto Rico Department of Natural and Environmental Resources (PRDNER). As such, the former PREQB responsibilities associated with the FFA and CERCLA cleanup at Vieques now fall under PRDNER. In addition, on November 3, 2020, NAVFAC updated its name to Naval Facilities Engineering Systems Command to better reflect its responsibilities in technology and technical service delivery and acquisition, facility construction and engineering, and management and environmental services.

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

- A description of actions necessary to mitigate any immediate threat to human health and the environment
- A description of all currently identified Site Screening Areas (SSA), Operable Units (OUs), 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:
  - Identification of actions
  - Deadlines
  - Near-term milestones
  - Out-year milestones
  - Target dates
  - Schedule for initiation of Remedial Designs, RAs, TCRAs, NTCRAs, and any initiation of other planned response actions covered by the FFA and projected end dates

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.

The schedule of planned CERCLA ERP activities and major project deliverables between October 1, 2022 and December 31, 2023 is provided as Figure ES-2. Based on new information or conditions that arise that may affect the anticipated schedules, they will be re-evaluated and updated as mutually agreed to by the agencies.

## 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.

### East Vieques (Former VNTR)

The former VNTR, which comprises approximately 14,600 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 (and associated step-down plans prepared by USFWS) and PRDNER's UXO 18 (Cayo La Chiva) land use plan.

### 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 appendixes. 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 identified in the CCP and associated step-down plan prepared by USFWS for property owned by DOI.



# Resumen Ejecutivo

Este Plan de Manejo del Sitio (SMP, por sus siglas en inglés) presenta un resumen de las acciones de respuesta, actividades y documentos relacionados a la Ley de Respuesta, Compensación y Responsabilidad Ambiental (CERCLA en inglés) que van a llevarse a cabo en la Antigua Área de Adiestramiento con Armas de la Flota del Atlántico (AFWTA, por sus siglas en inglés) – Vieques, Vieques Puerto Rico (Figure ES-1). Además, el SMP presenta los logros que se reflejan en el calendario de actividades que se anticipa para que se completen las acciones de respuesta de CERCLA y actividades relacionadas que han sido acordadas por el Departamento de la Marina (Marina) y las agencias reguladoras. Se presentan los logros tanto para el Programa de Restauración de la Instalación (IRP, por sus siglas en inglés) como para el Programa de Respuesta a Municiones (MRP, por sus siglas en inglés), los cuales forman parte del Programa de Restauración Ambiental (ERP, por sus siglas en inglés) para el AFWTA.

El SMP cumple con los requerimientos del Acuerdo de Instalaciones Federales (FFA, por sus siglas en inglés) bajo la ley CERCLA Sección 120 (Número de Archivo FFA-CERCLA 02-2007-2001; EPA, 2007). Bajo CERCLA, a Vieques se le refiere como AFWTA - Vieques, lo cual es consistente con la designación en el Sistema de Gestión de la Iniciativa Superfund (SEMS, por sus siglas en inglés). Este SMP presenta una descripción de los sitios investigados bajo CERCLA y el calendario de actividades de acciones de respuesta bajo CERCLA y actividades relacionadas según los itinerarios establecidos en el FFA. Las partes que entraron el acuerdo FFA en el 2007 incluye la Marina (representada en aquel entonces por el Comando de Ingeniería de Instalaciones Navales del Atlántico [NAVFAC, por sus siglas en inglés]), la Agencia de Protección Ambiental de los EE.UU. (EPA por sus siglas en inglés) Región 2; El Estado Libre Asociado de Puerto Rico, (representado en aquel entonces por la Junta de Calidad Ambiental de Puerto Rico [PREQB, por sus siglas en inglés]); y el Departamento del Interior de los EE.UU. (DOI, por sus siglas en inglés). La Ley #171 del 2 de agosto de 2018 fue promulgada y aprobada por el Gobernador de Puerto Rico con miras a la reorganización de varias agencias gubernamentales. Como resultado, el personal, funciones, servicios y estructura de la PREQB (así como de la Autoridad de Desperdicios Sólidos y el Programa de Parques Naciones) pasaron al Departamento de Recursos Naturales y Ambientales de Puerto Rico (PRDNER, por sus siglas en inglés). Por consiguiente, las responsabilidades anteriores de la PREQB vinculadas al FFA y limpieza bajo el CERCLA de Vieques ahora quedan bajo el PRDNER. Además, el 3 de noviembre de 2020, NAVFAC actualizó su nombre a Comando de Sistemas de Ingeniería de Instalaciones Navales para reflejar mejor sus responsabilidades en tecnología y prestación y adquisición de servicios técnicos, construcción e ingeniería de instalaciones, y servicios de gestión y ambientales.

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

- Una descripción de cualquier acción necesaria para mitigar cualquier amenaza inmediata para la salud humana y el ambiente
- Una descripción de todas las 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) identificadas actualmente que están planificadas o que se están ejecutando de acuerdo al FFA
- Las actividades y el calendario de actividades para las acciones de respuesta, incluyendo:
  - Identificación de cualquier acción primaria
  - Plazos de cumplimiento
  - Logros para alcanzarse a corto plazo

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

- Logros del año
- Fechas meta
- El calendario para iniciar los Diseños para la Remediación (RD, por sus siglas en inglés), RAs, 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

La Figura ES-2 muestra el calendario de actividades planificadas bajo el CERCLA ERP y los principales entregables del proyecto entre el 1 de octubre de 2022 y el 31 de diciembre de 2023. Según surja información nueva o una condición que pudiera afectar el calendario establecido, este último será reevaluado y actualizado por acuerdo mutuo entre las agencias.

## Descripción de la Instalación

La Isla de 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 ES-1). El Antiguo Campo de Adiestramiento Naval de Vieques (VNTR, por sus siglas en inglés) está localizado en la mitad este, y el antiguo Destacamento de Apoyo a Municiones Navales (NASD, por sus siglas en inglés) está localizado en el tercio oeste, con las comunidades de Isabel Segunda y Esperanza en el medio. El 11 de febrero de 2005, Vieques fue añadida a la Lista de Prioridades Nacionales (NPL, por sus siglas en inglés) por la EPA.

### Vieques Este (Antiguo VNTR)

El antiguo VNTR se compone de aproximadamente 14,600 acres, y proporcionó adiestramiento de guerra sobre tierra y adiestramiento de técnicas anfibia para los infantes de marina, adiestramiento de apoyo de armas navales, y adiestramiento de combate de aire-tierra. El antiguo VNTR fue dividido en cuatro áreas operativas separadas, que se componen, de oeste a este: 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, por 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 de 2003, el antiguo VNTR fue transferido al DOI para ser operado y manejado por el Servicio de Pesca y Vida Silvestre de los Estados Unidos (USFWS, por sus siglas en inglés) como un Refugio Nacional de Vida Silvestre de acuerdo a 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 consisten del LIA, son manejados como un área silvestre donde se prohíbe el acceso al público de acuerdo a 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 su concepto para el manejo del refugio (DOI, 2007). 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 requerimientos aplicables o relevantes y apropiados (ARARs, por sus siglas en inglés), considerando el uso futuro de los terrenos identificado en el CCP (y los planes relacionados a la reducción gradual preparados por el USFWS) y el plan de uso de terrenos del UXO 18 (Cayo La Chiva) del PRDNER.

### Vieques Oeste (Antiguo NASD)

El 30 de abril de 2001, los 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 anejos. La propiedad que le pertenece al 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 ambiental 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 identificado en el CCP y los planes relacionados a la reducción gradual preparados por el USFWS para la propiedad perteneciente al DOI.



FIGURE ES-1  
**Regional Location Map**  
*Site Management Plan, FY 2023*  
*Vieques, Puerto Rico*

**FIGURE ES-2**  
**Vieques Munitions Response and Installation Restoration Program Schedule**  
*Site Management Plan*  
*Atlantic Fleet Weapons Training Area – Vieques*  
*Vieques, Puerto Rico*

Month-Year:	November-22					December-22					January-23					February-23					March-23					April-23					May-23					June-23					July-23					August-23					September-23					October-23					November-23					December-23				
Week Ending:	04	11	18	25	02	09	16	23	30	06	13	20	27	03	10	17	24	03	10	17	24	31	07	14	21	28	05	12	19	26	02	09	16	23	30	07	14	21	28	04	11	18	25	01	08	15	22	29	06	13	20	27	03	10	17	24	01	08	15	22	29									
DELIVERABLES																																																																						
West Vieques																																																																						
AOC E																																																																						
Remedial Action - Operation Monitoring/Annual Report <sup>2</sup>											Sample analysis, validation, database upload										Annual Status Report										Regulatory Review										Comment Resp																													
SWMU 4																																																																						
Remedial Action <sup>1</sup>	Remedial A				Draft IRACR Report															Regulatory Review										Comment Resp/Draft Final prep										DF Eval/RAB*																														
Remedial Action - Operation Monitoring/Annual Report <sup>2</sup>	Sample analysis				validation, database upload					Sample analysis, validation, database upload										Annual Status Report										Regulatory Review										Comment Resp																														
East Vieques																																																																						
SWMU 1																																																																						
Long-Term Monitoring/Annual Report <sup>2</sup>											LTM					Sample analysis, validation, database upload										Annual Status Report										Regulatory Review										Comment Resp																								
SWMU 20																																																																						
See PFAS																																																																						
PFAS																																																																						
PFAS Site Inspection <sup>1</sup>	Draft Site Inspection Report																									Regulatory Review																				Comment Resp/Draft Final prep										DF Eval/RAB*														
PFAS Remedial Investigation <sup>1</sup>																																																																						
UXO 1 (ECA)																																																																						
Long-Term Monitoring/Annual Report <sup>2</sup>	Annual		Regulatory Review																				Comment Resp																									LTM					Annual Status Report					Regulatory Review												
UXO 2 (LIA Beaches)																																																																						
UXO 7 (EMA/SIA North Beaches)																																																																						
UXO 8 (SIA South Beaches)																																																																						
NTCRA <sup>4,2</sup>																																																																						
UXO 3 (LIA Roads), UXO 5 (SIA Restricted Roads)																																																																						
UXO 6 (EMA/SIA Public Roads)																																																																						
UXO 11 (EMA Public Roads)																																																																						
NTCRA <sup>4,2</sup>																																																																						
UXO 4 (LIA Interior)																																																																						
TCRA (Submunitions Area) <sup>4,2</sup>																																																																						

### LEGEND

Navy Preparation of Draft Document
Regulatory Review
Regulatory Extension
Responses to Comments/Draft Final Preparation
Responses to Comments
Comment Response Evaluation/Draft Final Evaluation/RAB Review (as applicable)
Public Comment
Fieldwork/sample processing

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 Risk Assessment; ERA = Ecological Risk Assessment

\* Draft Final submittals are prepared only after resolution of regulatory agency comments

<sup>1</sup> Is or includes Primary Document<sup>2</sup> Is or includes Secondary Document

<sup>3</sup> Draft due June 15 of each year

<sup>4</sup> TCRA and NTCRA activities may not be continuous throughout the schedule shown.

**FIGURE ES-2**  
**Vieques Munitions Response and Installation Restoration Program Schedule**  
*Site Management Plan*  
*Atlantic Fleet Weapons Training Area – Vieques*  
*Vieques, Puerto Rico*

[illegible]

### LEGEND

Navy Preparation of Draft Document
Regulatory Review
Regulatory Extension
Responses to Comments/Draft Final Preparation
Responses to Comments
Comment Response Evaluation/Draft Final Evaluation/RAB Review (as applicable)
Public Comment
Fieldwork/sample processing

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 Risk Assessment; ERA = Ecological Risk Assessment

\* Draft Final submittals are prepared only after resolution of regulatory agency comments

<sup>1</sup> Is or includes Primary Document<sup>2</sup> Is or includes Secondary Document

<sup>3</sup> Draft due June 15 of each year

<sup>4</sup> TCRA and NTCRA activities may not be continuous throughout the schedule shown

# Contents

Executive Summary.....	v
Resumen Ejecutivo.....	vii
Acronyms and Abbreviations .....	xiii
1 Introduction .....	1-1
1.1 Overview of the Site Management Plan.....	1-1
1.1.1 Overview of this Document.....	1-1
1.1.2 Objectives of the Site Management Plan.....	1-1
1.1.3 Site Management Plan Updates .....	1-2
1.1.4 Facility Description.....	1-2
1.1.5 National Priorities List Listing .....	1-3
1.2 Information Repositories .....	1-3
2 Site Descriptions.....	2-1
2.1 Eastern Vieques Sites (Former VNTR).....	2-1
2.1.1 Consent Order Sites .....	2-1
2.1.2 Photo-Identified and Potential Area of Concern Sites .....	2-4
2.1.3 Munitions Response Sites.....	2-6
2.2 Western Vieques Sites (Former NASD).....	2-17
2.2.1 Installation Restoration Sites.....	2-17
2.2.2 Munitions Response Site (SWMU 4 – Inactive Open Burn/Waste Explosive Detonation Range).....	2-18
2.3 Per- and Polyfluoroalkyl Substances Investigation.....	2-19
2.4 Munitions Response Site Prioritization.....	2-20
3 Schedules and Funding .....	3-1
3.1 Document Review Schedule.....	3-1
3.2 Primary Documents .....	3-2
3.3 Secondary Documents .....	3-2
3.4 Projected IRP/MRP Funding.....	3-3
3.5 Site Cleanup Acceleration .....	3-3
3.6 Five-year Review.....	3-3
4 References.....	4-1
Appendixes	
A Status of Remedial Investigation/Feasibility Study Sites	
A1 Installation Restoration Sites	
A2 Munitions Response Sites	
B Site Screening Areas	
B1 Installation Restoration Sites	
B2 Munitions Response Sites	
C DoD Site Prioritization Protocol Scoring	
D Responses to Regulator Comments	

Tables (provided at the end of each section)

- 1-1 Anticipated Documents for RAB/Public Comment in Fiscal Year 2023
- 2-1 Operable Units Cross Reference Table
- 2-2 Summary of Munitions Response Site Prioritization Protocol Results for Vieques Munitions Response Sites
- 3-1 FY23 and Beyond Tentative Schedule
- 3-2 Vieques Programmed Funding, In Millions (\$)
- 3-3 Site Acceleration

Figures (provided at the end of each section)

- ES-1 Regional Location Map
- ES-2 Vieques Munitions Response and Installation Restoration Program Schedule
- 1-1 Regional Location Map
- 1-2 Vieques Sites Assessed Under CERCLA
- 2-1 East Vieques Installation Restoration Sites
- 2-2 East Vieques Munitions Response Sites
- 2-3 West Vieques Installation Restoration and Munitions Response Sites
- 2-4 Status of Vieques Cleanup Program Sites Under CERCLA
- 2-5 16.2 Site Delineation
- 3-1 Vieques Munitions Response and Installation Restoration Program Schedule



# Acronyms and Abbreviations

AFWTA	Atlantic Fleet Weapons Training Area
AGC	advanced geophysical classification
AOC	Area of Concern
ARAR	applicable or relevant and appropriate requirement
ARF	Administrative Record File
ATG	air-to-ground
CCP	Comprehensive Conservation Plan
CDC	Center for Disease Control and Prevention
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
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 Region 2
ER,N	Environmental Restoration, Navy
ERA	Expanded Range Assessment
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
IRP	Installation Restoration Program
ISCO	in situ chemical oxidation
LIA	Live Impact Area
LTM	long-term monitoring
LUC	land use control
MC	munitions constituent
MCL	Maximum Contaminant Limit
MD	munitions debris

MEC	munitions and explosives of concern
mg/kg	milligrams per kilogram
mm	millimeter(s)
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 Systems Command Atlantic
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
OU	Operable Unit
PA	Preliminary Assessment
PAH	polycyclic aromatic hydrocarbon
PAOC	Potential Area of Concern
PCB	polychlorinated biphenyl
PFAS	per- and polyfluoroalkyl substances
PI	Photo-Identified (site)
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
RC	Response Complete
RCRA	Resource Conservation and Recovery Act
RFI	RCRA Facility Investigation
RG	remediation goal
RI	Remedial Investigation
ROD	Record of Decision
SAP	Sampling and Analysis Plan
SEMS	Superfund Enterprise Management System
SI	Site Inspection
SIA	Surface Impact Area
SMP	Site Management Plan

SSA	Site Screening Area
SSL	Soil Screening Level
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
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

# 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 activities/documentation 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 and related activities that have been agreed to by the Department of the Navy (Navy) and the regulatory agencies. Milestones are provided for both the Installation Restoration Program (IRP) and the Munitions Response Program (MRP), both of which are part of the Environmental Restoration Program (ERP) 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 and MRP is planned. Table 1-1 identifies the documents that are anticipated to be issued for public or RAB comment during fiscal year (FY) 2023.

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 Superfund Enterprise Management System (SEMS). 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 and related activities in general accordance with timelines presented in the FFA. The Parties that entered into the 2007 FFA comprised the Navy (represented at that time by the Naval Facilities Engineering Command Atlantic [NAVFAC]), Environmental Protection Agency Region 2 (EPA), Commonwealth of Puerto Rico (represented at that time by the Puerto Rico Environmental Quality Board [PREQB]), and the Department of the Interior (DOI). On August 2, 2018, Law #171 was promulgated and approved by the Governor of Puerto Rico to execute the reorganization of several agencies. As a result, the faculties, functions, services, and structures of PREQB (as well as the Solid Waste Authority and National Parks Program) were transferred to the Puerto Rico Department of Natural and Environmental Resources (PRDNER). As such, the former PREQB responsibilities associated with the FFA and CERCLA cleanup at Vieques now fall under PRDNER. In addition, on November 3, 2020, NAVFAC updated its name to Naval Facilities Engineering Systems Command to better reflect its responsibilities in technology and technical service delivery and acquisition, facility construction and engineering, and management and environmental services.

### 1.1.2 Objectives of the Site Management Plan

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

- A description of actions necessary to mitigate any immediate threat to human health and the environment
- A description of all currently identified Site Screening Areas (SSAs), Operable Units (OUs), 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:
  - Identification of actions
  - Deadlines
  - Near-term milestones

- Out-year milestones
- Target dates
- Schedule for initiation of Remedial Designs, RAs, 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 update of the SMP by June 15 of each year that will include revisions to milestones from previous SMP updates, as applicable, and any new milestones that are planned.

Regulatory comments on draft fiscal year updates will be due to the Navy 30 days after receipt by EPA, DOI, and PRDNER of a draft fiscal year update. A revised draft fiscal year SMP update (hereinafter referred to as the “draft final fiscal year SMP”) will be due from the Navy no later than 30 days after the end of the EPA/DOI/PRDNER 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 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 14,600 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) for the Vieques National Wildlife Refuge that outlines its concept for managing the refuge (DOI, 2007) and for which various “step-down” plans have been developed that outline site-specific land use designs. To date, step-down plans have been developed for former NASD Solid Waste Management Unit (SWMU) 4 and former VNTR UXOs 1, 2, 3, 5 through 15, and 17. In addition to the land use plans for the Vieques National Wildlife Refuge, PRDNER developed a land use plan for former VNTR UXO 18 (Cayo La Chiva). Each of these sites, as well as UXO 4 and UXO 16, are further discussed in Section 2.

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 DOI’s CCP (and associated step-down plans prepared by USFWS) and PRDNER’s UXO 18 land use plan.

### 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 within land owned by these agencies are listed in the appendixes. 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 identified in DOI's CCP and associated step-down plan prepared by USFWS for property owned by DOI.

### 1.1.5 National Priorities List Listing

In 2003, the Governor of Puerto Rico requested EPA to list the VNTR and NASD on the National Priorities List (NPL). On May 26, 2004, the President of PREQB sent a letter to the Regional Administrator of 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 (PA)/Site Inspection (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 addressed as part of the NPL or otherwise under CERCLA 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 and related activities on Vieques.

## 1.2 Information Repositories

The Navy maintains an information repository, including the official Administrative Record File (ARF) for each site, at the Vieques public website at <https://www.navfac.navy.mil/vieques>. The public website is accessible from any device with access to the Internet, including mobile devices. Additionally, 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 ARF. The ARF is the site-specific collection of documents pertinent to selecting response actions at CERCLA sites. Documents in the ARF are part of the permanent site record.
- Documents that the Navy makes available for public review and comments. These documents are placed in a location readily accessible to the public during the public comment period and are removed at the end of the public comment period. In general, documents provided for public comment, or successors thereof, are ultimately placed in the ARF.

The ARF serves two purposes:

- It contains documents which form the basis for selection of response actions 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 site-specific response actions

TABLE 1-1

**Anticipated Documents for RAB/Public Comment in Fiscal Year 2023***Site Management Plan, Fiscal Year 2023**Vieques, Puerto Rico*

Site	Document	Comments Solicited From
Inactive Open Burn/Waste Explosive Detonation Range (SWMU 4)	Remedial Action Completion Report	RAB
Puerto Ferro (UXO 15)	Remedial Action O&M, LUC, and LTM Work Plan	RAB
Underwater Area (UXO 16.1 - Adjacent to SWMU 4)	Proposed Remedial Action Plan (PRAP)	Public
PFAS Sites	Per- and Polyfluoroalkyl Substances Site Inspection Report	RAB
Sitewide	Site Management Plan, Fiscal Year 2023	Public

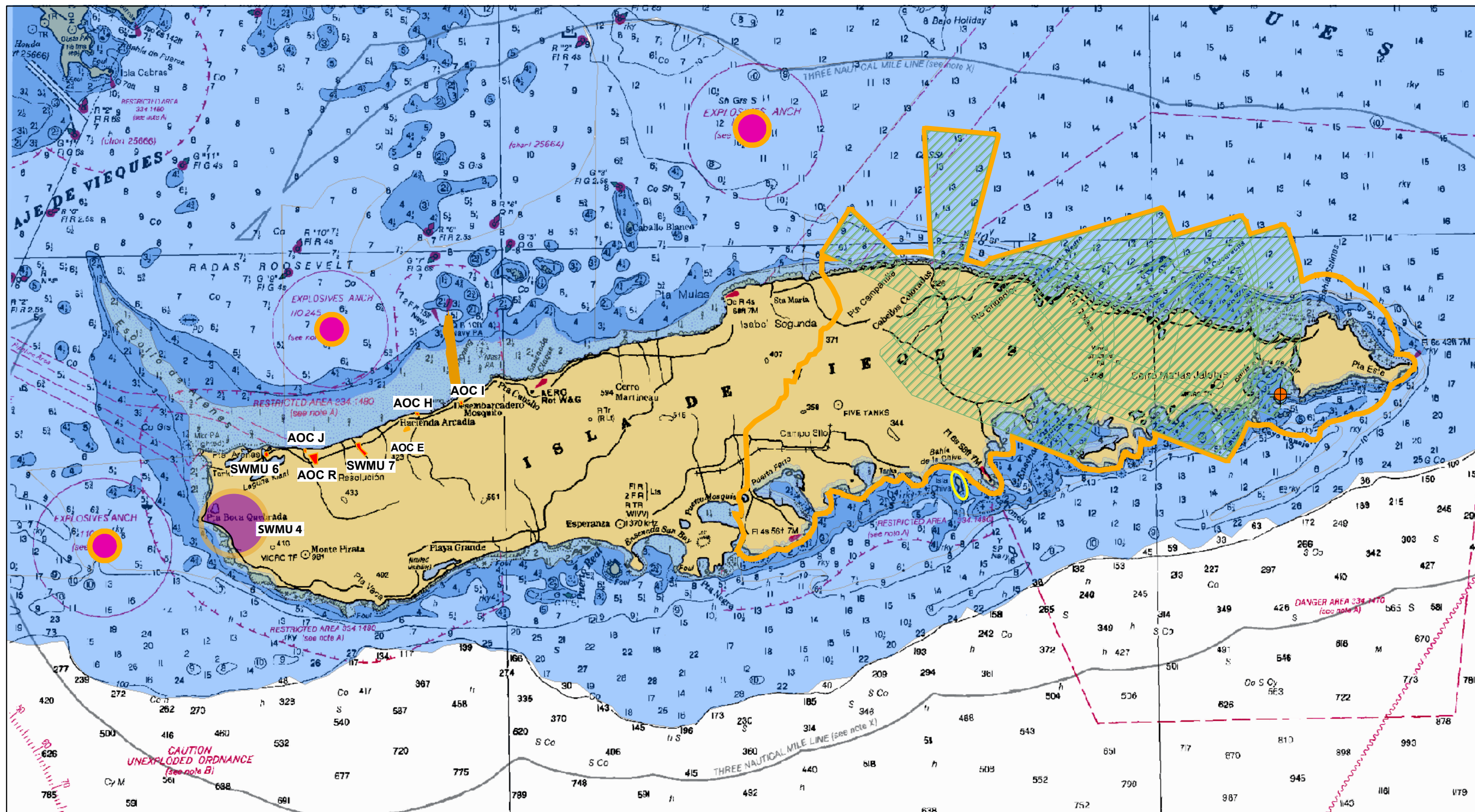
**Notes:**

As of the issuance date of the Fiscal Year 2023 SMP, the documents included in this table are those anticipated to be issued for Restoration Advisory Board (RAB) or public comment during Fiscal Year 2023. 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 2023*  
*Vieques, Puerto Rico*





# Legend

- Agreed Areas of NPL Site
- Anchorage Location Boundary
- Western Vieques Installation Restoration Sites
- SWMU 4 (Former OB/OD Site)
- Artillery Safety Fan
- Additional Area to be Addressed under CERCLA

- Water Depth**
- 0-10 Feet
  - 10-150 Feet
  - Greater Than 150 Feet
  - USS Killen

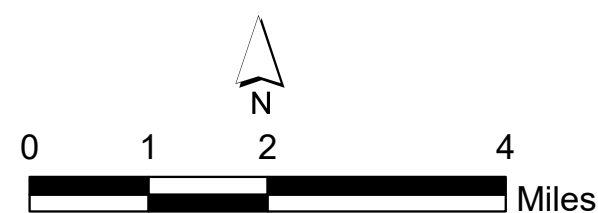


FIGURE 1-2  
Vieques Sites Addressed Under CERCLA  
Site Management Plan, FY2023  
Vieques, Puerto Rico

# Site Descriptions

This section presents a description of the sites and the current status for the CERCLA response actions and related activities that are underway or have been completed at the Vieques Site. The individual sites are categorized in the appendixes to this SMP and the FFA as follows:

- Appendix A, Remedial Investigation/Feasibility Study (RI/FS) Sites (i.e., sites that have entered the CERCLA process culminating in a Record of Decision)
  - Appendix A1, Installation Restoration Sites
  - Appendix A2, Munitions Response Sites
- Appendix B, Site Screening Areas (i.e., sites for which preliminary evaluation determined they could be closed out of the CERCLA process prior entering the RI/FS stage)
  - Appendix B1, Installation Restoration Sites
  - Appendix B2, Munitions Response Sites

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 installation restoration sites (i.e., SWMUs 1, 2, 4, 5, 6, 7, 8, 10, and 12, and Areas of Concern [AOCs] A, F, and G) 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 Consent Order site, SWMU 1, for which a remedial action is ongoing is provided herein. Site-specific detail for the remainder of the former VNTR IRP sites, all except one of which (SWMU 20) were determined to require No Action or No Further Action (NFA) under CERCLA, is provided in Appendix A1 and past SMP updates. Additional detail for SWMU 20, which is undergoing a feasibility study for remedial action, is also provided herein.

A cross reference table, Table 2-1, has been included to facilitate comparison of Department of Defense (DoD) "sites" with EPA "Operable Units." The locations of the eastern Vieques installation restoration sites are shown in Figure 2-1. Section 3 discusses the anticipated schedule for deliverable submittal for SWMU 1, as well as all other Environmental Restoration Program sites on the former VNTR and former NASD under investigation and/or under removal or remedial action.

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 issued in October 2007 (CH2M, 2007h). 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 (CH2M, 2004a) was revised with this information and resubmitted 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, 2008d) was issued.

Based on the findings of investigations documented in the PA/SI Report, 4 of the 12 Consent Order sites (i.e., SWMUs 5, 8, 12, and AOC F) 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 SI/Expanded Site Inspection (ESI) Report (CH2M, 2010c). 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 NFA to be protective of unrestricted human use and ecological exposure. These sites are included in a No Action/NFA Decision Document (CH2M, 2010e). The one remaining site (SWMU 1) was recommended for presumptive remedy following preparation of a streamlined Remedial Investigation (RI)/Feasibility Study (FS) Report. Subsequently, a presumptive remedy Record of Decision (ROD) was signed in 2011, the remedial action for which is discussed in the next subsection.

### **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. 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). The SWMU 1 landfill, the Camp Garcia area, and other IRP sites in the former VNTR are shown in Figure 2-1.

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

The landfill managed waste from a maximum of approximately 150 individuals, depending on military exercises. An aerial photograph analysis of the landfill indicated that the fill area extended over an area of approximately 50 acres (Lockheed Martin, 1999). 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, 2008d) and the SI/ESI Report (CH2M, 2010c). 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, 2009c) was completed in May 2009. During the ESI, geophysical surveying, test pitting, waste characterization, soil sampling, ephemeral stream sampling, monitoring well installation, and groundwater sampling were performed. The SI/ESI Report, which included SWMU 1, was issued in August 2010 (CH2M, 2010c). 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, 2011f). 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, 2011d). 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 issued in July 2012 (CH2M, 2012g).

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 would be appropriately addressed by the remedial action. To accomplish this, a technical memorandum work plan for these pre-design activities was issued in September 2013 (CH2M, 2013j), with fieldwork commencing shortly 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 (HHRA) for soil within the landfill area included in the RI/FS Report was revised to include subsurface soil, which demonstrated human health risks from exposure to landfill soil were acceptable under current and anticipated future land use based on the data available at that time. A technical memorandum (CH2M, 2015g) 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 no unacceptable risks remained, 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 were changed by this ESD; the long-term groundwater monitoring, the institutional controls, and O&M requirements remained unchanged. Because of the remedy modification outlined in the ROD ESD, a Revised O&M, LUC, and LTM Work Plan was finalized in November 2016 (CH2M, 2016l).

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 the Remedial Action Completion Report finalized in January 2017 (CH2M, 2017b).

In accordance with the Revised O&M, LUC, LTM Work Plan, post-ROD inspections and LTM sampling were completed in January 2016, January 2017, January 2018, January 2019, January 2020, January 2021, and January 2022 that included sampling of six monitoring wells with analysis for volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), pesticides, polychlorinated biphenyls (PCBs), and metals (total and dissolved). In addition, post-hurricane inspections and associated repairs were conducted following Hurricane Maria in late 2017. The first six annual LTM Status Reports were finalized in January 2017 (CH2M, 2017a), December 2017 (CH2M, 2017k), August 2018 (CH2M, 2018l), September 2019 (CH2M, 2019g), November 2020 (CH2M, 2020e), and November 2021 (CH2M, 2021b). The seventh annual LTM Status Report is currently being drafted.

The SWMU 1 site was included in the First Five-Year Review Report which was finalized in September 2018 (CH2M, 2018m). The report identified that the following RAOs have been or continue to be met:

- Prevent direct contact with surface and subsurface landfill debris and associated contamination that would potentially pose an unacceptable risk to exposed receptors
- Minimize the potential for erosion of landfill debris

- Ensure land use within the landfill boundaries (including the use of groundwater) is controlled, unless or until additional action is implemented that mitigates potentially unacceptable risks associated with unrestricted land use

The remedy at SWMU 1 is protective of human health and the environment and has reached response complete (RC) status because it has met the RAOs. Surface debris has been removed, direct contact with and erosion of subsurface landfill debris is controlled by the vegetative cover, and LUCs are effective at controlling land (including groundwater) use, which is verified through the LUC inspection and maintenance program. LTM data indicate that the remedy is functioning as required.

Based on historical activities at SWMU 1, the site has been included in the per- and polyfluoroalkyl substances (PFAS) SI, as described in Section 2.3.

Section 3, including Figure 3-1 (fiscal year 2022 schedule projection), provides information regarding the anticipated schedule of activities and document preparation for SWMU 1.

## 2.1.2 Photo-Identified and Potential Area of Concern Sites

During development of the Description of Current Conditions Report (CH2M, 2001b) and the Environmental Baseline Survey (EBS) (NAVFAC, 2003c), several potential IRP 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 determined to require No Action or NFA 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 NFA under CERCLA, is provided in Appendix B1 and past SMPs. The locations of the PI and PAOC sites that are IRP sites 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 was investigated during the Phase I RFI. The draft Phase I RFI Report proposed eight of the PI/PAOC sites (PIs 4 and 7, and PAOCs J, K, L, N, S, and U) for a Phase I RFI, which was implemented as a PA/SI under CERCLA due to the subsequent listing of Vieques on the NPL. The PA/SI 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, 2008d). 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 an SAP (CH2M, 2009c), was completed in May 2009. The SI/ESI Report, which includes these five sites, was issued in August 2010 (CH2M, 2010c). 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, 2010e). The remaining two sites (PI 4 and PI 7) were recommended for additional sampling in accordance with the existing SAP (CH2M, 2009c). 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, 2011i). Based on this, a No Action/NFA Decision Document that included PI 7 was issued in September 2011 (CH2M, 2011k). 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, PRDNER, PREQB, and USFWS, and their contractors. Any of the PI/PAOC sites located in munitions sites have been, 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 IRP (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, 2009c), was completed in May 2009. The SI/ESI Report, which includes these 11 sites, was issued in August 2010 (CH2M, 2010c). 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, 2010e). The remaining two sites (PAOCs Q and R) were recommended for additional sampling in accordance with the aforementioned SAP (CH2M, 2009c). That sampling occurred in August 2010 and was documented in the SI/ESI Addendum Report (CH2M, 2011i); the sites were subsequently included in a No Action/NFA Decision Document (CH2M, 2011k).

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 issued in February 2013 (CH2M, 2013d). Sampling was accomplished in April 2013 and a No Action Decision Document was issued in June 2014 (CH2M, 2014i).

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 issued in April 2013 (CH2M, 2013h) and sampling took place in May 2013. Based on the findings, a No Action Decision Document was issued in September 2014 (CH2M, 2014n).

Based on historical use, several of the sites listed above are included in the PFAS SI, as described in Section 2.3.

#### **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, 2008d).

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 about SWMU 20 (designated PI 4 during past investigations) is presented in the PA/SI Report (CH2M, 2008d) and SI/ESI Report (CH2M, 2010c). 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, 2009c), 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 issued in August 2010 (CH2M, 2010c). 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 issued in September 2011 which described additional soil and groundwater sampling and a potential pilot study (CH2M, 2011j). 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 was the subject of an RI, its designation was changed from PI 4 to SWMU 20. An RI SAP was issued in April 2013 (CH2M, 2013g) and fieldwork was conducted from May through October 2013, during which 16 shallow bedrock monitoring wells (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 FS. 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, 2016h) was issued in August 2016. The draft FS Report, which evaluates remedial action alternatives for the site, was submitted for regulatory review in January 2017. During subsequent inter-agency discussions, it was concurred upon that additional information would be gathered to support the FS, including sampling six monitoring wells for microbial and geochemical parameters and performing simulations (modeling) of the various FS alternatives to estimate plume stability/cleanup timeframe. These activities took place in August 2018.

Section 3, including Figure 3-1 (fiscal year 2023 schedule projection), provides information regarding the anticipated schedule of activities and document preparation for SWMU 20. Based on historical activities at SWMU 20, the site has been included in the PFAS SI, as described in Section 2.3. Therefore, completion of the FS has been postponed until the PFAS SI is conducted and a determination on the appropriate path forward with consideration of both the chlorinated VOCs and any PFAS contamination found during the SI is made.

### 2.1.3 Munitions Response Sites

This section updates the former VNTR munitions response sites' status. For the purpose of this SMP, the number of munitions and explosives of concern (MEC) listed in the discussion includes unexploded ordnance (UXO) and discarded military munitions (DMM) and material potentially presenting an explosive hazard (MPPEH) and does not include MD. The locations of the eastern Vieques munitions response sites are shown in Figure 2-2.

### 2.1.3.1 UXO 1 – Eastern Conservation Area

The ECA, designated as Munitions Response Site (MRS) UXO 1 in the Expanded Range Assessment (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 during which MEC was removed from the ground 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, 2008a). An NTCRA Work Plan for actions identified in the EE/CA was issued in January 2009 (CH2M, 2009b). Within the ECA, the NTCRA removed subsurface munitions from the main road and Playa Blanco.

During the TCRA and NTCRA, approximately 1,404 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 issued in July 2012 (CH2M, 2012h). An FS, which evaluated remedial alternatives for the site, was issued in October 2012 (CH2M, 2012k). Following USFWS' issuance of the ECA restoration plan in March 2014, the Proposed Remedial Action Plan (PRAP) was finalized in June 2014 (NAVFAC, 2014b); the preferred alternative in the PRAP was 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, 2015c). The final Remedial Action Work Plan (CH2M, 2016m) was issued in November 2016. Remedial action field activities took place in August and September 2018 and a final Remedial Action Completion Report was submitted in August 2019 (CH2M, 2019e). The first Annual LUC Inspection at UXO 1 ECA was completed in February 2020. Inspections entailed an instrumented-aided visual survey to inspect for surface MEC becoming exposed via site erosion, inspection, and any required maintenance for the site's LUC implementation (gates, locks, physical demarcation barrier), as well as indications of any potential trespassing. No MEC was encountered and all LUCs were operating as intended. The first UXO 1 Annual Status Report was issued in November 2020 (CH2M, 2020f). After the report was issued, regulatory comments were received related to MEC LTM procedures that are potentially applicable to all sites where MEC LTM is or will take place, including UXO 1. With consideration of input received on the MEC inspection procedures, the 2021 MEC inspection event took place in August 2021 and the associated Annual Status Report was issued in February 2022.

Section 3, including Figure 3-1 (fiscal year 2023 schedule projection), provides information regarding the anticipated schedule of activities and document preparation for UXO 1.

### 2.1.3.2 UXO 2 – Live Impact Area 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 (GMI, 2006). UXO 2 comprises 16 beaches including Playa Bahia Salinas del Sur (Beaches 2, 3, and 35), the small island off of Bahia Salinas del Sur, Playa Carrucho/Turtle Beach (Beach 4), Playa Bahia Icacos (Beach 5), Playa Bahia Salinas/Fossil Beach (Beach 6), Playa Tamarindo (Beaches 7 through 10), Playa Punta Salinas (Beaches 11, 12, and 34), Playa Barco (Beach 13), and Playa Brava (Beach 14).

The TCRA at UXO 2 for the surface removal of munitions was initiated in 2005. In June 2009, the field activities for an NTCRA for subsurface removal of munitions were initiated for UXO 2 (CH2M, 2009b). Approximately 1,122 surface and subsurface MEC have been removed from 14 of the 16 beaches at UXO 2. No MEC removal has been conducted at beaches 34 and 35 because the beaches are inaccessible due to steep cliffs on land and



nearshore shallow reefs in the water. An RI was conducted to characterize the nature and extent of environmental contamination and MEC at UXO 2 and other UXO beaches (i.e., UXOs 7 and 8) and to assess the potential risks, as described in the Master SAP for the East Vieques Terrestrial UXO Sites (CH2M, 2013b) and the RI SAP Addendum 6 that was completed in April 2018 (CH2M, 2018e). RI fieldwork took place in October/November 2018. In addition, a Beach Dynamics Investigation Quality Assurance Project Plan (QAPP) was issued in February 2014 and fieldwork took place between the spring of 2015 and the end of 2017. The beach dynamics investigation was conducted at ten beaches within the former VNTR (including several within UXO 2 and two each in UXOs 7 and 8) and one beach within the former NASD to understand the dynamic nature of the beach environment and its impact on the mobility of MEC. Pre- and post-Hurricane Maria data were collected and included in the Beach Dynamics Report. The final Beach Dynamics Report was issued in November 2018 (CH2M, 2018p) and information from this report was utilized as part of the MEC nature and extent evaluation in the RI Report and as part of remedial alternatives evaluation in the FS Report. The final RI Report was issued in December 2020 (CH2M, 2020i). NTCRA fieldwork continues and is anticipated to be completed in the next few years, after which the FS will be completed, incorporating the additional information gathered during the NTCRA.

Section 3, including Figure 3-1 (fiscal year 2023 schedule projection), provides information regarding the anticipated schedule of activities and document preparation for UXO 2.

### 2.1.3.3 UXO 3 – Live Impact Area 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.

In June 2009, the field activities for an NTCRA were initiated (CH2M, 2009b) along a number of VNTR roads. 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 and approximately 2,332 MEC have been removed from the surface and subsurface. Based on findings from the NTCRA and geophysical surveys, 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) and the RI SAP Addendum 4 for UXOs 3, 5, 6, and 11 that was finalized in January 2016 (CH2M, 2016a). As part of the RI, advanced geophysical classification (AGC) was 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. The planned AGC technology, Time-domain Electro-magnetic Multi-sensor Towed Array Detection System (TEMTADS), is described in the final Advanced Geophysical Classification for Munitions Response Remedial Investigations QAPP (CH2M, 2016n), hereinafter referred to as TEMTADS QAPP, which was issued in November 2016. Of note is that since the TEMTADS QAPP was issued, a newer generation of AGC system (Metal Mapper 2 x 2) became commercially available and was utilized for the RI. The RI for UXOs 3, 5, 6, and 11 began in May 2017 but completion was delayed due to Hurricane Maria; field activities resumed in October and completed in December 2018. A draft RI/FS Report for UXOs 3, 5, 6, and 11 was submitted for regulatory review in September 2019. Based on discussions between NAVFAC and the regulatory agencies on the draft report, a decision was made to split the RI/FS Report into RI and FS reports to facilitate completion of the RI while inter-agency discussions regarding potential remedial alternatives continued. The final RI Report was submitted in December 2020 (CH2M, 2020j). NTCRA fieldwork continues and is anticipated to be completed in the next few years, after which the FS will be completed, incorporating the additional information gathered during the NTCRA.

Section 3, including Figure 3-1 (fiscal year 2023 schedule projection), provides information regarding the anticipated schedule of activities and document preparation for UXO 3.

### 2.1.3.4 UXO 4 – Live Impact Area Interior

UXO 4 encompasses approximately 843 acres of the former LIA, not including the roads and beaches because they are being addressed as separate UXO sites (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 (Tippetts et al., 1979). Marine artillery fired from the west likely impacted this area also.

A TCRA 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). Approximately 69,403 MEC were removed during the TCRA. Due to the high density of very dangerous and sensitive submunitions present within the 75-acre submunitions area, a separate TCRA work plan specific to this area was issued in August 2016 (CH2M, 2016g). Controlled vegetation burn events (approximately 2 acres per burn) were conducted on October 5 and November 16, 2016; March 17 and June 16, 2017; October 24 and December 13, 2018; June 7, 10 and 14, 2019; February 19 and 28, 2020, and February 19, 2021 each with associated air quality monitoring. These controlled vegetation burns are followed by surface MEC clearance within de-vegetated area. Based on progress to date (53 of the 75 acres surface cleared of munitions), MEC clearance throughout the submunitions area is anticipated to be completed in several years.

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), including UXO 4, started in January 2013 with the collection of soil, surface water, sediment, and groundwater samples. The RI field activities at the North Convoy Target Area were conducted in January and February 2018, with oversight and split-sample collection performed by EPA. A final Technical Memorandum entitled Summary of Findings-2018 Radiological Investigation at the North Convoy Target Area of UXO 4 was submitted in October 2019 (CH2M, 2019i), the information from which will be included in the RI Report that will be prepared once the submunitions area TCRA and all other field sampling activities are completed.

Section 3, including Figure 3-1 (fiscal year 2023 schedule projection), provides information regarding the anticipated schedule of activities and document preparation for UXO 4.

### 2.1.3.5 UXO 5 – Surface Impact Area Restricted Roads

UXO 5 encompasses approximately 38 acres throughout the SIA and is composed of various roadways with 25-foot buffers on each side (Figure 2-2). Approximately 432 MEC were removed at UXO 5 during the NTCRA. See UXO 3 for a discussion of the RI and FS for UXOs 3, 5, 6, and 11.

Section 3, including Figure 3-1 (fiscal year 2023 schedule projection), provides information regarding the anticipated schedule of activities and document preparation for UXO 5.

### 2.1.3.6 UXO 6 – Eastern Maneuver Area/Surface Impact Area Planned 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. Approximately 277 MEC were removed at UXO 6 during the NTCRA. See UXO 3 for a discussion of the RI and FS for UXOs 3, 5, 6, and 11.

Section 3, including Figure 3-1 (fiscal year 2023 schedule projection), provides information regarding the anticipated schedule of activities and document preparation for UXO 6.

### **2.1.3.7 UXO 7 – Eastern Maneuver Area/Surface Impact Area North Beaches**

UXO 7 encompasses approximately 54 acres and comprises the sandy beach areas located along the north shore of the former VNTR (Figure 2-2). UXO 7 comprises 14 beaches and an island along the northern shoreline of the EMA or SIA that include Playa Puerto Diablo (Beach 22), Playa Puerto Negro (Beach 23), Playa Campana/Purple Beach (Beach 24), Playa Campanita (Beach 25), Playa Voltios (Beach 26), Playa Diablito 1 and 2 (Beach 27), Playa Punta Campanilla (Beach 28), Playa Puntas Cabellos Colorados (Beaches 29E, 29C, and 29W), Playa Punta Brigadier (Beach 30), Playa Punta Goleta (Beach 31), Playa Las Cruces/Tres Puntas (Beaches 32E, 32C, and 32W), Playa Cano Hondo (Beach 33E), Playa Diablito 3 (Beach 33W), and Isla Yallis (Beach 55). The removal of surface and subsurface MEC at the beaches under the NTCRA removed approximately 557 MEC. See UXO 2 for a discussion of the RI and Beach Dynamics investigation for UXOs 2, 7, and 8.

Section 3, including Figure 3-1 (fiscal year 2023 schedule projection), provides information regarding the anticipated schedule of activities and document preparation for UXO 7.

### **2.1.3.8 UXO 8 – Surface Impact Area South Beaches**

UXO 8 encompasses approximately 44 acres and comprises the sandy beaches located along the southern shore of the area formerly referred to as the SIA (Figure 2-2). UXO 8 comprises 8 beaches along the southern shoreline of the SIA that include Playa Matias/Yellow Beach (Beach 1), Playa Jalova (Beach 17), Playa Jalovita (Beach 18), Playa Yoyé (Beach 19), Playa Fanduca (Beach 20), Playa Conejo (Beaches 36W, 36C, and 36E), Playa Carrenero (Beach 38), and Playa Punta Carrenero (Beach 39) and those of a small island offshore of the southeastern end of the SIA (Cayo Conejo, Beach 37). Approximately 231 MEC were removed at UXO 8 under the NTCRA. See UXO 2 for a discussion of the RI and Beach Dynamics investigation for UXOs 2, 7, and 8.

Section 3, including Figure 3-1 (fiscal year 2023 schedule projection), provides information regarding the anticipated schedule of activities and document preparation for UXO 8.

### **2.1.3.9 UXO 9 – Surface Impact Area Exterior**

UXO 9 encompasses approximately 1,721 acres and comprises gentle slope areas adjacent to the roads of the former SIA (Figure 2-2). The area of UXO 9 was increased from its original area 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 the NTCRA were initiated to remove surface munitions from the site. The NTCRA and investigations 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 2022, approximately 21,945 MEC have been removed from the site as part of the ongoing NTCRA. Based on findings from the ERA/SI and the NTCRA, RI fieldwork was performed 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 started in January 2013 and finished in March 2014. Currently the draft RI Report is being prepared and is anticipated to be submitted for regulatory review in May 2024. Prior to submittal, additional groundwater sampling is anticipated to be completed.

Section 3, including Figure 3-1 (fiscal year 2023 schedule projection), provides information regarding the anticipated schedule of activities and document preparation for UXO 9.

### **2.1.3.10 UXO 10 – Surface Impact Area Interior**

UXO 10 encompasses approximately 890 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, 2009b) to

remove surface munitions from the site. Through May 2022, over 12,827 surface MEC have been removed from this site as part of the NTCRA.

Based on findings from the ERA/SI and the NTCRA, RI fieldwork was performed 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 started in January 2013 and finished in March 2014. Currently the draft RI Report is being prepared and is anticipated to be submitted for regulatory review in May 2024. Prior to submittal, additional groundwater sampling is anticipated to be completed.

Section 3, including Figure 3-1 (fiscal year 2023 schedule projection), provides information regarding the anticipated schedule of activities and document preparation for UXO 10.

#### **2.1.3.11 UXO 11 – Eastern Maneuver Area Planned Public Roads**

UXO 11 encompasses approximately 88 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). The NTCRA removed approximately 1,610 MEC from the site. See UXO 3 for a discussion of the RI and FS for UXOs 3, 5, 6, and 11.

Section 3, including Figure 3-1 (fiscal year 2023 schedule projection), provides information regarding the anticipated schedule of activities and document preparation for UXO 11.

#### **2.1.3.12 UXO 12 – Eastern Maneuver Area 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.

At the completion of the removal actions, 501 MEC had been 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 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 issued in January 2015 to facilitate the acceleration of the intended land use at UXO 12. Based on the findings and recommendations in the RI Status Report for UXOs 4, 9, 10, 12, and 14 (CH2M, 2016d), a draft RI/FS Report for UXOs 12 and 14 was submitted for regulatory review in November 2016. At the regulator's request, an additional round of groundwater data was subsequently collected and included in the final RI/FS Report that was completed in August 2018 (CH2M, 2018k). The PRAP was finalized in March 2019 (NAVFAC, 2019a) with the preferred alternative of Focused MEC Removal, LUCs, and MEC Inspections. Following the public comment period on the PRAP, a ROD for UXO 12 was finalized in January 2021 (NAVFAC, 2021a). Currently a Remedial Action Work Plan is under regulatory review and a final Work Plan is anticipated to be issued in fall 2022.

Section 3, including Figure 3-1 (fiscal year 2023 schedule projection), provides information regarding the anticipated schedule of activities and document preparation for UXO 12.

#### **2.1.3.13 UXO 13 – Eastern Maneuver Area West**

UXO 13 encompasses approximately 1,794 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 at UXO 13 in the ERA/SI. Based on the explosive safety hazards of the munitions used at the site, as well as the high frequency of trespassing that occurs at UXO 13, an NTCRA was conducted at the easternmost 620 acres of UXO 13 where MEC were identified. Approximately 590 MEC were removed during the NTCRA and the After Action Report was finalized in March 2019 (CH2M, 2019a). Based on the information gathered during the NTCRA and historical activities, 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) and the RI SAP for UXO 13 that was issued in October 2015 (CH2M, 2015h). RI fieldwork began in March 2016 and was completed in May 2018. A draft RI/FS Report was submitted for regulatory review in May 2020, but additional NTCRA activities are planned, as well as additional groundwater sampling, the results of which will be incorporated into the RI/FS Report.

Section 3, including Figure 3-1 (fiscal year 2023 schedule projection), provides information regarding the anticipated schedule of activities and document preparation for UXO 13.

#### **2.1.3.14 UXO 14 – Eastern Maneuver Area South**

UXO 14 encompasses approximately 784 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, Range 10 was established as a range with all firing from a single point. This range was located adjacent to Ensenada Honda and a mangrove area and is now part of UXO 9. A total of 12 MEC items were identified at UXO 14. 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 started in January 2013 and finished in March 2014. See UXO 12 for a discussion of the RI/FS, PRAP, ROD, and Remedial Action Work Plan for UXOs 12 and 14.

Section 3, including Figure 3-1 (fiscal year 2023 schedule projection), provides information regarding the anticipated schedule of activities and document preparation for UXO 14.

#### **2.1.3.15 UXO 15 – Puerto Ferro**

UXO 15 encompasses approximately 536 acres and is located to the southeast of the area formerly referred to as the EMA. UXO 15 includes PI 9 and PI 13, which were included as areas evaluated during the RI. 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, 2003c). Interviews conducted during the EBS (NAVFAC, 2003c) 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 PI 9, but it is possible they did occur in the southwest portion of UXO 15.

The ERA/SI (CH2M, 2010d) 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 nearshore MD and evaluation of the potential ecological and human health risks. The ESI SAP was finalized in May 2011 (CH2M, 2011g). However, based on additional information gathered since that time, modifications to the original approach were developed and documented in an SAP Addendum to guide an RI at the site (CH2M, 2012f). Fieldwork conducted through May 2013 was documented in an initial RI findings technical memorandum (CH2M, 2014g). 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, 2015e). 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 was conducted in February 2018, and further debris pile characterization was done in April 2018 to complete the RI fieldwork. The RI/FS Report was finalized in July 2020 (CH2M, 2020b).

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, 2015c). A munitions clearance NTCRA for the southwestern beach was completed in January 2015 and the After Action Report was finalized in November 2015 (CH2M, 2015l). Public access to the area around the historic lighthouse and adjacent beach was opened in March 2015.

An NTCRA, in accordance with the EE/CA (CH2M, 2015f) and Work Plan (USAE, 2017), was completed in 2018 to reduce the explosive hazard associated with encrusted potential MEC. A final After Action Report was issued in June 2019 (USAE, 2019).

Due to the Coronavirus (COVID-19) pandemic, the finalization of the PRAP and the public meeting were delayed. The PRAP was finalized in July 2021 (NAVFAC, 2021b) and a public meeting was held on August 4, 2021, with a public comment period running from July 23 through September 23, 2021. The UXO 15 ROD, which requires land use controls and MEC removal in planned public use areas not already addressed during previous NTCRAs, is anticipated to be issued in fall 2022.

Section 3, including Figure 3-1 (fiscal year 2023 schedule projection), provides information regarding the anticipated schedule of activities and document preparation for UXO 15.

### 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. The WAA to provide a preliminary evaluation of EADAs, in accordance with a WAA Work Plan (CH2M, 2015m), began in March 2016 and fieldwork was completed in May 2017. The final WAA Report was issued in September 2018 (CH2M, 2018n). Details on the specific underwater areas that are being investigated are included in the subsections that follow.

Section 3, including Figure 3-1 (fiscal year 2023 schedule projection), provides information regarding the anticipated schedule of activities and document preparation for UXO 16.

#### *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 (DON, 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 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 (CFR, 2003). 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 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 or action is warranted in this area.

### *Offshore of SWMU 4 (UXO 16.1)*

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 and is referred to as UXO 16.1 (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 16.1 was finalized in April 2014 (CH2M, 2014e). ESI field activities began in March 2015 and were completed in May 2015, which indicated relatively few MEC is present in the offshore area adjacent to SWMU 4. Based on the findings of the ESI, an RI SAP (CH2M, 2016f) 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 a final RI Report was completed in July 2018. The final UXO 16.1 FS Report was issued in February 2022. The draft UXO 16.1 PRAP was submitted for regulatory review in April 2022. The public comment period on the PRAP is anticipated in fall 2022.

Section 3, including Figure 3-1 (fiscal year 2023 schedule projection), provides information regarding the anticipated schedule of activities and document preparation for UXO 16.1.

### *Nearshore Areas at Public Beaches (UXO 16.2)*

The UXO 16.2 focus area (approximately 600 acres) consists of the underwater area to be addressed to support public use of the 29 beaches that are currently open or potentially will be open to the public in the future (Figure 2-5). UXO 16.2 is defined as extending from the shoreline of these beaches to a water depth of between 10 to 15 feet, the latter depth applying to beaches where features of interest exist that may cause a snorkeler or swimmer to dive deeper to investigate the feature. The final UXO 16.2 RI QAPP that defines the approach to conduct the RI was issued in November 2021. UXO 16.2 RI fieldwork is currently ongoing and anticipated to be completed in 2023.

Section 3, including Figure 3-1 (fiscal year 2023 schedule projection), provides information regarding the anticipated schedule of activities and document preparation for UXO 16.2.

### *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, 2014n). An EE/CA for an NTCRA of underwater munitions adjacent to Cayo La Chiva (UXO 18) was finalized in November 2014 (CH2M, 2014o). Based on the EE/CA, an NTCRA work plan was completed in October 2016 (CH2M, 2016j). The NTCRA fieldwork was conducted in June 2017 and a final After Action Report was completed in July 2018 (CH2M, 2018g). The offshore area around UXO 18 is included as part of UXO 16.2.

#### *Other Offshore Areas*

An NTCRA in accordance with an EE/CA was conducted for the offshore area adjacent to UXO 15 PI 9 East (CH2M, 2015f). The underwater area contained several encrusted MD, whose removal is described in the final NTCRA Work Plan, which was issued in January 2017 (USAE, 2017). The NTCRA fieldwork was conducted in 2018 and a final After Action Report was issued in June 2019 (USAE, 2019).

In addition to this area, an EE/CA was prepared for removal of nearshore (i.e., within approximately 100 meters of the shoreline) munitions around the perimeter of the former VNTR and Mosquito Pier (CH2M, 2017f). The EE/CA was issued for public comment on May 15, 2017. Following evaluation of public comments submitted during the EE/CA public comment period, an NTCRA Work Plan was finalized in August 2018 (CH2M, 2018j). Fieldwork started in April 2019 and will continue for several years.

#### **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 action and were included in a No Action Decision Document (CH2M, 2010g). 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, 2014i). There are two beach areas (PAOC EE and Playa Caracas/Red Beach [hereafter referred to as “Red Beach”]) within UXO 17, as described in following paragraphs.

##### *PAOC EE*

PAOC EE encompasses approximately 129 acres and includes the area in and around Playa la Chiva (Blue Beach) and Punta Conejo where military training activities occurred and where earthen berms on Punta Conejo may have been used for temporary storage of munitions (CH2M, 2004a). A DGM survey of the interior portion of the Punta Conejo during 2011 (CH2M, 2012d) 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 associated with 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 related to military training activities were identified. An After Action Report was finalized in October 2015 (CH2M, 2015j).

Based on the aforementioned findings, an RI was conducted at the site, as described in the Master SAP for the East Vieques Terrestrial UXO Sites (CH2M, 2013b) and the SAP for PAOC EE (CH2M, 2017d). RI field activities



were conducted in December 2017 and the final RI/FS Report was issued in June 2019 (CH2M, 2019c). Based on historical information gathered during investigations and removal actions conducted at PAOC EE and nearby Red Beach/Garcia Beach the PAOC EE PRAP was issued for public comment from May 25, 2022 through June 24, 2022 and a public meeting held on June 1, 2022. A ROD for PAOC EE is anticipated to be issued in 2023.

Section 3, including Figure 3-1 (fiscal year 2023 schedule projection), provides information regarding the anticipated schedule of activities and document preparation for UXO 17 PAOC EE.

### *Red Beach*

Red Beach is located to the west of Blue Beach, south of Camp Garcia, and east of UXO 15 Puerto Ferro. An archival records search indicated Blue Beach, Red Beach (formerly Red Beach East), and Garcia Beach (formally Red Beach West) had been used for military training activities, but that only blank ammunition was used on the beaches during training exercises (Tippetts et al., 1979). To help verify this information and in support of land transfer, an MEC investigation was conducted (CH2M, 2002e) at these three beaches that same year and a Preliminary MEC Investigation Report for Red and Blue Beaches was finalized in July 2003 (NAVFAC, 2003d). The investigation comprised a visual and geophysical survey of approximately 100 percent of the sandy portions of the beaches and the trails leading to the beaches. A total of 767 anomalies were excavated. At Red Beach, 16 fired small arms blank cartridges and three expended smoke grenades were discovered. At Blue Beach, three fired blank cartridges were discovered. No MEC was found during the investigation and, as a result, the public use beaches were recommended for NFA and opened to the public for recreational use as part of the Vieques National Wildlife Refuge under USFWS management.

An MEC verification evaluation was conducted at Red Beach and Garcia Beach from April to June 2019 in accordance with the MEC Verification Evaluation Work Plan (CH2M, 2017g). The MEC verification evaluation included the sandy portions of both beaches and the public parking area at Red Beach. The QAPP described the use of AGC to discriminate among subsurface geophysical anomalies identified during the detection phase between targets of interest (that is, potential munitions) and munitions-related and non-munitions-related metallic items. However, not all anomalies were intrusively investigated at Red Beach prior to encountering an 81-mm mortar (MEC), which resulted in cessation of the MEC verification evaluation and initiation of the TCRA QAPP. The final TCRA QAPP was issued in November 2020 (CH2M, 2020g) followed by an Action Memorandum issued in December 2020 (NAVFAC, 2020). The TCRA fieldwork at Red Beach and Garcia Beach began in January 2021 and was completed in July 2021. A draft TCRA Completion Report is being prepared and anticipated to be submitted in September 2022. Based on the results of the TCRA performed at Red Beach and Garcia Beach, it is anticipated an RI will be performed at Red Beach, but that no further investigation or action will be necessary at Garcia Beach.

Section 3, including Figure 3-1 (fiscal year 2023 schedule projection), provides information regarding the anticipated schedule of activities and document preparation for UXO 17 Red Beach.

### **2.1.3.18 UXO 18 – Cayo La Chiva**

A 2011 inspection of Cayo La Chiva 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. The final RI/FS Report was issued in May 2015 (CH2M, 2015d). This was followed by an FS Addendum (CH2M, 2016c) that was finalized in April 2016 to provide additional detail on the cost assumptions included in the RI/FS Report. A PRAP (NAVFAC, 2016a) was issued for public comment and a public meeting was held in 2016. A ROD was issued in August 2018 (NAVFAC, 2018c) and the Remedial Action, LUC, and LTM Work Plan was issued in April 2019 (CH2M, 2019b). Remedial action fieldwork was completed in August 2019 and the Remedial Action Completion Report was issued in September 2019 (CH2M, 2019h). Following 2019 implementation of the remedial action, two annual LUC/MEC monitoring events were conducted in September 2020 and August 2021, the results of which are summarized in Annual Status Reports issued in October 2020 and February 2022. Based on comments received on the second Annual Status Report, MEC/LUC

monitoring frequency has been temporarily increased to every other month for 2022 to help determine an optimal frequency based on any public access/use observed during the monitoring events. Additionally, due to PRDNER's decision to not open portions of public use areas on UXO 18 (i.e., the trail through the island and the southern overlook/picnic area), all trail markers along the trail were removed, the educational kiosk was updated to remove the trail and southern overlook picnic area from the map, and downed vegetation was placed across the trail access at the northern entrance of the trail in such a way as to obscure the trail access point/entrance.

Section 3, including Figure 3-1 (fiscal year 2023 schedule projection), provides information regarding the anticipated schedule of activities and document preparation for UXO 18.

## 2.2 Western Vieques Sites (Former NASD)

### 2.2.1 Installation Restoration Sites

This subsection summarizes the status of the 16 installation restoration sites (SWMUs and AOCs) on western Vieques. Detail for the one site (AOC E) where remedial action is ongoing is provided herein. Site-specific detail for the remainder of the sites, which were determined to require No Action or NFA under CERCLA, is provided in Appendix A1 and past SMP updates. The locations of the western Vieques sites are shown in Figure 2-3.

Based on historical use, several of the former NASD sites listed in Appendix A1 and Appendix B1 are included in the PFAS SI, as described in Section 2.3.

#### 2.2.1.1 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 took 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 issued in February 2010 (CH2M, 2010a). The ISCO pilot test, covering the entire impacted area, showed ISCO to be effective in reducing the concentrations of site contaminants of concern (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 PRDNER concurred that the Pilot Study

had generally satisfied its objectives and that the site should proceed to an FS to address the residual persulfate and potential for contaminant rebound.

The Focused Feasibility Study (FFS) Report was issued 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, 2013c). 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). Land use controls were implemented at the site and the first, second, and third rounds of remedial action monitoring (annual groundwater sampling) were completed in March/April 2015, January 2016, and January 2017, respectively. The first two rounds of groundwater sampling were documented in an annual status report that was finalized in February 2017 (CH2M, 2017c). The third round annual status report was finalized in March 2018 (CH2M, 2018c). In accordance with the ROD, based on the results of the three rounds of groundwater sampling (i.e., concentrations of COCs above remediation goals), additional remedial action was deemed warranted. Therefore, a final Remedial Action Work Plan Addendum was completed in July 2018 (CH2M, 2018i). The supplemental remedial action was implemented in November 2018 and post-injection groundwater monitoring in accordance with the Remedial Action Work Plan (CH2M, 2015a) resumed. Groundwater samples were collected in 2019 and 2020 for informational purposes because residual persulfate concentrations had not declined to a level acceptable for COC sampling (2019) or turbidity in one well did not allow an accurate residual persulfate reading (2020), as documented in the 2020 Annual Status Report (CH2M, 2020d). However, groundwater sampling for COC analysis was performed in 2021 and 2022, the results of which are documented in 2021 Annual Status Report (CH2M, 2022e) and draft 2022 Annual Status Report.

Section 3, including Figure 3-1 (fiscal year 2023 schedule projection), provides information regarding the anticipated schedule of activities and document preparation for AOC E.

## 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. 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, MD

items, and MPPEH were removed. These items required demolition to eliminate the potential explosive hazard associated with the items.

An RI/FS was completed in May 2012 (CH2M, 2012e) 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.

An FS 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 were considered, which were documented in the FS Addendum (CH2M, 2017e). However, to potentially 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, 2014c; 2014l). The NTCRA field activities were completed in 2015 and there were approximately 6,573 MEC removed. The NTCRA field activities are documented in the final After Action Report that was issued in November 2016 (CH2M, 2016o).

In addition to an NTCRA, an SAP to assess perchlorate in groundwater and biota in Laguna Boca Quebrada was finalized in June 2014 (CH2M, 2014j) and fieldwork was completed in September 2014. Information gathered during this evaluation was used to modify the remedial alternatives in the FS in an FS Addendum, which included a modified HHRA; the FS Addendum was finalized in April 2017 (CH2M, 2017e).

The PRAP for SWMU 4 was completed in July 2018 and a public meeting held on August 8, 2018. The ROD for SWMU 4 was finalized in September 2019 (NAVFA, 2019b) requiring land use controls and long-term monitoring. The Remedial Action Work Plan, including a QAPP, was issued in March 2022 and remedy implementation is anticipated to be completed in 2022.

Section 3, including Figure 3-1 (fiscal year 2023 schedule projection), provides information regarding the anticipated schedule of activities and document preparation for SWMU 4.

### 2.2.2.1 Underwater Areas

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

## 2.3 Per- and Polyfluoroalkyl Substances Investigation

The potential release(s) of PFAS is being evaluated on Vieques as part of a Navy-wide facilities assessment of potential historical sources of PFAS. The results of the historical records evaluation are included in a PA Report for potential sources of PFAS at the former NASD and the former VNTR in Vieques, Puerto Rico (CH2M, 2020a).

This report identifies the following 14 sites where PFAS-containing materials may have been released into the environment based on review of historical and other PFAS-related and site-related information:

*Former NASD*

- AOC H
- Former Fire Station Building 2046 at the Public Works Area
- Potential Former Motor Pool Area
- AOC B
- SWMU 6
- SWMU 7

*Former VNTR*

- Potential Former Motor Pool Area (including Building 340) and Former Fire Department Building 330
- SWMU 20
- Camp Garcia Runway
- PI 5
- SWMU 10
- AOC G
- SWMU 1

The PA recommended these sites undergo an SI to confirm the presence or absence of a PFAS release(s). Should PFAS release(s) be confirmed, the Navy and regulatory agencies will discuss the need for further investigation of those sites as well as whether any additional sites/areas evaluated during the PA should be considered as a potential PFAS sources and characterized accordingly. The PFAS SI is currently underway in accordance with the SI SAP issued in December 2021 (CH2M, 2021e).

Section 3, including Figure 3-1 (fiscal year 2023 schedule projection), provides information regarding the anticipated schedule of activities and document preparation related to PFAS.

## 2.4 Munitions Response Site Prioritization

The MRS Prioritization Protocol (MRSP) 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 MRSP 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 ERA/SI Report (CH2M, 2010d) and the following removal actions and MEC investigations:

- TCRA for LIA and ECA Surface MEC - UXOs 1 and 4 (CH2M, 2010f)
- UXO 1 RI (CH2M, 2012h)

- NTCRA for UXO 1, Subsurface MEC (CH2M. 2013e)
- UXO 1 Remedial Action Completion (CH2M. 2019e)
- NTCRA for Subsurface MEC in Roads and Beaches - UXOs 2, 3, 5, 6, 7, 8, and 11 (CH2M, 2008k)
- UXOs 2, 7, and 8 Beaches RI (CH2M. 2020i)
- UXOs 3, 5, 6, and 11 RI (CH2M. 2020j)
- UXOs 4, 9, 10, 12, and 14, RI Status (CH2M. 2016d).
- NTCRA for Surface MEC in the SIA - UXOs 9, 10, and 12 (CH2M, 2009b)
- UXO 12 and 14 RI/FS (CH2M, 2018k)
- NTCRA for UXO 13 (CH2M. 2019a)
- UXO 15 RI (CH2M, 2014g)
- NTCRA for UXO 15 Main Access Road, Lighthouse Area, Trails, and Beaches (CH2M. 2015c)
- NTCRA for UXO 15 Southwest Beach (CH2M. 2015l)
- UXO 15 RI/FS (CH2M. 2020b)
- UXO 16 Adjacent to SWMU 4 Expanded SI (CH2M. 2016e)
- NTCRA for UXO 16 Adjacent to Cayo La Chiva (CH2M. 2018g)
- UXO 16.1 RI (CH2M. 2018h)
- UXO 16 Underwater Wide Area Assessment (CH2M. 2018n).
- TCRA for PAOC EE (CH2M. 2015j)
- UXO 17, PAOC EE RI/FS (CH2M. 2019c)
- UXO 18 RI/FS (CH2M, 2015d)
- UXO 18 Remedial Action Completion (CH2M. 2019h)
- SWMU 4 RI/FS (CH2M, 2012e)
- NTCRA Interim Action for the Removal of Sub-Surface MEC at SWMU 4 (CH2M. 2012i)
- NTCRA for munitions removal at SWMU 4 (CH2M, 2016o)

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 MRSP calculation when the RI is complete, and the associated RI report is finalized. 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 MRSP scores for the VNTR MRSs is summarized in 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. The prioritization ranking does not necessarily correlate with the cleanup prioritization, which can be influenced by factors such as public and regulatory input, resource availability, and logistical considerations.

TABLE 2-1

**Operable Units Cross Reference Table***Site Management Plan, Fiscal Year 2023**Vieques, Puerto Rico*

<b>EPA SEMS OU Number and Description</b>	<b>Common Site Name</b>
00 - SITEWIDE	
01 - EAST & WEST BEACHES & ROADS	
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 point 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, Large pit near road intersection; PAOC AA, Combat Rifle Range No. 2; PAOC BB, M-60 Caliber Machine Gun Range No. 7; PAOC CC, M-79 Grenade Launcher/Rifle Grenade Range No 4; PAOC DD, 3.5-inch Rocket Launcher Range No. 4B
25 - UX014 EMA SOUTH	UXO 14, EMA South
26 - UX015 PUERTO FERRO	UXO 15, Puerto Ferro; PI 9 (west) Ammunition Storage in Earthen Berms and Disposal of Ammunition (OB/OD possibly); PI 9 (east) Encrusted Munitions; 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); Red Beach, and Blue Beach
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)
30 - LAGUNA LA CHIVA	La Chiva Lagoon



TABLE 2-1

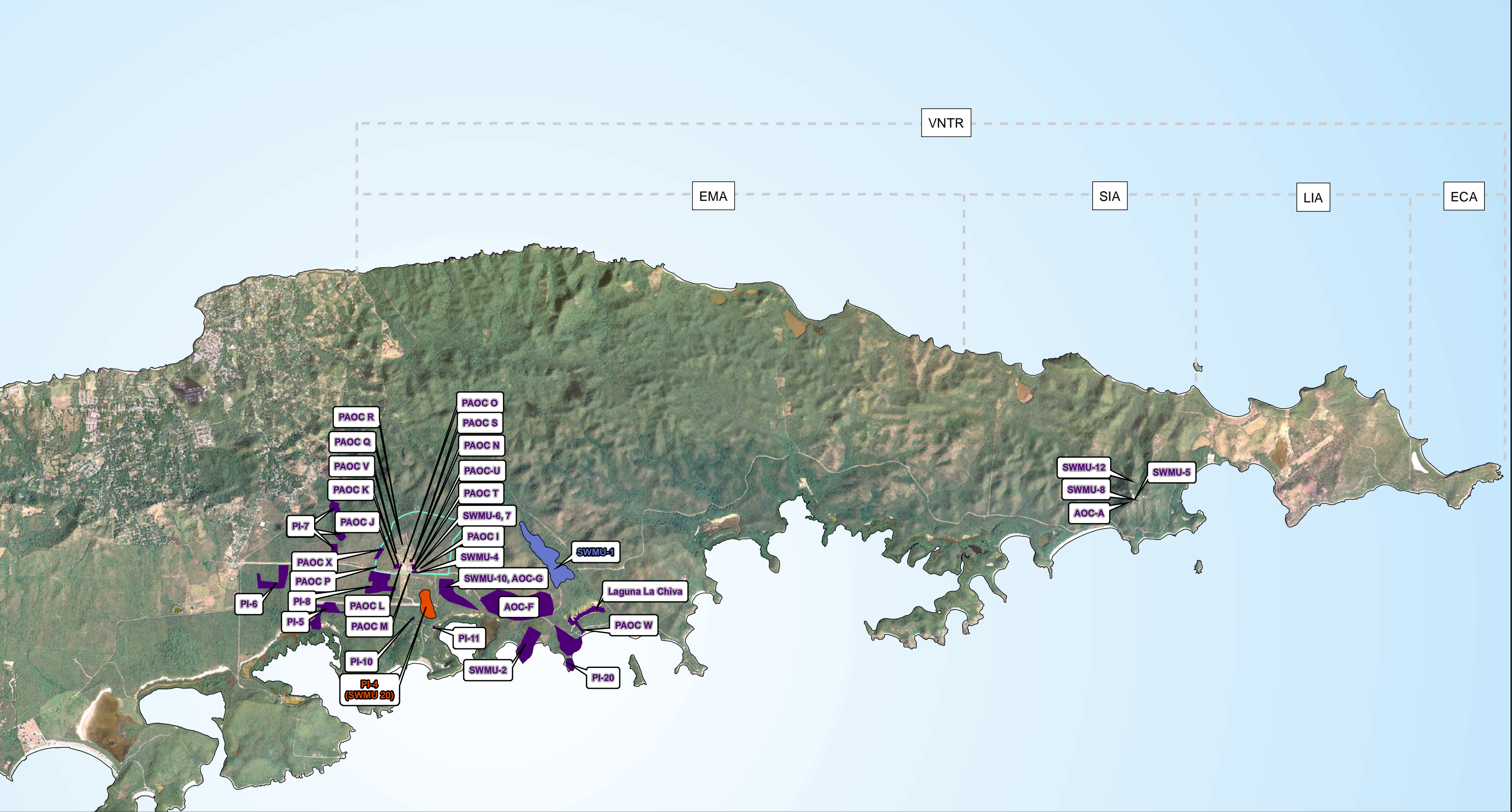
**Operable Units Cross Reference Table***Site Management Plan, Fiscal Year 2023**Vieques, Puerto Rico*

<b>EPA SEMS OU Number and Description</b>	<b>Common Site Name</b>
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 7, Former Quarry, Tar Drum Disposal Area, and Radar Communication Area
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

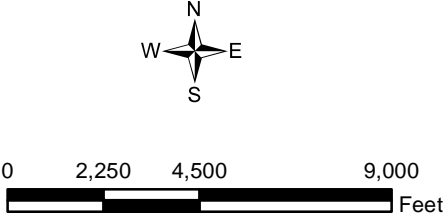
TABLE 2-2

**Summary of Munitions Response Site Prioritization Protocol Results for Vieques Munitions Response Sites***Site Management Plan, Fiscal Year 2023**Vieques, Puerto Rico*

Site ID	Common Site Name	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	Other Sites	3
UXO 18	Cayo la Chiva	2
SWMU 4 (NASD UXO 4)	West Vieques OB/OD Site	2

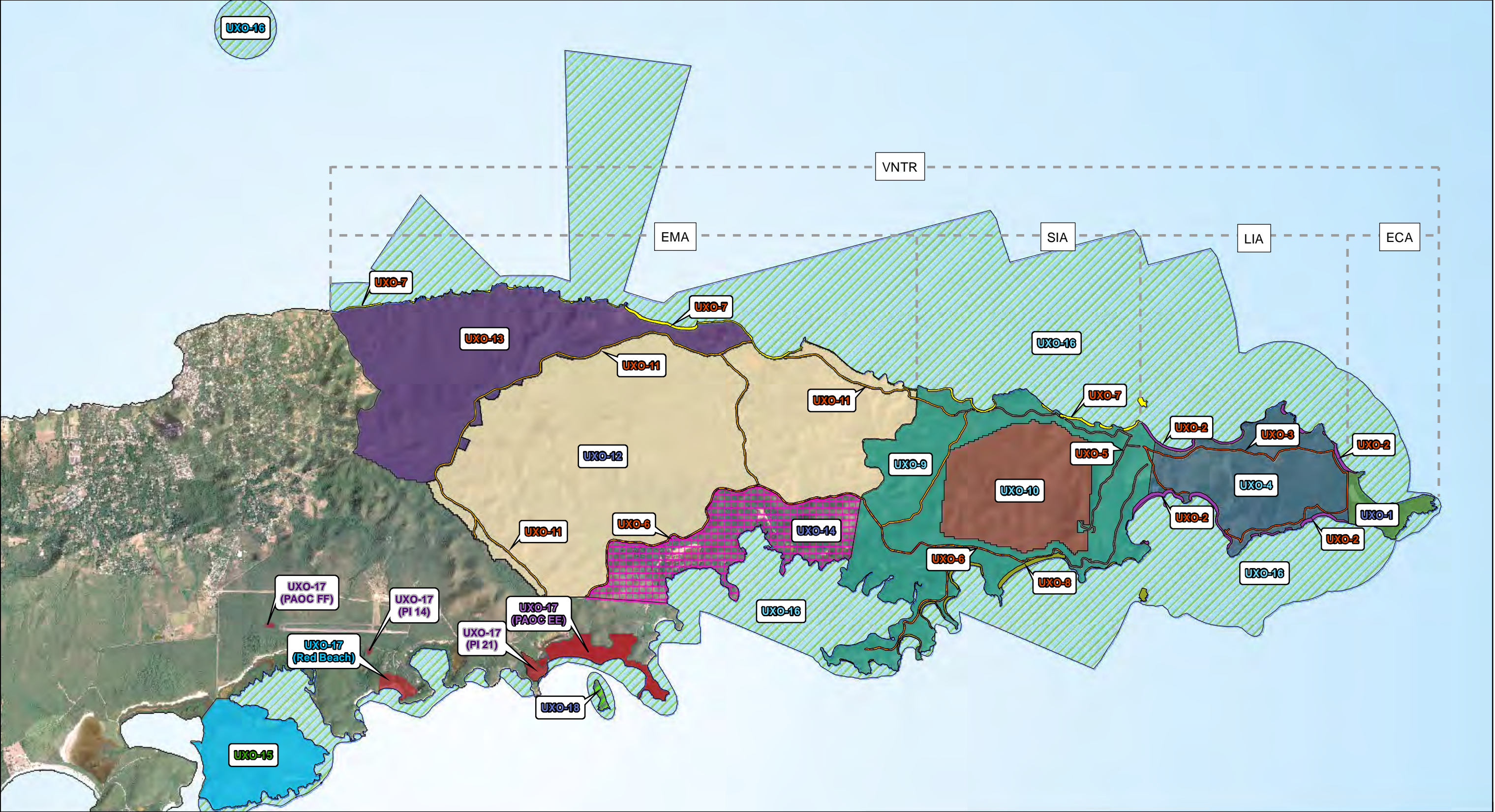


**Legend**  
■ Sites - No Action/No Further Action Decision Document  
■ Sites - Feasibility Study  
■ Sites - Remedial Action/Long-term Monitoring  
□ Camp Garcia



**Figure 2-1**  
**East Vieques Installation Restoration Sites**  
*Site Management Plan, FY 2023*  
*Vieques, Puerto Rico*





**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 Planned Public Roads
- UXO 7 - EMA/SIA North Beaches
- UXO 8 - SIA South Beaches
- UXO 9 - SIA Exterior
- UXO 10 - SIA Interior
- UXO 11 - EMA Planned Public Roads
- UXO 12 - EMA Interior
- UXO 13 - EMA West
- UXO 14 - EMA South
- UXO 15 - Puerto Ferro
- UXO 16 - Underwater Areas

- UXO 17 - Public Use Beaches (PAOC EE, Camp Garcia Area, PAOC FF, PI 14 and PI 21)
- UXO 18 - Cayo de la Chiva

**Sites - No Action/No Further Action Decision Document**

**Sites - Remedial Investigation**

**Sites - Feasibility Study**

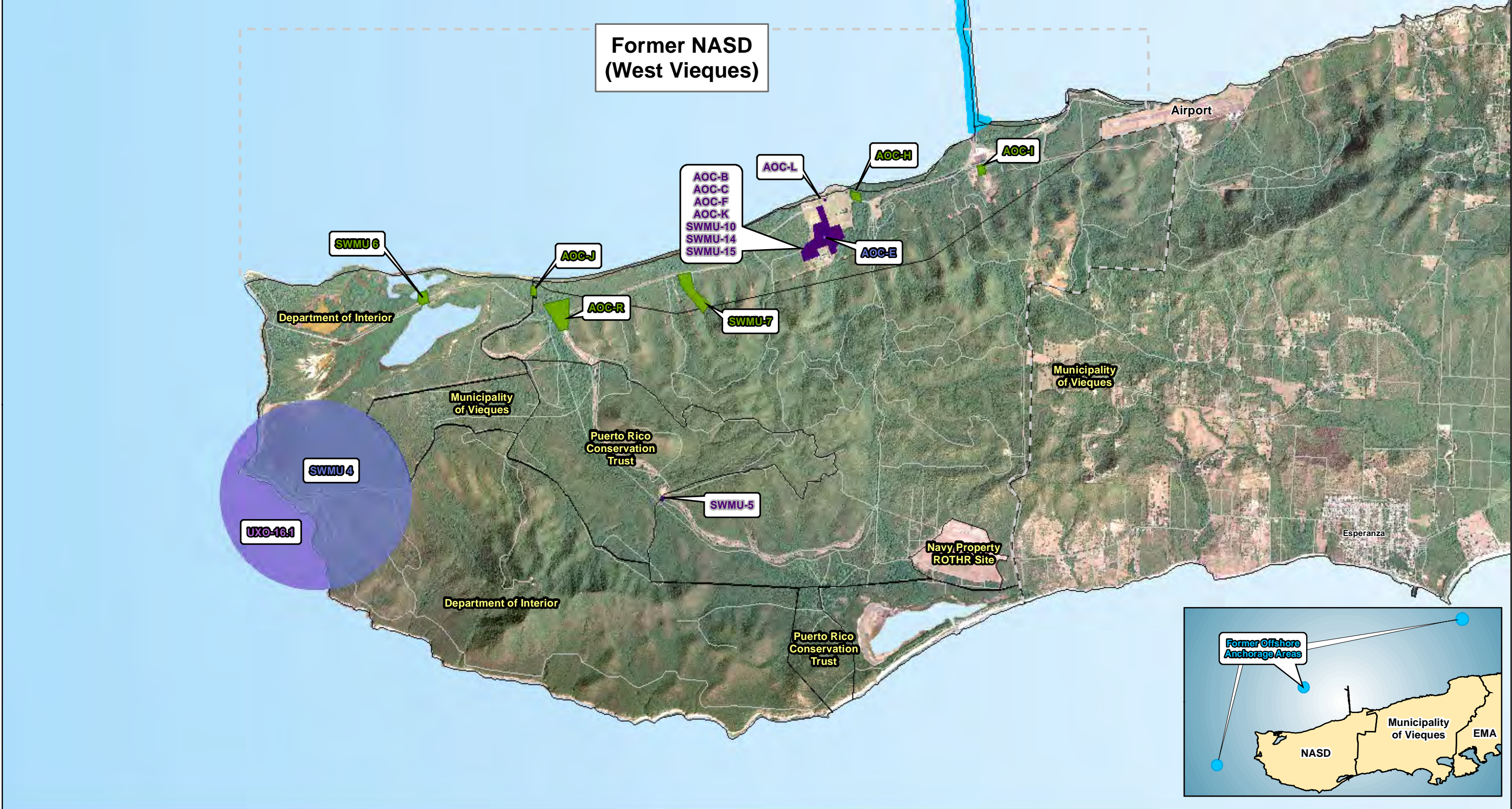
**Sites - Proposed Plan**

**Sites - Record of Decision**

**Sites - Remedial Action/Long-term Monitoring**

**Figure 2-2**  
**East Vieques Munitions Response Sites**  
*Site Management Plan, FY 2023*  
*Vieques, Puerto Rico*







## 73 Total Sites

- 51 sites completed with no further action
- 7 sites completed with long-term monitoring
- 15 sites in RI, FS, PRAP, or ROD phase

### 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

### No Action/No Further Action Record of Decision

Location	Site Name
Former NASD	SWMU 6
Former NASD	SWMU 7
Former NASD	AOC H
Former NASD	AOC J
Former NASD	AOC R
Former NASD	AOC I

### Remedial Investigation

Location	Site Name
Former VNTR	UXO 16.2

### 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 16
Former VNTR	UXO 17 (Playa Caracas)

#### Removal Action

Location	Site Name
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

### Feasibility Study

Location	Site Name
Former VNTR	SWMU 20
Former VNTR	UXO 2
Former VNTR	UXO 7
Former VNTR	UXO 8
Former VNTR	UXO 13

### Proposed Plan

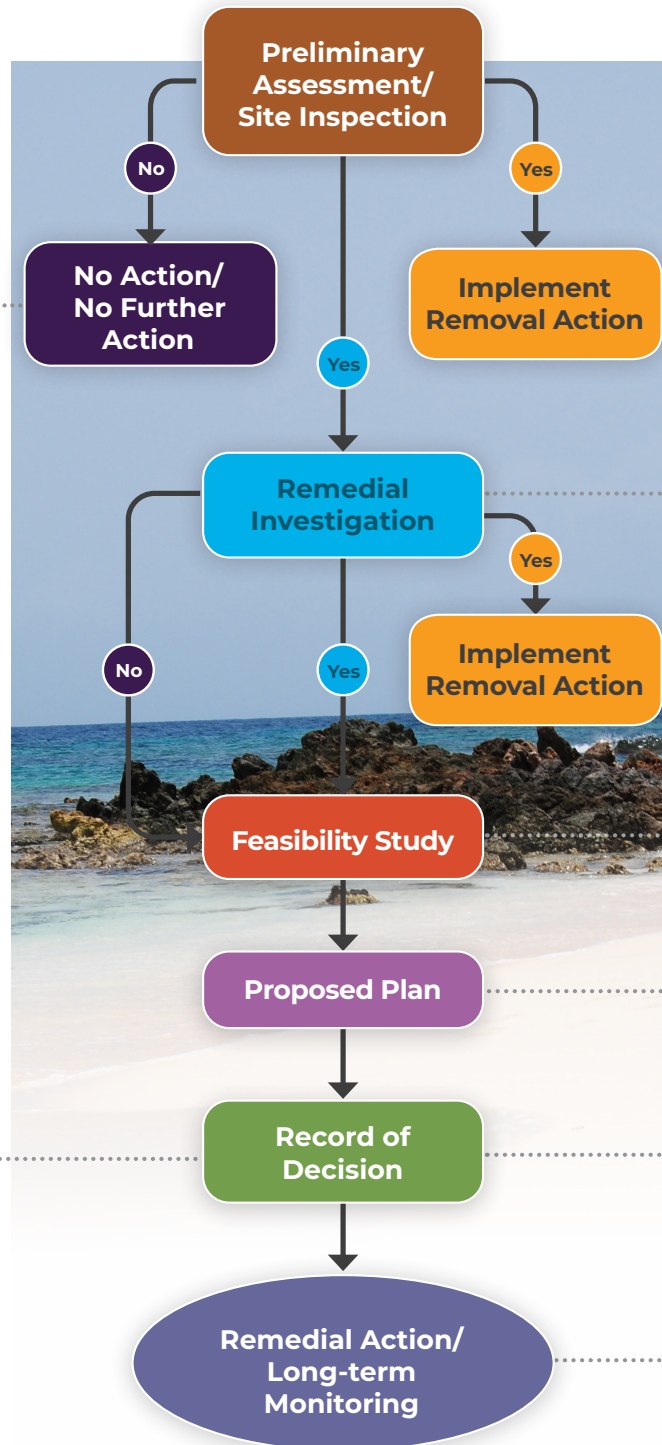
Location	Site Name
Former VNTR	UXO 16.1
Former VNTR	UXO 17 (PAOC EE)

### Record of Decision

Location	Site Name
Former NASD	AOC E
Former VNTR	SWMU 1
Former NASD	SWMU 4
Former VNTR	UXO 1
Former VNTR	UXO 12
Former VNTR	UXO 14
Former VNTR	UXO 15
Former VNTR	UXO 18

### Remedial Action/Long-term Monitoring

Location	Site Name
Former NASD	AOC E
Former VNTR	SWMU 1
Former NASD	SWMU 4
Former VNTR	UXO 1
Former VNTR	UXO 12
Former VNTR	UXO 14
Former VNTR	UXO 18



#### LEGEND



No contamination warranting additional study or action identified.



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



Significant contamination and imminent / substantial risk identified.

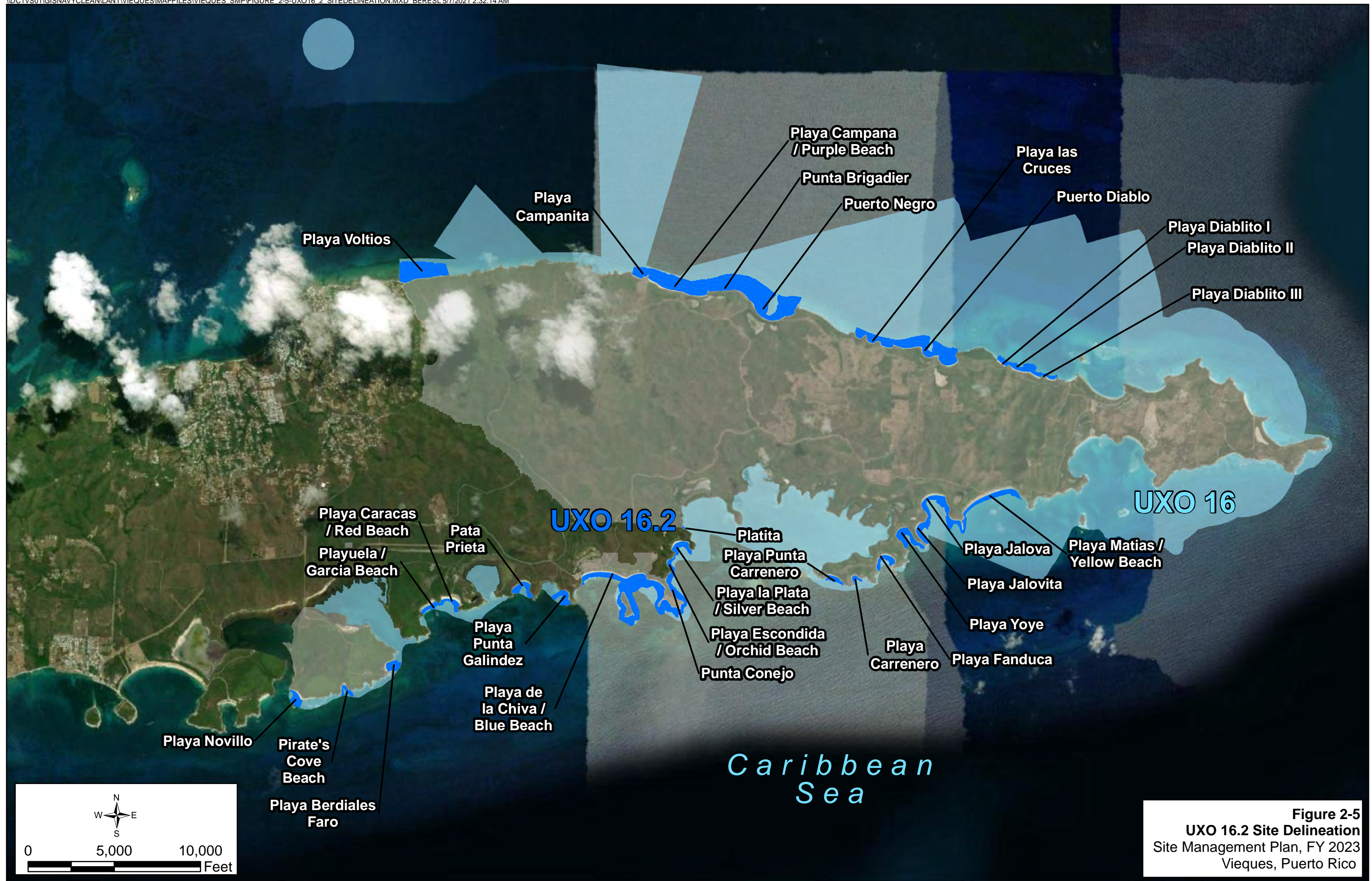
**Munitions Response (MR) Sites** – designated with UXO prefix (except SWMU 4)

**Installation Restoration (IR) Sites** – designated with SWMU, AOC, PAOC, or PI prefix

**Note:** Formal public input is solicited during the Proposed Plan and Removal 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, FY2023  
Vieques, Puerto Rico





**Figure 2-5**  
**UXO 16.2 Site Delineation**  
Site Management Plan, FY 2023  
Vieques, Puerto Rico



# 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 Dispute Resolution or Extensions process set out in the FFA. The updated FY 2023 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 2023 and beyond are summarized in Table 3-1. Based on new information or conditions that arise that may affect the anticipated schedules, they will be re-evaluated and updated as mutually agreed to by the agencies.

On March 12, 2020, the Governor of Puerto Rico issued an Executive Order to close all Governmental and Private Sector Operations due to the Coronavirus (COVID-19) pandemic. As a result, ongoing activities were postponed including the submunitions TCRA, the SIA NTCRA, and the UXO 16 Nearshore Munitions NTCRA. USFWS subsequently closed the refuge to the public on March 17. On March 18, NAVFAC issued a Stop Work letter to only permit operation and maintenance of the power system and for security. The Stop Work order was ended on May 5, 2020. Based on the Puerto Rico Executive Order updates on May 21, 2020 allowing construction activities to resume, field operations were initiated on May 25, 2020 following the Center for Disease Control and Prevention (CDC) work requirements.

## 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. Site-specific work plans incorporate existing milestones contained in the SMP. Milestones approved in annual SMP updates will become enforceable to the extent allowed under the FFA and shall be included in future work plans.

The SMP is to be updated annually and a draft of the SMP update 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 and safety
- 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 activities. Examples of primary documents include the following:

- RI/FS Work Plans, including SAP and QAPP
- Risk Assessment Work Plans and Reports
- Remedial Investigation Reports
- Initial Screening of Alternatives
- Feasibility Study Reports
- Focused Feasibility Study Reports
- PRAPs
- RODs
- Final Remedial Designs (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 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 and Long-term Monitoring Status Reports
- Preliminary/Conceptual Designs, or equivalents
- Pre-Final Remedial Designs
- Removal Action (NTCRA and TCRA) After Action 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, EPA, and PRDNER, as applicable.

### 3.4 Projected IRP/MRP Funding

While milestones are not dictated solely by budget targets, such targets must 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 2022 and FY 2023 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, removal 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.

### 3.6 Five-year Review

A Five-year Review Report was issued on September 21, 2018 (CH2M, 2018m). This report documents completion of the first five-year review for remedial actions implemented at the AFWTA – Vieques in accordance with CERCLA requirements. As the five-year milestone was reached for the first sites where remedial actions were implemented under a ROD, the First Five-year Review Report specifically focused on AOC E within the former NASD and SWMU 1 within the former VNTR. The First Five-year Review Report summarizes performance evaluation of the remedial actions to determine whether they are functioning as intended and are protective of human health and the environment, in accordance with the requirements set forth in each of their respective RODs.

The community was notified of the initiation of the five-year review process through public notice placed in the April 2018 information flier distributed throughout Vieques. Upon review of documents related to the remedy implementation and long-term monitoring and maintenance, as well as a site visit conducted by representatives of the stakeholder agencies, it was determined that the remedies at both sites are functioning as intended and are protective of human health and the environment. The community was notified of the five-year review findings in the December 2018 information flier distributed throughout Vieques.

The five-year review site visit of AOC E, SWMU 1, UXO 1, and UXO 18 occurred in August 2022 to support the next five-year review report planned for August 2023.

TABLE 3-1

**FY23 and Beyond Tentative Schedule***Site Management Plan, Fiscal Year 2023**Vieques, Puerto Rico*

Site	Site Name	FY23 (Oct 2022 through Sept 2023)	FY24 (Oct 2023 through Sept 2024)	FY25 (Oct 2024 through Sept 2025)
<b>Installation Restoration Sites</b>				
<b>West Vieques</b>				
AOC E	Former UST Site 2016	RA groundwater sampling, Annual Status Report	RA groundwater sampling, Annual Status Report	RA groundwater sampling, Annual Status Report
PFAS Sites	AOC H, Former Fire Station, Potential Former Motor Pool Area, AOC B, SWMU 6, and SWMU 7	SI Report, RI SAP	RI SAP, RI Fieldwork	RI Fieldwork, RI Report
<b>East Vieques</b>				
SWMU 1	Former Camp Garcia Landfill	LTM, Annual Status 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			
PFAS Sites	Potential Former Motor Pool Area, SWMU 20, Camp Garcia Runway, PI 5, SWMU 10, AOC G, and SWMU 1	SI Report, RI SAP	RI SAP, RI Fieldwork	RI Fieldwork, RI Report
<b>Munitions Response Sites</b>				
<b>West Vieques</b>				
SWMU 4	Inactive OB/Waste Explosive Detonation Range	RA Completion Report, RA Operations Monitoring, Annual Status Report	RA Operations Monitoring, Annual Status Report	RA Operations Monitoring, Annual Status Report
<b>East Vieques</b>				
UXO 1	Eastern Conservation Area	LTM, Annual Status Report	LTM, Annual Status Report	LTM, Annual Status Report
UXOs 2, 7, 8	LIA Beaches, EMA/SIA North Beaches, SIA South Beaches	NTCRA Fieldwork	After Action Report, FS Report	After Action Report, FS Report
UXOs 3, 5, 6, 11	LIA Roads, SIA Restricted Roads, EMA/SIA Public Roads, EMA Public Roads	NTCRA Fieldwork	After Action Report, FS Report	After Action Report, FS Report
UXO 4	LIA Interior	TCRA Fieldwork (Submunitions Area), After Action Report, Supplemental RI SAP	After Action Report, Supplemental RI SAP, RI Fieldwork	After Action Report, Supplemental RI SAP, RI Fieldwork
UXOs 9, 10	SIA Exterior, SIA Interior	NTCRA Fieldwork, After Action Report, RI Report, FS Report	FS Report, Proposed Plan	FS Report, Proposed Plan
UXOs 12, 14	EMA Interior, EMA South	RA Fieldwork, Remedial Action Completion Report	LTM, Annual Status Report	LTM, Annual Status Report
UXO 13	EMA West	NTCRA Fieldwork	NTCRA Fieldwork, After Action Report	RI/FS Report
UXO 15	Puerto Ferro	RA Work Plan, RA Fieldwork	RA Fieldwork, Remedial Action Completion Report	LTM, Annual Status Report
UXO 16.1	Underwater Areas (Adj to SWMU 4)	ROD	ROD, RA Work Plan	ROD, RA Work Plan, RA Fieldwork
UXO 16.2	Underwater Areas (Adj to Public Beaches)	NTCRA Fieldwork (nearshore MEC), RI Fieldwork	NTCRA Fieldwork (nearshore MEC), RI Report	NTCRA Fieldwork (nearshore MEC), RI Report, FS Report
UXO 17	Other Sites (Red Beach/Garcia Beach)	TCRA Completion Report, RI SAP	RI SAP, RI Fieldwork	RI Report
UXO 17	PAOC EE	ROD, RA Work Plan	RA Work Plan, RA Fieldwork	RA Fieldwork, RA Completion Report
UXO 18	Cayo La Chiva	LTM, Annual Status Report	LTM, Annual Status Report	LTM, Annual Status Report
<b>Miscellaneous</b>				
Five-Year Review		Five -Year Review Report		

TABLE 3-2

**Vieques Programmed Funding, In Millions (\$)***Site Management Plan, Fiscal Year 2023**Vieques, Puerto Rico*

<b>Fiscal Year</b>	<b>Installation Restoration (54 Sites)</b>	<b>Munitions Response (19 Sites)</b>	<b>Totals</b>
Through FY21	\$35.0	\$302.0	<b>\$337.0</b>
FY22	\$0.2	\$20.7	<b>\$20.9</b>
FY23	\$1.2	\$19.3	<b>\$20.5</b>
FY24 & Beyond	\$9.4	\$277.0	<b>\$286.4</b>
<b>Total Expenditure</b>	<b>\$45.8</b>	<b>\$619.0</b>	<b>\$664.8</b>

TABLE 3-3

**Site Acceleration***Site Management Plan, Fiscal Year 2023**Vieques, Puerto Rico*

Site	Milestone (Requestor)	Acceleration Strategy	Estimated <sup>1</sup> Acceleration
Former NASD - AOC E	Use of site for vehicle maintenance (MOV)	Expedited Remedial Action implementation	2 years <sup>2</sup>
Former VNTR - UXO 12	Prioritize final remedy that will make available approximately 4,026 acres of land to USFWS for reuse (Navy)	Shifted eastern boundary of site such that area of elevated munitions density is more appropriately included with UXO 9 (where NTCRA is ongoing), allowing remainder of site to move directly to RI/FS Report, Proposed Plan, and Record of Decision	4 years <sup>3</sup>
Former VNTR - UXO 14	Prioritize final remedy that will make available approximately 784 acres of land to USFWS for reuse (Navy)	Shifted eastern boundary of site such that area of elevated munitions density is more appropriately included with UXO 9 (where NTCRA is ongoing), allowing remainder of site to move directly to RI/FS Report, Proposed Plan, and Record of Decision	4 years <sup>3</sup>
Former VNTR - UXO 15	Public access for recreational purposes around historic lighthouse (Public/PRDNER/PREQB/USFWS)	Implemented NTCRA for areas targeted for public access prior to final remedy selection for site	7 years <sup>4</sup>
Former VNTR - UXO 15/16	Prioritize removal of encrusted munitions at PI 9 East and adjacent UXO 16 (Navy)	Implemented NTCRA for visible munitions debris on shore and in the nearshore waters	5 - 10 years <sup>5</sup>
Former VNTR - UXO 16 (adjacent to UXO 18)	Prioritize removal of underwater munitions adjacent to Cayo La Chiva to facilitate public use of Cayo La Chiva following its remedy implementation (PREQB/PRDNER)	Implemented NTCRA for waters around Cayo La Chiva to reduce explosive hazard for potential recreational users of waters off Playa la Chiva	10 years <sup>6</sup>
Former NASD - UXO 16.1 (adjacent to SWMU 4)	Public access to SWMU 4 for recreational purposes (Public/PRDNER/PREQB/USFWS)	Implemented Remedial Investigation adjacent to SWMU 4 beach prior to investigation of UXO 16 as a whole	10 years <sup>7</sup>
Former VNTR - UXO 16	Prioritize removal of nearshore munitions (Navy)	Implementing NTCRA for nearshore munitions	5 - 10 years <sup>8</sup>
Former VNTR - UXO 18 (Cayo La Chiva)	Prioritize final remedy for Cayo La Chiva (PREQB/PRDNER)	Combined RI and FS; implemented NTCRA in UXO 16 adjacent to UXO 18; implemented final remedy at UXO 18	11 years <sup>9</sup>

## Notes:

<sup>1</sup> Estimated acceleration based on information currently available and is subject to change based on factors that may influence timing and duration of acceleration strategy<sup>2</sup> Remedial Action implemented in March 2015<sup>3</sup> Boundary shifted and RI/FS combined; ROD issued in 2021<sup>4</sup> Area opened for public access in March 2015<sup>5</sup> NTCRA implemented in May 2018<sup>6</sup> NTCRA implemented in June 2017<sup>7</sup> RI implemented in July 2016; ROD anticipated in mid 2023<sup>8</sup> NTCRA began in 2019<sup>9</sup> Combined RI/FS Report issued in May 2015; NTCRA implemented in June 2017; UXO 18 final remedy implemented in May 2019

**FIGURE 3-1**  
**Vieques Munitions Response and Installation Restoration Program Schedule**  
*Site Management Plan*  
*Atlantic Fleet Weapons Training Area – Vieques*  
*Vieques, Puerto Rico*

Month-Year:	November-22					December-22					January-23					February-23					March-23					April-23					May-23					June-23					July-23					August-23					September-23					October-23					November-23					December-23				
Week Ending:	04	11	18	25	02	09	16	23	30	06	13	20	27	03	10	17	24	03	10	17	24	31	07	14	21	28	05	12	19	26	02	09	16	23	30	07	14	21	28	04	11	18	25	01	08	15	22	29	06	13	20	27	03	10	17	24	01	08	15	22	29									
DELIVERABLES																																																																						
West Vieques																																																																						
AOC E																																																																						
Remedial Action - Operation Monitoring/Annual Report <sup>2</sup>											Sample analysis, validation, database upload										Annual Status Report										Regulatory Review										Comment Resp																													
SWMU 4																																																																						
Remedial Action <sup>1</sup>	Remedial A					Draft IRACR Report															Regulatory Review																				Comment Resp/Draft Final prep										DF Eval/RAB*																			
Remedial Action - Operation Monitoring/Annual Report <sup>2</sup>	Sample analysis					validation, database upload					Sample analysis, validation, database upload										Annual Status Report										Regulatory Review										Comment Resp																													
East Vieques																																																																						
SWMU 1																																																																						
Long-Term Monitoring/Annual Report <sup>2</sup>											LTM										Sample analysis, validation, database upload										Annual Status Report										Regulatory Review										Comment Resp																			
SWMU 20																																																																						
See PFAS																																																																						
PFAS																																																																						
PFAS Site Inspection <sup>1</sup>	Draft Site Inspection Report																				Regulatory Review																				Comment Resp/Draft Final prep										DF Eval/RAB*																			
PFAS Remedial Investigation <sup>1</sup>																																																																						
UXO 1 (ECA)																																																																						
Long-Term Monitoring/Annual Report <sup>2</sup>	Annual					Regulatory Review																				Comment Resp															LTM					Annual Status Report					Regulatory Review																			
UXO 2 (LIA Beaches)																																																																						
UXO 7 (EMA/SIA North Beaches)																																																																						
UXO 8 (SIA South Beaches)																																																																						
NTCRA <sup>4,2</sup>																																																																						
UXO 3 (LIA Roads), UXO 5 (SIA Restricted Roads)																																																																						
UXO 6 (EMA/SIA Public Roads)																																																																						
UXO 11 (EMA Public Roads)																																																																						
NTCRA <sup>4,2</sup>																																																																						
UXO 4 (LIA Interior)																																																																						
TCRA (Submunitions Area) <sup>4,2</sup>																																																																						

### LEGEND

Navy Preparation of Draft Document
Regulatory Review
Regulatory Extension
Responses to Comments/Draft Final Preparation
Responses to Comments
Comment Response Evaluation/Draft Final Evaluation/RAB Review (as applicable)
Public Comment
Fieldwork/sample processing

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 Risk Assessment; ERA = Ecological Risk Assessment

\* Draft Final submittals are prepared only after resolution of regulatory agency comments

<sup>1</sup> Is or includes Primary Document<sup>2</sup> Is or includes Secondary Document

<sup>3</sup> Draft due June 15 of each year

<sup>4</sup> TCRA and NTCRA activities may not be continuous throughout the schedule shown.

**FIGURE 3-1**  
**Vieques Munitions Response and Installation Restoration Program Schedule**  
*Site Management Plan*  
*Atlantic Fleet Weapons Training Area – Vieques*  
*Vieques, Puerto Rico*

[illegible]

### LEGEND

Navy Preparation of Draft Document
Regulatory Review
Regulatory Extension
Responses to Comments/Draft Final Preparation
Responses to Comments
Comment Response Evaluation/Draft Final Evaluation/RAB Review (as applicable)
Public Comment
Fieldwork/sample processing

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 Risk Assessment; ERA = Ecological Risk Assessment

\* Draft Final submittals are prepared only after resolution of regulatory agency comments

<sup>1</sup> Is or includes Primary Document

<sup>2</sup> Is or includes Secondary Document

<sup>3</sup> Draft due June 15 of each year

<sup>4</sup> TCRA and NTCRA activities may not be continuous throughout the schedule shown

# References

Bold type indicates a primary document

- Indicates the document is referenced in the text of the Site Management Plan

A. T. Kearney, Inc. & K. W. Brown & Associates, Inc. 1988. *Phase II RCRA Facility Assessment of the Atlantic Fleet Weapons Training Facility (LANT) Including the Eastern Maneuver Area, Camp Garcia and Inner Range, Vieques Island, Puerto Rico*. October.

Advent Environmental. 2005. *Time Critical Removal Action/ Interim Measures Work Plan, Surface Munitions of Explosives Concern at Munition Response Area-Live Impact Area, Munition Response Sites 1 through 4, 6, 16, 17, and 30, Former Vieques Naval Training Range (VNTR), Vieques, Puerto Rico*. April.

Agency for Toxic Substances and Disease Registry (ATSDR). 2006. *Health Consultation, Land Crab Evaluation, (National Oceanographic Atmospheric Administration Data), Isla De Vieques, Vieques, Puerto Rico, EPA Facility ID: PRN000204694*. February 22.

Baker Environmental, Inc. (Baker) 1992a. *Preliminary Assessment Narrative Report Site Inspection Forms and Pascore, Sites 1, 2, and 3 Naval Ammunition Facility Vieques Island, U.S. Naval Station Roosevelt Roads, Puerto Rico*. October.

Baker. 1992b. *Sampling and Analysis Plan Part I: Field Sampling Plan, Phase I Remedial Investigation, Installation Restoration Program Activities, Naval Station Roosevelt Roads, Puerto Rico*. December.

Baker. 1992c. *Sampling and Analysis Plan Part II: Quality Assurance Project Plan, Phase I Remedial Investigation, Installation Restoration Program Activities, Naval Station Roosevelt Roads, Puerto Rico*. December.

Baker. 1992d. *Work Plan, Phase I Remedial Investigation, Installation Restoration Program Activities, Naval Station Roosevelt Roads, Puerto Rico*. December.

Baker. 1993. *Community Relations Plan, Naval Station Roosevelt Roads, Ceiba, Puerto Rico*. August.

Baker. 1994. *Appendix A, Volume I, II, and III, Supplemental Investigation, Installation Restoration Program Activities, Naval Station Roosevelt Roads*. April.

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

Baker. 2000a. *Water Quality Sampling Study, Vieques Island, Puerto Rico*. June.

Baker. 2000b. *Work Plan for Soil Sampling at the Live Impact Area, Vieques Island, Puerto Rico*. July.

CH2M HILL, Inc. (CH2M). 1999. *Site Characterization Report for Site No. 2016, United States Navy, Roosevelt Roads Naval Station, Ceiba, Puerto Rico*. April.

CH2M. 2000a. *Site Specific Work Plan Expanded Preliminary Assessment/Site Investigation, U.S. Naval Ammunition Support Detachment, Vieques Island, Puerto Rico*. April.

CH2M. 2000b. *Expanded Preliminary Assessment/Site Investigation [Phase I]. U.S. Naval Ammunition Support Detachment, Vieques Island, Puerto Rico*. October.

CH2M. 2000c. *Live Impact Area Soil Sampling Report, U.S. Navy Facility, Vieques Island, Puerto Rico*. October.



CH2M. 2000d. *Finding of Suitability for Early Transfer for U.S. Naval Ammunition Support Detachment, Vieques Island, Puerto Rico.* November.

CH2M. 2000e. *Site Specific Work Plan, Phase II, Seven Sites, U.S. Naval Ammunition Support Detachment, Vieques Island, Puerto Rico.* December.

CH2M. 2000f. *Work Plan and Sampling and Analysis Plan for Soil, Groundwater, Surface Water, and Sediment Background Investigation. Former U.S. Naval Ammunition Support Detachment, Vieques Island, Puerto Rico.* December.

CH2M. 2001a. *Master Work Plan, U.S. Naval Ammunition Support Detachment, Vieques Island, Puerto Rico.* January.

- CH2M. 2001b. *Description of Current Conditions Report, Atlantic Fleet Weapons Training Facility, Vieques Island, Puerto Rico.* February.

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

CH2M. 2001d. *Initial Ordnance and Explosives Site Assessment Work Plan for the Green Beach Area, U.S. Naval Ammunition Support Detachment, Vieques Island, Puerto Rico.* March.

CH2M. 2001e. *Community Relations Plan, Naval Ammunition Support Detachment, Vieques Island, Puerto Rico.* Draft Final. May.

CH2M. 2001f. *Preliminary Ordnance and Explosives (OE) Site Assessment Report for the Green Beach Area of Former U.S. Naval Ammunition Support Detachment, Vieques Island, Puerto Rico.* July.

CH2M. 2001g. *Master Work Plan, Atlantic Fleet Weapons Training Facility, Vieques Island, Puerto Rico.* September.

CH2M. 2001h. *Site Specific Work Plan, Phase I RCRA Facility Investigation, Atlantic Fleet Weapons Training Facility, Vieques Island, Puerto Rico.* September 6.

CH2M. 2001i. *Work Plan and Sampling and Analysis Plan, Soil and Groundwater Background Investigation, Atlantic Fleet Weapons Training Facility, Vieques Island, Puerto Rico.* September 6.

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

CH2M. 2001k. *Ordnance and Explosives Master Work Plan for the Former U.S. Naval Ammunition Support Detachment, Vieques Island, Puerto Rico.* October.

CH2M. 2001l. *Ordnance and Explosives Site-Specific Work Plan for Solid Waste Management Unit 4.* November 9.

CH2M. 2001m. *Magazine Siting Plan for Solid Waste Management Unit 4 (SWMU 4), SWMU 6, and Area of Concern J (AOC J), Former U.S. Naval Ammunition Support Detachment, Vieques Island, Puerto Rico.* November 26.

CH2M. 2002a. *Work Plan for Community Relations Plan, Atlantic Fleet Weapons Training Facility and Eastern Maneuver Area, Vieques Island, Puerto Rico.* January.

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

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

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

- CH2M. 2002e. *Preliminary OE/MEC Site Investigation Work Plan for Blue Beach and Red Beach, Eastern Maneuver Area, Vieques Island, Puerto Rico*. November.
- CH2M. 2002f. *Expanded Preliminary Assessment/Site Investigation, Phase II Seven Sites, Former U.S. Naval Ammunition Support Detachment, Vieques Island, Puerto Rico*. November 18.
- CH2M. 2003a. *Ordnance and Explosives (OE) Site-Specific Work Plan, Former U.S. Naval Ammunition Support Detachment, Vieques Island, Puerto Rico*. Revision 2. June.
- CH2M. 2003b. *Master Work Plan, Atlantic Fleet Weapons Training Facility, Vieques Island, Puerto Rico*. June.
- CH2M. 2003c. *Site Specific Work Plan Phase I RCRA Facility Investigation, Atlantic Fleet Weapons Training Facility, Vieques Island, Puerto Rico*. June 12.
- CH2M. 2003d. *Remedial Investigation/Feasibility Study Work Plan for Solid Waste Management Unit (SWMU) 6, SWMU 7, Area of Concern (AOC) H, and AOC J, Former U.S. Naval Ammunition Support Detachment, Vieques Island, Puerto Rico*. July.
- CH2M. 2003e. *Site Management Plan FY 2002-2003, Former U.S. Naval Ammunition Support Detachment, Vieques Island, Puerto Rico*. August.
- CH2M. 2004a. *Phase I RCRA Facility Investigation Report, Former Atlantic Weapons Training Facility, Vieques Island, Puerto Rico*. Draft. June.
- CH2M. 2004b. *Closure Plan, Open Burn/Open Detonation Site, Former Atlantic Fleet Weapons Training Facility, Vieques, Puerto Rico*. Draft Final. July.
- CH2M. 2004c. *Remedial Investigation/Feasibility Study Work Plan for AOC I and AOC R at the Former U.S. Naval Ammunition Support Detachment (NASD), Vieques Island, Puerto Rico*. August.
- CH2M. 2004d. *Expanded Range Assessment and Phase I Site Inspection Work Plan for Former Vieques Naval Training Range (VNTR), Vieques Island, Puerto Rico*. November.
- CH2M. 2005a. *Remedial Investigation/Feasibility Study Work Plan for AOC R at the Former U.S. Naval Ammunition Support Detachment (NASD), Vieques Island, Puerto Rico*. January.
- CH2M. 2005b. *Time Critical Removal Action/Interim Measures Work Plan, Surface Munitions of Explosives Concern at Munitions Response Area-Live Impact Area, Munitions Response Sites 1 through 8, 13, 15 through 20, and 29 through 31, Former Vieques Naval Training Range (VNTR), Vieques, Puerto Rico*. March.
- CH2M. 2005c. *Work Plan and Sampling and Analysis Plan, Soil Inorganics Background Investigation, Former Atlantic Fleet Weapons Training Facility, Vieques, Puerto Rico*. March 31.
- CH2M. 2005d. *Groundwater Baseline Investigation at the U.S. Navy's Eastern Maneuver Area, Former Atlantic Fleet Weapons Training Facility, Vieques Island, Puerto Rico*. Draft Final. May.
- CH2M. 2005e. *Phase I RFI Data Summary Report for the 9 SWMUs and 3 AOCs Identified in the RCRA Consent Order, Former Atlantic Fleet Weapons Training Facility, Vieques Island, Puerto Rico*. May.
- CH2M. 2005f. *Remedial Investigation Work Plan for Area of Concern (AOC) R at the Former U.S. Naval Ammunition Support Detachment (NASD), Vieques Island, Puerto Rico*. November.
- CH2M. 2005g. *Supplemental Remedial Investigation Work Plan for Area of Concern (AOC) E, the Former U.S. Naval Ammunition Support Detachment (NASD), Vieques Island, Puerto Rico*. November.
- CH2M. 2005h. *Supplemental Remedial Investigation Work Plan for Area of Concern (AOC) I, the Former U.S. Naval Ammunition Support Detachment (NASD), Vieques Island, Puerto Rico*. November.

CH2M. 2005i. *Engineering Evaluation/Cost Analysis for Area of Concern J and R, and Solid Waste Management Units 6 and 7, Former Naval Ammunition Support Detachment, Vieques Island, Puerto Rico.* Draft Final. December.

- CH2M. 2006a. *Preliminary Assessment/Site Inspection Work Plan for Eight PI/PAOC Sites, Former Vieques Naval Training Range (VNTR), Vieques Island, Puerto Rico.* January.
- CH2M. 2006b. *Work Plan and Sampling and Analysis Plan, Soil Inorganics Background Investigation, Former Vieques Naval Training Range, Vieques, Puerto Rico.* May.
- CH2M. 2006c. *Time Critical Removal Action/Interim Measures Work Plan Amendment, Surface Munitions and Explosives of Concern at Munitions Response Area – Eastern Conservation Area and Munitions Response Area – Live Impact Area: Munitions Response Sites 9 through 12, 14, and 21 through 28, Former Vieques Naval Training Range (VNTR), Vieques, Puerto Rico.* July.
- CH2M. 2006d. *No Further Action Report for Nine Sites, Former U.S. Naval Ammunition Support Detachment, Vieques, Puerto Rico.* October.
- CH2M. 2006e. *Time Critical Removal Action, Former Vieques Naval Training Range Report, Air Monitoring Data Report, January 1, 2006 through March 31, 2006.* October.
- CH2M. 2006f. *Expanded Range Assessment and Phase II Site Inspection Work Plan, Former Vieques Naval Training Range (VNTR), Vieques, Puerto Rico.* November.
- CH2M. 2006g. *Munitions and Explosives of Concern (MEC) Master Work Plan, Former Vieques Naval Training Range (VNTR), Vieques, Puerto Rico.* December.
- CH2M. 2007a. *Environmental Remedial Investigation Work Plan Solid Waste Management Unit (SWMU) 4, Former Naval Ammunition Support Detachment, Vieques Island, Puerto Rico.* January.
- CH2M. 2007b. *Remedial Investigation Report Solid Waste Management Unit (SWMU) 6, Former Naval Ammunition Support Detachment, Vieques Island, Puerto Rico.* February.
- CH2M. 2007c. *Master Quality Assurance Project Plan, Environmental Restoration Program, Vieques, Puerto Rico.* May.
- CH2M. 2007d. *Remedial Investigation Report Area of Concern (AOC) J, Former Naval Ammunition Support Detachment, Vieques, Puerto Rico.* May.
- CH2M. 2007e. *Site Management Plan, Fiscal Years 2007 – 2008, Former Naval Facilities, Vieques, Puerto Rico.* June.
- CH2M. 2007f. *Community Involvement Plan, Former Naval Facilities, Vieques, Puerto Rico.* June.
- CH2M. 2007g. *Remedial Investigation Report Area of Concern (AOC) H, Former Naval Ammunition Support Detachment, Vieques, Puerto Rico.* July.
- CH2M. 2007h. *East Vieques Background Soil Inorganics Investigation Report, Former Vieques Naval Training Range, Vieques, Puerto Rico.* October.
- CH2M. 2008a. *Engineering Evaluation/Cost Analysis for MEC Removal from the Beaches and Roadways of SWMU 4, Former NASD and Munitions Response Areas: Eastern Maneuver Area, Surface Impact Area, Live Impact Area, and Eastern Conservation Area, Former VNTR, Vieques, Puerto Rico.* February.
- CH2M. 2008b. *Remedial Investigation Report Solid Waste Management Area (SWMU) 7, Former Naval Ammunition Support Detachment, Vieques, Puerto Rico.* March.
- CH2M. 2008c. *Addendum 1 to the Environmental Remedial Investigation Work Plan Solid Waste Management Unit (SWMU) 4, Former Naval Ammunition Support Detachment, Vieques, Puerto Rico.* April.

- CH2M. 2008d. *Preliminary Assessment/Site Inspection Report 12 Consent Order Sites and 8 PI/PAOC Sites, Former Vieques Naval Training Range, Vieques, Puerto Rico*. June.
- CH2M. 2008e. *Remedial Investigation Report Area of Concern (AOC) I, Former Naval Ammunition Support Detachment, Vieques, Puerto Rico*. June.
- CH2M. 2008f. *Remedial Investigation Report Area of Concern (AOC) E, Former Naval Ammunition Support Detachment, Vieques, Puerto Rico*. July.
- CH2M. 2008g. *Amendment 1, Expanded Range Assessment and Phase II Site Inspection Work Plan, Former Vieques Naval Training Range, Vieques Puerto Rico*. September.
- CH2M. 2008h. *Pre-Removal Waste Characterization Ecological Risk Assessment for AOCs J and R, SWMUs 6 and 7, U.S. Naval Ammunition Support Detachment, Vieques Island, Puerto Rico*. Draft. October.
- CH2M. 2008i. *Pre-Removal Waste Characterization Human Health Risk Assessment for SWMU 6, U.S. Naval Ammunition Support Detachment, Vieques Island, Puerto Rico*. Draft. October.
- CH2M. 2008j. *Work Plan for Munitions and Explosives of Concern Subsurface Interim Removal Action, Beaches and Select Roadways, Former Vieques Naval Training Range and Former Naval Ammunition Support Detachment, Solid Waste Management Unit 4, Vieques, Puerto Rico*. October.
- CH2M. 2008k. *Engineering Evaluation/Cost Analysis for Surface MEC Removal from the Munitions Response Area-Surface Impact Area, Former VNTR, Vieques, Puerto Rico*. October.
- CH2M. 2008l. *Site Management Plan Fiscal Year 2008-2009, Former Naval Facilities, Vieques, Puerto Rico*. November.
- CH2M. 2008m. *Technical Memorandum: Determination of the Disposition of Excavated Soils at SWMU 6, Former Naval Ammunition Support Detachment, Vieques, Puerto Rico*. Draft. December.
- CH2M. 2009a. *No Action Decision Document for 4 Consent Order Sites and 6 PI/PAOC Sites, Former Vieques Naval Training Range, Vieques, Puerto Rico*. January.
- CH2M. 2009b. *Non-Time Critical Removal Action Work Plan, Surface Munitions and Explosives of Concern at Munitions Response Area-Surface Impact Area, Munitions Response Sites 1 through 7, Former VNTR, Vieques, Puerto Rico*. January.
- CH2M. 2009c. *Site Inspection/Expanded Site Inspection Sampling and Analysis Plan, 7 Consent Order Sites and 16 PI/PAOC Sites, Former Vieques Naval Training Range, Vieques, Puerto Rico*. February.
- CH2M. 2009d. *Action Memorandum, Non-Time Critical Removal Action in the Surface Impact Area, Former Vieques Naval Training Range, Vieques, Puerto Rico*. September.
- CH2M. 2009. *Site Management Plan Fiscal year 2010, Former Naval Facilities, Vieques, Puerto Rico*. October.
- CH2M. 2010a. *In-Situ Remediation Pilot Studies (AOC E and AOC I Sites) Sampling and Analysis Plan, Naval Ammunition Support Detachment, Vieques, Puerto Rico*. February.
- CH2M. 2010b. *Master Standard Operating Procedures, Protocols, and Plans, Environmental Restoration Program, Vieques, Puerto Rico*. April.
- CH2M. 2010c. *Site Inspection/Expanded Site Inspection Report, 7 Consent Order Sites and 16 PI/PAOC Sites, Former Vieques Naval Training Range, Vieques, Puerto Rico*. August.
- CH2M. 2010d. *Expanded Range Assessment Site Inspection Report Former Vieques Naval Training Range, Vieques, Puerto Rico*. September.
- CH2M. 2010e. *No Action/No Further Action Decision Document, 7 Consent Order Sites and 14 PI/PAOC Sites, Former Vieques Naval Training Range, Vieques, Puerto Rico*. September.

- CH2M. 2010f. *Status Report, Time Critical Removal Action, Interim Action for the Removal of Surface Munitions and Explosives of Concern at Munitions Response Areas-Live Impact Area and Eastern Conservation Area, Former Vieques Naval Training Range, Vieques, Puerto Rico.* October.
- CH2M. 2010g. *No Action Decision Document, PI-14 and PAOC FF, Former Vieques Naval Training Range, Vieques, Puerto Rico.* December.
- CH2M. 2010h. *Post-Removal Supplemental Confirmatory Sampling and Analysis Plan Solid Waste Management Unit (SWMU) 6, Former Naval Ammunition Support Detachment, Vieques, Puerto Rico.* December.
- CH2M. 2010i. *Preliminary Assessment/Site Inspection Work Plan for PAOC EE, Former Vieques Naval Training Range, Vieques, Puerto Rico.* December.
- CH2M. 2011a. *Remedial Investigation Sampling and Analysis Plan, Eastern Conservation Area, Former Vieques Naval Training Range, Vieques, Puerto Rico.* January.
- CH2M. 2011b. *Site Management Plan, Fiscal Year 2011, Former Naval Facilities, Vieques, Puerto Rico.* January.
- CH2M. 2011c. *Post-Removal-Action Risk Assessment Report Area of Concern (AOC) J and Solid Waste Management Unit (SWMU) 7, Former Naval Ammunition Support Detachment, Vieques, Puerto Rico.* February.
- CH2M. 2011d. *Remedial Investigation Report Area of Concern (AOC) R, Former Naval Ammunition Support Detachment, Vieques, Puerto Rico.* February.
- CH2M. 2011e. *Status Report Area of Concern I (AOC I) In-Situ Remediation Pilot Study, Former Naval Ammunition Support Detachment (NASD), Vieques, Puerto Rico.* March.
- CH2M. 2011f. *Streamlined Remedial Investigation/Feasibility Study Report, Solid Waste Management Unit 1 (SWMU 1), Former Vieques Naval Training Range, Vieques, Puerto Rico.* April.
- CH2M. 2011g. *Expanded Site Inspection Sampling and Analysis Plan UXO 15, Former Vieques Naval Training Range, Vieques, Puerto Rico.* May.
- CH2M. 2011h. *Methods and Approach for Surveys of Endangered and Threatened Wildlife Plant Species and Important Habitats at PI-9, PI-13, and Debris Piles within UXO 15.* May.
- CH2M. 2011i. *Site Inspection/Expanded Site Inspection Report Addendum PI 7, PAOC Q, and PAOC R, Puerto Rico. Former Vieques Naval Training Range, Vieques, Puerto Rico.* June.
- CH2M. 2011j. *Supplemental Expanded Site Inspection and Pilot Study Sampling and Analysis Plan, Photo-Identified Site 4 (PI 4), Former Vieques Naval Training Range, Vieques, Puerto Rico.* September.
- CH2M. 2011k. *No Action/No Further Action Decision Document PI 7, PAOC Q, and PAOC R, Puerto Rico. Former Vieques Naval Training Range, Vieques, Puerto Rico.* September.
- CH2M. 2011l. *Work Plan for Munitions and Explosives of Concern Subsurface Interim Removal Action, Beaches and Select Roadways, (Sections 5, 6, and Appendix E amended September 2011), Former Vieques Naval Training Range and Former Naval Ammunition Support Detachment, Solid Waste Management Unit 4, Vieques, Puerto Rico.* October.
- CH2M. 2011m. *Engineering Evaluation/Cost Analysis for Surface MEC Removal from the Munitions Response Site-UXO-13 Former Vieques Naval Training Range, Vieques, Puerto Rico.* October.
- CH2M. 2011n. *Site Management Plan, Fiscal Year 2012, Atlantic Fleet Weapons Training Area – Vieques, Vieques, Puerto Rico.* November.

CH2M. 2012a. *Post-Removal Supplemental Confirmatory Sampling and Analysis Plan Addendum Solid Waste Management Unit (SWMU) 6, Former Naval Ammunition Support Detachment (NASD), Vieques, Puerto Rico*. January.

CH2M. 2012b. *Non-time-critical Removal Action Work Plan Munitions Response Site UXO-13, Former Vieques Naval Training Range Vieques, Puerto Rico*, February.

CH2M. 2012c. *Biological Assessment for PI 9, PI 13, and Debris Piles within UXO 15, Former Vieques Naval Training Range, Vieques, Puerto Rico*. March.

- CH2M. 2012d. *Technical Memorandum: PAOC EE PA/SI Results, Former Vieques Naval Training Range, Vieques, Puerto Rico*. March 27.
- CH2M. 2012e. *Remedial Investigation/Feasibility Study Report, Solid Waste Management Unit 4 (SWMU 4), Former Naval Ammunition Support Detachment (NASD), Vieques, Puerto Rico*. May.
- CH2M. 2012f. *Expanded Site Inspection Sampling and Analysis Plan Addendum for the Remedial Investigation at UXO 15, Former Vieques Naval Training Range, Vieques, Puerto Rico*. July.
- CH2M. 2012g. *Remedial Action Implementation, Operations and Maintenance, Land Use Control, and Long-Term Monitoring Work Plan Solid Waste Management Unit 1 (SWMU 1). Former Vieques Naval Training Range, Vieques, Puerto Rico*. July.
- CH2M. 2012h. *Remedial Investigation Report, UXO 1, Eastern Conservation Area (ECA), Former Vieques Naval Training Range, Vieques, Puerto Rico*. July.

CH2M. 2012i. *Status Report, Non-Time Critical Removal Action, Interim Action for the Removal of Sub-Surface Munitions and Explosives of Concern at Solid Waste Management Unit 4 (SWMU 4), Former Naval Ammunition Support Detachment (NASD), Vieques, Puerto Rico*. July.

CH2M. 2012j. *Site Management Plan, Fiscal Year 2013, Atlantic Fleet Weapons Training Area – Vieques, Vieques, Puerto Rico*. September.

- CH2M. 2012k. *Feasibility Study Report, UXO 1, Eastern Conservation Area (ECA), Former Vieques Naval Training Range, Vieques, Puerto Rico*. October.
- CH2M. 2012l. *Focused Feasibility Study Report, Area of Concern (AOC) E, Former Naval Ammunition Support Detachment, Vieques, Puerto Rico*. November.

CH2M. 2013a. *Feasibility Study Report, Solid Waste Management Unit (SWMU) 6, Former Naval Ammunition Support Detachment, Vieques, Puerto Rico*. January.

- CH2M. 2013b. *Master Sampling and Analysis Plan, East Vieques Terrestrial UXO Sites, Former Vieques Naval Training Range, Vieques, Puerto Rico*. January.

CH2M. 2013c. *Addendum 1 – Laboratory Specific Worksheets for Regional Monitoring Well Soil and Groundwater Sampling, Master Sampling and Analysis Plan, East Vieques Terrestrial UXO Sites, Atlantic Fleet Weapons Training Area-Vieques, Former Naval Training Range, Vieques, Puerto Rico*. February.

- CH2M. 2013d. *Site Inspection/Expanded Site Inspection Sampling and Analysis Plan Addendum, Site Inspection for Photo-Identified (PI) Site 21, Atlantic Fleet Weapons Training Area-Vieques, Former Naval Training Range, Vieques, Puerto Rico*. February.

CH2M. 2013e. *Status Report, Non-Time-Critical Removal Action, Subsurface Munitions and Explosives of Concern, UXO 1, Eastern Conservation Area, Atlantic Fleet Weapons Training Area-Vieques, Former Naval Training Range, Vieques, Puerto Rico*. February.

CH2M. 2013f. *Addendum 2 – Laboratory Specific Worksheets for UXOs 4, 9, 10, 12, 14, and 18, Master Sampling and Analysis Plan, East Vieques Terrestrial UXO Sites, Atlantic Fleet Weapons Training Area-Vieques, Former Vieques Naval Training Range, Vieques, Puerto Rico.* April.

- CH2M. 2013g. *Remedial Investigation Sampling and Analysis Plan Solid Waste Management Unit (SWMU) 20, Atlantic Fleet Weapons Training Area-Vieques, Former Vieques Naval Training Range, Vieques, Puerto Rico.* April.
- CH2M. 2013h. *Sampling and Analysis Plan Laguna La Chiva, Site Inspection/Remedial Investigation, Atlantic Fleet Weapons Training Area-Vieques, Former Vieques Naval Training Range, Vieques, Puerto Rico.* April.

CH2M. 2013i. *Biological Avoidance Plan for Terrestrial MEC and MC Investigations and Interim Removal Actions, Atlantic Fleet Weapons Training Center-Atlantic, Vieques, Puerto Rico.* May.

- CH2M. 2013j. *Work Plan for Pre-Design Surface Debris Removal and Landfill Boundary Refinement of SWMU 1, Atlantic Fleet Weapons Training Area-Vieques, Former Naval Training Range, Vieques, Puerto Rico.* September.

CH2M. 2013k. *In-Situ Remediation Pilot Study Report, Area of Concern I (AOC I), Former Atlantic Fleet Weapons Training Area-Vieques, Former Naval Ammunition Support Detachment, Vieques, Puerto Rico.* October.

CH2M. 2013l. *Site Management Plan, Fiscal Year 2014, Atlantic Fleet Weapons Training Area – Vieques, Vieques, Puerto Rico.* November.

CH2M. 2014a. *Biological Assessment for PAOC EE within UXO 17, Atlantic Fleet Weapons Training Area – Vieques, Former Naval Ammunition Support Detachment, Vieques, Puerto Rico.* January.

CH2M. 2014b. *Quality Assurance Project Plan, Beach Dynamics Investigation, Eleven Beaches at the Former Vieques Naval Training Range (VNTR) and the Former Naval Ammunition Support Detachment (NASD), Atlantic Fleet Weapons Training Area – Vieques, Vieques, Puerto Rico.* February.

- CH2M. 2014c. *Engineering Evaluation/Cost Analysis for a Non-Time Critical Removal Action at SWMU 4, Atlantic Fleet Weapons Training Area-Vieques, Former Naval Ammunition Support Detachment. Vieques, Puerto Rico.* March.

CH2M. 2014d. *Engineering Evaluation/Cost Analysis for a Non-Time Critical Removal Action at the Main Access Road and Lighthouse Area UXO 15, Atlantic Fleet Weapons Training Area-Vieques, Former Vieques Naval Training Range, Vieques, Puerto Rico.* March.

- CH2M. 2014e. *Quality Assurance Project Plan Expanded Site Inspection of UXO 16 Adjacent to Solid Waste Management Unit 4, Atlantic Fleet Weapons Training Area-Vieques, Former Naval Ammunition Support Detachment, Vieques, Puerto Rico.* April.

CH2M. 2014f. *Time Critical Removal Action Work Plan for Munitions Response Site UXO 17 Potential Area of Concern (PAOC) EE, Atlantic Fleet Weapons Training Area-Vieques, Former Vieques Naval Training Range, Vieques, Puerto Rico.* April.

- CH2M. 2014g. *Technical Memorandum: Remedial Investigation Status Report and Path Forward, UXO 15, Atlantic Fleet Weapons Training Area-Vieques, Former Vieques Naval Training Range, Vieques, Puerto Rico.* May.

CH2M. 2014h. *Contaminated Sediment Delineation to Support Feasibility Study Alternative Evaluation Sampling and Analysis Plan, Solid Waste Management Unit (SWMU) 6, Atlantic Fleet Weapons Training Area-Vieques, Former Naval Ammunition Support Detachment, Vieques, Puerto Rico.* June.

- CH2M. 2014i. *No Action Decision Document, Photo-Identified (PI) Site 21, Atlantic Fleet Weapons Training Area-Vieques, Former Vieques Naval Training Range, Vieques, Puerto Rico.* June.
- CH2M. 2014j. *Solid Waste Management Unit 4 (SWMU 4) Monitoring Wells and Laguna Boca Quebrada Biota Sampling to Support Feasibility Study Alternative Evaluation Sampling and Analysis Plan, Atlantic Fleet Weapons Training Area-Vieques, Former Naval Ammunition Support Detachment, Vieques, Puerto Rico.* June.
- CH2M. 2014k. *Non-Time Critical Interim Removal Action Work Plan, Main Access Road and Lighthouse Area, UXO 15, Atlantic Fleet Weapons Training Area-Vieques, Former Vieques Naval Training Range, Vieques, Puerto Rico.* June.
- CH2M. 2014l. *Non-Time Critical Interim Removal Action Work Plan, Former Open Burn/Open Detonation Site Solid Waste Management Unit 4 (SWMU 4), Atlantic Fleet Weapons Training Area-Vieques, Former Naval Ammunition Support Detachment, Vieques, Puerto Rico.* June.
- CH2M. 2014m. *Technical Memorandum: Additional Monitoring Wells at SWMU 20.* July.
- CH2M. 2014n. *No Action Decision Document Laguna La Chiva, Atlantic Fleet Weapons Training Area-Vieques, Former Vieques Naval Training Range, Vieques, Puerto Rico.* September.
- CH2M. 2014o. *Engineering Evaluation/Cost Analysis for a Non-Time Critical Removal Action UXO 16 Adjacent to Cayo La Chiva, Atlantic Fleet Weapons Training Area-Vieques, Former Vieques Naval Training Range, Vieques, Puerto Rico.* November.
- CH2M. 2014p. *Site Management Plan, Fiscal Year 2015, Atlantic Fleet Weapons Training Area Vieques Island, Puerto Rico.* December.
- CH2M. 2015a. *Remedial Action Work Plan, Groundwater Monitoring and Institutional Controls with Contingency Plans, Area of Concern E, Atlantic Fleet Weapons Training Area-Vieques, Former Naval Ammunition Support Detachment, Vieques, Puerto Rico.* January.
- CH2M. 2015b. *Technical Memorandum: SWMU 6 Contaminated Sediment Delineation and Ecological Risk Screening, Atlantic Fleet Weapons Training Area-Vieques, Former Naval Ammunition Support Detachment, Vieques, Puerto Rico.* Draft. January.
- CH2M. 2015c. *After Action Report, Non-Time Critical Interim Removal Action, Main Access Road, Lighthouse Area, Trails, and Beaches, UXO 15, Atlantic Fleet Weapons Training Area-Vieques, Former Vieques Naval Training Range, Vieques, Puerto Rico.* February.
- CH2M. 2015d. *UXO 18 Remedial Investigation/Feasibility Study Report, Atlantic Fleet Weapons Training Area-Vieques, Former Vieques Naval Training Range, Vieques, Puerto Rico.* May.
- CH2M. 2015e. *Sampling and Analysis Plan, Addendum 2 for Remedial Investigation at UXO 15, Atlantic Fleet Weapons Training Area-Vieques, Former Vieques Naval Training Range, Vieques, Puerto Rico.* July.
- CH2M. 2015f. *Engineering Evaluation/Cost Analysis for a Non-Time Critical Interim Removal Action, UXO 15 PI 9 East and Adjacent UXO 16 Encrusted Munitions, Atlantic Fleet Weapons Training Area-Vieques, Former Vieques Naval Training Range, Vieques, Puerto Rico.* July.
- CH2M. 2015g. *Summary of Findings: Surface Debris Clearance, Landfill Boundary Refinement, and Supplemental Human Health Risk Assessment to Support the Remedial Action at Solid Waste Management Unit 1, Atlantic Fleet Weapons Training Area-Vieques, Former Vieques Naval Training Range, Vieques, Puerto Rico.* August.
- CH2M. 2015h. *Addendum 3, Master Sampling and Analysis Plan, UXO 13 Remedial Investigation, Atlantic Fleet Weapons Training Area-Vieques, Former Vieques Naval Training Range, Vieques, Puerto Rico.* October.



CH2M. 2015i. *Community Involvement Plan Update, Atlantic Fleet Weapons Training Area-Vieques, Vieques, Puerto Rico.* October.

- CH2M. 2015j. *After Action Report, Time-Critical Removal Action, Potential Area of Concern EE, Atlantic Fleet Weapons Training Area – Vieques, Former Vieques Naval Training Range, Vieques, Puerto Rico.* October.

CH2M. 2015k. *Site Management Plan, Fiscal Year 2016, Atlantic Fleet Weapons Training Area - Vieques, Vieques, Puerto Rico.* November.

- CH2M. 2015l. *After Action Report, Non-Time Critical Interim Removal Action, Southwest Beach, UXO 15, Atlantic Fleet Weapons Training Area - Vieques, Former Vieques Naval Training Range, Vieques, Puerto Rico.* November.
- CH2M. 2015m. *UXO 16 Wide Area Assessment Work Plan, Atlantic Fleet Weapons Training Area-Vieques, Former Naval Ammunition Support Detachment and Former Vieques Naval Training Range, Vieques, Puerto Rico.* December.
- CH2M. 2016a. *Addendum 4, Master Sampling and Analysis Plan, UXOs 3, 5, 6, and 11 Remedial Investigation, Atlantic Fleet Weapons Training Area-Vieques, Former Vieques Naval Training Range, Vieques, Puerto Rico.* January.

CH2M. 2016b. *Remedial Investigation Report Addendum, Solid Waste Management Unit (SWMU) 6, Atlantic Fleet Weapons Training Area - Vieques, Former Naval Ammunition Support Detachment, Vieques, Puerto Rico.* January.

- CH2M. 2016c. *UXO 18 Feasibility Study Addendum, Atlantic Fleet Weapons Training Area - Vieques, Former Vieques Naval Training Range, Vieques, Puerto Rico.* April.
- CH2M. 2016d. *Remedial Investigation Status Report, UXOs 4, 9, 10, 12, and 14, Atlantic Fleet Weapons Training Area - Vieques, Former Vieques Naval Training Range, Vieques, Puerto Rico. Volumes 1 and 2.* May.

CH2M. 2016e. *UXO 16 Adjacent to Solid Waste Management Unit 4 Expanded Site Inspection Report, Atlantic Fleet Weapons Training Area – Vieques, Former Naval Ammunition Support Detachment, Vieques, Puerto Rico.* July.

- CH2M. 2016f. *UXO 16 Adjacent to Solid Waste Management Unit 4, Remedial Investigation Sampling and Analysis Plan, Atlantic Fleet Weapons Training Area - Vieques, Former Naval Ammunition Support Detachment, Vieques, Puerto Rico.* July.
- CH2M. 2016g. *Submunitions Area Removal Action Work Plan for the Time Critical Removal of Munitions within the Live Impact Area at the former Vieques Naval Training Range, Vieques, Puerto Rico.* August.
- CH2M. 2016h. *Solid Waste Management Unit 20 Remedial Investigation Report, Atlantic Fleet Weapons Training Area-Vieques, Former Vieques Naval Training Range, Vieques, Puerto Rico.* August.

CH2M. 2016i. *Air Monitoring Status Report, August 16, 2005 through June 21, 2013, Former Vieques Naval Training Range, Vieques, Puerto Rico.* September.

- CH2M. 2016j. *UXO 16 Adjacent to Cayo La Chiva, Non-Time Critical Removal Action Work Plan, Atlantic Fleet Weapons Training Area - Vieques, Former Vieques Naval Training Range, Vieques, Puerto Rico.* October.

CH2M. 2016k. *Site Management Plan, Fiscal Year 2017, Atlantic Fleet Weapons Training Area - Vieques, Vieques, Puerto Rico.* October.

- CH2M. 2016l. *Revised Operations and Maintenance, Land Use Control, and Long-Term Monitoring Work Plan, Solid Waste Management Unit 1 (SWMU 1), Atlantic Fleet Weapons Training Area-Vieques, Former Vieques Naval Training Range, Vieques, Puerto Rico.* November.

- CH2M. 2016m. *UXO 1, Eastern Conservation Area, Remedial Action, Land Use Control, and Long-Term Monitoring Work Plan, Atlantic Fleet Weapons Training Area - Vieques, Former Vieques Naval Training Range, Vieques, Puerto Rico*. November.
- CH2M. 2016n. *Quality Assurance Project Plan, Advanced Geophysical Classification for Munitions Response Remedial Investigations, Atlantic Fleet Weapons Training Area - Vieques, Former Vieques Naval Training Range and Former Naval Ammunition Support Detachment, Vieques, Puerto Rico*. November.
- CH2M. 2016o. *Solid Waste Management Unit 4 (SWMU 4), Non-Time Critical Removal Action, After Action Report, Atlantic Fleet Weapons Training Area - Vieques, Former Naval Ammunition Support Detachment, Vieques, Puerto Rico*. November.
- CH2M. 2017a. *Solid Waste Management Unit 1, 2016 Annual Status Report, Groundwater Long-Term Monitoring, Atlantic Fleet Weapons Training Area - Vieques, Former Vieques Naval Training Range, Vieques, Puerto Rico*. January.
- CH2M. 2017b. *Solid Waste Management Unit 1, Remedial Action Completion Report, Atlantic Fleet Weapons Training Area – Vieques, Former Vieques Naval Training Range, Vieques, Puerto Rico*. January.
- CH2M. 2017c. *Area of Concern E, Remedial Action Annual Status Report 2016, Atlantic Fleet Weapons Training Area - Vieques, Former Naval Ammunition Support Detachment, Vieques, Puerto Rico*. February.
- CH2M. 2017d. *Master Sampling and Analysis Plan – Addendum 5, UXO 17, Potential Area of Concern EE, Remedial Investigation, Atlantic Fleet Weapons Training Area - Vieques, Former Vieques Naval Training Range, Vieques, Puerto Rico*. April.
- CH2M. 2017e. *Solid Waste Management Unit 4 Feasibility Study Addendum, Atlantic Fleet Weapons Training Area - Vieques, Former Naval Ammunition Support Detachment, Vieques, Puerto Rico*. April.
- CH2M. 2017f. *UXO 16 Nearshore Munitions Engineering Evaluation/Cost Analysis for a Non-Time-Critical Removal Action, Atlantic Fleet Weapons Training Area – Vieques, Former Naval Ammunition Support Detachment and Former Vieques Naval Training Range, Vieques, Puerto Rico*. April.
- CH2M. 2017g. *Work Plan for MEC Verification Evaluation of Playa Caracas/Red Beach and Playuela/Garcia Beach, Atlantic Fleet Weapons Training Area – Vieques, Former Vieques Naval Training Range, Vieques, Puerto Rico*. June.
- CH2M. 2017h. *UXO 4, North Convoy Target Area, Radiological Investigation Work Plan, Atlantic Fleet Weapons Training Area – Vieques, Former Vieques Naval Training Range, Vieques, Puerto Rico*. August.
- CH2M. 2017i. *Air Monitoring associated with Submunitions Area Removal Action Work Plan for the Time-Critical Removal of Munitions within the Live Impact Area Quality Assurance Project Plan, Atlantic Fleet Weapons Training Area – Vieques, Former Vieques Naval Training Range, Vieques, Puerto Rico*. October.
- CH2M. 2017j. *Submunitions Area Removal Action, Semiannual Air Monitoring Report, October 1, 2016 through March 31, 2017, Atlantic Fleet Weapons Training Area – Vieques, Former Vieques Naval Training Range, Vieques, Puerto Rico*. October.
- CH2M. 2017k. *Solid Waste Management Unit 1 2017 Annual Status Report Groundwater Long-Term Monitoring, Atlantic Fleet Weapons Training Area – Vieques, Former Vieques Naval Training Range, Vieques, Puerto Rico*. December.
- CH2M. 2018a. *Submunitions Area Removal Action, Semiannual Air Monitoring Report, April 1, 2017 through September 30, 2017, Atlantic Fleet Weapons Training Area – Vieques, Former Vieques Naval Training Range, Vieques, Puerto Rico*. January.
- CH2M. 2018b. *Technical Memorandum: UXO 13 Remedial Investigation Berm Characterization Path Forward, Former Vieques Naval Training Range, Vieques, Puerto Rico*. February.

- CH2M. 2018c. *Area of Concern E Remedial Action Annual Status Report 2017, Atlantic Fleet Weapons Training Area – Vieques, Former Naval Ammunition Support Detachment, Vieques, Puerto Rico.* March.  
CH2M. 2018d. *Master Standard Operating Procedures, Protocols, and Plans, Revision – 2018, Environmental Restoration Program, Vieques, Puerto Rico.* April.
- CH2M. 2018e. *UXOs 2, 7, and 8 Remedial Investigation Master Sampling and Analysis Plan Addendum 6, Atlantic Fleet Weapons Training Area – Vieques, Former Vieques Naval Training Range, Vieques, Puerto Rico.* April.  
CH2M. 2018f. *Site Management Plan, Fiscal Year 2018, Atlantic Fleet Weapons Training Area - Vieques, Vieques, Puerto Rico.* May.
- CH2M. 2018g. *UXO 16 Adjacent to Cayo La Chiva, Non-Time Critical Removal Action, After Action Report, Atlantic Fleet Weapons Training Area – Vieques, Former Vieques Naval Training Range, Vieques, Puerto Rico.* July.  
CH2M. 2018h. *UXO 16.1 Remedial Investigation Report, Atlantic Fleet Weapons Training Area – Vieques, Former Naval Ammunition Support Detachment, Vieques, Puerto Rico.* July.
- CH2M. 2018i. *Remedial Action Work Plan Addendum, Area of Concern E, Atlantic Fleet Weapons Training Area – Vieques, Former Naval Ammunition Support Detachment, Vieques, Puerto Rico.* July.
- CH2M. 2018j. *UXO 16 Nearshore Munitions Non-Time-Critical Removal Action Work Plan, Atlantic Fleet Weapons Training Area – Vieques, Former Naval Ammunition Support Detachment and Former Vieques Naval Training Range, Vieques, Puerto Rico.* August.
- CH2M. 2018k. *UXOs 12 and 14 Remedial Investigation/Feasibility Study Report, Atlantic Fleet Weapons Training Area – Vieques, Former Vieques Naval Training Range, Vieques, Puerto Rico.* August.
- CH2M. 2018l. *Solid Waste Management Unit 1, 2018 Annual Status Report, Groundwater Long-Term Monitoring, Atlantic Fleet Weapons Training Area – Vieques, Former Vieques Naval Training Range, Vieques, Puerto Rico.* August.
- CH2M. 2018m. *First Five-Year Review Report, Atlantic Fleet Weapons Training Area – Vieques, Vieques, Puerto Rico.* September.
- CH2M. 2018n. *UXO 16 Underwater Wide Area Assessment Report, Atlantic Fleet Weapons Training Area – Vieques, Former Naval Ammunition Support Detachment and Former Vieques Naval Training Range, Vieques, Puerto Rico.* September.  
CH2M. 2018o. *Site Management Plan, Fiscal Year 2019 Amendment, Atlantic Fleet Weapons Training Area - Vieques, Vieques, Puerto Rico.* October.
- CH2M. 2018p. *Beach Dynamics Investigation Report, Atlantic Fleet Weapons Training Area – Vieques, Former Naval Ammunition Support Detachment and Former Vieques Naval Training Range, Vieques, Puerto Rico.* November.
- CH2M. 2019a. *UXO 13 Non-Time-Critical Removal Action, After Action Report, Atlantic Fleet Weapons Training Area – Vieques, Former Vieques Naval Training Range, Vieques, Puerto Rico.* March.
- CH2M. 2019b. *UXO 18, Cayo La Chiva, Remedial Action, Land Use Control, and Long-Term Monitoring Work Plan, Atlantic Fleet Weapons Training Area – Vieques, Former Vieques Naval Training Range, Vieques, Puerto Rico.* April.
- CH2M. 2019c. *UXO 17, Potential Area of Concern EE, Remedial Investigation/Feasibility Study Report, Atlantic Fleet Weapons Training Area – Vieques, Former Vieques Naval Training Range, Vieques, Puerto Rico.* June.

CH2M. 2019d. *Submunitions Area Removal Action, Semiannual Air Monitoring Report, June 1, 2018 through December 31, 2018, Atlantic Fleet Weapons Training Area – Vieques, Former Vieques Naval Training Range, Vieques, Puerto Rico*. July.

- CH2M. 2019e. *UXO 1 Remedial Action Completion Report, Atlantic Fleet Weapons Training Area – Vieques, Former Vieques Naval Training Range, Vieques, Puerto Rico*. August.

CH2M. 2019f. *Area of Concern E, Interim Remedial Action Completion Report, Atlantic Fleet Weapons Training Area – Vieques Former Naval Ammunition Support Detachment, Vieques, Puerto Rico*. September.

- CH2M. 2019g. *Solid Waste Management Unit 1, 2019 Annual Status Report, Groundwater Long-Term Monitoring and Operations and Maintenance, Atlantic Fleet Weapons Training Area – Vieques, Former Vieques Naval Training Range, Vieques, Puerto Rico*. September.
- CH2M. 2019h. *UXO 18 Remedial Action Completion Report, Atlantic Fleet Weapons Training Area – Vieques, Former Vieques Naval Training Range, Vieques, Puerto Rico*. September.
- CH2M. 2019i. *Technical Memorandum: Summary of Findings – 2018 Radiological Investigation at the North Convoy Target Area of UXO 4, Former Vieques Naval Training Range, Vieques, Puerto Rico*. October 11.

CH2M. 2019j. *Site Management Plan, Fiscal Year 2020 Amendment, Atlantic Fleet Weapons Training Area – Vieques, Vieques, Puerto Rico*. October.

CH2M. 2019k. *Submunitions Area Removal Action, Semiannual Air Monitoring Report, January 1, 2019 through June 30, 2019, Atlantic Fleet Weapons Training Area – Vieques, Former Vieques Naval Training Range, Vieques, Puerto Rico*. December.

- CH2M. 2020a. *Preliminary Assessment Report for Per- and Polyfluoroalkyl Substances, Atlantic Fleet Weapons Training Area – Vieques, Former Naval Ammunitions Support Detachment and Former Vieques Naval Training Range, Vieques, Puerto Rico*. April.
- CH2M. 2020b. *UXO 15 Remedial Investigation/Feasibility Study Report, Atlantic Fleet Weapons Training Area – Vieques, Former Vieques Naval Training Range, Vieques, Puerto Rico*. July.

CH2M. 2020c. *Site Management Plan, Fiscal Year 2021 Amendment, Atlantic Fleet Weapons Training Area – Vieques, Vieques, Puerto Rico*. October.

- CH2M. 2020d. *Area of Concern E Remedial Action Annual Status Report 2020, Atlantic Fleet Weapons Training Area – Vieques, Former Naval Ammunition Support Detachment, Vieques, Puerto Rico*. November.
- CH2M. 2020e. *Solid Waste Management Unit 1, 2020 Annual Status Report, Groundwater Long Term Monitoring, Atlantic Fleet Weapons Training Area – Vieques, Former Vieques Naval Training Range, Vieques, Puerto Rico*. November.
- CH2M. 2020f. *UXO 1, Eastern Conservation Area, 2020 Annual Status Report, Land Use Control Monitoring and Maintenance, Atlantic Fleet Weapons Training Area – Vieques, Former Vieques Naval Training Range, Vieques, Puerto Rico*. November.
- CH2M. 2020g. *UXO 17 Public Use Beaches Uniform Federal Policy Quality Assurance Project Plan Munitions Response Time-Critical Removal Action, Atlantic Fleet Weapons Training Area – Vieques, Former Vieques Naval Training Range, Vieques, Puerto Rico*. November.

CH2M. 2020h. *Submunitions Area Removal Action Semiannual Air Monitoring Report, January 1 through June 30, 2020, Atlantic Fleet Weapons Training Area – Vieques, Former Vieques Naval Training Range, Vieques, Puerto Rico*. November.

- CH2M. 2020i. *UXOs 2, 7, and 8 Beaches Remedial Investigation Report, Atlantic Fleet Weapons Training Area – Vieques, Former Vieques Naval Training Range, Vieques, Puerto Rico*. December.

- CH2M. 2020j. *UXOs 3, 5, 6, and 11 Remedial Investigation Report, Atlantic Fleet Weapons Training Area – Vieques, Former Vieques Naval Training Range, Vieques, Puerto Rico.* December.
- CH2M. 2021a. *Submunitions Area Removal Action Semiannual Air Monitoring Report January 1 through June 30, 2021, Atlantic Fleet Weapons Training Area – Vieques, Former Vieques Naval Training Range, Vieques, Puerto Rico.* July.
- CH2M. 2021b. *Solid Waste Management Unit 1 Annual Status Report 2021 Groundwater Long-Term Monitoring and Land Use Control Monitoring and Maintenance, Atlantic Fleet Weapons Training Area – Vieques, Former Vieques Naval Training Range, Vieques, Puerto Rico.* November.
- CH2M. 2021c. *Site Management Plan Fiscal Year 2022 Amendment, Atlantic Fleet Weapons Training Area – Vieques, Vieques, Puerto Rico.* November.
- CH2M. 2021d. *UXO 16.2 Remedial Investigation Quality Assurance Project Plan, Atlantic Fleet Weapons Training Area – Vieques, Former Vieques Naval Training Range, Vieques, Puerto Rico.* November.
- CH2M. 2021e. *Site Inspection Sampling and Analysis Plan for Per- and Polyfluoroalkyl Substances, Atlantic Fleet Weapons Training Area – Vieques, Former Naval Ammunition Support Detachment and Former Vieques Naval Training Range, Vieques, Puerto Rico.* December.
- CH2M. 2022a. *Solid Waste Management Unit 1 After Action Report, Atlantic Fleet Weapons Training Area – Vieques, Former Vieques Naval Training Range, Vieques, Puerto Rico.* February.
- CH2M. 2022b. *UXO 1 Eastern Conservation Area 2021 Annual Status Report Land Use Control Monitoring and Maintenance, Atlantic Fleet Weapons Training Area – Vieques, Former Vieques Naval Training Range, Vieques, Puerto Rico.* February.
- CH2M. 2022c. *UXO 18 Cayo La Chiva 2021 Annual Status Report Land Use Control Monitoring and Maintenance, Atlantic Fleet Weapons Training Area – Vieques, Former Vieques Naval Training Range, Vieques, Puerto Rico.* February.
- CH2M. 2022d. *UXO 16.1 Feasibility Study Report, Atlantic Fleet Weapons Training Area – Vieques, Former Naval Ammunition Support Detachment, Vieques, Puerto Rico.* February.
- CH2M. 2022e. *Area of Concern E Remedial Action Annual Status Report 2021 Groundwater Monitoring, Land Use Control Monitoring and Maintenance, Atlantic Fleet Weapons Training Area – Vieques, Former Naval Ammunition Support Detachment, Vieques, Puerto Rico.* February.
- CH2M. 2022f. *Community Involvement Plan Update, Vieques Environmental Restoration Program, Atlantic Fleet Weapons Training Area – Vieques, Vieques, Puerto Rico.* March.
- CH2M. 2022g. *Solid Waste Management Unit 4 Remedial Action Work Plan for Land Use Control Implementation and Monitoring, Atlantic Fleet Weapons Training Area – Vieques, Former Naval Ammunition Support Detachment, Vieques, Puerto Rico.* March.
- CH2M. 2022h. *UXO 18 Cayo La Chiva 2020 Annual Status Report Land Use Control Monitoring and Maintenance, Atlantic Fleet Weapons Training Area – Vieques, Former Vieques Naval Training Range, Vieques, Puerto Rico.* July.
- Code of Federal Regulations (CFR). 2003. Title 33 - Navigation and Navigable Waters, Chapter I - COAST GUARD DEPARTMENT OF HOMELAND SECURITY, Subchapter I – ANCHORAGES, Part 110 - ANCHORAGE REGULATIONS, Subpart B - Anchorage Grounds, Section 110.245 - Vieques Passage and Vieques Sound, near Vieques Island, P.R. July 1.
- Department of Defense (DOD). 2004. *Sampling and testing of perchlorate at DoD installations. Interim guidance.* February.

- Department of the Interior (DOI). 2007. *Comprehensive Conservation Plan/Environmental Impact Statement for Vieques National Wildlife Refuge, Vieques, Puerto Rico*. August.
  - Department of the Navy (DON). 1999. Atlantic Fleet Weapons Training Facility Log Book of Water Hits From 1989-1999.
- Ensafe Inc., 2002. *Groundwater Monitoring Work Plan, Open Burning/Open Detonations Units for Atlantic Fleet Weapons Training Facility, Vieques Island, Puerto Rico*. Draft Final. February 11.
- Environmental Protection Agency (EPA). 1989. *Risk Assessment Guidance for Superfund, Volume I, Human Health Evaluation Manual*.
- EPA. 2000. *Resource Conservation and Recovery Act (RCRA), Section 3008(h) Order on Consent – Atlantic Fleet Weapons Training Facility (AFWTF), Vieques PR, EPA ID #PRD980536221, Administrative Order on Consent Docket No. RCRA-02-2000-7301*. Region II. January 10.
- EPA Region 2, Department of the Navy, Department of the Interior, and the Commonwealth of Puerto Rico (EPA). 2007. *Federal Facilities Agreement, Under CERCLA Section 120, Administrative Docket Number: FFA-CERCLA-02-2007-2001*. August.
- Environmental Research, Inc. (ERI). 2000. *Aerial Photographic Analysis Atlantic Fleet Weapons Training Facility and Eastern Maneuver Area, Vieques Island, Puerto Rico*. August.
- ERI. 2003. *Addendum Report, Aerial Photographic Analysis Eastern Maneuver Area and Surface Impact Area, Vieques Island, Puerto Rico*. 2<sup>nd</sup> Draft. February.
- Environmental Science and Engineering, Inc. (ESE). 1986a. *Confirmation Study to Determine Possible Dispersion and Migration of Specific Chemicals – U.S. Naval Station, Roosevelt Roads, Puerto Rico, and U.S. Naval Ammunition Facility, Vieques: Evaluation of Data from First and Second Rounds of Verification Sample Collection and Analysis*. May.
- ESE. 1986b. *Supplemental Appendix of Laboratory Data--Evaluation of Data from First Round of Verification Sample Collection and Analysis, Confirmation Study to Determine Possible Dispersion and Migration of Specific Chemicals, U.S. Naval Station Roosevelt Roads, Puerto Rico, and U.S. Naval Ammunition Facility, Vieques*. May.
- ESE. 1988a. *Evaluation of Data from First and Second Rounds of Verification Sample Collection and Analysis, Confirmation Study to Determine Possible Dispersion and Migration of Specific Chemicals, U.S. Naval Station Roosevelt Roads, Puerto Rico, and U.S. Naval Ammunition Facility, Vieques*. April.
- ESE. 1988b. *Supplemental Appendix of Laboratory Data--Evaluation of Data from First and Second Rounds of Verification Sample Collection and Analysis, Confirmation Study to Determine Possible Dispersion and Migration of Specific Chemicals, U.S. Naval Station Roosevelt Roads, Puerto Rico, and U.S. Naval Ammunition Facility, Vieques*. April.
- Federal Register. 2004. National Priorities List for Uncontrolled Hazardous Waste Site, Proposed Rule. Volume 69, No. 156, 50118. August 13.
- Field Support Services, Inc. (FSS), Division of Shaw Environmental & Infrastructure, Inc. 2008. *Work Plan Removal Actions SWMU 6, SWMU 7, AOC J, and AOC R, Former Naval Ammunition Support Detachment, Vieques, Puerto Rico*. February.
- FSS. 2010. *Construction Completion Report, Removal Actions SWMU 6, SWMU 7, AOC J, and AOC R, Former Naval Ammunition Support Detachment, Vieques, Puerto Rico*. March.
- Geo-Marine, Inc. (GMI). 2003. *Integrated Natural Resources Management Plan, Plan Years 2003-2012, Navy Lands on Vieques, Vieques Island, Puerto Rico*. Draft Final.
- GMI. 2006. *Biological Assessment for the LIA*. May.

- Greenleaf/Telesca Planners Engineers Architects, Inc. and Ecology and Environment, Inc. (Greenleaf). 1984. *Initial Assessment Study, Naval Station Roosevelt Roads, Puerto Rico*. September.
  - Lockheed Martin Technology Services. 1999. *Aerial Photographic Analysis, U.S. Navy Atlantic Fleet Weapons Training Facility, Solid Waste Management Units 1 and 10, Areas of Concern F and G, Vieques Island, Puerto Rico*. August.
- Mujica-Cotto, Esteban. "Clarification Regarding the AFWTA NPL Designation." Letter to Ms. Jane Kenny, EPA. October 21.
- National Oceanic and Atmospheric Administration (NOAA). 2010. *An Ecological Characterization of the Marine Resources of Vieques, Puerto Rico Part II: Field Studies of Habitats, Nutrients, Contaminants, Fish, and Benthic Communities*. May.
- Naval Facilities Engineering Command (NAVFAC), Atlantic Division, San Juan Branch Director. 1972. *U.S. Marine Corps, Environmental Impact Statement, Vieques Military Training Complex, Vieques, Puerto Rico*. Draft. February.
- NAVFAC Atlantic. 2000. *Identification of Uncontaminated Property at the Naval Ammunition Support Detachment, Vieques Island, Puerto Rico*. June 23.
- NAVFAC Pacific. 2003a. *Quality Assessment Project Plan (QAPP), Munitions and Explosives of Concern (MEC) Site Characterization, Vieques Island, Puerto Rico*. March 9.
- NAVFAC Atlantic. 2003b. *Preliminary Range Assessment Report, Vieques Naval Training Range, Vieques Island, Puerto Rico*. Final Draft. April.
  - NAVFAC Atlantic. 2003c. *Environmental Baseline Survey, Vieques Naval Training Range, Vieques Island, Puerto Rico*. Draft Final. April 1.
  - NAVFAC Atlantic. 2003d. *Preliminary Munitions and Explosives of Concern (MEC) Investigation Report for Red and Blue Beaches, Vieques Naval Training Range, Vieques Island, Puerto Rico*. July.
- NAVFAC Atlantic. 2003e. *Summary of the No Further Action Report for Nine Sites, Former U.S. Naval Ammunition Support Detachment, Vieques Island, Puerto Rico*. September.
- NAVFAC Atlantic. 2008a. *Proposed Plan Area of Concern H, Former Naval Ammunition Support Detachment, Vieques, Puerto Rico*. January.
- NAVFAC Atlantic. 2008b. *Record of Decision, Area of Concern H, Former Naval Ammunition Support Detachment, Vieques, Puerto Rico*. EPA ID: PRN000204694. September.
- NAVFAC Atlantic. 2009. *Action Memorandum Non-Time-Critical Removal Action from the Beaches and Roads at the Former VNTR and Former NASD SWMU 4, Vieques, Puerto Rico*. 16 September.
- NAVFAC Atlantic. 2011a. *Proposed Plan Areas of Concern J and R and Solid Waste Management Unit 7, Former Naval Ammunition Support Detachment (NASD), Vieques, Puerto Rico*. June.
- NAVFAC Atlantic. 2011b. *Proposed Remedial Action Plan for Solid Waste Management Unit 1, Atlantic Fleet Weapons Training Area – Vieques, Former Vieques Naval Training Range, Vieques Island, Puerto Rico*. July.
- NAVFAC Atlantic. 2011c. *Record of Decision Areas of Concern J and R and Solid Waste Management Unit 7, Former Naval Ammunition Support Detachment (NASD), Vieques, Puerto Rico*. September.
- NAVFAC Atlantic. 2011d. *Record of Decision Solid Waste Management Unit (SWMU) 1, Former Vieques Naval Training Range, Vieques, Puerto Rico*. September.

NAVFAC Atlantic. 2012. *Proposed Remedial Action Plan, Solid Waste Management Unit 4, Atlantic Fleet Weapons Training Area – Vieques, Former Naval Ammunition Support Detachment, Vieques, Puerto Rico*. July.

NAVFAC Atlantic. 2013a. *Action Memorandum for an Emergency Response Munitions Removal Action at the Atlantic Fleet Weapons Training Area, Munitions Response Site UXO 12, Vieques Puerto Rico*. 17 April.

NAVFAC Atlantic. 2013b. *Proposed Remedial Action Plan, Area of Concern I, Atlantic Fleet Weapons Training Area-Vieques, Former Naval Ammunition Support Detachment, Vieques, Puerto Rico*. November.

- NAVFAC Atlantic. 2013c. *Proposed Remedial Action Plan, Area of Concern E, Atlantic Fleet Weapons Training Area-Vieques, Former Naval Ammunition Support Detachment, Vieques, Puerto Rico*. November.

NAVFAC Atlantic. 2014a. *Action Memorandum for a Time-Critical Removal Action, Munitions Response Site UXO 17, Potential Area of Concern EE, Atlantic Fleet Weapons Training Area – Vieques, Former Vieques Naval Training Range, Vieques, Puerto Rico*. 9 May.

- NAVFAC Atlantic. 2014b. *Proposed Remedial Action Plan, UXO 1, Eastern Conservation Area, Atlantic Fleet Weapons Training Area-Vieques, Former Vieques Naval Training Range, Vieques, Puerto Rico*. August.

NAVFAC Atlantic. 2014c. *Record of Decision Area of Concern (AOC) I, Atlantic Fleet Weapons Training Area-Vieques, Former Naval Ammunition Support Detachment, Vieques, Puerto Rico*. September.

- NAVFAC Atlantic. 2015a. *Record of Decision Area of Concern (AOC) E, Atlantic Fleet Weapons Training Area-Vieques, Former Naval Ammunition Support Detachment, Vieques, Puerto Rico*. January.

NAVFAC Atlantic. 2015b. *Action Memorandum for a Non-Time-Critical Removal Action, Solid Waste Management Unit 4, Atlantic Fleet Weapons Training Area – Vieques, Former Naval Ammunition Support Detachment, Vieques, Puerto Rico*. 16 January.

- NAVFAC Atlantic. 2015c. *Record of Decision, UXO 1, Eastern Conservation Area, Atlantic Fleet Weapons Training Area-Vieques, Former Vieques Naval Training Range, Vieques, Puerto Rico*. November.

- NAVFAC Atlantic. 2016a. *Proposed Remedial Action Plan, UXO 18, Cayo La Chiva, Atlantic Fleet Weapons Training Area - Vieques, Former Vieques Naval Training Range, Vieques, Puerto Rico*. July.

NAVFAC Atlantic. 2016b. *Proposed Remedial Action Plan, Solid Waste Management Unit 6, Atlantic Fleet Weapons Training Area - Vieques, Former Vieques Naval Ammunition Support Detachment, Vieques, Puerto Rico*. October.

- NAVFAC Atlantic. 2016c. *Record of Decision Explanation of Significant Differences, Solid Waste Management Unit 1, Vieques, Puerto Rico*. October.

NAVFAC Atlantic. 2017a. *Action Memorandum for a Non-Time-Critical Removal Action, Munitions Response Sites UXO 15 and 16, Atlantic Fleet Weapons Training Area – Vieques, Former Vieques Naval Training Range, Vieques, Puerto Rico*. May.

NAVFAC Atlantic. 2017b. *Action Memorandum for a Non-Time-Critical Removal Action, Munitions Response Site UXO 16 Adjacent to Cayo La Chiva, Atlantic Fleet Weapons Training Area – Vieques, Former Vieques Naval Training Range, Vieques, Puerto Rico*. May.

NAVFAC Atlantic. 2017e. *Action Memorandum for a Non-Time-Critical Removal Action, Munitions Response Site UXO 16 Nearshore Munitions, Atlantic Fleet Weapons Training Area – Vieques, Former Vieques Naval Training Range and Former Naval Ammunition Support Detachment, Vieques, Puerto Rico*. December.

NAVFAC Atlantic. 2018a. *Record of Decision, Solid Waste Management Unit 6, Former Mangrove Disposal Site, Atlantic Fleet Weapons Training Area – Vieques, Former Naval Ammunition Support Detachment, Vieques, Puerto Rico*. July.



NAVFAC Atlantic. 2018b. *Proposed Remedial Action Plan, Solid Waste Management Unit 4, Atlantic Fleet Weapons Training Area – Vieques, Former Naval Ammunition Support Detachment, Vieques, Puerto Rico*. July.

- NAVFAC Atlantic. 2018c. *Record of Decision, UXO 18, Cayo La Chiva, Atlantic Fleet Weapons Training Area – Vieques, Former Vieques Naval Training Range, Vieques, Puerto Rico*. August.
- NAVFAC Atlantic. 2019a. *Proposed Remedial Action Plan, UXOs 12 and UXO 14, Atlantic Fleet Weapons Training Area – Vieques, Former Vieques Naval Training Range, Vieques, Puerto Rico*. March.
- NAVFAC Atlantic. 2019b. *Record of Decision, Solid Waste Management Unit 4, Atlantic Fleet Weapons Training Area – Vieques, Former Naval Ammunition Support Detachment, Vieques, Puerto Rico*. September.
- NAVFAC Atlantic. 2020. *Action Memorandum for a Time-Critical Removal Action, Munitions Response Site UXO 17 Public Use Beaches, Atlantic Fleet Weapons Training Area – Vieques, Former Vieques Naval Training Range, Vieques, Puerto Rico*. December.
- NAVFAC Atlantic. 2021a. *Record of Decision, UXOs 12 and 14, Atlantic Fleet Weapons Training Area – Vieques, Former Vieques Naval Training Range, Vieques, Puerto Rico*. January.
- NAVFAC Atlantic. 2021b. *Proposed Remedial Action Plan UXO 15 Puerto Ferro, Atlantic Fleet Weapons Training Area – Vieques, Former Vieques Naval Training Range, Vieques, Puerto Rico*. July.

NAVFAC Atlantic. 2022. *Proposed Remedial Action Plan, UXO 17 Potential Area of Concern EE, Atlantic Fleet Weapons Training Area – Vieques, Former Vieques Naval Training Range, Vieques, Puerto Rico*. May.

PIKA International, Inc. 2008. *Work Plan for CPC Operations and MEC Support Activities at Former Vieques Naval Training Range (VNTR)*. January.

PRI and USA Environmental, Inc., 2006. *Munitions Removal Action Work Plan, Live Impact Area (LIA) and Eastern Conservation Area (ECA), Former Vieques Naval Training Range, Vieques Island, Puerto Rico*. September 18.

Program Management Company (PMC). 2000. *Environmental Baseline Survey, Naval Ammunition Support Detachment Vieques, Vieques Island, Puerto Rico*. October 17.

- Puerto Rico Environmental Quality Board (PREQB) (Herminio Concepción Vargas). 1995. *Revised RCRA Facility Assessment Report, Atlantic Fleet Weapons Training Facility, Vieques, Puerto Rico*. September.
- Shaw Environmental & Infrastructure, Inc. (Shaw). 2006. *Work Plan Munitions Removal Actions and MEC Support Activities, Munitions Response Sites Located Within the Munitions Removal Area, Former Vieques Naval Training Range, Puerto Rico*. October.
- Sibert, Edwin L. 1993. *Operation Portrex*. September 22.
- Tippetts, Abbett, McCarthy, Stratton and Ecology and Environment, Inc. 1979. *Environmental Impact Statement, Continued Use of the Atlantic Fleet Weapons Training Facility Inner Range (Vieques)*. Draft. December.
- United States Geological Survey (USGS). 1989. *Reconnaissance of the Ground-Water Resources of Vieques Island, Puerto Rico*. By Sigfredo Torres-Gonzalez. Report 86-4100.
- USA Environmental, Inc. (USAE). 2017. *Work Plan for a Non-Time Critical Interim Removal Action, UXO 15 PI-9 East and Adjacent UXO 16 Encrusted Munitions, Former Vieques Naval Training Range, Vieques Island, Puerto Rico*. January.
- USAE. 2019. *After Action Report, Interim Non-Time-Critical Removal Action, UXO 15 PI-9 East, Adjacent UXO 16 Encrusted Munitions, Atlantic Fleet Weapons Training Area – Vieques, Former Vieques Naval Training Range, Vieques Island, Puerto Rico*. June.

Appendix A  
Status of Remedial Investigation/  
Feasibility Study Sites

Appendix A1  
Status of Remedial Investigation/  
Feasibility Study Sites  
Installation Restoration Sites

# Appendix A1

## Status of Remedial Investigation/Feasibility Study Sites, Vieques, Puerto Rico

### Installation Restoration Sites

East Vieques Sites		
<i>Site Designation</i>	<i>Description of Site</i>	<i>Status</i>
Solid Waste Management Unit (SWMU) 1 Camp Garcia Landfill	Camp Garcia Landfill Eastern Maneuver Area (EMA)	<p>SWMU 1 is included in the final Preliminary Assessment (PA)/Site Inspection (SI) Report for 12 Consent Order Sites and 8 Photo-Identified (PI)/Potential Area of Concern (PAOC) Sites submitted in June 2008. The site was recommended for an expanded site inspection (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 Remedial Investigation (RI)/Feasibility Study (FS) which was completed, and the final RI/FS Report was issued in April 2011. The Proposed Remedial Action Plan (PRAP), 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 (ROD) for this site was signed in September 2011. A final Remedial Action Implementation, Operations and Maintenance (O&amp;M), Land Use Control (LUC), and Long-Term Monitoring (LTM) Work Plan was issued in July 2012.</p> <p>Remedial Action implementation was initiated in September 2012 but was halted when more debris was encountered on the surface than was anticipated and material potentially presenting an explosive hazard (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 fieldwork took place between September 2013 through April 2014. The surface clearance was completed with approximately 10,960 pounds (lbs.) of range-related debris (RRD) and 671 lbs. of munitions debris (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 (IRACR) issued in January 2017.</p> <p>An Explanation of Significant Differences (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</p>

East Vieques Sites		
<i>Site Designation</i>	<i>Description of Site</i>	<i>Status</i>
		<p>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&amp;M requirements remain unchanged.</p> <p>Because of the remedy modification outlined in the ROD ESD, a Revised O&amp;M, LUC, and LTM Work Plan was finalized in November 2016. In accordance with the Revised O&amp;M, LUC, LTM Work Plan, post-ROD inspections and LTM sampling were completed in January 2016, January 2017, January 2018, January 2019, January 2020, January 2021, and January 2022. In addition, post-hurricane inspections and associated repairs were conducted following Hurricane Maria in late 2017. Final Annual LTM Status Reports were issued in January 2017, December 2017, August 2018, September 2019, November 2020, and November 2021. The seventh annual LTM Status Report is currently being drafted.</p> <p>Based on historical activities at SWMU 1, the site is part of a per- and polyfluoroalkyl substances (PFAS) site inspection (SI), as described in Appendix B.</p>
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.	<p>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 (SAP) was submitted in September 2011. The Supplemental ESI determined that the extent of trichloroethene (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 RI 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 extending more than 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, the sampling of which completed the nature and extent delineation of the TCE plume, which extends approximately 1,500 feet in the southeastern direction. A final RI Report was submitted in August 2016. The draft FS Report, which evaluates remedial action alternatives for the site, was submitted for regulatory review in January 2017. During subsequent inter-agency discussions, it was concurred upon that additional information would be gathered to support the FS, including sampling six monitoring wells for microbial and geochemical parameters, and performing simulations (modeling) of the various FS alternatives to estimate plume stability/cleanup timeframe. Fieldwork activities took place in August 2018.</p> <p>Based on historical activities at SWMU 20, the site is part of a PFAS SI, as described in Appendix B. Therefore, completion of the FS has been postponed until the PFAS SI is conducted and a determination on the appropriate path forward with consideration of both the chlorinated VOCs and any PFAS contamination found during the SI is made.</p>

### West Vieques Sites

<i>Site Designation</i>	<i>Description of Site</i>	<i>Status</i>
SWMU 6 Mangrove Disposal Site (West Vieques-Department of the Interior [DOI])	Disposal of trash (lubricants, oils, solvents, and paint) ~1965-1980	<p>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 (CCR) 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 FS with post removal Ecological Risk Assessment (ERA) and Human Health Risk Assessment (HHRA) risk assessments was submitted in January 2013. An SAP to further delineate the extent of sediment containing contaminants of concern (COCs) above likely remediation goals in order to refine the alternatives included in the FS 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 issued for public comment in September 2016 and a public meeting was held in November 2016. A No Further Action ROD was completed in July 2018.</p> <p>Based on historical activities at SWMU 6, the site is part of a planned PFAS site study, as described in Appendix B.</p>
SWMU 7 Quebrada Disposal Site (West Vieques-Municipality of Vieques [MOV])	Disposal of trash (lubricants, oils, solvents, and paint) Used between 1960s to late 1970s	<p>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 CCR 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 PRAP issued to the public in July 2011. A No Further Action ROD for this site was signed in September 2011.</p> <p>Based on historical activities at SWMU 7, the site is part of a planned PFAS site study, as described in Appendix B.</p>
Area of Concern (AOC) E Former Waste Oil Underground Storage Tank (UST) at Building 2016 (West Vieques-MOV)	Waste oil UST - contaminated soil found during removal of UST	<p>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 FS 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</p>

### West Vieques Sites

<i>Site Designation</i>	<i>Description of Site</i>	<i>Status</i>
		<p>with contingency plans was finalized in January 2015. The first, second, and third rounds of annual groundwater sampling were completed in March/April 2015, January 2016, and January 2017, respectively, and institutional controls were implemented at the site. The first two rounds of groundwater sampling were documented in Annual Status Reports that were finalized May 2016 and February 2017. The final third round Annual Status Report was submitted in March 2018. Collectively, the annual groundwater sampling data were used 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. In accordance with the ROD, based on the results of the three rounds of groundwater sampling (i.e., concentrations of COCs above remediation goals), additional remedial action was deemed warranted. Therefore, a Remedial Action Work Plan Addendum was completed in July 2018. The supplemental remedial action was implemented in November 2018, a final IRACR was submitted in September 2019, and post-injection groundwater monitoring in accordance with the Remedial Action Work Plan resumed.</p> <p>Groundwater samples were collected in 2019 and 2020 for informational purposes because residual persulfate concentrations had not declined to a level acceptable for COC sampling (2019) or turbidity in one well did not allow an accurate residual persulfate reading (2020), as documented in the 2020 Annual Status Report. However, groundwater sampling for COC analysis was performed in 2021 and 2022, the results of which are documented in 2021 Annual Status Report and draft 2022 Annual Status Report that is currently under regulatory review.</p>
AOC H Abandoned Power Plant (West Vieques-MOV)	Operated 1941-1943; aboveground storage tank (AST); used for fire fighter training ~1960s-1980s	<p>Final RI Report submitted July 2007. PRAP for No Further Action issued for public comment in January 2008. Final No Further Action ROD issued in September 2008.</p> <p>Based on historical activities at AOC H, the site is part of a planned PFAS site study, as described in Appendix B.</p>
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 No Further Action ROD was signed in September 2014.
AOC J Former Operations/Staging Area Disposal Site	Solid and potentially hazardous waste disposal site	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 CCR was

---

**West Vieques Sites**


---

<i>Site Designation</i>	<i>Description of Site</i>	<i>Status</i>
(West Vieques-DOI)	~1965-1973	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 PRAP issued to the public in July 2011. A No Further Action ROD 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 CCR 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 PRAP issued to the public in July 2011. A No Further Action ROD for this site was signed in September 2011.

---



Appendix A2  
Status of Remedial Investigation/  
Feasibility Study Sites  
Munitions Response Sites

## Appendix A2

### Status of Remedial Investigation/Feasibility Study Sites, Vieques, Puerto Rico

#### Munitions Response Sites

##### East Vieques Sites

<i>MRS/Site Designation</i>	<i>Operational Area</i>	<i>Sites Within MRS</i>	<i>Description of Site</i>	<i>Status</i>
UXO 1 Eastern Conservation Area (ECA)	ECA		Adjacent to Live Impact Area (LIA) bombing range. Bombing prohibited since the 1970s.	<p>A time-critical removal action (TCRA) was completed to remove surface munitions from the site. A non-time-critical removal action (NTCRA) was completed in February 2011 which removed subsurface munitions from roads and beaches. A final RI SAP 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 FS was completed in October 2012. United States Fish and Wildlife Service (USFWS) completed the restoration plan for the ECA in March 2014. The PRAP was finalized in July 2014; the preferred alternative in the PRAP was Focused Additional Munitions and Explosives of Concern (MEC) Removal and LUCs. Following the public comment period on the PRAP, a ROD for UXO 1 was signed in November 2015. A Remedial Action Work Plan was finalized in November 2016. Remedial action fieldwork activities took place in August and September 2018 and a final Remedial Action Completion Report (RACR) was submitted in August 2019.</p> <p>The first annual LUC monitoring event at UXO 1 was completed in February 2020 and a final UXO 1 Annual Status Report was submitted in November 2020. After the final Annual Status Report was submitted, regulatory comments were received related to the MEC LTM procedures that are potentially applicable to all sites where MEC LTM is taking place or will take place, including UXO 1. With consideration of input received on the MEC inspection procedures, the 2021 MEC inspection event took place in August 2021 and the associated final Annual Status Report was issued in February 2022.</p>
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	An NTCRA was conducted to remove munitions from UXO 2. 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

---

**East Vieques Sites**


---

<i><b>MRS/Site Designation</b></i>	<i><b>Operational Area</b></i>	<i><b>Sites Within MRS</b></i>	<i><b>Description of Site</b></i>	<i><b>Status</b></i>
			40,000 rounds (10,000 tons) of ATG bombing.	<p>fieldwork was initiated in spring of 2015 and completed at the end of 2016. The beach dynamics investigation was 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. The final Beach Dynamics Report was submitted in November 2018.</p> <p>Due to Hurricane Maria, RI field activities for UXOs 2, 7, and 8 were delayed, but did occur in October and November 2018 and a final RI Report for UXOs 2, 7, and 8 was submitted in December 2020. NTCRA fieldwork continues and is anticipated to be completed in the next few years, after which the FS will be completed, incorporating the additional information gathered during the NTCRA.</p>
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.	<p>An NTCRA was conducted to remove 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 was 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 final TEMTADS QAPP issued in November 2016.</p> <p>The RI for UXOs 3, 5, 6, and 11 began in May 2017 but completion was delayed due to Hurricane Maria; field activities resumed in October and were completed in December 2018. A draft RI/FS Report for UXOs 3, 5, 6, and 11 was submitted for regulatory review in September 2019. After regulatory review, a decision was made to split the RI/FS report into separate reports. The final RI Report was then submitted in December 2020. NTCRA fieldwork continues and is anticipated to be completed in the next few years, after which the FS will be completed, incorporating the additional information gathered during the NTCRA.</p>
UXO 4 LIA Interior	LIA	Open Burn/Open	The LIA was established in 1964; since 1974 over	A TCRA was initiated in July 2005 to remove surface munitions from the site. Due to the high density of very dangerous and sensitive

---

### East Vieques Sites

<i>MRS/Site Designation</i>	<i>Operational Area</i>	<i>Sites Within MRS</i>	<i>Description of Site</i>	<i>Status</i>
		Detonation (OB/OD) Site (SWMU 3)	150,000 rounds and 4,700 tons of naval gunfire; over 40,000 rounds (10,000 tons) of ATG bombing.	<p>submunitions present within the 75-acre submunitions area, a TCRA work plan specific to this area was issued in September 2016. MEC clearance within the submunitions area began in October 2016 and is ongoing.</p> <p>The final Master SAP describing planned RI activities was submitted January 2013. RI field activities were initiated in January 2013 with the collection of soil, surface water, sediment, and groundwater samples. Data gathered during the 2013 RI fieldwork were included in the final RI Status Report that was issued in May 2016.</p> <p>The RI field activities at the North Convoy Target Area were conducted in January and February 2018, with oversight and split-sample collection performed by the Environmental Protection Agency (EPA). A final Technical Memorandum entitled Summary of Findings-2018 Radiological Investigation at the North Convoy Target Area of UXO 4 was submitted in October 2019, the information from which will be included in the RI Report that will be prepared once the submunitions area TCRA and all other field sampling activities are completed.</p>
UXO 5 Surface Impact Area (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.	<p>An NTCRA was conducted to remove 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 was 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 final TEMTADS QAPP issued in November 2016.</p> <p>The RI for UXOs 3, 5, 6, and 11 began in May 2017 but completion was delayed due to Hurricane Maria; field activities resumed in October and were completed in December 2018. A draft RI/FS Report for UXOs 3, 5, 6, and 11 was submitted for regulatory review in September 2019. After regulatory review, a decision was made to split the RI/FS report into separate reports. The final RI Report was then submitted in December 2020. NTCRA fieldwork continues and is anticipated to be completed in</p>

---

**East Vieques Sites**


---

<i><b>MRS/Site Designation</b></i>	<i><b>Operational Area</b></i>	<i><b>Sites Within MRS</b></i>	<i><b>Description of Site</b></i>	<i><b>Status</b></i>
				the next few years, after which the FS will be completed, incorporating the additional information gathered during the NTCRA.
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 was conducted to remove 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 was 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 final TEMTADS QAPP issued in November 2016.  The RI for UXOs 3, 5, 6, and 11 began in May 2017 but completion was delayed due to Hurricane Maria; field activities resumed in October and were completed in December 2018. A draft RI/FS Report for UXOs 3, 5, 6, and 11 was submitted for regulatory review in September 2019. After regulatory review, a decision was made to split the RI/FS report into separate reports. The final RI Report was then submitted in December 2020. NTCRA fieldwork continues and is anticipated to be completed in the next few years, after which the FS will be completed, incorporating the additional information gathered during the NTCRA.
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 was conducted to remove 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 completed at the end of 2016. The beach dynamics investigation was 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. The final Beach Dynamics Report was submitted in November 2018.  Due to Hurricane Maria, RI field activities for UXOs 2, 7, and 8 were delayed, but did occur in October and November 2018 and a final RI Report for UXOs 2, 7, and 8 was submitted in December 2020. NTCRA

---

### East Vieques Sites

<i><b>MRS/Site Designation</b></i>	<i><b>Operational Area</b></i>	<i><b>Sites Within MRS</b></i>	<i><b>Description of Site</b></i>	<i><b>Status</b></i>
				fieldwork continues and is anticipated to be completed in the next few years, after which the FS will be completed, incorporating the additional information gathered during the NTCRA.
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.	<p>An NTCRA was conducted to remove 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 was completed at the end of 2016. The beach dynamics investigation was 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. The final Beach Dynamics Report was submitted in November 2018.</p> <p>Due to Hurricane Maria, RI field activities for UXOs 2, 7, and 8 were delayed, but did occur in October and November 2018 and a final RI Report for UXOs 2, 7, and 8 was submitted in December 2020. NTCRA fieldwork continues and is anticipated to be completed in the next few years, after which the FS will be completed, incorporating the additional information gathered during the NTCRA.</p>
UXO 9 SIA Exterior	SIA	OP-1, OP-5, OP-9, OP-10, OP-11, OP-12, OP-13, PI 1, PI 15, PI 16, PI 17, PI 22, G-21, G-22, G-25, G-34, G-35, G-36, GP-1, GP-5, GP-7, GP-9, Range 10, and Range 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 9 and anticipated to be completed in 2023. 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 were completed in March 2014. UXO 9 has increased in size from 943 acres to 1,721 acres as 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

---

**East Vieques Sites**


---

<i><b>MRS/Site Designation</b></i>	<i><b>Operational Area</b></i>	<i><b>Sites Within MRS</b></i>	<i><b>Description of Site</b></i>	<i><b>Status</b></i>
		PAOC Z, and Bullseye #2		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. Information from the NTCRA will be incorporated into an RI Report prepared during or upon completion of the NTCRA.
UXO 10 SIA Interior	SIA	PAOC Y	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. Information from the NTCRA will be incorporated into an RI Report prepared during or upon completion of the NTCRA.
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.	<p>An NTCRA was conducted to remove munitions from 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 was 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 final TEMTADS QAPP issued in November 2016.</p> <p>The RI for UXOs 3, 5, 6, and 11 began in May 2017 but completion was delayed due to Hurricane Maria; field activities resumed in October and were completed in December 2018. A draft RI/FS Report for UXOs 3, 5, 6, and 11 was submitted for regulatory review in September 2019. After regulatory review, a decision was made to split the RI/FS report into separate reports. The final RI Report was then submitted in December 2020. NTCRA fieldwork continues and is anticipated to be completed in the next few years, after which the FS will be completed, incorporating the additional information gathered during the NTCRA.</p>

---

### East Vieques Sites

<i><b>MRS/Site Designation</b></i>	<i><b>Operational Area</b></i>	<i><b>Sites Within MRS</b></i>	<i><b>Description of Site</b></i>	<i><b>Status</b></i>
UXO 12 EMA Interior	EMA	G-1 through G-6, G-10 through G-20, G-24, G-26, G-28 through G-32, PI 2, PI 3, PI 12, PI 18, PI 19	Marine artillery gun positions were constructed in the EMA since the 1950s to direct artillery fire towards the targets in the SIA.	<p>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. Please see the discussion under UXO 9 regarding the change in the eastern boundary (and therefore size) of UXO 12. A draft RI/FS Report was submitted for regulatory review in November 2016. At the regulator's request, an additional round of groundwater data was subsequently collected and submitted for regulator review in March 2018. The final RI/FS Report was completed in August 2018.</p> <p>The PRAP was issued for public comment and a public meeting held on April 2, 2019. The ROD for UXOs 12 and 14 was finalized in January 2021. Currently a Remedial Action Work Plan is undergoing regulatory review and a final Work Plan is anticipated in Fall 2022.</p>
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 Munitions Response Site (MRS) and used for the firing of small arms, grenades, and rockets. These ranges were deactivated in 1999.	<p>An NTCRA was conducted to remove surface munitions from UXO 13 and an After Action Report was finalized in March 2019. The final Master SAP describing the planned RI activities was submitted January 2013. An RI SAP for UXO 13 was issued in October 2015 and RI fieldwork began in March 2016 and was completed in May 2018.</p> <p>A draft RI/FS Report was submitted for regulatory review in May 2020, but additional NTCRA activities are planned, as well as additional groundwater sampling, the results of which will be incorporated into the RI/FS Report.</p>
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,	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. Please see the discussion under UXO 9 regarding the change in the eastern boundary (and therefore size) of UXO 14. A draft



---

**East Vieques Sites**


---

<i><b>MRS/Site Designation</b></i>	<i><b>Operational Area</b></i>	<i><b>Sites Within MRS</b></i>	<i><b>Description of Site</b></i>	<i><b>Status</b></i>
			service pistols, and 45 caliber machine guns. Demolition charges up to ¼ pound were detonated to simulate combat.	<p>RI/FS Report was submitted for regulatory review in November 2016. At the regulator's request, an additional round of groundwater data was subsequently collected and submitted for regulator review in March 2018. The final RI/FS Report was completed in August 2018.</p> <p>The PRAP was issued for public comment and a public meeting held on April 2, 2019. The ROD for UXOs 12 and 14 was finalized in January 2021. Currently a Remedial Action Work Plan is undergoing regulatory review and a final Work Plan is anticipated in Fall 2022.</p>
UXO 15 Puerto Ferro	EMA	PI 9, PI 13	<p>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.</p> <p>Also, the MRS is described to have ordnance possibly fired from the site toward the LIA/SIA.</p>	<p>A final ESI SAP was submitted in May 2011. However, based on additional information gathered, modifications to the original approach were developed and documented in the final ESI SAP Addendum to guide an RI at the site. RI 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 Addendum 2 that was issued in July 2015. In addition, an Engineering Evaluation/Cost Analysis (EE/CA) and Work Plan for an NTCRA for the road leading to the historic lighthouse, trail, and two beaches were 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 2015. Public access to the area around the historic lighthouse and adjacent beach was opened in March 2015.</p> <p>A final NTCRA Work Plan for the PI 9 East portion of UXO 15 was issued in January 2017 and fieldwork was conducted in 2018 to reduce the explosive hazard associated with encrusted potential MEC; all items were determined to be MD. An After Action Report was finalized in June 2019. Additionally, supplemental RI fieldwork to investigate the berms and further investigate debris piles at UXO 15 was conducted in early 2018.</p>

---

### East Vieques Sites

<i>MRS/Site Designation</i>	<i>Operational Area</i>	<i>Sites Within MRS</i>	<i>Description of Site</i>	<i>Status</i>
				A final RI/FS Report for UXO 15 was submitted in July 2020 followed by a final PRAP in July 2021 which included a Public Meeting on August 4, 2021, and a public comment period from July 23, 2021 through September 23, 2021. A ROD is anticipated to be issued in Fall 2022.
UXO 16 Underwater Areas			UXO 16 comprises approximately 11,500 underwater acres adjacent to the range and munitions-related operational areas of the former NASD and former VNTR. It also includes three former ship anchorage areas and Mosquito Pier, where munitions offloading and transferring took place.	<p>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 was performed 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 to provide a plan for preliminary evaluation of the nature and extent of the underwater MEC. The Wide Area Assessment began in March 2016 and fieldwork was completed in May 2017. The final Wide Area Assessment Report was submitted in September 2018.</p> <p>A QAPP for an ESI of the underwater area adjacent to SWMU 4 (designated UXO 16.1) was finalized in April 2014. ESI 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 a final RI Report was submitted in July 2018. Based on the RI Report findings, the final UXO 16.1 FS Report was submitted in February 2022. The draft UXO 16.1 PRAP was submitted for regulatory review in April 2022. The public comment period on the PRAP is anticipated in Fall 2022.</p> <p>An EE/CA for an NTCRA of underwater munitions adjacent to Cayo La Chiva (UXO 18) was finalized in November 2014. Based on the EE/CA, an NTCRA work plan was completed in October 2016. The NTCRA fieldwork was conducted in June 2017 and a final After Action Report was completed in July 2018.</p> <p>The offshore area adjacent to PI 9 East at UXO 15 is part of the NTCRA described under UXO 15. The underwater area contained several</p>

---

**East Vieques Sites**


---

<i><b>MRS/Site Designation</b></i>	<i><b>Operational Area</b></i>	<i><b>Sites Within MRS</b></i>	<i><b>Description of Site</b></i>	<i><b>Status</b></i>
				<p>encrusted MD, whose removal is described in the final After Action Report issued in June 2019.</p> <p>An EE/CA was prepared for removal of nearshore (i.e., within approximately 100 meters of the shoreline) munitions around the perimeter of the former VNTR and Mosquito Pier. The EE/CA was issued for public comment in May 2017. Following evaluation of public comments submitted during the EE/CA public comment period, an NTCRA Work Plan was finalized in August 2018. Fieldwork started in April 2019 and will continue for several years.</p> <p>Within UXO 16, there is a focus area referred to as UXO 16.2 (approximately 600 acres) that is the underwater area to be addressed to support public use of the 29 beaches that are currently open or potentially will be open to the public in the future. A final UXO 16.2 Remedial Investigation Quality Assurance Project Plan (QAPP) that defines the approach to conduct the RI was submitted in November 2021. UXO 16.2 RI fieldwork is currently ongoing and anticipated to be completed in 2023.</p>
UXO 17	EMA	Red Beach and PAOC EE, including Blue Beach	Public beaches on southern shore of EMA where former training operations took place. PAOC EE also includes areas adjacent to Blue Beach where temporary munitions storage may have taken place as well as other bivouac activities.	<p>An ESI was completed in December 2011 that identified two MEC along Punta Conejo. In June 2013, a follow-up evaluation of the Blue Beach area identified one discarded military munition (DMM) (rocket fuze) at the far eastern end of Blue Beach, adjacent to Punta Conejo, and seven MPPEH and two DMM in the area immediately to the north of Blue Beach. 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 four locations with unexploded ordnance (UXO) (grenades, flares-pyrotechnics), three locations with other MEC (grenades), and four locations with DMM (60-millimeter [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 related to military training activities were identified. An After Action Report was finalized in November 2015. Based on the aforementioned findings, an RI was conducted at the site, as described</p>

---

### East Vieques Sites

<i>MRS/Site Designation</i>	<i>Operational Area</i>	<i>Sites Within MRS</i>	<i>Description of Site</i>	<i>Status</i>
				<p>in the Master SAP for the East Vieques Terrestrial UXO Sites finalized in January 2013 and the Master SAP Addendum 5 finalized in April 2017 which describes the details for the UXO 17 PAOC EE RI. RI Fieldwork was conducted in December 2017 and the final RI/FS Report was issued in June 2019.</p> <p>Based on historical information gathered during investigations and removal actions conducted at PAOC EE and nearby Red Beach/Garcia Beach the PAOC EE PRAP was issued for public comment from May 25, 2022 through June 24, 2022 and a public meeting held on June 1, 2022. A ROD for PAOC EE is anticipated to be issued in 2023.</p> <p>An MEC verification evaluation was conducted at Red Beach and Garcia Beach from April to June 2019 in accordance with the MEC Verification Evaluation Work Plan. The MEC verification evaluation included the sandy portions of both beaches and the public parking area at Red Beach. The QAPP described the use of AGC to discriminate among subsurface geophysical anomalies identified during the detection phase between targets of interest (that is, potential munitions) and munitions-related and non-munitions-related metallic items. However, not all anomalies were intrusively investigated at Red Beach prior to encountering an 81-mm mortar, which resulted in cessation of the MEC verification evaluation and initiation of the TCRA QAPP. The final TCRA QAPP was issued in November 2020 followed by an Action Memorandum issued in December 2020. The TCRA fieldwork at Red Beach and Garcia Beach began in January 2021 and was completed in July 2021. A draft TCRA Completion report is being prepared and anticipated to be submitted in August 2022. Based on the results of the TCRA performed at Red Beach and Garcia Beach, it is anticipated an RI will be performed at Red Beach, but that no further investigation or action will be necessary at Garcia Beach.</p>
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	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

---

**East Vieques Sites**


---

<i><b>MRS/Site Designation</b></i>	<i><b>Operational Area</b></i>	<i><b>Sites Within MRS</b></i>	<i><b>Description of Site</b></i>	<i><b>Status</b></i>
			items. Historical records did not identify this site as a munitions operations site.	<p>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 issued for public comment and a public meeting was held in 2016. A final ROD was then issued in August 2018. A final Remedial Action, LUC, and LTM Work Plan was submitted in April 2019. Remedial Action fieldwork was completed in August 2019 and a final RACR was submitted in September 2019. Following 2019 implementation of the remedial action, two annual LUC/MEC monitoring events were conducted in September 2020 and August 2021, the results of which are summarized in Annual Status Reports issued in October 2020 and February 2022. Based on comments received on the second Annual Status Report, MEC/LUC monitoring frequency has been temporarily increased to every other month for 2022 to help determine an optimal frequency based on any public access/use observed during the monitoring events.</p> <p>Additionally, due to PRDNER's decision to not open portions of public use areas on UXO 18 (i.e., the trail through the island and the southern overlook/picnic area), all trail markers along the trail were removed, the educational kiosk was updated to remove the trail and southern overlook picnic area from the map, and downed vegetation was placed across the trail access at the northern entrance of the trail in such a way as to obscure the trail access point/entrance.</p>

---

---

**West Vieques Sites**


---

<i><b>MRS/Site Designation</b></i>	<i><b>Operational Area</b></i>	<i><b>Sites Within MRS</b></i>	<i><b>Description of Site</b></i>	<i><b>Status</b></i>
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.	<p>The NTCRA to clear MEC from the roads and beaches was completed in 2011. An RI/FS was completed in May 2012 to characterize the nature and extent of MEC and MC contamination, assess human health and ecological risks, and evaluate potential remedial alternatives. 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 were considered and were documented in an FS 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 were completed in October 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 FS Addendum, which included a modified HHRA, and was finalized in April 2017. Based on this, a final PRAP for remedial action was completed in July 2018 and public meeting held in August 2018. A ROD for SWMU 4 was signed and finalized in September 2019.</p> <p>The Remedial Action Work Plan, including a QAPP, was issued in March 2022 and remedy implementation is anticipated to be completed in 2022.</p>

---

## Appendix B

### Site Screening Areas

Appendix B1  
Site Screening Areas  
Installation Restoration Sites



## Appendix B1

### Site Screening Areas, Vieques, Puerto Rico

#### Installation Restoration Sites

#### East Vieques

<i>Site Designation</i>	<i>Description of Site</i>	<i>Status</i>
Solid Waste Management Unit (SWMU) 2	Former fuels off-loading site. Was the location of four aboveground storage tanks (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.	Based on historical data and data collected during the Phase I Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI), SWMU 2 was recommended for an Expanded Site Inspection (ESI) in the final Preliminary Assessment (PA)/Site Inspection (SI) Report for 12 Consent Order Sites and 8 Photo Identified (PI)/Potential Area of Concern (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: <ul style="list-style-type: none"> <li>Spent battery accumulation area</li> <li>Catch basin for hydraulic oil</li> <li>Cleaning/degreasing basin</li> <li>Rags, absorbent, and grease storage area</li> </ul>	Based on historical data and data collected during the Phase I RFI, SWMU 4 was recommended for No Further Action, 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.	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 RCRA Facility Assessment (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.	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		
<i>Site Designation</i>	<i>Description of Site</i>	<i>Status</i>
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.	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 Naval Station Roosevelt Roads (NSRR).	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.	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.  Based on historical activities at SWMU 10, the site is part of a per- and polyfluoroalkyl substances (PFAS) SI, as described at the end of this section.
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.	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.
Area of Concern (AOC) A	Former diesel fuel fill pipe area (OP-1). According to the 1988 RFA, this area contained the fill pipe for a diesel underground storage tank (UST) formerly located at OP-1.	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.

## East Vieques

<i>Site Designation</i>	<i>Description of Site</i>	<i>Status</i>
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.	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.
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.	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.  Based on historical activities at AOC G, the site is part of a PFAS SI, as described at the end of this section.
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.	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.	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.	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		
<i>Site Designation</i>	<i>Description of Site</i>	<i>Status</i>
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.	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.	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.	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.	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

<i>Site Designation</i>	<i>Description of Site</i>	<i>Status</i>
PAOC Q/R	<p>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.</p> <p>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.</p>	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.	Based on data collected during the SI, PAOC S was recommended for No Further Action, 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.	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.	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 polychlorinated biphenyl (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

<i>Site Designation</i>	<i>Description of Site</i>	<i>Status</i>
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.	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.	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.	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.  Based on historical activities at PI 5, the site is part of a PFAS SI, as described at the end of this section.
PI 6	Former ASTs and facilities associated with the former location of the site drinking water system. The following facilities were observed: <ul style="list-style-type: none"> <li>• several intact ASTs and one storage tank without ends</li> <li>• a concrete building containing electric pumps</li> <li>• a small vehicle wash pad and water well pump house</li> <li>• a ground transformer near the wash pad</li> <li>• a concrete pad potentially used to store PCB-containing transformers</li> </ul>	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 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.	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

## East Vieques

<i>Site Designation</i>	<i>Description of Site</i>	<i>Status</i>
		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.	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.	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 saltwater 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.	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.	Based on historical information and a site visit, the site was included in the final No Action Decision Document issued in January 2009.
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 2000 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.

East Vieques		
<i>Site Designation</i>	<i>Description of Site</i>	<i>Status</i>
Laguna La Chiva	In October 2007, the National Oceanic and Atmospheric Administration (NOAA) collected three sediment samples from Laguna La Chiva as part of an island-wide sediment evaluation. Pesticide concentrations (primarily dichlorodiphenyltrichloroethane [DDT], dichlorodiphenyldichloroethylene [DDE], and dichlorodiphenyldichloroethane [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 Environmental Protection Agency (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. 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.
Potential PFAS Sites	<p>In 2019, a PA for potential PFAS source areas was performed for former Navy facilities at Vieques. Based on the results of the PA, the following former VNTR sites were identified as potential PFAS source areas:</p> <ul style="list-style-type: none"> <li>• Potential Former Motor Pool Area (including Building 340) and Former Fire Department Building 330</li> <li>• PAOC K</li> <li>• SWMU 20</li> <li>• Camp Garcia Runway</li> <li>• PI 5</li> <li>• SWMU 10 and AOC G</li> <li>• SWMU 1</li> </ul> <p>A description of each of these sites with respect to their potential to be PFAS source areas is provided in the final <i>Preliminary Assessment Report for Per- and Polyfluoroalkyl Substances</i>.</p>	The PA recommended these sites undergo an SI to confirm the presence or absence of a PFAS release(s). Should PFAS release(s) be confirmed, the Navy and regulatory agencies will discuss the need for further investigation of those sites as well as whether any additional sites/areas evaluated during the PA should be considered as a potential PFAS sources and characterized accordingly. The PFAS SI is currently underway in accordance with the SI SAP issued in December 2021.



## West Vieques

<i>Site Designation</i>	<i>Description of Site</i>	<i>Status</i>
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.	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, the Puerto Rico Environmental Quality Board (PREQB) concurred with the No Further Action 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.	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.	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.	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.	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.  Based on historical activities at AOC B, the site is part of a PFAS SI, as described at the end of this section.
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.	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 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.	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		
<i>Site Designation</i>	<i>Description of Site</i>	<i>Status</i>
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 United States Geological Survey (USGS).	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.	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.
Potential PFAS Sites	<p>In 2019, a PA for potential PFAS source areas was performed for former Navy facilities at Vieques. Based on the results of the PA, the following former Naval Ammunition Support Detachment (NASD) sites were identified as potential PFAS source areas:</p> <ul style="list-style-type: none"> <li>• AOC H</li> <li>• Former Fire Station Building 2046 at the Public Works Area</li> <li>• Potential Former Motor Pool Area</li> <li>• AOC B</li> <li>• SWMU 6</li> <li>• SWMU 7</li> </ul> <p>A description of each of these sites with respect to their potential to be PFAS source areas is provided in the final <i>Preliminary Assessment Report for Per- and Polyfluoroalkyl Substances</i>.</p>	The PA recommended these sites undergo an SI to confirm the presence or absence of a PFAS release(s). Should PFAS release(s) be confirmed, the Navy and regulatory agencies will discuss the need for further investigation of those sites as well as whether any additional sites/areas evaluated during the PA should be considered as a potential PFAS sources and characterized accordingly. The PFAS SI is currently underway in accordance with the SI SAP issued in December 2021.

Appendix B2  
Site Screening Areas  
Munitions Response Sites

## Appendix B2

### Site Screening Areas, Vieques, Puerto Rico

### Munitions Response Sites

<i>MRS/ Site Designation</i>	<i>Operational Area</i>	<i>Sites Within MRS</i>	<i>Description of Site</i>	<i>Status</i>
East Vieques UXO 17	Eastern Maneuver Area (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 munitions and explosives of concern (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

<b>Site</b>		<b>Alias</b>
UXO 1		Eastern Conservation Area
<b>EHE Module</b>	<b>Score</b>	<b>Comment</b>
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
<b>Total Score</b>	89	
<b>Table 10 - EHE Rating</b>	B	
<b>CHE Module</b>	<b>Score</b>	<b>Comment</b>
<b>Total Score</b>	N/A	No known or suspected chemical warfare material
<b>Table 20 - CHE Rating</b>	N/A	
<b>HHE Module</b>	<b>Rating</b>	<b>Comment</b>
<b>Table 28 - HHE, Hazard Rating</b>	N/A	No known or suspected HHE hazard
<b>Table 29 - MRS Priority</b>	<b>Priority</b>	
<b>EHE Module Rating</b>	3	
<b>CHE Module Rating</b>	N/A	No known or suspected chemical warfare material hazard
<b>HHE Module Rating</b>	N/A	No known or suspected MC hazard

## APPENDIX C

### DoD Site Prioritization Protocol Scoring

<b>Site</b>		<b>Alias</b>
UXO 2		LIA Beaches
<b>EHE Module</b>	<b>Score</b>	<b>Comment</b>
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
<b>Total Score</b>	94	
<b>Table 10 - EHE Rating</b>	A	
<b>CHE Module</b>	<b>Score</b>	<b>Comment</b>
<b>Total Score</b>	N/A	No known or suspected chemical warfare material
<b>Table 20 - CHE Rating</b>	N/A	
<b>Table 21 - HHE, Hazard Rating</b>	N/A	No known or suspected HHE hazard
<b>Table 29 - MRS Priority</b>	<b>Priority</b>	
<b>EHE Module Rating</b>	2	
<b>CHE Module Rating</b>	N/A	No known or suspected chemical warfare material
<b>HHE Module Rating</b>	N/A	

## APPENDIX C

### DoD Site Prioritization Protocol Scoring

<b>Site</b>		<b>Alias</b>
UXO 3		LIA Roads
<b>EHE Module</b>	<b>Score</b>	<b>Comment</b>
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	
<b>Total Score</b>	94	
<b>Table 10 - EHE Rating</b>	A	
<b>CHE Module</b>	<b>Score</b>	<b>Comment</b>
<b>Total Score</b>	N/A	No known or suspected chemical warfare material
<b>Table 20 - CHE Rating</b>	N/A	
<b>Table 21 - HHE, Hazard Rating</b>	N/A	No known or suspected HHE hazard
<b>Table 29 - MRS Priority</b>	<b>Priority</b>	
<b>EHE Module Rating</b>	2	
<b>CHE Module Rating</b>	N/A	No known or suspected chemical warfare material
<b>HHE Module Rating</b>	N/A	



## APPENDIX C

### DoD Site Prioritization Protocol Scoring

<b>Site</b>		<b>Alias</b>
UXO 4		LIA Interior
<b>EHE Module</b>	<b>Score</b>	<b>Comment</b>
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	
<b>Total Score</b>	96	
<b>Table 10 - EHE Rating</b>	A	
<b>CHE Module</b>	<b>Score</b>	<b>Comment</b>
<b>Total Score</b>	N/A	No known or suspected chemical warfare material
<b>Table 20 - CHE Rating</b>	N/A	
<b>Table 21 - HHE, Hazard Rating</b>	F	
<b>Table 29 - MRS Priority</b>	<b>Priority</b>	
<b>EHE Module Rating</b>	2	
<b>CHE Module Rating</b>	N/A	No known or suspected chemical warfare material
<b>HHE Module Rating</b>	7	

## APPENDIX C

### DoD Site Prioritization Protocol Scoring

<b>Site</b>		<b>Alias</b>
UXO 5		SIA Restricted Roads
<b>EHE Module</b>	<b>Score</b>	<b>Comment</b>
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	
<b>Total Score</b>	94	
<b>Table 10 - EHE Rating</b>	A	
<b>CHE Module</b>	<b>Score</b>	<b>Comment</b>
<b>Total Score</b>	N/A	No known or suspected chemical warfare material
<b>Table 20 - CHE Rating</b>	N/A	
<b>Table 21 - HHE, Hazard Rating</b>	N/A	No known or suspected HHE hazard
<b>Table 29 - MRS Priority</b>	<b>Priority</b>	
<b>EHE Module Rating</b>	2	
<b>CHE Module Rating</b>	N/A	No known or suspected chemical warfare material
<b>HHE Module Rating</b>	N/A	

## APPENDIX C

### DoD Site Prioritization Protocol Scoring

<b>Site</b>		<b>Alias</b>
UXO 6		EMA/SIA Public Roads
<b>EHE Module</b>	<b>Score</b>	<b>Comment</b>
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	
<b>Total Score</b>	96	
<b>Table 10 - EHE Rating</b>	A	
<b>CHE Module</b>	<b>Score</b>	<b>Comment</b>
<b>Total Score</b>	N/A	No known or suspected chemical warfare material
<b>Table 20 - CHE Rating</b>	N/A	
<b>Table 21 - HHE, Hazard Rating</b>	N/A	No known or suspected HHE hazard
<b>Table 29 - MRS Priority</b>	<b>Priority</b>	
<b>EHE Module Rating</b>	2	
<b>CHE Module Rating</b>	N/A	No known or suspected chemical warfare material
<b>HHE Module Rating</b>	N/A	

## APPENDIX C

### DoD Site Prioritization Protocol Scoring

<b>Site</b>		<b>Alias</b>
UXO 7		EMA/SIA North Beaches
<b>EHE Module</b>	<b>Score</b>	<b>Comment</b>
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
<b>Total Score</b>	96	
<b>Table 10 - EHE Rating</b>	A	
<b>CHE Module</b>	<b>Score</b>	<b>Comment</b>
<b>Total Score</b>	N/A	No known or suspected chemical warfare material
<b>Table 20 - CHE Rating</b>	N/A	
<b>Table 21 - HHE, Hazard Rating</b>	N/A	No known or suspected HHE hazard
<b>Table 29 - MRS Priority</b>	<b>Priority</b>	
<b>EHE Module Rating</b>	2	
<b>CHE Module Rating</b>	N/A	No known or suspected chemical warfare material
<b>HHE Module Rating</b>	N/A	

## APPENDIX C

### DoD Site Prioritization Protocol Scoring

<b>Site</b>		<b>Alias</b>
UXO 8		SIA South Beaches
<b>EHE Module</b>	<b>Score</b>	<b>Comment</b>
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
<b>Total Score</b>	94	
<b>Table 10 - EHE Rating</b>	A	
<b>CHE Module</b>	<b>Score</b>	<b>Comment</b>
<b>Total Score</b>	N/A	No known or suspected chemical warfare material
<b>Table 20 - CHE Rating</b>	N/A	
<b>Table 21 - HHE, Hazard Rating</b>	N/A	No known or suspected HHE hazard
<b>Table 29 - MRS Priority</b>	<b>Priority</b>	
<b>EHE Module Rating</b>	2	
<b>CHE Module Rating</b>	N/A	No known or suspected chemical warfare material
<b>HHE Module Rating</b>	N/A	

## APPENDIX C

### DoD Site Prioritization Protocol Scoring

<b>Site</b>		<b>Alias</b>
UXO 9		SIA Exterior
<b>EHE Module</b>	<b>Score</b>	<b>Comment</b>
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	
<b>Total Score</b>	96	
<b>Table 10 - EHE Rating</b>	A	
<b>CHE Module</b>	<b>Score</b>	<b>Comment</b>
<b>Total Score</b>	N/A	No known or suspected chemical warfare material
<b>Table 20 - CHE Rating</b>	N/A	
<b>Table 21 - HHE, Hazard Rating</b>	F	
<b>Table 29 - MRS Priority</b>	<b>Priority</b>	
<b>EHE Module Rating</b>	2	
<b>CHE Module Rating</b>	N/A	No known or suspected chemical warfare material
<b>HHE Module Rating</b>	7	

## APPENDIX C

### DoD Site Prioritization Protocol Scoring

<b>Site</b>		<b>Alias</b>
UXO 10		SIA Interior
<b>EHE Module</b>	<b>Score</b>	<b>Comment</b>
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	
<b>Total Score</b>	94	
<b>Table 10 - EHE Rating</b>	A	
<b>CHE Module</b>	<b>Score</b>	<b>Comment</b>
<b>Total Score</b>	N/A	No known or suspected chemical warfare material
<b>Table 20 - CHE Rating</b>	N/A	
<b>Table 21 - HHE, Hazard Rating</b>	F	
<b>Table 29 - MRS Priority</b>	<b>Priority</b>	
<b>EHE Module Rating</b>	2	
<b>CHE Module Rating</b>	N/A	No known or suspected chemical warfare material
<b>HHE Module Rating</b>	7	

## APPENDIX C

### DoD Site Prioritization Protocol Scoring

<b>Site</b>		<b>Alias</b>
UXO 11		EMA Public Roads
<b>EHE Module</b>	<b>Score</b>	<b>Comment</b>
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	
<b>Total Score</b>	96	
<b>Table 10 - EHE Rating</b>	A	
<b>CHE Module</b>	<b>Score</b>	<b>Comment</b>
<b>Total Score</b>	N/A	No known or suspected chemical warfare material
<b>Table 20 - CHE Rating</b>	N/A	
<b>Table 21 - HHE, Hazard Rating</b>	N/A	No known or suspected HHE hazard
<b>Table 29 - MRS Priority</b>	<b>Priority</b>	
<b>EHE Module Rating</b>	2	
<b>CHE Module Rating</b>	N/A	No known or suspected chemical warfare material
<b>HHE Module Rating</b>	N/A	



## APPENDIX C

### DoD Site Prioritization Protocol Scoring

<b>Site</b>		<b>Alias</b>
UXO 12		EMA Interior
<b>EHE Module</b>	<b>Score</b>	<b>Comment</b>
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	
<b>Total Score</b>	96	
<b>Table 10 - EHE Rating</b>	A	
<b>CHE Module</b>	<b>Score</b>	<b>Comment</b>
<b>Total Score</b>	N/A	No known or suspected chemical warfare material
<b>Table 20 - CHE Rating</b>	N/A	
<b>HHE Module</b>	<b>Score</b>	<b>Comment</b>
<b>Table 28 - HHE, Hazard Rating</b>	N/A	No known or suspected HHE hazard
<b>Table 29 - MRS Priority</b>	<b>Priority</b>	
<b>EHE Module Rating</b>	2	
<b>CHE Module Rating</b>	N/A	No known or suspected chemical warfare material
<b>HHE Module Rating</b>	N/A	No known or suspected MC hazard

## APPENDIX C

### DoD Site Prioritization Protocol Scoring

<b>Site</b>		<b>Alias</b>
UXO 13		EMA West
<b>EHE Module</b>	<b>Score</b>	<b>Comment</b>
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	
<b>Total Score</b>	96	
<b>Table 10 - EHE Rating</b>	A	
<b>CHE Module</b>	<b>Score</b>	<b>Comment</b>
<b>Total Score</b>	N/A	No known or suspected chemical warfare material
<b>Table 20 - CHE Rating</b>	N/A	
<b>Table 21 - HHE, Hazard Rating</b>	F	
<b>Table 29 - MRS Priority</b>	<b>Priority</b>	
<b>EHE Module Rating</b>	2	
<b>CHE Module Rating</b>	N/A	No known or suspected chemical warfare material
<b>HHE Module Rating</b>	7	

## APPENDIX C

### DoD Site Prioritization Protocol Scoring

<b>Site</b>		<b>Alias</b>
UXO 14		EMA South
<b>EHE Module</b>	<b>Score</b>	<b>Comment</b>
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	
<b>Total Score</b>	96	
<b>Table 10 - EHE Rating</b>	A	
<b>CHE Module</b>	<b>Score</b>	<b>Comment</b>
<b>Total Score</b>	N/A	No known or suspected chemical warfare material
<b>Table 20 - CHE Rating</b>	N/A	
<b>HHE Module</b>	<b>Score</b>	<b>Comment</b>
<b>Table 28 - HHE, Hazard Rating</b>	N/A	No known or suspected HHE hazard
<b>Table 29 - MRS Priority</b>	<b>Priority</b>	
<b>EHE Module Rating</b>	2	
<b>CHE Module Rating</b>	N/A	No known or suspected chemical warfare material
<b>HHE Module Rating</b>	N/A	No known or suspected MC hazard

## APPENDIX C

### DoD Site Prioritization Protocol Scoring

<b>Site</b>		<b>Alias</b>
UXO 15		Puerto Ferro
<b>EHE Module</b>	<b>Score</b>	<b>Comment</b>
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
<b>Total Score</b>	91	
<b>Table 10 - EHE Rating</b>	B	
<b>CHE Module</b>	<b>Score</b>	<b>Comment</b>
<b>Total Score</b>	N/A	No known or suspected chemical warfare material
<b>Table 20 - CHE Rating</b>	N/A	
<b>Table 21 - HHE, Hazard Rating</b>	N/A	No known or suspected HHE hazard
<b>Table 29 - MRS Priority</b>	<b>Priority</b>	
<b>EHE Module Rating</b>	3	
<b>CHE Module Rating</b>	N/A	No known or suspected chemical warfare material
<b>HHE Module Rating</b>	N/A	No known or suspected MC hazard

## APPENDIX C

### DoD Site Prioritization Protocol Scoring

<b>Site</b>		<b>Alias</b>
UXO 16		Underwater Areas
<b>EHE Module</b>	<b>Score</b>	<b>Comment</b>
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	
<b>Total Score</b>	96	
<b>Table 10 - EHE Rating</b>	A	
<b>CHE Module</b>	<b>Score</b>	<b>Comment</b>
<b>Total Score</b>	N/A	No known or suspected chemical warfare material
<b>Table 20 - CHE Rating</b>	N/A	
<b>Table 21 - HHE, Hazard Rating</b>	D	Risks are considered "potential" for all sites at this point due to lack of environmental data. A rating of "medium" has been used.
<b>Table 29 - MRS Priority</b>	<b>Priority</b>	
<b>EHE Module Rating</b>	2	
<b>CHE Module Rating</b>	N/A	No known or suspected chemical warfare material
<b>HHE Module Rating</b>	5	

## APPENDIX C

### DoD Site Prioritization Protocol Scoring

<b>Site</b>		<b>Alias</b>
UXO 17		Camp Garcia; Common Site Name (Other Sites)
<b>EHE Module</b>	<b>Score</b>	<b>Comment</b>
Table 1 - EHE, Munitions Type Data Element	25	81mm mortar identified in subsurface during SI
Table 2 - EHE, Source of Hazard Data Element	5	
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	
<b>Total Score</b>	88	
<b>Table 10 - EHE Rating</b>	B	
<b>CHE Module</b>	<b>Score</b>	<b>Comment</b>
<b>Total Score</b>	N/A	No known or suspected chemical warfare material
<b>Table 20 - CHE Rating</b>	N/A	
<b>Table 21 - HHE, Hazard Rating</b>	F	Pending MC evaluation
<b>Table 29 - MRS Priority</b>	<b>Priority</b>	
<b>EHE Module Rating</b>	3	
<b>CHE Module Rating</b>	N/A	No known or suspected chemical warfare material
<b>HHE Module Rating</b>	7	

## APPENDIX C

### DoD Site Prioritization Protocol Scoring

<b>Site</b>		<b>Alias</b>
UXO 18 Cayo la Chiva		EMA Interior
<b>EHE Module</b>	<b>Score</b>	<b>Comment</b>
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	
<b>Total Score</b>	96	
<b>Table 10 - EHE Rating</b>	A	
<b>CHE Module</b>	<b>Score</b>	<b>Comment</b>
<b>Total Score</b>	N/A	No known or suspected chemical warfare material
<b>Table 20 - CHE Rating</b>	N/A	
<b>HHE Module</b>	<b>Score</b>	<b>Comment</b>
<b>Table 28 - HHE, Hazard Rating</b>	N/A	No known or suspected HHE hazard
<b>Table 29 - MRS Priority</b>	<b>Priority</b>	
<b>EHE Module Rating</b>	2	
<b>CHE Module Rating</b>	N/A	No known or suspected chemical warfare material hazard
<b>HHE Module Rating</b>	N/A	No known or suspected MC hazard

## APPENDIX C

### DoD Site Prioritization Protocol Scoring

<b>Site</b>		<b>Alias</b>
SWMU 4		West Vieques OB/OD Site
<b>EHE Module</b>	<b>Score</b>	<b>Comment</b>
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	
<b>Total Score</b>	94	
<b>Table 10 - EHE Rating</b>	A	
<b>CHE Module</b>	<b>Score</b>	<b>Comment</b>
<b>Total Score</b>	N/A	No known or suspected chemical warfare material
<b>Table 20 - CHE Rating</b>	N/A	
<b>HHE Module</b>	<b>Score</b>	<b>Comment</b>
<b>Table 28 - HHE, Hazard Rating</b>	F	No known or suspected HHE hazard
<b>Table 29 - MRS Priority</b>	<b>Priority</b>	
<b>EHE Module Rating</b>	2	
<b>CHE Module Rating</b>	N/A	No known or suspected chemical warfare material hazard
<b>HHE Module Rating</b>	7	Remedy addressing perchlorate in groundwater



## Appendix D

# Responses to Regulator Comments

# Responses to Regulator Comments

---

## Responses to PRDNER Technical Evaluation Site Management Plan FY-2023 Vieques, Puerto Rico

### General Comments:

1. Section 2.1.3.18 and Appendix A2, UXO 18, Please include the actions taken to close the trail to the tourist tree and overlook/picnic area.

**Navy Response:** The following text will be added after the last sentence of the first paragraph in Section 2.1.3.18:

“Additionally, due to PRDNER’s decision to not open portions of public use areas on UXO 18 (i.e., the trail through the island and the southern overlook/picnic area), all trail markers along the trail were removed, the educational kiosk was updated to remove the trail and southern overlook picnic area from the map, and downed vegetation was placed across the trail access at the northern entrance of the trail in such a way as to obscure the trail access point/entrance.”

2. Section 3.6, Five-Year Reviews: The last paragraph states the next five-year review is planned for September 2023. Please clarify if this is accurate as five-year reviews for site’s in Vieques are occurring in August 2022.

**Navy Response:** The text in the third paragraph in Section 3.6 will be updated as follows for additional clarify:

“The five-year review site visit of AOC E, SWMU 1, UXO 1, and UXO 18 occurred in August 2022 to support the next five year review report planned for August 2023.”

3. Table 3-1: PFAS Sites: The sites shown in Column B do not appear consistent with the sites listed in Section 2.3. Please clarify and revise the table as appropriate.

**Navy Response:** PAOC K has been removed from Section 2.3.